THE IMPACT OF INCOME INEQUALITY ON PSYCHOSOCIAL WELL-BEING

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A THESIS SUBMITTED TO
THE FACULTY OF GRADUATE STUDIES
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTERS OF ARTS

GRADUATE PROGRAM IN HISTORY AND THEORY OF PSYCHOLOGY
YORK UNIVERSITY
TORONTO, ONTARIO

February 2014

Abstract

In this thesis, I investigated the impact of income inequality on psychosocial well-being. I argued that income inequality is an important problem for psychology, because it is a powerful social determinant of wide range of psychosocial problems that impact well-being negatively. Income inequality is related to problems such as mental illness, obesity, teenage pregnancy, violence, and premature mortality. I analyzed the two major theoretical frameworks for explaining the relation between income inequality and psychosocial well-being: the psychosocial environment explanation and the neo-material explanation. I argued that both of these explanatory frameworks are important for psychology. The psychosocial explanation provides insights about how the effects of income inequality are mediated through psychosocial factors to bring about negative health outcomes. The neo-material explanation provides insights about the underlying social and political processes responsible for the creation of uneven income distribution. Furthermore, I discussed the methodological criticisms of the relation between income inequality and psychosocial well-being. Finally, I explored the possibilities for interventions on behalf of psychologists regarding the issue of income inequality. I emphasized the importance of conceptualizing income inequality as a structural problem and argued that improving psychosocial well-being of populations requires a systemic intervention that is focused on reducing the income gaps.

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Introduction

In this thesis, I investigate the relationship between income inequality and well-being. Income inequality is identified as one of the most powerful social determinants of health (Raphael, 2006). According to Toronto Charter's social determinant of health model (SDH), income and its equitable distribution are among the ten most important determinants of physical and mental health (Raphael, 2009; Mikkonen & Raphael, 2010). Well-being as a broad category for Psychology is a positive state of affairs, brought about by simultaneous and balanced satisfaction of diverse objective and subjective needs, on personal, interpersonal, and collective levels (Prilleltensky, 2012). Well-being is a multidimensional concept. It is promoted and maintained in the micro (family and personal relations), meso (work and school) and macro spheres (community, society) (Prilleltensky & Prilleltensky, 2003). All of these spheres are interrelated and it is not possible to foster well-being on one level only without attending to the other levels of analysis (Prilleltensky, 2012).

Most research on well-being, in mainstream psychology is focused on an individual level (Prilleltensky, 2012). According to Prilleltensky (2012), it is important that psychologists more systematically acknowledge the role macro level problems play in well-being. Income inequality is a problem produced by macro-social and economic structures and has important consequences for well-being (Graham, 2007). Income inequality has been shown to be an important underlying determinant of a wide range of psychological problems that psychologists are aiming to resolve. For example, income inequality is closely linked to mental illness (Wilkinson & Pickett, 2010). Populations living in countries with high levels of income inequality experience higher levels of

depression, anxiety disorders, drug and alcohol addictions (Wilkinson & Pickett, 2010). They also experience lower levels of life expectancy, and higher levels of obesity, teenage pregnancy, community violence, homicide, and crime (Ben-Shlomo, White & Marmot, 1996; Davey Smith & Egger, 1996; Dunleep, 1995; Gold, Kawachi, Kennedy, Lynch, & Connell, 2001; Kawachi & Prothrow-Stith, 1996; Kawachi & Kennedy, 1997; Wilkinson & Pickett, 2010).

Wilkinson and Pickett (2010) studied the rates of mental illness among countries with high and low levels of income inequality. They reported that in countries with low levels of income inequality (i.e. Germany, Italy, and Japan) fewer than 1 in 10 people experienced mental illness within the year prior to the study. Whereas in countries with high rates of income inequality (i.e. Australia, New Zealand, and UK) this rate was twice as high. Moreover, the onset of mental illness was even higher for the USA, which ranks among the highest on the scale of income inequality. In the USA more than 1 in 4 individuals experienced mental illness in the year prior to the study (Wilkinson & Pickett, 2010). In 2003, USA spent $100 billion dollars on mental health treatments alone! (Mark, Levit, Buck, Coffey & Vandivort-Warren, 2007).

In this thesis, I argue that income inequality is an important issue for psychologists to consider since it has been identified as an important determinant of psychosocial well-being. Psychology is a discipline that is concerned with the wellbeing of individuals. The mission statement of the Canadian Psychological Association (CPA) and the American Psychological Association (APA) is to advance the creation, communication, and application of psychological knowledge to improve the health and welfare of individuals. Since significant parts of psychology are concerned with improving the well being of

individuals, it is crucial for Psychology to address the broader social structures that are responsible for producing poor psychological health. If the scale of income inequality is known to be a major underlying determinant of mental illness, then it is very important for psychologists to address this problem in the aim of improving the mental health status of society members.

Income Inequality: Definition and Measurement

Income inequality is an indicator of how material resources are distributed across society (OECD, 2011). Inequality is measured based on different indices. The most popular of which are percentile ratios, the Robin Hood index, and the Gini coefficient. The percentile ratios compare dispersion at the top of the distribution to dispersion at the bottom (Jenkins & Van Kerm, 2009). The P90:P10 ratio is more commonly used among the percentile ratios. It compares the ratio of the 90^{th} percentile to the 10^{th} percentiles. Other percentile ratios used are P90:P50 or P50:P10 (Jenkins & Van Kerm, 2009). P90:P10 has an advantage of eliminating the problem of top-coding in survey data. Top-coding occurs when data procedures replace all incomes above a particular value with that value to maximize confidentiality and minimize disclosure (Jenkins & Van Kerm, 2009). In general, percentile ratio measures ignore information about incomes other than the percentiles selected (Jenkins & Van Kerm, 2009).

The second index for measuring income inequality is the Robin Hood index, also known as the Ricci-Schutz index or relative mean deviation. The Robin Hood index is defined as the proportion of total income that would have to be redistributed from those above the mean to those below the mean to achieve perfect equality (Jenkins & Van Kerm, 2009). The most commonly used measure of income inequality is the Gini

coefficient, which ranges from 0 (everybody earns identical income) to 1 (one person earns all the income) (OECD, 2011; Jenkins & Van Kerm, 2009). The studies on income inequality alternate between these measures depending on the type of inequality that is of interest for measurement. At times inequality is measured by two or three different measures at once in order to confirm the observed effects.

The Absolute Income Hypothesis

The absolute income hypothesis refers to the relation between absolute income levels and well-being. According to standard economic models, the health gains from an extra unit of income will diminish as the absolute income level rises (Leigh, Jencks & Smeeding, 2009). A mean preserving transfer from the rich to the poor raises the health of the poor more than it lowers the health of the rich (Leigh, Jencks & Smeeding, 2009). The same relationship is observed when comparing economic development between countries. Among the poorer developing countries, life expectancy increases rapidly during the early stages of economic development, but as countries get richer and richer the relationship between economic growth and life expectancy weakens and eventually disappears (Wilkinson, 1996).

This shows that beyond a certain point (epidemiological transition) further gains in economic development do not provide any improvements for well-being (Wilkinson, 1996). The epidemiological transition is the name given to the changes in well-being brought about by economic development as it lifts populations out of absolute material deprivation (Wilkinson, 2005). Therefore, it is not always the case that rich countries do better in terms of mental and physical health. One country can be twice or three times as rich as other countries but not benefit from better national health status. For example,

despite the enormous difference in GDP pc between USA and Costa Rica (approximately 21,000 $), Costa Rica scores higher in life expectancy comparing to USA (Daniels, Kennedy & Kawachi, 2000).

The Relative Income Hypothesis

The relative income hypothesis refers to the relationship between well-being and the relative income of individuals within a population. Within a country, health differences are closely and systematically related to differences in economic status (Wilkinson, 1996). The health differences run across society with every level in the social hierarchy having worse health outcomes than the one above it (Wilkinson, 1996). The systematic distribution of health differences based on relative income levels is referred as the social gradient of health (Wilkinson, 1996, 2005; Marmot, 2003).

The empirical evidence for the social gradient of health is provided by the famous Whitehall studies by Michael G. Marmot. The Whitehall studies, which began in 1967, examined the morbidity and mortality of 17, 539 male British civil servants for 10 years (Marmot, Rose & Shipley, 1984). The civil servants were classified based on their job status. The job status was categorized from the highest to lowest respectively as follow: Administrative, Professional and executive, clerical and other (messengers and unskilled manual workers) (Marmot, Rose & Shipley, 1984).

It was found that there is a stepwise relation between employment status and ill health. The lower the status level, the higher the level of morbidity and mortality. Compared with the highest job status (administrators), men at the lowest grade had three times the mortality rate from coronary heart disease, from range of other causes and from all causes combined (Marmot, Rose, & Shipley, 1984). A clear gradient in health was

found when health was measured against socio-economic factors (income, education and employment). Besides a stepwise relationship between status and mortality, it was observed that for every cause of death the two lower grades (unskilled manual workers and clerical) had higher mortality rates than the two higher grades (Administrative and professional/executive) (Marmot, Rose, & Shipley, 1984).

To understand the nature of social gradient of health in the first Whitehall study, Marmot, Rose, Shipley and Hamilton (1978) conducted the Whitehall II study. In this study the explanatory power of lifestyle factors for the gradient of death observed for coronary heart disease was examined. It was found that cholesterol, smoking, and family history accounted for only 25% of the gradient. The major contributing factor to the health gradient was the employment status within the job hierarchy. It was observed that the health gradient disappeared when controlling for employment status.

The social gradient of health highlights how sensitive well-being is to socio-economic factors. Income and its distribution has a major importance when analyzing the health gradient. The social gradient of heath tells us something more about the relationship between income and well-being than just knowing individuals with higher income benefit from better health. It tells us that it is the distribution of income within a society that relates to the observed health differences.

The absolute and relative income hypotheses indicate that once a country has passed beyond the threshold of absolute deprivation, further increases in the absolute size of the economic pie is not what matters for well-being. What matters is how the slices of pie are divided across society (Wilkinson, 1994,1996). The absolute size of economic pie accounts for less than 10% of variation in life expectancy; whereas the relative size of

slices account for about three-quarter of variations within societies (Wilkinson, 1992). This means that it is not the richest countries that experience optimal levels of well-being but the more egalitarian (Wilkinson, 1996).

The Extent of the Problem of Income Inequality

The pattern in income inequality increased, declined and has risen again since World War II. Income inequality rose during the economic growth that followed WWII in Western Europe and North America. According to Smeeding and Gottschalk (2004), the years of 1948 in USA and 1949 in UK are marked as the period where income inequality reached its peak since WWII. Income inequality declined during 1950-1960 in USA and 1970s in UK. From 1980s to early 1990s income inequality began to rise again. By the early 1980s, income inequality peaked to levels not seen since the 1948 in the USA. Then it continued to increase and reached its second peak throughout 1994-1996.

The same pattern is observed for UK, income inequality began to rise in the 1980s and in 1985 reached the same level of inequality as 1949.Then it continued rising and reached its second peak through 1994-1996. The rising trend in income inequality has also been documented in other countries. According to Smeeding and Gottschalk (2004), income inequality has increased in Sweden since 1989. In Japan and Taiwan, an increase in income inequality was observed in the late 1980s. In France, Germany, and Norway income inequality began to rise in early to mid-1990s.

According to the OECD (2011) report, income inequality has increased significantly among the OECD countries since the late 1970s and early 1980s. In the mid 1980s the Gini coefficient for the OECD countries was 0.29. This measure has increased by almost 10% to 0.316 in the late 2000s. The rise in income inequality is significant for

17 of 22 OECD countries. This increase is not only in the already high-inequality countries (such as USA, UK and Israel); but also for the first time in the traditionally low-inequality countries (such as Sweden, Denmark, and Germany). Income inequality has increased by more than 4% in Finland, Germany, and Sweden; and also in Israel, Luxembourg, New Zealand, and the USA. Income inequality in Canada has also increased significantly from the 1990s to the mid 2000s (Mikkonen & Raphael, 2010). Canada is now among the OECD nations with higher levels of income inequality (Mikkonen & Raphael, 2010). What is most noteworthy is that income inequality has increased in the traditionally equal countries more than other unequal countries. Income inequality grew by more than 1% per year in Sweden, Denmark, and the Netherlands.

It is shown that income inequality has increased significantly in most of the developed countries and globally in the past two or three decades. The growing rates of income inequality have important implications for well-being. It has been shown that the degree of health inequalities grows as economies become more unequal. A one percent increase in the measure of income inequality is associated with an excess rate of 22 deaths per 100,000 populations (Kawachi & Kennedy, 2002).

