Estimating the Gender Gap of Adults' Education and Health in Bhutan

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Abstract

Several studies in developing countries suggest that narrowing the gender gap in education and health has both economic and social benefits. Bhutan is an important country to study gender because, traditionally and by law, women and men enjoy equal status. This paper explores the gender gap in formal education and mental and physical health among adults in Bhutan.

The 2010 cross-sectional survey data collected for Gross National Happiness (GNH) Indicators by the Centre for Bhutan Studies (CBS) in all the 20 districts of Bhutan (n=6510 individuals) was used. It regressed formal education and various indicators of health against gender, region, age, income, and religion. Then the differences in levels of schooling and health between women and men in the eastern

region, which is reputed to be the most remote and least developed region are examined.

The gender gap persists. Men have 27% more years of schooling than women, 4.80 fewer reported sick days during the previous 30 days, 1.63 fewer negative emotions, and a 10% lower probability of reporting mental distress than women. Men in the eastern region are 6% less likely to be educated than women of their same region. However, men in the eastern region are 7% less likely to report having a stressful life than women of their own region.

Despite the tradition of gender equality and the laws supporting gender equity in Bhutan, this study finds that women lag behind men in schooling and health. The country needs to implement policies to narrow the gender gap.

Introduction

The adult gender gap in morbidity and education in developing nations has received widespread attention because it captures equity in canonical indicators of well-being (Seguino, 2002, p. 260; Chen, 2004, p. 11; Kodoth & Eapen, 2005, p. 3278; Niimi, 2009, pp. 3-4; Kelkar, 2011, p. 65). Studies in industrial and developing nations suggest that the gender gap persists and that economic development does not necessarily reduce the gap (Undurraga et al., 2012, p. 26; Swaminanthan et al., 2012, p. 63; Maertens, 2011, p. 61; Mills & Begall, 2010, pp. 84, 88; Unni, 2009, p. 112; Godoy et al., 2006).

Bhutan is a particularly interesting country to study gender gap concerns because, by law and tradition, women and men are assigned equal status. The Constitution of Bhutan (2008) assigns equal rights to women and men and the Five-Year Plans since 1981 have done the same. The equal status of women and the elimination of discrimination and violence that may exist against women and girls in Bhutan are ratified in the Constitution of Bhutan (2008) and were further improved by government agencies and supported through

social, economic, political, and legal frameworks (National Commission for Women and Children [NCWC], 2008). Realizing the importance of gender equality for development, all five-year plans, which started in 1981 has included women issues and focused on gender equity (Gross National Happiness Commission [GNHC], n.d., p. 89). Traditional inheritance norms favour women and the Inheritance Act of 1980 ensured equal rights to inheritance by sex. Figure 1 showed the proportion of land ownership registered by gender at each district level.

Figure 1. Land ownership registration by gender and districts

Source: National Land Commission
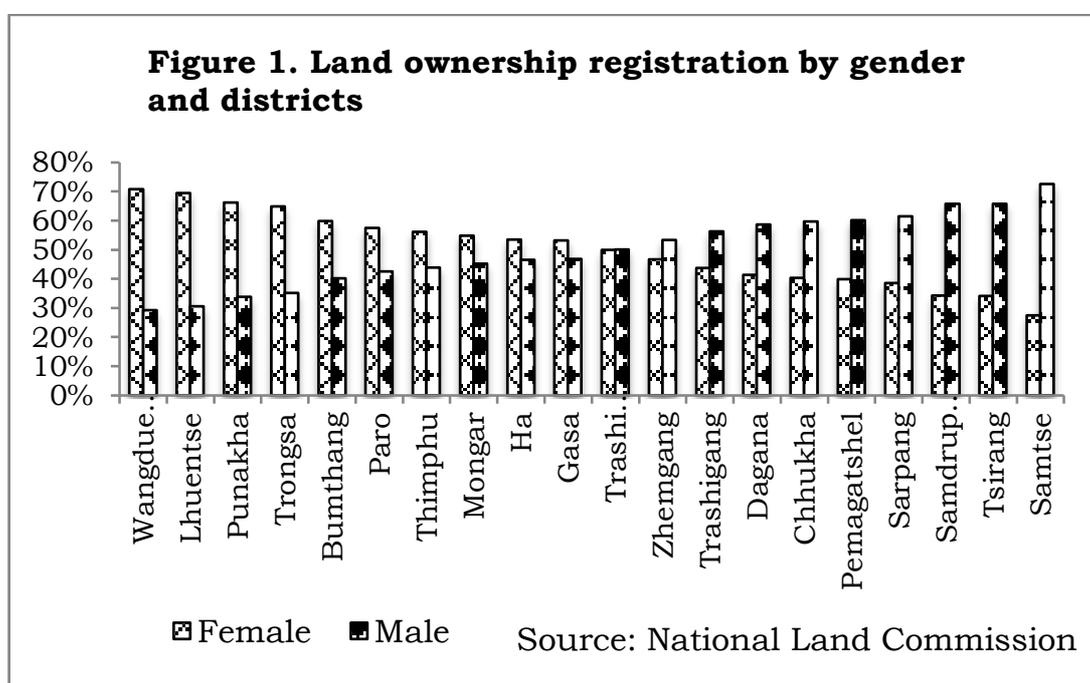
Recently the Domestic Violence Prevention Act, 2013 was passed, though earlier the provisions of criminal law generally covered such crimes. At the same time, provisions that specifically prohibit sexual harassment in the workplace were included under the Labour and Employment Act of Bhutan 2007. In addition, advocacy and awareness on gender issues and women's empowerment was initiated in 2005 by the National Commission for Women and Children (NCWC), Respect, Educate, Nurture and Empower Women (RENEW) and SNV Bhutan along with United Nations Development Assistance Framework (UNDAF). Gender mainstreaming

