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Article

Education and Health: Mediating Role of Socioeconomic Status and Health Lifestyle among Muslim, Hindu, and Santal Men in Rural Bangladesh

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Abstract:
This study examined socioeconomic status (SES) and health lifestyle pathways that underlies the relations between education and subjective physical health (SPH). This study directly assessed the research objectives from the representative sample (N=550, age range 20-55 years): Muslim (n=190), Hindu (n=180) and Santal (n=180) men in rural Bangladesh. In the data analysis, descriptive and multinomial logistic regression tools were used. Results revealed that a lower level of education and lower SES and more unhealthy lifestyles of Santal men than that of Muslim and Hindu men were significantly associated with poorer SPH. Furthermore, , after accounting for sociodemographic characteristics, mediation analysis suggested that lower SES and more unhealthy lifestyles mediated the association between lower education and poorer SPH among Santal men than Hindu and Muslim. The current study provides evidence that lower SES and unhealthy lifestyle of the Santal men than Muslim and Hindu men shows that the relationship between education and health in Bangladesh are contextual. Future directions for further research and policy implication are also discussed.

Keywords: education, health, socioeconomic status, health lifestyle, majority and minority men, Bangladesh

INTRODUCTION

Decades of research suggest that education influences socioeconomic attainment and subjective health and social well-being (Cutler &LIeras-Muney, 2006; Mirowsky& Ross, 2003). By education, this pertains to years of formal schooling that help individuals, not only to attain valued social positions, including occupation, income, power, and healthy lifestyle, but also to foster health in their life cycle (Braveman & Egerter, 2009; Ross & Mirowsky, 1999; Winkleby, Jatulis, Frank, & Fortmann, 1992). How does education foster health? Previous studies suggest that education influences health in various ways: physiological process, socioeconomic status, socio-demographic status, lifestyle, and psychosocial processes (sense of personal control, social stress, and social support).

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Particularly, Mirowsky et al's. (2003) human capital theory of learned effectiveness and research opines that lower educational attainment is linked to poorer subjective physical health (SPH), mediating lower socioeconomic status and unhealthy lifestyles among the general population. Using a representative sample, Ross and Willigen (1997) found that well-educated people had a higher level of physical health and a lower level emotional distress because of certain circumstances: paid work, stable job, and accumulating economic resources with high personal control, stable marital relation, and social support. In a telephone survey of 2593 representative, with a sample age of 18 to 95, conducted by Ross et al. (1999) found that quantity, credential, and selection of formal education were positively linked to physical functioning and perceived health, controlling for sociodemographic status (e.g., age, sex, marital status, and parental education) among the general population. They also found that of the three aspects of education, years of schooling had the largest influence on SPH, attributable to its correlation with work and economic condition, psycho-social resources, and healthy lifestyles.

Several cross-ethnic studies have also explored differences in the association between educational attainment and health across the ethnic groups in the US (Baron-Epel & Kaplan, 2009; Mirowsky & Ross, 1980; Mossakowski, 2008; Williams, 1990). Cross-ethnic studies revealed that lower educational attainment of minority ethnic groups compared to Whites in the US is significantly associated with poorer SPH, mediating lower socioeconomic status, unhealthy lifestyle, and poor psychosocial status (low social support and low self-esteem). For example, Mossakowski (2008) found that lower educated young adult Blacks and Hispanics had significantly higher levels of depressive symptoms than the Whites according to their lower socioeconomic status, poverty, and family disruption in the US.

Taken together, previous studies suggest that relations of lower education with poorer SPH among people in general and minority ethnic people, in particular, are remarkable, mediating socioeconomic status, sociodemographic factors, and health lifestyle. Although cross-ethnic studies in Bangladesh mainly have focused on linking sociocultural status to social stress (Uddin, 2011a, 2011b) and mental health or sociodemographic status to arrack drinking among Muslim, Hindu, Santal and Oraon ethnic men (Uddin, 2008a). There are also no particular studies on socioeconomic status and health lifestyle that underlies the relations between education and SPH amongMuslim, Hindu and Santal Menin rural Bangladesh. Drawing from the human capital theory of learned effectiveness (Mirowsky's et al., 2003) and research (Ross's et al. 1999), the main aim of this study is to examine and compare relations between the level of formal education and SPH according to socioeconomic status (SES) and the health lifestyle among Muslim, Hindu, and Santal men in Bangladesh. The findings of this study are necessary to improve health among the ethnic groups in the country.

REVIEW OF LITERATURE

Education and Health in Bangladesh

Bangladesh is an agro-economy-based society where different religious and ethnic communities live side-by-side. An ethnic community is a group of people who share the same value system, including language, values, beliefs, attitudes, norms, customs, or traditions, which behave accordingly across various social situations to meet human needs (Uddin, 2009a). The ethnic communities involved in this study, Muslim, Hindu and Santal, are socio-culturally distinct from each other. The Bangladeshi Muslims are socio-economically and politically more dominant than other communities, such as Hindu and Santal (Uddin, 2009a, 2009b). Ethnically, they are a diverse combination of long traditions of Islamic values, attitudes, beliefs and ideas who speak Bengali and a mixture of Arabic-Urdu preference (Maloney, Aziz, & Sarker, 1981; Sarker, 1997 Uddin, 2009a). The Hindus are the largest minority group, and they speak Bengali traced from Hinduism (Sarker, 1997). The Santal belong to Proto-Australoid people who speak Austric-Mundary language for the former (Ali, 1998) and Sadri and Kuruk for the latter. Religiously, every community bears and preserves a distinct belief system: the Muslims believe in Monotheism, the oneness of God or Tawhid (Uddin, 2009a; Uddin, 2015); the Hindus believe in polytheism, Gods and Goddesses, some are males and some are females under the creation of almighty

Bhagwan (Maloney et al., 1981; Sarker, 1997); and the Santals believe in animism, nature worships, such as birth, death, illness, Sun, Moon, stars, rain, air, cyclones, and other natural disasters (Ali, 1998).

