

## GENDER AND HEALTH

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*Gender differences in the health status of the adult population continues to be of great interest because of unresolved scientific questions and policy implications. The research suggests that the health of men and women is influenced by the socio-economic and cultural context. Gender attributes and characteristics are socially constructed and culturally defined therefore we would expect that health would vary between men and women and that some component of the gender differential could be explained by differences between men and women in their socio-economic characteristics. Also behavior that adversely affects health varies by gender. In this article selected aspects of the relationship between gender and health indicated in the literature are investigated. The main argument is that differences in demographic, socio-economic and household characteristics of men and women and variations in health risk behavior among men and women, can explain gender differences in health status. Additionally, it is argued that many developing societies including are undergoing transitions in which gender roles are changing in ways that reduce inequalities between men and women. It was expected that this would result in reduced variations in health outcomes between men and women. Evidences from literature are used to assess these arguments.*

### 1. Introduction

Most research on gender and health document differences in morbidity and mortality between men and women. Typically, they report higher rates of morbidity for women than men and higher rates of mortality for men than women in all age groups (Pampel, 2002; Retherford, 1975; Waldron, 1986, 1995, 2000; Wingard, 1982). Patterns of morbidity among men and women also differ: women are more exposed to acute conditions and non-fatal chronic diseases, whereas men have higher risks of accidental and violent deaths. These differences are the largest in early and middle adulthood (Feachem et al., 1992).

Patterns of morbidity and mortality of men and women vary by region and by culture as well as by socio-economic and demographic characteristics of individuals (Annandale and Hunt, 2000; Anderson et al., 1996; Johansson, 1992; Murray and Chen, 1992). The reason is that health and gender are both based on biological indicators but are also both socially constructed. Being a man or woman results in the assignment of different economic, social and cultural attributes and opportunities. It means not only having different biological characteristics, but also facing varying expectations about appearance, qualities, behavior and work appropriate to being male or female. Gender attributes and characteristics vary among and within societies and change over time. Therefore, gender is a health determinant. Biological

aspects of men and women's health are also influenced by the socio-economic and cultural context (Retherford, 1975; Riley, 1992).

In this article two strands of literature are reviewed and a conceptual framework for the thesis is developed. In the first section I review theoretical perspectives of changes in morbidity patterns over time and show how these can be related to gender differentials in health. This is followed by a review of studies that examine determinants of gender differences in health, particularly stressing socio economic, demographic and behavioral factors.

## Health, development and gender

### 2.1. Health status

The concept of health status is central in examining the relationship between gender and health. Health status may have both broad and narrow definitions. And it may have different underlying meaning for physicians, philosophers, sociologists, demographers and others. Traditional ways of measuring health status include the use of mortality rates, particularly infant mortality rates, life expectancy and variants of age specific mortality rates (Berg, 1973). The initial gradual, and later rapid, decrease in mortality rates and changing patterns of morbidity and mortality, specifically the increasing dominance of chronic illnesses, led to the focus on impairment aspects of ill health during the early 20<sup>th</sup> century, particularly the 1930s. In addition, though mortality substantially has declined, morbidity has become more important concern as for individuals as for public health (Eberstadt, 1989; Preston, 1976; Riley, 1992).

Both the concept of morbidity and its measurement are plagued by conceptual and methodological difficulties. Berg (1973, p.3) has pointed out that morbidity has "social and emotional as well as biophysical antecedents in that the rate of disability they [morbidity and impairment] engender is filtered through social and emotional determinants and perceptions." In much research morbidity is often used as equivalent of the health status (E.van Doorslaer and A.M. Jones, 2003; Gerdtham U.-G. et al., 1999).

Murray and Chen, 1992 reviewed and developed methods and approaches in measuring morbidity. They identified two fundamental types of morbidity measures, which are commonly used in research: self-perceived and observed morbidity. Self-perceived morbidity depends upon an individual's perception of illness whereas observed morbidity is influenced by standards of abnormality as assessed by a trained observer. Particularly in social sciences, however, self-perceived health and morbidity are commonly used. Both self-perceived and observed morbidity can be grouped into four categories as it shown in the table below.