((UNDG), 2006) was further strengthened in 10th Five-Year Plan, which marked the development of Gender Screening Tool in 2010, later merged with Gross National Happiness Screening Tools.

Current studies provide ambiguous evidence about gender equity in Bhutan. Research showed that there was no discrimination in access to education (NCWC, 2008, p. 39) nor was there a preference for boys over girls (NCWC, 2008, p. 45), that was further supported by research that said there was equal access to education and that, the "number of boys and girls at the primary and secondary level" (RENEW, 2007, p. 26) were equal, yet both studies and NCWC & Social Development Team South Asia Region (2013: 15) mentioned that women lagged behind men at the tertiary level, but Sinha (2009: 27) found parent's preference for boys especially in their investment in higher education. The study mentioned that women had greater freedom and equality in most areas of social interaction (NCWC, 2008, p. 55), but Black and Stalker (2006, pp. 11, 31) mentioned that although women and men shared household chores, women still faced gender bias in language usage and in some religious beliefs as well as worked longer hours. Likewise, several reports on gender studies in Bhutan concluded that there was "no overt discrimination and that institutionalised forms of discrimination against women does not exist" (Helvetas-Bhutan, 2010-2013, pp. 1, 3; Ramachandran, 2008, p. 6; NCWC, 2006). Furthermore, Figure 2 and Figure 3 presented the equal access to education and health by sex.

Figure 2. Total number of patients above 18 years received treatment outside country

Source: Outpatient Referrral
Jigme Dorji National Referral Hospital

Figure 3: Number of students enrolled by sex, girls as a percentage of all students, by class, 2013

