

Sex Difference in Health Outcomes in the Philippines from 1960 To 2012

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Abstract - *This study was conducted to see how women empowerment has an association with the rates of female life expectancy and mortality relative to their male counterparts in the Philippine society. Data obtained from 1960 to 2012 was utilized for a longitudinal comparison of males and females in the country in terms of life expectancy and three leading cause-specific mortality rates: (1) accidents, (2) tuberculosis, and (3) diseases of the heart. Empowerment was measured using labor force participation as indicator.*

Results suggest that, in terms of employment, male labor force participation was higher than females until 2005 when the female labor force participation increased and overtook the male labor force participation rate. Females have also been found to consistently have a longer life expectancy. In terms of the three leading causes of mortality, the propensity of Filipino males dying has been found to be consistently higher compared to Filipino females. Correlational test results also suggest that labor force participation has an inverse relationship with life expectancy as well as accident- and heart disease-related mortality rates but has a positive relationship with tuberculosis-related mortality rates. However, labor force participation has no significant relationship with female life expectancy and the three cause-specific mortality rates.

Keywords: *Health Outcomes, Mortality, Sex*

INTRODUCTION

The study of mortality is essential to the study of human populations. Regarded as the one constant among demographic processes, it can be said that the threat of death and the efforts to avoid it became an impetus for rapid developments in technology that people enjoy in the present. Technological innovations cover several aspects of human life such as improvements in food production to evade starvation, creation of rigorous sanitary procedures to prevent infections, and development of antibiotics and other medico-technological innovations to ward off diseases

and prolong life and function to the fullest. The said innovations have brought about progresses in the health outcomes of people. Unfortunately these improvements in health outcomes are not experienced equally by the different sectors of society. An example of the inequality in health outcomes is the case of African females. In 1978, data on the region showed that the average life expectancy at birth for African females was 49 years while the average life expectancy of the world is 63. Three years later, the African female life expectancy was 51, which was more than a decade less from the world average life expectancy of 69 years. This translates to a widening disparity in life expectancy of 14 years in 1978 to a gap of 18 years by 1981 [1].

The issue of health outcome inequality is a greater concern since several countries like Sub-Saharan Africa (SSA) have been found to have a decreasing average life expectancy. The Global status report on non-communicable diseases of the World Health Organization (WHO) last 2010 noted that the gap in terms of health outcomes is not widening just across countries, but has increased within countries as well [2]. This alarming trend is not only restricted to the developing countries; even in the developed countries, the overall health distribution has worsened, which may imply a growing inequality in terms of health. McGillivray, Dutta, and Lawson [1] mentioned in their study on health inequality and development that people may be willing to tolerate some inequality in income, but when it comes to health, there is strong desire for greater equality. This reinforces the notion that even though health achievements are important, the distribution of health outcomes also matters in the overall welfare of wellbeing of a society.

Interest on the change in the health of Filipino men and women over time was the impetus of the researchers to study and determine the trends of health outcomes for men and women of the Philippines within a five-decade timeframe and see how this is affected by the increasing female empowerment. In effect, the main argument of this paper is that the

disparity in power relations between Filipino men and women will be reflected in disparities in their health outcomes. It is therefore possible that the empowerment of Filipino women will lessen the disparity in power between the sexes. Consequently, the lessening of power disparities will be reflected in their health.

This study aimed to verify if there is a recurring pattern of gender disparity in health outcomes from 1960 to 2011; determine if the gender divide in health outcomes is increasing or decreasing over the years, following the verification of the assumption that there is a recurring gender disparity in life expectancy and the said cause-specific mortality rates, and determine if the changes in the trend of gender disparities in health outcomes are associated with women empowerment. Health outcomes are represented by life expectancy and three cause-specific mortality rates – accidents, tuberculosis, and cardiovascular diseases. Female empowerment, on the other hand, was based on labor force participation.

METHODS

The study utilized secondary data from various sources. The Philippine Health Statistics annual reports were used to obtain the cause-specific mortality rates and life expectancies of males and females. The Philippine Labor Statistics Yearbook publications were used to obtain the labor force participation of the two gender groups.

