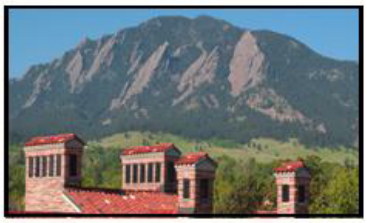
IBS
POPULATION PROGRAM ■
INSTITUTE OF BEHAVIORAL SCIENCE ■
UNIVERSITY OF COLORADO BOULDER ■



WORKING PAPER

Swimming and Gendered Vulnerabilities: Evidence from the Northern and Central Philippines

Lori M. Hunter
Joan Castro
Danika Kleiber
Kendra Hutchens

February 2014

Population Program POP2014-02

Swimming and Gendered Vulnerabilities:

Evidence from the Northern and Central Philippines

Lori M. Hunter
University of Colorado Boulder

Joan Castro
PATH Foundation Philippines

Danika Kleiber
University of British Columbia

Kendra Hutchens
University of Colorado Boulder

Preliminary draft

Do not cite

Submitted for consideration as a Research Brief, *Society and Natural Resources*

2377 words (including main text, references, 2 tables)

Acknowledgments

Corresponding author: Lori.Hunter@colorado.edu. This project received funding and administrative support from the University of Colorado Population Center (NICHD R21 HD051146). We thank Nancy D. Mann for her careful editing and helpful suggestions. Dr. Amanda Vincent and Howie Severino were instrumental in creating this project's concept and we acknowledge Leona D'Agnes' support and sage inputs in the survey implementation process.

Swimming and Gendered Vulnerabilities:

Evidence from the Northern and Central Philippines

Abstract: Men and women are differentially vulnerable to natural disasters. This gendered vulnerability is often related, in part, to cultural norms regarding behaviors and abilities. In recent Bangladesh and Indonesian tsunamis, for example, gendered distinctions in swimming abilities resulted in far greater female mortality rates. We present results on swimming ability by gender for 941 residents of a vulnerable rural community in the northern and central Philippines. We also examine cross-generational transmission of swimming abilities to shed light on future vulnerability. Results reveal men are far more likely than women to swim and, importantly, mothers who can swim are more likely to have children who can swim. In this way, gendered distinctions among today's adults may perpetuate gendered vulnerabilities within future generations. (121 words)

Keywords:

climate change, drowning, gender, natural disasters, swimming, Philippines, vulnerability

2377 words, submitted as Research Brief.

Introduction

Drowning is the third leading cause of unintentional death worldwide and the geography of drowning illustrates disproportionate burden -- 96% of drowning deaths occur in low- and middle-income countries (World Health Organization 2012). Natural disasters such as typhoons and floods increase drowning risk, particularly in low-income places with population concentrations in flood plains or coastal zones and limited public health infrastructure (Haines et al. 2006). Global climate change and the anticipated increase in extreme weather events may only exacerbate drowning as a public health concern.

Vulnerability and response within extreme weather events -- natural disasters -- are gendered (Hunter and David 2011), often partly because of cultural norms for behaviors such as swimming. For example, in the recent Bangladesh and Indonesian tsunamis the far greater female mortality rates were related to cultural norms making it less likely that young girls learn how to swim (Demetriades and Esplen 2008).

This brief examines swimming ability by gender for 941 residents of rural communities in the northern and central regions of the Philippines. We also examine cross-generational transmission of swimming ability in order to better understand future vulnerability. Sadly, after this study was done, Typhoon Haiyan devastated the Philippines in November 2013, resulting in over 6,000 deaths, tragically demonstrating the island nation's intense vulnerability to weather extremes.

Background

In low-income settings children, particularly young males have been found to be more likely to be victims of unintentional drowning, in a variety of cultural contexts. Most deaths occur relatively

close to home and reflect risks within regular daily routines (e.g., Fang et al. 2007; Kiakalayeh et al. 2008). By contrast natural disasters lower the life expectancy of women more than that of men—predominantly because of the everyday lower socioeconomic status of women in many low-income cultural contexts (Neumayer and Plumper 2007).

With a focus on cyclones and tidal surges in Bangladesh over two decades, Alam and Collins (2010) argue that women's greater risk of drowning is in part because cultural norms for women to have long hair and wear saris that hinder swimming. The social expectation that women look after children and the elderly may also restrict women's self-rescue efforts (Schowoebel and Menon 2004). And finally, social prejudice against women's learning to swim can drastically reduce their survival chances in flooding (Cannon 2000). For example, in the devastating December 2004 tsunami in South and Southeast Asia women died at higher rates than men in all adult age groups (Frankenberg et al. 2011). This was attributed to the fact that in these regions it is predominantly boys and men who learn and practice tree-climbing and swimming (Oxfam International 2005).

