Exploring Different Sleep, Skin, Mental, Physical and Sound Related Disorders and Their Relation with Life Style and Socio-Demographic Status of Chittagong Port Area People: A Cross-Sectional Study on a Community

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Abstract: Slums are available in the port area of Chittagong city. The general health conditions of the slum dwellers are very poor. This study was conducted to explore the possible association of different disorders of post area people with their life style and socio-demographic status. A survey based prospective observational study was performed at Chittagong from July 2017 to January 2018. A total of 200 (125 from port area and 75 from city area) were identified as a quite effective sample for this study. A self-administered questionnaire was delivered to the participants. Majority of the respondents were married male in this study. Illiterate, ill-educated and day laborer people were available in port area when compared with city area. 35.2% people's monthly income was below Tk. 10000 with poor household condition in port area. Most of the people were drinker (51%) and smoker (71%) in port area when compared to the city area. The values were 21% and 48% accordingly in city area. Various types of sound and sleep related problems are more common in port area people. Different physical disorders like fever, stroke, diarrhea and chest pain were more frequent in the port area when contrast to the city area. Moreover, mental problems such as depression, frustration, restlessness, stress and over pressure are also more common in port area than city area. Poverty, illiteracy and low socio-economic status is associated with many adverse mental and physical health outcomes. Evidence-based planning, decision-making and practice can help improve the health status and quality of life of people.
Keywords: Sleep disorder, skin problem, mental problem, physical problem, port city.

INTRODUCTION

Chittagong is the second largest metropolitan city of Bangladesh. It is located on a peninsula, bordering on the west by the Bay of Bengal and on the east by the Karnafully River. Chittagong city is known for its port than any other reason [1]. Its existence as a commercial and port city dates back to 80 AD. The modern port was established in 1887 under the British rule and it is now a very busy port round the year. The city is also well known for the location of various industrial units and about 30% of the total industrial product of the country comes from this city area [2]. Chittagong city is located in the tropical zone and is characterized by high temperature heavy rainfall and excessive humidity [3]. The river Karnafully with its strong tidal behavior has been playing a major role to determine the land-ocean interface in city morphology. The Chittagong city coastal area in the west has witnessed localized erosion and accretion due to its geographical location [3].

Chittagong has a long tradition of trade and commerce because if it's locational advantage to sea port. Topographically Chittagong is a hilly city surrounded by Karnaphully River and Bay of Bengal from different sides. Chittagong begun to be called as Porto Grande (great port) by the Portuguese. After the independence of Bangladesh in 1971 as a sovereign country, the importance of Chittagong as commercial and port city increased in many folds, so as the rapid increase of its population size and thus the horizontal expansion of the city was accelerated [4]. Since Chittagong is the port city and the commercial capital, people from the surrounding regions are migrating into the city areas for better income opportunities. As a result, unplanned and haphazard growth of slum areas is taking place at different location of the city which is polluting the environment. Slums are available in the

port area. Housing conditions of these slums are very poor and are mostly built by bamboo and tin shades. Most of the slums are lack of urban utilities such as gas, electricity, safe drinking water, and drainage and sewerage facilities. The general health conditions of the slum dwellers are also very poor and large number of those people suffers from male nutrition, respiratory, skin, and intestinal problems [5]. The rapid growth of slum settlement significantly deteriorates the city environment. The present study was conducted to explore the possible association of different disorders of slum area people with their life style and socio-demographic status.

METHODOLOGY
Study period and study population
A cross-sectional study was conducted among a convenience sample of port area and city area people from Chittagong, Bangladesh. The study period was from 1 June 2016 to 15 March 2017. A total of 200 (125 from port area and 75 from city area) were identified in Chittagong as a quite effective sample for this study.

Study design and study tools
This descriptive observational study adopted a prospective cross-sectional method to explore the experiences of port area and city area people regarding different issues of their life. The convenience sampling system was applied to approach potential respondents for the study. A data collection form was used to collate the information from the sample, such as socio-demographic data, family and personal medical history and several types of physical and mental complications. After collecting the data, the details were entered in the structured patient profile form. The data collection form was written in English.

Data analysis
Descriptive statistics were used to analyze the data using frequency table, percentages and charts. Microsoft Office Excel 2007 software package was used for statistical analysis. Statistical analysis was performed using the Statistical Package for Social Science (SPSS) Software for Windows, (version 22.0).

