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IMPACT OF EDUCATION ON INFORMAL WORKERS WILLINGNESS-TO-PAY AND KNOWLEDGE OF HEALTH INSURANCE

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EXECUTIVE SUMMARY

Reliance on out-of-pocket payment for health services leads to a catastrophic burden for many households in Bangladesh and other Asian countries. Risk-pooling mechanisms (particularly, social health insurance) should be used for financing healthcare to achieve universal coverage considering equity according to World Health Organization. In health financing policy, society risk-pooling mechanisms appear to be ignored in policy prescriptions for many low income countries. Especially, the inclusion of poor and informal sector workers in these mechanisms appears to be a challenge in such countries. Along with taxation, community-based health insurance has been recommended for informal sector workers for ensuring their healthcare.

Of those employed in Bangladesh, 88 percent work in the informal sector of which 48 percent work in a non-agricultural sector. The Informal sector alone contributes 63.6 percent of GDP, of which 75.3 percent comes from non-agricultural sectors. Considering the size of informal sector labour force and contribution to economy, an effort to bring them into health insurance should be initiated.

A literature review by the International Labour Organization's Microinsurance Innovation Facility identified a number of barriers that restrict potential clients from joining health insurance schemes in developing countries. Among the barriers, the "literacy gap" i.e. a lack of knowledge about insurance (mechanism, utility etc.) was found to be an important one. In Bangladesh, studies on knowledge about health insurance are not readily found. However, there are indications of a "literacy gap" concerning health insurance, its mechanism and utility.

The aim of this study is two-fold: i) to assess the impact of educational intervention on knowledge, attitude and willingness-to-pay for health insurance using occupational solidarity and ii) to explore the views of relevant actors on occupational solidarity-based health insurance.

Educational intervention on occupational solidarity and health insurance is offered to a group of informal sector workers. Educational sessions take place once a week (3-4 hours) during three subsequent weeks for each occupational group. In the first day, the session contained discussions about health conditions, healthcare expenditure and current healthcare facilities for workers. In the second day, health insurance mechanisms and utility of health insurance are discussed. Potential use of occupational solidarity for health insurance scheme development was discussed on the third day.

For the first aim, i.e. assessing the impact of educational intervention, knowledge, attitude and willingness-to-pay (WTP) for joining health insurance using occupational solidarity between workers in "pre- and post-treatment" periods as well as between "control and treatment" groups have been compared. Multiple regression analysis is used to predict WTP by educational intervention, while controlling for a series of confounding factors. For meeting the second aim, views of relevant actors about occupational solidarity-based health insurance are captured using discussions among workers during intervention sessions, focus groups and key-informant interviews.

Among the workers in treatment group, knowledge and WTP have increased between the pre- and post-treatment periods. Both of these indicators are higher in treatment groups in comparison to control group. The WTP for participating in health insurance is 33.8 percent higher among workers who joined the educational intervention in comparison with the control group who did not. The coefficient of variation for WTP is found to be generally lower in post-treatment period than in pre-treatment period. It is also lower in the treatment group than in the control group. The qualitative results suggest that health insurance using occupational solidarity is feasible in a Bangladeshi context. The results indicate that the educational intervention has improved the knowledge and WTP of informal sector workers.

Educational intervention can be used for increasing demand for health insurance scheme using occupational solidarity among informal sector workers. Importantly, educational modules should be comprehensive. Such a

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health insurance is considered to be applicable in Bangladesh context. The government of Bangladesh and other low- and middle income countries can consider health insurance using occupational solidarity as a potential complementary source of funding along with indirect taxes for financing healthcare of informal sector workers

INTRODUCTION

The poor in Bangladesh face many barriers in accessing health care. Private health expenditure constitutes 64.3% of total healthcare expenditure of which 97.4% is covered through out of pocket payments (WHO, 2010). Reliance on out-of-pocket payment for health services leads to a catastrophic burden on many households in Bangladesh and other Asian countries (Van Doorslaer et al. 2007; HIES, 2007). Pre-payment mechanism of healthcare financing, like health insurance is thus important for this population, especially those in vulnerable situations.

Risk-pooling mechanisms (particularly, social health insurance) should be used for financing healthcare to achieve universal coverage considering equity according to the World Health Organization (WHO, 2005). In health financing policy, society risk-pooling mechanism appears to be ignored in policy prescriptions for many low income countries (WHO, 2005; McIntyre et al. 2008). Especially, the inclusion of poor and informal sector workers in this mechanism appeared to be a challenge in such countries (OECD, 2009; Akazili, 2010). Community-based health insurance has been recommended for informal sector workers for ensuring their healthcare (Devadasan, 2005). Even historically occupational solidarity appeared as a basis of health insurance development (Bärnighausen and Sauerborn, 2002) for financing healthcare.

Of the total sources of employment, 88 percent of employment takes place in the informal sector of which 48 percent is in non-agricultural sectors (Maligalig et al. 2009). The informal sector alone contributes 63.6 percent of total GDP, of which 75.3 percent comes from non-agricultural sectors. This means that although agricultural sector dominates in number of workers, the income is concentrated in non-agricultural sectors. Considering the size of informal sector labor force and contribution to economy and challenges of healthcare financing, an effort to bring them into health insurance should be initiated.

A literature review by the International Labor Organization's, Microinsurance Innovation Facility identified a number of barriers that restrict potential clients from joining health insurance schemes in low- and middle income countries. Among the barriers, a "literacy gap" i.e. lack of knowledge about insurance (mechanism, utility etc.) was found to be highly important (Dercon et al. 2008; McCord, 2001; Chankova et al. 2008). In Bangladesh, studies on knowledge about health insurance are not readily found. However, there are indications of a "literacy gap" about health insurance, its mechanisms and utility. Practice of health insurance among general people, either rich or poor, is very low. The National Health Accounts of Bangladesh found that only 0.10 percent of healthcare expenditure is borne by pre-payments mechanism (NHA, 2010). Micro Health Insurance (MHI) is an emerging sector which is strongly linked to the microcredit movement in Bangladesh (Werner, 2009). Currently, health insurance is offered by a number of micro-credit institutes like, Grameen Kalyan and Sajida Foundation. In these programs, the potential clients are to purchase micro-health insurance if they borrow from the institutions. It implies that this micro-health insurance is not purchased by the clients on the basis of demand. Other organizations, like Gono-swasthyo Kendro (GK) offers low price health card against which a benefit package is available to the card purchasers. Such an arrangement may reduce financial risk of illness of the clients, but may not be sufficient for generating revenue for financing healthcare in a sustainable way. Institutes which currently offer micro health insurance inform the clients about the benefit package. Since these institutions function as third-party insurers and solely have the responsibility for management, informing clients about the mechanism of health insurance (like, risk pooling) and the importance of solidarity for combating healthcare expenditure through health insurance (like, social and community-based health insurance) may not be their primary concern. Experience from Kenya states that the spirit of solidarity and health insurance rationale are some of the key issues inhibiting demand for health insurance in the informal sector (Mathauer et al., 2008). While many health awareness (educational) programs for disease prevention and health promotion are available in Bangladesh, education about protection against financial risk during illness is not widespread. In such a condition, comprehensive education on awareness about health insurance, its mechanism, utility and role of solidarity for informal sector workers of Bangladesh can be useful.

AIM

The aim of this study is two-fold: i) to assess the impact of educational intervention on knowledge, attitude and willingness-to-pay for health insurance using occupational solidarity and ii) to explore the views of relevant actors on occupational solidarity-based health insurance.

METHODS

For the first aim, i.e. assessing the impact of educational intervention, knowledge, attitude and willingness-to-pay (WTP) for joining health insurance based on occupational cooperatives between workers in "pre- and post-treatment" periods as well as between "control and treatment" groups have been compared. Multiple regression analysis is applied for predicting WTP by educational intervention, while controlling for a series of confounding factors. For meeting the second aim, views of relevant actors about occupational solidarity-based health insurance has been captured using discussion among workers during intervention sessions, focus group discussion and key-informants interview.

Population, sample and data

For identifying the study population, we considered the location of micro health insurance providers (Gonoswyastho Kendro) and/or any healthcare facility. Three occupational groups (rikshaw-puller, shop-keepers and restaurant workers) were selected as study participants in three locations in Dhaka (metropolitan city), Chandpur (district town) and Nobinagar/Savar (sub-district). These occupational groups have been selected for investigation considering that: i) the occupations are generally found in all urban areas in Bangladesh, ii) the practical situation (consent of the occupational group representative, working environment etc.) allows for operating the educational intervention and iii) a control group can be separated in the practical context. The locations were selected from three levels of administrative hierarchy of Bangladesh for a national representation.

In the selected locations, we listed out the cooperatives and potential participants by transect walk and informal group discussion with the community members and leaders. Detailed information about the cooperatives (formal or informal) like location and address, representatives of the cooperatives and their contact number was collected during the listing procedure. Shops, restaurants and cooperatives of the rickshaw-pullers in the selected areas have been listed. A list of workers was provided by the representatives/leaders of the cooperatives (formal or informal) or market places. Considering the practical working environment of occupational groups in the intervention sites, assistance of occupational/community leaders was essential for getting workers as participants in the study. A number of inclusion and exclusion criteria have been considered. The inclusion criteria comprises age (18 years or above) and experience (working in the same occupational for at least the last year). If the worker is exposed by any health insurance or any health insurance education, he/she is excluded from the study.

The treatment and control groups were separated by a road or river so that the participants in the control group were not exposed through contact with the participants of the treatment group. It needs to be emphasized here that during the listing procedure, we discussed with the community leaders about possible dissimilarities between the workers across the road or river and no potential difference was reported. To maintain similarities in socioeconomic characteristics between treatment and control groups, we considered only market places to be included in the sample from all occupational groups. We got two separate lists of potential participants for the control and treatment group in each location. We, finally, randomly selected the participants in the control and treatment group from respective lists.

In each area, it takes 2 months to complete the data collection and oversee the pre- and post-treatment periods. Post-treatment data was collected one month after the educational intervention had been completed for avoiding the immediate impact of intervention on participants. In control groups, we collect data for one time. Data in all study areas was collected during 15th December 2010 – 15th April 2011.

We invited all participants (282) in the pre-treatment group to attending a three-day educational intervention. 25 of them were unable to attend the intervention program due to personal reasons. We lost 32 participants during the educational intervention. The participants (8 in Dhaka, 9 in Chandpur and 15 in Nobinagar/Savar) who missed one or more days in three study areas were not properly exposed to the intervention. These participants (total 32 or 12.5%) are omitted from both the pre- and post-treatment group in the analyses.

Educational Intervention Procedure

Firstly the educational intervention on occupational solidarity and health insurance is offered to the treatment group. 3 to 4 hour, educational sessions take place once a week during three subsequent weeks for each occupational group. Educational intervention used power point presentations (mostly pictorial), group sessions and discussions. In the first day, it contains discussions about health conditions, healthcare expenditure and current healthcare facilities for workers. In the second day, health insurance mechanisms and utility of health insurance were discussed. Potential use of occupational solidarity for developing health insurance scheme was discussed on the third day.

Table 1 presents the intervention procedure. A detail of educational intervention is found in appendix 1. In appendix 2, the power point slides during intervention days are presented.