Are the Differences in Income Inequality Large Enough to Matter?

Studies have looked at the differences in inequality between different countries or states. It is repeatedly found that well-being is worse where the level of income inequality is higher. The prevalence of illness and death rates are higher in economically unequal states or countries. For example, the death rate for economically unequal US states, such as Louisiana and Mississippi, is 675 per 100,000 population whereas death rate for a more equal state of New Hampshire is less than 425 per 100,000 (Ross, Wolfson, Dunn,

Berthelot, Kaplan, & Lynch, 2000). This is a difference of 250 deaths per 100,000 population between economically unequal and equal states. But when looking at the index of income inequality between the states they differ by only a small degree. The measure of income inequality for Louisiana and Mississippi is approximately 0.18 whereas this measure for New Hampshire is close to 0.24 (Ross et al., 2000). The difference between inequality between these states is only 0.6. The point that is most often raised is that the difference in inequality between different regions is usually very small to have such a dramatic impacts on death rates. Why should just 6% difference income inequality make much difference to anything?

This would be a reasonable question if we were talking about absolute income levels. But when speaking of relative income, the picture looks rather different. Let's consider the two states of Louisiana and New Hampshire. Louisiana is an economically unequal state where the poorest half of the population only gets 18% of the state's income (Wilkinson, 2005). Whereas New Hampshire is a more equal state where the poorest half gets 24% of society's income (Wilkinson, 2005). The richer half of the each state gets 82% and 76% of society's total income respectively. In a more unequal state the income of the poorer half of the population is 22% (18/82=22) of the richest half. In a more equal state the income of the poorer half is 32% (24/76=32) of the richest half. In other words, in the less equal state such as Louisiana the poorer half of the population is getting 22% of the income of the rich; whereas in the a more equal state of New Hampshire the poorer half gets 32%. The difference between these two states is that in the more equal state the poorest half of the population is 45% better off (32/22=45%) than the poorest half in the less equal state (Wilkinson, 2005). Therefore, the small 6%

difference in the shares of absolute income has become a 45% difference in relative income. If the measure of inequality increases from 0.18 to 0.26, the difference produces 60% improvement in the relative position of the poorest half of the population (Wilkinson, 2005).

As described above, small differences in the share of absolute income translates into large differences in relative income. A small increase in the share of the poorest proportion of population leads to a significantly better living condition in terms of relative income. Therefore, the differences in income inequality are large enough to matter. In fact these differences play an important role in the well-being of the population specially for the groups at the lower end of income hierarchy.

Whom does Income Inequality Affect?

The significance of the problem of income inequality lies in the fact that contrary to the popular belief, income inequality is not only harmful to the poor but also harmful to the rich and everyone in between (Wilkinson & Pickett, 2010; Kawachi & Kennedy, 2002). A considerable amount of research has shown that the rich in unequal economies do much worse in terms of health, compared to the rich in equal economies (Vagero & lundber, 1989; Banks, Marmot, Oldfield & Smith, 2007). Vagero and Lundberg (1989) looked at death rates across four classes of occupation in Sweden and England. The occupation classification runs from unskilled manual levels (class V) at the bottom to professional executive levels (class I) at the top. Even though the death rates were higher in the lower occupation levels for the two countries, the death rates in Sweden were lower than England for all occupation classes. Economically, Sweden is much more equal compared to England; the Gini coefficient for Sweden is 0.26 whereas 0.35 for UK

(OECD, 2011). Vagero and Lundberg (1989) found that Sweden's highest death rate for the lowest occupation category was lower than the England's lowest death rate for the highest occupation level.

In a similar study, Leon, Vagero and Olausson (1992), investigated infant mortality across different levels of occupation classified from low to high in Sweden and England. Although within both countries the rate of infant mortality was higher for lower class populations and lower for high-class occupations, infant mortality in Sweden was lower for all levels of occupation comparing to England (Leon, Vagero & Olausson, 1992). For the highest occupation class, infant mortality was higher in England comparing to Sweden. The same result was observed when education was used as a basis of categorization. A study by Marmot, Oldfield and Smith (2005) looked at different illnesses (diabetes, hypertension, cancer, lung disease, and heart disease) across different education levels (high, medium, low) for middle-aged men in USA and UK. It was found that the onset of these illnesses were higher for men in USA comparing to UK which is the more equal among the two. The higher rate of illness for USA was not just among the lower education levels but across all educational levels. The studies discussed above indicate that in contrast to the public view, not only are the groups of individuals at the bottom of the hierarchy are aversively affected by income inequality but so are the groups at the top and the middle of hierarchy.

The negative effects of income inequality are not only confined to the groups at the bottom of social hierarchy. Instead it affects the whole income spectrum. When discussing income inequality, the problem in the developed countries is not one of poor health for the economically deprived and good health for the not deprived, but the

problem is the social gradient of health (Marmot, 2000). The fact that health or well-being is a gradient when measured against socio-economic factors means that economic factors affect all members of society with increasing negative outcomes for the people at the bottom of the hierarchy (Mustard, 1999). The social health gradient indicates that income inequality affects all levels of the social hierarchy, the poor as well as the rich and everyone in between (Wilkinson, 1996; Wilkinson & Pickett, 2010).

The Overview of Chapters

Since income inequality is such a powerful health determinant, has grown globally in extent, and has profound impacts on psychosocial well-being in all levels of income spectrum, it is worth examination from a closer perspective. In this thesis, I provide a detailed analysis of the impact of income inequality on psychosocial well-being. In the first chapter, I examine how economic inequalities have been discussed by the discipline of psychology. I analyze the major research trends focused on economic issues of poverty and income inequalities. I argue that the topic of income inequality is relatively under-researched in psychology and there is a need for a greater extent of academic attention to this topic within the discipline.

In the second chapter, I discuss the wide range of social and psychological problems related to income inequality that have negative impacts on psychosocial well-being. I discuss that income inequality is related to a host of psychological problems including depression, anxiety disorders, drug and alcohol addictions; as well as problems such as obesity, teenage pregnancy, higher mortality, lower life expectancy, homicides and violent crimes. These problems have traditionally been of an interest to psychologists. Psychologists have developed a wide variety of interventions and

treatments to reduce the prevalence of these problems. However, they have seldom mentioned the impact of income inequality in their analyses. I argue that in reducing the psychosocial problems, it is crucial that psychologists pay attention to the issue of income inequality.

In the third chapter, I discuss the explanations provided for the relation between income inequality and psychosocial well-being. I analyze the two major explanatory frameworks of psychosocial environment theory and neo-material theory. Moreover, in this chapter, I discuss the relevance of these explanatory frameworks for psychological research on well-being. In the fourth chapter, I analyze the criticisms regarding the relation between income inequality and psychosocial well-being. The criticisms focus on the issues of causality and methodology. Finally, in the last chapter, I discuss what psychologists can do regarding the issue of income inequality. I analyze the possibilities for psychological interventions in reducing the income gaps.

Chapter One

Income Inequality and Psychology

Income inequality is a relatively under-researched topic in psychology. It has not received much empirical or theoretical attention compared to other topics such as poverty, socioeconomic status, and low-income levels. Some psychologists have voiced their concerns regarding the lack of research work on income inequality and have emphasized the importance of paying critical attention to this topic (Bullock & Lott, 2001; Belle & Doucet, 2003; Oishi, Kesebir, & Diener, 2011). Bullock and Lott (2001) argued that income and class inequalities have not received adequate critical attention in psychology. Very little research has been done in psychology on the impact of income inequality and mental health (Belle & Doucet, 2003). Similarly, Oishi et al. (2011) stated that despite the fact that income inequality has been extensively investigated in fields such as economics, sociology, and epidemiology, little empirical work has been done about it in psychology. Although compared to income inequality, topics such as poverty, socioeconomic status (SES), and class are discussed to a greater degree in psychology, these topics also have not received adequate critical attention in the discipline.

Given this relative lack of attention, this chapter deals with examining the ways in which psychologists have addressed the topic of income inequality. It looks at the major research trends regarding inequalities in income, class, and SES. In spite of the fact that little theoretical or empirical work has addressed income inequality in psychology, a handful of psychologists have either directly or indirectly discussed income inequality and issues related to it. Besides examining the contributions of the major research trends on the topic of income inequality, the limitations of this research are also discussed.

Poverty, Class, and Socioeconomic Inequalities

Psychology as a discipline has examined topics central to other disciplines such as anthropology, social sciences, medicine, physics, and neuroscience. It has formed allies with the experts in other disciplines and expanded itself into branches of educational psychology, military psychology, psychology of religion and arts. One exception to this rule is the field of economics (Furnham, 2003). Psychology has not been very progressive in critically examining important economic issues such as poverty, class, and economic inequalities that have important consequences for psychosocial well-being. Psychology's conceptualizations of economic issues such as poverty, class, and socioeconomic status have been largely criticized. It has been argued that the discipline of psychology does not have an appropriate level of theoretical and conceptual analysis, or the appropriate methodological tools for analyzing macro-sociological issues such as poverty, class, and economic inequalities (Furnham, 2003).

Psychology's conceptualization of poverty, class and socioeconomic status is criticized as being largely individualistic (Bullock & Limbert, 2009; Lynch & Kaplan,1997). Class is often invisible in mainstream psychological frameworks or inconsistently conceptualized (Bullock & Limbert, 2009). In fact among the three categories of class, race, and gender; class appears to be the least explored theme in psychology's theoretical and empirical conceptualizations (Ostrove & Cole, 2003). Class and socioeconomic status are understood as personal characteristics or as neutral demographic variables. The discussions that follow this kind of conceptualizations are often apolitical and decontextualized (Bullock & Limbert, 2009; Harper, 2003). Class and SES are also viewed as encompassing life style choices rather than structural barriers to

social resources (Bullock & Limbert, 2009). Similarly, class based inequalities are conceptualized in an apolitical and decontextualized fashion. The inequalities in class and SES are viewed as a consequence of personal hard work and effort rather than a consequence of socioeconomic systems (Bullock, 2010). Most often in psychological studies, SES is not studied as an independent etiological variable (Adler, Boyce, Chesney, Cohen, Folkman, Kahn, & Syme, 1994). Therefore, its effects on well-being are often excluded from psychological analyses (Adler et al., 1994).

In terms of poverty, psychological research has focused on studying the personality traits and behaviors of poor individuals. Psychology's approach in explaining poverty has been based on deficit models of behavior (Bullock & Limbert, 2009). The deficit models assume that poverty or low-income status reflect deficient cultural values, norms and behaviors that deviate from the middle class values. The common psychological concepts attributed to poor individuals in explaining poverty are achievement levels, motivational patterns, laziness, and locus of control. Poor individuals have been described to have low achievement levels, lack of motivation, low sense of independence, and external locus of control (Furnham, 2003; Bullock, 2010). It is assumed that these characteristics lead to low levels of initiation and risk taking which results in lower levels of education, poorer employment prospects and eventually poverty (Furnham, 2003). Moreover, psychology's conceptualization of poverty has been in line with the ideological assumptions that economic circumstances are consequences of hard work and effort (Bullock & Limbert, 2009; Furnham, 2003, Harper, 2003). Characteristics such as laziness and poor self-discipline have been disproportionately attributed to poor individuals (Furnham, 2003; Carr, 2003; Bullock, 2010). Under this ideology poor people are viewed as being

deserving of their situation. According to Carr (2003), psychology's treatment of poverty has been laden with pathologizing, victim blaming, and ethnocentric assumptions.

The interventions based on deficit philosophy aim at reducing poverty by teaching the value of hard work and determination to poor individuals. In terms of poor women the interventions involve emphasizing the value of marriage and two-parent families (Bullock & Limbert, 2009). These types of psychological interventions only focus on behavioral traits without paying critical attention to the structural barriers such as lack of employment and education opportunities for poor individuals. In terms of health promotion, psychological interventions advise low SES groups to build health promoting habits such as exercising and eating healthily. However, these interventions do not take into account structural barriers such as availability of safe spaces for exercise, or affordability of fresh produce (Bullock & Limbert, 2009).

According to Furnham (2003), psychologists have been able to successfully apply psychological concepts to poor individuals but have largely failed to effectively explain poverty and provide solutions to eliminate it. The reason is that poverty is not a psychological problem but an economic and sociological one (Furnham, 2003, see p. 165). Psychology has extensively researched the behaviors and traits of the poor but interestingly has done very little in addressing the structural causes that are responsible of producing and reproducing economic inequalities. As Furnham (2003) argues, psychology is not used to examining macro-economic systems, social policies, or governmental processes that may have important influences on conditions of poverty. Furthermore, psychology has rarely analyzed poverty in relation to economic inequality, in spite of the fact that poverty is an economic problem that cannot be effectively

addressed in isolation of economic issues such as income inequality (Furnham, 2003).