Yet, there is still little empirical documentation of gender distinctions in swimming ability and hence gender differences in vulnerabilities to water related accidents and natural disasters. Also not examined is the cross-generational transmission of swimming knowledge and ability, another potentially important component of vulnerability in that mothers who swim may be more likely to have children who swim—and children who can't swim are more vulnerable to drowning (Das and Dey 2011; Few 2007; Rahman et al. 2008).

Mothers have been found to be key to child safety. In Bangladesh focus groups, for example, maternal vigilance was noted as a pathway to reduce drowning mortality—and, as Hyder and colleagues (2003) remark, this finding can be seen as both "welcoming and disturbing—welcoming since this opens an avenue for potential interventions but disturbing as it may appear to reflect potential blame being

attached to the mother." Accordingly, this brief examines who teaches children to swim with a focus on the intergenerational transmission of swimming as related to mothers' ability.

Data and Methods

The study setting consists of 29 coastal municipalities located in two bioregions in Southern Luzon and the Visayas area, the Verde Island Passage, and Danajon Bank. Data were collected as part of a project on integrating population health and coastal resource management approaches (Population-Health-Environment, PHE). The project aims to increase resilience in rural coastal communities with high population growth combined with increasing exploitation and degradation of coastal ecosystems which provide critical food and livelihood resources.

The respondents were community volunteers and participants in the series of PHE community-based peer education training sessions conducted by PATH Foundation Philippines. A diverse range of occupational backgrounds and experiences were represented. Participants were, for example, village health workers, nutrition scholars, fish wardens and local governmental officials. Others were owners of small family convenient stores, operators of community drug outlets, cooperatives, and members of fisher folk organizations. Although not representative of coastal municipalities residents in general, swimming levels reported by these engaged and active citizens may overestimate swimming as compared to the population as a whole.

Before the training sessions' start, participants were given a questionnaire that included questions on swimming. The survey instrument was developed to shed light upon, advocate, and develop life-skills education and training, including swimming. We present both descriptive patterns and bivariate percentages reflecting gender distinctions in swimming ability, cross-generational learning, and drowning vulnerability.[i]

Results

There is substantial gender variation in swimming ability with 87% of men reporting swimming skills but only 51% of women – and swimmers tend to be younger (in their 30s) compared to non-swimmers (in their 40s; Table 1). It might be assumed that women would tend to be less vulnerable to drowning given male domination of the offshore fishing industry. Yet, the Philippines is a sea-faring nation, and both women and men express high levels of boating (6 and 8 times in the past month respectively). Unfortunately, nearly 40% of women who noted boating experience in the past month don't swim, as compared to 13% of men.

(Table 1 about here, descriptive statistics)

With regard to the respondents' children, the percentage of boys who can swim (76%) was higher than that of girls (62%), although, among swimmers, boys and girls learned at a similar age -- about 8 years (Table 1). In households with both boys and girls, most often both genders could swim (58%) but in 20% of households, boys could swim while girls could not. The reverse was true in only 5% of households.

A key question is intergenerational transmission of swimming knowledge and, as anticipated, mothers who can swim are much more likely to have children who can swim. As demonstrated in Figure 1a, the children of mothers with swimming ability are more likely to have swimming skills themselves, although boys are more likely than girls to be able to swim regardless of mother's ability.

Within the family, fathers appear primarily responsible for teaching children to swim, with approximately 40% of swimming children learning from their fathers. In fact, daughters learned swimming from their mothers only 11% of the time, and sons only six percent. A large proportion of

respondents noted “others” taught their children to swim – including extended relatives, friends, and/or organizations offering swimming lessons (Figure 1b). On formal learning opportunities, most mothers do not know of any local organizations that offer swimming lessons (only 5%) although mothers who knew of such local organizations were much more likely to have children, and especially girls who swim. This suggests that formal swimming lessons might be especially important for daughters.

In all, our results suggest mothers may be important advocates for their children when it comes to learning swimming since mothers who can swim are more likely to have sons and daughters that can swim. This is the case even though mothers are not necessarily the individuals teaching their children to swim.