**Table 1. Classification of criteria for self-perceived and observed morbidity**

Self-perceived	Observed
Symptoms and impairments	Physical and vital signs
Functional disability	Physiological and pathophysiological
Handicap	indicators
Use of health services	Functional tests
	Clinical diagnosis

*Source:* Murray C. and L. Chen. 1992. "Understanding Morbidity Change." *Population and Development Review*, 18 (3): 481-503.

The distinction between self-perceived and observed morbidity measures is important when examining the health status of men and women. Thus, morbidity in the sense of the prevalence of diseases is higher for women, although, it varies according to the type of diseases. For example ischaemic heart disease or lung cancer is common for men whereas for women chronic diseases are the main causes of impairment and deaths. However, other aspects of the health status specifically the qualitative aspects such as quality and accessibility of health care are mainly worse for women and particularly for women in lower socio-economic positions.

Gender stereotypes common in most societies prescribe different expectations related to the appearance and behavior of men and women. For example, health risk behaviors such as smoking and alcohol consumption common among men are acceptable in most societies, which in turn may result in higher incidents of lung cancer and heart diseases among males. However, factors that determine differences in morbidity patterns of men and women though they may seem to refer to sex differentials, in reality are a result of socially defined gender constraints that change over time and differ among groups.

## *2.2. Epidemiological transition theory*

Patterns of morbidity and mortality are not static over time, nor do socio-economic differentials in mortality remain static over time. The main theory that explains changes in morbidity patterns over time is epidemiological transition theory. This theory is fundamental to understanding the changes in patterns of morbidity and mortality in population.

Omran (1971) analyzed the determinants and consequences of changing patterns of mortality in what is now term epidemiological transition theory. The focus of the theory is on “the complex change in patterns of health and disease and on the interactions between these patterns and their demographic, economic and sociologic determinants and consequences” (Omran, 1971, p.510).

Omran identified three stages: “the age of pestilence and famines”, when mortality rates were high and fluctuating with life expectancy at birth between 20 and 40 years and the major causes of death were infectious and communicable diseases; “the age of receding pandemics”, which is characterized by steady declines in mortality and where life expectancy rises to around 50 years; and “the age of degenerative and man-made disease” marked by eventual stabilization in mortality and when cancers, cardiovascular diseases and accidents became the major causes of death. Later Olshansky and Ault (1986), based on an analysis of mortality in the United States, suggested that a fourth stage, “age of delayed degenerative disease”, was necessary to describe the shift of mortality from degenerative diseases toward older ages as a result of rapid decline in death rates; and later Rogers and Hackenberg in 1987 conceived of “hybristic stage”.

One of the contentious issues regarding the theory is its universality. Thus, to present the potential variations in the application of the theory, Omran identified three models of the theory: classical or Western (represented by Europe, the U.S. and Canada, Australia and New Zealand); the accelerated model (Japan and Eastern Europe); and the delayed model, where the most developing countries would belong.

Omran presented analysis at the full population level, only briefly discussing the variations by age and sex. However, many mortality and morbidity analyses show important differentials between men and women (Preston, 1976; Retherford, 1975; Waldron, 1993) and between other groups, such as racial groups (Ruzicka and Kane, 1990). In addition, there is strong evidence, that there is no unidirectional pattern of changes in mortality and interestingly, this is often related to differentials in the patterns of morbidity and mortality of men and women. The experience of Mexico reveals the occurrence of “counter transitions”, according to which age-specific mortality rates even rose over time (Frenk et al., 1989). Moreover, these deviations from the general patterns notably occur among adult men, for instance in France between 1850-1900 (Anderson, 1955), in Eastern Europe between 1952 and 1985 (Uemura and Pisa, 1988; Eberstadt, 1989), in Nauru largely due to accidents, cardiovascular diseases and diabetes mellitus (Taylor and Thoma, 1985; Schooneveldt et al., 1988). This suggests that social factors that affect one sex more than the other may also change differentials in the epidemiological transition over time – or even within countries development acts unevenly among different areas of a country.