Table 1: Components of educational intervention

Day	Topic	Aim	How	Lead by
First	Importance of urban informal sector workers in Bangladesh	To make the participants understand the potential of contribution to economy and collectively meeting challenges of health	Power point presentation (Appendix 2) and discussion (See slides 4-5)	The main facilitator
	Case study on Golam Kibria, an informal sector worker who got sick and its consequence on health, economy and family	To make understand the importance of good health on economy and family	Group discussion	Group moderator
	Current healthcare facilities of workers and its quality of service	To understand the current situation of healthcare access and quality of care for the workers under intervention and their level of satisfaction	Group discussion	Group moderator
Second	Recap from first day	To refresh the memory from the first day	Power point presentation with discussion (see slides 10-16)	Main facilitator
	Current mechanism of healthcare financing, healthcare triangle, concept and utility of health insurance	To put into context of sustainable and self-dependent healthcare financing	Power point presentation and discussion (19-24)	Main facilitator
	Insurance game	To make understand the risk-sharing mechanism	Game	Group moderator
	Roll-play	To distinguish the service and payment difference between non-insured and insured patients	Short drama	Jointly by educators
	Types of health insurance and its merits and demerits	To make understand the merits and demerits of different types of insurance (private for profit, NGO and community based)	Discussion	Group moderator

Third	History of social health insurance and recent development in low and middle income countries	To put the participants into global context and finding the position of Bangladesh	Power point presentation with discussion (see slide 27-30)	Main facilitator
	Occupational cooperatives and/occupational solidarity	To understand the possibilities and challenges of using occupational cooperative/ solidarity for developing health insurance	Group discussion	Group moderator
	Open discussion (questions and answers)	To understand if the sessions could successfully meet the goals and to clarify any issues to the workers	Discussion	Main facilitators and all moderators

Impact assessment

An Impact of the educational intervention was conducted using three measures, namely, knowledge, attitude and WTP. Change between pre- and post-treatment and the difference between treatment and control groups in all three measurements are estimated. Further, multiple regression analysis used to predict WTP by educational intervention, while controlling for a series of confounding factors. Knowledge, attitude and WTP are captured using pre-fixed survey questionnaire.

Knowledge and Attitude study

In this current study a number of questions (table 4-7) relating to 'knowledge' and 'attitude' are asked. The questions considered knowledge about, and attitude towards, health insurance, its utility and usage of occupational cooperatives (solidarity) for building health insurance etc. Categorical responses against each question are set up.

Willingness to pay (WTP) study

Using a Contingent Valuation Method (CVM), the WTP for health insurance is measured. This method has been used in many earlier studies (Asenso-Okyere et al. 1997; Mathiyazhagan, 1998; Dror et al, 2007).

CVM questions can be either open-ended or discrete (Kobelt, 2002). In an open-ended valuation the respondents are asked to state their maximum WTP for the benefit. The most technique used is the "bidding game". A bidding game resembles an auction, where a first bid is made to the respondent who either accepts or rejects. Depending on the answer, the bid is then lowered or increased until the respondent's maximum WTP is reached. This bidding game approach is applied in the study for estimating the WTP for health insurance. In the recent years, "bidding game" has been employed in several studies for estimating WTP for health insurance in low- and middle income countries (Gustafsson-Wright et al. 2009; Dror et al. 2007). However, bidding game may be accompanied with an estimation bias, which is a form of framing effect where the respondents' answers are influenced by the first numbers presented in the bidding game (Drummond et al., 2005). On the contrary, there are studies which used a bidding game but observed no starting point bias (O'Brien and Visamontres, 1994; O'Brien et al., 1998).

For capturing the starting bids, we interviewed a number of workers from each occupational group. We found a range between 10 and 30 Bangladeshi Taka (BDT) which were put randomly in the questionnaire as the starting bids. A benefit package, which is as same as that offered by an insurance provider (Gonoshasthaya Kendra) was tested for investigating the WTP of workers for obtaining that package through health insurance. The product is described in Table 2 below.

Table 2: The service package of a real health insurance product

Eligibility	Anyone the paying premium
Group or individual	Family up to 4 members
Period of services	One year
Outpatient	
Medical officer visit	Free of cost
Specialist visit	60 BDT
Inpatient	
Bed-Payment per day	50 BDT
Diagnostic tests	
Ultrasonography	75-150 BDT
ECG	50 BDT
Most of the tests	Free of cost
Some tests	10 - 200 BDT
Blood transfusion of neonatal	500 BDT
Other treatment of neonatal	Free of cost
Normal delivery	100 - 500 BDT
Caesarean and other surgery	2000 - 3000 BDT
Orthopedic surgery	3000 - 4000 BDT
Appendicitis	100 BDT
Gall bladder operation	3000 BDT
Medicine	50% discount of MRP set by government

Finally, in the descriptive statistics, the knowledge level and attitude are captured by observing the frequency of response category to each corresponding question. The frequencies are then compared between "pre- and post-treatment" and "treatment and control" groups. Mean and coefficient-of-variation (CoV) for the WTP for an insurance package are observed between the comparison groups. Our hypothesis is that knowledge, attitude and WTP improve while CoV lowers among workers who attend the educational intervention.

Econometric model

In the regression model, we predict a natural logged WTP for intervention participants (the main variable of interest). A number of variables are considered as confounding factors. Insurance literature demonstrates that demand for health insurance is influenced not only by knowledge but also by other factors. Folland et al (2007) showed in a theoretical model mentioned that premium, income or wealth/health status and risk of losing income are factors that can affect the demand for health insurance. Similar factors have been indicated by researchers from their empirical investigations (Cohen and Sebastad, 2006; Churchill, 2006; Leftley and Mapfumo, 2006, McCord, 2008). While assessing the impact of educational intervention, these other factors should be controlled. In the regression model, we therefore control for a range of variables, namely, demographic characteristics, institutional education level, household income, experience of illness among household members, occupation and place of residence. The model below is tested in the analysis.

$$y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \ldots\ldots\ldots\ldots + \beta_n x_n + \varepsilon$$

Where, y denotes natural logged WTP for joining an insurance scheme, α is a constant, x_1 indicates if the worker went through educational intervention with values 0 or 1 (0 = did not have educational intervention/control, 1 = had educational intervention/treatment), β 1 is the coefficient that shows the magnitude and direction of relationship with y . x_1 … … x_n denote the control variables. β 2… …β n denote adjacent coefficients to the corresponding variables and ε denotes error term. The model is tested for sensitivity by including and excluding variables and by estimating the robust standard error. A series of diagnostic tests to detect the presence of heteroscedasticity, multicollinearity and omitted variables are carried out.

Views of relevant actors

To understand the views of relevant actors in the health insurance process using occupational solidarity a qualitative approach is used. The actors represent the operational level of health insurance, namely insurance providers and healthcare providers from the supply-side and labour leaders and employers/owners from demand-side. Qualitative study includes the summary of discussion among workers during educational

intervention sessions as well as focus group discussions (FGDs) and key informant interviews (KIIs) among insurance providers, labour leaders, healthcare providers and employers/owners. In appendix 3, a table is provided which shows the target population of FGDs and KIIs as well as in which location those take place.

Through analysing the discussion points during educational intervention sessions the main points are captured and summarized. Tape recorded information from FGDs and KIIs are transcribed. Following each interview or discussion, detailed transcription are prepared and reviewed by researchers to identify key themes and identify new areas that should be followed up in future interviews/FGDs. Once all interviews/discussions have been conducted, the transcriptions would again be reviewed by researchers to extract information relevant to the key themes that have been identified during data collection. Content analysis is done manually identifying themes and sub themes. Data triangulation is done with information collected from different sources. The results are validated through a review of the results with selected respondents, this helps ensure that their views have been accurately represented.

RESULTS

The results of the study focus on quantitative and qualitative approaches. The quantitative approach shows the impact of educational intervention while the qualitative approach emphasizes the views of relevant actors on health insurance scheme development using occupational solidarity among workers. A description of the characteristics of the control and treatment groups is presented, followed by the quantitative and qualitative results.

Characteristics of control and treatment groups

Demographic characteristics (age, gender, marital status and household size), institutional education level, economic condition (household income), health status (illness) and health expenditure are observed in the control and treatment groups. The characteristics are presented in the table below. A test of mean or proportion difference has been carried out to observe if there is any significant difference between control and treatment groups. The mean age of all workers in the control group is 30.3 years and 30.8 years in the treatment group. No significant difference (p-value = 0.606) is observed between these two groups. Other characteristics also show similarities between these groups.

IMPACT ASSESSMENT

The quantitative analyses includes both descriptive statistics and statistical inference tests. Changes (pre- and post-treatment) and differences (control and treatment) in knowledge and attitude towards health insurance as well as WTP for participating in such schemes are shown. Further, an output of econometric analysis where WTP (natural logged) has been predicted by participation in educational intervention (treatment) is presented.

Knowledge

Knowledge about health insurance and occupational solidarity was very poor among workers of all three occupational groups in the pre-treatment period. A significant change in knowledge in the treatment group between before and after intervention is observed. The table below shows the change in knowledge as well as its statistical significance among workers in the treatment group between pre-and post-treatment periods

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Table 3: Characteristics of sample in control and treatment groups

Variables	Measurement	Rickshaw-puller		Shop-keeper		Restaurant worker		Total	
		Control	Treatment	Control	Treatment	Control	Treatment	Control	Treatment
Age	Mean (SD[1]) in years	32.1 (9.8)	34.65 (10.0)	26.9 (9.5)	28.0 (8.29)	32.0 (11.5)	30.2 (10.3)	30.3 (10.5)	30.78 (9.9)
	Sig. of mean difference	0.112		0.397		0.299		0.606	
Gender	Male (%)	100%	100%	96.8%	100%	90.8%	81.94%	95.9%	94.1%
	Sig. of proportion diff.	-		0.102		0.101		0.347	
Marital status	Married (%)	85.9%	79.4%	39.4%	34.1%	71.3%	58.3%	65.2%	55.9%
	Sig. of proportion diff.	0.281		0.475		0.088		0.034	
Household size	Mean (SD)	3.1 (0.98)	3.4 (1.0)	4.1 (1.85)	3.7 (1.35)	3.4 (1.4)	3.6 (1.5)	3.5 (1.5)	3.6 (1.3)
	Sig. of mean difference	0.299		0.239		0.477		0.849	
Institutional educational level	Less than one year (%)	75.0%	66.1%	11.7%	9.8%	48.3%	38.9%	44.7%	36.5%
	Sig. of proportion diff.	0.222		0.678		0.235		0.065	
	Up to primary level (%)	17.4%	30.9%	37.2%	28.0%	36.8%	34.7%	30.4%	31.0%
	Sig. of proportion diff.	0.045		0.196		0.788		0.871	
	More than primary level	7.6%	2.9%	51.0%	62.2%	14.9%	26.4%	24.9%	32.4%
	Sig. of proportion diff.	0.205		0.138		0.073		0.065	
Household income per equivalent adult[2]	Mean (SD) in BDT[3]	3151 (1376)	3129 (1436)	3360 (1562)	3735 (1740)	2447 (1112)	2975 (1754)	3024 (1419)	3308 (1675)
	Sig. of mean difference	0.94		0.227		0.084		0.103	
Health expenditure in last 6 months	Mean (SD) in BDT	1314 (49)	1814 (4944)	1838 (3893)	2176 (3893)	2066 (7059)	2041 (7344)	1734 (5399)	2021 (6159)
	Sig. of mean difference	0.527		0.655		0.983		0.581	
Illness in	Yes (%)	89.1%	86.8%	82.9%	85.4%	89.7%	87.5%	87.2%	86.5%

household	Sig. of proportion diff.		0.648			0.666			0.669			0.820	
Location	Metropolitan city (%)	32.6%	36.8%		34.0%	34.1%		33.3%	36.1%		33.3%	35.6%	
	Sig. of proportion diff.		0.584			0.988			0.714			0.600	
	District (%)	34.8%	29.4%		34.0%	34.1%		35.6%	27.8%		34.8%	30.6%	
	Sig. of proportion diff.		0.473			0.988			0.291			0.326	
	Sub-district (%)	32.6%	33.8%		31.9%	31.7%		31.0%	36.1%		31.9%	33.8%	
	Sig. of proportion diff.		0.872			0.977			0.499			0.651	
Observations		92	68		94	82		87	72		273	222	