In spite of the criticisms discussed above, feminist and critical psychologists have made valuable contributions to transform psychology's individualistic frameworks of poverty, class and SES. Even though their work may be marginalized, they made important attempts to highlight psychology's limitations and proposed new strategies for psychological research agenda. Psychology's focus on income inequality or similar topics such as economic fairness and wealth distribution also suffers from an individualistic focus. The next section will discuss how income inequality has been discussed in psychology.

How Has Income Inequality been discussed in Psychology?

In this chapter four research trends on income inequality are discussed. The first trend involves studying subjective perceptions, attitudes and judgments regarding economic issues within the framework of attribution research. In this trend, topics such as perceptions regarding economic fairness, distribution of wealth, economic hardship, poverty, and class are discussed. The second trend is regarding the relationship between economic inequality and well-being. In the second trend the impact of SES, and class based inequalities on health are discussed. The third trend involves SES related health inequalities and the challenge posed to the traditional psychology's frameworks regarding the determinants of health. The last trend discussed involves the relation between income inequality, happiness and life satisfaction. In the fourth trend of research the impact of absolute and relative material deprivation, economic growth, and economic inequality is examined on happiness, trust and satisfaction. The following four sections discuss the details of each research trend on income inequality.

Income Inequality and Attribution Research

Some of the psychological studies done on economic issues are in the framework of attribution research. In this type of research, psychologists study the attitudes, judgments, and subjective perceptions of different groups regarding issues such as economic inequalities, class, and poverty. The contributions to attribution studies on economic related topics are more commonly from the area of economic and political psychology. As an example, psychologists have studied the topic of economic fairness by examining subjective judgments of participants in relation to factors such as age, social class background and political orientation. Mitchell, Tetlock, Newman, and Lerner (2003) studied judgments of economic fairness based on SES backgrounds and political orientations. It was observed that as the level of meritocracy increased all participants became more tolerant of economic inequality. This was especially the case when they judged fairness from a redistribution frame of reference. Liberal participants placed a greater emphasis on equality than did conservative participants across all conditions.

Other studies have also looked at the impacts of SES backgrounds on the judgments of economic fairness. Dickinson (1990) has examined perceptions of socio-economic inequalities among children and adolescents based on their socioeconomic backgrounds. The perceptions of socio-economic inequalities among 147 Scottish teenagers (10-16 years of age) were examined in relation to age and social class. In a semi-structured interview the participants ranked different job categories (doctor, teacher, electrician, bricklayer, bus driver, and road sweeper) based on social status and income. A strong class effect was found on teenagers' perceptions of socio-economic inequality and judgments of fairness. Their socio-economic background affected their awareness of

occupational prestige and income in middle-class subjects. In a similar study, Elmer and Dickinson (1985) examined the perceptions of children from third to seventh grades with regards to fairness of income differences. It was found that middle-class children, compared to working-class, made higher estimates of income for all occupations and also perceived a greater spread in incomes and had a clearer vision of differences between manual and non-manual occupations.

The studies above provide valuable knowledge of the impact of socioeconomic backgrounds and political orientation on the subjective judgments about economic fairness. Individuals with more privileged socioeconomic backgrounds are more likely to be tolerant of economic inequality comparing to individuals with less privileged economic backgrounds. In addition, upward social mobility seems to lead to more greater awareness about income gaps and the dominant economic system. However, there are major shortcomings to this type of research.

A pervasive shortcoming of this type of research is its individualistic character (Harper, 2003). The unit of analysis involves the individual who acts as the explainer. This entails that systemic social processes responsible for economic inequalities are excluded from the scope of analysis (Harper, 2003). Such processes include governmental policies, political manifestos, institutional operations, governmental press releases, and media's framing of sociopolitical issues. The second shortcoming of attribution research is its political naivete (Harper, 2003; Bullock & Limbert, 2009). This refers to the lack of curiosity about what social function these kinds of explanations might have. Studies of this kind find relations between individual explanations and social psychological variables or demographic factors without explaining further what these

relations mean or what purpose they serve with regards to social problems. The third shortcoming is overreliance on middle class participants most commonly university students and lack of focus on targeting the appropriate population (Bullock & Limbert, 2009). In an attempt to address some of the limitations discussed above, psychologists have taken initiatives in implementing new research agendas. Feminist psychologists have been very proactive in fulfilling psychology's research gaps regarding the economic inequalities. However, psychologists from other areas of psychology have made important contributions to this initiative.

As one example of this attempt, feminist psychologists focused on including more appropriate population groups in studies of SES and class. They focused on studying the neglected perceptions of the individuals struggling with poverty and economic hardship. Bullock and Limbert (2003) explored the perceptions of low-income women about poverty, social class, and upward mobility. They examined 69 low-income women living on welfare assistance who were enrolled in an educational training program. It was found that women participants expected to obtain middle class status within eight to ten years after graduation, and believed their education was an important route to achieving upward mobility. A consistent attribution pattern emerged revealing that respondents' understanding of poverty and wealth was prominently shaped by structural factors. Income inequality was perceived as unjust by the majority of the respondents. Bullock (2004) has also compared the subjective perceptions of poor individuals to the perceptions of their professional service care providers. A difference was found between the attitudes of social worker and welfare recipients regarding poverty and welfare system (Bullock, 2004). The welfare recipients expressed stronger support for increased

welfare funding and progressive welfare policies, while the social workers favored more conservative strategies.

Feminist psychologists also attempted to study the class-based power relations by investigating the classist attitudes regarding individuals struggling with low income and poverty. For example, Downing, Laviest and Bullock (2007) found that low-income women are disproportionately discouraged from having babies by their health care providers. Lott (2002) identified cognitive distancing, institutional distancing (in education, housing, health care, legal assistance, politics, and public policy), and interpersonal distancing, among the classist responses towards the poor in USA. Lott (2012) highlighted the social construction of social class and argued that it denotes status and power in having access to resources. Lott (2012) pointed out that institutional and interpersonal classism contributes to the reduction of opportunities for low-income families.

Besides focusing on the subjective perceptions of economically disadvantaged groups and analyzing the classist attitudes, feminist psychologists have focused on the media's framing of the political debates on poverty, tax policies, and welfare reform. Belle (2006) discussed the widening economic inequalities in USA and analyzed the consequences of inequality on the public and media's responses to hurricane Katrina in 2005. Belle (2006) examined the attribution patterns on low-income status and poverty based on race, gender, age and religion. It was found that white individuals were more in favor of individualistic attributions comparing to black individuals. Women were more in support of structural causes of economic inequality and poverty comparing to men. Belle (2006) argued that in the aftermath of hurricane Katrina media coverage deflected

attention from systemic causes of poverty by focusing on the individual attributes.

Limbert (2006) compared political and media framing of federal redistributive policies that benefit lower versus upper income household. A discourse analysis of 284 articles from five major newspapers was conducted to examine messages about poverty, wealth, and inequality in media's coverage of congressional debates about welfare reauthorization and the 2003 dividend tax cuts. The findings showed that the Bush administration was highly successful in setting the terms of discussion for both welfare and tax policy, despite the media coverage that tended to be critical of the administration's proposals. Welfare reauthorization debates, dominated by discussions of work requirements and marriage promotion, reinforced public understanding of poverty and welfare reliance as individual problems rather than social concerns. According to Limbert (2006), the debates about the dividend tax cuts distracted attention from the fact that the wealthy would be the primary beneficiaries of the cuts. In a similar study, Limbert and Bullcok (2009) found that media's framing of the Bush administration's welfare reauthorization proposal and the 2003 dividend tax cuts favored reduced support for progressive welfare policies and increased support for tax cuts.

The studies discussed above have overcome some of the shortcomings of psychological research on socioeconomic issues. By focusing on the political debates about economic problems and the media framing of these debates, psychologists have extended analysis to broader social processes in advancing understanding about poverty and SES inequalities. Also by highlighting the role of power in class-based inequalities, psychologists have made attempts to move away from the individualistic notions of class and SES. These studies however are marginalized in the discipline and overwhelmed by

the mainstream conceptualizations of class and SES. In the research discussed above, income inequality was only marginally the focus of the study. Issues such as economic injustice, income gaps, poverty and SES related inequalities were not discussed explicitly in relation to the problem of income inequality.

In addition, the studies on SES, class, and poverty did not invest in addressing underlying causes for such economic problems. With regards to the causes of economic problems, psychological studies mainly focus on the perceptions of different types of attribution patterns. The two major attribution patterns studied are individualistic vs. structuralistic attributions. It has been found that women, economically disadvantaged, racial and ethnic minorities favor the structuralistic attribution pattern regarding poverty and economic problems (Belle & Dodson, 2006; Bullock, 2010). While upper middle class 'white' males or in general groups with power prefer the individualistic attributions. Other studies on this topic looked at role of education in changing the public attitudes about the causes of poverty and inequality. For example, Seider, Rabinowicz, and Gilmore (2012) found that knowledge about the structural barriers to economic mobility shifts participants attitudes from regarding the individualistic attributes as the primary causes of economic inequalities to structural ones. In spite of the existing research on the attributional causes for economic issues, psychological studies do not further discuss issues the underlying structural barriers maintaining economic inequalities and the ways to eliminate them.

Income Inequality and Well-Being

In terms of well-being, psychology has to a greater extent documented the impact of low income and poverty on physical and mental health. Psychologists, especially from

the area of feminist psychology, have looked at the impacts of disadvantaged economic backgrounds, low social class, and poverty on women's well being. Only selective studies have discussed the impact of income inequality on well-being.

Feminist psychologists have studied the adverse effects of poverty, low income and SES on well-being specifically for women. Belle (1990) studied the impact of poverty and low income on women's psychological health and found that economic status is a significant correlate of psychological distress and mental disorders in women. High levels of depressive symptoms are common among women who experience low income and economic hardship such as single mothers (Belle, 1990). Low-income women experience three times the number of stressful life events typical for the population at large. The stress associated with low-income status is observed to have profound negative effects on the health of women as well as their children (Belle, 1982).

Belle and Doucet (2003) analyzed the role of poverty, income inequality, and discrimination on women's well-being. They found that poverty is one of the most consistent correlates of depression among women. Income inequality was found to have a strong relation with reduced life expectancy and a host of negative physical health outcomes for women. It was observed that discrimination reinforced inequalities and increased the risk of economic insecurity for women. Belle and Doucet (2003) argued that the aversive impact on income inequality on women's well-being is much more profound than the impact of poverty. This is because unlike poverty, the negative impact of income inequality is not only limited to low-income groups but to the whole income spectrum (also see Belle, Doucet, Harris, Miller, & Tan, 2000). Belle also investigated how poor women and their children make sense of poverty, material deprivation,

economic hardship, and economic inequality. Belle and Dodson (2006) investigated the economic realities of poor girls and women in wealthy nations. It was found that low-income status and chronic poverty has damaging outcomes for the mental and physical health of girls and women in terms of life expectancy, capacity to nurture children, childbearing, stress and social support (Belle & Dodson, 2006).

Lott (2003) investigated the impact of low-income status on mental and emotional well-being of children and adults who live in high violence neighborhoods otherwise known as "urban war zones". Lott (2003) found that as a consequence of living in a poor violent neighborhood the majority of children and teenagers have high percentage of exposure to some sort of violence and this exposure carries substantial negative impacts on their psychological well-being. Children of urban war zones experienced trauma, feelings of hopelessness, despair, rage and distrust. In addition, exposure to chronic neighborhood violence had negative impacts on school performance, conduct, peer interaction and activity level.

In general the studies discussed above show that low income and poverty have substantial negative impacts on well-being. This effect is especially pronounced for women, adolescents and children. It was shown that poverty and low income are important risk factors for mental illness more commonly depression. Income inequality was reported to be related to reduced life expectancy and negative physical outcomes for women.

Besides the feminist psychology area, studies from the area of developmental and child psychology have also examined the impact of economic factors on mental health. Langton, Collishaw, Goodman, Pickles, and Maughan (2011) examined the relation

between income gradients and adolescent behavioral and emotional problems. They compared the association between low, medium, and high-income status and emotional difficulties of 15 and 16 year old adolescents in three cohorts of 1974, 1986, and 1999/2004. It was observed that increasing income differentials lead to an increase in adolescent emotional problems over this period. A disproportionate number of behavioral and emotional problems were found for adolescence from low-income status. It was argued that the observed increase in emotional problems was due to the increase in relative economic inequality through out the years. UK's Gini coefficient was relatively stable during 1970s and 1980s and then sharply increased during the end of 1980s (Langton et al., 2011). The increase in relative inequality carried negative implications for adolescent mental health (Langton et al., 2011).