Several researchers have attempted to incorporate age-sex differentials in the analysis of mortality patterns over time and among countries. Salomon and Murray (2002) examined variation in causes of death by age (20 age groups) and sex. Moreover, differentials by income were also explored. Another interesting study which explores the age patterns of mortality as well as taking into the consideration the gender and sex differentials changes along with the epidemiological transition was undertaken by Gage (1994). He analyzed the level, gender and period trends in 11 causes of death and two composite causes, using historical and cross-national data, controlling for misdiagnosis of cause of death. It should be noted that misdiagnosis or misclassification is one of the substantial forms of error even in modern medical settings (Manton and Stallard, 1984; Preston et al., 1972; McKeown, 1976). It is interesting that misclassified male deaths exceed that of females in the residual component and lesser in immature period. However, the opposite pattern occurs in the senescent period.

The results of the studies universally confirm the general principles of epidemiological transition in that the composition of mortality by cause changes systematically in many age groups. Considerable variations in age groups and by sex were observed. Thus, the mortality rates from all three groups of causes (communicable, non-communicable diseases and injuries) of death tended to decline both in males and females and the difference between males and females was attributed only to relative pace of different categories of diseases. Thus, in regard to the infectious diseases, though the total decline has been observed in both sexes, it was slower for young adult males, and more rapid for males than for females in older ages (Gage, 1994; Salomon and Murray, 2002). There are some variations have been observed in the different contribution of individual infectious disease categories. Thus, trends in respiratory tuberculosis, other infectious and parasitic diseases, influenza, pneumonia, and bronchitis very similar to those in total infectious disease mortality. Diarrhea and certain diseases of infancy, on the other hand, demonstrate slightly different patterns. It is the least important disease category and female deaths exceed males in all ages.

Degenerative or non-communicable diseases though became a main cause of morbidity and mortality in populations as life expectation increases

also undergone decline in both sexes, but at a much faster rate among females. It should be stressed that at the low expectations of life female hazards of degenerative diseases exceed the males and transition to the higher life expectancies led to the reverse effect. Obviously, differences in male and female mortality vary depending on the type of disease. Thus, cancer mortality increases slightly among females, whereas male cause-specific death rates increase dramatically.

Cardiovascular deaths predominate in the older ages and account for 67 percent of all degenerative deaths (Gage, 1994). Another interesting finding is that risk of cardiovascular disease declines in males and increase in females as life expectancy increases. However, there is a strong evidence of misclassification of cardiovascular deaths.

Overall, injuries and accidents decline most rapidly followed by communicable and non-communicable diseases. Also, there are variations in categories of causes within the group of cause. For instance, accidents are more important for women, whereas suicide and homicide are more important for men. However, trends in these causes of death in many ways are more complex than the trends in disease mortality. To summarize, the epidemiological transition is the result of the decline in both infectious as well as degenerative disease mortality. In general, men have benefited slightly more from the decline in infectious diseases whereas women benefited more from the decline in degenerative disease mortality. Overall increase in sex differentials in favor of females is a function of greater reduction in degenerative disease mortality as well as maternal mortality (Gage, 1994; Lopez, 1995). These results support the theory that endogenous biological factors as well as social factors cause the trends in sex differentials in mortality. The epidemiological transition, however, is a basically a descriptive model. To move beyond description we need to examine the casual links between gender and health.

### **3. Determinants of the relationship between gender and health**

#### *3.1. Proximate determinants*

The changes in the patterns of diseases and increasing dominance of chronic non-infectious diseases, such as heart disease and cancer, have become a foundation for the new paradigm “the black box”, which states that along with the cellular and molecular mechanisms of disease pathogenesis, the complex of social interactions and political and economic circumstances should be investigated in order to understand the causes and differentials of morbidity and mortality (Ruzicka and Kane, 1990; Young, 1998).

Following this approach, Hummer et al. (1998) reviewed approaches in contextual mortality studies. He points out the shift from strictly a demographic approach to a broader socio-demographic approach. The demographic approach has been restricted to analysis of mortality patterns within and between sub-populations by age, sex and ethnicity/race. Whereas for the second approach in addition to the demographic factors, income, education, and occupation status became the central concerns.