Despite launching social and economic development programs through public and private organizations since the country's independence, several culture-specific (Ali, 1998) and cross-cultural studies (Uddin, 2015, 2017a) reported that the socioeconomic progress of Muslim and Hindu men is higher than the minority Santal and Oraon groups. These studies clearly indicate that although the country is based on agriculture, most of the minority groups, especially the Santal are the poorest of the poor; they have no land property and even land settlement (Ali, 1998). Most of the minorities engage in day laboring for their livelihood. As a result, most Santals never go to school. They have limited access to formal education, and they remain illiterate from one generation to the next. As such, their formal labor force participation and income is very lower than the Muslim and the Hindu men (Ali, 1998; Sarker, 1997; Uddin, 2015). Some cross-ethnic literature (Uddin, 2008a) revealed that the minority groups, especially the schedule caste Hindu, and low socioeconomic status Santal and Oraon, could not maintain their livelihood according to the country's societal goals and means, leading to psychosocial stress, and physical and mental health problems in the country (Uddin, 2008b, 2017a). The next section reviews relevant literature in Bangladeshi context.

Education and Health

Education is the success of pillar of socioeconomic attainment and health. Cross-ethnic studies in Bangladesh found that most Muslim and Hindu adult men (62.07%) are farmers while most Santal men (83.92%) are day laborers, because of lack of education and skill training in business and administrative sectors (Uddin, 2009b, 2017a). Other studies also reported that most jobs in the formal and informal sectors are occupied by the educated groups, Muslims and Hindus. Therefore, most minority people, including adult men and women, are engaged in day laboring in rural Bangladesh (Ali, 1998). It is likely that their personal and family income is lower than the Hindu and Muslim men in rural Bangladesh because Muslims and Hindus have a higher educational attainment, and are working in prestigious job, such as land property, business, and other white colar jobs (Uddin, 2017b). These lower socioeconomic positions and the least amount of land property of the Santal compared to the Hindu and Muslim may have linkages between lower educational attainment and poorer SPH and social well-being (Uddin, 2011a, 2017b). Using a representative sample, Uddin (2017b) found that lower SES is significantly associated with poorer SPH in rural Bangladesh, which also accounts for personal and family characteristics.

Socioeconomic Status and Health

The occupational and income attainment of an individual in an economic system fully depends on his or her educational attainment. As most of the rural Bangladeshi are illiterate, they adopt several occupations related to agricultural system. Since many of them are landless farmers, they work as day laborers, including Santals. Uddin (2008a) and Ali (1998) found that both Santal and Oraon adult men and women would take part in agriculture and construction fields as manual laborers, because of their low education and lack of proper skills. Using a representative sample, Uddin (2009b, 2017a) compared occupational differences in Muslim, Hindu, Oraon and Santal men. The findings revealed that most of the Muslim men (62.07%) were farmers, while most of the Santal men (83.92%) were day laborers. Uddin (2009a) argued that although the main occupation in this region is agriculture, most of the minority men, compared to Muslim and Hindu men, are landless and severely poor. As a result, Santal men, compared to other ethnic men, are more likely to suffer social stress (Uddin, 2011a, 2011b) and health problems (Uddin, 2017b) in rural Bangladesh.

Income also depends on educational and occupational attainment. Using a representative sample, Uddin (2008a, 2011a) found that the annual income of Muslim men was higher than minorities, especially Santals in rural Bangladesh, because the former had more land property, business, and other sources of income. Other studies by Uddin (2009a, 2009b) compared annual family income between Muslim and Santal communities. The results of the study showed that low-income couples (>20,000 Tk. yearly) in the Santal community were 80.42% compared to the Muslim (33.10%). On the other hand, high-income (31,000+) and middle-income (21,000-30,000 Tk.) Muslim couples (40% for high and 26.90% for middle income, respectively) were higher

than Santals. Low occupational attainment, landlessness, and the low-income of Santal compared to the Muslim and Hindu may influence health attainment in rural Bangladesh (Uddin, 2017b). In several studies, Uddin (2008a, 2011b) found that Santal and Oraon men with lower-SES were more likely to feel social stress and drink local alcohol than Muslim and Hindu men. Using a representative sample in Uddin's (2017b) culture-specific study, it was found out that lower SES is significantly related to poorer SPH than high SES according to demographic characteristics in rural Bangladesh, which also accounts for personal and family characteristics.

Heath Lifestyle and Health

Health lifestyles or health behaviors in Bangladesh, to some extent, are different from Western societies (International Centre for Diarrheal Disease Research, Bangladesh, 2007). The cross-ethnic studies in this society revealed that the illiterate or lower educated Santal and Oraon men with lower-SES are more likely to maintain unhealthy lifestyles than the educated Muslim and Hindu men in Bangladesh (Uddin, 2008b). Several studies also reported that illiterate or lower educated Santal and Oraon men with lower-SES are more likely to feel social stress, smoke and drink frequently, and are less likely to eat meals at the right time, and have lesser control over personal life,and family life than the educated Muslim and Hindu men. (Uddin, 2011a, 2017b). Other studies also revealed that the Santal men, compared to the other ethnic groups, maintain unhealthier lifestyles, including heavy arrack drinking, food-deprivation and not taking three times of meals on time than those of Muslim and Hindu men in rural Bangladesh (Ali, 1998; Uddin 2011a). Condequently, based on a culture-specific study (Uddin, 2017b) lower-SES is significantly related poorer SPH than higher-SES according to personal health styles, such as stress and drinking in rural Bangladesh, which also accounts for personal and family characteristics. Conversely, researchers (2009a, 2011a) argued that lower level of socioeconomic attainment of the Santal is mainly responsible of unhealthier lifestyles and lesser control over their personal life than Muslim and Hindu men. Overview of the relevant literature in Bangladesh suggests that lower educational attainment, lower-SES, and unhealthy lifestyles most likely affect poorer SPH among Santal adult men than Muslim and Hindu adult men.