Psychologists have also looked at the relation between subjective well-being (SWB), income and wealth. Myers and Diener (1995) found that income and wealth are positively correlated with subjective well-being. It was also found that subjective well-being improves sharply with more income when it means avoiding poverty and being able to afford the basic necessities of life. Beyond this point more money will improve subjective well-being only a little (Diener & Biswas-Diener, 2009). Although not talking about income inequality, Myers and Diener (1995) found a positive correlation between well-being and national wealth. When analyzing subjective well-being within rich countries, it was found that once people can afford basic life necessities, more affluence matters surprisingly little (Diener & Biswas-Diener, 2009; Myers & Diener, 1995). For instance, even though Americans are twice as rich in 1993 comparing to 1957, they are

not happier. This might be due to increase in the rates of violent crimes, mental illness, divorce, and suicides (Myers & Diener, 1995).

In terms of the relationship between income inequality and well-being, Lester (1987) studied the association of the prevalence of homicides and suicides with income inequality. Lester (1987) first examined the relationship between quality of life and homicide rates. It was observed that homicide rates were high in places with poor quality of life. Surprisingly however, the suicide rates were high in places with good quality of life. To further examine this finding Lester (1987) acknowledged that income inequality could be one factor affecting the quality of life. Lester (1987) examined the data on the relation between income inequality, homicide and suicide rates obtained from the World Health Organization (1968-1969) for 23 nations during the years of 1965 and 1966. It was found that suicide rates were not significantly associated with income inequality. However, homicide rates were significantly correlated with income inequality.

The relationship between well-being and income inequality has not been studied extensively in psychology. As shown above only a few studies have discussed the role of income inequality in relation to well-being. Moreover, very little research has been done in psychology on the impact of income inequality on mental health (Belle and Doucet, 2003). The impact of low income and poverty on mental illness has been much more extensively documented in psychology. As discussed earlier the poverty and low income are identified as powerful determinants of mental illness most commonly depression.

Income Inequality and Health Disparities.

One aspect of the relationship between economic inequality and well-being that has recently attracted the interest of psychologists is SES related health disparities. The subject of SES related health disparities is more commonly discussed by health

psychologists. Health disparities in general have not received much research attention in health psychology. *The Journal of Health Psychology* published a special series on health disparities, within which the editors stated that the area of health disparities is relatively under-researched in psychology and emphasized the necessity for paying critical attention to this topic (Kazak, Klonoff & Bosch, 2012).

In addition to the fact that health disparities are under-researched, SES related health disparities are even far less researched in the field (Adler et al., 1994). One reason for this lack of research attention is that the impact of SES on well-being is rarely of interest to psychologists. When studying health disparities, psychologists are more interested in studying the effects of genetic makeup, health habits and lifestyles on observed disparities (Adler et al., 1994). Since socioeconomic status is considered a powerful risk factor for illness, its influence is most often controlled for, in order to identify other etiological factors that influence health (Adler et al., 1994). Therefore, socioeconomic status has not been systematically studied as an important etiological factor in its own right (Adler et al., 1994). Moreover, when socio-economic factors are studied as independent factors in relation to health disparities, they are considered to be the characteristics of individuals rather than structural characteristics of socio-economic systems (Lynch & Kaplan, 1997). In spite of this, health psychologists have recently taken an interest in analyzing socio-economic related health disparities. Among health psychologists, Nancy E. Adler and Douglas Carroll investigated the graded relationship between socioeconomic factors and health.

Nancy Adler, a health psychologist at the University of California, became interested in exploring the role of socioeconomic factors on the health gradient, when she

was assigned to investigate the common pathways to multiple diseases (Adler, 2009). Adler's aim was to improve psychology's models of decision making in accounting for irrational health-risking behaviors. In the pursuit of this aim she learned about the Whitehall studies and acknowledged the powerful impact of economic factors and social class on health status (Adler, 2009). In *Socioeconomic Status and Health: The Challenge of the Gradient*, Adler et al. (1994), argued that the health gradient observed in the Whitehall studies poses serious challenges to basic health psychology's assumptions about the determinants of heath. The traditional factors such as genetic makeup, health risking behaviors and life style choices did not fully account for explaining the SES related health gradient (Adler et al., 1994; Adler, 2009). In addition, absolute material deprivation, poverty and lack of access to health care did not explain the SES related health disparities either (Adler, 2009). This is because in the Whitehall studies health disparities remained intact even though none of the participants lived in poverty or had lack of access to health care services (Adler, 2009).

Adler et al. (1994) explored three possible explanations for the graded association between health and SES. The first possible explanation is that the social health gradient is due to genetics, where physical size and intelligence may be responsible for lower social position and poorer health. The second explanation is the drift hypothesis where illness leads to downward social mibility and the third explanation is the possibility that socio-economic status influences health. Since the social health gradient was found to still remain even after controlloing for intelligence and illness, the first two hypotheses were ruled out in explaining the graded relationship between SES and Health. In terms of the third hypothesis, Adler et al. (1994) argued that there is little known about how SES

operates to impact health status negativey. A major part of Adler's work centers around the investigation of possible mechanisms through which the SES related health gradient is created.

Adler and Snibbe (2003) investigated the possible mechanisms through which SES impacts health by focusing on differential exposures to stress at the environmental, psychological and biological levels. They analyzed SES-related environmental characteristics and the cognitive, emotional, and biological responses to stress inducing variables. It was found that health behaviors such as smoking, physical activity, quality of diet, and exercise only account for 1/3 of the association between SES and Health (Adler, 2009). Morover, the rates of tobacco use, lack of exercise, obesity, overconsumption of sugar, and underconsumption of vegtables is higher among the socioeconomically disadvantaged groups comparing to the more priviledged ones (Adler, 2009; Adler et al., 1994; Adler & Snibbe, 2003). Health risking behaviors may be one possible pathway through which socio-economic factors impact health negatively (Adler, 2009; Adler et al., 1994; Adler & Snibbe, 2003).

Adler and Snibbe (2003) looked at other possible mechanisms such as depression, hostility, and psychological stress that can potentially account for the SES related health gradient. It was found that there was a strong negative relation between the experiences of depression, hostility, and psychological stress, and health status. Furthermore, the onset of depression, anger, and chronic stress was observed to be higher among economically disadvantaged groups. According to Adler and Snibbe (2003), depression, hostility, and chronic stress are other possible pathways through which SES impacts health.

Douglas Carroll, a professor of applied psychology, researching in the area of health psychology at the University of Birmingham, also discussed the relation between health and socio-economic inequalities. Carroll, Davey Smith and Bennet (1996) argued that in contrast to mainstream psychology's view, health and socio-economic status are powerfully linked. This association cannot be related to social selection. Social selection refers to the phenomenon where those individuals with poor health move down the social scale and those with good health move up. Similar to Adler's findings, Carroll, Davey Smith and Bennet (1996), found that behavioral risk factors such as smoking cigarettes, exercise, and diet cannot entirely account for the SES-related health inequalities. In comparison to behavioral correlates, the environmental correlates such as exposure to physical pathogens are observed to have a greater impact on health inequalities. However, even the environmental factors cannot account for the health gradient.

Carroll, Davey Smith and Bennet (1997) argued that income distribution and class structure is a major factor for the explanation of SES related health inequalities. Economically less privileged groups experience a combination of adverse physical and psychological conditions over their life course. Since health is viewed as an accumulation of conditions over the lifetime, the combination of adverse conditions can have substantial negative effects on health. The duration, intensity and number of adverse physical and psychological conditions vary for groups at different levels of socio-economic hierarchy.

According to Carroll and Davey Smith (1997) among the numerous reasons why health psychologists should pay critical attention to the SES related health gradient is its pervasiveness, magnitude and continuation into better-off social groups. Carroll and

Davey Smith (1997) argued the following five points. First, the graded relationship between health variations and SES is not a transitory phenomena but evident throughout history. In both preindustrial and postindustrial societies individuals with more favorable socio-economic circumstances enjoyed better health than those in less favorable circumstances. Second, SES related health disparities are growing wider and becoming more substantial. Socio-economic position is regarded as the single most important determinant of health status. Third, the association between socio-economic position and health is continuous. This means that the adverse impact of economic position on health is not only limited to the economically deprived groups but its impact is evident at every level of socio-economic hierarchy. Fourth, as the consequence of a continuous character of the social health gradient, explanations must go beyond the correlates of absolute poverty to include the correlates of relative poverty and the possible involvement of psychological factors. Fifth, recent increases in income inequality in countries such as the UK and USA have been accompanied by increases in health inequalities.

Based on the discussion above, the social gradient of health poses major challenges to the health psychology's model of health determinants. Health psychology identifies behavioral factors such as smoking, drinking, exercise levels, diet, and safe or risky sexual practices, as important determinants for the differences in health status (Bennet & Murphy, 1997). When health disparities are studied there is a heavy focus on genetic makeup, individual health behaviors and personal lifestyles in explaining the observed disparities. The work of Adler and Carroll shows that the traditional health determinants such as health behaviors, genetics, and life style cannot explain the health inequalities observed by the social health gradient. Even poverty and absolute material

deprivation did not account for the broad scope of health disparities.

It was found that relative material deprivation and inequalities in SES are powerful determinants for explaining the health disparities observed in the social health gradient. According to the work discussed above, economic inequality is a powerful social determinant of health, which has not been acknowledged by health psychology's model of health determinants. The impacts of socioeconomic status, relative material deprivation, and economic inequalities are yet to be explored by health psychology. Since economic inequality may impact health through psychosocial pathways, Adler et al. (1994) and Carroll and Davey Smith (1997) both emphasized the importance for psychologists to explore the ways in which income inequalities may impact physical and mental health status.

Income inequality and Happiness

The other area of research within which income inequality has been discussed in psychology is happiness. Selective psychological studies have looked at factors such as economic growth, income, and SES and studied whether or not these factors contribute to happiness. In this section the studies on income inequality and happiness are discussed.

A study by Schnittker (2008) looked at the relation between economic growth and happiness from 1973 to 2004 using General Social Survey (GSS) in USA. The purpose of the study was to investigate the patterns of happiness during the period of economic growth. Although real income has increased between 1973 to 1994, happiness has stagnated or perhaps even declined. There was a rise in happiness from the late 1990s to 2004. To explain the happiness-income relationship, three factors were analyzed: relative deprivation, declining financial satisfaction, and overemphasis on work relative to other

sources of well-being. It was found that financial satisfaction explained 35% of the relationship between happiness and income. Financial satisfaction declined from 1973 to 1994 and then increased from late 1990s to 2004. The increase in financial satisfaction was reported to be due to increase in absolute income levels and economic growth.

Schnittker (2008) found that there was not a strong relation between overemphasis on work among other sources of well-being and income-happiness relationship. In fact dual-earner couples were found to be much happier than couples that worked less. Surprisingly, it was observed that relative deprivation has little explanatory power in accounting for happiness-income relation. It was argued that relative deprivation has a powerful relationship with well-being where those who believe their income is below average are much less happy than those who believe their income is average. Yet from the standpoint of declining overall happiness, relative deprivation appeared to be unimportant. Absolute income levels and financial satisfaction were observed to have much more powerful impact on happiness.

In contrast to Schnittker's (2008) study, Oishi, Kesebir, and Diener (2011) found a relationship between income inequality and happiness by examining patterns of income-happiness relation over a 37 year period in the USA. It was found that Americans were on average less happy in years with more societal income inequality than in years with less societal income inequality. The negative association between societal income inequality and individual-level happiness was explained by perceived fairness and social trust. Moreover, the negative association between income inequality and happiness was held only for lower income levels. This relationship was not observed for higher income levels. The negative relation between economic inequality and happiness at low-income

levels was explained not by lower household income but by perceived unfairness and lack of trust.

Besides happiness, psychologists have also marginally studied quality of life by examining the relation between income inequality and solidarity, trust and life satisfaction. Regarding the impact of income inequality on trust, Phan (2008) examined the relation between the level of economic inequality and the sense of solidarity and social trust. Factors such as racial heterogeneity, inter-group contact and relative deprivation were examined to enrich the theoretical understanding of social trust. It was found that the level of ethnic/racial diversity and income inequality affects social cohesion and experiences of discrimination. Phan (2008) reported that income inequality at the city level interacts with experiences of discrimination to undermine trust. According to Phan (2008), public policies aimed at improving social cohesion benefit from considering equal distribution and regulation of economic resources to enhance inter-group relations.