Source: Annual
Education Statistics
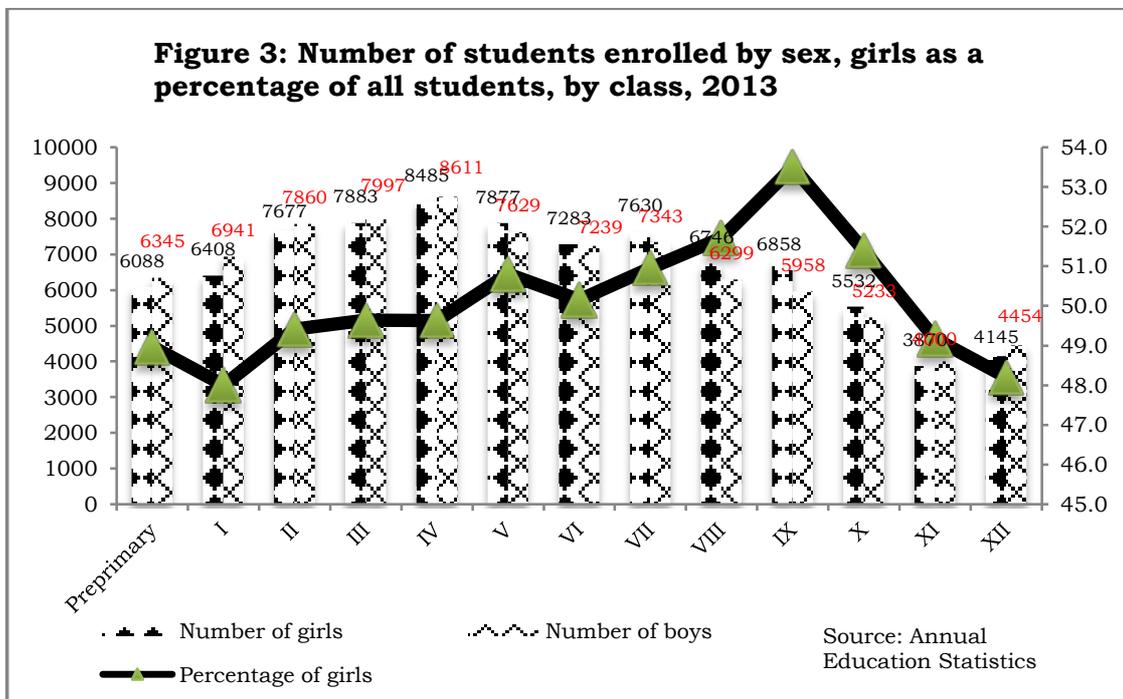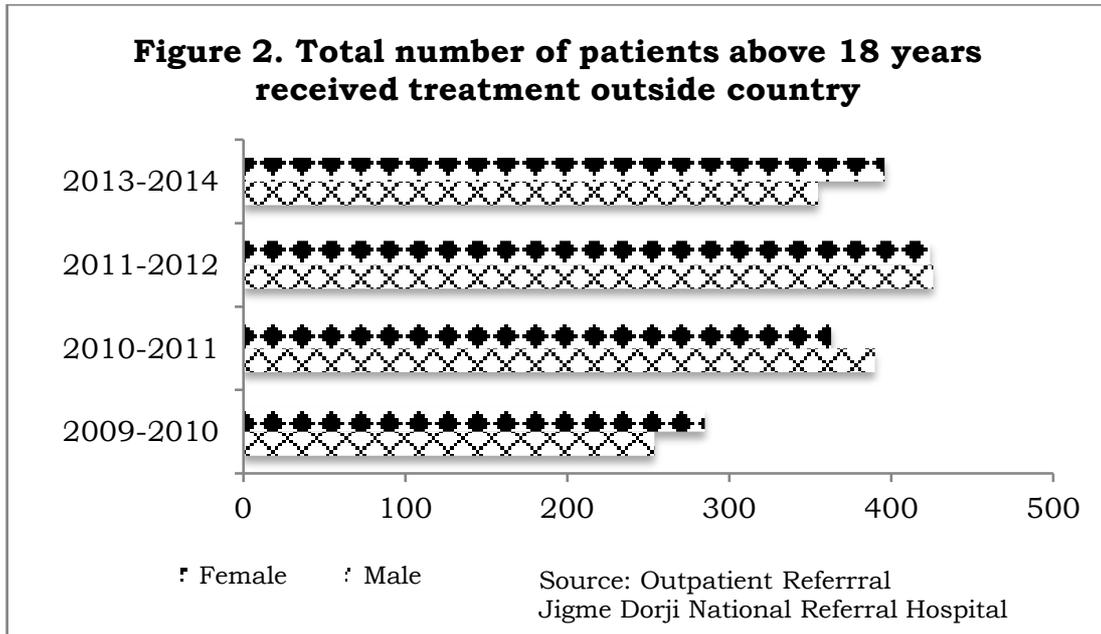
This study improves on previous studies by using a larger sample to investigate the gender gap of adults in several indicators of education and mental and physical health. This study is based on the hypothesis that there will be no gender gap in school achievement or health (H1), but that the gender gap will widen in eastern Bhutan, where some of the remotest areas of the country exist and where poverty rate is high (H2) (National Statistic Bureau [NSB] & World Bank, 2013, pp. 10, 11). In rural areas men and women do not have same access to education and health care because women might be kept home to help in domestic works and must walk hours to get to hospitals and schools (Jayaraman, Ray, & Wang, 2014, p. 52; Ghosh & Choudhuri, 2011, pp. 77, 78; Mukherjee & Karmakar, 2008, pp. 74, 75). NCWC & Social Development Team South Asia Region (2013: 15) and Unni (2009: 114) showed that girls at a very young age are burdened by household chores and other inequalities such as taking care of their siblings and thereby, girls miss the opportunity of furthering their studies. Similarly, even if both men and women have equal opportunities to access education and health, the girls' performance in school will be lower and their health might be weaker compared to other regions due to their gender disaggregated related works at home (Hannum, Kong, & Zhang, 2009, pp. 10, 15).

For estimation, this study uses

[1] $Y_i = \alpha + \beta_1 Male_i + \beta_2 Eastern_i + \pi C_i + \varepsilon_i$

If hypothesis 1 is true, then this implies that the coefficient for β_1 will be zero since there will be no linear correlation nor will there be gap among men and women in Bhutan as both men and women would be equally educated and healthy.

To test hypothesis 2, it uses

[2] $Y_i = \alpha + \beta_1 Male_i + \beta_2 Eastern_i + \beta_3 Male*Eastern_i + \pi C_i + \varepsilon_i$

If hypothesis 2 is true, then it implies that the coefficient for β3 will be positive because if you are in the east and you are a man you will be less educated as compare to elsewhere in the country. If the gap is bigger in the east then β3 should be bigger.

In this model, Y is education, positive emotion, negative emotion, stress, mental well-being, health and sick days. The subscript i is for individual and C is for control variables such as age, income and religion. ε_i is the error term associated with the measurement of the variables. The parameters estimated are indicated by β. For sensitivity analysis, this study uses alcohol and stratification.