Ethical clearance
Permission for the study was obtained from the higher authority of Chittagong city, Bangladesh. A written consent form was obtained from each participant who wished to participate in the study. Participants were told that all information provided was completely confidential and the results would be presented anonymously.

RESULTS
Table-1 shows that out of the total 200 samples, majority of the respondents were male in both city and port area; the values were 60 (80%) and 100 (80%) accordingly. Besides, the majority of respondents were married; the values were 57 (76%) and 90 (72%) respectively. Illiterate and ill-educated people were available in port area when compared with city area. 33 (26.4%) and 53 (42.4%) respondents were illiterate and ill-educated (primary level) respectively in port area. On the other hand, most of the people were graduate [25 (33.33%)] and higher secondary [31 (41.33%)] educated in city area. Moreover, most of the participants of port area were day laborer [59 (47.2%)] in our study. 25 (20%) people of port area were unemployed. Whereas, the number of the day laborer and unemployed people of city area was 9 (12%) and 3 (4%) accordingly in this study. Economic status of most of the respondents was not so well in port area. 44 (35.2%) people's monthly income was below Tk. 10000. Household condition was also very poor in port area; 54 (43.2%) people were lived in the slum area.
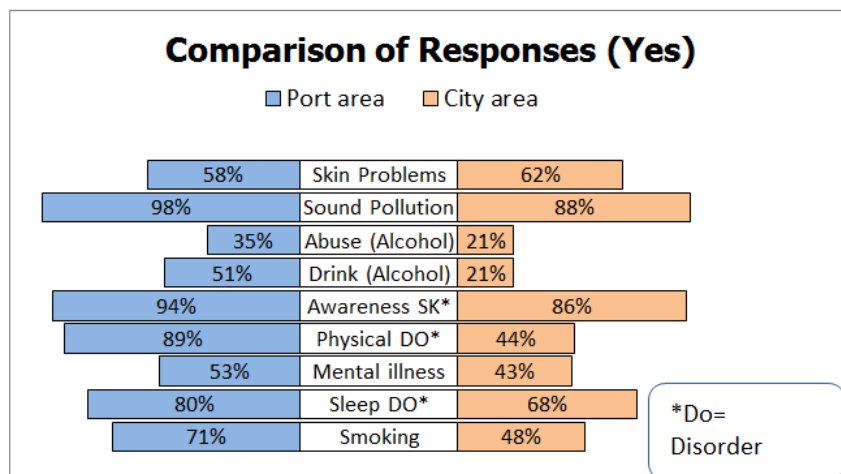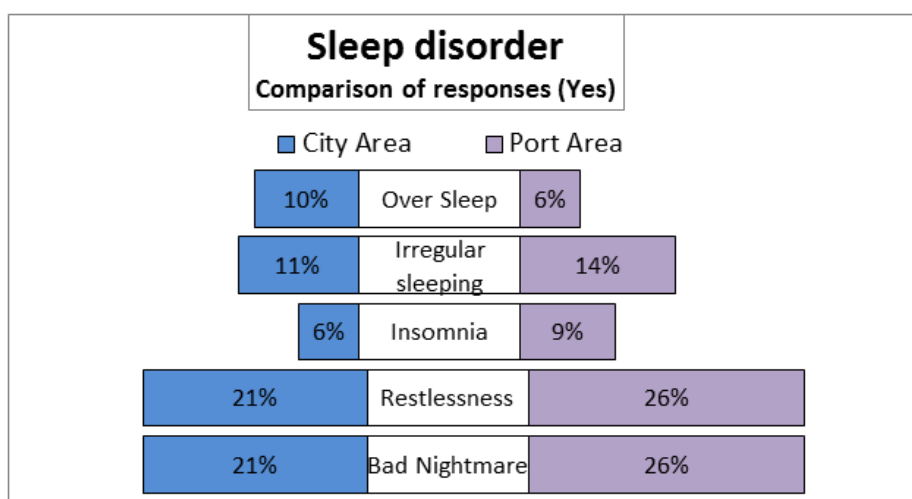

Fig-1: Comparison of responses (Yes) between the people of port area and city area.

Table-1: Socio-demographic status of respondents of city and port area.

