CHILDHOOD VIS-À-VIS ADULT SOCIO-ECONOMIC CIRCUMSTANCES INFLUENCE ON HEALTH : EVIDENCE FROM SIX LOW AND MIDDLE INCOME COUNTRIES

Abstract:

This paper examines the influence of childhood and adult socioeconomic status(SES) influence on health among older adults from six low and middle income countries including India, China, Ghana,Mexico,Russia and South Africa using WHO-SAGE 2007-10 data .we used parental education to represent childhood SES and respondents education, wealth and residence for current SES. Binary logistic regression used to assess the effect of Childhood and adult SES on Self rated health, 2+Chronic conditions and functional limitations. 2+chronic conditions found common in all the countries; more than 40% of the adults in all countries have 2+chronic conditions, followed by functional limitation also noticeably high, higher prevalence found in India and Ghana. Regression results shows respondents education and wealth found to making significant impact on health conditions; conversely childhood SES make moderate impact on health indicators in the present study. SES both times being an influencing factor in determining health even in old age.

Introduction:

The nexus between socioeconomic status (SES) and health gained attention among researchers for decades. However, the direction of relationship is yet to be established, observed evidence demonstrate that low socioeconomic status is associated with higher morbidity and poor health status, even in old age the association continues though it weakens (Beckett, 2000; Huisman et al., 2003; Smith and Goldman, 2007 Gjonça, Tabassum and Breeze, 2009). The health differentials by SES occur through different mechanism such as behavioural factors (Lynch et al.,1997), social circumstances (Vonneilich et al., 2011), environmental exposures (Evans and Kantrowitz, 2002) and unequal access to health care (Becker and Newsom, 2003). The current SES play an important role in predicting health, however the entire effect is not explained by current SES, it is suspected that early life socio-economic circumstances has important role in shaping adult health (Crimmins, 2005; Cutler *et al.,* 2008). The previous evidence recognized that the moderate effects of childhood SES were observed mainly from developed countries, few studies from developing countries. Both childhood and adult SES are important factor for health, the effect varies among countries (Hyde et al., 2006). Specifically, earlier studies instituted the relationship between childhood socio-economic status and cardiovascular morbidity and mortality (Hart *et al.,* 2000; Kivimaki *et al.,* 2006) in recent time, studies have identified that early life socioeconomic circumstances have moderate implication on other health measures such as self rated health and functional limitation (Laaksonen *et al.,* 2005; Osler *et al.,* 2009) as well, most of the existing research in considerate the relationship between socioeconomic status and health were found in developed countries. The current

study examines the association of childhood and adult socioeconomic status influence on health from a nationally representative data covering six low and middle income countries.

Given this background, Current study includes India, China, Ghana, Mexico, Russia and South Africa are emerging economies except Ghana and experiencing different stage of epidemiologic and demographic transition. During recent decades, these countries experienced improvement in standard of living and life expectancy that has created new composition of health problems mainly among older adults. Literature suggests that the underlying pathways in determining health will differ in context of stage economic development. Findings from developed countries argue that inequalities in health decreases with age (Knesebeck et al., 2006; Huisman et al., 2003). But, these findings may not replicate the results from developing countries. Further, the results from developing countries contradict to developed countries reveals that SES even in old age being strong predictor of health ex. Zimmer and Amornsirisomboon, 2001; Smith and Goldman, 2007; Lowry and Xie, 2009. With the contradictory background from developed and developing countries, the current study will focus on childhood and current SES influence on subjective and chronic health conditions among aged 50 and above adults from six low and middle income countries from nationally representative data from WHO-SAGE wave 1.

Linkages of Education, Wealth and Childhood SES on Health

Education, wealth and health:

Empirical evidence support that health is a function of socio-economic status. Among other SES indicators, Education plays a major role in predicting health; it mainly works through healthy behaviour (Cutler *et al.,* 2008). Education increase the human capabilities; education expand choices, influence decisions and to participate (*Smith, 2011*). Also educated people tend to have better social, economic and psychological skills as well as education promotes the social relationship, in turn having higher level of network increases the health status (Winkleby *et al.,* 1990; Vonneilich *et al.,* 2011). Particularly education is a strong predictor of chronic diseases; self rated health, functional health (Herd, 2006; Cutler, 2006; Cutler *et al.,* 2008).

In recent times, health differentials by wealth received much attention among health researches, the association between wealth and health found strong that those having better wealth tend to be healthy and live longer than the counterparts. Higher wealth status boosts accessibility to better nutrition, health care, housing and many other factors. Empirical evidence proposes that, wealth manipulates health through various mechanisms higher the wealth adds to social capital; in turn reduce the mortality (Kawachi *et al.,* 1997). Accumulation of wealth in early life has greater implication during late adulthood on establishing health trajectories (Smith, 1998).