Recent reformulation of epidemiological theory (Olshansky and Ault, 1986; Olshansky et al., 1997; Rogers and Huckenberg, 1987) has emphasized proximate determinants such as smoking, dietary, exercise, sex behavior for investigating the ways in which socio-economic variables affect

morbidity and mortality. In addition to the behavioral factors, psychosocial, health care and biological factors are often termed as proximate determinants. This approach is very important in understanding the causal pathways by which mortality differentials are realized. Hummer et al. (1998; p.564) has stated "... the main potential of such an approach is the scientific understanding of mortality as a socially influenced biological process". This approach has also been used very productively in studies of a variety of demographic phenomena (Davis and Blake, 1956; Mosley and Chen, 1984; Nam et al., 1989; Feldman et al., 1989; Wingard, 1982; Wingard, Suarez and Barrett-Connor, 1983; Rogers, 1995; Rogers et al., 1996).

Also, a significant influence of macro-level factors has been demonstrated in the literature. This approach stresses and shows that differentials in mortality of certain socio-economic groups, at least partly attributed to the household and community level factors (Potter, 1991; McCord and Freeman, 1990, Geronimus, 1996; Haan, Kaplan and Camacho, 1987, Anderson et al., 1996; Brewster, 1994; LeClere, Rogers and Peters, 1997). The importance of this work in relation to gender, is that it suggests that in so far as macro factors impact on gender, they can also change the relationship between gender and health.

Population health studies in general had several goals such as describing the health status of population (prevalent health problems); explaining (predicting health risks); and offering solutions and interventions. While doing so, for public health the context in which morbidity and mortality occur is of paramount importance. Given that sex differentials in morbidity and mortality are so pronounced, it is important to understand how gender is related to health outcomes.

### *3.2. Gender in health research*

Although there has been considerable descriptive analysis on gender differentials in health, there remains a lack of theoretical models that can serve as a fundamental starting point in understanding the relationship between gender and health. Gender inequalities in health became a major interest of sociologists in the beginning of 1970s. The social and especially political passions of that period had a significant impact on forming the gender approaches and attitudes within society and in research. This in turn had an impact on gender health studies.

Annandale and Hunt (2000) criticize previous research that focused on male-only or female-only samples, and moreover, men and women were conceptualized as isolated individuals. They also faulted the limited aspects of health and failure to look at the active construction of gender in various contexts. They suggest that research on gender and health should focus on gender comparative samples and consider males and females as part of wider social structures such as household or workplace, highlighting movement to a more inclusive research agenda, including all the complex and interacting aspects of social phenomenon, and emphasizing on gender in various contexts (Annandale and Hunt, 2000; Carpenter 2000).

### *3.3. Gender as a determinant of health*

Being a woman or a man has a significant effect on the lives of people and particularly on health status. Almost universally, women experience

higher life expectancy and paradoxically higher morbidity compared to men. However, the lower life expectancy of men often leads to the misconception that women have superior health status, neglecting the higher prevalence of morbidity especially of non-fatal chronic conditions that negatively affect their lives (Ruiz and Verbrugge, 1997).

Analysis of the epidemiological transition in regard to the sex differentials suggest that levels of infectious diseases decline faster for males, while conditions with respect to the degenerative diseases have improved more for females. One of the explanations have been given states that it might be that nutrition and over-nutrition have increased more for males than for females, resulting in greater improvement in resistance to infection among males but creating a smaller decline in the risk of the degenerative diseases among males because of the association of some degenerative diseases with over-nutrition (Gage, 1994). However, this picture is not consistent. Many studies show higher rates of tuberculosis among males, which are commonly associated with HIV/AIDS in high prevalence countries. Narrowing the gaps in lung cancer also indicate changes in the patterns of the disease among men and women.

It should be noted that giving an emphasis on gender differentials does not mean the ignorance of biological factors. Thus, there are some diseases, which may occur only for men such as prostate cancer, or women, for example breast cancer. There are medical explanations such as females have better inherent immune responses than males, possibly because the IgM (immunoglobulin M) locus is X-linked and because of the immunosuppression of steroids- male hormones (Gage, 1994). Furthermore, females are considered to be endogenously more resistant to the degenerative diseases. For instance, ischaemic heart disease may be lower in women as a result of higher concentrations of high-density lipoproteins, largely in the form of estrogen (Rose, 1982; Waldron, 1983).