Subjects	Frequency in city area	Frequency in port area
Sex-		
Male	60 (80%)	100 (80%)
Female	15 (20%)	25 (20%)
Marital Status-		
Married	57 (76%)	90 (72%)
Unmarried	18 (24%)	35 (28%)
Education Qualification-		
Illiterate	3 (4%)	33 (26.4%)
Primary	5 (6.67%)	53 (42.4%)
Secondary	11 (14.67%)	27 (21.6%)
Higher Secondary	25 (33.33%)	11 (8.8%)
Graduate	31 (41.33%)	1 (0.8%)
Occupation-		
Service Holder	32 (42.67%)	11 (8.8%)
Business	31 (41.33%)	30 (24%)
Day Laborer	9 (12%)	59 (47.2%)
Unemployed	3 (4%)	25 (20%)
Average Monthly Income –		
Below TK 10000	11 (14.67%)	44 (35.2%)
TK 10000-TK 20000	25 (33.33%)	64 (51.2%)
TK 20000-TK 30000	32 (42.67%)	12 (9.6%)
Above TK 30000	7 (9.33%)	5 (4%)
Household Condition-		
Semi Paka Building	18 (24%)	33 (26.4%)
Residential Building	31 (41.33%)	11 (8.8%)
Community Colony	23 (30.67%)	27 (21.6%)
Slum Area	3 (4%)	54 (43.2%)
Employment Nature-		
Government	20 (26.67%)	5 (4.0%)
Private	12 (16.0%)	7 (5.6%)
Others	43 (57.33%)	113 (90.4%)

Figure-1 shows that a significant amount of people (51%) in the port city were drinker when compared to the city area (21%). Moreover, most of the people (71%) were smoker in port area. On the other hand this value was 48% in city area. Besides, different types of sleeping problems are available in port city. 80% of people were in sleeping problem [figure 1]. Various sleeping disorders like insomnia, bad nightmare, and irregular sleeping are comparatively more common in port area than city area (Figure-2).

Fig-2: Comparison of responses between city and port area in case of sleep disorder.

Figure-3 shows the comparison of responses between city and port area in case of sound related problems. Various types of sound related problems like headache, mind disturbance problems and sound sensitivity are more common in port area people when compared to the city area. Moreover, the rate of the occurrence of different physical disorders like fever, stroke, diarrhea, migraine and chest pain were more in the port city area when contrast to the city area (Figure-4).
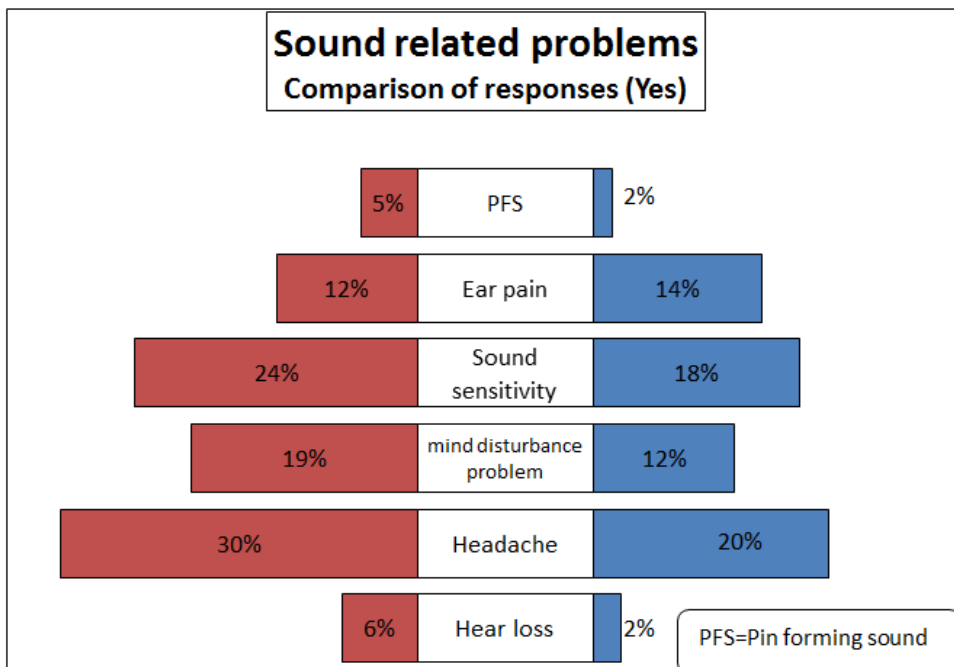