Childhood socioeconomic status and health:

Scientific evidence support that many of diseases rooted through childhood experiences; in a pathway that children living in poor childhood socioeconomic status have more health problems during childhood and it biologically transmit to adulthood (Conroy et al.,2010) . The accumulation socioeconomic disadvantage in life course have implication on health in late adulthood (Singh-Manoux et al.,2004); accumulation model explains that the risk of disease accumulate slow over life course whereas critical period model suggest that insult in specific time have long lasting impact on diseases outcome in later life (Ben-Shlomo and Kuh,2002). Low socioeconomic status during childhood such as low Parental education recognised as good indicator to predict childhood socioeconomic status, Educated parents are better informed about availability and use of health care, or having good health behaviour that direct to better health of their children; Accumulation of health for an individual take place in a long run; children growing in a low economic status family tend to be poorer during adulthood and faster in developing health problems than other counter parts (Case *et al.,* 2001). Poor childhood socioeconomic status have implication on various health measures; People grow in low socioeconomic status during childhood have poor cardiovascular health *(Poulton et al., 2002),* and increase the risk of diabetes *(Lidfeldt et al., 2007)* on self reported health and functional health (Laaksonen *et al.,* 2005b; Huang *et al.,* 2011).

Methods and Materials:

Data source:

The present analysis carried out using WHO Study on global AGEing and adult health (SAGE)-wave-1 data. A longitudinal survey is covering six low and middle income countries including India, China, Ghana, Mexico, Russia and South Africa. The study has covered total of 42464 individuals; a large sample covering 50 plus population with the total sample of 34124 and a comparative sample in the age group of 18-49 with 8340 individuals. Households were classified into two mutually exclusive categories one or more persons aged above 50 years were selected from households classified as 50 plus households and one person aged 18-49 years from a household classified as 18-49 household. In the older households, all persons 50 plus are eligible to participate. In the present analysis, we have included 50 plus age group population to represent the older adults.

Measurements:

Measures of current socio-economic status (SES)

Current SES measures

In this analysis, years of schooling and household wealth quintile were used to represent the current socio-economic status. In the literature on social determinants of health, education is recognized as a key measure of socio-economic status and a more plausible exogenous determinant of health than income and occupation (Elo and Preston, 1996; Lynch and Kaplan, 2000). Enhanced health knowledge, decision-making ability and greater access to and use of resources and health are recognized as possible pathways in explaining the education-health relationship (Ross and Wu, 1995; Cutler *et al.*, 2008). For analytical convenience, years of education has been grouped into four categories: no schooling, 1-5 years, 6-9 years and 10 and above years of schooling.

In addition to education, an asset-based approach was used to generate household wealth quintiles. The wealth score has been generated using factor analysis on these indicators and the wealth score is grouped into 5 categories namely lowest, lower, middle, higher and highest with cut-off points of 20% quintile each.

Childhood SES measures:

To represent childhood socio-economic status, we have used parental educational attainment as proxies used in many studies. Parental education attainment is universally used as measures of childhood socio-economic status; many studies have used parental education to represent the early life socio-economic conditions (Gliksman *et al.*, 1995; Lynch et al., 1997; Laaksonen *et al.*, 2005; Lipowicz A *et al.*, 2007; McEniry, 2013). SAGE survey measured the parental educational status separately for mother and father and the answers were captured in seven categories from no formal education to post graduation. For the analysis purpose, we have categorised the responses into three categories 1. No formal education 2. Up to primary education 3. Secondary and above' likewise we have created separate variables for both the parents.

Outcome variable*:*

Self rated health:

Self-rated overall general health measured based on the question, "In general, how would you rate your health today?" The response captured in a 5-point likert scale from very good to very bad. For the

analysis, we combined poor and very poor health categories as ‘poor health’ and rest into other ‘good health’ to obtain a dichotomized health variable. ‘Poor health’ was the outcome of interest in the analysis.

Chronic conditions (2+morbidity)

In this study, two plus morbidity is defined as the presence of two or more chronic condition at the time of data collection. We have included eight chronic health conditions namely: arthritis, stroke, angina pectoris, diabetes mellitus, asthma, hypertension, chronic lung disease and visual acuity. Among these, for arthritis, angina pectoris, asthma, lung disease, SAGE survey provides two types of measures: First, is self reports of the diagnosis of individual diseases and second is the symptom based assessment of abovementioned diseases. The specific question asked in SAGE for self reports is: “Have you ever been diagnosed with/told that you have disease name? Thus, we have considered an individual as suffering from these diseases if he/she is found positive in the symptom based assessment. For, stroke and diabetes mellitus we have relied on the self reports of diagnosis and for hypertension and visual acuity, we have used objective assessment. The details hypertension and visual acuity measurement are given below.