THEORETICAL FRAMEWORK

Previous research over the past several decades posited that the level of education is consistently linked to health (Kaplan &Keil, 1993; Leigh, 1983; Ross & Wu 1995; Steptoe et al., 2003). How does education foster health? The human capital theory of learned effectiveness by Mirowskyet al. (2003) and Ross et al. (1999) suggests that education increases the well-being of subjective health and physical function of all adults and decreases morbidity, impairment, and mortality, because it increases effective agency of people. Additionally, education indicates accumulated knowledge, skills, habits, and personal resources acquired in school that enable people to achieve a better socioeconomic status, lifestyle, and healthy life (Mirowsky & Ross, 1998). Education develops the means through which all adults achieve social goals that promote health in their life cycle. Several research studies also stated that education is the key to people's position in the stratification system; it decreases the likelihood of being unemployed and gives people access to good jobs with high incomes, wealth, and power in social structure (Bloom, 2005; Davey et al., 1998; Kim & Moody, 1992; Kawachi, Adler, & Dow, 2010; Ross et al., 1995). These socioeconomic positions also enhance personal control in one's own life and maintain healthy social life. The effects of education on health is mediated through social and economic resources (Mirowskyet at., 2003; Ross & Mirowsky, 1995). Following this assumption, some cross-sectional and longitudinal studies concurred that well-educated people experience better health than the poorly educated ones. They have high levels of perceived physical health and physical functioning and low levels of morbidity, mortality, and disability (Kunst, Looman, & Mackenback, 1990; Lahelma, Martikainen, Laaksonen, & Aittomaki, 2004; Link, Phelan, Miech, & Westin, 2008; Marmot, Kogevinas, & Elston, 1987; Matthews & Gallo, 2011; Miller & Wigle, 1986). Based on the human capital theory of learned effectiveness (Mirowsky's et al., 2003) and research (Ross's et al. 1999) and the empirical evidence of previous research, this paper developed a conceptual framework and hypotheses (see, Figure 1). Particularly, this study sought to test the following research hypotheses:

Hypothesis 1: Lower educational attainment of the Santal adult men is significantly associated with their poorer subjective physical health than Hindu and Muslim adult men according to their family demographic characteristics in Godagari, Rajshahi district, Bangladesh.

Hypothesis 2: Lower educational attainment and lower socioeconomic status will produce poorer SPH among Santal adult men than Hindu and Muslim adult men according to their family demographic characteristicsin the study area.

Hypothesis 3: Lower educational attainment and unhealthy lifestyles will produce poorer SPH among Santal adult men than Hindu and Muslim adult men according to their family demographic characteristics in the study area.

METHOD

Setting of the Study and Sample

This study examined and compared how socioeconomic status, sociodemographic, and health lifestyle attainment mediated the effect of education on SPH among Muslim, Hindu and Santal adult men in rural Bangladesh. As such, the Godagari Upazila of Rajshahi district, Bangladesh where Muslim, Hindu and Santal ethnic group live in and interact with each other was purposefully selected. Godagari is one of the nine Upazilas of Rajshahi district with an area of 472.13 sq km. It is situated on the banks of Padma, and some part of it belongs to"Barendra Bhumi" zone. Godagari Upazila is administratively divided into nine unions and two municipalities. Upazilaare has a total of 2, 17, 811 people; the sex ratio is more or less the same, where 50.88% are males and 49.12% are females. In this region, Muslims are 86.55%, Hindus are 8.05%, and the rest of them (5.4%) are Christians, Mahalis and Santals. According to the Bangladesh Bureau of Statistics (2013) there are about 3749 families, including Santal families (Ahmed, 2004). In addition, the socio-economic status of Muslims and Hindus is better than the Santal people.

In Godagari Upazila young adult men, aged 20 to 30 and are breadwinners of their families suffer from illiteracy and socioeconomic attainment. This socioeconomic status influences, not only the time they marry and form families, but also their health lifestyle that in turn affects their health attainment. This situation is more severe among Santal young adult men than among Hindu and Muslim men in Godagari Upazila. Based on Godagari Upazila's sociodemographic statistical profile, three ethnic men's socioeconomic situations across the villages was observed, then Chabbish Nagar Haji Para and Chabbish Nagar, Mandoil, Saidpur and Hindupara, and Paitapukur, Fultala and Fulbari of the Rishikul union, where three ethnic communities dwells, were selected.In selecting young adult men of the ethnic groups, the door-to-door observation method was utilized. A total of 1200 young adult men, whose age ranges from 20 to 55, were preliminarily listed: 450 Muslims from Chabbish Nagar Haji Para and Chabbish Nagar, 400 Hindus from Mandoil, Saidpur and Hindupara, and 350 Santals from Paitapukur, Fultala and Fulbari of the Rishikul union of the Godagari Upazila. The three ethnic young adult men listed are also the head of their respective families. From the list, 550 participants was gathered using simple random sampling: 190 Muslims (34.55%), 180 Hindus (32.73%), and 180 Santals (32.73%). whose ages range from 20 to 55 years old. In doing so, the lottery method was used. This sampling procedure to select the participants from three ethnic communities studied was more eligible, unbiased, and scientific to analyze mediating effects of socioeconomic status, demographic status, and health lifestyle on the relationships between education and SPH among ethnic adult men in rural Bangladesh.

Measure

This study used three types of variables: outcome (dependent), predictor (independent), and covariate (intervening). The SPH is treated as a dependent variable; education as an independent variable; and socioeconomic, demographic and health lifestyle were considered intervening or covariates. These variables were measured according to the following ways:

Levels of Educational Attainment

The main predictor variable of this study is education that pervasively influences covariates and dependent variable. The participants were asked about the level of education they have completed, categorizing them into: 1= illiterate (no years of education), 2= primary level (1-5 years of education), and 3= secondary level (6-12 years of education) and 4= tertiary level (13 and above years of education). It is to be noted that since the number of tertiary was the least, it was merged into the secondary level.

Subjective Physical Health

In order to measure public health, health scientists included different dimensions of health measured at different levels, including nominal, ordinal, interval, and ratio. This study partially followed Mirowsky'set al. (2003) conceptualization of subjective physical health. In order to measure subjective physical health the respondents were asked about how they feel toward subjective physical health? The answer to this question was coded as 1=very poor, 2= poor, and 3= good.