For the first research objective of the study which describes the trends in the life expectancy and cause-specific mortality rates in the Philippines from 1960 to 2011 by gender, descriptive statistics were utilized. Line graphs were constructed to allow for greater ease in detecting and describing patterns in Philippine life expectancy and mortality rates over the years. Each line graph contains three elements: (1) the rate for males, (2) the rate for females, and (3) the rate for the Philippines as a whole. The line for the Philippines serves as a heuristic device with which the life expectancy and mortality rates of males and females could be compared with. Comparisons on the trends in the male and female life expectancy and mortality rates were then conducted. The trends were also compared with the suggested trends of the theoretical models used in this study.

For the second research objective of the study which seeks to determine if there is a significant difference in the life expectancy and cause-specific mortality rates of men and women in the Philippines from 1960 to 2011, a Matched-pairs t-test was

employed. Matched-pairs t-test enabled the study to compare if the observed disparity in the life expectancy and mortality rates of men and women in the given years was significant and not just a by-product of chance.

For the third research question of the study which seeks to determine if there is a connection between female empowerment and the trends in sex differences in health outcomes, Pearson's product correlation was utilized to determine if there is a significant relationship between labor force participation (as indicator of empowerment) and health outcomes.

RESULTS AND DISCUSSION

Life Expectancy of Males and Females in the Philippines

Life expectancy has been shown in previous studies to be associated with socio-economic conditions such as income inequality [3] and educational attainment [4]. It is used as one of the indicators in the Human Development Index of the United Nations Development Programme (UNDP) which is a tool used and accepted internationally as a basis for determining whether people within a particular nation are able to “be” and “do” desirable things in their life. In this study, this serves as a measure of the quality of life of men and women in the country.

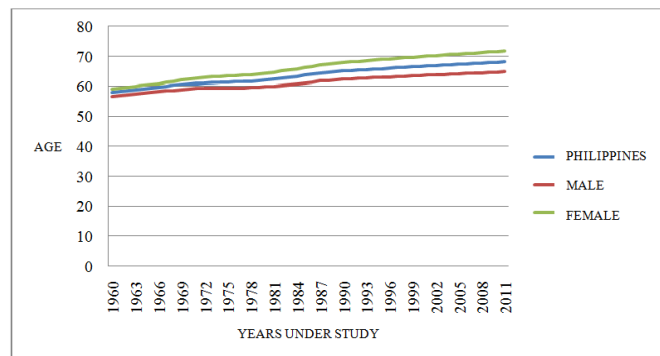


Figure 1. Trends in life expectancy of Filipino males and females in the Philippines, 1960 to 2011

An increasing trend as shown in Figure 1 indicates that the Philippines is experiencing an improving life expectancy. Note that the amount of improvement in life expectancy is larger for females. It has been a long-standing observation among demographers that women generally outlive men. The results shown in Figure 1 corroborate this. What is worth further notice is that while studies from other countries point to a

trend of decreasing margin in life expectancies between men and women over the years [5], the Philippine scenario shows the opposite trend. The data shows that females only outlived males by less than three years in 1960, the margin between their life expectancy has more than doubled after five decades. During 1960, the average life expectancy in the Philippines is 57.81 years, with Filipino males living an average of 56.61 years as opposed to Filipina females living an average of 59.08 years. By 2012, the average life expectancy in the Philippines has improved to 68.39 years, with the males living for an average of 65.05 years and the females for 71.9 years. This translates to a difference of 2.47 years in favor of women in 1960 which ballooned to a difference of 6.85 years by 2012.

Tuberculosis-related Mortality

Out of the three causes of death considered in this study, Tuberculosis serves as the indicator of health outcome inequalities for chronic diseases. Due to their nature as diseases which require constant access to health in order to treat, chronic diseases pose a threat to people not only medically but financially as well. Allotey and Gyapong [6] described Tuberculosis as a “disease of poverty” which is often found amongst people living in areas with poor housing conditions, low rates of literacy, and poor nutritional status. This poor man’s disease is also associated with people who lack access to health services.