The measurement of hypertension is described as follows: In SAGE 2007-10, three consecutive readings of blood pressure (systolic and diastolic both) have been taken. We have taken the mean of measured readings for each respondent to form a measure of blood pressure for both the indicators (systolic and diastolic). Further we have, classified hypertension according to the 1999 update of WHO/ISH guidelines for the management of hypertension. A summary of this update has been published in the Journal of Hypertension (WHO/ISI, 2003). Based on the abovementioned guideline, in this study, we have considered the limit of high systolic blood pressure to be 140mm/hg or above and of diastolic blood pressure to be 90mm/hg or above. An individual is considered to be hypertensive if he/she is measured to have either systolic or diastolic hypertension.

In SAGE near and distance vision was measured for both the eyes (left and right) by using log MAR chart. The distance vision of respondents was measured with a distance of four meters between respondents and log MAR chart and near vision was measured with a distance of 40 centimetres between respondent and the log MAR chart for both the eyes separately. Measured near vision and distance vision of respondents were classified into normal vision (0.32-1.6 decimal) and low vision (0.01-0.25 decimal) (ICO, 1984). In this study, we have considered a person to have low near or distance if measured visual acuity is .25 or less for either of the eye (left or right) for respective measures (near and distance vision). In this study, persons with low vision included as blinds**.**

Activities of daily living (1+ADL)

Self-rated functional health was assessed through a set of questions based on the Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADL). In SAGE survey data collected on ADLs and IADLs based on self- reports about particular activities in the last 30 days on a five-point scale ranging from none to extreme difficulty. In this study, severe and extreme difficulties were combined. The ADLs include sitting, walking, standing-up, standing, climbing, crouching, picking up, eating, dressing, using the toilet, moving around in home, transferring and concentrating for about 10 minutes. The IADLs include using public transport, carrying out household responsibilities, joining community functions and getting out of the household.

Statistical Analysis

Bivariate and Multivariate technique have been adopted to fulfil our objectives. Bivariate technique adopted to see the prevalence of health conditions by current and childhood SES. All the percentages were weighted using sample weight. Since our outcome variable coded as dichotomous, we have used multivariate logistic regression to see the influence of current and childhood SES on selected health indicators. We have controlled current SES and backgrounds characteristics while distinguish the independent influence of Childhood SES on health indicators. STATA V. 13 has been used to analyse the data.

Results:

Demographic and SES characteristics

Table 1. Shows the distribution of respondents in each category. The proportions of respondents are higher in age group of 50-59 in all the countries except in Mexico. In 70+ age group Mexico (40.94) Russia (35.26) and Ghana (32.78) have the higher proportion. The percentages of men respondents are higher in Ghana (52.24) and in India (50.37), while Russia (35.37) has the lowest proportion of men in the sample. The sample have higher rural residents in India, China and Ghana, in other countries have the higher urban residents. More than half of respondents from India (51.62) and Ghana (55.94) are belong to no schooling category, but the highest share of educated 10+ years come from Russia(70.53) and in Ghana(27.71). In all the countries, more than 15 percent of respondents belong to poorest category.