Method

This study uses secondary cross-sectional survey data for Gross National Happiness Indicators collected by the Centre for Bhutan Studies (CBS) through personal interviews across the 20 districts of the country between March to December 2010.

The sample selection within districts considered both urban and rural areas by adopting the sampling carried out for Bhutan Multiple Indicator Survey (BMIS) by the National Statistical Bureau (NSB). A subsample was drawn by reducing the sample to 55% of the BMIS sample to interview one person aged 15 years and above from each selected household. The dataset contains 7142 individuals (women=3708; men=3426 and the missing value for sex variable is 8). This study restricted the analysis to individuals over 18 years of age (women=3,348; men=3,161) since it focused on adults. This study used Stata/SE 12.1 for the statistical analysis. Table 1 contains definition of the variables used in the regressions and Table 2 contains summary statistics.

Table 1. Definition and coding of variables for people in Bhutan among age 18 and above in 2010 (n=6510)

Name of variable	Question in survey	Definition/coding
	Outcome variables:	
Education	What is your highest level of education?	Formal education includes structured courses offered in modern schools. Formal education=1 Non-formal education=0
Stress	During the last year, would you describe your life as (very stressful=1, moderately stressful=2, somewhat stressful=3, not at all stressful=4 and don't know=8)?	Stress during the last year is defined as: very stressful=1 (11.09%), moderately stressful=2 (13.81%), somewhat stressful=3 (30.18%), and not at all stressful=4 (44.92%). Therefore, created dummy variable where 1=stressful and 0=Not at all stressful
Emotions	During the past few weeks, how often have you felt the following moods/emotions?" The scale used in survey was often=1, sometimes=2, rarely=3 and never=4. Recoded negative emotions; 1=never, 2=rarely, 3=sometimes and 4=often based on the high (often and sometimes) and low (rarely and never) logic.	Emotional experience of positive or negative emotion a person often felt during the past few weeks; A positive emotion based on factor analysis includes calmness, empathy/ compassion, forgiveness, contentment and generosity. Negative emotion included anger, guilt, selfishness, jealousy, disappointment, sadness, frustration, fear and worry. Excluded 'pride'.
Severe mental distress (GHQ-12)	Please consider the last four weeks and answer the following questions by selecting and circling one of the four answer options using twelve general health	Mental health wellbeing during the last four weeks using 4 to 1 scale

Created binary scoring where two least |

Table 1 - continued

	questions i.e. been able to concentrate; on what you're doing; lost much sleep over worry; felt you were playing useful part in things; felt capable of making decisions about things; felt constantly under strain; felt you couldn't overcome your difficulties; been able to enjoy your normal day-to-day activities; been able to face up to your problems; been feeling unhappy and depressed; been losing confidence in yourself; been thinking of yourself as a worthless person; and been feeling reasonably happy all things considered.	symptomatic answers score 0 and the two most symptomatic answers score 1 i.e. 0-0-1-1
Sick days	Thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?"	Number of sick days in the past 30 days preceding the survey

Explanatory variables

Male	Note sex of the respondent where male=1 and female=2	Sex of a person is a dummy variable with 1 as male and 0 as female.
Eastern region	See Appendix A	Eastern is considered as districts in eastern part of the country. Eastern=1 (32.41%) Otherwise=0

Control variables

Age	What is your age?	Age of a person in whole years
Income	Approximately how much cash income did you	Income of respondent in the past twelve months in

Table 1 - continued

	receive during the past twelve months from each of the following sources?	Nu. Income consists of wages/salary, own business, own farm enterprise, remittances, pensions, rental/real estate, inheritance, sale of land or other assets and others.
Religion	What is your religion with 1 as Buddhism, 2 as Hinduism, 3 as Christianity, 4 as others and 9 as none"	Religion of a person where Buddhism=1 and otherwise=0 since 85.77%=Buddhism, 13.07%=Hindu and 1.16% =Christianity.

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Sensitivity Analysis

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Stratification	Rural=1 Urban=2	The stratification refers to rural and urban stratum Rural=1 Urban=0.
Alcohol	In your entire life, have you ever consumed any kind of alcohol?"	Consumption of any kind of alcohol in entire life Yes=1 No=0.