Note: [1] SD means standard deviation, [2] First adult, other adults and children are weighted as 1, 0.7 and 0.5 respectively (Source: OECD, 1982), [3] BDT = Bangladeshi Taka

Table 4: Change in knowledge about health insurance and occupational solidarity in pre- and post-treatment periods

Knowledge characteristics	Responses	Rickshaw-puller		Sig.[2]	Shop-keeper		Sig.	Restaurant workers		Sig.
		Pre[1]	Post[1]		Pre	Post		Pre	Post	
Idea about health insurance	Good and very good	1 (1.5%)	68 (98.6%)	0.00	0 (0.0%)	83 (100%)	0.00	0 (0.0%)	71 (97.3%)	0.00
	Some and not at all	68(98.5%)	1 (1.4%)		83 (100%)	0 (0.0%)		73 (100%)	2(2.7%)	
Usage of occupational cooperatives for developing health insurance	Yes	1(1.5%)	69(100%)	0.00	1(1.2%)	83(100%)	0.00	0(0.0%)	73(100%)	0.00
	No	68(98.5%)	0(0.0%)		82(99.8%)	0(0.0%)		73(100%)	0(0.0%)	
Knowledge about health insurance fund formation	Good and very good	1(1.5%)	68(98.6%)	0.00	0(0.0%)	83(100%)	0.00	0(0.0%)	72(98.6%)	0.00
	Some and not at all	68(98.5%)	1(1.4%)		83(100%)	0(0.0%)		73(100%)	1(1.4%)	
Health insurance in some developing countries for workers	Good and very good	0(0.0%)	38(55.1%)	0.00	1(1.2%)	63(75.9%)	0.00	0(0.0%)	49(67.1%)	0.00
	Some and not at all	69(100%)	31(44.9%)		82(98.8%)	20(24.1%)		73(100%)	24(32.9%)	
Knowledge about premium for inclusion in health insurance	Good and very good	1(1.5%)	66(95.7%)	0.00	0(0.0%)	82(98.8%)	0.00	0(0.0%)	69(94.5%)	0.00
	Some and not at all	68(98.6%)	3(4.3%)		83(100%)	1(1.2%)		73(100%)	4(5.5%)	
Knowledge about deductable and co-payments while utilizing care	Good and very good	1(1.5%)	67(97.1%)	0.00	0(0.0%)	82(98.8%)	0.00	0(0.0%)	71(97.3%)	0.00
	Some and not at all	68(98.5%)	2(2.9%)		83(100%)	1(1.2%)		73(100%)	2(2.7%)	
Knowledge about benefit package	Good and very good	1(1.5%)	49(71.0%)	0.00	1(1.5%)	69(83.1%)	0.00	0(0.0%)	56(76.7%)	0.00
	Some and not at all	68(98.5%)	20(29.0%)		82(98.5%)	14(16.9%)		73(100%)	17(23.3%)	

Observations that are common in both pre- and post-periods are included, ª Fisher's exact test

Table 5: Difference in knowledge about health insurance and occupational solidarity in control and treatment groups

Knowledge characteristics	Responses	Rickshaw-puller		Sig.	Shop-keeper		Sig.	Restaurant workers		Sig.
		Control	Treatment		Control	Treatment		Control	Treatment	
Idea about health insurance	Good and very good	0 (0%)	68 (98.6%)	0.00	0 (0%)	83 (100%)	0.00	0 (0%)	71 (97.3%)	0.00
	Some and not at all	93 (100.0%)	1 (1.4%)		95 (100%)	0 (0%)		87 (100%)	2 (2.7%)	
Usage of occupational cooperatives for developing health insurance	Yes	0 (0%)	69 (100.0%)	0.00	0 (0%)	83 (100%)	0.00	0 (0.0%)	73 (100%)	0.00
	No	93 (100%)	0 (0%)		95 (100%)	0 (0%)		87 (100%)	0 (0.0%)	
Knowledge about health insurance fund formation	Good and very good	0 (0%)	68.0 (98.5%)		0 (0%)	83 (100%)		0 (0.0%)	72 (98.6%)	
	Some and not at all	93 (100%)	1 (1.5%)	0.00	95 (100%)	0 (0%)	0.00	87 (100%)	1 (1.4)	0.00
Health insurance in some developing countries for workers	Good and very good	0 (0%)	38 (55.1%)		0 (0%)	63(75.9%)		0 (0.0%)	49 (67.1%)	
	Some and not at all	93 (100%)	31 (44.9)	0.00	95 (100%)	20(24.1%)	0.00	87 (100%)	24 (32.9%)	0.00
Knowledge about premium for inclusion in health insurance	Good and very good	0 (0%)	66 (95.7%)		0 (0%)	82(98.8%)	0.00	0 (0.0%)	69 (94.5%)	
	Some and not at all	93 (100%)	3 (4.4%)	0.00	95 (100%)	1 (1.2%)		87 (100%)	4 (5.5%)	0.00
Knowledge about deductable and co-payments while utilizing care	Good and very good	0 (0%)	67 (97.1%)		0 (0%)	82(98.8%)		0 (0.0%)	71 (97.3%)	
	Some and not at all	93 (100%)	2 (2.9%)	0.00	95 (100%)	1 (1.2%)	0.00	87 (100%)	2 (2.7%)	0.00
Knowledge about benefit package	Good and very good	0 (0%)	49 (71.0%)	0.00	0 (0%)	69(83.1%)	0.00	0 (0.0%)	56 (76.7%)	0.00
	Some	93 (100%)	20 (29.0%)		95 (100%)	14 (16.9)		87 (100%)	17 (23.3%)	

Table 6: Change in attitude about health insurance and occupational solidarity in pre- and post-treatment periods

Attitude	Responses	Rickshaw-puller		Sig.	Shop-keeper		Sig.	Restaurant workers		Sig.
		Pre	Post		Pre	Post		Pre	Post	
Economic security during illness is important	Agreed	63(98.4%)	69(100%)	0.48	76(98.7%)	83(100%)	0.48	69(97.2%)	73(100%)	0.24
	Disagreed	1(1.6%)	0(0.0%)		1(1.3%)	0(0.0%)		2(2.8%)	0(0.0%)	
Developing economic security healthcare can be organized during illness	Agreed	61(98.4%)	69(100%)	0.47	76(98.7%)	83(100%)	0.48	69(98.6%)	73(100%)	0.49
	Disagreed	1(1.6%)	0(0.0%)		1(1.3%)	0(0.0%)		1(1.4%)	0(0.0%)	
I want to develop healthcare fund	Agreed	61(100%)	67(97.1%)	0.50	75(98.7%)	77(93.9%)	0.21	60(93.8%)	68(93.2%)	1.00
	Disagreed	0(0.0%)	2(2.9%)		1(1.3%)	5(6.1%)		4(6.3%)	5(6.9%)	
Solidarity among workers important for developing common healthcare fund	Agreed	60(100%)	66(98.5%)	1.00	72(100%)	77(97.5%)	0.50	66(97.1%)	72(100%)	0.23
	Disagreed	0(0.0%)	1(1.5%)		0(0.0%)	2(2.5%)		2(2.9%)	0(0.0%)	
I want to develop occupational cooperative based healthcare fund	Agreed	63(100%)	66(98.5%)	1.00	71(98.6%)	77(95.1%)	0.37	57(95.0%)	69(94.5%)	1.00
	Disagreed	0(0.0%)	1(1.5%)		1(1.4%)	4(4.9%)		3(5.0%)	4(5.5%)	
Occupational solidarity is helpful for developing health insurance	Agreed	59(98.2%)	64(98.5%)	1.00	69(98.6%)	76(96.2%)	0.62	64(97.0%)	69(100%)	0.24
	Disagreed	1(1.8%)	1(1.5%)		1(1.4%)	3(3.8%)		2(3.0%)	0(0.0%)	
Health insurance fund can reduce catastrophic economic burden	Agreed	63(100%)	67(98.5%)	1.00	69(100%)	77(97.5%)	0.50	67(97.1%)	71(100%)	0.24
	Disagreed	0(0.0%)	1(1.5%)		0(0.0%)	2(2.5%)		2(2.9%)	0(0.0%)	
Health insurance is a sustainable means for meeting healthcare costs of your family	Agreed	65(100%)	67(98.5%)	1.00	70(98.6%)	77(93.9%)	0.22	65(97.0%)	70(95.9%)	1.00
	Disagreed	0(0.0%)	1(1.5%)		1(1.4%)	5(6.1%)		2(3.0%)	3(4.1%)	
You are interested to join a health insurance scheme if it is developed based on your occupational cooperative or workplace	Agreed	66(100%)	67(97.1%)	0.50	73(97.3%)	77(93.9%)	0.45	65(95.6%)	68(93.2%)	0.72
	Disagreed	0 (0.0)	2(2.9)		2 (2.7)	5(6.1)		3(4.4)	5(6.8)	

Table 7: Difference in attitude about health insurance and occupational solidarity in control and treatment groups

Attitude	Responses	Rickshaw-puller		Sig.	Shop-keeper		Sig.	Restaurant workers		Sig.
		Control	Intervention		Control	Intervention		Control	Intervention	
Economic security during illness is important	Agreed	91 (97.9%)	69 (100.0%)	0.51	87 (91.6)	83 (100.0%)	-	86 (98.9%)	73 (100.0%)	-
	Disagreed	2 (2.1%)	0 (0.0%)		0 (0.0%)	0 (0.0%)		0 (0.0%)	0 (0.0%)	
Developing economic security healthcare can be organized during illness	Agreed	89 (97.8%)	69 (100.0%)	0.51	86 (90.5%)	83 (100.0%)	-	86 (98.9%)	73 (100.0%)	-
	Disagreed	2 (2.2%)	0 (0.0%)		0 (0.0%)	0 (0.0%)		0 (0.0%)	0 (0.0%)	
I want to develop healthcare fund	Agreed	79 (94.1%)	67 (97.1%)	0.46	64 (84.2%)	77 (923.9%)	0.07	63 (92.7%)	68 (93.2%)	1.00
	Disagreed	5 (5.9%)	2 (2.9%)		12 (15.8%)	5 (6.1%)		5 (7.4%)	5 (6.9%)	
Solidarity among workers important for developing common healthcare fund	Agreed	78 (95.1%)	66 (98.5%)	0.38	67 (87.0%)	77 (97.5%)	0.02	72 (83.5%)	72 (100%)	0.06
	Disagreed	4 (4.9%)	1 (1.5%)		10 (13.0%)	2 (2.5%)		5 (6.5%)	0 (0.0%)	
I want to develop occupational cooperative based healthcare fund	Agreed	69 (92.0%)	66 (98.5%)	0.12	53 (80.3%)	77 (95.1%)	0.01	53 (91.4%)	69 (94.5%)	0.51
	Disagreed	6 (8.0%)	1 (1.5%)		13 (19.7%)	4 (4.9%)		5 (8.6%)	4 (5.5%)	
Occupational solidarity is helpful for developing health insurance	Agreed	75 (97.4%)	64 (98.5%)	1.00	63 (92.7%)	76 (96.2%)	0.47	66 (91.7%)	69 (100%)	0.03
	Disagreed	2 (2.6%)	1 (1.5%)		5 (7.3%)	3 (3.8%)		6 (8.3%)	0 (0.0%)	
Health insurance fund can reduce catastrophic economic burden	Agreed	82 (96.5%)	67 (98.5%)	0.63	67 (91.8%)	77 (97.5%)	0.15	70 (93.3%)	71 (100%)	0.06
	Disagreed	3 (3.5%)	1 (1.5%)		6 (8.2%)	2 (2.5%)		5 (6.7%)	0 (0.0%)	
Health insurance is a sustainable means for meeting healthcare costs of your family	Agreed	86 (95.6%)	67 (98.5%)	0.39	65 (85.5%)	77 (93.9%)	0.11	69 (92.0%)	70 (95.9%)	0.49
	Disagreed	4 (4.4%)	1 (1.5%)		11 (14.5%)	5 (6.1%)		6 (8.0%)	3 (4.1%)	
You are interested to join a health insurance scheme if it is developed based on your occupational cooperative or workplace	Agreed	84 (93.3%)	67 (97.1%)	0.47	67 (83.8%)	77 (93.9%)	0.05	70 (89.7%)	68 (93.2%)	0.57
	Disagreed	6 (6.7%)	2 (2.9%)		13 (16.3%)	5 (6.1%)		8 (10.3%)	5 (6.9%)	

A significant difference in knowledge between the control and treatment group is also observed. Knowledge about health insurance and its relevant issues is poor among workers in all three occupational groups. Poor knowledge about usage of occupational cooperatives for health insurance scheme development, insurance fund formation, health insurance in other developing countries, premium, deductible/co-payment and benefit package is observed in the control groups. On the contrary, knowledge on these issues is higher in treatment group.

