The Impact of Social and Cultural Factors on Population Health

Article Review by Floris Rosalyn Gordon
Ph.D in Public Health, Texila American University
Email: - florisgordon@yahoo.com

Abstract

Background – *Chronic disease has now become a major contributor to mortality, the increase in risk factors has had serious impact on health. Much attention has been paid to healthy lifestyle and the need for behavior change. Behavior is transitioning in many developing countries due to urbanization, improved income and access to technological advances. This has resulted in increase in risk factors such excessive alcohol consumption, smoking and inactivity. More persons are seeking processed and prepackaged meals and consuming more food leading to obesity.*

Objective – *The objective of the project is to provide a critical look at the social and cultural factors and how they impact health. To explore how health promotion and there interventions impact on the prevalence of these risk factors.*

Method – *This study will explore at least 10 published articles on this topic the impact of risk factors on health and strategies used to reduce the occurrence of these factors. This review will provide information required to provide recommendations to address prevention of risk factor development.*

Results – *Results across different studies show that lifestyle behavior influences the development of risk factors. Unhealthy behavior like smoking, excessive alcohol consumption and inactivity is associated with obesity, elevated blood pressures and ultimately the development of chronic illnesses like cardiovascular disease and cancer.*

Conclusion – *Risk factors such as smoking, alcohol consumption and inactivity influence the occurrence of chronic illnesses. Surveillance for risk factors must be done and health education must be used as an intervention strategy to prevent the development of risk factors to reduce mortality.*

INTRODUCTION

The rate of increase of morbidity and mortality rates in the developing countries are higher than those of the developed countries. Chronic disease have seen a remarkable increase in the last 20 years in particular; heart disease, diabetes, cancer and respiratory disease. Close to 50% of the deaths from chronic disease are pre mature and approximately 80% will be in the developing countries. This represents over 50% of all deaths in developing countries.[1] A large number of the studies than have been done on socioeconomic status and chronic disease risk factors have been done in high-income (developed) countries. Chronic diseases has now become the primary cause of mortality and has now emerged to be of main concern in developing countries.[2] Cardiovascular disease is now the leading cause of deaths developing countries [3]

Chronic diseases have long latency periods and therefore changes in lifestyle behaviors can reduce or eliminate these factors. Chronic medical disease with alcohol and substance abuse disorder are major contributors to increasing health care costs.[4, 5] Based on current trends the situation is not likely to improve with deaths now totaling over 40 million per year. [6] On the current trajectory chronic disease will continue to increase as the global burden for infectious disease decreases. In some cases it is expected that this increase in disease will be 5 times greater than the decline in infectious diseases. One can compare this with the expected scenario where infectious disease are expected to decrease by approximately 40% even in those countries that are most affected.

The biological risk factors associated with chronic disease are high cholesterol, hypertension and obesity and the aforementioned behavioral risk factors such as alcohol abuse, smoking, poor diet and lack

of physical exercise. The presence of these risk factors accelerate the pace towards morbidity and mortality, Studies have shown that behavioral change can impact significantly in decreasing the global burden of disease.

The mortality rate from chronic disease is greater in developing than in developed countries. Resource constraints negatively impact health systems development and the increase in chronic disease is also associated with poor diets and earlier onset of drinking in developing countries. Eighty percent (80%) of all deaths and 40% of all disabilities are due to chronic disease and these are directly related to social factors Smoking, alcohol and poor diet and lack of physical activity. Approximately 9% of the US population are found to be affected by substance abuse with 10% of these persons seeking treatment. Approximately 40% of these are thought to be impacted by chronic diseases. Chronic disease is higher among the female population and there is a marked increase with age.[7] A total of 70% of all US deaths is related to chronic diseases, approximately 33% of these individuals have been diagnosed with diabetes, elevated blood pressure and cholesterol levels [7]

In excess of 75% of health care cost is related to chronic medical conditions [8] hence the rationale for this study. The objective of the study is to provide a critical look at the social and cultural factors and how they impact health. To explore how health promotion and there interventions impact on the prevalence of development of risk factors.