Socioeconomic Status and Health Lifestyle

Based on our hypothesized model shown in Figure 1, some intervening variables or covariates include socioeconomic status, demographic, and health lifestyle, which will help analyze relationships between education and subjective physical health among Muslim, Hindu and Santal adult men. The socioeconomic status in this study covers objective characteristics, including current occupation, total family income, and ownership of land property, demographic status (ie., age structure, marital history and family size), and health lifestyle (ie., eating meals at the right time, stress control capacity, and smoking habits) that may influence the relationship between formal education and subjective physical health among ethnic adult men in the study area (Uddin, 2017b).

The occupational status attainment of the participants' parents was nominally measured and coded as 1= farming only, 2= day laboring, 3= small business, 4= van puller, 5=others for father's occupation. The *yearly total income attainment* was numerically measured in Taka (1 US$= 78 Bangladesh Taka in currency exchange), and then it was categorized into several groups: 1= 20-39, 2= 40-59, 3= 60-79, and 4= 80+. The ownership of land property was also accounted according bighas and categorized into 1= no own land, 2= 1-5 bighas of land, 3= 6-10 bighas of land and 4= 11+ bighas of land. The age of the respondents was counted in years and classified into 1= 20-29, 2= 30-39, 3= 40-49, and 4= 50+. Whether the respondents were eating at the right time or not was coded as either 1= yes and 0= no. Finally, regarding their capacity for stress control, their responses were coded as either 1= yes and 0= no, and their smoking habit was coded as either 1= yes and 0= no.

Demographic Characteristics

The age of the respondents were reported in years. Marital history was transformed into dummy variables: 1= one time married, and 2= two or more times married. Family size was also accounted for based on the number of live births, and issues in the marital life cycle were categorized into either 1= no issue, 2= 1-2 issue, 3= 3-4 issue and 4= 5+ issue.

Instrument and Procedure

This study used comparative survey design, which aimed to determine the relationship between education and health among Muslim, Hindu and Santal adult men in Godagari Upazila in Rajshahi district, Bangladesh. A semi-structural questionnaire with close-ended questions was designed, following the measurement of dependent, independent and control variables. Several studies were also examined, especially Uddin's cross-cultural instruments. In designing the questionnaire, the sociocultural characteristics of the ethnic groups were considered. Due to the fact that most of the respondents were illiterate, the interview technique was applied for data collection where the each question of the questionnaire was read and presented to the respondents while

their answers were written down. Some questions were proved and repeated to some respondents who could not understand the questions. Since university of this study's research has no research ethics committee for approval, an informed consent was obtained from the respondents before the data collection. Confidentiality, mutual support and, reciprocity in data collection were also maintained.

Before the data collection, the instruments employed in this study were pre-tested and the necessary corrections were made. The field work for this research was conducted from September 2014 to December 2014. In order to ensure the collection of real and valid data from the selected respondents from the communities, the researchers built rapport with the participants by allowing them to actively participate in the research process.This process was continued until the data collection was completed. Most of the respondents worked from morning to midday, and they sometimes spend the whole day in agricultural fields; hence, the respondents were intensively interviewed in the afternoon while they rested within their family setting. After the completion of the interview, special thanks were given to the respondents. During the data collection process, the researchers conversed using the Bengali language, and thereafter, their responses were translated into English.

Data Analysis

Based on the main objective, comparative research questions and hypotheses on education and subjective physical health among Muslim, Hindu and Santal men, mediating socioeconomic, demographic and health lifestyle of the collected data was carried out by SPSS in version 20. Especially, Pearson's Chi-Squire test and Spearman's inter-correlation (rho) techniques were applied to find out differences and associations of education with subjective physical health, including covariates (e.g., socioeconomic status, demographic status and health lifestyle) among Muslim, Hindu and Santal men in Godagari Upazilla, Rajshahi District, Bangladesh. These statistical techniques for measurement of bivariate association (also differences) were appropriate, because all variables, including dependent, independent, and covariates, were categorical in nature.

When it comes to the dependent variable, such as SPH, there were three categories, and independent and covariates were limited to up to four categories that were more appropriate for multinomial logistic regression analysis (MLR). Following these rules, MLR was used to analyze significant relationships between education and SPH, mediating socioeconomic status (e.g., occupation, income, ownership of land property), demographic factor (e.g., age structure, marital history, family size), and health lifestyle (e.g., three times of meal taking, capacity of stress control, smoking habit). In doing so, relationships between predictors (education x ethnicity of men) were multiplied with the outcome variable. The last category, good of SPH (e.g., very poor, poor & good) was used as a reference category. In addition, coefficients of β (SE) in the table indicate directions of positive or negative relations while exponential β of coefficients or odds ratio and its 95% confidence intervals (CI) indicate strengths of relationships between education and SPH among the ethnic men.

A positive coefficient indicates an increase in the odds of the health outcomes occurring in that category relative to other categories whereas a negative coefficient indicates a decrease in the odds of the outcomes in that category. When each coefficient of β is exponentiated, that coefficient represents the multiplicative change in the odds of the health outcomes occurring in that category relative to other.

RESULTS

Descriptive Analysis

Education and Health

Self-reported data presented in Table 1 shows that the levels of SPH (e.g., very poor, poor, good) of Santal men compared to Hindus and Muslims were significantly associated with their level of formal education (e.g., illiteracy, primary and secondary+). Specifically, the Santal men's very poor SPH was higher than that of the Hindu and Muslim men's, which is linked to illiteracy. The poor SPH of the Hindu men compared to the Muslim and Santal men's was also related to primary educational attainment, but good health condition of

Hindu men compared to the Muslim and Santal Men's was associated with secondary and higher secondary educational attainment in the study area of Rajshahi district. Results of the chi-square test suggested that there were significant differences ($p<0.01$) in SPH in association with the levels of educational attainment among the ethnic adult men in the study area (see Table 1).

Socioeconomic, Health Lifestyle, and Health

Table 2 shows the bivariate distributions of socioeconomic status, demographic and health lifestyle characteristics that were significantly different among the Muslim, Hindu and Santal men in study area. In the socio-economic status, most Santals (72.78%) compared to Hindus (50.55%) and Muslims (23.16%) were day laborers (49.6%) while the Muslim and Hindu men who engaged in farming, small business, and official job engagement had higher socioeconomic status than the Santal men. Lower levels of yearly family income of the Santal men were higher than the Hindu and Muslim men. Likewise, landlessness and few land ownership of the Santal men was higher than the Hindu and Muslim men.