Attitude

Attitude about "health insurance and occupational solidarity" is already high in pre-treatment period among the workers in treatment group. Educational intervention has not shown any significant change in attitude between pre- and post-treatment periods. The table below shows the proportion workers who agreed or disagreed with a number of attitude related statements.

Attitudes to related issues (like, economic security, occupational solidarity) to health insurance are generally positive. In control groups 91.6 to 98.9 percent considered that economic security during illness is important. However, 100 percent of the workers in treatment groups agreed on this point. In all aspects of attitude, we observed that higher proportion of workers in both control and treatment groups agreed on entering themselves in health insurance or its relevant issues (table 7).

Willingness to pay

Between pre- and post-treatment periods, mean WTP has increased in workers after intervention in all occupational groups. Tests of significance of mean difference between pre- and post-treatment show that changes are statistically significant (1% risk-level) in shop-keepers and borderline significant in rickshaw-pullers (10% risk-level).

Table 8. Change in willingness-to-pay (mean and CoV) between pre- and post-treatment periods

Occupational group	Measurement	Mean	Sig. of mean difference (p-value)	Coefficient of variation
Rickshaw-puller	Pre	23.8	0.109	50.7
	Post	27.2		45.2
Shop-keeper	Pre	14.2	0.002	92.4
	Post	20.3		57.1
Restaurant workers	Pre	17.4	0.269	76.0
	Post	19.8		62.8
All workers	Pre	18.2	0.001	73.7
	Post	22.3		56.1

CoVs show that in post-treatment period, variations have been reduced in workers of all occupations in treatment group.

Comparisons between the control and treatment group shows that WTP is significantly higher in the treatment group in all occupations at 1% risk level. However, in rickshaw-pullers it is significant at the 10% risk-level.

Table 9. Difference in willingness-to-pay (mean and CoV) in control and treatment groups

Occupational group	Measurement	Mean	Sig. of mean difference (p-value)	Coefficient of variation
Rickshaw-puller	Control	23.0	0.067	69.2
	Treatment	27.2		45.2
Shop-keeper	Control	12.5	0.000	112.9
	Treatment	20.3		57.1
Restaurant workers	Control	13.1	0.001	96.3
	Treatment	19.8		62.8
All workers	Control	16.2	0.000	92.8
	Treatment	22.3		56.1

CoVs are lower in treatment groups in all occupations compared with control groups.

ECONOMETRIC ANALYSIS

The regression analysis (table 10) shows that those who have gone through the educational intervention (treatment group) are willing to pay significantly more (33.8 percent) than workers in the control group. Due to missing data in some control variables, the number of observations is reduced in the estimation. Using a hadimvo test, 5 extreme outliers have been eliminated from the analysis. The significant difference between the treatment and control group remain same even when the outliers are included. Workers who have up to primary level education are willing to pay less than those who have less than one year education. However, workers who have higher education than primary level are likely to pay more than the reference group, but not significantly more. A significant difference in WTP among occupational groups is observed. Restaurant workers and shop-keepers are willing to pay significantly less than rickshaw-pullers. No significant variation is found across geographic areas.

Table 10: Estimated effect of treatment (educational intervention) on willingness-to-pay (natural logged) for participating in health insurance

Variables	Description	Coefficient (Std. Err.)
Treatment	Yes (ref = control)	0.338 (0.064) ***
Age	In years	- 0.003 (0.004)
Gender	Female (Ref = male)	-0.221 (0.172)
Marital status	Unmarried (ref = married)	0.127 (0.085)
	Others (ref = married)	0.413 (0.385)
Household size	Number of household members	-0.018 (0.027)
Institutional educational level	Up to primary level (ref = less than one year)	-0.198 (0.083)**
	More than primary level (ref = less than one year)	0.056 (0.096)
Household income[1)]	Logged income per month	0.034 (0.043)
Illness in last 6 months	Illness of respondent or any household member	0.003 (0.099)

Location	Sub-district (ref= Metropolitan city)	0.119 (0.078)
	District (ref= Metropolitan city)	-0.122 (0.078)
Occupation	Shop worker (ref= Rickshaw-puller)	-0.387 (0.097)***
	Restaurant workers (ref= Rickshaw-puller)	-0.344 (0.084)***
Constant		3.402 (0.444)***
N		431
R-squared		0.156
F-value$_{(14,146)}$ (Prob>F)		5.50 (0.000)
Mean VIF (max)		1.66 (2.68)
BP/Cook-Weisberg test (p>ch2)		10.31 (0.001)
Ramsey RESET, F (p>F)		0.82 (0.486)

Note: ***, ** and * denotes significant at 1%, 5% and 10% risk level respectively, [1] Per equivalent adult (natural logged).

The regression model explains 15.6% of total variations (R2 = 0.156). The diagnostic tests favour the regression model. The Breusch-Pagan/Cook-Weisberg test shows that heteroscedasticity is not present in the model. A Variance inflation factor (VIF) test with its maximum value of 2.68 indicates that there is no multicollinearity in the regression model. A Ramsey RESET test shows that there is sufficient evidence against the hypothesis of an omitted variable bias in the model.

For testing the robustness of the relationship between educational intervention and the magnitude of the WTP (naturally logged), a robust standard error has been calculated. The regression model has been reduced and extended by excluding and including variables. All models tested showed that the workers in treatment group are willing to pay more for the health insurance.

VIEWS OF RELEVANT ACTORS

The summary of the discussion during intervention sessions and the outcomes of FGDs and KIIs are presented below.

Summary of discussion during intervention sessions

Need for healthcare is strongly felt by the respondents in all occupations and study sites. Drug stores are generally the first point of contact with healthcare, followed by general practitioners. The Public hospital in Dhaka (metropolitan city) and Nobinagar/Savar (sub-district) are often used due to geographic nearness and high reliability, while the public hospital in Chandpur (district) is less reliable. Among service providers, traditional healers and homeopathic practitioners are available. Public hospitals are poor in quality in terms of availability of free medicine, non-functional diagnostic test devices, uncleanliness and informal payments etc. However, the cost of care is low in public facilities. The private facilities are accompanied with excessive prescription of drugs and diagnostic tests and these are overall costly for informal sector workers.

All occupational groups in all sites mentioned that they receive much less healthcare than required because of lack of financial capacity, limited supply of healthcare (drugs, diagnostic tests, healthcare providers etc.) and time limitations due to longer working hours. While attaining healthcare, meeting expenditure is a challenge for the workers, the expenditure is met mainly from regular income, loans and savings. Workers in many cases live with diseases until any emergency need of care appears. Selling property is a way of meeting healthcare expenditure in such cases, which results in a cut in essential consumption on things such as food, education, clothing etc. or sometimes in a catastrophic burden.

The workers commonly found that the risk-pooling mechanism is a reliable way of financing health care. Health insurance thus can be utilized for getting healthcare at an affordable price whenever needed. However, the workers are reluctant to pay premiums to third-party insurers since they may not have any control over the quality of services. They are more interested in utilizing their occupational solidarity and association for developing their healthcare fund. However, because of some bad experiences (like, frauding) of financial activities of cooperatives, they want to institutionalize (legal entity) such associations. The workers strongly felt that technical and managerial support for developing such an institution was required. The workers found such an institution

(health insurance scheme using occupational solidarity) as a source of empowerment of the occupational groups. The workers are sensitive against the terminology "insurance" due to some malpractices in the current market, such as in the case of life insurance (though not in the area of healthcare).

Focus group discussion and key informant interviews

A Summary of FGDs and KIIS are presented under respective discussion points.

Types of illness that informal sector workers suffer from:

Informal sector workers mostly suffer from flu, cold, cough, jaundice, fever, muscles pain, gout, gastric, diarrhea, dysentery, skin diseases, sexual diseases (RTI, STI), muscles pain, injury, diabetes, heart diseases, tuberculosis, typhoid and malnutrition. Insurance service providers highlighted that malnutrition is a very frequent health problem for the working people. Study participants also identified a few common illnesses by types of occupation which are stated below

Table 11. Commonly available diseases in different occupations

Occupation	Common diseases
Rickshaw pullers	Diarrhea, dysentery, skin and sexual diseases, injury or accident, fever, cold, cough and gout.
Other transport workers	Reproductive Tract Infection/ Sexually Transmitted Infection, skin diseases and accident or injury.
Hotel and restaurant workers	Skin diseases, cold, cough, fever, and diabetes.
Construction workers	Injury or accident related health problem in their life.
Fishermen	Cold, cough, fever and skin diseases.
Tobacco factory workers	Tuberculosis and cancer.
Garments/small tailoring shop workers	Asthma, Tuberculosis, lung infection

Treatment places from where they find medical services:

They primarily receive health services from the pharmacy where the quacks, rural medical practitioners or medicine sellers generally provide services. During serious illness, they go to the GP's chamber and public hospitals as well as sometimes to NGO clinics. Besides this, they receive services from homeopathic doctors, and kabiraj (traditional healers).

Quality of services they receive from different treatment places:

Public facilities are always crowded, but the cost of care is low. There is an insufficient supply of medicine, supplies, and diagnostic facilities in these hospitals. Additionally doctors allocate very little time to the poor patients. Sometimes inappropriate behavior of providers can appear as a barrier to healthcare seeking. Additionally, lack of cleanliness and informal payments discourage people to seek healthcare in the public facilities. Doctors in the public facilities encourage patients to visit their private chamber.

In the private facilities the quality of service is better than the public ones, but private facilities cost much higher. Doctors in their private chambers unnecessarily prescribe more diagnostic tests and medicines which increases cost of care causing poor patients find it unaffordable. Although NGO facilities (not-for-profit) provide better service than public facoéotes, the area of care (service coverage) is often limited.

How the informal sector workers cope with their treatment costs:

As the workers normally do not have sufficient savings they mostly (for serious illness which demands high cost of care) rely on loans. They normally take loans from relatives, colleagues or neighbors as well as from micro-credit programs. If needed, they sell their household asset like ornaments, trees, livestock, furniture, and land.

Economic consequences of illness for informal sector workers:

When the earning members or the breadwinner of the family get sick, it creates a financial crisis and the family may fall into catastrophe. It leads to both early and late marriage; children to drop out of education; child labor; crime, drug addiction and the abuse of women.