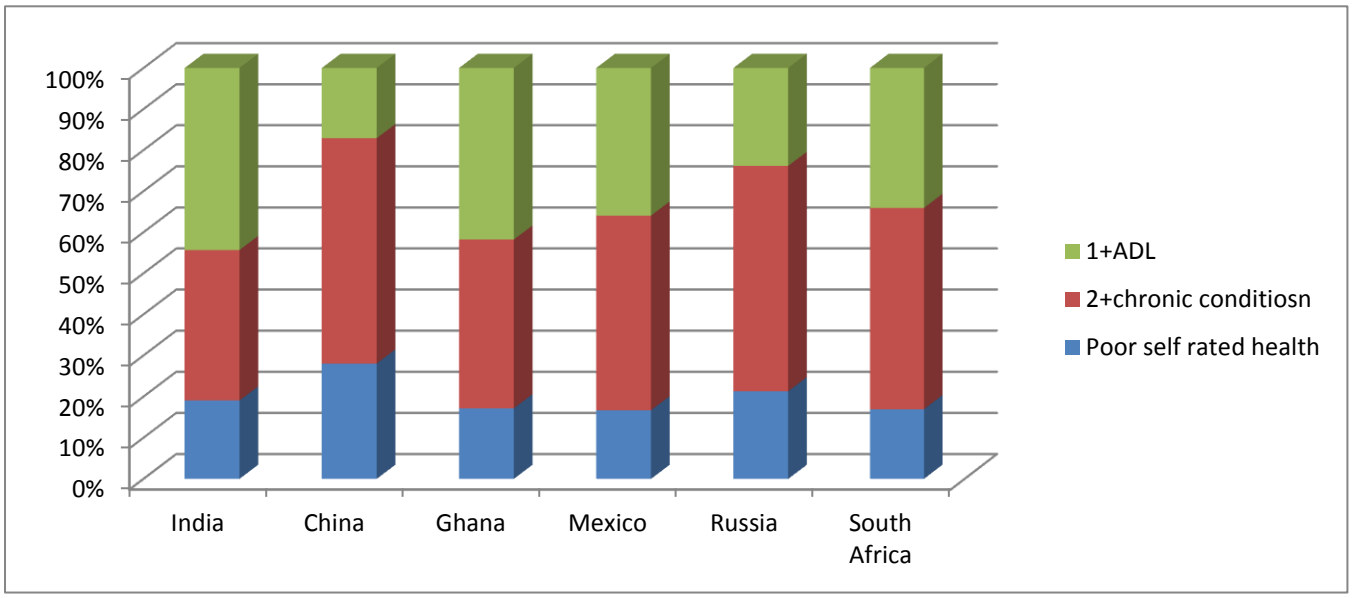

Figure 1. percentage prevalence of selected health indicators in six countries, 2007-10.

Figure 1. Shows the country wise prevalence of selected health indicators. Among six countries, self rated poor health high in Russia, India and China; more than 20 percent of the sample population reported poor health status. 2+ chronic morbidity very common in all the countries, it is found that more than 40 percent of the respondents in all six countries have 2+ chronic conditions; while higher proportion found in Russia (59.56) and South Africa (50.67). In India (52.17) the percentage of reported 1+ ADL as higher, conversely least prevalence found in China (12.92).

Differentials in self rated poor health by current and childhood SES (Table. 2). The proportion of poor self rated health found higher among rural residents except Russia. Years of schooling make much differences in self rated health; respondents with no education are higher to report poor health, the same condition replicate in all the countries and having 10 plus years education reduce more than 10 percent of reporting poor health status in all the countries. Increase in wealth reduce the risk of reporting poor health in all countries, higher difference observed in South Africa from 27.43 reporting poor health in poorest category to 8.19 in highest wealth category. In all the countries, increase in mother's education reduces the risk of poor health. Likewise higher the father's education reduces the prevalence of poor health status.

Two plus chronic morbidity prevalence with current residence does not show much difference (table.3). Years of schooling reduce the risk of chronic conditions; compared with no schooling, respondents having 10+ years of schooling reduce from 12 to 34 percent prevalence of two plus morbidity in all the

countries except in Ghana, the higher drop found in China, Mexico and Russia. Increase in wealth does not show much variation in prevalence of chronic conditions in all the countries. Increase in parental education reduce the prevalence of chronic conditions in all the countries; mother's education found to be more important than father's education.

Residing in Rural area is more vulnerable to have higher prevalence of 1+ADL (Table.4); it is observed that lowest from in China (18.16) to highest in India (54.53). Respondents with no education have higher prevalence of 1+ADL in all the countries, as highest prevalence observed in Russia (87.41) and India (60.8). Increase in education considerably reduces the 1+ADL prevalence, the highest reduction with 10+ years of education found in China (4.62). Higher wealth negatively associated with 1+ADL in all the countries, higher reduction found in Mexico with highest wealth quintile (30.17) from lowest (55.28). Increase in Parental education considerably reduces the 1+ADL in all the countries except in Mexico, where negative association found with parental education.

Results from Logistic regression:

Results adjusted for demographic characteristics are shown in (table.5). Residing in rural areas significantly increase the risk of reporting poor health in India (OR= 1.21, p= 0.020 , 95% CI=(1.03-1.42) and China(OR=1.33, p=0.000, 95% CI=(1.20-1.47) whereas in other countries living in rural areas reduce the risk of reporting poor health, however significant association only found in Mexico. In all the countries except in Ghana, increase in education has significant influence on reducing the risk of reporting poor health. Wealth plays a significant role in preventing of reporting poor health in all the countries. The result adjusted for current SES and demographic characteristics indicates that increase in parental education significantly reduces the risk poor health status in countries like Ghana, Mexico, Russia and South Africa. In China, increase in parental education reduces the risk but, it is not significantly associated. On other hand, in India the association is negative.

Table 6. Results of logistic regression for multi morbidity: Shows that living in rural areas significantly reduce the prevalence of 2+ chronic morbidity in India, Mexico and South Africa. Higher level of education is significantly reducing the multi chronic morbidity conditions in India, China, Mexico and South Africa. Increase in wealth significantly reduces the prevalence of 2+ morbidity conditions, however in countries such as Ghana and South Africa, the wealth has positive association. Parental education significantly reduces the risk of chronic conditions in countries China, Mexico and Russia. In other countries the insignificant or positive association noticeable.