Tomes (1986) examined whether self-reported happiness and satisfaction are influenced by the distribution of income in Canadian communities. The result of the survey indicated that the local income distribution was a significant determinant of well-being. Income share of the poorest 40% had a negative impact on satisfaction and happiness. Moreover, it was found that the subjective well-being is negatively related to income share of the richest 10% of the population. The results suggested a certain asymmetry in the self-reported happiness and satisfaction of the groups belonging to upper and lower tails of income distribution.

Asadullah and Chaudhury (2012) revisited the debate over the importance of

absolute vs. relative income as a correlate of subjective well-being using data from Bangladesh, one of the poorest countries in the world. It was found that based on household income respondents reported higher satisfaction when they experienced an increase in their incomes over the past years. Individuals who perceived their income to be lower than their neighbors reported lower levels of satisfaction. It was found that individuals reported lower life satisfaction in villages with high levels of income inequality. Asadullah and Chaudhury (2012) argued that the effects of relative income and local inequality on life satisfaction were moderate when compared with absolute income levels.

As evident by the studies discussed above psychologists have studied the relation between income inequality and happiness to a minor extent. The results for income inequality being related to happiness were inconsistent. Schnittker (2008) found absolute income to be a more powerful determinant of happiness while Oishi et al. (2011) found relative income to be a predictor of happiness. The relations between income inequality, social trust, solidarity and social satisfaction was also studied by selective studies. Higher levels of income inequality was found to be related to lower levels of social trust and solidarity and higher levels of social discrimination. Moreover, the higher level of income inequality was found related to lower levels of life satisfaction.

Conclusion

In this chapter, I discussed that income inequality has not been studied extensively in psychology. In comparison to income inequality, psychology has focused more heavily on economic issues such as poverty, class, and socioeconomic status. Income inequality remains relatively under-researched within the discipline. In terms of

the ways in which income inequality has been discussed in the field, psychologists have looked at variety of themes that relate to the issue of income inequality.

With regards to the first theme, psychology has examined the perceptions of economic fairness, distribution of wealth and income, poverty and low SES in the framework of attribution research. Psychologists have studied how judgments about economic fairness and distribution of wealth change based on social class, socioeconomic background, and political orientation. Psychologists have also studied the subjective perceptions of economically disadvantaged groups regarding poverty and experiences of economic hardship. Among other topics, public and professional judgments about poverty and low SES, the media representations of economic debates, and the attribution patterns regarding the causes of poverty and inequality have been studied by psychologists. Attribution studies about poverty and economic inequality have been criticized for their individualistic focus and political naiveté.

The second major theme discussed in this chapter is the relation between income inequality and well-being. The impact of income inequality on well-being has not been adequately studied in psychology. Only selective studies by feminist psychologists have reported the adverse impacts of income inequality on women's physical and psychological health. In terms of physical health, income inequality was reported to be associated with shortened life expectancy and a host of negative health outcome for women (Belle & Doucet, 2003). In terms of psychological health, income inequality was reported to be related to higher prevalence of mental illness and psychological distress for the economically disadvantaged groups. This effect was specifically pronounced for

women and children. Among all categories of mental illness income inequality was observed to be more commonly associated with depression.

The third theme is focused on socioeconomic related health disparities observed in the social gradient of health. This research focus comes from the area of health psychology. It is argued that health psychology's traditional model of health determinants cannot account for the health disparities observed from the social gradient of health. Instead inequalities in socioeconomic status are identified as powerful determinants for health disparities. It is argued that SES related health disparities challenge the assumptions of traditional health psychology frameworks regarding the determinants of health. The fourth theme explored in psychology is centered on the relationship between income inequality and happiness. Psychologists have selectively explored the relation between happiness and socioeconomic issues such as economic growth, income inequality, relative and absolute deprivation. The impact of income inequality on trust, solidarity, and life satisfaction has also been marginally examined by psychologists.

Despite the four major themes discussed above, the impact of income inequality on well-being is yet to be thoroughly explored in psychology. Very little research has been done in psychology on the relation between income inequality and psychological health (Belle & Doucet, 2003). The impact of income and SES inequalities on health disparities are also not studied adequately in the discipline. As Adler et al. (1994) argued, psychology has done very little in exploring the socioeconomic related health disparities. It has been argued that even Critical Health Psychology (CHP) has hindered its ability to deliver its promises by the unwillingness to engage with more 'distant' disciplines particularly economics, management and law (Maclachlan, 2006). According to

Maclachlan (2006),"CHP, in its concern with 'upstream' and contextual determinants of health, cannot escape a concern with factors that promote economic development and social development, and as such it should not eschew an explicit interaction with the discipline of economics"(p. 363).

In spite of the lack of research on income inequality and the shortcomings of current research on economic factors, Psychology is taking initiatives to encourage research on economic inequality and poverty. An example of this initiative is the adoption of the *Resolution on Poverty and Socio-economic Status* by the Council of Representatives of the American Psychological Association. The aim of this resolution is to encourage research, training and advocacy on topics such as poverty, economic inequality and economic justice[1]. Moreover, in 2006 the APA's council of representatives adopted the *Task Force on Socioeconomic Status.* The aim of this task force is to encourage psychological research on health disparities and to propose strategies to reduce such disparities (APA, 2007).

Given the need for a better understanding of the impact of income inequality on well-being, in the next chapter I discuss the psychosocial problems related to income inequality that have harmful outcomes on psychosocial well-being. I argue that income inequality is related to a host of psychological problems including depression, anxiety disorders, drug and alcohol addictions; as well as problems such as obesity, teenage pregnancy, higher mortality, lower life expectancy, homicides, and violent crimes. The research evidence for each of these issues is analyzed in the following chapter.

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[1] *About APA*. (n.d.). Retrieved Dec 6,2012, from http://www.apa.org/about/index.aspx
Mission and Mandate of the Canadian Psychological Association.(n.d.). Retrieved Dec 6, 2012, from http://www.cpa.ca/aboutcpa/

Chapter Two

The Psychosocial Costs of Income Inequality

In this chapter, I discuss the impact of income inequality on psychosocial well-being. A considerable amount of research has pointed out that income inequality is related to a host of psychological and social problems that negatively affect well-being. It has been continuously observed that poor national health status is more common in economically unequal countries. Wilkinson and Pickett (2010) examined the prevalence of illness and social problems among the developed countries as well as among the US states. They found that countries with high levels of income inequality struggle with higher rates of social problems and suffer from worse national health status. The same pattern was observed among the US states. States with higher rates of income inequality struggle with higher prevalence of health and social problems. In general, ill-health and social problems are significantly less frequent in economically equal countries and states (Wilkinson & Pickett, 2010). In this chapter, I demonstrate that income inequality is associated with increased prevalence of mental illness, obesity, mortality, teenage pregnancy, and violence.

The problems such as obesity, teenage pregnancy, premature mortality, and mental illness have traditionally been subjects of interest to psychologists. Psychology has established an extensive literature investigating these topics and developed a wide variety of interventions or treatments to reduce the prevalence of these problems. In designing interventions, psychologists have looked at a wide array of intrapersonal factors such as cognition, emotions, and perception; as well as interpersonal factors such as social support, social relations, and issues related to family or work (Passer, Smith, Atkinson,

Mitchell, & Muir, 2011; Taylor & Sirois, 2009). However, psychologists have hardly mentioned broader structural factors, such as income inequality, in their theoretical frameworks or practice. Income inequality has a significant impact on the psychosocial problems that psychologists aim to resolve. In this chapter, I argue that it is important that psychologists consider the issue of income inequality, since this issue has such a significant impact on the psychosocial problems primary to psychologists' focus.

The Impact of Income Inequality on Mental Illness

There is a considerable body of research in psychology showing that disadvantaged economic backgrounds, low-income, and low-SES are associated with greater risk for mental disorders. Low socioeconomic status is related to higher prevalence of mental disorders among children (Lott, 2003). Low income, poverty, and low SES are found to be the most consistent determinants of depression among women and children (Belle, 1982, 1990, 2006a; Belle & Doucet, 2003). In spite of the fact that the impact of low income on mental health is well acknowledged in psychological research, the impact of income inequality is known to a much lesser extent. Studies from the fields of social epidemiology, sociology, and health policy, have shown that income inequality is associated with a host of mental health problems. In this section, I discuss the empirical evidence for the association between income inequality being and mental illness.

Wilkinson and Pickett (2010) conducted a study where they provided empirical evidence for income inequality being related to mental illness on an international level. In 1998, World Health Organization (WHO) conducted the World Mental Health (WMH) Survey Consortium in an attempt to estimate the numbers of people with mental illness in

different countries. The WMH survey provides data for nine countries of Belgium, France, Germany, Italy, Japan, Netherlands, New Zealand, Spain, and the USA. The mental health estimates for the three countries of Australia, Canada, and the UK came from another very similar national survey (Wilkinson & Pickett, 2010). The WMH survey is based on a fully structured lay administered psychiatric interview, which asks the same questions in different countries (Pickett & Wilkinson, 2006). Although this method does not entirely overcome cultural differences, it provides relatively compatible data among the countries (Wilkinson & Pickett, 2010).

Based on the result of the survey, it was found that a much higher percentage of population experiences mental illness in more economically unequal countries (Pickett, James, & Wilkinson, 2006; Pickett & Wilkinson, 2010; Wilkinson & Pickett, 2007;Wilkinson & Pickett, 2010). In countries with low levels of income inequality (such as Germany, Italy, and Japan) fewer than 1 in 10 people experienced mental illness within the year prior to the study, whereas in countries with high rates of income inequality this rate was twice as high. In countries such as Australia, Canada, and New Zealand, more than 1 in 5 people experienced mental illness in a year prior to the study. Moreover, the onset of mental illness is even higher for the USA, which ranks among the highest on the scale of income inequality. In the USA more than 1 in 4 individuals experienced mental illness in the year prior to the study (Wilkinson & Pickett, 2010).

Wilkinson and Pickett (2010) reported anxiety disorders to be the largest subtype of mental disorders associated with income inequality followed by illegal drug and alcohol addictions (Wilkinson & Pickett, 2010). Impulse control disorders and severe mental illnesses were strongly correlated with income inequality, while mood disorders were

weakly correlated with income inequality (Pickett & Wilkinson, 2010; Wilkinson & Pickett, 2007, 2010). In terms of drug use, Wilkinson and Pickett (2010) reported a higher prevalence among the unequal countries. According to the World Drug Report by the United Nations Office on Drugs and Crime (2007), drug addiction to substances such as heroin, cocaine, ecstasy, and amphetamines are more common in unequal countries. The rate of illegal drug use is much lower among countries with low levels of income inequality such as Japan, Finland and Sweden. USA, with the highest level of income inequality, has a high rate of drug use and addiction. The rates for addiction, illegal drug use, and deaths from drug overdose is higher in more unequal US states (Wilkinson & Pickett, 2010, p. 70).

To confirm the relationship between income inequality and mental illness within-country level analysis, Wilkinson and Pickett (2010), conducted another similar study to investigate the impact of inequality on mental illness within the 50 US states. A strong significant relationship was found between income inequality and the prevalence of mental illness in women. Among children a moderate relationship was found between income inequality and the prevalence of mental illness. However, no significant relationship was found between income inequality and the prevalence of mental illness for men. Pickett and Wilkinson (2010), argued that the lack of association between income inequality and mental illness for men may be due to gender differences in willingness to report mental illness since the data were collected based on self report and not a diagnostic interview. Studies based on a diagnostic interview have shown that state level income inequality (Fiscella & Franks, 2000) and country level income inequality(Kahn, Wise, Kennedy, & Kawachi, 2000) are associated with significant

increased risk of depressive symptoms in men, women, and children.

Other studies, besides Wilkinson and Pickett, have found income inequality being related to higher prevalence of mental disorders. A study by Fiscella and Franks (2000), reported that income inequality has a statistically significant association with increased levels of depressive symptoms. One standard deviation increase in income inequality was associated with 0.21% increase in depression on a 25-point scale. In general, higher levels of income inequality were found to be associated with poorer self-rated health. Similarly, Shi, Starfield, Pulitzer, and Regan (2002) investigated the relationship between income inequality and depression. The depressive symptoms were measured against four income inequality strata: worse income distribution (Gini > 0.4590), next worse income distribution (Gini 0.4314-0.4590), next best income distribution (Gini 0.4038-0.4313), and best income distribution (Gini < 0.438). According to Shi et al. (2002), as income inequality worsened, fewer people reported good health in most of the income strata. Income inequality was significantly associated with depression. Individuals living in states with the best income distribution (Gini <0.4038) and the next best income distribution (Gini 0.4314-0.4590) were significantly less likely to feel depressed compared to those living in areas with worst income distribution (Gini > 0.4590).