The selectivity of Tuberculosis victims is a by-product of interplay of various adverse political,

cultural, and social reasons that bring about a vulnerability to disease and curtailment of people’s capability to make healthy choices. Qualitative studies on Tuberculosis indicate that there are cultural and service-related barriers which serve as impediments to timely diagnosis and treatment. These barriers are particularly salient in the lives of female victims who, compared to their male counterparts, have been found to have lesser access to resources which could be utilized to combat and/or manage the disease.

In terms of cultural-related barriers, Waisbord [7] found that female Tuberculosis patients and women who are suspected to have active Tuberculosis are likely to be forced to get divorced, send back to their parents’ homes, and have fewer chances of getting married; hence, the fear of social isolation from family and community is a key factor contributing to delay of health-seeking behavior among women in developing countries such as Bangladesh and Vietnam.

On service-related barriers, Reyes and Amores [8] mentioned that in areas especially with high concentration of the poor such as city slums, healthcare may still be inaccessible, and this can be attributed to lack of health facilities, health workers, diagnostics, and poor quality of services. The World Health Organization (WHO) added that public, government-run services in some countries are perceived by the poor to be unreliable and of poor quality. The aforementioned has reportedly discouraged the poor sections of the population from seeking diagnosis and treatment.

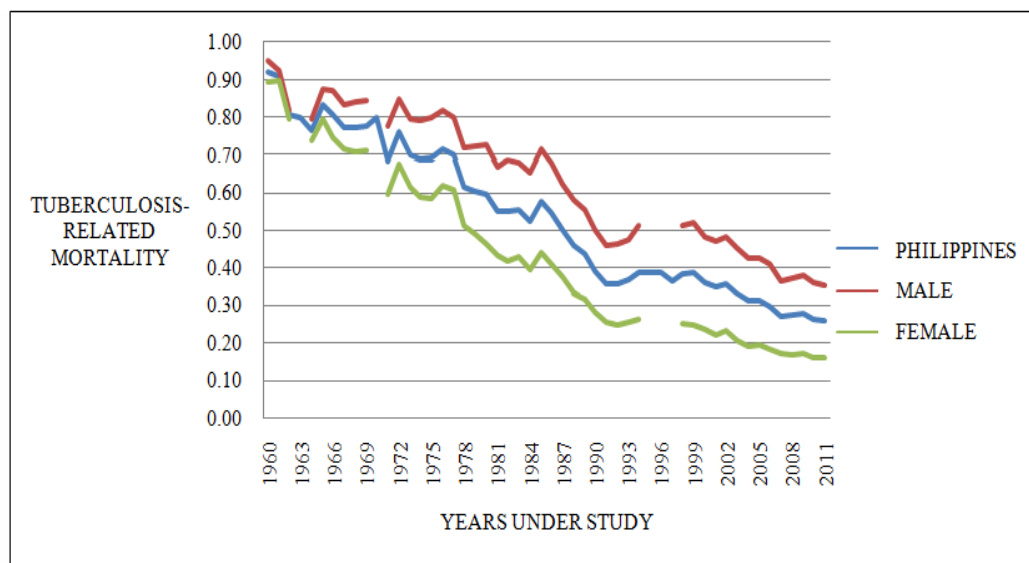


Figure 2. Trends in tuberculosis-related mortality rates of Filipino males and females in the Philippines, 1960 to 2011.

Figure 2 shows that there is a decreasing trend in the tuberculosis mortality rates regardless of sex in the Philippines. The male and female tuberculosis-related mortality rates follow relatively the same pattern; fluctuations occur at the same time frame, except during the late 1970s when the female tuberculosis-related mortality rate steadily decreased until the early 1980s. The dramatic decrease in the female tuberculosis-related mortality rate is also worth noting: During 1960, the mortality rate of female Tuberculosis victims was 0.89 per 1000 members of the female population whereas the male Tuberculosis mortality rate was 0.95. This translates to a difference of 0.06 in favor of the women. By the year 2012, the male Tuberculosis mortality rate has dropped to 0.35. The female Tuberculosis mortality rate, on the other hand, has dropped to just 0.16. The difference between the two sex cohorts have increased to 0.19 in favor of females. These findings run counter to the expected trends of Tuberculosis mortality rates which hypothesized women to be at a disadvantage due to the aforementioned cultural and service-related barriers.