Fig-3: Comparison of responses between city and port area in case of sound related problems.
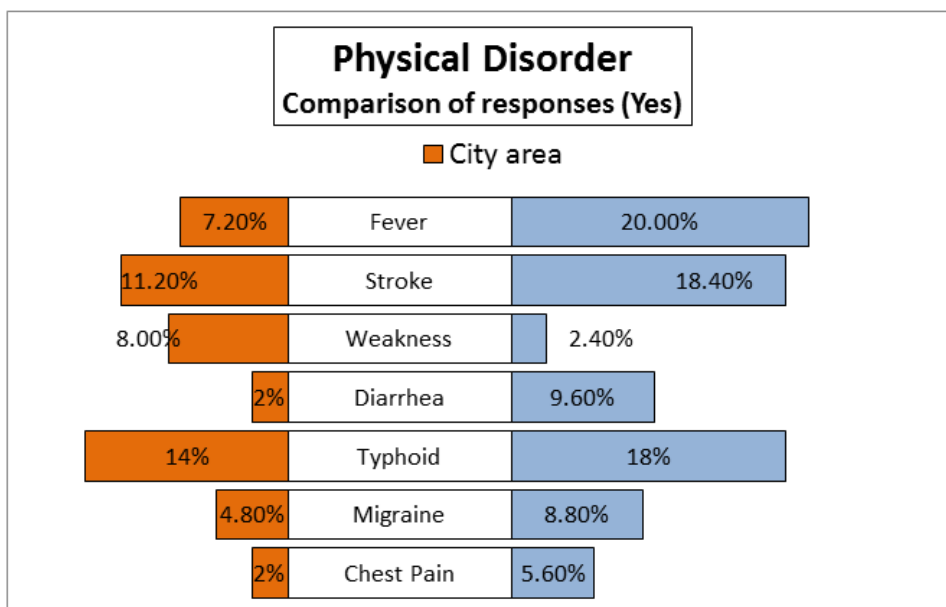

Fig-4: Comparison of responses between city and port area in case of physical disorders.

Figure-5 shows the comparison of responses between city and port area in case of mental disorders. Different types of mental problems such as depression, frustration, restlessness, stress and over pressure are more frequent in port area than city area.
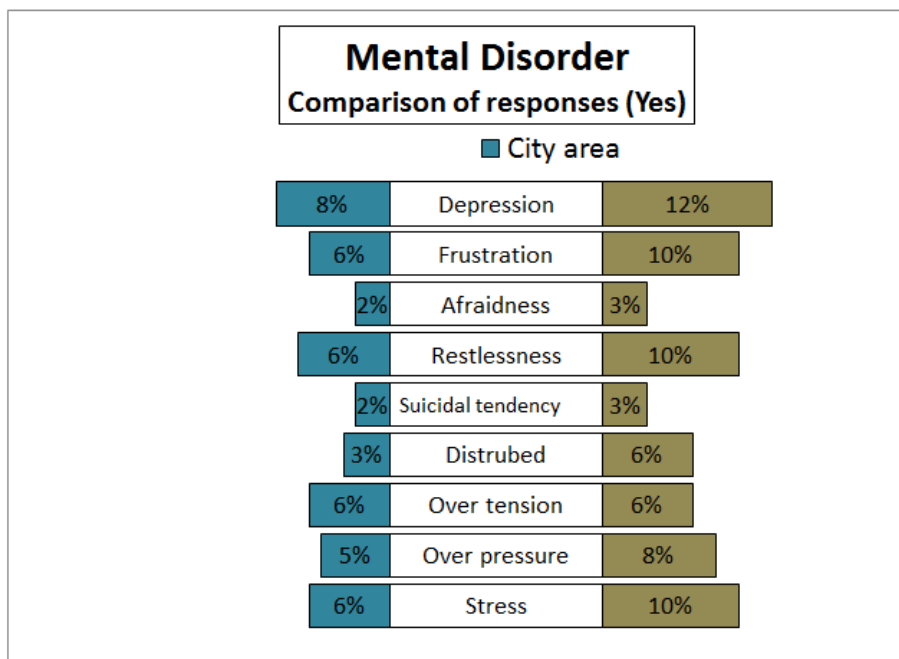
Fig-5: Comparison of responses between city and port area in case of mental disorders.

