



Does Grameen Bank Membership Change Secondhand Smoke Exposure Among Women of Reproductive Age in Bangladesh?

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Introduction

Secondhand smoke (SHS) exposure, defined as exposure to tobacco smoke, is a health threat to people of all ages. SHS exposure has been linked with lung disease, and can cause developmental issues in fetuses as a result of in-utero exposure (CDC, 2017).

In Bangladesh, smoking and in-home smoke exposure combined are the leading cause of death (Nargis, 2015). In Bangladesh, over 45% of households experience SHS exposure (Mitra et al., 2011). Women of low socioeconomic status and of low education are more likely to be exposed to secondhand smoke than women belonging to higher socioeconomic classes with higher education levels (Fischer, 2015).

Objectives

This research aims to assess whether membership in the Grameen bank is associated with secondhand smoke exposure. The target population are women of reproductive age because women, in Bangladesh, often spend a lot of time in the home and don’t smoke themselves. In addition, a majority of women are exposed to cooking fumes from solid fuels as well. In addition, over 97% of Grameen bank members in Bangladesh are women (“About Us”, 2019). A multinomial logistic regression was performed to determine if there is a association between Grameen Bank membership and SHS exposure , ceterus paribus. This information will help microfinance institutions assess whether or not to have a tobacco education policy for members, and if such policy is already in place, whether it is effective.



Methods and Materials

Data was obtained from the 2011 Bangladesh Demographic Health Survey (DHS). The Bangladesh DHS (BDHS) is a two-stage stratified nationally representative survey of the population. 17,811 women between the ages of 12 and 49 interviewed on basic health information, wealth, occupation, and belief/attitudes were included in this study (Table 1). A weighted model was made using a multinomial logistic regression in STATA 14.0 to assess the association between Grameen Bank Membership and SHS exposure.

Results: Tables

	N (%)
Mean age (SD, range)	30.75
Place of Residence	
Urban	6,196 (26.01)
Rural	11,646 (57.78)
Region	
Barisal	2,065 (5.651)
Chittagong	2,863 (18.13)
Dhaka	3,082 (32.35)
Khulna	2,648 (12.02)
Rajshahi	2,605 (14.91)
Rangpur	2,467 (11.5)
Sylhet	2,081 (5.438)
Marital Status	
Married	17,000 (93.72)
Widowed	643(3.47)
Divorced	215 (1.216)
No Longer Living Together/Separated	279 (1.6)
Grameen Bank Member	
No	15,000 (86.73)
Yes	2,343 (13.27)
Wealth Index	
Poorest	3,092 (18.33)
Poorer	3,341 (19.67)
Middle	3,425(20.11)
Richer	3,764(20.6)
Richest	4,189(21.30)
Highest Level of Education	
No Education	4,629 (27.68)
Primary	5,324 (30.03)
Secondary	6,393 (34.96)
Higher	1,465 (7.336)
In-home Smoke Exposure	
No	8,626 (46.5)
Yes	9185 (53.5)
Respondent worked in the last Twelve months	
No	15,000 (85.03)
In the past year	318 (318)
Currently Working	2,315 (2,315)
Have a Job, but on Leave Last 7 days	54 (0.29)

Table 1: Weighted Demographic Information among Women of Reproductive Age, Bangladesh, 2011

Multivariable logistic regression	In-Home Smoke Exposure
VARIABLES	Odds Ratio (OR)
Grameen Bank Member	1.31***
Age	(0.071) 0.99***
Residence (ref group urban: rural)	(0.002) 1.17*
Region (ref group: Barisal)	(0.074) Chittagong 2.23***
Dhaka	(0.231) 2.54***
Khulna	(0.267) 2.12***
Rajshahi	(0.235) 2.05***
Rangpur	(0.216) 2.21***
Sylhet	(0.251) 2.92***
Marital Status (ref group: Married)	(0.311) Widowed 0.20***
Divorced	(0.023) 0.52***
No longer living together/separated	(0.084) 0.53***
Wealth Quintile (ref group: Poorest)	(0.083) Poorer 0.94
Middle	(0.061) 0.76***
Richer	(0.048) 0.66***
Richest	(0.048) 0.47***
Education (Ref group: no education)	(0.041) Primary 0.77***
Secondary	(0.039) 0.56***
Higher	(0.033) 0.33***
Worked	(0.030) Worked in the past year 1.13
Currently working	(0.152) 1.04
Worked have a job but on leave the past 7 days	(0.058) 0.70
Observations	(0.251) Constant 1.27
	(0.154) 17,811

Standard Error in parentheses
*** p<0.001, ** p<0.01, * p<0.05
Reference category: no exposure; weighted results

Table 2: Odds Ratios (OR) of Secondhand Smoke Exposure, Bangladesh 2011

Results

The results suggest that women who belong to a Grameen Bank were more likely to be exposed to secondhand smoke than women who were not Grameen Bank members (Table 3). Belonging to Grameen Bank relative to not belonging to the Grameen Bank increases the odds of exposure to no exposure by 31 percent, controlling for all other variables.

As expected, marital status (widowhood, and divorced status), wealth, and education were protective factors. For example, widows were 5 times less likely (1/0.20=5) to be exposed to secondhand smoke in the home, an indication that the smoker is perhaps the husband in married households.

Discussion

The results suggests that women who belong to the Grameen Bank are more likely to be exposed to in-home smoking than women who do not belong to the Grameen Bank by **31 percent**. This finding suggests that health education needs to be incorporated into Grameen Bank membership. If health information is already provided by the Grameen bank, secondhand smoke exposure information needs to be incorporated in a stronger way.

A positive association between Grameen bank membership and in-home smoke exposure among Women of reproductive age could be because the household has access to money to buy tobacco products, more than without, even if the Grameen bank participant is not smoking herself.

The Grameen Bank often finances small businesses. If the households of Grameen Bank members were involved in small business pursuits, it is possible that ownership of a small business could increase overall stress, which may lead to higher level of consumption of smoking tobacco products.

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