Another study by Henderson, Liu, Diez Roux, Link, and Hasin (2004) investigated the effects of within-state income inequality on depression and alcohol dependency. Henderson et al. (2004) found that income inequality was associated with the prevalence of depressive symptoms as well as alcohol dependence symptoms. Moreover, higher levels of income inequality were observed to be associated with lower levels of mental health in women and children. A study by Kahn, Wise, Kennedy, and Kawachi (2000),

reported that high state income inequality was associated with a 60% greater risk of depressive symptoms in women and children. The adverse impact of income inequality was more pronounced for low-income women. Low-income women had an 80% greater risk of developing depression. Kahn et al. (2000) argued that the findings revealed the dual effect of high inequality and low household income on the mental health of women and children.

Some of the studies that investigated the relation between income inequality and mental illness ceased to find a significant relation between the two variables after taking into account the socio-demographic factors such as gender, race, age, and education (Shi et al., 2002; Pinto-Meza, Moneta, Alonso, Angermeyer, Bruffaerts, de Almeida, de Girolamo, de Graaf, Masfety, O' Neill, Vassiley, & Haro, 2013; Henderson et al., 2004). The sociodemographic covariates that were significantly associated with mental illness were females (relative to males), those with lower education (relative to those with higher education), smokers, unemployed (relative to those employed), lower income (those with lower family income were more likely to report depression than those with higher family income) (Shi et al., 2002). According to Pinto-Meza et al. (2013), the relation between income and mental illness is complex. Any income measure indirectly includes other measures, since income level depends on gender, age, education, and employment. Therefore, it is important to consider the possibility that sometimes the adverse effects of income inequality on mental illness may become magnified through the socio-demographic factors.

It is important to note that high levels of income inequality do not only affect the groups at the bottom of income hierarchy. The affluent also suffers from higher

prevalence of mental illness in unequal economies. Studies have shown that high-income groups in high inequality areas experience higher levels of mental illness comparing to their counterparts in egalitarian areas. Weich, Lewis, and Jenkins (2001) found that the prevalence of common mental disorders is significantly higher among high-income groups living in high-income inequality areas, comparing to high-income groups living in economically egalitarian areas. In addition, Shi, Starfield, Pulitzer, and Regan (2002), found that high SES groups experience worse mental health even with having the benefit of good primary health care comparing to their counterparts in egalitarian areas. Shi et al. (2002) argued that individuals with good primary health care have higher affordability to treat mental illness, but because they experience higher prevalence of mental illness they have worse overall mental health comparing to high SES groups with good primary health care in egalitarian areas.

The studies discussed above show a significant association between income inequality and prevalence of mental illness. Individuals living in high inequality areas suffer from a greater prevalence of mental disorders including anxiety disorders, depression, addiction, impulse control disorders and severe episodes of mental illness. It was also shown that overall health status is much worse in high inequality areas. Although the adverse effects of income inequality on mental health was more pronounced for groups at the lower end of the income hierarchy, the evidence showed that groups at the middle and upper end of the hierarchy are not immune to the damaging effects of inequality. Income inequality negatively impacts mental health in all levels of the income spectrum.

In understanding mental health disorders, psychologists have looked at a wide

range of factors including biological factors (i.e., genetic vulnerability, heredity, and neurochemical predisposition), psychological factors (i.e., cognitive possessing, personality, emotions, and learning) and environmental factors (i.e. negative life events, early childhood experiences, and socio-cultural stressors) (Passer et al., 2011). In general, mainstream psychology gives a heavier weight on intra-psychic factors when dealing with issues of mental illness and puts lesser emphasis on broader social factors such as income inequality. It is not typical for psychological interventions to consider reducing the income gaps as a strategy to improving the mental health status of a population. However, as discussed in this section, income inequality has profound impacts on mental health problems. Given the impact of inequality on mental illness, I argue that it is important for psychologists to take into account the issue of unequal income distribution, in reducing the prevalence of mental illness within a population.

The Impact of Income Inequality on Obesity Rates

Obesity is an important health-compromising factor that is of special interest to psychologists. Obesity has increased rapidly throughout the developed world in the past few decades. According to the Canadian Community Health Survey (2004), 23% of Canadians are obese and 59% are either overweight or obese. Statistics Canada reported a 500% increase in childhood obesity between 1980 and 2004 (Passer et al., 2011). Similar trends are observed in the USA and the UK. In fact, the USA has the highest rate of obesity among the developed countries (Wilkinson & Pickett, 2010). More than three-quarters of the American population is overweight and close to a third are obese (Wilkinson & Pickett, 2010). In the UK more than two-thirds of the population is overweight and more than a fifth are obese (World Health Organization, 2002). Research

evidence shows that obesity rates are strongly associated with income inequality. The rate of obesity is higher in economically unequal states and countries. On the other hand, obesity rates are much lower in economically egalitarian societies. Many studies have provided empirical evidence for the graded relationship between income inequality and obesity rates. In this section the empirical evidence for the relation between obesity and income inequality is discussed.

Using the obesity data from the International Obesity Task Force, Wilkinson and Pickett (2010) have shown that the rate of obesity is higher in economically unequal countries and lower in egalitarian countries. The USA, with the highest levels of income inequality, has the highest rate of obesity among the developed countries. The level of adult obesity in the USA is more than twelve times higher than Japan. In the USA just over 30% of adults are obese whereas in Japan this rate is only 2.4% (Wilkinson & Pickett, 2010).

Wilkinson and Pickett (2010) reported the same relationship between income inequality and obesity for children. More children are overweight in more unequal countries. The USA has the highest child obesity rate among the developed countries. In the USA 25.1% of children between the ages of 13-15 are obese whereas in the Netherlands this rate is only 7.6%. From the economic point of view, the Netherlands is a much more equal country comparing to the USA (Wilkinson & Pickett, 2010). Wilkinson and Pickett (2010) also reported more children and adults to be obese in more economically unequal US states. For example when comparing Colorado to Texas, Colorado with lower rates of income inequality has also lower rates of obesity. The obesity rate in Colorado is 21.5% whereas in Texas is 34%. Within the USA there are no

states with levels of adult obesity lower than 20% (Wilkinson & Pickett, 2010).

Pickett, Kelly, Brunner, Lobstein, and Wilkinson (2005) examined whether or not obesity rate, deaths from diabetes, and daily calorie intake is associated with income inequality. They conducted an ecological study of 21 countries rated among the top 50 with the highest gross national income per capita by purchasing power parity in 2002. The rate of income inequality for these countries was measured based on the ratio of the share of the top richest 20% of the population to the poorest 20% of the population in the 1990s. Adjusting for gross national per capita income, Pickett et al. (2005) found income inequality to be positively associated with the percentage of obese men and women, diabetes mortality rates, and average calorie intake per capita per day.

In interpreting why income inequality is associated with higher levels of obesity, Pickett et al. (2005) emphasized the role of psychosocial factors, more specifically social status, in bringing about these outcomes. It was argued that with increasing levels of income inequality the extent of anxiety about one's social status is magnified. The behavior change needed to reduce obesity rates is easier in people with good psychosocial conditions. As Pickett et al. (2005) argued, high levels of income inequality leads to higher levels of stress which in turn results in poor adherence to health promoting habits necessary for reducing obesity.

A study by Su, Esqueda, Li, and Pagán (2012), assessed the relationship between income inequality and the prevalence of obesity among 31 OECD countries. The USA and Mexico were found to be the leading OECD countries with the highest rates of income inequality and the highest obesity prevalence. When the two countries were included in the analysis, the results revealed a positive correlation between income

inequality and the prevalence of obesity. The higher levels of income inequality in the 2005 to 2010 period were associated with a more rapid increase in obesity from 2002 to 2010. Su et al. (2012) reported that income inequality is associated with 16% and 35% of variation in male's and female's prevalence of obesity, respectively. Based on the results of the study, the relation between income inequality and obesity rate for females is much more pronounced comparing to males. When Mexico and USA were excluded from the analysis, a weak but still significant relation between income inequality and obesity was found in the rest of OECD countries. According to Su et al. (2012), absolute income was not salient in explaining obesity prevalence and, therefore, it was concluded that income inequality is a more powerful predictor of obesity prevalence.

Nikolaou and Nikolaou (2008) looked at the relationship between income inequality and obesity for the European Union. They examined ten European countries in four consecutive years from 1998 to 2001. It was found that Body Mass Index (BMI) greater than 30 was more prevalent among the low SES groups. The impact of income inequality was found to be substantially damaging for middle-aged women from economically disadvantaged backgrounds. This association is also confirmed by Kim, Kawachi, Hoorn, and Ezzati (2008), who found a positive correlation between country level income inequality, BMI and obesity. Kim et al. (2008) stated that the harmful effect of income inequality on cardiovascular morbidity is mediated through higher rates of obesity and BMI.

Ploubidis, Dale, and Grundy (2012) examined the relationship between income inequality and health, including obesity, among 14 European countries selected from northern, western, eastern and Mediterranean regions. Income inequality was measured

by gross domestic product per capita. It was found that at the country level, higher levels of income inequality were associated with worse health and higher rates of obesity. Countries with lower levels of income inequality had lower rates of obesity and consequently better overall health. According to Ploubidis et al. (2012), the best national health was observed in social democratic countries. This effect was largely a consequence of more equal distribution of income among the social democratic countries. Ploubidis et al. (2012) reported that obesity was a mediator of the association between government type and national health.

Moreover, a study by Kim, Subramanian, Gortmaker, and Kawachi (2006) found that state level and country level social capital is associated with income inequality. Kim and Subramanian et al. (2006) analyzed 67,000 adults within 48 US states and found that residents of the states with social capital either above the median state capital, country capital or both, have lower relative odds of obesity and physical inactivity. It was observed that the states with lower levels of social capital have relatively higher levels of obesity and physical inactivity. It was argued that raising the level of social capital could be an effective strategy in addressing the obesity epidemic.

Finally a study by Singh, Kogan, and van Dyck (2008) confirmed the relationship between income inequality and obesity among children and adolescents. This study examined 46,707 children and adolescents between the ages of 10 to 17 years, among nine geographic regions within 50 US states and the District of Colombia. The Gini coefficient at region and state level was used as a measure of income inequality. The relation between income inequality and child obesity was assessed before and after adjustment for individual SES and behavioral characteristics. It was found that income

inequality and area poverty accounted for 44% of the state variance in unadjusted obesity prevalence. After adjustment for individual SES and behavioral covariates, area poverty and income inequality accounted for 18% of the variance in state level obesity rate. Singh et al. (2008) concluded a strong significant relationship between income inequality and obesity.

The studies discussed above demonstrate that country level and state level income inequality is significantly associated with obesity among men, women, adolescents, and children. Higher rates of calorie intake, Body Mass Index (BMI), and physical inactivity were observed among the more economically unequal states and countries. The prevalence of obesity was more pronounced among women and low SES groups (Giskes, van Lenthe,Turrel, Kamphuis, Brug, & Mackenbach, 2008; Nikolaou & Nikolaou, 2008). Although the higher level of obesity is observed among the low SES groups, the negative impact of income inequality on obesity is not confined to the economically disadvantaged. According to Wilkinson and Pickett (2010), by the early 1990s obesity was more common among the poor, especially low-income women, comparing to the rich. However, as income inequality increased, the social gradient of obesity has steepened. This means that obesity has become more common in all levels of the income gradient. Obesity is not only the problem of poor societies; rather within the recent years it has become an epidemic among the rich developed countries such as the USA.

Obesity in psychology is understood based on biological, environmental and cultural factors. In terms of biology, psychological studies have shown that obesity has a genetic aspect where the body weights of adoptive children tend to resemble their biological parents as opposed to their adoptive parents (Myers, 2013). In terms of

environmental factors, psychological studies have looked at obesogenic environments which promote high calorie, cheap, fatty foods, physical inactivity, and a heightened amount of psychosocial stress (Marks, Murray, Evans, Willig, Woodall, & Sykes, 2005; Myers, 2013; Passer et al., 2011). In terms of cultural factors, psychologists have looked at the type of foods consumed by different cultures, lifestyles, eating customs and values (Passer et al., 2011). The psychological interventions for obesity range from dieting and increased levels of physical activity to appetite-suppressing drugs and surgery (Taylor & Sirois, 2009). Other approaches implemented by psychologists focus on factors such as motivation for weight loss, cognitive behavioral therapy, keeping a food diary, and seeking social support (Taylor & Sirois, 2009).