Table-2: Results of Chi- Square test of different variables.

Variable		P-value
People lives in the place (Port area and City Area)	Smoking (Yes/No)	**0.00***
	Sleep Disorder (Yes/No)	**0.03***
	Mental illness (Yes/No)	0.129
	Physical Disorder (Yes/No)	**0.00***
	Awareness about Smoking (Yes/No)	**0.05***
	Drink Alcohol (Yes/No)	**0.00***
	Abuse Alcohol (Yes/No)	**0.01***
	Sound Pollution (Yes/No)	0.21
	Skin Problem (Yes/No)	0.43

* Significant at 5% level of level of significance

Commence

Based on the observed significance level for the chi-square statistic, we can find significant difference between city area and port area people for all the variables except mental illness, Sound pollution, Skin problem variable.

Table-3: Logistic regression

Independent Variable	Dependent Variable	B	S.E.	Wald	df	Sig.	Exp (B)
Place (Port area)	smoking	.631	.401	2.475	1	0.116	1.879
	Sleep disorder	-19.316	5750.526	.000	1	0.997	.000
	Mental disorder	-2.096	.598	12.275	1	**0.00***	.123
	Awareness (Smoking)	.434	.694	.391	1	0.532	1.543
	Drink (alcohol)	1.359	.559	5.908	1	**0.01***	3.893
	Abuse (alcohol)	-.256	.578	.196	1	0.658	.774
	Sound pollution	-1.371	.573	5.725	1	**0.01***	.254
	Skin problem	-1.045	.429	5.947	1	**0.01***	.352
	Exper. skin. prb.	.271	.408	.443	1	0.506	1.312
	Constant	-4.874	1.392	12.267	1	**0.00***	.008

* Significant at 5% level of level of significance

Commence

A logistic regression was performed to ascertain the effects of living two areas named port area and city area on smoking, sleep disorder, mental illness, physical illness, drinking alcohol, abuse alcohol, sound pollution etc. The estimated value of B= 0.631, which

implies that the estimated change in the logit/log-odds for port area is 0.631 and Exp (B)= 1.879 , which implies that port area people are 1.879 times as likely to develop the outcome event i.e. smoking as the city area. For drink of alcohol variable, the port area people have 3.89 times probability of occurring the drink of alcohol than city area.

DISCUSSION

Illiteracy is common in many non-industrialized nations. In those countries, health status indicators, such as life expectancy and infant-maternal survival rates, all improve as the population's literacy level rises. Illiteracy is also more common in the port area than city area people [Table 1]. Actually, illiteracy occurs frequently among those of low socioeconomic region [6]. People having low monthly income are available in such areas. Up to 33 (26.4%) individuals among a total of 100 persons in the port area lack basic literacy skills, and 53 (42.4%) of total peoples more have only primary education [Table 1]. Therefore, it is logical to hypothesize that a relation between literacy and health status can exist in the port area. There is a relation between poor literacy skills and poor health in the port area of Bangladesh. This study showed that poor living conditions such as poor housing, which is associated with low income, remained significantly associated after adjustment for education. Moreover, Poor people stress the anxiety and fear they experience because they feel insecure and vulnerable when their conditions worsen. There is evidence of the association between insecurity of income flow and common mental disorders [7].