Conclusion

Empirical data documenting gender differences in swimming ability are rare, although studies have revealed gendered differences in drowning both in everyday life and in the context of natural disasters. In addition, little is known about cross-generational transmission of swimming ability. This brief begins to fill these two voids.

We find less swimming ability among adult women as compared to men in the study regions of the Northern and Central Philippines. However, mothers who can swim are more likely to have children that can swim. In this way, gendered distinctions in swimming ability among today's adults may perpetuate gendered vulnerabilities within future generations. Better understanding of these associations is important for advocacy efforts aimed to enhance swimming skills, particularly in settings vulnerable to weather extremes such as the rural Philippines.

References

Alam, E., & Collins, A. E. (2010). Cyclone disaster vulnerability and response experiences in coastal Bangladesh. *Disasters*, *34*(4), 931-954.

Cannon, T. (2002). Gender and climate hazards in Bangladesh. *Gender & Development*, *10*(2), 45-50.

Das, P., & Dey, N. B. (2011). Socio-economic Vulnerability in a Flood Affected Village of Barak Valley, Assam, India. *Asia Pacific Journal of Social Sciences*,*3*(2), 110-123.

Demetriades, J., & Esplen, E. (2008). The gender dimensions of poverty and climate change adaptation. *IDS Bulletin*, *39*(4), 24-31.

Fang, Y., Dai, L., Jaung, M. S., Chen, X., Yu, S., & Xiang, H. (2007). Child drowning deaths in Xiamen city and suburbs, People's Republic of China, 2001–5. *Injury Prevention*, *13*(5), 339-343.

Few, R. (2007). Health and climatic hazards: framing social research on vulnerability, response and adaptation. *Global Environmental Change*, *17*(2), 281-295.

Frankenberg, E., Gillespie, T., Preston, S., Sikoki, B., & Thomas, D. (2011). Mortality, The Family and The Indian Ocean Tsunami. *The Economic Journal*,*121*(554), F162-F182.

Haines, A., Kovats, R. S., Campbell-Lendrum, D., & Corvalán, C. (2006). Climate change and human health: impacts, vulnerability and public health.*Public health*, *120*(7), 585-596.

Hunter, L. M., & David, E. (2011). Climate change and migration: considering gender dimensions. *Climate Change and Migration*, 306-30

Hyder, A. A., Arifeen, S., Begum, N., Fishman, S., Wali, S., & Baqui, A. H. (2003). Death from drowning: defining a new challenge for child survival in Bangladesh. *Injury control and safety promotion*, *10*(4), 205-210.

Linnan, M., Scarr, J., & Giersing, M. (2013). Toward a World Where Children Do Not Drown. *JAMA Pediatrics*,*167*(2), 110-111.

Kiakalayeh, A. D., Mohammadi, R., Ekman, D. S., Chabok, S. Y., & Janson, B. (2008). Unintentional drowning in northern Iran: A population-based study.*Accident Analysis & Prevention, 40*(6), 1977-1981.

Neumayer, E., & Plümper, T. (2007). The gendered nature of natural disasters: The impact of catastrophic events on the gender gap in life expectancy, 1981–2002. *Annals of the Association of American Geographers, 97*(3), 551-566.

Oxfam. (2005). The Tsunami's impact on women. Briefing Note (March 2005).

Rahman, A., Shafinaz, S., Linnan, M., & Rahman, F. (2008). Community perception of childhood drowning and its prevention measures in rural Bangladesh: A qualitative study. *Australian Journal of Rural Health, 16*(3), 176-180.

Schwoebel, M. H., & Menon, G. (2004). Mainstreaming gender in disaster management support project. *Washington, DC: Center for Development and Population Activities.*

World Health Organization. (2012). Drowning Fact Sheet No 347. October. http://www.who.int/mediacentre/factsheets/fs347/en/

Table 1: Descriptive Statistics

	% or Mean	Total N
Know how to swim? (% yes)		
Women: know how to swim?	51.2	774
Men: know how to swim?	86.5	141
If have daughters, do girls know how to swim? (% yes)	62.4	724
Girls learned at what age?	8.3	388
If have sons, do boys know how to swim? (% yes)	76.1	542
Boys learned at what age?	8.5	454
Any drowning deaths in family? (% yes)	11.6	696
Know of organization offering swimming lessons? (% yes)	5	437
How often ride in a boat last month?	6.2	168
Did boat have life-saving equipment? (% yes)	50.1	168
Number of Children		
Number of Girls	1.6	940
Number of Boys	1.8	940
Respondent Age		
15-24 years	2.6	24
25-30 years	8.8	83
31-35 years	13.2	122
36-40 years	16	148
41-45 years	15.2	140
46-50 years	15.6	144
51-55 years	13.2	122
56 years+	15.3	141