METHODOLOGY

This is a secondary research paper which reviewed the findings of literature that has already been published on this topic. The research studies chosen for this literature review focused on the determinants of health and the social and cultural risk factors that contribute to the development of disease. Journals from National Centre for Biotechnology Information (Pubmed database), Pubmed Central, JSTOR, Proquest, Highwire and EBSCO were the main sources of electronic literature research. The literature selected for review were based on current publications no older than 10 years.

LITERATURE REVIEW FINDINGS

An analysis conducted in 2008 looked at mortality rates in men over a 40 year period and examined the trends of increase in chronic diseases, the study looked at the epidemiology and economic impact of these disease. The study explored the relationship between cardiovascular and chronic non- communicable diseases and economic growth in countries in The Organization for Economic Co-operation and Development (OECD) .[9]

The study revealed that economic growth had a positive impact on the decline in mortality rates. The correlation showed a three -fold rise in correlation between the impact of economic and social factors when compared with other factors such as age. Conversely in lower income countries it showed that increase in urbanization and investments compares with higher mortality rates due to heart disease and other non – communicable disease. These rates are reduced in middle income and decreased in higher income. [9]

The study concluded that social and economic factors play a major role as determinants of mortality in chronic non- communicable and heart disease. It also notes the impact on rising health care costs particular in low income countries that further amplifies the economic resource issues. 9 The study highlighted the fact that income levels affected behavior, it is interesting to note that in China and India, countries with the greatest economic growth they also are the countries with the highest increase in chronic diseases. [10] The study also highlights the opposite effect for western countries i.e. persons adopt healthier lifestyles. [11]

Another contributing factor highlighted by the study is that of technological change, the current trend is from labour intensive to more sedentary jobs, the call centers in India as a typical example. Large urban populations have positive influence on food prices as people tend to consume more as the cost of food becomes more affordable. Shifts in workforce gender also contribute to purchase of prepackaged and food

outside the home. The combination of bulk prepared fast foods and inactivity has resulted in creation of risk factors such as inactivity and poor diets that have influence chronic disease prevalence rates.
The study identifies five factors as contributing to increase in chronic disease

1. Dietary changes as a result of globalization
2. Trade from outside countries showing preference to unhealthy food
3. Marketing strategies that promote unhealthy lifestyle
4. Advances in technology leading to mass production
5. Increases in sedentary behavior due to implementation of technology [9]

Multistage stratified sampling method was used to select participants in a four month survey that began in August 2010 and covered all Chinese provinces. Interviews were completed on 98,712 persons and biological data gathered from 52.601. Biological data collected included height, weight and glucose levels. In addition Information on eight risk factors was collected. The eight risk factors collected were; excessive alcohol consumption, lack of exercise, inadequate dietary consumption of fruits and vegetables. Obesity, hypertension, elevated cholesterol and fasting glucose levels. The three most prevalence risk factors were inadequate consumption of fruits and vegetables, hypertension and obesity. Women had an average of 1.6 risk factors, there was a positive association between multiple risk factors, poverty, increase in age and illiteracy [12]

Chronic non communicable disease had the highest mortality rate among Chinese women with cardiovascular, cerebrovascular and cancer having the highest prevalence. [13] This has been attributed to the increase of behavioral risk that include smoking, alcoholism, poor diet and exercise approximately 19% have been diagnosed as obese [14]

A 3 year study began in 2003 and looked at cardiovascular risk factors in India and the effect of risk reduction. A total of ten thousand five hundred and forty three persons were selected, first using random then a stratified random selection were and interviewed using a standard questionnaire. Risk factors associated with hypertension and heart disease were examined. The study concentrated on the age group 30 to 50 years. Greater than 50% of the study population were male. [15]

The study noted that there was an association of risk factors with hypertension. There was 12.3 % possibility of increased blood pressure in individuals with greater than 3 risk factors. An intervention group was selected and risk reduction strategies were implemented. The number of persons with hypertension decreased by 5.9% to 4.7% and increased by 4.5% in the uncontrolled group. The interventions were related to diet, smoking and exercise. In the control group restriction were placed only on smoking. [15]