Table 2: Description and summary statistics of outcome and explanatory variables for people in Bhutan among people age 18 and above in 2010 (n = 6510)

Name	Definition [See Table 1]	Mean	SD
	Outcome variables		
Education	Formal	1 = 33.39 %	
	Non-formal	0 = 66.61 %	
Stress	Stressful	55.08 %	
	Not at all stressful	44.92 %	
Emotions	Positive emotion	6.88	3.03
	Negative emotion	13.00	5.20
Severe mental distress	High	19.22 %	
	Low	80.78 %	
Sick days	No. of sick days in the past 30 days	2.77	6.48
	Percentage share of zero observations	71.80 %	

Table 2 - continued

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Main explanatory variables

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Male	Sex of a person;		
	Male	1 = 48.57 %	
	Female	0 = 51.43 %	
Eastern region	District in eastern part of the country		
	Eastern	1 = 32.41 %	
	Otherwise	0 = 67.59 %	
	(See Appendix A)		

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Control variables

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Age	Age in whole years	41.537	14.919
Income	Income of respondent in the past twelve months in Ngultrum (Nu / BTN)	91679.97	22201.6
Religion	Buddhism	85.47 %	
	Other	14.53 %	

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Sensitivity Analysis

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Stratification	Rural = 1	77.78%	
	Urban = 0	22.22%	
Alcohol	Yes = 1	64.66 %	
	No = 0	35.34 %	

Note: SD stands for standard deviation and n stands for number of observations. Ngultrum denoted by (Nu) or BTN is the currency of Bhutan and equal in value to the Indian Rupee. 1 Nu = USD 60.75[1].

Results

Table 3a and Table 3b in Appendix show the regression results for both hypotheses. Table 3a includes age as control variable, and Table 3b includes age, income and religion as control variables.

Hypothesis 1

Education:

Results from Table 3a column I (A-H1) suggest that adult men are 27% more likely to be formally educated than adult women of the same age (p=0.001). The results of column II (A-H1) suggest that even after controlling for income and

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[1] Retrieved July 8, 2014, from http://www.rma.org.bt/ (Website of Royal Monetary Authority, Bhutan)

religion, men are still 25% more likely to be formally educated than adult women (p=0.001).

Stress:

The results in column I (B-H1) and II (B-H1) suggest that men have lower probability of being stressful than women. For example, in column I (B-H1), men are 6% less likely to be stressed than women. Likewise, column II (B-H1) observes a 6% lower probability of men describing their life as stressful than women even after controlling for other variables (p=0.001).

Sick days:

Column I (C-H1) from Table 3a suggests that in Bhutan, the number of healthy days for men are 4.80 days more compared to women of the same age (p=0.001). It means, women have been sick and bedridden by 4.80 days more in the past 30 days preventing them from performing their normal activities. Column II (C-H1) suggests that with additional control variables, men are still sick 4.60 fewer days from illness than women of their same age (p=0.001).

Positive emotion:

The results in column I (D1-H1) and II (D1-H1) suggest that men are more likely to feel positive emotion than women. For example, column I (D1-H1) shows that men have 0.28 more positive emotions than women (p=0.001) when other variables are held constant (column I D1-H1; coefficient=0.24, p=0.001).

Negative emotion:

The results in Column I (D2-H1) and II (D2-H1) suggest that men have lower negative emotion then women. For example, in column I (D2-H1), men have 1.63 (p=0.001) fewer negative emotions compared with women of their own age during past four weeks. After controlling for other variables (column IID2-H1; coefficient=-1.56, p=0.001) men still have 1.56 fewer negative emotions than women.

Severe mental distress:

The results in column I (E-H1) and II (E-H1) suggest that men have lower probability of experiencing severe mental distress than women in the last four weeks. For example, in column I (E-H1), men have a 10% lower probability of severe mental distress than female of their same age in the last four weeks (p=0.001). The results suggest that even after controlling for income and religion, men are still 9% less likely to suffer from severe mental distress than women (p=0.001).

Hypothesis 2

Education:

Results from Table 3a, column I (A-H2) suggest an important interaction effect between gender and people living in the eastern region. Men in the eastern region have a 6% lower probability than women in the eastern region of achieving formal education (p=0.011; column IA-H2); after adding control variables, the interaction effect remains negative and insignificant, but drops to 4% (p=0.089; column IIA-H2). That is, men in the eastern region have a 4% lower probability of achieving formal education than women of the eastern region.

Stress:

Results shown in Table 3a, column I (B-H2) suggest that men who live in the eastern region have a 7% lower probability of describing life as stressful than women living in the eastern region in the last one year (p=0.007; column IB-H2); after adding control variables, the interaction effect remains same and significant (p=0.004, column IIB-H2). That is, men in the eastern region have 7% lower probability of describing life as stressful during the last year than women of the eastern region.

Sick days:

Column II (C-H2) suggests an interesting interaction effect between gender and people living in the eastern region since

it becomes negative when controlled for covariates but it is not significant (columnII C-H2; P=0.869). However, without control covariates, study sees positive interaction between gender and people living in eastern region (p=0.947). For instance, as shown in column I (C-H2), men living in the eastern region are 0.06 (p=0.947) more likely to be sicker than women living in the same region. Column II (C-H2) suggests that after adding control variables, men living in eastern region have 0.17 fewer days in bed from illness in the past 30 days than women of the eastern region (p=0.869).