Accident-related Mortality

The use of “accidents” in the study pertains to the following types of accidents: transportation accidents, accidental falls, accidental drowning and submersion, exposure to smoke, fire, and flames, exposure to forces of nature, accidental poisoning and exposure to noxious substances, other accidents and late effects of transport, intentional self-harm, assault, event of undetermined intent, legal interventions, and other

external causes including complications of medical and surgical care.

Accidents as cause-specific mortality serve as the indicator for the differences in the risk-taking and reckless behavior of men and women. Data from previous studies on sex differentials in accident-related mortalities would point to men as the more prevalent victims of death by accidents, especially when it comes to those related to motor vehicle accidents. An analysis of accident rates by gender conducted by Massie and Campbell [9] found that men had about 1.5 times the risk of experiencing fatal accidents than women per mile driven. They also found that the difference in the fatal rate between men and women was most extreme among younger age groups, and by the age of 60, the rates for men and women were essentially similar. In terms of non-fatal accidents, women were found to have a 26 percent higher injury involvement rates than men per mile driven for every age group 25 years old and over.

According to the data provided in Figure 3, males have higher accident-related mortality rate than the female population. The gap in accident-related mortality rates was small during the 1960s with males having an accident-related mortality rate of 0.21 per 1000 male population compared to females’ 0.08. This is a difference of 0.13 in favor of women. This started to increase in favor of women in 1971 (males: 0.63; females: 0.13; diff: 0.49) until 1981 (males: 0.67; females: 0.016; diff: 0.51) then fell back in 1983 (males: 0.29; females: 0.08; diff: 0.22). The gap once again increased starting 1984 (males: 0.74; females: 0.16; diff: 0.57) and peaked during 1987 (males: 0.85; females: 0.17; diff: 0.68).

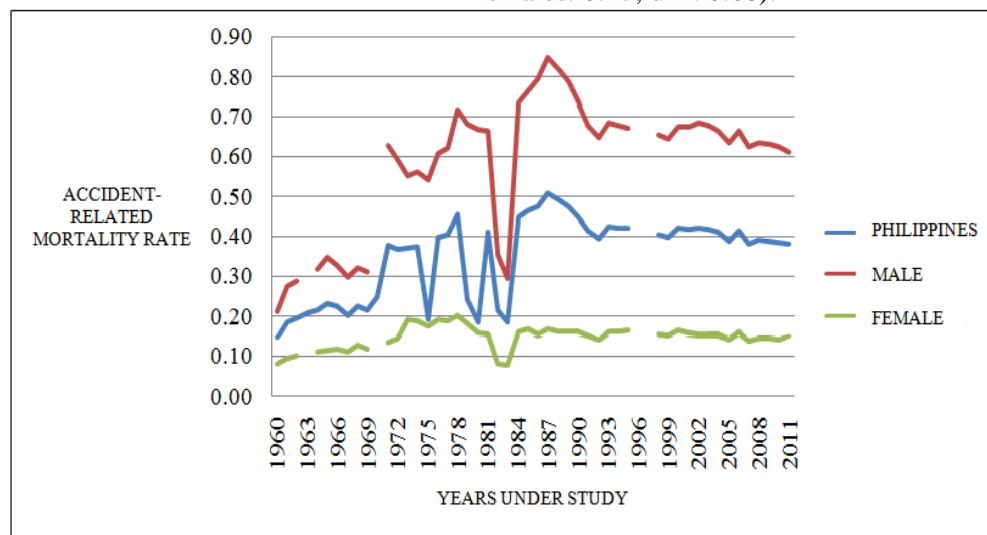


Figure 3. Trends in accident-related mortality rates of Filipino males and females in the Philippines, 1960 to 2011

The gap decreased until 1991 (males: 0.68; females: 0.15; diff: 0.52), then remained relatively stable in the succeeding years. Among the three cause-specific mortality rates included in this study, the disparity of male and female mortality rates caused by accidents is the most salient. A plausible explanation for the high male accident-related mortality rates could be the social ascription of risk-taking behavior as a masculine trait, whereas meekness is considered to be a trait expected of women.