Table 7. Results of logistic regression for functional limitation: In countries like India and China, the older adults living in rural areas have higher risk of 1+ADL, even in China 1.11 times higher risk found (Table.7). Compare to no schooling, respondents having 10+ years has significant reduction in 1+ ADL conditions in all the countries except in Ghana. Increase in wealth significantly reduces the likelihood of reporting 1+ADL in all the countries. Increase in Parental education reduce the risk of ADL conditions, notably father's education contribute more than mother's education In China, Ghana, Mexico, but in Russia mother's education found to be significant in reducing the 1+ADL conditions.

Discussion:

We have analysed the nationally representative data covering 50+ adults from six low and middle income countries to examine the childhood and adult SES influence on self rated health, multiple chronic morbidity conditions and 1+ ADL. Our results support our hypothesis that socioeconomic status in both times found important in manipulating health conditions. The prevalence of different health indicators varies by Socio-economic indicators. Increase in years of schooling reduces the risk of self rated poor health, chronic conditions and functional limitations. 2+ morbidity is more common in all the countries. Our regression results suggest that current SES play major role in reducing the risk of reporting Self rated poor health and 1+ADL conditions, however the differentials in multiple chronic conditions by SES is notably less; education being the well-built factor in reducing the multi chronic morbidity conditions. The findings of the present study finds consistency with other studies such as Mackenbach et al., 1997; Dalstra, et al., 2005; Cutler et al., 2008. Childhood SES indicators such as parental education play a moderate role on influencing the health indicators. Our findings support previous Studies from developing countries that even in old age SES appear to have stronger effect. In the present study, The SES play a important role in self rated health and functional health; However Socioeconomic conditions does not have much impact with chronic conditions; The distribution of chronic conditions across different socioeconomic status nearly same, These results support the evidence from developing countries (Zimmer and Amornsirisomboon, 2001). The current study produces an evidence of life course socioeconomic circumstances influence on health. Current SES being strong predictor of health, Childhood socioeconomic circumstances indicator such as parental education makes consistent impact on health as earlier studies have produced evidence from developed countries.

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Appendix:

Table 1 Proportion of Respondents in Each Group across six countries WHO-SAGE, 2007-10

	India	China	Ghana	Mexico	Russia	South Africa
	(6,560)	(13,157)	(4,305)	(2,301)	(3,763)	(3,836)
Characteristics						
Age						
50-59	44.80	43.28	39.23	18.77	37.63	44.19
60-69	34.07	29.79	27.99	40.29	27.11	32.06
70+	21.13	26.93	32.78	40.94	35.26	23.75
Sex						
Male	50.37	46.87	52.24	39.46	35.37	42.62
Female	49.63	53.13	47.76	60.54	64.63	57.38
Residence						
Urban	25.55	48.79	40.91	72.84	75.76	66.73
Rural	74.45	51.21	59.09	27.16	24.24	33.27
Years of schooling						
No schooling	51.62	25.92	55.94	20.05	1.09	26.24
1-5 years	19.59	24.14	8.02	40.88	8.54	20.89
6-9 years	13.04	32.94	8.33	29.17	19.84	32.13
10+ years	15.75	17.00	27.71	9.91	70.53	20.73
Wealth Quintile						
Poorest	16.28	20.04	19.91	21.55	19.00	19.09
Poor	18.69	19.86	19.77	21.03	20.14	19.72
Middle	18.49	20.14	19.88	18.11	19.96	19.14
Higher	21.59	20.46	20.28	20.46	19.74	20.74
Highest	24.05	19.05	20.16	18.85	21.16	21.31

Table 2. Prevalence of self rated poor health by Childhood and Current socio-economic characteristics across six countries, WHO-SAGE, 2007-10

Characteristics	India	China	Ghana	Mexico	Russia	South Africa
Residence						
Urban	19.72	15.02	15.91	16.21	24.26	14.88
Rural	23.51	26.75	17.95	19.79	20.02	22.25
Years of schooling						
No schooling	26.59	31.81	21.13	13.22	78.21	20.58
1-5 years	22.41	24.28	12.90	28.89	44.90	23.82
6-9 years	18.99	17.36	19.34	10.58	37.69	17.94
10+ years	11.69	9.98	10.01	1.63	16.48	5.73
Wealth Quintile						
Poorest	31.02	33.41	22.56	16.63	35.13	27.43
Poor	25.64	26.83	17.29	21.17	26.29	18.23
Middle	25.02	22.04	18.95	29.89	25.16	18.62
Higher	18.55	17.93	14.22	9.15	18.18	15.40
Highest	14.14	10.02	13.28	10.21	15.11	8.19
Childhood SES						
Residence						
Urban	20.97	14.82	17.16	17.16	22.55	12.01
Rural	22.93	25.56	16.90	16.53	23.94	24.86
Mother's Education						
No formal Education	23.06	22.21	17.38	19.07	35.53	19.21
Up to Primary completed	15.64	15.04	11.14	9.24	24.99	12.17
Secondary and above	16.40	11.56	13.33	3.46	16.81	7.30
Father's Education						
No formal Education	22.09	23.81	17.84	21.79	35.51	20.64
Up to Primary completed	22.73	16.06	14.50	8.72	27.97	12.95
Secondary and above	16.81	13.06	10.98	2.97	16.51	6.56