Positive emotion:

Table 3a, column I (D1-H2) suggests that men living in the eastern region have often felt positive emotion of 0.08 higher than women living in the same region during past one year (p=0.605; column ID1-H2). However, after adding control variables, the interaction effect drops to 0.05 (p=0.712; column IID1-H2) and both are not significant.

Severe mental distress:

Results from Table 3a (column IE-H2) suggest that men in eastern region have 1% higher probability of associating with high mental distress than women during the past one year but is not significant (p=0.506).

The sensitivity result (not shown here) found an important interaction effects when controlled for covariates including stratification as compared to Table 3b column II (A-H2). For instance, men in the eastern region have 5% lower probability of achieving formal education than women of the eastern region and it is significant (p=0.037) but do not support urban areas having more morbidity than rural areas or consumption of alcohol having a strong effect on mental wellbeing and stress level of women.

Discussion and Conclusions

In this section it discusses the unexpected results of the study, limitations, possible policy implictions and future directions.

Unexpected results

This study found three unexpected results for hypothesis 2 to support the gender gap in education and health, where hypothesis 2 is that the gender gap will widen in eastern Bhutan. Firstly, men in the eastern region have 6% lower probability of having schooling than women of their age and it is significant. However, it becomes insignificant and drops to 4% after adding control variables but it remains signification when controlled for stratification in sensitivity analysis. This is probably because of gender bias in education spending as well as parents facing opportunity cost and risk in educating their children where the parents either have to forgo child labour or child mortality (Eswaran, 2002, p.444). Similarly, gender bias "vary sharply between households at different levels of adult literacy" (Lancaster et al., 2008, p. 134) and this is particularly true of "household spending on education" (Lancaster et al., 2008, p. 134), which is "more likely to prevail in households with low levels of adult educational attainment than in more literate households" (Lancaster et al., 2008, p. 135). Moreover, poverty differed with stratification and low household income associated with low education but it might change with time depending on the status of household and external factors such as economic and social or development taking place in the locality (Holmes & Jones, 2009, pp. 1, 4). Likewise, siblings' composition and its gender influence one's educational attainments according to Chaudhuri and Roy because "with limited resources, a rise in the number of children in the household reduces the probability that a child would graduate from the primary and upper primary school" (2009: 220).

The second unexpected result of this study is that men are 7% less likely to describe their life as stressful than women of their same age. This is probably because women generally have "higher morbidity rates than men" (Mastekaasaa, 2000, p. 1827). In addition, studies found association between women's low physical activity and higher consumption of alcohol with stress, negative and mental psyches (Verma et al., 2011, p. 4; Raikkonen et al., April, 2007, p. 874). It is also

because women with low-income or low household income are more associated with depression, anxiety and stress (Habarth et al., 2009, pp. 208, 218).

Lastly, the men from the east compared to women of their region experienced 0.95 lower negative emotions and the coefficient becomes larger on adding control variables but both are highly significant. This is because women are more likely to speak about their emotional strains in terms of health, household work and negative emotions like anger and depressions than men (Verma et al., 2011, p. 6; Jang, 2007, pp. 536, 537-543; Chaplin et al., 2008, p. 8; Evans & Steptoe, 2002). Simon and Nath (2004: 150) have also found in their study that men report positive feelings more often than women and women report negative feelings more often than men.

Limitations

This study has five limitations:

Firstly, there might be systematic measurement error in the sense that there might have been response burden because the interviewee might have become tired by the length of the interview (this survey was supposed to have taken four hours) and probably might have given shorter answers to finish the interview soon. In addition, the survey excluded speech disability because of the lack of speech experts among the enumerators. Secondly, there is selection bias since the sample was drawn on household and it excluded institutional households. Thirdly, there is omitted variable bias as mentioned in the discussion; it does not consider any of parents' spending and tradeoffs or opportunity cost or siblings' compositions. There is no data on pregnant women when studies found that women go through postnatal depression and postpartum period and that reproductive health is important for studying mental and emotion psyches since depression ranked 4th for women in global burden of disease (World Health Organization [WHO] & UNFPA, 2008, p. 2). Fourthly, there might be over and underestimation bias in

dependent variables such as mental health and sick days. Physical and mental health is measured through self-report, which may lower reliability of the data. Finally, without knowing about family background and history (Malhotra & Mather, 1997, p. 625) and drop outs, one cannot understand the sudden adults' gender gap in education when they have equal access in both education and healthcare and, especially when women almost outnumber in primary and secondary education. One might assume that the drop out might be due to personal issues and poverty.