Demographically, most of the respondents (see Table 2) belonged to the middle age group. As to marital history, most of the respondents (91.58% for Muslims, 93.33% for Hindus, and 91.11% for Santals) were married once, but the rest of them (8.42% for Muslims, 6.67% for Hindus, and 8.89% for Santal) were married two or more times. Regarding marital history, the ethnic men were essentially the same. The Muslim men's (54.21%) lower family size with one to two live births was higher than the Santals (44.44%) and Hindus (41.11%) while the Santal family size (35.56) with three to four children was higher than other groups. Health lifestyle is also significantly different among the ethnic men. Data in Table 2 reveals that the Santal men (66.11%) garnered a higher rating than the Hindu (61.67%) and Muslim Men (35.26%) in terms of eating three meals of at the right time. As the Santal men's socioeconomic status was lower, but the family size was higher than the Hindu and Muslim men, they experienced more social stress, and their capacity to control stress was lower than the other ethnic men (70% for Santal, 62% for Hindu & 56% for Muslim). As a result, most of the Santal men (73.33%) compared to the Hindu (65%) and Muslim men (63%) are the ones who are most likely to resort to smoking as a way of controlling stress that would, in turn, affect their SPH.

Spearman's bivariate analysis was done, including three types of variables, such as outcome, predictor, and covariates to determine whether lower educational attainment of Santal men compared to Hindu and Muslim men are linked to their SPH when mediated by socioeconomic status, and health lifestyle. The results shown in Table 3 reveal that there were both positive and negative correlations between the variables included in the analysis. Particularly, the level of education was negatively related to occupation and income, but positively related to ownership of land property among the Muslim, Hindu and Santal men. Further results of land ownership were not associated with age structure, but relationships between age structure, marital history and family size were positive.Other variables, such as family size, was negatively associated with three times of meals, but three times of meals timely taken or not was positively and moderately related to capacity of stress control. Lastly, the relationship capacity between smoking habits and SPH were negatively covariated among the three ethnic men studied.

Multinomial Logistic Regression Analysis

Education and Health

In Table 4, results from multinomial logistic regression analysis were presented using three types of educational predictors (e.g., illiteracy, primary, secondary) that significantly affect SPH measures: very poor, poor and good. The analysis considered if a lower level of educational attainment of the ethnic men, compared to educated men, was significantly associated with very poor or poor SPH. Results of the analysis suggested that all the illiterate men compared to men who have attained primary and secondary education were more likely to suffer from very poor or poor SPH. These tendencies were more remarkable among Muslim and Hindu men than in the Santal men. It is also interesting to note that secondary education (coefficients of B in the first column) was positively related to very poor health outcomes in Muslim and Hindu men than in the Santal men. Consequently, the odds ratios of Hindus and Muslims (see column 3 and 6) were 5.78 and 3.64 times likely to

result in very poor health outcomes than in Santal men. However, the human capital theory and its related evidence suggests that higher education resulted in better health outcomes as mentioned above.

Mediators

Socioeconomic Status

The study further analyzed data about how socioeconomic status mediated the relationship between educational attainment and subjective physical health. In doing so, socioeconomic status (occupation, income, and land property) were included as covariates in the model to assess whether or not odds ratios are substantially improved (see Table 5). Although, overall results showed that the odds ratios of the educational categories of the ethnic men were significantly improved in health outcomes: very poor or poor in reference to good. Here,very poor health was positively associated with secondary education in Muslim and Hindu men. As such, the odds ratios of secondary education was more than three times improved in very poor SPH among Hindu men than Muslim men (exp. β =3.881) and Santal men. Of the covariates, yearly family income was the positive significant influence (exp. β= 2.835 for very poor health; and exp. β = 1.672 for poor health) on the relationship between level of educational attainment and very poor health condition among the ethnic men (i.e.,yearly family income plays a significant role in the relationship between the level of educational attainment and very poor health conditions among the ethnic men, after accounting for their demographic characteristics.)

Health Lifestyle

Data presented in Table 6 reveal that although relationship between lower educational attainment and poorer subjective physical health of the Santal men was more significant than the other ethnic men, secondary education of Muslim and Hindu men was positively associated with very poor and poor SPH. With regard to this, the odds of very poor and poor SPH were 4.359 and 1.659 times higher for the Muslim men while 1.112 and 1.206 times for Hindu men than Santal, respectively. The findings were also assessed whether it was sustained or not after adjusting the health lifestyle of the ethnic men in the model (see Table 7). Of the covariates, three times of meal taken (exp. β= 2.132 for very poor health; and exp. β = 1.261 for poor health) and capacity to control stress (exp. β= 3.769 for very poor health; and exp. β = 1.966 for poor health) had positive and significant influences on the relationship between the level of educational attainment and very poor health condition among the ethnic men, after controlling the demographic characteristics.

Overall results of the test (see Table 4 to 6), however, suggest that the level of SPH measures was positively and negatively associated with the level of educational attainment: ranging from β=.04- 5.77 for very poor health and β= .03- 1.07 for poor health at $p<0.01$ and $p<0.05$ level The results also suggested that lower educational level of the Santal men compared to the Hindu and Muslim men was a higher risk factor to very poor or poor SPH.