All percentages are weighted

Table 3. Prevalence of 2plus morbidity by socio-economic and other background characteristics across six countries, WHO-SAGE, 2007-10

Characteristics	India	China	Ghana	Mexico	Russia	South Africa
Residence						
Urban	43.45	38.55	41.40	49.65	58.80	50.91
Rural	42.93	44.06	40.63	43.03	61.60	50.22
Years of schooling						
No schooling	46.11	53.50	43.67	61.21	89.06	49.25
1-5 years	46.51	44.40	41.81	52.80	80.93	56.98
6-9 years	37.29	36.79	40.33	42.64	69.89	56.96
10+ years	34.34	29.37	35.88	37.33	54.55	37.82
Wealth Quintile						
Poorest	45.80	50.81	37.77	55.57	58.14	50.07
Poor	42.57	45.19	40.72	53.22	68.26	49.65
Middle	42.64	42.02	43.86	57.47	64.91	54.40
Higher	43.95	38.08	42.74	35.77	61.78	49.08
Highest	41.09	34.07	39.40	41.52	47.55	51.21
Childhood SES						
Residence						
Urban	42.29	37.82	40.95	48.59	56.78	51.49
Rural	43.36	44.68	40.99	50.93	64.08	51.17
Mother's Education						
No formal Education	42.88	43.40	41.07	47.37	74.11	52.57
Up to Primary completed	43.76	31.33	37.78	42.87	61.85	49.90
Secondary and above	44.48	28.14	31.96	21.75	51.75	43.77
Father's Education						
No formal Education	42.38	44.93	40.80	50.90	72.34	48.21
Up to Primary completed	43.83	35.37	43.34	46.74	60.61	56.11
Secondary and above	43.78	33.89	41.35	28.96	55.13	46.27

All percentages are weighted

Table 4. prevalence of 1+ADL by current and childhood Socioeconomic characteristics across six countries, WHO-SAGE, 2007-10

Characteristics	India	China	Ghana	Mexico	Russia	South Africa
Residence						
Urban	46.38	7.13	41.81	34.54	26.8	34.95
Rural	54.53	18.16	41.6	44.15	23.43	35.77
Years of schooling						
No schooling	60.8	22.71	49.76	45.78	87.41	39.88
1-5 years	51.39	14.08	37.22	41.29	65.27	40.57
6-9 years	43.2	9.70	39.33	27.26	36.92	35.85
10+ years	32.85	4.62	28.33	34.20	18.92	23.90
Wealth Quintile						
Lowest	61.13	20.16	47.26	55.28	37.59	34.14
Second	52.19	16.52	42.53	41.48	28.26	36.13
Middle	54.93	13.99	42.71	27.46	33.15	36.87
Fourth	49.21	11.14	39.09	31.66	18.57	40.51
Highest	45.55	4.43	37.77	30.17	16.68	29.29
Childhood SES						
Mother's Education						
No formal Education	52.9	13.77	42.01	44.60	45.81	36.70
Up to Primary completed	44.93	7.67	34.61	28.77	28.4	32.11
Secondary and above	44.06	4.74	35.11	57.72	15.91	20.98
Father's Education						
No formal Education	52.58	15.38	43.27	47.3	48.55	34.69
Up to Primary completed	50.17	8.82	34.54	28.16	29.44	35.31
Secondary and above	48.52	4.5	30.48	48.46	17.99	24.25

All percentages are weighted

Table 5. Current and childhood SES correlates of self rated poor health, WHO-SAGE, 2007-10