The effect of illness on food security:

The Food security of families affected by illness of the earning person decreases since savings are not common among them. Under this situation they have to consume only cheap food like rice (as it is the staple food), dal and vegetables. Animal protein becomes unaffordable. They have to compromise both the quality and quantity of food.

How we can prevent health risk/ hazard during work:

All types of respondents have some opinion regarding the prevention of health hazard in workplaces. They mentioned that workers should take safe guards in respect to their assignments in the workplace. It means that they should use gloves, masks, helmets, gumboots, fire preventative dress and so forth, based on necessity. Insurance providers and workplace leaders mostly focused on the need for health education and awareness program to prevent health hazard.

What initiatives could make health services better?

Informal sector workers have no special opportunities for getting health services in the hospitals or clinics. All respondents mention the need for a separate unit both in public and private hospitals for their services as they are always ignored by the current service providers. Most of the respondents focused on the need for a common medical fund from where they can get financial help during crisis.

Scope of building occupational solidarity among the informal sector workers:

Almost all the participants say that there is feasibility for building occupational solidarity among workers to organize common medical funds. They also suggest that the existing labor associations can be used to increase awareness about making common medical funds. The participants point out that health insurance is suitable in their context and it can be sustainable if quality health services are ensured.

How trust can be built up to develop health insurance:

The participants put emphasis on financial accountability and quality services for building trust between health insurance agencies and service recipients. They suggest that earning community members should be involved directly when creating medical funds. A committee could be formed consisting of local community leaders for technical assistance to monitor the whole process.

How the committee can be formed and functioned:

Firstly, sub-steering committees can be formed with different occupational workers and then a central committee needs to be formed with representatives from all the sub-steering committees. A joint bank account needs to be opened for maintaining the financial flows of medical funds. A technical support committee needs to be there for ensuring better health services. A directive should be formalized for operating the fund accordingly. Most of the study participants suggest that the premium should be collected on weekly basis.

DISCUSSION

Among the workers in the treatment group, knowledge and WTP have increased between pre- and post-treatment periods. Both of these indicators are also higher in treatment groups in comparison to the control group. The WTP for participating in health insurance is 33.8 percent higher among workers who joined the educational intervention in comparison with those who did not (control group). The coefficient of variation for the WTP is found to be generally lower in post-treatment period compared to pre-treatment period. It is also lower in the treatment group than in control group. The qualitative results suggest that health insurance using occupational solidarity is feasible in a Bangladeshi context. The results show that the educational intervention has improved knowledge and WTP of informal sector workers. Educational intervention thus can be used for increasing demand for health insurance scheme using occupational solidarity.

It is observed initially that knowledge about health insurance and occupational solidarity is very poor among informal sector workers. This can be explained by the low numbers of pre-payment mechanism for healthcare financing in Bangladesh as mentioned in the National Health Accounts (WHO, 2010). Pre-payment mechanisms cover only 0.01 percent of total healthcare expenditure.

If an informal sector worker receives an education intervention on health insurance, the mean WTP of that worker is estimated to be 21.7 BDT (0.30 US$) per week. This means that in a one year period each worker with an education on health insurance is willing to pay 1,128 BDT (15.2 US$). There are 41.5 million workers with informal employment (both urban and rural) in Bangladesh of which 20 million are in urban areas (Maligalig et al., 2009). If all these workers can be brought into health insurance by educating them and the estimated WTP (premium) can be extracted as a premium a total of 22,568 million BDT (305 million US$) can be accumulated for financing informal worker healthcare. The total health expenditure in Bangladesh is 191,486 million BDT (2,660 million US$). The estimated total amount of funds (320 million US$) from urban informal sector workers thus corresponds to 11.8 percent of total current healthcare expenditure of Bangladesh.

WTP for health insurance varies across countries. A study in Ghana shows that almost 64% of respondents were willing to pay about Cedi 5000 or US$3.00 per month for a household of five members for a National Health Insurance scheme aimed at the informal sector (Asenso-Okyere et al., 1997). Asgary et al. (2004) examined WTP for health insurance in rural Iran finding that households are willing to pay on average US$2.77 per month for health insurance. On average, an uninsured individual in the Greater Windhoek Area of Namibia is willing to pay 47.50 NAD or US$6.60 per capita per month (Gustafsson-Wright et al., 2009). The studies above generally considered formal institutional education as an explanatory variable of WTP. But no educational intervention directed to "health insurance and the usage of occupational solidarity" has been considered in earlier studies. It may not be surprising that a specific education on health insurance has a higher impact than a formal education as was found in our current study. We observed that the rickshaw-pullers are willing to pay more than other occupational groups. It may be explained by their daily cash-flow as income, while the other groups normally have a monthly-salary.

For encouraging workers to health insurance a comprehensive knowledge about health insurance is required. It means that the workers need to understand that health insurance is a way of financing healthcare through which healthcare can be availed at an affordable price whenever required. It reduces the burden of out-of-pocket payments at the point of receiving healthcare. In a comprehensive educational module, a series of issues needs to be included. The target population should discuss their present need for healthcare and the ways of meeting healthcare expenses. Mechanisms (like, risk-pooling) of health insurance, the involvement and role of different actors in an insurance scheme (like, healthcare providers, insurance providers) and the nature of the prospective clients as well as the utility of insurance should be discussed in educational sessions. It is important to make clear distinctions between "knowledge about health insurance" and "marketing of a health insurance product" while educating workers. Other relevant issues like trust in the insurance providers, benefit package, copayment/deductable should be discussed to a greater extent. It is also observed during educational sessions that most disputes could be resolved through open discussion among workers. For more technical issues the opinions of moderators in the sessions were useful. The workers in most of the cases could come into consensus.

Occupational solidarity seems to work as a strong basis for developing health insurance. The importance of informal sector workers which constitutes 88 percent of total employment in Bangladesh worked as a point of solidarity among the participants. The qualitative part of the study shows that the need for healthcare is high among workers and practice of non-modern medical care is prevalent. The catastrophic burden of healthcare is evident from discussion during educational intervention, FGDs and KIIs. Occupational solidarity and usage of occupational cooperatives appeared to be a strong and potential basis for developing health insurance.

The views of relevant actors are that the need for healthcare is high and the currently available healthcare facilities are either poor in quality (public) or expensive (private) for attaining care. Working hours overlap with hospital visiting hours which is a barrier to healthcare for workers. It is observed in FGD that a common health fund is an alternative way for ensuring healthcare services for workers. Awareness building among workers about a common health fund has been suggested by some actors, which means that educational intervention is important for motivating worker to take up health insurance.

CONCLUDING REMARKS AND POLICY RECOMMENDATIONS

Educational intervention can be used to increase demand for health insurance using occupational solidarity among informal sector workers. Importantly, educational modules should be comprehensive and cover the needs of healthcare in the community, existing accessibility to and quality of healthcare, risk-pooling mechanism, types of health insurance, strength of occupational solidarity, organization of health insurance using occupational cooperatives etc. The response to any query (does not matter how important the issue is) from the participating workers must be replied logically and convincingly during intervention sessions. Health insurance using occupational solidarity is considered to be applicable in Bangladesh context.

Healthcare financing is an essential component of universal health coverage. In low- and middle income countries funding healthcare for informal sector workers has appeared to be a challenge. Indirect taxes have emerged as a source of funding healthcare for these workers. The informal sector workers are not in the income-tax base even though they income. Alternative funding sources are thus required. The government of Bangladesh and other low- and middle income countries can consider health insurance using occupational solidarity as a potential complementary source of funding along with indirect taxes for financing healthcare of informal sector workers.

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APPENDIX 1

Description of the educational intervention

FIRST DAY

In the first day, a short presentation took place containing information on distribution of all workers across formal and informal sectors in Bangladesh. The participants, who represent informal sectors observed their importance in the whole labor force of Bangladesh. It is remarkable that informal sector constitutes 88% of total labor force and almost half of them are from urban areas. They have been informed that almost 65% of total income of Bangladesh is earned by informal sector workers.

A discussion then took place about the meaning of two generally familiar proverbs in Bangladesh, i.e. "health is the root of all happiness" and "health is wealth". The intrinsic value of health and the importance of health for earnings were consequently discussed. The lost working days due to ill-health have been compared with the lost days due to general strike (it happened often in early years) for a good understanding about the importance of health for national development. After putting the participants into discussion on health and its economic and non-economic consequences, a case study has been presented and discussed in smaller group

The case to be discussed

Golam Kibria is an informal sector worker and works as a rickshaw-puller. He is 38 years old. He has a wife, one daughter and two sons. The daughter is 14 years old and a son of 12 years of age. The son goes to school at grade 5. Due to land erosion by river flood, the family lost all property and moved to Chandpur town four years back in search of a good job. He took a job as a rickshaw-puller. He then started to live in a slum-area with his four-member family.

Kibria used to cough sometimes. Because of low income and lack of awareness, he avoided meeting a doctor and took medicine from a pharmacy without prescription. One night all on a sudden he started to cough severely and started to vomit blood. His wife met the pharmacy immediately and came to know that Kibria might have tuberculosis (TB) and advised to meet a physician as soon as possible.

In the next morning, Kibria went to a physician with some saved money. After diagnostic test, it was confirmed that Kibria was suffering from TB. Kibria did not have much savings. He managed a small amount from savings.

Due to financial constraint, Kibria could not receive a standard treatment. The doctor said, Kibria should have a good treatment from the beginning. Now the disease has become severe and very difficult to cure. However, he required more money for a good treatment.

Kibria had to stop working. The family fell into catastrophic condition. Since they could not manage the house rent, they had to leave the house and started to live on the street.

The participants (total 30) were divided into 2-3 groups for discussing the case mentioned above. A facilitator for each group was assigned. The facilitator read the case to his group. The participants were first asked if they know about any similar event. And the following points were then discussed:

Health risk and catastrophic expenditure

1) The physical and psychological condition of the patient
2) Treatment costs (including components)
3) Income loss
4) Involvement of relatives and friends (indirect cost)
5) Consequence of debt for treatment?
6) What can happen to his daughter?
7) What can happen to his son?
8) What can happen to his wife?
9) What can happen to the family as a whole?
10) What the patient (Kibria) could do for preventing the health hazard?
11) How could Kibria be prepared for a better option for meeting treatment costs?
12) How could the patient have access to a quality medical care?

The participants then were directed to a discussion on their currently available healthcare facilities (General practitioners, primary care, inpatient care, medicine, and diagnostic test) and quality of such facilities. Such a discussion could bring the importance of quality healthcare for their life.

SECOND DAY

The second day started with a summary of the discussion of the first day (See slides). A popular presentation of healthcare financing model was made. The topics contained knowledge about healthcare triangle, current financing methods in Bangladesh (out-of-pocket, tax), impacts of out-of-pocket payment and tax-based system. The demerit of out-of-pocket financing mechanism, especially for the low income people was discussed. Finally, the health insurance as an alternative financing mechanism (in addition to tax-based) is presented. The definition of insurance, types of insurance (private company, non-profit NGOs and community-based insurance) and its utility are presented and discussed.

For a better understanding of insurance mechanism, an "insurance game" was played by the participants, adapted from 'Treasure Pot Game', developed by Micro Insurance Academy of India. The participants were divided into three groups with around 10 participants in each. A manager was elected by each group for collecting premium and keeping financial record. The participants got a sum of money (prototype of money) which they could use for paying the premium. The group freely decided to pay an amount per week as premium. They paid the weekly premium to the manager for a one month period. The manager counted the money and declared the total revenue. Based on the assumption that 30% of the insured can get sick, 10 cards with 7 picture of a healthy and 3 picture of sick person were distributed among the participants. The participants who got sick card were considered to be sick during the month. The manager then divided the total revenue into three parts and declared the amount which can be used for purchasing healthcare for each sick person. The group moderator then drew the attention of the participants about how they can use more money than they paid (as premium) for purchasing healthcare. It was then discussed how workers can be benefited from fund-pooling instead of simply saving money individually. The participants agreed that there is a risk of spending the individual savings for other purposes than healthcare when needed. They further agreed that fund-pooling (risk-sharing) is a better way of managing healthcare costs.