Heart Disease-related Mortality

Cardiovascular disease is regarded as the predominant contributor to total global mortality rates in recent years [10]. It is expected that by 2030, non-communicable diseases such as these would account for 75% of the world's total mortality rate, particularly in low income countries where it kills more victims than infectious diseases. Out of the three causes of death considered in this study, deaths by cardiovascular diseases serve as indicator of health outcome differences as mediated by gender differences in lifestyles. Several risk factors for heart diseases are strongly influenced by the following:

Tobacco – Mendis, Puska, and Norrving [11] explain that risks to health from tobacco use result not only from direct consumption, but also from exposure to second-hand smoke. Approximately, ten percent of cardiovascular diseases are attributed to smoking; however, Mendis, Puska, and Norrving added that people who quit smoking by age of 30 have almost as low a risk of death as never smokers.

Physical Inactivity – Insufficient physical activity is one of the leading risk factor for mortality worldwide [11]. Physical activities reduce the risk of

heart diseases. It also assists weight loss and improves blood glucose control, blood pressure, lipid profile, and insulin sensitivity.

Socioeconomic Disadvantage – Greater risk of cardiovascular disease are consistently associated with low income and low educational status [12]. Di Cesare et al. [13] added that policies that resulted in increased socio-economic inequalities have been associated with greater subsequent socio-economic differences in cardiovascular disease implying a cause and effect relationship. Other factors such as the psychosocial factors, environmental exposures, health behaviors, and health-care access contribute to the socio-economic differentials in cardiovascular disease [14].

As shown in Figure 4, there is an upward trend in heart disease-related mortality rates regardless of sex but males have higher heart disease-related mortality rate than females. Male and female heart disease-related mortality rates are relatively similar in the 1960s. The gap started to become more defined after 1971. From 1972 to 1974, the male heart disease-related mortality rate exhibited an increase which was accompanied by a change with the heart disease-related mortality rate of females in the opposite direction. In the years that followed, the male and female heart disease-related mortality rates follow the same direction. Among the three cause-specific mortality rates, the heart disease-related mortality rates is noteworthy for being the only one in an uptrend. This reflects the general pattern often found among countries at the latter phases of the epidemiological transition where heart diseases are projected to be the cause of an increasing proportion of deaths for both men and women.

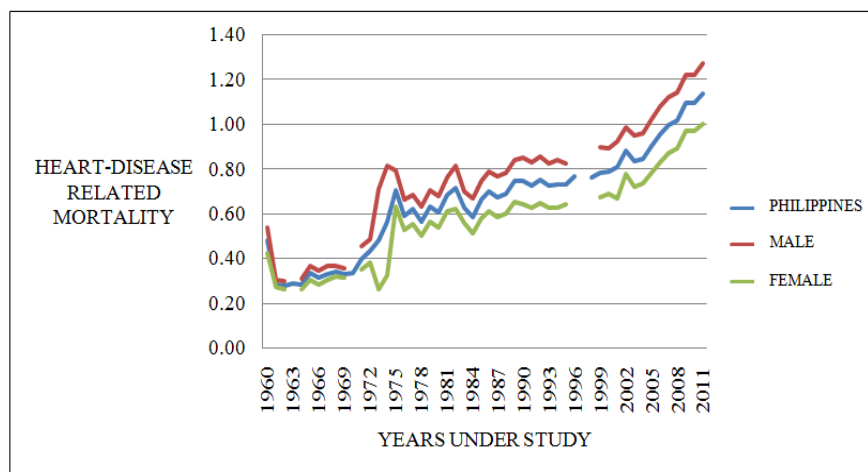


Figure 4. Trends in heart disease-related mortality rates of Filipino males and females in the Philippines, 1960 to 2011

Statistical Significance of Sex Differences in Life Expectancy and Mortality Rates

Matched-pairs t-test statistical procedures were conducted to verify if the difference between male and female life expectancies and mortality rates are statistically significant. At $\alpha=1\%$, the results of the statistical procedures indicate that there is a significant difference in the life expectancy and cause-specific mortality rates of males and females in the Philippines from 1960 to 2011. The results showed that males have higher Tuberculosis-related ($t=20.53$, $p<.01$, two-tailed test), Heart Attack-related ($t=12.99$, $p<.01$, two-tailed test), and accident-related ($t=19.95$, $p<.01$, two-tailed test) mortality rates and lower life expectancies ($t=-22.69$, $p<.01$, two-tailed test) than females. This gives support to the finding of other studies where females generally outlive their male counterparts as well as the observed trends in this study where females have consistently been found to be at an advantage in terms of the health outcomes. A possible explanation for these findings is discussed in the succeeding subsection.