The results showed risk factor associated with an increase in blood pressure of 3.6Hg. The odds ratio with 2 risk factors for coronary heart disease was 1.34 and for more than 3 risk factors it was 1.79 at the 95% confidence interval. As it relates to the risk factor the percentage with low risk increased by 6.5% in the intervention population but decreased by 17.8 % in the control group. The individuals in the intervention group with hypertension that had greater than 3 risk factors had a reduction of 5% and showed increase of 4.5% in the control group. The study was successful in showing a reduction of risk factors in the intervention group. [15]

A review of data was done from a health promotion programme that conducted a risk analysis survey in 2010 in South Africa. The survey focused on risks such as; obesity, the use of alcohol and smoking. This survey target adults 18 years and older. The survey attempted to link the results of the risk assessment with cost of health care for each individual based on insurance recovered costs. [16]

A total of 69,380 persons were included in the survey. A separate cohort of data collected from age group 54-69 was analyzed. The study looked at the total cost inclusive of the individual contribution based on insurance coverage. This basically provided a mapping of health care cost against chronic disease diagnosis and risk factors (risk factors were defined as body mass index of greater than or equal to

25, excessive alcohol consumption of 3 or more alcoholic beverages per day, smoking included current and past smokers). [16]

The results show an average BMI of male 27.1 and 25.6 for female. Approximately 33% of respondents were smokers, however those classified under excessively drinking were rare. An increase in health care cost was positively associated with increase in BMI above 25. The study showed that there was a 22% increase in costs for obese persons who are smokers when compared with the corresponding non- smoking age group. In the excessive alcohol consumption category cost associated with heath care did not increase despite the presence of increased chronic illnesses. The findings were similar for both age groups analyzed, the older population showing severe obesity associated with up to 51% increase in expenditure and smoking with a 20% increase. The study also showed that for ages below 30 there was no association between risk factors and health care costs [16]

An analysis of baseline data obtained from a cross-sectional study of a randomized clinical trial on 563 persons diagnosed with alcohol or drug abuse in the USA was done. Participants were recruited between September 2006 and September 2008 and were enrolled in a primary health care disease management programme (Addiction Health Evaluation and Disease management – AH.EAD). [17]

The eligibility criteria for the adults incorporated in the study were as follows:
1. Drug or alcohol dependent
2. In excess of 30 days of drug use or alcohol use
3. Willingness to participate [17]

A total of 184 or 33% of the studied population had chronic disease. There was a number of medical conditions that were reported, with Hepatitis being the most common single condition and accounted for approximately 33% of the respondents. A total of 118 or 21% of the respondents reported hypertension and 20% asthma.

Twenty eight percent (28%) received addiction treatment within the last 3 month period. A multivariate regression analysis used to analyze the data, found no existence of significant positive correlation between chronic disease and the use of addiction treatment. This indicated poor use of addiction care.

Associations noted by the study were:
- "positive association of treatment with health insurance" [17]
- "negative correlation between recruitment from detoxification and outpatient days" [17]
- "positive association between psychiatric comorbidity (e.g. anxiety and utilization of addiction treatment". [17]

The lack of significant correlation between major chronic diseases and the utilization of addiction treatment might be as a result of the complex link between these variables. [17]

A 16 year prospective cohort design involving 5100 adults in Britain between the ages of 42-63 years was used to examine the extent to which health behavior in midlife impacted on aging. The participants health behaviors in this study were assessed in 1991-1994 and they did not have cancer, coronary artery disease or stroke. Healthy behaviors were defined as no history of smoking, alcoholism, and involvement in physical activity and a daily diet consisting of fruits and vegetables. Successful aging is regarded as good mental, physical, and no respiratory or cardiovascular diseases. [18]

A total of 549 participants had died and 953 had aged successfully. From the study it was deduced that healthy behaviors were found to be moderately correlated and there was a clear indication of the need for healthy behaviors for successful aging. [18]