Poverty is a multidimensional phenomenon, encompassing inability to satisfy basic needs, lack of control over resources, lack of education and poor health. The measurement of poverty is based on incomes or consumption levels, and people are considered poor if their consumption or income levels fall below the 'poverty line', which is the minimum level necessary to meet basic needs [8]. Generally, the definitions of poverty vary depending on the social, cultural and political systems in a particular region and according to the user of the data. Poor people's definitions reveal that poverty is a multidimensional social phenomenon. From an epidemiological perspective, poverty means low socioeconomic status (measured by social or income class), unemployment and low levels of education [9, 10]. Poverty is a global issue, and extreme poverty is a worldwide health problem (WHO, 2000). Statistics indicate that the economic distance between the world's rich and poor countries is increasing, and this disparity of economic resources poses a risk for health by affecting the development of infrastructures to support mental health care [11]. Poverty has dramatic effects on behavior and emotions, which ultimately impact mental health, especially among vulnerable groups [12, 13]. It is a wellrecognised fact that poverty has important implications for both physical and mental health. Besides, poverty and social inequality are closely linked. Poverty and social inequality have direct and indirect effects on the social, mental and physical well-being of an individual [13]. It is generally conceded that poverty can be both a determinant and a consequence of poor mental health. In this study, we also found that poverty is very common in port area of Chittagong. As a result, different types of social, mental and physical disorders are also very common in this area as observed in various previous studies. Wilkinson (1997) believed that income inequality produces psychosocial stress, which leads to deteriorating health and higher mortality over time [14, 15]. Those who live in deprived communities, where there is underinvestment in the social and physical infrastructure, experience poor health, resulting in higher mortality for those of lower socio-economic class. The effects of income inequality also spill over into society, causing stress, frustration and family disruption, which then increase the rates of crime, homicide and violence [13, 15]. The relationship between low economic status and elevated incidence and prevalence of mental illness has become increasingly apparent. One previous study indicated that there was a direct relationship between the experience of poverty and a high rate of emotional disturbance [16]. We also elucidated such type of relationship in our present study. Generally, relationships between social status and various aspects of mental disorder have long been of interest to both clinicians and researchers, and a large body of research exists showing the importance of social status in understanding psychiatric illness and disability. Epidemiological studies throughout the world have demonstrated an inverse relationship between mental illness and social class [17]. Psychiatric disorders have been consistently shown to be more common among people in lower social classes. Besides, Unemployment significantly increased the odds ratio of psychiatric disorders compared with the reference group [18]. We found 20% people in the port area who were unemployed. Furthermore, many studies have reported that low socio-economic status is associated with high prevalence of mood disorders [19].

Research suggests that poverty may have direct effects on adolescent mental health. Poverty can also impact quality of life and social adjustment [20]. A spiral of adverse socioeconomic consequences can result from the influence of poverty on the production of mental health problems and other outcomes, such as high school dropout, lack of employment opportunities, behavioral problems, social disorganization, and further increases in parent– adolescent conflict [21, 22]. Clinical and population-based studies have demonstrated that severe mental ill-ness (eg, psychotic disorder) has been associated with higher likelihood of poverty and homelessness. However, findings on the relationship between other mental disorders, such as depression, anxiety, and substance abuse, and income have been mixed [23, 24]. We found strong

relationships between household income and mental disorders. Mental health problems have considerable negative consequences for quality of life, and in many countries, particularly low- and middle-income countries, they also contribute to continued economic burden and sub-optimal productivity at the individual and national levels, through their reinforcing relationships with poverty [25].

CONCLUSION

Poverty is associated with many adverse mental health outcomes. There are economic barriers in all health care systems. Poverty must be recognized as a global issue. Most studies showed an association between the risk of common mental disorders and low levels of education; many studies also showed a relationship with other indicators of poverty such as poor housing or low income. The association between illiteracy and health status found in this research suggests that improving literacy skills of Chittagong port city residents might improve the population's health status. Furthermore, the inverse association between socio-economic level and risk of disease is one of the most pervasive and enduring observations in public health. Tackling the public health burden is a global challenge. There is a widespread view that mental health problems in low-income countries could and should be tackled at the primary care level. Evidence-based planning, decision-making and practice can help improve the health status and quality of life of people with mental health problems.