DISCUSSION

The purpose of this study was to examine and compare relationship between education and SPH among Muslim, Hindu, and Santal men in Godagari, Rajshahi. Results from multinomial statistical analysis suggested that although all the illiterate men, compared to primary and secondary educated men in the ethnic groups, were more likely to suffer from very poor or poor SPH, secondary education of Muslim and Hindu men with lower educational attainment was positively related to very poor health outcomes than the Santal men. With regard to this, the odds ratios of Hindu and Muslim were 5.78 and 3.64 times likely to occur in very poor health outcomes than that in Santal Men, respectively. However, the human capital theory suggests that the higher the educational attainment, the better the health outcomes. These findings differ from some previous studies (Bravemanet al., 2009; Ross et al., 1999; Winklebyet al, 1992). For example, Ross et al. (1999) found that quantity, credential, and selection of formal education are positively linked to physical functioning and perceived health among the general population. They also found that of the three aspects of education, years of schooling had the largest effects on SPH. Mossakowski (2008) also revealed that lower educated young adult

Blacks and Hispanics have significantly higher levels of depressive symptoms than the Whites, mediating lower socioeconomic status, poverty, and family background in the US

Socioeconomic status, demographic factor, and health lifestyle are links between education and SPH among Muslim, Hindu and Santal young adult men in rural Bangladesh. The findings from this study showed that the frequency of socioeconomic status, demographic characteristics, and health lifestyle are significantly different among the Muslim, Hindu, and Santal men. In socio-economic status, most of the Santals, compared to Hindus and Muslims, were day-laborers while the Muslim and Hindu men who work in farming, small business, and official job engagements were higher than the Santal men. Lower levels of yearly gross income of the Santal men were higher than the Hindu and Muslim men. Likewise, landlessness and few land ownership of the Santal men was also higher than the Hindu and Muslim men.

Although the odds ratios of the educational categories of the ethnic men were significantly improved in health outcomes, very poor health was positively associated with secondary education among Muslim and Hindu men. Secondary education was more than three times improved in very poor SPH in the Hindu men than Muslim men and Santal men, after adjusting socioeconomic covariates. Of the covariates, yearly family income was the positive significant influence between the relationship of educational attainment and SPH among the ethnic men. These findings were reflected in some previous studies. For example, Lahelma, Martikainen, Laaksonen & Aittomaki (2004) found that although each socioeconomic indicator (e.g., education, occupational class, and household income) showed a clear gradient of health, measured as limiting longstanding illness and self-rated health; and inequalities in educational attainment were significantly associated with their health outcomes, mediating occupational class and income. Mossakowski (2008) found that lower educated young adult Blacks and Hispanics had significantly higher levels of depressive symptoms than the Whites, mediating lower socioeconomic status, poverty, and family background in the US.

Demographic status also influences the relationship between education and SPH. Most of the respondents belong to the middle age group, while the least of them were part of the lowest and highest age group. In marital history, most of the respondents were married one time, but the rest of them were married two or more times. The Muslim men's family size was higher than the Santal men, but the Santal family size was higher than the Hindu men. Despite this distribution, the secondary education of Muslim and Hindu men was positively associated with very poor SPH, after adjusting demographic status. Of the covariates, marital history and age structure had positive significant influence on the relationship between educational attainment and SPH among the ethnic men.

The ethnic men's health lifestyle links education and SPH. Data show that most of the Santal men were not able to eat three meals a day than the Hindu and Muslim men. In addition, the Santal men's social stress and capacity to control stress was also lower than the Hindu and Muslim men. Most of the Santal men, compared to the Hindu and Muslim men, were the ones who are most likely to smoke as a way to control stress that, in turn, would affect their SPH. Despite this, secondary education was more than four times higher in SPH outcomes among Muslim men than Hindu men and Santal men, after adjusting health lifestyle of the ethnic men in the model. Of the covariates, the time to take meals and the capacity to control stress had a positive significant influence on the relationship between educational attainment and SPH among the ethnic men.

Based on human capital theory of learned effectiveness by Mirowsky et al. (2003) and Ross et al. (1999) we hypothesized that lower educational attainment of Santal adult men than the Hindu and Muslim young adult men is significantly associated with their poorer SPH, mediating through their lower socioeconomic attainment, higher demographic pressure, and unhealthier lifestyle in Godagari, Rajshahi district, Bangladesh. But the findings from multinomial logistic regression suggested that secondary educational attainment was significantly associated with subjective physical health in the Hindu and Muslim men than in the Santal men, after adjusting demographic factors, socioeconomic status, and health lifestyle. These findings of the study are different from earlier studies.

Limitations and Future Research

Cultural and psychological factors may have pervasive effects on the relationship between education and SPH which were not tackled in this study. Future cross-cultural study should focus on how psychocultural factors link education and health among the ethnic men in Bangladesh.

CONCLUSIONS

This study examined how socioeconomic status and health lifestyle mediated the relationship between education and subjective physical health among Muslim, Hindu, and Santal men in Bangladesh. The findings of the study suggested that lower socioeconomic status and unhealthier lifestyles of the Santal men mediated the association of their lower level of formal education with poorer subjective physical health than the Hindu and Muslim men, after controlling for sociodemographic characteristics. These findings, which are consistent with previous studies, may have social policy implications to improve the Santal men's subjective physical health status attainment and social well-being through the improvement of their education and socioeconomic status, and health lifestyles. The findings also imply the need to promote social progress, social change, and social development to the next generation of ethnic minority communities in Bangladesh.

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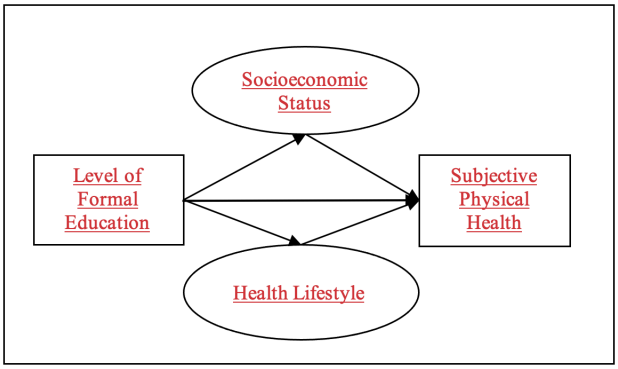

Figure 1. A Schematic Representation of the Conceptual Framework of the Study

Table 1. Level of Formal Education and Health smong Muslim (n=190), Hindu (n=180), and Santal (n=180) Adult Men in Godagari, Rajshahi, Bangladesh, 2014