Association Between Labor Force Participation and Life Expectancy and Mortality Rates of Males and Females in the Philippines

One of the most important bases of empowerment is the state of being gainfully employed; the source of income that this status provides enables people to have relatively greater access to other needs such as healthcare. According to the Robert Wood Johnson Foundation [15], unemployed workers are 54% more

likely to have poor health and 83% more likely to develop stress-related health conditions. Unemployed workers have also been found to suffer health-wise from the loss of a health insurance, increased unhealthy coping behaviors such as alcoholism, aggression and smoking, and increased depression. On the other hand, being employed increases the chances of injury brought by accidents due to the people's increased exposure to accident cues. Figure 5 shows the rate of employment among working age Filipino men and women over the course of more than fifty years.

It can be observed from Figure 5 that since the middle of the 20th century, women are already empowered as far as gainful employment is concerned. While there are still less women than men who were employed during the 1950s, roughly 8 out of 10 women at working age were reportedly employed during the period. The succeeding years has shown the gap in employment rates between the sexes until the middle of the 1970s when the gap significantly decreased. The 1980s and 1990s are also shown to be periods in history when the gap between men and women in terms of employment are quite minimal. By the onset of the new millennium, the gap has continued to be minimal and by 2005, more women relative to their population in the country are reported to be employed than men. Correlation coefficients between labor force participation and the four indicators of health outcomes were obtained and presented in Table 1.

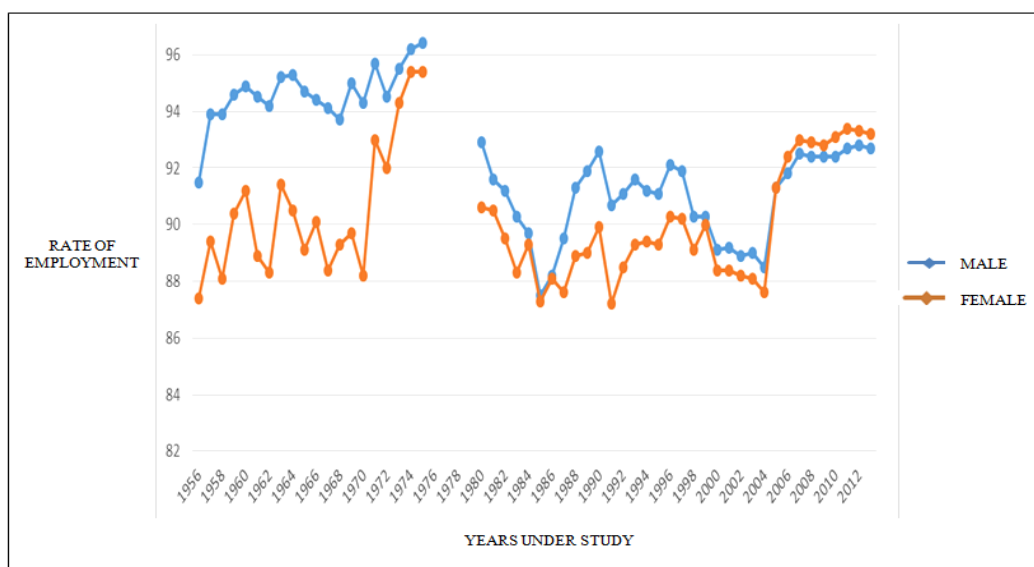


Figure 5. Trends in employment rates of Filipino males and females in the Philippines, 1956 to 2012

Table 1. Correlation coefficients between labor force participation and health outcomes.