Cross-sectional data from a national risk factor survey done in 2005 in Argentina was utilized to investigate the correlation of socioeconomic (SES) and chronic disease risk factors. These chronic risk factors are body mass index (BMI), hypertension and diabetes. The study was done in Buenos Aires on adults 18 years and over. A total of 1,510 participants were included. [19]

The questionnaire collected information on physical activity, smoking, diabetes. height, weight, and blood pressure. A BMI in excess of 30kg/m2 was considered to be obese. The frequency of consuming

vegetables and fruits were used to determined participants diet. Participant's level of physical activity was categorized as intense, moderate or low dependent on their response to specific questions. The socioeconomic variables utilized were education and income levels[19]

The study showed that women with lower education and income levels were more likely to be obese and diagnosed as hypertensive, Persons with secondary education only were twice as likely to be diabetic when compared with those that had completed tertiary level education. Those with less than secondary level were four times as likely to be diabetic. There was no significant association of education and income with other behavioral risk factors (diet, exercise and smoking). There was however an association noted between income and fruit and vegetable consumption.

DISCUSSION

As globalization increases new markets and the era of free trade explodes so does the transfer of behavioral practices. Increase in technology has seen a transition to more processed foods the cost of these are lower due to high utilization of technology and mechanization and for the most part this way of life has become more affordable.

Developing nations are caught in a dilemma as one hand they need to improve trade to Countries to enhance economic growth whereas on the other this impact on social factors such as diet, exercise, alcohol consumption that has resulted in an alarming increase in chronic non- communicable disease. The flip side of this is that improved trade also reduces costs for other goods and services that impact positively on non-communicable disease, yet there is a tendency to opt for those that have negative influence, a lot of this can be related to marketing as this drives sales. Globalization has been attributable to the rising risk of chronic diseases the effect of growth in the economy and technology have influenced populations risks[20]

While the world focus is now on controlling infectious diseases and with little change expected in that focus, the mortality rates associated with chronic disease will continue to rise. Approximately 30%-60% of chronic disease are attributable to behavioral risk factors. There is an increase in behavioral risk factors, this is particularly disturbing as the incidence are higher in developing countries. Deaths from complications due to smoking (6.4 million) are estimated to be 50% higher than those by HIV by 2015. Age and literacy level are directly associated with the development of risk factors. The onset of chronic illnesses is gradual therefore middle age persons with history of risk factors are more likely to present with chronic illnesses.

Is recognized that healthy lifestyle is directly associated with decreased mortality and morbidity. The presence of multiple risk factors is significantly associated with the development of chronic disease. There is also an association of hypertension with multiple risk factors[21] and smoking is a risk factor in several chronic diseases. [22] Studies have shown that the odds ratio for pre- hypertensive individuals with 2 or more risk factors for cardio vascular disease is considerably higher. This risk can be reduced with the implementation of appropriate risk reduction programmes. [23] Many of the risk factors associated with chronic disease can be adapted based on behavior change.[24]

There is not much study on socioeconomic status and it relates to the development of chronic risk factors. Studies in developed countries are showing that increase income levels are associated with decrease in chronic risk factors. [25] Obesity is associated with rising health care costs, studies also confirm the link between income and death from chronic disease, although the risk factors exists, the ability to access health care does play a role in mortality reduction in this group. Unfortunately this is not always the case in developing countries as initially with the increase in income levels individuals will tend to adopt unhealthy life styles however there may be behavior change as awareness of healthy lifestyle behavior is achieved. [26, 27] Physical activity is a difficult to measure variable since one has to rely on the individual to report on this behavior.

CONCLUSION / RECOMMENDATIONS

In conclusion, studies have shown that that economic flows have impacted social behavior resulting in higher food consumption and advances in technology have led to a more sedentary behavior and thus pose a very real threat to the development of chronic disease.

Countries must implement effective policy to reduce risk factors. There will need to be a shift in focus to incorporate chronic health care. This will require all stakeholders to be involved, a crucial stakeholder will be the private sector (cigarette and alcohol manufacturers). Public health practitioners must begin to look at the interaction between social and economic factors and prevention strategies must align with reducing these risk factors. As we design intervention strategies we must embrace research in this area as we explore what interventions are likely to work given the complexity of factors involved.