A natural question of the participants was: what happens to the people who do not get sick and just pay the premium for a long period (like, one year or longer). The moderator reshuffled the health cards and distributed among the participants again. Now the sick card went mostly to other than those who got it in the first time. It implied that the sickness may come to anybody anytime. It was further argued that those who do not get sick, in a given time, have the guarantee of healthcare whenever they get sick and it increases their utility. It was observed that the participants still wanted to be rewarded for not utilizing healthcare being a member of insurance. Some solutions (like, less premium next year) were then discussed.

A fictitious calculation was made by the moderator considering the number of workers available in the catchment area and the premium level decided by the participants. For instance, there are 10,000 rickshaw-pullers in Chandpur district town. A premium of 20 Taka per week (participants consider it possible) would constitute total revenue of almost 148,570 US$ per year. Using such an amount a defined set of healthcare can be organized for many. Discussion on the gap between the revenue and cost of care as well as the mechanism of filling up such gap was discussed. The commonly found mechanisms were the increase of premium and increase in number of enrollees, investment in bank or business and donation.

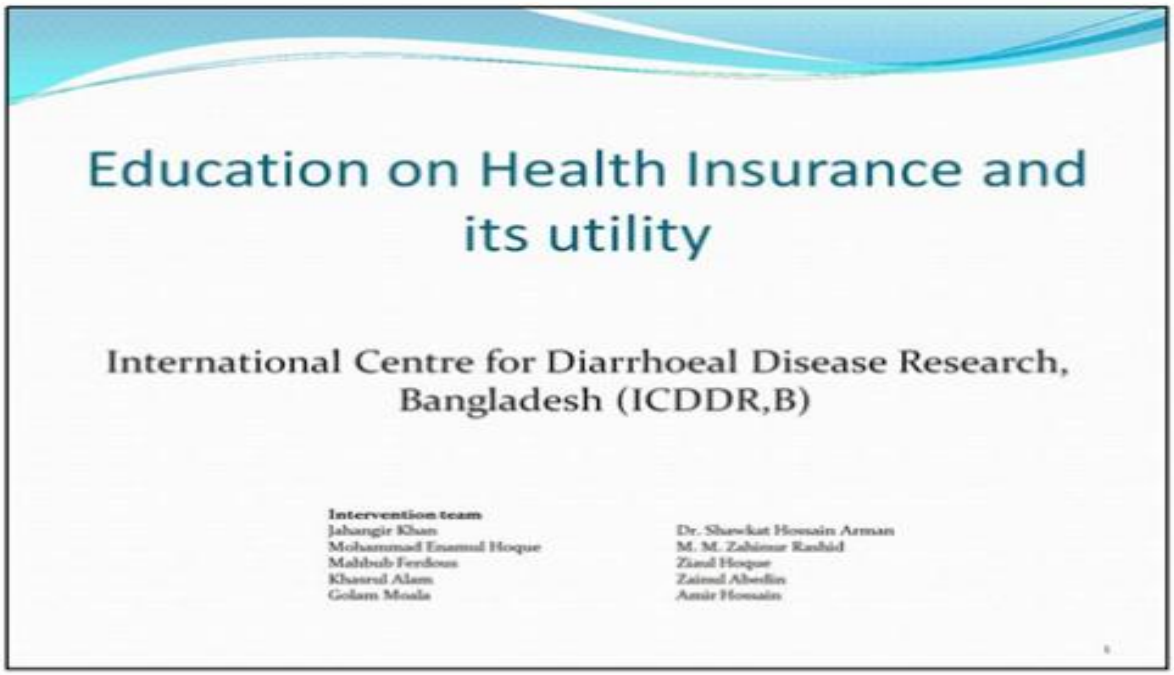
The weaknesses and strengths of private for profit, private non-profit (NGO) and community-based health insurance were discussed among the participants. Since the occupational groups were invited, the participants have a positive tendency to community-based health insurance using occupational solidarity. One strong reason was that they found the health insurance scheme based on occupational solidarity a way of social protection (not limited only within health) and possibility for community development. However, the participants put emphasis on having a "technical support team" for developing such a health insurance scheme.

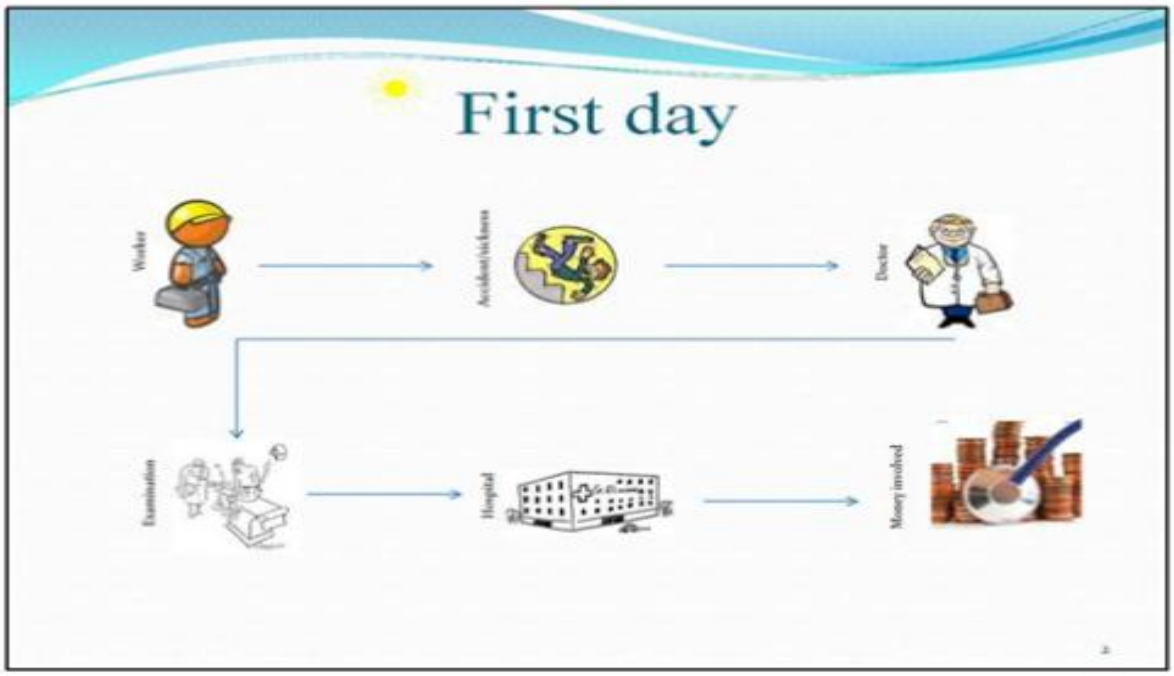
THIRD DAY

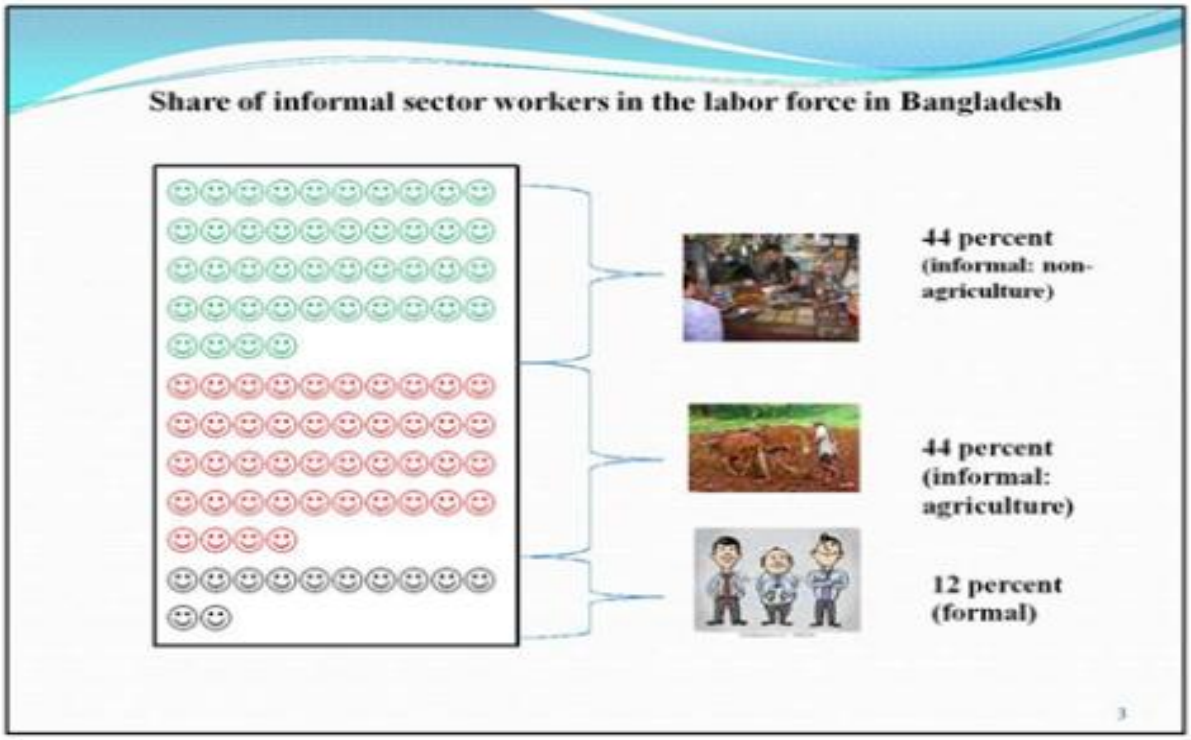
The summary of discussion from the second day is presented in the beginning of the session. Experience of health financing mechanisms (tax, social health insurance, out-of-pocket payment etc.) for achieving universal health coverage in developed and developing countries were presented. Experience of Germany on social insurance was shared with the participants. "The countries which started later with social insurance as one of the financing mechanisms took shorter time to achieve universal health coverage" - drew attention of the participants. The participants are hopeful that a late start of Bangladesh with social insurance should not take very long time to bring all citizens under healthcare access since Bangladesh can utilize the experience of countries ahead and the modern technology. The developing countries which are in different stages towards universal health coverage using social insurance as one of the financing mechanisms (discouraging out-of-pocket payment) were presented: Kenya (planning), Ghana (initiating), the Philippines (expanding), Columbia (matured) and Thailand (achieved). The experience of these countries was highly encouraging for the participants.