Ethnic CommunityLevel of education	Subjective Physical Health			X^2
	Very Poor%	Poor%	Good%	
Muslim Illiterate	38 (20.00)	2 (1.05)	1 (0.53)	73.176*
Primary Education	29 (15.26)	10 (5.26)	2 (1.05)	(0.000)
Secondary +	23 (12.11)	56 (29.48)	29 (15.26)	
Hindu Illiterate	46 (25.56)	17 (9.44)	1 (0.55)	57.173*
Primary Education	20 (11.11)	22 (12.22)	3 (1.67)	(0.000)
Secondary +	15 (8.33)	26 (14.44)	30 (16.67)	
Santal Illiterate	67 (37.22)	11 (6.11)	1 (0.56)	46.995*
Primary Education	19 (10.56)	4(2.22)	1(0.56)	(0.000)
Secondary +	26 (14.44)	42(23.33)	9(5.00)	

Note: Percentages in parentheses, Df= 4, *p<0.01

Table 2. Percentage of Socioeconomic, Demographic and Health Lifestyle among Muslims (n=190), Hindus (n=180), and Santals (n=180) in Godagari, Rajshahi, Bangladesh, 2014

Characteristics of Socioeconomic, Sociodemographic and Life Style	Community				X^2
Socioeconomic Status	Muslim%	Hindu%	Santal%	df	
Current Occupation	43(22.63)	21(11.67)	3(1.66)	8	124.93*
Farmer	53(27.90)	18(10.00)	36(20.00)		(0.000)
Official Job	44(23.16)	91(50.55)	131(72.78)		
Day-laborer	13(6.84)	14(7.78)	5(2.78)		
Van puller	37(19.47)	36(20.00)	5(2.78)		
Small business					
Total Yearly Income in Thousand	29(15.26)	30(16.67)	90(50.00)	6	101.03*
20-39	39(20.53)	73(40.55)	48(26.67)		(0.000)
40-59	44(23.16)	30(16.67)	13(7.22)		
60-79	78(41.05)	47(26.11)	29(16.11)		
80+					
Ownership of Land in Bighas	94(49.47)	115(63.89)	178(98.89)	6	119.71*
Landless (0 bighas of land)	63(33.16)	51(28.33)	2(1.11)		(0.000)
1-5 bighas of land	20(10.53)	6(3.33)	-		
6-10 bighas of land	13(6.84)	8(4.45)	-		
11+ bighas of land					

Demographic Status					
Age structure in year	44(23.16)	33(18.33)	31(17.23)	6	6.42
20-29	61(32.10)	61(33.89)	65(36.11)		(0.378)
30-39	39(20.53)	52(28.89)	42(23.33)		
40-49	46(24.21)	34(18.89)	42(23.33)		
50+					
Marital history	174(91.58)	168(93.33)	164(91.11)	2	0.67
One time married	16(8.42)	12(6.67)	16(8.89)		(0.714)
Two or more times married					
Family size	20(10.53)	28(15.56)	24(13.33)	6	17.62*
No issue	103(54.21)	74(41.11)	80(44.44)		(0.007)
1-2	52(27.37)	49(27.22)	64(35.56)		
3-4	15(7.89)	29(16.11)	12(6.67)		
5+					
Health Life Style					
Three times of meals daily taken	67(35.26)	110(61.67)	119(66.11)	2	41.12*
No	123(64.74)	70(38.89)	61(33.89)		(0.000)
Yes					
Capacity of mental stress control	107(56.32)	112(62.22)	126(70.00)	2	7.43**
No	83(43.68)	68(37.78)	54(30.00)		(0.024)
Yes					
Habit of Smoking	70(36.84)	63(35.00)	48(26.67)	2	4.86***
No	120(63.16)	117(65.00)	132(73.33)		(0.088)
Yes					

Note: Percentages in parentheses, *p<0.01, **p<0.05, ***p<0.09

Table 3. Results of Spearman's Inter-correlation coefficients (rho) according to Formal Education, Socioeconomic, Demographic, Health Lifestyle, and Health (n=550) among the Three Ethnic Adult Men (Muslim, Hindu, Santal) in Godagari, Rajshahi, Bangladesh, 2014

Variables	1	2	3	4	5	6	7	8	9	10
1. Education	100									
2. Occupation	-.204** (.000)	100								
3. Income	.514** (.000)	-.239** (.000)	100							
4. Land	.295** (.000)	-.395** (.000)	.585** (.000)	100						
5. Times of meal	-.217** (.000)	-.072 (.091)	.061 (.155)	.073 (.089)	100					
6. Stress control	-.135** (.002)	-.062 (.148)	.008 (.846)	.087* (.042)	.256** (.000)	100				
7. Smoking	-.311** (.000)	-.002 (.968)	-.050 (.239)	.062 (.144)	.706** (.000)	.213** (.000)	100			
8. Age	.504** (.000)	-.230** (.000)	.568** (.000)	.381** (.000)	-.069 (.106)	-.085* (.046)	-.143** (.001)	100		
9. Marital history	.509** (.000)	-.191** (.000)	.560** (.000)	.303** (.000)	.040 (.348)	-.006 (.897)	-.048 (.258)	.523** (.000)	100	
10. Family size	-.330** (.000)	.116** (.007)	-.290** (.000)	-.183** (.000)	-.043 (.313)	-.007 (.862)	.052 (.222)	-.306** (.000)	-.340** (.000)	100
11.SPH	.528** (.000)	-.117** (.006)	.461** (.000)	.221** (.000)	-.182** (.000)	-.084 (.050)	-.250** (.000)	.394** (.000)	.472** (.000)	-.480** (.000)

Note:SPH= Subjective Physical Health, **p<0.01 *p<0.05(2-tailed test)

Table 4. Results of Multinomial Logistic Regression Analysis between Education and Health among Muslims (n=190), Hindus (n=180), and Santals (n=180) in Godagari, Rajshahi, Bangladesh, 2014