Figure 1a.
Boys and Girls Swimming Ability, by Mother's Swimming Ability

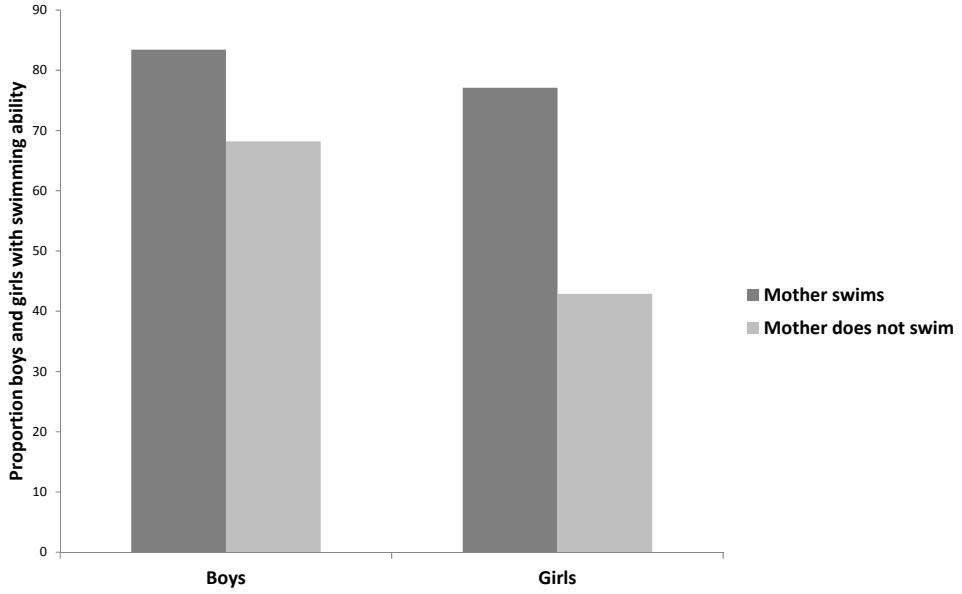
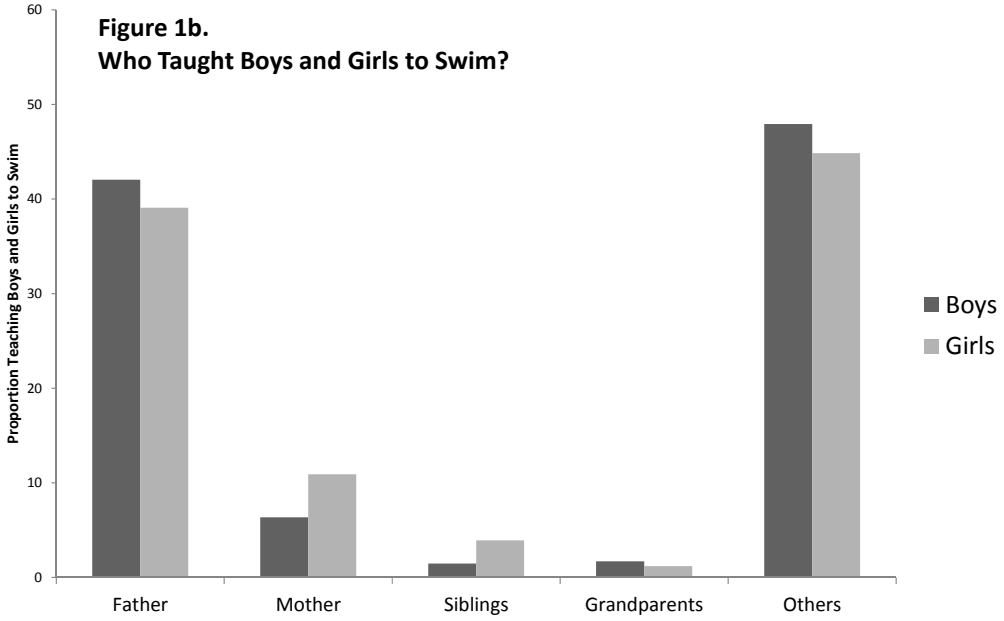


Figure 1b.
Who Taught Boys and Girls to Swim?



Endnotes

[i] Given the non-random sample, we do not undertake statistical tests.