Characteristics	India	China	Ghana	Mexico	Russia	South Africa
	OR (95 % CI)	OR (95 % CI)	OR (95 % CI)	OR (95 % CI)	OR (95 % CI)	OR (95 % CI)
Residence						
Urban®						
Rural	1.23**(1.04- 1.47)	1.33***(1.19- 1.48)	0.92(0.76- 1.12)	0.72*(0.51- 1.01)	0.90(0.73- 1.11)	0.85(0.67-1.09)
Years of Education						
no schooling®						
1-5 years	0.89(0.74-1.07)	0.86**(0.76-0.98)	0.74(0.52-1.06)	1.24(0.85- 1.80)	0.36**(0.15-0.86)	1.41**(1.04- 1.90)
6-9 years	0.78**(0.61-0.99)	0.76***(0.66- 0.87)	1.41**(1.03-1.93)	0.73(0.45- 1.17)	0.32***(0.13-0.74)	1.12(0.81-1.53)
10+ above	0.54***(0.41-0.72)	0.52***(0.43-0.64)	0.96(0.74- 1.24)	0.38**(0.16- 0.89)	0.24***(0.10- .57)	0.52**(0.31-0.86)
Wealth						
Lowest®						
Second	0.84(0.69-1.03)	0.81***(0.71-0.92)	0.73**(0.56-0.94)	1.13(0.75- 1.70)	0.72**(0.56-0.93)	0.77(0.55-1.06)
Middle	0.83*(0.68-1.02)	0.66***(0.58-0.77)	0.81(0.62-1.04)	0.70(0.43- 1.13)	0.67***(0.52-0.87)	0.85(0.61- 1.18)
Fourth	0.57***(0.46-0.70)	0.59***(0.51- 0.69)	0.63***(0.47-0.83)	0.63*(0.39-1.03)	0.60***(0.45- 0.79)	0.75(0.53-1.07)
Highest	0.46***(0.37-0.58)	0.39***(0.33-0.46)	0.61***(0.45-0.83)	0.64(0.38- 1.08)	0.43***(0.32-0.58)	0.50***(0.32-0.79)
Childhood SES						
Mother's Education						
No formal Education®						
Up to Primary completed	0.95(0.71-1.26)	0.94(0.76- 1.16)	0.48**(0.25-.91)	0.85(0.55-1.31)	0.80*(0.63-1.03)	0.69**(0.48- 0.99)
Secondary and above	1.45(0.82- 2.56)	1.10(0.77-1.56)	0.96(0.40- 2.29)	0.61(0 .17- 2.19)	0.77(0.57-1.05)	1.25(0.68- 2.31)
Father's Education						
No formal Education®						
Up to Primary completed	1.55***(1.31-1.84)	0.93(0.81-1.06)	0.98(0.68- 1.41)	0.70*(0.47- 1.03)	1.02(0.75-1.38)	0.82(0.60- 1.13)
Secondary and above	1.31*(0.97- 1.76)	0.98(0.79- 1.22)	0.97(0.65-1.44)	1.17(0.47-2.86)	0.90(0.64- 1.27)	0.82(0.46-1.45)

®-Reference group, *p<0.1, **p<0.05, ***p<0.01

Table 6. Current and childhood SES correlates of 2+morbidity conditions, WHO-SAGE,2007-10

Characteristics	India	China	Ghana	Mexico	Russia	South Africa
	OR (95 % CI)	OR (95 % CI)	OR (95 % CI)	OR (95 % CI)	OR (95 % CI)	OR (95 % CI)
Residence						
Urban®						
Rural	0.88*(0.78- 1.01)	1.06(0.97- 1.17)	0.98(0.84-1.13)	0.85(0.67- 1.07)	0.97(0.81- 1.17)	0.92(0.77- 1.11)
Years of Education						
no schooling®						
1-5 years	1.03(0.89-1.20)	0.81***(0.72- 0.91)	1.03(0.81- 1.31)	1.09(0.83- 1.44)	0.61(0.20-1.84)	1.21(0.95-1.53)
6-9 years	0.78**(0.65-0.94)	0.78***(0.69-0.87)	1.04(0.81-1.33)	0.92(0.67-1.26)	0.67(0.22- 1.98)	1.10(0.87- 1.40)
10+ above	0.69***(0.56-0.84)	0.55***(0.48-0.65)	0.95(0.79- 1.14)	0.84(0.55- 1.30)	0.47(0.16- 1.38)	0.75*(0.55-1.02)
Wealth						
Lowest®						
Second	0.96(0.80- 1.14)	0.85**(0.75-0.96)	1.11(0.91- 1.36)	1.19(0.88- 1.62)	1.34**(1.03- 1.73)	1.21(0.94- 1.56)
Middle	0.90(0.75- 1.07)	0.93(0.82- 1.05)	1.38***(1.13- 1.70)	1.00(0.72- 1.39)	1.08(0.84- 1.39)	1.48***(1.14- 1.92)
Fourth	0.92(0.77- 1.10)	0.87**(0.77- 0.98)	1.32***(1.07- 1.64)	0.88(0.64- 1.21)	1.13(0.88-1.46)	1.31**(1.00- 1.71)
Highest	0.87(0.72- 1.04)	0.87*(0.76- 1.00)	1.25*(0.99- 1.57)	0.85(0.61- 1.19)	0.88(0.69-1.13)	1.24(0.92- 1.68)
Childhood SES						
Mother's Education						
No formal Education®						
Up to Primary completed	1.06(0.86- 1.31)	0.87*(0.75-1.02)	0.85(0.59- 1.22)	0.78*(0.60- 1.01)	1.02(0.80-1.32)	0.81(0.64-1.03)
Secondary and above	0.89(0.59-1.34)	0.88(0.68- 1.13)	0.60(0.32-1.12)	0.44**(0.23- 0.85)	0.78*(0.58- 1.03)	0.74(0.49- 1.12)
Father's Education						
No formal Education®						
Up to Primary completed	1.18**(1.03- 1.36)	0.95(0.86-1.05)	1.11(0.86-1.45)	0.91(0.71- 1.17)	0.95(0.69- 1.31)	1.17(0.93-1.47)
Secondary and above	1.25**(1.01- 1.55)	1.08(0.92- 1.27)	1.22(0.92-1.60)	0.94(0.54- 1.64)	0.95(0.67-1.34)	1.22(0.84- 1.77)