Gender differentials in health status are produced with an interaction of complex social, economic, cultural and developmental processes. Nevertheless, while human beings have not changed much biologically and physiologically for the thousands of years, life-style, habits and behaviors as well as socio-economic environment have undergone crucial changes. MacIntyre et al. (1996) highlight the issue recommending:

...to make progress towards understanding the processes (whether social, psychological or biological) which produce or maintain gender differences in health, it is important to pay attention to the social and historical context of our observations, and to take a more differentiated age-specific and condition-specific view of "health" when examining differences between the sexes. (p. 624).

*Demographic factors.* Among the demographic characteristics of the population besides sex, age, marital status and family structure were the main determinants of differentials. According to Verbrugge (1990), the health status of men and women varies by age. Only a small portion of higher life expectancy of women is attributable to female survival advantages in infancy and childhood. Mainly it is due to the higher mortality of men in adulthood particularly from heart diseases (Nathanson, 1984). About 40 percent of the U.S. sex mortality differentials are due to the ischaemic heart disease alone (Knudsen and McNow, 1993). A study of Moscow city adult population also reveal the same results (Chenet, 2000). Thus, gender gaps in health status are typically largest in young adults and smallest in seniors.

However, being in the certain age group does not mean simply that those people are representatives of different stages of life cycle, but because “people of different ages embody different system of patriarchy” (Walby, 1997). Thus, age and gender differences in health reflect the socially constructed nature of gender roles and expectations regarding the chronological age (Arber and Cooper, 2000).

Marriage patterns have undergone as much change as any other social phenomenon. These changes have been associated with a rise of cohabitation, divorces and remarriages. More than one in five non-married adults in Britain were cohabitating during 1996-97 (Annandale and Hunt, 2000). The research findings in Europe and U.S. reveal that married people have better health than the single, and the marital advantage is more evident for men than for women (Arber, 1997; Arber and Cooper, 2000; Koskinen and Martelin, 1994; Chenet, 2000; Lillard and Waite, 1995). Marriage for men immediately reduces mortality risks and continues throughout the life course, whereas for women the survival benefits accumulate over time (Lillard and Waite, 1995). Changes in marriage patterns may impact the health of men and women. They may experience longer periods of living alone, increase in divorce, separation and remarriage and many of them becoming lone mothers and fathers (Graham, 1993).

The vast majority of single parents are women. In the Britain the percentage of lone mother headed households increased from 8 percent in 1971 to 20 percent by the mid-1990s (Haskey, 1998). Thus, a recent study in Britain analyzed the effect of family structure on health of men and women. Family structure was defined by subdividing each marital status according to whether the family had children. The major differences were observed in lone parenthood: 3.6 percent of women were single mothers and 7.8 percent were previously married lone mothers. Whereas only 1.4 percent of men were previously married lone fathers and only 0.1 percent are never married fathers. The presence of children in the family makes no difference to the health of men and women almost in all marriage categories except for single mothers (Arber and Cooper, 2000). In addition to the mentioned factors, many studies indicate variations in health by race/ethnicity groups (Lee, 1995; Moss and Krieger, 1995; Williams and Collins, 1995).

It is very important to notice that demographic factors express not only the belonging to the certain age, sex, race or being married or single but also express belonging to the different generations and social groups with different perceptions of health related behavior and therefore, health itself. At the same time, different generations and social groups experience different environments of living expressed in their social and economic characteristics. All these factors in reality affect the health of individuals in combination and/or through certain mechanisms and more or less they affect differently men and women.

*Socio-economic factors.* Socio-economic status of men and women creates significant and consistent differentials in their health status. The association between men and women’s social and economic status and health has been observed for a long time. Men and women in lower socio-economic positions die younger on average compare to those with higher status. This finding has been observed in different populations using different indicators of socio-economic position (Antonovsky, 1967; Feinstein, 1993; Joung et al., 1997). Moreover, the inverse relationship between socio-economic status and the level of mortality had become greater since 1960 for



both men and women (Pappas et al., 1993; Feldman et al., 1989; Preston and Elo, 1995). Link and Phelan (1995) contend that socio-economic status is a “fundamental cause of disease”. However, it should be noted that there is no consistency in measuring socio-economic status. Although, the main traditional indicators commonly used were education, occupation, income and social class.