Education	Subjective Physical Health					
	Very Poor			Poor		
	B	SE	Exp (β) 95% CI	B	SE	Exp (β) 95% CI
Intercept	-1.061	0.39		0.480	0.25	
Illiteracy x Muslim	-2.577	1.08	.076** (.009-.637)	-3.424	.77	.033* (.007- .147)
Primary x Muslim	-1.613	.83	.199** (.039-1.008)	-1.544	.44	.213* (.089- .509)
Secondary x Muslim	1.293	.48	3.643* (1.430-9.227)	.410	.35	1.507 (.757- 3.002)
Illiteracy x Hindu	-2.768	1.08	.063* (.008-.524)	-1.475	.38	.229* (.109- .480)
Primary x Hindu	-.836	.73	.433 (.104-1.812)	-.384	.40	.681 (.313-1.483)
Secondary x Hindu	1.754	.50	5.778* (2.170-15.381)	.070	.41	1.073 (.481-2.393)
Illiteracy x Santal	-3.144	1.08	.043* (.005-.357)	-2.286	.41	.102* (.046-.227)
Primary x Santal	-1.884	1.09	.152 (.018-1.304)	-2.038	.60	.103* (.040-.426)
Secondary x Santal	na	na	na	na	na	na
-2LL	274.305					
Model X^2	211.485*					
df	16					
NagelkerkeR^2	.372					

Note: Reference Category is: Good health, df=1,na= not applicable

*P< 0.01

** P< 0.05

*** P< 0.001

Table 5. Results of Multinomial Logistic Regression Analysis on Socioeconomic Status (SES) between Education and Health among Muslims (n=190), Hindus (n=180), and Santals (n=180) in Godagari, Rajshahi, Bangladesh, 2014

Education	Subjective Physical Health					
	Very Poor			Poor		
	B	SE	Exp (β) 95% CI	B	SE	Exp (β) 95% CI
Intercept	-3.113	0.78		-0.847	0.51	
Illiteracy x Muslim	-1.879	1.13	.153*** (.017-1.405)	-3.337	.79	.036* (.008- .166)
Primary x Muslim	-.903	.88	.405 (.072-2.270)	-1.402	.47	.246* (.098- .621)
Secondary x Muslim	1.356	.55	3.881* (1.324-11.374)	.213	.40	1.238 (.571- 2.682)
Illiteracy x Hindu	-1.880	1.13	.153*** (.017-1.383)	-1.294	.40	.274* (.125- .600)
Primary x Hindu	.191	.81	1.210 (.249-5.877)	-.155	.43	.856 (.370-1.982)
Secondary x Hindu	2.094	.59	8.120* (2.602-25.337)	-.062	.44	.940 (.397-2.225)
Illiteracy x Santal	-1.610	1.14	.200 (.021-1.879)	-1.727	.44	.178* (.075-.421)
Primary x Santal	-.487	1.18	.614 (.061-6.169)	-1.457	.63	.233** (.068-.799)
Secondary x Santal	Na	Na	Na	Na	Na	Na
Mediators-SES						
Current occupation	-.087	.14	.916 (.698-1.202)	.082	.11	1.085 (.877-1.343)
Total yearly income	1.042	.20	2.835* (1.920-4.187)	.514	.13	1.672* (1.291-2.164)
Ownership of land	-.696	.28	.499* (.291-.855)	-.175	.20	.839 (.568-1.240)

Covariates	-.251	.22	.841 (.472-1.161)	.102	.13	1.120 (.844-1.577)
Age structure	.832	.56	1.312 (.632-8.465)	-.273	.33	.726 (.310-1.838)
Marital history	-.573	.21	.710** (.292-.881)	-.056	.15	.855
Family size						(.656-1.368)
-2LL	471.410					
Model X^2	116.810*					
df	16					
NagelkerkeR^2	.424					

Note: Reference Category is: Good health, df=1,na= not applicable SES= Socioeconomic Status
*P< 0.01
** P< 0.05
*** P< 0.001

Table 6. Results of Multinomial Logistic Regression Analysis on Health Lifestyle (HLS) between Education and Health among Muslims (n=190), Hindus (n=180), and Santals (n=180) in Godagari, Rajshahi, Bangladesh, 2014

Education	Subjective Physical Health					
	Very Poor			Poor		
	B	SE	Exp (β) 95% CI	B	SE	Exp (β) 95% CI
Intercept	-1.165	0.60		0.791	0.37	
Illiteracy x Muslim	-1.876	1.16	.153 (.016-1.492)	-3.135	.79	.044* (.009- .204)
Primary x Muslim	-.690	.91	.502 (.842-3.007)	-1.192	.47	.304* (.121- .762)
Secondary x Muslim	1.472	.55	4.359 (1.496-12.695)	.506	.38	1.659 (.794- 3.464)
Illiteracy x Hindu	-1.076	1.15	.341 (.036-3.249)	-.827	.41	.438** (.194- .985)
Primary x Hindu	.025	.81	1.025 (.209-5.024)	-.054	.43	.947 (.410-2.187)
Secondary x Hindu	1.962	.58	1.112 (2.276-22.229)	.188	.43	1.206 (.516-2.819)
Illiteracy x Santal	-1.054	1.15	.348* (.036-3.342)	-1.563	.44	.210* (.088-.499)
Primary x Santal	-1.165	1.22	.312* (.029-3.402)	-1.611	.65	.200* (.056-.707)
Secondary x Santal	Na	Na	Na	Na	Na	Na
Mediators-HLS						
Three times of meal taken	.757	.45	2.132*** (.880-5.163)	.232	.27	1.261 (.749-2.121)
Capacity of stress control	1.327	.43	3.769* (1.622-8.757)	.676	.27	1.966* (1.163-3.325)
Smoking habit	-2.912	.40	.054* (.025-.119)	-1.261	.27	.283* (.168-.479)
Covariates	-.291	.23	.748 (.479-1.166)	.105	.15	1.110 (.834-1.477)
Age structure	.838	.66	2.312 (.632-8.465)	-.293	.43	.746 (.320-1.738)
Marital history	-.673	.29	.510** (.292-.891)		.18	.955 (.666-1.368)
Family size				-.046		
-2LL	329.918					
Model X^2	91.480*					
df	16					
NagelkerkeR^2	.510					

Note: Reference Category is: Good health, df=1,na= not applicable, HLS= Health Lifestyle
*P< 0.01
** P< 0.05
*** P< 0.001