The mainstream psychological interventions discussed above are examples of small-scale interventions at the individual and interpersonal levels. These types of interventions have proven to have small effects in reducing obesity rates (Marks et al., 2005). For example, Campbell, Waters, O'Meara, Kelly, and Summerbell (2002) systematically reviewed interventions for preventing obesity in children. The aim of this study was to assess the effectiveness of psychological counseling interventions that focused on diet, physical activity, life style and social support. Campbell et al. (2002) reported minimal effect of behavioral interventions in reducing child obesity. They argued that behavioral interventions focused on changing dietary and/or physical activity represent only some of the factors that are important in tackling childhood obesity. Prevention programs should consider addressing broader structural factors such as obesogenic environments and governmental policies.

The poor results obtained from the small-scale individual level interventions

suggest the need for larger scale interventions that look beyond the individual level of analysis (Marks et al., 2005). Critical health psychologists have proposed intervention at the legislation level to control promotion of unhealthy foods and implementation of public health education to better inform the consumers (Marks et al., 2005). As demonstrated in this chapter income inequality is an issue related to the broader social sphere that has significant impacts on obesity rates. Since income inequality has such a powerful impact on obesity rates, tackling the issue of economic inequality can be an effective way for psychologists to reduce the levels of obesity.

The Impact of Income Inequality on Life Expectancy

Life expectancy is one of the most important measures of well-being and is one of the central topics of psychological research. Psychologists concerned with health promotion aim at improving and maintaining healthy development throughout life span. They also aim at preventing rates of premature mortality. Life expectancy in psychology is understood based on a variety of factors. Some of these involve biological factors (heredity and genes), lifestyles (health behaviors and habits) and environmental factors (toxins, diseases, and traumatic life events) (Cavanaugh & Blanchard-Fields, 2006). Although the impact of social class on life expectancy is acknowledged in psychology (Cavanaugh & Blanchard-Fields, 2006), the differences in longevity are commonly accounted for based on cultural/behavioral explanations. These types of explanations focus on an individual as the unit of analysis and emphasize the importance of behavioral and life style factors in creating differences in longevity among people (Whitehead, 1990; Rapheal, 2006; Marks et al., 2005). The impacts of socio-political and economic environments fall outside of the focus of cultural/behavioral explanations (Whitehead,

1990; Rapheal, 2006). The differences in life expectancy are strongly impacted by socio-economic factors. Life expectancy in particular is strongly influenced by income inequality. In this section, I discuss the evidence for the relation between life expectancy and income inequality.

There is an important historical discontinuity in the relation between life expectancy and income. In the poorer developing countries life expectancy increases rapidly during the early stages of economic development (Wilkinson, 1992a, 1994b, 1996;Wilkinson & Pickett, 2010). This relation stands until the countries reach the Gross National Product per capita of 4000 to 5000 US dollars (Wilkinson, 1992a, 1992b, 1994b, 1996;Wilkinson & Pickett, 2010). After this point, the increase in GNP pc has much less impact on life expectancy. The relation between life expectancy and national income weakens as developed countries get richer and eventually disappears (Wilkinson, 1992a, 1992b, 1994b, 1996b & Pickett, 2010). This shows that beyond the point of the epidemiological transition, absolute income levels are not systematically related to life expectancy (Wilkinson, 1992a, 1992b, 1994b, 1996). Some countries are twice or three times as rich as other countries but do not benefit from higher levels of longevity (Wilkinson & Pickett, 2010). For example, the USA is more than twice as rich as Greece and New Zealand, but has lower rates of life expectancy compared to the two countries (Wilkinson & Pickett, 2010, p. 6).

Since increase in absolute income levels does not buy more life years in the rich developed countries, the variation in life expectancy is more powerfully accounted for by inequalities in the distribution of income (Wilkinson, 1992a, 1994b, 1996). Income inequality accounts for 2/3 of the variation in life expectancy among the developed

countries (Wilkinson, 1992a). Life expectancy is higher among the economically egalitarian countries (Wilkinson, 1992a, 1996, 1994b;Wilkinson & Pickett, 2010). In general the highest average life expectancy is seen not in the richest countries but in countries with smallest income gaps and minimum relative deprivation (Wilkinson, 1992a, 1994b).

In addition, it has been shown that life expectancy is unrelated to spending on health care in rich countries (Wilkinson & Pickett, 2010). Based on the data provided by Wilkinson and Pickett (2010), USA spends approximately $6000 per person and has much lower life expectancy rates than Japan, Sweden, Australia, Canada, France, Belgium, Germany, UK, and Netherlands. Japan with the highest rate of life expectancy (81 years) among the developed countries spends approximately $2000 per person. The health spending of countries such as Germany, France, Canada, and Belgium is around the $3000 mark. A large number of studies have demonstrated the relation between income inequality and life expectancy internationally between countries, within each country, and within smaller more specific areas such as states, cities and neighborhoods. The following sections discussed the empirical evidence for the relation between life expectancy and income inequality on different levels of analysis.

The international level: Between country analysis.

On an international level Rodgers (1979) used data from 56 developed and less developed countries, and found a strong relation between income distribution and life expectancy at birth and at age five. The result of life expectancy at birth demonstrated that the difference in average life years between relatively egalitarian and inegalitarian countries is as much as 5 to 10 years. McIsaac and Wilkinson (1997) examined the

relation between income inequality and life expectancy for 13 OECD countries. It was found that a more egalitarian distribution of income is related to lower all cause mortality rates in men and women. Income inequality is associated with premature mortality from road accidents, chronic liver disease, cirrhosis, infections, and ischaemic heart disease among women.

Wilkinson and Pickett (2010) examined life expectancy among 23 developed countries. It was found that countries with higher rates of income inequality have significantly lower rates of life expectancy and higher mortality rates. Wilkinson and Pickett (2010) reported deaths from heart disease and homicides among the common causes of mortality. Singapore, USA, and Portugal respectively had highest rates of income inequality and lowest life expectancy rates. Japan, Sweden, and Finland with lowest rates of income inequality had highest life expectancy rates respectively (Wilkinson & Pickett, 2010).

With regards to infant mortality, Waldmann (1992) examined the relation between income inequality and life expectancy for 70 developed and less developed countries. A positive association between income inequality and infant mortality was found among the countries. According to Waldmann (1992), infant mortality appeared to be positively related to the income share of the top 5% when incomes of the bottom 20% are equalized among the countries. Basically, if two countries are compared to each other and the poor population earns equal real income in both countries; the country within which the rich are wealthier would have a higher infant mortality rate. Waldmann (1992) argued that infant mortality is a function of the real resources available to non-rich and the share of real national income accruing to the rich. The higher the income of the rich, the higher is

the rate of infant mortality[2] in that country (Waldmann, 1992).

Wilkinson and Pickett (2010) also reported higher rates of infant mortality in more economically unequal countries. The USA turned out to have the highest rates of infant mortality (7 infant deaths per 1000 live births) along with high rates of income inequality. Next to the USA, Portugal and New Zealand have the highest rates of infant mortality (6 deaths per 1000 live births) and income inequality. On the other hand, Japan and Sweden have lowest rates of infant mortality (approximately 3 deaths per 1000 live births) as well as the lowest income inequality levels.

The relationship between income inequality and mortality holds even after income distribution and mortality rates change overtime (Wilkinson, 1992a). The most striking illustration of this relationship is the contrast between the Britain and Japan. In 1970s both countries had similar life expectancy and income inequality rates. Both countries ranked similar based on the OECD standards (Wilkinson, 1992a). Since then, Japan's income distribution has narrowed and based on the United Nations Human Development report it became the most economically equal country among the developed countries (Human Development Report, 1991). During the same period Japan's life expectancy improved at an unprecedented rate and is now the highest on record. In contrast, income inequality in Britain has widened in the late 1980s and its life expectancy between the ages 15 to 44 decreased significantly (Wilkinson, 1992a). This shows that the changes in life expectancy over time are responsive to the changes in the level of income inequality.

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[2] According to Wilkinson (1996), the relation between infant mortality and income inequality is of high importance. This is because the improvement in life expectancy as a result of narrower income gaps is not related to old people living longer. Rather, the improvement in life expectancy is related to the reduction of death rates at earlier stages of life. The increase in life expectancy is largely related to decline in infant mortality, followed by reductions in childhood mortality and smaller declines in mortality rate of older adults (Wilkinson, 1996).

The state level: Within country analysis.

According to Wilkinson and Pickett (2010), a higher level of state income inequality is related to lower life expectancy rates. Massachusetts, Louisiana, and Alabama have highest levels of income inequality and lowest levels of life expectancy (approximately 74 years). Utah, New Hampshire, and Wisconsin with lowest rates of income inequality have high life expectancy rates. Infant mortality is also found to be higher in economically unequal states (Wilkinson and Pickett, 2010). Louisiana and Massachusetts with high levels of income inequality exhibit high rates of infant mortality. Alaska, Utah, and New Hampshire with low rates of income inequality also exhibit low rates of infant mortality.

Kennedy, Kawachi, and Prothrow-Stith (1997) investigated the relation between income inequality with all cause and cause specific mortality among US households. Income inequality was assessed by both measures of the Robin Hood index and the Gini Coefficient based on the data from the 1990 US census population and housing summary. There was a strong correlation between income inequality measured by the Robin Hood index and age adjusted mortality. A higher level of inequality was significantly associated with mortality from Coronary Heart Disease (CHD), infant mortality, malignant neoplasms, and homicides in 'White' and 'Black' groups. In general variations between states in income inequality were associated with increased levels of mortality.

Kaplan, Pamuk, Lynch, Cohen, and Balfour (1996) examined the relation between health outcomes and income distribution across 50 US states in 1980 and 1990. Income inequality was measured by the percentage of total household income received by the less well off 50% of households. It was found that income inequality was significantly

associated with age adjusted mortality and death from homicides. Kaplan et al. (1996) also reported income inequality to be associated with low birth weight in infants, smoking, lower expenditure on medical care, and lack of insurance. In general, variations in the relative inequality in income distribution were significantly associated with increased mortality over life span. The lower the percentage of income received by the less well off 50%, the higher is the mortality rates.

The area level: Cities, metropolitan areas & neighborhoods.

Studies have shown that income inequalities in specific geographic or metropolitan areas are associated with mortality rates. The higher level of area inequality leads to increased levels of mortality (Ben-Shlomo, White, & Marmot, 1996; Lynch, Kaplan, Pamuk, Cohen, Heck, Balfour & Yen, 1998; Sanmartin, Ross, Tremblay, Wolfson, Dunn, & Lynch, 2003; Ross, Woflson, Dunn, Brethelot, Kaplan, & Lynch, 2000). The studies found support for the relative inequality in income being the determinant for increased rates of mortality as opposed to absolute income levels. For instance, Lynch et al. (1998) observed that high mortality rates were not related to low average income levels or higher proportions of low-income households within an area. High rates of mortality were also found in economically well off areas. In fact it was observed that poor areas with low levels of inequality had lower mortality rates comparing to economically unequal areas with high average income rates (Lynch, et al., 1998). The age adjusted total mortality in one of the poorest but economically equal US metropolitan areas was 812.4 per 100,000. However, this rate for one of the richest but economically unequal areas was 895.5 per 100,000 (Lynch, et al., 1998). The magnitude of this mortality difference was comparable to the combined loss of life from lung cancer, diabetes, motor vehicle crashes, human

immunodeficiency virus infection (HIV), suicide, and homicide in year 1995 (Lynch et al., 1998).

Moreover, the comparisons between the American and Canadian metropolitan areas showed that Canadian cities and neighborhood demonstrate lower levels of mortality due to their lower levels of inequality comparing to American cities (Sanmartin et al., 2003; Ross et al., 2000). A study that investigated the relation between labor market income inequality and working-age mortality (25-64) in 53 Canadian and 282 US metropolitan areas found that the higher inequality level in American metropolitan areas was associated with increases in working age mortality of 23 to 33 deaths per 100,000 (Sanmartin et al., 2003). Another study by Ross, Wolfson, Dunn, Brethelot, Kaplan, and Lynch (2000) compared the relation between income inequality and mortality between 10 Canadian provinces, 53 Canadian metropolitan areas, 50 US states, and 282 US metropolitan areas. It was found that the Canadian provinces and metropolitan areas had lower income inequality rates comparing to US, hence lower mortality rates. The effect of income inequality was largest for working age population where a hypothetical increase of 1% in the share of income to the poorer half of households was related to a reduction of mortality by 21 deaths per 100,000. The higher levels of income inequality among Canadian communities were related to alcohol and tobacco related mortalities (Auger, Zang, & Daniel, 2009).

Summary.