A study of England and Wales (1980-1992) revealed a lower proportion (by around 30 percent) of men and women in good or very good health (self-assessed) in a lower social class compared to those in the higher class, and the death rates for lower social class were 1.7 and 1.5 times higher for men and women respectively (Carpenter, 2000). The social class (or occupation based social class – the term has been used with the same meaning) has been the most common indicator in the industrialized European countries (Navarro, 1990). Studies in the U.S. have also found that social class is associated with adult mortality. Though, few studies are available which include social class. Also, results of some studies, for instance, show considerable weaker effect of social class than for education and income. Arber (2000), Winkleby et al. (1992) have found a strong, linear effect of education on health for both men and women. However, the educational qualifications explain more variance in health of men than for women.

*Behavioral factors.* The literature suggests differences in health risk behavior between men and women. Among the numerous behaviors related to the health, smoking, alcohol drinking and narcotic drug use and drug abuse accidents and injuries have played a significant role in creating the gap in female and male mortality. The literature stresses that gender differences in health related behaviors are major cause of gender differences in mortality (Gee and Veevers, 1983; Lopez, 1995; Waldron, 1995).

As mentioned earlier, wide differentials in health status between men and women have been observed in a number of studies. The largest gaps have been observed in heart and lung cancer morbidity and mortality. Research suggests that this gap is attributed to the larger involvement of men in smoking. Another interesting fact is that recently these gaps are narrowing, and this phenomenon is associated to the changing life styles and behaviors of men and women, particularly, decreasing of smoking among men and increases among women (Caldwell et al., 1990; Eisler and Hersen, 2000; Murray and Chen, 1992; Murray and Lopez, 1996; Pampel, 2002, 2003; Retherford, 1975; Ruzicka and Kane, 1990; Waldron, 1993, 2000).

Obviously, biological factors can not be ignored. Thus, biological factors influence susceptibility and immunity to tropical diseases; hormones have effect on ischaemic heart disease risk etc. However, Graham (2000) has stated that gender as well as socio-economic position, creates exposure to material, psychosocial and behavioral risks. Gender roles lead men and women to “acquire” different risks, to perceive health differently, to display different illness behavior, and to report symptoms differently (Nathanson, 1975; Verbrugge, 1985, 1989). Thus, men and women’s behaviors are socially constructed.

Men traditionally have been more exposed to industrial injuries (in mining, engineering or construction, etc.). Men also led the way into habits like cigarette smoking and they have higher rates of alcohol consumption. In the Western countries, males tend to engage in more risky behavior than do females, particularly for risky behavior that involves physical daring or illegal behavior (Waldron, 1983, 1986). Males more often than females use guns,

take physical risks in recreation, drive unsafely, drink heavily, use illicit drug, and work at physically hazardous jobs. Males also smoke more (U.S. Department of Health and Human Services, 1980; Waldron, 1983; Waldron and Jacobs, 1988).

Similar patterns are observed in non-Western countries (Waldron, 1986). In many non-Western societies, more men than women smoke and drink, although in some groups, women are as likely as men engage in smoking and (Waldron, 1988). There are also some types of health behavior that have higher risk for females. Besides obvious risks related to the pregnancy and childbearing, in western societies females are much more likely to engage in the severe food intake restriction characteristic of anorexia nervosa (Garner, Olmsted, Bohr, and Garfinkel, 1982). Moreover, material, psychosocial and behavioral risks not only cluster together but also accumulate for both men and women (Graham 2000).

Another aspect researchers emphasize is that gender differences in health related behavior vary depending on the type of behavior and the cultural context (Waldron, 1988). Therefore, the causes of these gender differences also vary for different types of behavior and in different cultural contexts. Although, the general public and even some scientists tend to believe that gender differences in health related behavior in large part influenced by the degree of health concern of men and women. People vary in their perceptions of symptoms and overall health. Women considered as they are more sensitive to body discomforts than men are. Verbrugge (1985) explain it in relation to childhood socialization (e.g. discouragement for boys to complain about bumps and bruises). Further he stresses that women tend to label symptoms and discomfort as physical illness and consider it more severe and serious compared to men. Men on the other hand might be more tolerant to physical discomfort and less interested in or concerned about their personal health (Ross and Bird, 1994; Verbrugge 1985, 1989).