REFERENCES

1. Rahman, M. M., Dewan, A. M. & Islam, M. S. (2001). Degradation of Urban Environment: A Case Study of Citizens, Perception in Chittagong City. Oriental Geographer, 45 (1), 35-52.
2. Khan, F. K., & Salehuddin, A. (1967). The City Center of Chittagong. Oriental Geographer, 11(1), 1-37.
3. JAICA. (2000). The Feasibility Study on Extension and Expansion of Mohara Water Treatment Plant in Chittagong. Final Report, NJS Consultants Co Ltd.
4. Ahmed, N. & Rahman, A. K. M. H. (1962). Development of Industry in Chittagong. Oriental Geographer, 6(2), 139-158.
5. Azad, A., & Kitada, T. (1998). 'Characteristics of the Air pollution in the city of Dhaka, Bangladesh in Winter'. Atmospheric Environment, 32, 108-109.
6. Weiss, B. D., Hart. G., McGee. D. L., & D'Estelle, S. (1992). Health status of illiterate adults: relation between literacy and health status among persons with low literacy skills. J Am Board Fam Pract, 5(3), 257-64.
7. Narayan, D., Chambers, R., Shah, M. K. & Petesch, P. (2000). Anxiety, fear and insecurities. In: Voices of the poor: crying out for change. New York: Oxford University Press for the World Bank, 151-77.
8. Marzuk, P. M., Tardiff, K., Leon, A. C., Hirsch, C. S., Stajic, M., Portera, L., & Hartwell, N. (1997). Poverty and fatal accidental drug overdoses of cocaine and opiates in New York City: an ecological study. The American journal of drug and alcohol abuse, 23(2), 221-228.
9. Narayan, D., Patel, R., Schafft, K., Rademacher, A., & Koch-Schulte, S. (2000). Voices of the poor: can anyone hear us? New York: Oxford University Press for the World Bank, 26-60.
10. Saraceno, B., & Barbui, C. (1997). Poverty and mental illness. Canadian Journal of Psychiatry, 42, 285-9.
11. Timimi, S. (2005). Effect of globalization on children's mental health. British Medical Journal, 333, 37–39.
12. Guillen, M. F. (2001). Is globalization civilizing, destructive or feeble? A critique of five key debates in the social science literature. Annual Review of Sociology, 27, 235–260.
13. Wilkinson, R. G. (1997). Health inequalities: relative or absolute material standards. BMJ, 314, 591–595.
14. Smith, G. D., Bartly, M., & Blane, D. (1990). The Black Report on socioeconomic inequalities in health, 10 years on. BMJ, 301, 373–377.
15. Patel, V., Rodrigues, M., & DeSouza, N. (2002). Gender, poverty, and postnatal depression: a study of mothers in Goa, India. American Journal of Psychiatry, 159, 43–47.
16. Dohrenwend, B. P., Levav, I., Shrout, P. E., Schwartz, S., Naveh, G., Link, B. G., Skodol, A. E., & Stueve A. (1992). Socioeconomic status and psychiatric disorders: the causation-selection issue. Science, 255(5047), 946-52.
17. Mason, P., & Wilkinson, G. (1996). The prevalence of psychiatric morbidity. OPCS survey of psychiatric morbidity in Great Britain. Br J Psychiatry, 168(1), 1-3.
18. Murphy, J. M., Olivier, D. C., Monson, R. R., Sobol, A. M., Federman, E. B., & Leighton, A. H. (1991). Depression and anxiety in relation to social status. A prospective epidemiologic study. Arch Gen Psychiatry, 48(3), 223-9.
19. Bruce, M. L., & Hoff, R. A. (1994). Social and physical health risk factors for first-onset major depressive disorder in a community sample. Social Psychiatry and Psychiatric Epidemiology, 29, 165–171.
20. Wilkins, A. J., O'Callaghan, M. J., Najman, J. M., Bor, W., Williams, G. M., & Shuttlewood, G. (2004). Early childhood factors influencing health-related quality of life in adolescents at 13 years. Journal of Paediatrics & Child Health, 40, 102–111.
21. Davis, M., Banks, S., Fisher, W., & Grudzinska, A. (2004). Longitudinal patterns of offending during the transition to adulthood in youth from the mental health system. Journal of Behavioral Health Services & Research, 31, 351–366.

22. Wickrama, K. A. S., & Bryant, C. M. (2003). Community context of social resources and adolescent mental health. Journal of Marriage & Family, 65, 850–864.

23. Kendler, K. S., Gallagher, T. J., Abelson, J. M., & Kessler, R. C. (1996). Lifetime prevalence, demographic risk factors, and diagnostic validity of nonaffective psychosis as assessed in a US community sample: the National Comorbidity Survey. Arch Gen Psychiatry, 53(11), 1022-1031.

24. Kessler, R. C., Heeringa, S., Lakoma, M. D., Petukhova, M., Rupp, A. E., Schoenbaum, M., Wang, P. S., & Zaslavsky, A. M. (2008). Individual and societal effects of mental disorders on earnings in the United States: results from the National Comorbidity Survey replication. Am J Psychiatry, 165(6), 703-711.

25. Weich, S., Lewis, G., & Jenkins, S. P. (2001). Income inequality and the prevalence of common mental disorders in Britain. British Journal of Psychiatry, 178, 222-7.