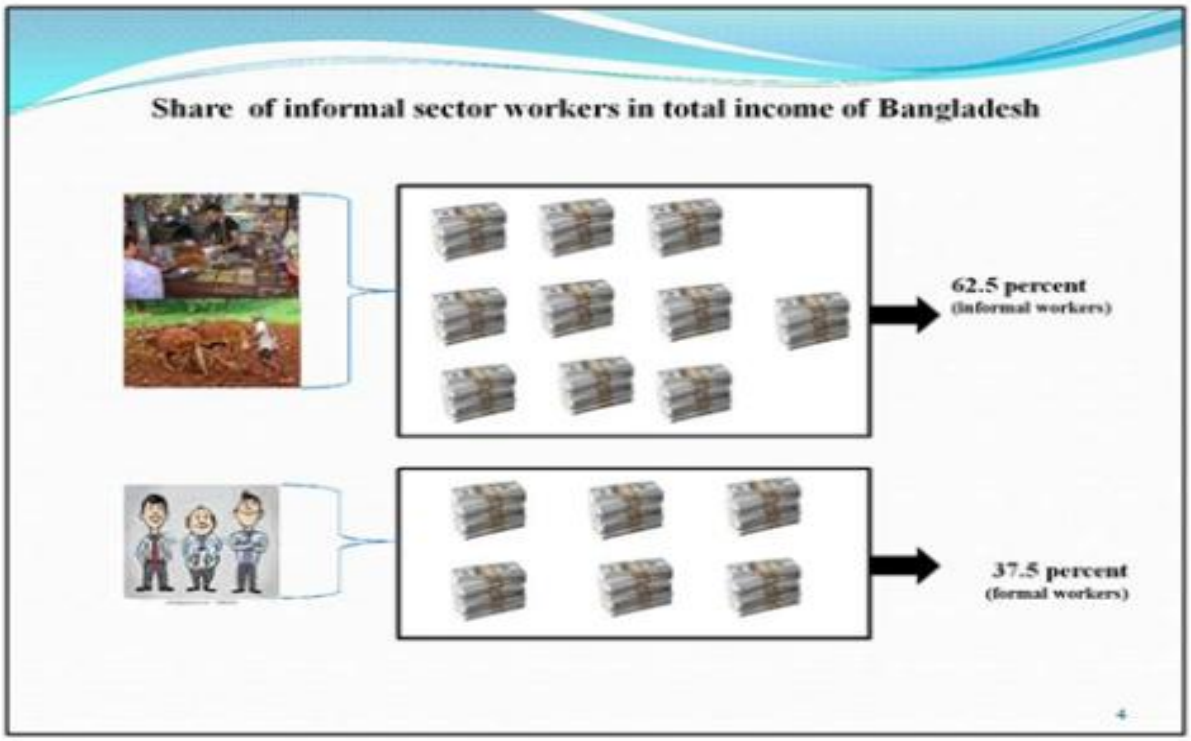
Discussion on the possibilities of utilizing occupational cooperative or solidarity took place. There were a number of cooperatives, which have limited activities. But very few activities are dedicated to welfare of workers. The idea of health insurance using occupational solidarity could open a new horizon of thinking about welfare. The workers expressed that they can organize the workers and pay the premium. But technical and managerial support from any external body will be essential for any progress.

APPENDIX 2


Education on Health Insurance and its utility
International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B)
Intervention team
Jahangir Khan
Mohammad Enamul Hoque
Mahbub Ferdous
Khasrul Alam
Golam Moula
Dr. Shawkat Hossain Arman
M. M. Zahirur Rashid
Ziaul Hoque
Zainul Abedin
Amir Hossain


First day
Worker
Accident/sickness
Doctor
Examination
Hospital
Money involved


Share of informal sector workers in the labor force in Bangladesh
44 percent
(informal: non-agriculture)
44 percent
(informal: agriculture)
12 percent
(formal)
3


Share of informal sector workers in total income of Bangladesh
62.5 percent
(informal workers)
37.5 percent
(formal workers)
4

Proverbs familiar in Bangladesh

- 'Health is the root of all happiness'
- 'Health is wealth'

Loss due to ill health

- Health loss
- Social life loss
- Income loss
- Healthcare cost

Case study

Golam Kibria – an informal sector worker got sick, but could not have adequate healthcare and its Consequences (Group discussion)

7

Current healthcare facilities

Group discussion on current healthcare facilities of the participants (informal sector workers) and its quality

8

Second day

Health insurance

9

RECAP
Outcome of discussion of case study on Golam Kibria

Pain and discomfort

Treatment cost

Income loss

Time of relatives

10

Sinking in loan

Begging money

Break in education of children

Child labor

Get into crime world of the children

Being home maid of wife daughter

Prevention: More caring about health and savings

RECAP

Outcome of discussion on current healthcare facilities of workers

General practitioner

Experience →

- Trust to doctor – less
- Lots of medicines prescribed
- Lots of diagnostic tests
- Long waiting time

13

RECAP

Public hospital

- Lots of patients
- Informal payments
- Unclean environment
- Medicine unavailable
- Diagnostic tests unreachable (suggested to do from private facility)
- Low cost

14

RECAP

Private hospital

- Expensive (often unreachable)

Traditional medicine

- Low cost
- Not always reliable

RECAP

Pharmacy

- Non-prescribed medicine
- Lots of medicine
- High costs
- No consultation fee

SECOND DAY AGENDA

- Current mechanism of healthcare financing, healthcare triangle, concept and utility of health insurance
- Insurance game
- Roll-play
- Types of health insurance and its merits and demerits

17

Financing healthcare

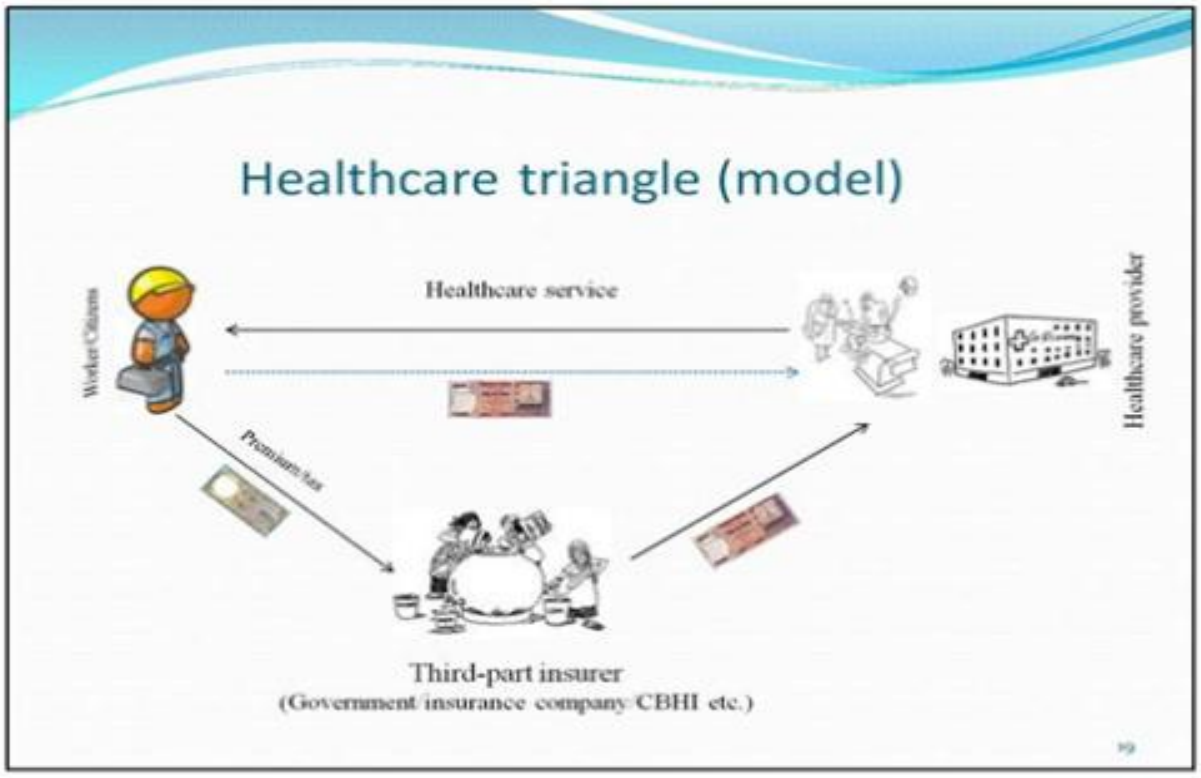
- Private

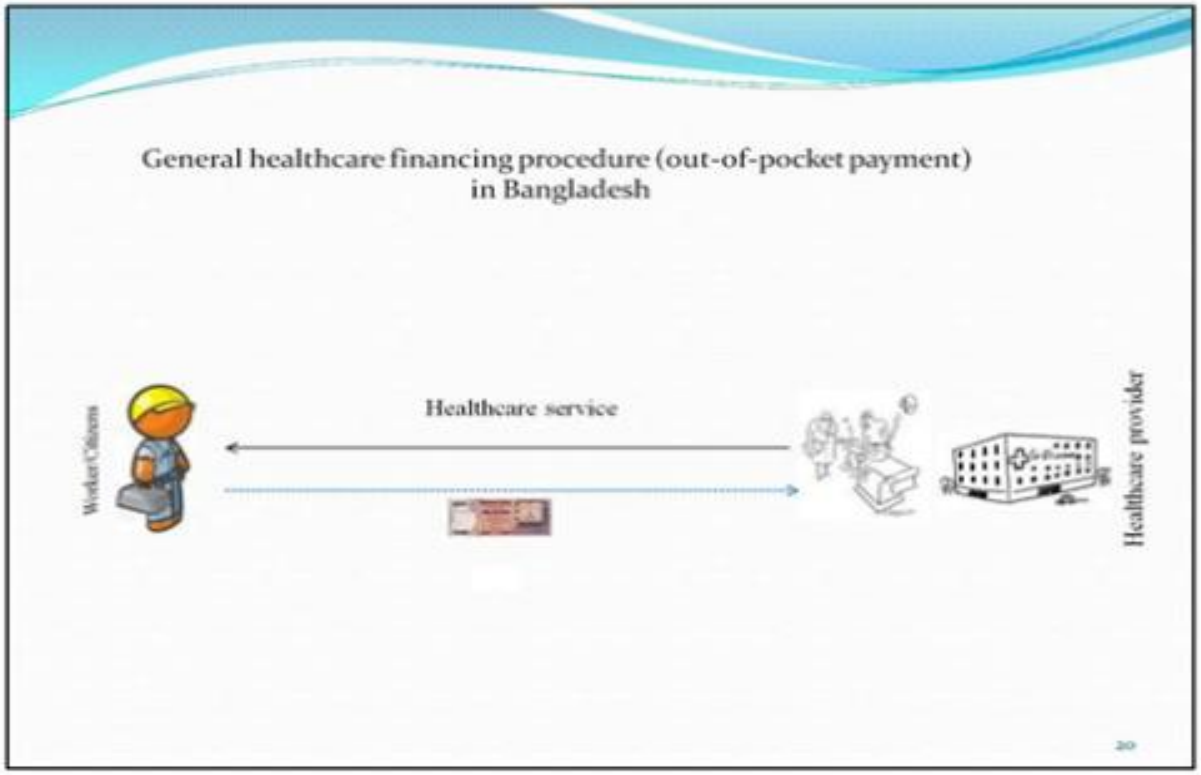
64 percent
(97% of this is by out-of-pocket payment)

- Government

36 percent
(revenue and development budget)

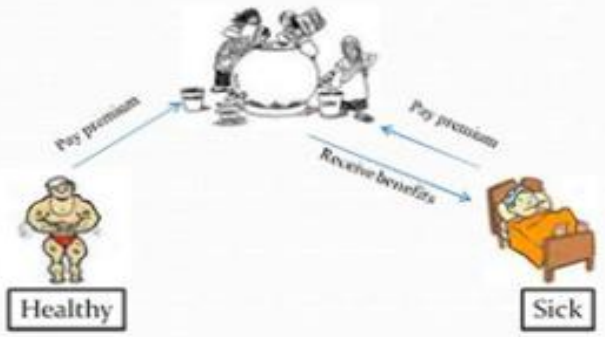
18


Healthcare triangle (model)
Worker/Citizens
Healthcare service
Healthcare provider
Premium/tax
Third-part insurer
(Government/insurance company/CBHI etc.)


General healthcare financing procedure (out-of-pocket payment)
in Bangladesh
Worker/Citizens
Healthcare service
Healthcare provider

What is health insurance and its utility?