Policy implications

There is a strong and positive association between gender and education and health in Bhutan from the primary results of this study (see Table 3a and b). This gender gap in education will likely have direct implications on the economic, social and human development but also says a lot about different gender needs. One should also remember that rule, policy and institution also cause gender discrimination (Sechrist& Delmar, 2009, p. 608). The implications here are that policy efforts to remain gender neutral or promote gender equality are not enough or clear since the results presented in this study suggest that women are falling behind men in those fields that require education, and similarly, eastern men are falling behind women in education when variables are not controlled. For instance, this explains why women are behind men in the general occupation section in Bhutan. An alternative intervention is needed to engender the laws and policies to gender needs and ensure gender equity. Moreover, the country has already transitioned to democracy and it is inevitable that priority be given in bridging the gap since half of the population of the country is women. This is because the development community shares a common understanding that there will be less effectiveness and cost consequences if development policies and actions fail to consider gender inequality and address gaps between men and women (Abu-Ghaida & Klasen, 2002, p. 4). Likewise, when controlled for stratification, men, especially from eastern region have lower schooling than women and it is statistically significant. One

way to improve this would be through increasing capacity in the school since Chen (2004) found that in case of schools with a high percentage of male, female percentage automatically increases and vice-versa. The other way would be through additional tertiary school to lessen the gap since studies have found that "female school enrollment is sensitive to the costs associated with formal education" (Chen, 2004, p. 12).

This study supports the notion that men are less likely to be sicker than women. This implies that women will be kept away either from work or school for approximately 4.80 days a month due to sickness. It will affect the family life and psychological wellbeing as well as produce economic implications. However, one needs to focus on diminishing the gender gap in women's association with sickness and mental health because the growth of the country in terms of economic and social wellbeing will be affected in the long run. Additionally, it will give rise to inequality since women, as it is, are entrenched in poverty (ILO, 2009, pp. 23-24) and it will lead to rural poor women becoming poorer and getting trapped in the poverty cycle (Magnoli, 2000, pp. 4-5). Moreover, women suffering from depression are generally not influenced by external factors (You & Conner, 2009, p.5) but status of one's socioeconomic condition and low education are related to anxiety or mental and physical health whereas lack of resource was related to worries and fears, which eventually cause sadness (Kessler et al., 1993, p. 91; Thoits, 2010, p. S44; Jose, 2011, p. 101). One way to improve would be having social support to prevent women from consuming alcohol and drugs in order to cope with negative emotion (Jang, 2007, p. 542). The other way would be through "mainstreaming gender studies into biomedical programmes" (Vlassoff, 2007, p. 57) to improve health issues and contribute to the "prevention of illness and the mitigation of negative health outcomes" (Vlassoff, 2007, p. 57).

Future directions

This may be the case with Bhutan but the scope of this paper does not allow drawing conclusions on this topic. Despite limitations, this study does become a basis for encouraging future studies using cross-sectional analysis and if possible, even longitudinal models in support of the present studies or to explore issues of gender gap related to parents' spending on their children to detect intra-household discrimination and test the idea that there is no gender discrimination as claimed in many studies. Similarly, one way to improve the mental health would be through studying unemployment since Aslund et al. (2014: 5) found that unemployment is associated with more stressful emotions and lesser mental psychological wellbeing and it is also associated with increased sick leave. However, a comprehensive study of gender gap in education and women's tendency to be worse off in physical health than men and the study the causes for stress, emotions and mental psyches for women as well as looking at the effect of policies on gender differences might offer possible solutions to reducing these gaps.

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Appendix A

Districts not in eastern region	Districts in eastern region
Bumthang	Lhuntse
Chukha	Mongar
Dagana	Pemagatshel
Gasa	Samdrupjongkhar
Haa	Trashigang
Paro	Trashiyangtse
Punakha	
Samtse	
Sarpang	
Thimphu	
Trongsa	
Tsirang	
Wangdiphodrang	
Zhemgang	

Table 3a: Regression results with robust standard errors, the effects of male and region on education, stress, sick days, emotion and GHQ-12 of people age 18 and above in Bhutan in the year 2010 without controls (n=6,510)