®-Reference group, *p<0.1, **p<0.05, ***p<0.01

Table 7. Current and childhood SES correlates of functional limitation (1+ADL), WHO-SAGE, 2007-10

Characteristics	India	China	Ghana	Mexico	Russia	South Africa
	OR (95 % CI)	OR (95 % CI)	OR (95 % CI)	OR (95 % CI)	OR (95 % CI)	OR (95 % CI)
Residence						
Urban®						
Rural	1.32***(1.15-1.51)	2.10***(1.82- 2.42)	0.90(.77-1.05)	0.82(0.64- 1.04)	0.88(0.72- 1.09)	0.94(0.77-1.15)
Years of Education						
no schooling®						
1-5 years	0.90(0.77-1.05)	0.82**(0.70- 0.95)	0.82(0.63- 1.07)	1.03(0.77- 1.37)	0.53(0.21- 1.30)	1.16(0.89- 1.50)
6-9 years	0.71***(0.59-.086)	0.86*(0.72-1.02)	1.19(0.91- 1.54)	0.81(0.59-1.13)	0.36**(0.15- 0.87)	1.07(0.82- 1.39)
10+ above	0.48***(0.39-0.60)	0.58***(0.44-0.76)	0.94(0 .77-1.15)	0.90(0.57- 1.41)	0.24***(0.10- 0.59)	0.63**(0.44-0.91)
Wealth						
Lowest®						
Second	0.79**(0.66- 0.95)	1.00(0.85-1.18)	0.80**(0.64-0.99)	1.03(0.75-1.41)	0.66***(0.51- 0.86)	1.44**(1.09- 1.91)
Middle	0.90(0.75- 1.09)	0.93(0.78- 1.11)	0.85(0.68- 1.05)	0.71*(0.51- 1.00)	0.88(0.68-1.13)	1.18(0.88- 1.58)
Fourth	0.73***(0.61-0.88)	0.83*(0.69 - 1.00)	0.84(0.67- 1.05)	0.71*(0.51-1.00	0.70**(0.53- 0.92)	1.61***(1.20-2.17)
Highest	0.70***(0.58-0.85)	0.47***(0.37- 0.59)	0.84(0.65- 1.07)	0.60***(0.42-0.85)	0.59***(0.44-0.78)	1.23(0.87- 1.74)
Childhood SES						
Mother's Education						
No formal Education®						
Up to Primary completed	0.95(0.76-1.18)	1.15(0.86- 1.53)	1.07(0.72- 1.58)	1.05(0.79-1.39)	0.88(0.69- 1.13)	1.01(0.77- 1.32)
Secondary and above	0.90(0.58- 1.38)	1.37(0.79- 2.37)	1.08(0.56-2.07)	0.69(0.35- 1.35)	0.73**(0.54-0.99)	0.70(0.43- 1.15)
Father's Education						
No formal Education®						
Up to Primary completed	1.30***(1.13-1.50)	0.86*(0.72- 1.02)	0.76*(0.57- 1.01)	0.75*(0.57-0.97)	1.02(0.76-1.38)	1.05(0.82-1.36)
Secondary and above	1.45***(1.15-1.82)	0.59***(0.42-0.83)	0.74*(0.55-1.00)	0.94(0.53- 1.68)	0.95(0.67-1.33)	1.04(0.68-1.58)

®-Reference group, *p<0.1, **p<0.05, ***p<0.01

1+ADL is defined as at least one limitation include sitting, walking, standing-up, standing, climbing, crouching, picking up, eating, dressing, using toilet, moving around in home, transferring and concentrating for about 10 minutes.