Insurance game in small groups



Utility of insurance

Roll-play

Two persons come to a doctor for consultation, to diagnostic test center and medicine store. One of them had insurance while the other did not.

Rolls: Patients, receptionist, doctor, personnel in diagnostic test center, drug seller and a friend of the patient.

Scene: The first patient who does not have any insurance came to the healthcare provider. No reduction in price for any services was made to the patient. He had to contact his friend for borrowing money, but failed. The prescribed treatment could not be received by this patient.

The second patient with health insurance came to the same healthcare provider and received the treatment at a reduced price. The second patient felt a stronger connection to the provider due to pre-payment through insurance.

Types of health insurance

- Possibilities and limitations

Type of insurance	Possibilities and limitations				
	Premium and service	Trust vs control	Influence	Merits	Demerits/load
Private for profit					
Private not for profit					
Community health insurance					
Social health insurance					
National health insurance					

23

Third day

- ❑ Social health insurance experience in developed and developing countries
- ❑ Occupational cooperative and solidarity

24

RECAP

- Healthcare financing mechanisms
- Health insurance and its utility
- Health insurance game
- Roll-play
- Merits and demerits of different types of health insurance

25

Third day agenda

- History of social health insurance
- Experience of social health insurance in developed and developing countries
- Occupational cooperatives and solidarity for developing community-based health insurance

26

History of social health insurance

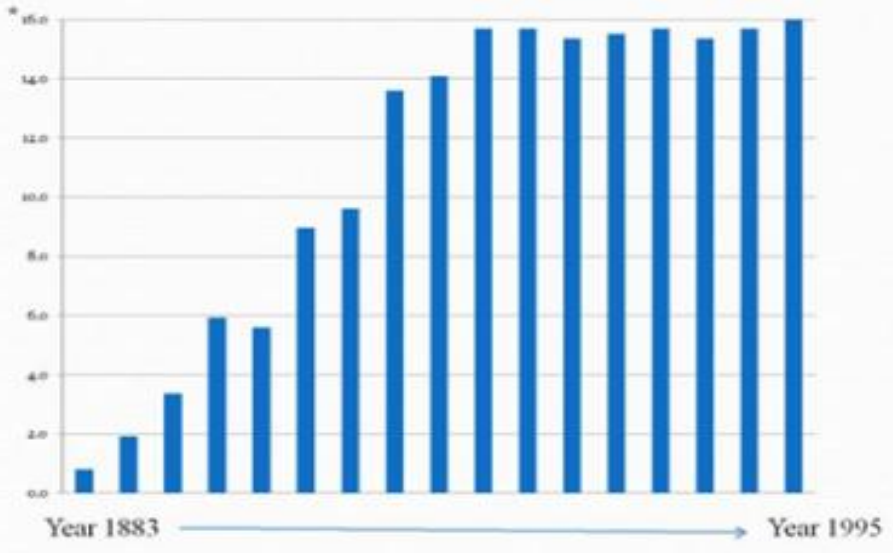
Germany is the inventor of social health insurance (1883)

Insurance schemes based on:

- Geographic area
- Occupation
- Workplace

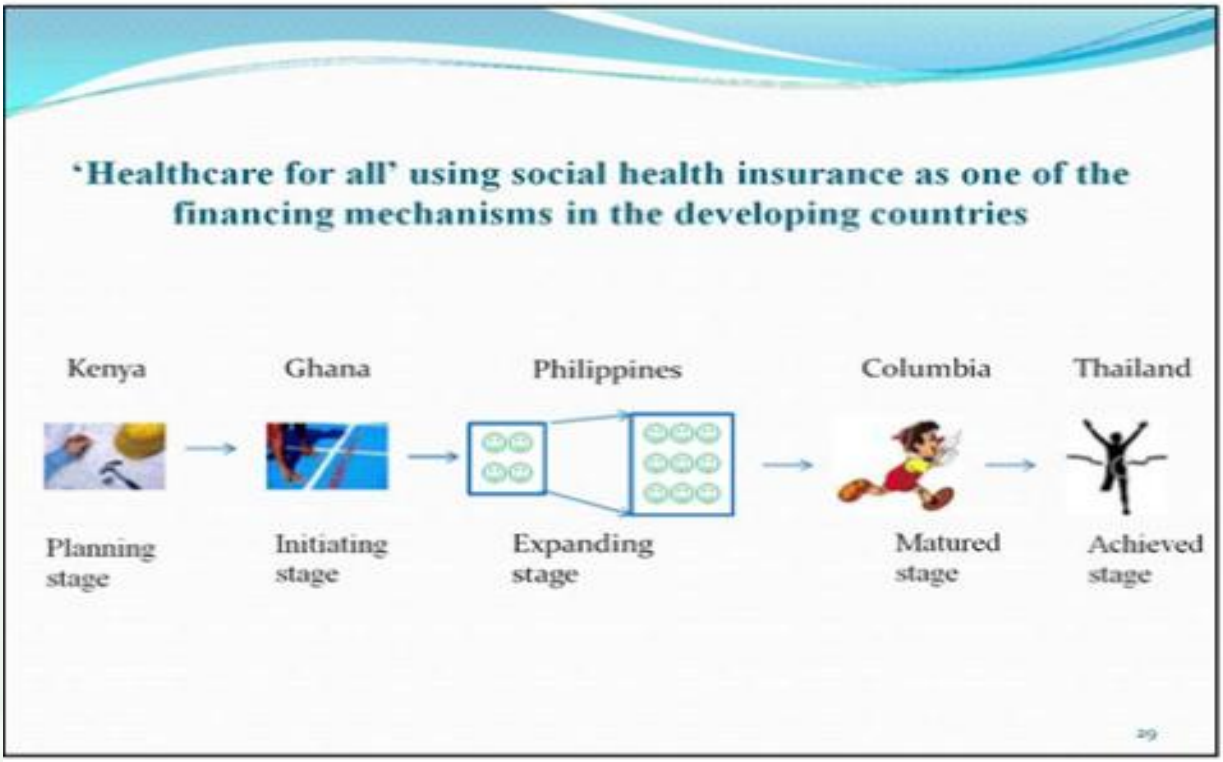
27

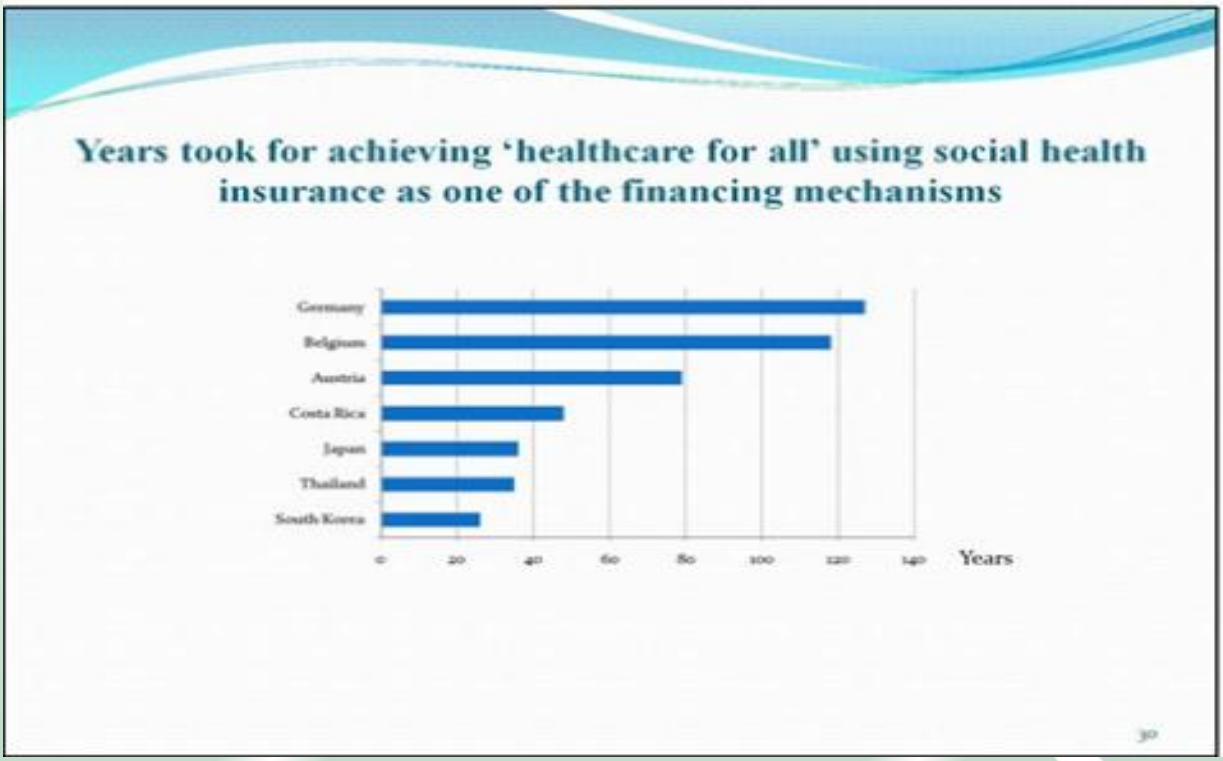
Population coverage for social health insurance over periods in Germany



*Rescaled to 16 (corresponding 100%)based on Bangladeshi traditional measurement

28


'Healthcare for all' using social health insurance as one of the financing mechanisms in the developing countries
Kenya
Ghana
Philippines
Columbia
Thailand
Planning stage
Initiating stage
Expanding stage
Matured stage
Achieved stage
29


Years took for achieving 'healthcare for all' using social health insurance as one of the financing mechanisms
Germany
Belgium
Austria
Costa Rica
Japan
Thailand
South Korea
0
20
40
60
80
100
120
140
Years
30

Occupational cooperatives/solidarity

- If occupational cooperatives are available in the area
- If available, what are the activities
- What are the activities related to workers' welfare
- If not available, is it possible to build such cooperatives
- Is it possible to develop health insurance (community-based or other types) using such cooperatives
- What can be the role of cooperatives for developing health insurance
- What additional supports are required

Open discussion and vote of thanks

APPENDIX 3

Target population and location of FGDs and KIIs

Location	FGDs		KIIs	
	Insurance providers	Labour leaders	Healthcare providers	Employers/owners
Metropolitan city, Dhaka	1 FGD with BRAC, GK, DCH, SAJIDA Foundation, Grameen Kalyan, Dusthya swasthya Kendro	1 FGD with restaurant workers and shop-keeper 1 FGD with Rickshaw-pullers	1 KII with Government I KII with Private clinic	1 KII with shop owner 1 KII with restaurant owner 1 KII with rickshaw garage owner
District, Chandpur	1 FGD with BRAC, Smiling Sun, Paribarik Shashtya Clinic, Thangamara Mohila Sabuj Sangha – TMSS, Marie Stops, Voluntary Organization for Social Development, Bangladesh Association for Voluntary Sterilization	1 FGD with restaurant workers and shop-keeper 1 FGD with rickshaw-pullers	1 KII with Government 1 KII with Private clinic 1 KII with NGO clinic (Society for Social Security)	1 KII with shop owner 1 KII with restaurant owner 1 KII with rickshaw garage owner
Sub-district Nobinagar, Savar	1 FGD with Smiling Sun, GK, Nagar Swasthya Kwendro, Marie Stops, Swanirvor Bangladesh	1 FGD with restaurant workers, shop-keeper and rickshaw-pullers	1 KII with Government 1 KII with Private clinic 1 KII with NGO clinic (Society for Social Security)	1 KII with shop owner 1 KII with restaurant owner 1 KII with rickshaw garage owner