The patterns of morbidity and mortality men and women have experienced provide support for gender equality hypothesis (Pampel, 2002, 2003). This hypothesis proposes that the improvement in women's status narrows differentials in health of men and women and may even have negative consequences on women's health. On the surface, this might be true. However, the critique addressed to this hypothesis has strong support and is well documented. First, the hypothesis concentrates on the causes of changes in the behavior of women, a complete explanation needs to consider the behaviors of both sexes (Trovato and Lalu, 1996). Second, higher educational status, high prestige occupations, and high income do not raise mortality among women (Passannante and Nathanson, 1985; Waldron, 2000). In addition, at the macro level, differences in labor force participation are not associated with sex differences in mortality (Pampel and Zimmer, 1989). Third, analyses of mortality from external causes do not show significant relation in changes in mortality and women's status.

To summarize, the differences in mortality and morbidity and changes in these differences cannot be simply attributed to the increase in women's status. These deaths have important variations between age groups and can be attributed to lifestyles and daily activities such as travel, work, recreation, alcohol consumption, interpersonal conflict and weak social ties (Rockett and Smith, 1989). However, the obvious fact is that men and women have different life styles, habits and behaviors, which are continuously changing. Finally, that men and women experience different patterns of mortality and

morbidity needs an explanation. Studies conducted in Western countries demonstrate the contribution of tobacco consumption to the gap in male and female mortality. Results reveal that sex differences in the timing of cigarette smoking adoption and cessation explain both widening of the gap earlier and the narrowing of the gap recently (Pampel, 2002, 2003). Research suggests that these changes are not related to gender equality.

Tobacco is known or probable cause of some 25 different disease. For lung cancer, bronchitis and emphysema, it is the major cause (WHO, 1999). Among all risks to health, perhaps none has been studied so extensively as cigarette smoking. This is the most harmful form of tobacco consumption. It produces 40 percent of lung cancer sex mortality differentials.

Studies of the end of 1960s and 1970s reveal the importance of tobacco consumption in the wide gap of the sex differential in mortality over the last century. Because the biggest gaps in male and female mortality were observed in lung cancer and heart disease mortality. Thus, Preston (1970) concluded that higher proportion of men smoking cigarettes is “the most promising explanation”. Retherford (1975) analyzed the U.S. mortality data at ages 37-87 between 1910 and 1962. The results show that rising smoking among men accounts 75 percent of the increase in the sex differential in mortality.

Another study demonstrated that male and female life expectancies did not differ when the deaths from accidents, suicides, homicides and deaths to smokers were excluded (Miller and Gerstein, 1983). Though, there are some estimates that women have advantages in life expectancy even among non-smokers (Wingard, 1982; Hummer, Nam and Rogers, 2000). However, scientists agree that cigarette smoking represents a major source of the differences in mortality between men and women (Pampel, 2002).

On the other hand, the changing trends in cigarette consumption can also explain the more recent reversal in the sex differential in mortality (Pampel, 2002). Evidence in U.S. and U.K. support this version. In the recent decades men reduced smoking faster than women. Thus, in the U.S. since 1990 lung cancer among men has declined whereas among women it continued to rise.

#### **4. Conclusion**

Health and its determinants always have been of paramount importance for individuals, researchers and society. Health at the same time is a very complex issue, it varies among and between individuals, regions, cultures and social groups. Men and women are different not only with regard to biological and physiological characteristics, they typically play different roles in the family and in society. These roles vary among and between cultures and over time. Male and female biological and physiological functions result in different health risks. However, differences in health between men and women are in large part a result of different health behavior and socio-economic characteristics of men and women. In addition, it is well documented that different health risk behavior and different socio-economic position of men and women relate to the genderized perception about male and female roles and accepted and not accepted behaviors.

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