	Male Labor Force Participation	Female Labor Force Participation
Life Expectancy	-.601**	.053
Tuberculosis-related Mortality	.531**	-.044
Heart disease-related Mortality	-.462**	.103
Accident-related Mortality	-.693**	.001

** significant at 95% level of confidence

The results of the correlational analyses show that women's participation in the labor force has no significant association with any of the health outcomes of the study. Male labor force participation, on the other hand, has been found in this study to be negatively associated with life expectancy, heart disease-related mortality, and accident-related mortality. It was also found to be positively associated with tuberculosis-related mortality. In other words, as the male population's labor force participation increases the life expectancy of males decrease as well as their number of deaths caused by heart disease and accidents. However, this increase in labor force participation is also associated with higher number of deaths brought about by Tuberculosis. This implies that labor force participation, and the economic empowerment that it provides, serves as a protective factor against heart disease and accidents. It is plausible that the economic rewards of employment allow for better health access that leads to lower heart disease-related deaths among the employed. Furthermore, their work activities might preoccupy them from engaging in reckless behavior which they otherwise would have engaged in if they are unemployed. On the other hand, the results also suggests that labor force participation is associated with higher risks of death from Tuberculosis.

CONCLUSION

The findings of the study pertaining to the sex differences in life expectancy is within the expected trend – women, as has often been observed – outlive their male counterparts. What is more noteworthy in this study is that the gap between the two sexes in their average life expectancy is widening over the years. In terms of mortality, it was found that the propensity of Filipino males dying due to tuberculosis, accidents, and heart diseases is consistently higher compared to Filipino females. The findings of the

correlational analyses involving health outcomes and labor force participation suggest a few things. First, higher rates of employment are associated with higher rates of Tuberculosis-related deaths among males. It is unsure why this is the case, but it could be possibly due to the stress brought about by work (though this does not explain why the heart-disease related mortality – which is also a disease influenced by stress – does not share the same direction of relationship). Another possibility is because of the hazardous environment which people are more often exposed to when commuting to and from work and, possibly, even during work as well. However, this also does not explain why accident-related mortality (which is expected to be higher among those working and commuting) is associated with lower levels of employment instead. In light of this, further studies on the observed association between Tuberculosis and labor force participation must be conducted.

Perhaps more important to the interest of this study are the results pertaining to labor force participation and women's health outcomes. The Gender Roles Modernization Hypothesis by Waldron attempts to explain and predict how changing gender relations in a society will impact the trends in gender specific mortality rates. According to Waldron [16], this hypothesis posits that while women's position in society may change due to greater empowerment which usually occurs in modernized societies, this does not necessarily result to a radical change in women's roles. Instead, the Gender Roles Modernization Hypothesis suggests that women would only assume new social roles in society which are not in conflict, but rather compatible, with their preexisting gender roles. An example of this is that while women would participate in industry, they will not relieve themselves of old social roles such as being the primary provider of care for the household and its members. Furthermore, women will not increase their engagement in risky lifestyles because this serves no advantage to their new and preexisting roles. This is in line with another hypothesis on gender and health called *Risk-Taking Hypothesis*. The said hypothesis states that men are socialized to take risks while women are socialized to exercise greater restraint in their behaviors and be more mindful of their body and health. Consequently, there are higher mortality rates among men due to their greater predisposition for risky behaviors as well as their lesser concern for their body and health. The lack of any significant relationship between labor force participation and the health outcomes among females

despite the presence of significant relationships between labor force participation and the four health outcomes for males in this study may give credence to this hypothesis. The results of this study suggests that although Filipino women are empowered, this does not come with a change in lifestyle that will be disadvantageous to them in terms of health. This explains the absence of the detrimental relationship between life expectancy and Tuberculosis-related mortality and labor force participation among women that was found in men. The absence the benefit of labor force participation in heart disease- and accident-related mortality among women that was found to be present in men may also be because women are already more careful of their health even before being empowered through labor force participation, and their entry into the labor force did nothing to change that lifestyle.

RECOMMENDATION

A smaller unit of analysis is essential in order to answer the micro-level questions left unanswered by the study. Studies focusing on gendered lifestyle and risk-taking and health-seeking behaviors will help in explaining the trends made salient by the study. Other variables such as religion and annual income which were not utilized in the study may also help in drawing the bigger picture of health outcome trends in the Philippines. Qualitative studies on gendered social and risky behaviors and its relation to the health status of Filipino males and females may also add up to the findings of the study.

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