Explanatory variables	A. Education		B. Stress		C. Sick days		D. Emotions Positive		D. Emotions Negative		E. GHQ-12	
	H1	**H2**	**H1**	**H2**	**H1**	**H2**	**H1**	**H2**	**H1**	**H2**	**H1**	**H2**
Male	**0.27***** (0.01)	**0.28***** (0.01)	**-0.06***** (0.01)	**-0.04**** (0.15)	**-4.80***** (0.51)	**-4.82***** (0.63)	**0.26***** (0.07)	**0.24**** (0.08)	**-1.63***** (0.12)	**-1.32***** (0.15)	**-0.10***** (0.009)	**-0.10***** (0.01)
Eastern		**-0.12***** (0.01)		**0.15***** (0.01)		**4.17***** (0.70)		**-1.24***** (0.11)		**0.94***** (0.15)		**0.06***** (0.01)
Male * eastern		**-0.06**** (0.02)		**-0.07**** (0.02)		0.06 (1,04)		0.08 (0.16)		**-0.95***** (0.27)		0.01 (0.02)
Control variables												
Age	**0.01***** (0.0005)	**-0.01***** (0.005)	0.0007 (0.0004)	0.0007 (0.0004)	**0.20***** (0.01)	**0.20***** (0.01)	**0.01***** (0.002)	**0.01***** (0.002)	**-0.01***** (0.004)	**-0.01***** (0.004)	**0.004***** (0.0003)	**0.004***** (0.0003)
Income	∧	∧	∧	∧	∧	∧	∧	∧	∧	∧	∧	∧
Religion	∧	∧	∧	∧	∧	∧	∧	∧	∧	∧	∧	∧
Culture	∧	∧	∧	∧	∧	∧	∧	∧	∧	∧	∧	∧
R^2	0.207	0.208	0.012	0.013	0.013	0.013	0.041	0.041	0.031	0.032	0.047	0.047
Type of regression	Probit	Probit	Probit	Probit	Tobit	Tobit	OLS	OLS	OLS	OLS	Probit	Probit

*p≤0.05, ** p≤0.01, *** p≤0.001. ∧ Variables left out on purpose. In the cell I report coefficient, and significance as well as standard errors, which are in parentheses. OLS = ordinary least square. n = number of observations. H1 = Hypothesis 1 and H2 = Hypothesis 2.

Note: The probit regression was estimated at the mean values of all Xs and not the marginal effect on the underlying Z variable i.e. probit regression giving changes in probabilities instead of coefficients.
Robust standard errors used in all regressions. Used Pseudo R² for probit and tobit regressions.

Table 3b: Regression results with robust standard errors, the effects of male and region on education, stress, sick days, emotion and GHQ-12 of people age 18 and above in Bhutan in the year 2010 with controls (n=6,510).

Explanatory variables	Dependent variables											
	A. Education		B. Stress		C. Sick days		D. Emotions II				E. GHQ-12	
							Positive1		Negative2			
	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
Male	0.25*** (0.01)	0.26*** (0.01)	-0.06*** (0.01)	-0.03** (0.01)	-4.60*** (0.52)	-4.53*** (0.65)	0.28*** (0.07)	0.26** (0.09)	-1.56*** (0.13)	-1.21*** (0.15)	-0.09*** (0.01)	-0.09*** (0.01)
Eastern	^	-0.11*** (0.01)	^	0.15*** (0.01)	^	3.92*** (0.71)	^	-1.26*** (0.11)	^	0.85*** (0.19)	^	0.05*** (0.01)
Male * eastern	^	-0.04 (0.02)	^	-0.07** (0.02)	^	-0.17 (1.05)	^	0.05 (0.16)	^	-1.05*** (0.27)	^	0.003 (0.02)
Control variables												
Age	-0.01*** (0.0005)	-0.01*** (0.0005)	0.0007 (0.0004)	0.0007 (0.0004)	0.20*** (0.01)	0.20*** (0.01)	0.01*** (0.002)	0.01*** (0.002)	-0.01*** (0.004)	-0.01*** (0.004)	0.004*** (0.0003)	0.004*** (0.0003)
Income	3.30e-07*** (8.83e-08)	3.28e-07*** (8.82e-08)	-3.91e-09 (2.83e-08)	-7.05e-09 (2.83e-08)	-3.96e-06* (1.92e-06)	-3.97e-06* (1.93e-06)	5.27e-07*** (1.60e-07)	5.29e-07*** (1.60e-07)	2.05e-07 (2.61e-07)	1.60e-07 (2.58e-07)	-2.72e-07*** (7.13e-08)	-2.721e-07*** (7.14e-08)
Religion	-0.07*** (0.01)	-0.07*** (0.01)	0.02 (0.01)	0.03 (0.01)	1.11 (0.77)	1.12 (0.77)	0.29** (0.10)	0.28** (0.10)	0.67*** (0.18)	0.75*** (0.18)	0.20* (0.01)	0.02* (0.01)
R²	0.227	0.227	0.012	0.013	0.014	0.014	0.044	0.044	0.033	0.035	0.054	0.054
Type of regression	Probit	Probit	Probit	Probit	Tobit	Tobit	OLS	OLS	OLS	OLS	Probit	Probit

*p≤0.05, ** p≤0.01, *** p≤0.001. ^ Variables left out on purpose. In the cell I report coefficient, and significance as well as standard errors, which are in parentheses.
OLS = ordinary least square. n = number of observations. H1 = Hypothesis 1 and H2 = Hypothesis 2.

Note: The probit regression was estimated at the mean values of all Xs and not the marginal effect on the underlying Z variable i.e. probit regression giving changes in probabilities instead of coefficients. Robust standard errors used in all regressions. Used Pseudo R² for probit and tobit regressions.