Chronic illnesses evolve over time this provides an opportunity to target risk factors and reverse the trend. It is apparent then that resources must be aimed at reducing risk factors through surveillance and health promotion. Surveillance systems must be designed to monitor risk factors, there must be investment in primordial prevention strategies. The global strategy for monitoring chronic disease has been designed by WHO, countries will need to implement these strategies [28] Health systems strengthening with particular focus on health promotion and education has to be a key component within countries as we respond to the growing epidemic.

Policy makers must be able to recognize that by reducing risk factors; increasing exercise and discouraging tobacco and alcohol use can result in decreased mortality and morbidity. Health education must be aimed at risk reduction, there needs to be a coordinated inter-sectorial approach to the reduction or elimination of these risk factors. It is important that public health practitioners target risk reduction as a means of reducing the development of chronic disease and also mortality rates. A formalized approach needs to be encouraged in primary health care setting for individuals with chronic disease and addiction to seek addiction treatment.[29]

REFERENCES

[1]. Murray CJ, Lopez AD. The Global Burden of Disease: A Comprehensive Assessment of Mortality and Disability from Disease, Injuries and Risk Factors in 1990 and Projected to 2020. Harvard School of Public Health; 1996. World Health Organization, and the World Bank. Geneva: World Health Organization.

[2]. Murray CJL, Lopez AD, Harvard School of Public Health, World Health Organization, World Bank. The global burden of disease: a comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020. Cambridge, MA: Published by the Harvard School of Public Health on behalf of the World Health Organization and the World Bank; Distributed by Harvard University Press; 1996

[3]. World Health Organization. The world health report 2003: shaping the future. Geneva: World Health Organization; 2003

[4]. National Health Expenditure Data, Historical.
http://www.cms.hhs.gov/NationalHealthExpendData/02_NationalHealthAccountsHistorical.asp#TopOfPage

[5]. Chronic Disease Overview. http://www.cdc.gov/NCCdphp/overview.htm

[6]. Omran A. The Epidemiologic Transition: A Theory of the Epidemiology of Population Change. The Milbank Quarterly. 1971; 49(4):509–38. [PubMed]

[7]. Paez KA, Zhao L, Hwang W. Rising out-of-pocket spending for chronic conditions: a ten-year trend. Health Aff (Millwood) 2009; 28:15–25. doi: 10.1377/hlthaff.28.1.15. [PubMed] [Cross Ref]

[8]. Chronic Disease Overview. http://www.cdc.gov/NCCdphp/overview.htm

[9]. D. Stuckler, **Population Causes and Consequences of Leading Chronic Diseases: A Comparative Analysis of Prevailing Explanations** Milbank Q. Jun 2008; 86(2): 273–326 doi: 10.1111/j.1468-0009.2008.00522.x PMCID: PMC2690359

[10]. Reddy K, Shah B, Varghese C, Ramadoss A. Responding to the Threat of Chronic Diseases in India. The Lancet. 2005; 366(9498):1744–49. [PubMed]

[11]. Cutler D, Glaeser EL, Shapiro JM. Why Have Americans Become More Obese? Journal of Economic Perspectives. 2003; 17:93–118.

[12]. Bull World Health Organ. **Risk factors for noncommunicable chronic diseases in women in China: surveillance efforts** Sep 1, 2013; 91(9): 650–660. doi: 10.2471/BLT.13.117549. PMCID: PMC3790222

[13]. Yu W. *National Disease Surveillance Points System – death cause surveillance 2010* Beijing: Military Medical Science Press; 2012

[14]. Asia Pacific Cohort Studies Collaboration The burden of overweight and obesity in the Asia-Pacific region. Obes Rev. 2007; 8:191–6. doi: 10.1111/j.1467-789X.2006.00292.x. [PubMed] [Cross Ref]

[15]. **Jeemon P, Prabhakaran D et al Impact of comprehensive cardiovascular risk reduction programme on risk factor clustering associated with elevated blood pressure in an Indian industrial population** Indian J Med Res. Apr 2012; 135(4): 485–493. PMCID: PMC3385231

[16]. **Sturm R, An R , Patel D. et al The Effects of Obesity, Smoking, and Excessive Alcohol Intake on Health Care Expenditure in a Comprehensive Medical Scheme** S Afr Med J. Author manuscript; available in PMC Nov 1, 2013.Published in final edited form as:S Afr Med J. Sep 30, 2013; 103(11): 840–844.PMCID: PMC3807241NIHMSID: NIHMS515015

[17]. **Reif S, Larson M et al, Chronic disease and recent addiction treatment utilization among alcohol and drug dependent adults** Subst Abuse Treat Prev Policy. 2011; 6: 28. Published online Oct 18, 2011. doi: 10.1186/1747-597X-6-28PMCID: PMC3220629

[18]. **Sabia S, Singh Manoux A et al, Influence of individual and combined healthy behaviours on successful aging** CMAJ: Canadian Medical Association Journal Canadian Medical Association CMAJ. 2012 Dec 11; 184(18):1985-92. doi: 10.1503/cmaj.121080. Epub 2012 Oct 22

[19]. **Fleischer. N, Diez Roux. Et al A, Social Patterning of Chronic Disease Risk Factors in a Latin American City** J Urban Health. Nov 2008; 85(6): 923–937. Published online Oct 2, 2008. doi: 10.1007/s11524-008-9319-2 PMCID: PMC2587655

[20]. Gilmore AB, McKee M. Moving East: How the Transnational Tobacco Companies Gained Entry to the Emerging Markets of the Former Soviet Union. Part II: An Overview of Priorities and Tactics Used to Establish a Manufacturing Presence. Tobacco Control. 2004; 13:151–60. [PMC free article] [PubMed]

[21]. Kannel WB. Risk stratification in hypertension: new insights from the Framingham Study. Am J Hypertens. 2000;13:3S–10S. [PubMed]

[22]. Kim BJ, Kim BS, Sung KC, Kang JH, Lee MH, Park JR. Association of smoking status, weight change, and incident metabolic syndrome in men: a 3-year follow-up study. Diabetes Care. 2009; 32:1314–6. [PMC free article] [PubMed

[23]. **Jeemon P, Prabhakaran D et al Impact of comprehensive cardiovascular risk reduction programme on risk factor clustering associated with elevated blood pressure in an Indian industrial population** Indian J Med Res. Apr 2012; 135(4): 485–493. PMCID: PMC3385231

[24]. Mayosi BM, Flisher AJ, Lalloo UG, et al. The burden of non-communicable diseases in South Africa. Lancet. 2009; 374(9693):934–947. [http://dx.doi.org/10.1016%2FS0140-6736%2809%2961087-4] [PMID:19709736] [PubMed]

[25]. Kaplan GA, Keil JE. Socioeconomic factors and cardiovascular disease: a review of the literature. Circulation. 1993; 88(4):1973–1998. [PubMed]

[26]. Leeder S, Raymond S, Greenberg H, Liu H, Esson K. *A race against time: the challenge of cardiovascular disease in developing economies*. New York City, NY: Columbia University; 2004

[27]. Singh RB, Pella D, Mechirova V, et al. Prevalence of obesity, physical inactivity and under nutrition, a triple burden of diseases during transition in a developing economy. The Five City Study Group. Acta Cardiol. 2007;62(2):119–127 doi:10.2143/AC.62.2.2020231. [PubMed]

[28]. *Report of the Formal Meeting of Member States to conclude the work on the comprehensive global monitoring framework, including indicators, and a set of voluntary global targets for the prevention and control of noncommunicable diseases.* Geneva: World Health Organization; 2012. Available from: http://apps.who.int/gb/ncds/pdf/A_NCD_2-en.pdf[accessed 15 June 2013].

[29]. Mark TL, Levit KR, Coffey RM, McKusick DR, Harwood HJ, King EC, Bouchery E, Genuardi JS, Vandivort-Warren R, Buck JA, Ryan K. National Expenditures for Mental Health Services and Substance Abuse Treatment, 1993-2003. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2007.