The studies above demonstrate that income inequalities on a country, state, city, and neighborhood level are significantly associated with life expectancy and mortality from a variety of causes. Regardless of the index by which income inequality was

measured, income inequality was found to be associated with lower rates of life expectancy and higher levels of mortality. It was observed that income inequality was more commonly related to mortality from heart disease, infant mortality, and homicides. Income inequality was also shown to be associated with mortality from cancer, diabetes, HIV, motor vehicle accidents, and suicide. A more equal distribution of income was shown to be associated with an improved mortality rate (reduction of 21 deaths per 100,000). The association between income inequality and life expectancy shows the great impact that socio-economic conditions have on longevity. Since differences in longevity are strongly related to levels of income inequality, it is important that psychologists take into account the issue of inequality in improving the life expectancy of populations.

The Impact of Income Inequality on Teenage Births

Income inequality affects the rate of teenage births. Although teenage birth is not directly a health problem, it can have significant negative effects on the well-being of young teenage mothers and their babies. Babies born to teenage mothers are more likely to have low birth weights, be born prematurely and be at greater risk of mental illness, educational failure, and juvenile crime (Committee on Adolescence, 1998). Moreover, teenage mothers are more at risk of truncated education, low paid work, poverty, social exclusion and depression (Taylor, 2012; Spencer, 2001).

Teenage births show a graded relationship with household income (Wilkinson & Pickett, 2010). A higher percentage of young women from low-income households become mothers as teenagers. Ermisch and Pevalin (2003) found that the percentage of teenage girls who give birth from low-income households is twice as high as the percentage of teenage girls from average income households and more than four times as

high as girls form high income households. Every year 4.8% of teenagers living in the poorest quartile of households give birth to a child. Whereas, this rate is 2.9%-2.4% for mid-income quartile and 1.2% for high-income quartile (Ermisch & Pevalin, 2003).

Teenage pregnancies and births are higher among the more unequal countries (Wilkinson & Pickett, 2010; Pickett, Mookherjee, & Wilkinson, 2005). Based on the data provided by Pickett, Mookherjee et al. (2005), among the developed countries, the USA ranks surprisingly high on the teenage birth rate, 52.1 per 1000 women aged 15-19 years. The UK scores second on the rate of teenage births approximately 30 per 1000 women aged 15-19 years. On the other hand, Japan scores lowest on the rate of teenage births (4.6 per 1000 women) followed by Sweden, Denmark, Finland, and Belgium. The rate of teenage births in USA is more than four times the European Union (EU) average and more than 10 times higher than that of Japan (Wilkinson & Pickett, 2010).

The US states with higher levels of income inequality also scores higher on teenage births (Wilkinson & Pickett, 2010; Pickett et al., 2005).For instance, when comparing Utah and Mississippi, Mississippi with higher rates of income inequality has twice the rate of teenage pregnancy comparing to Utah (Wilkinson & Pickett, 2010). The rate of teenage births and abortions for Utah is approximately 45 per 1000 women aged 15-19 whereas this rate for Mississippi is approximately 65 per 1000 women. New York, which is the most economically unequal state in USA, ranks high on the rate of teenage births and abortions, 80 per 1000 women aged 15-19 years.

Gold, Kawachi, Kennedy, Lynch, and Connell (2001) examined the relation between income inequality, as well as per capita income with teenage birth rate in US counties. Income inequality was measured by 90:10 ratio; a ratio of the percent of

cumulative income held by the richest 10 % and the poorest 10%. Income inequality and teenage birth measures were based on 1990-1991 period. It was found that both income inequality and per capita income were independently associated with teenage birth rates. The mean birth rate was 54 per 1000 between the ages of 15-17, in counties with high inequality and low income, and 19 per 1000 in counties with low inequality and high income.

Crosby and Holtgrave (2006) investigated the relation between social capital and teenage pregnancy in the USA. They found a strong negative association between social capital and teenage pregnancy rates. As social capital dropped, the rates of teenage pregnancies increased. In 1999, the highest rate of teenage pregnancy, between the ages of 15 to 19, for the states with lowest social capital, was 116 per 1000. The lowest rate was 41 per 1000 for the states with highest levels of social capital. The mean rate was 78 per 1000 for 48 US states. Crosby and Holtgrave (2006) also reported a significant correlation between poverty and income inequality with teenage pregnancy. However, the magnitude of the correlation between income inequality and teenage pregnancy was not as strong as the correlation for social capital.

The empirical evidence discussed above shows that income inequality is significantly related to teenage birth rates and pregnancies. Higher rates of country level and state level inequality are related to higher rates of births among teenage girls. Moreover, the reduction in social capital was also found to be associated with increased rates of teenage pregnancies and births. In addressing the issue of teenage pregnancy, psychological studies have looked at personal characteristics of adolescents, family relations, peer pressure, and a variety of cognitive, behavioral, and emotional factors

(Armistead, Kotchick, & Forehand, 2004).

In terms of cognitive factors, psychologists have studied adolescents' knowledge about sexual risk practices, knowledge about contraception, and decision making (Armistead et al., 2004; Winett, King, & Altman, 1989). In terms of emotional and behavioral aspects, psychologists have looked at perceptions of personal risk, attitudes about sexual activity and using protection, self-efficacy, and psychosocial distress (Armistead et al., 2004; Winett et al., 1989). Moreover, psychological research has focused on factors such as the quality of adolescents' relations to their parents, sexual education, influence of peers, and personality characteristics of adolescence (Armistead et al., 2004; Winett et al., 1989).

The main psychological interventions for prevention of teenage pregnancy are counseling and sex education. These kinds of interventions have been criticized as being of limited effectiveness since they only focus on individual and interpersonal levels of analysis (Winett et al., 1989; Duffy & Wong, 2003). Moreover, the psychological explanations for teenage pregnancy have also been criticized for being victim blaming, individualistic, and based on deficit models (Winett et al., 1989; Duffy & Wong, 2003). For example, in explaining high rates of teenage pregnancies in the past few decades, psychological research has cited factors such as lack of self esteem, low expectancies, a way to fulfilling emotional needs due to poor self concept, and a representation of a syndrome of failure, among the reasons for teenage pregnancy epidemic (Winett, et al., 1989; Duffy & Wong, 2003). A need for looking at broader social and contextual factors in addressing the issue of teenage pregnancy has been described (Duffy & Wong, 2003). Community psychologists have looked at a variety of contextual factors such as poverty,

family life stability, educational and career opportunities in addressing the issue of income inequality (Duffy & Wong, 2003). As discussed in this section, given the strong impact of income inequality on teenage pregnancy rates, it is important that psychological interventions take into account reduction of income gaps when addressing the issue of teenage pregnancy and births.

The impact of Income Inequality on Violence

Violence is the last factor discussed in this chapter, which has important implications for well-being and is strongly associated with income inequality. Countries with higher rates of income inequality experience higher rates of community violence, crimes, and imprisonments (Wilkinson & Pickett, 2010). Hsieh and Pugh (1993) conducted a meta analysis of 34 aggregate data studies. They found that out of 76 correlation coefficients between income inequality and violence, all but 2 were significant (97%). Eighty percent of positive coefficients were of moderate strength. The relationship between economic inequality and violence also holds for unequal states, cities, and neighborhoods. A large body of empirical literature shows that the two forms of violence that strongly associate with inequality are homicides and violent crimes. Assault, robbery and rape are also found to be associated with income inequality but to a weaker extent (Blau & Blau, 1982; Carroll & Jackson, 1983; Jacobs, 1981; Petterson & Bailey, 1988). In the following two sections the empirical evidence for homicide and violent crime is discussed.

Homicide.

A large number of studies have demonstrated a positive significant correlation between income inequality and homicide rates. A higher level of income inequality is

associated with higher rates of homicide. Lower levels of income inequality on the other hand are related to lower levels of homicide rates as observed in egalitarian countries. The relationship between income inequality and homicide holds for the different levels of analysis between countries, nations, provinces, states, cities, communities and neighborhoods.

On an international level, studies have demonstrated a significant positive relationship between country level income inequality and homicide rates. Based on the international data from the United Nations Surveys on Crime Trends and the Operations of Criminal Justice Systems, Wilkinson and Pickett (2010) argued that income inequality is associated with homicide among 23 developed countries. The USA with the highest levels of income inequality has the highest rates of homicide among the developed countries and appears as an outlier on the graph. The murder rate in the USA is 64 per million, more than four times higher than the UK (15 per million) and more than twelve times higher than that of Japan (5.2 per million) (Wilkinson & Pickett, 2010). Other studies besides Wilkinson and Pickett, have found also found a positive significant relationship between income inequality and homicide rates (Avison & Loring, 1986; Groves, McCleary & Newman, 1985; Hansmann & Quigley, 1982; Quimet, 2012; Messner, 1980). It is found that countries with an intense and pervasive history of economic discrimination would exhibit high rates of homicide (Messner, 1989).

In terms of within country level of analysis, many studies have demonstrated a correlation between homicide and income inequality among states, provinces, cities, and neighborhoods. According to Wilkinson and Pickett (2010), more economically unequal states have higher homicide rates. The differences between the homicide rates among

states vary to a great extent. For example, the homicide rate for Louisiana, which is placed on the high end of income inequality scale, is 107 per million. Compared to Iowa and New Hampshire, this rate is seven times higher. The homicide rate in New Hampshire and Iowa, which have much lower rates of income inequality, is 15 per million.

There are some states however that do not follow this pattern. For example, Alaska, given its low rates of income inequality has a fairly high rate of homicide whereas Connecticut, Massachusetts, and New York have much lower homicide rates than expected. According to Wilkinson and Pickett (2010), gun ownership may be a possible factor. Alaska has the highest rate of gun ownership whereas New York, Connecticut, and Massachusetts have the lowest rates. Many other studies have confirmed the relation between state level income inequality and increased rates of homicide in USA (Baron & Straus,1988; Huff-Corzine, Corzine, & Moore, 1986; Kaplan, Pamuk, Lynch, Cohen, and Balfour, 1996; Kennedy, Kawachi, Prowthrow-Stith, Lochner, Gupta, 1998; Loftin & Hill,1974; Wilkinson, Kawachi, & Kennedy, 1998). This relationship has been observed for Canadian provinces as well. The more economically unequal Canadian provinces have higher rates of homicide (Daly, Wilson, & Vasdev, 2001).

Violent Crime.

Violent crime has the second strongest correlation with income inequality. Many studies show that income inequality is significantly associated with violent crimes among states, metropolitan areas, and neighborhoods. Studies by Baron and Straus (1988), Kaplan, Pamuk, Lynch, Cohen, and Balfour (1996), and Kennedy, Kawachi, Prowthrow-

Stith, Lochner, Gupta (1998) found a significant relation between income inequality and increased violent crimes among 50 US states. Blau and Blau (1982) found a significant relation between violent crime and the Gini coefficient measure for the year 1970 among 125 Standard Metropolitan Statistical Areas (SMSAs). Carroll and Jackson (1983) found a significant correlation between the Gini coefficient measure for the year 1970 and violent crime among 93 non-southern US cities. The same pattern has been confirmed for income inequality and violent crimes among Canadian provinces and cities. Hartnagael and Lee (1990) found a significant correlation between the Gini coefficient measure for the period 1971-1976 and violent crime among 88 Canadian cities.

Summary

The empirical evidence discussed above shows that violence is associated with income inequality. The forms of violence that are strongly associated with income inequality are homicides and violent crimes. Income inequality on a country, state, city, and neighborhood level is significantly associated with homicide rates as well as violent crime rates. The more economically unequal countries, states, provinces, cities, metropolitan areas, and neighborhoods endure higher rates violence. Although the prevalence of homicide, violent crimes, rape, robbery, and assault is more pronounced in the materially deprived areas, the rich and the middle class are not immune from the social costs of violence. According to the studies discussed above, it has been shown that in unequal societies homicides, violent crimes, robbery, and assault are higher for the whole population in all income levels comparing to egalitarian societies.

The exposure community violence negatively impacts psychosocial well-being. High rates community violence are related to psychological maladjustment, depression,

aggressive behaviors, and post traumatic stress disorder symptomology (Scarpa, 2003; Overstreet, 2000). Exposure to community violence is also related to decrease in school performance, interpersonal problems, and anti-social behaviors in young adults and children (Overstreet & Braun, 1999; Scarpa, 2003). Since rates of violence are impacted by income inequality to such as large extent, I argue that it is important for psychologists to take into account the issue of income inequality in reducing the rates of crime and improving the psychosocial well-being of communities.

Conclusion

The research studies discussed in this chapter demonstrate that income inequality is associated with a host of psychological and social problems that negatively affects the psychosocial well-being of populations. According to the empirical evidence discussed, income inequality is associated with the prevalence of mental illness, obesity, teenage pregnancy, and violence. The higher levels of income inequality are linked to the higher prevalence of mental health problems, most commonly anxiety disorders, depression, drug and alcohol addictions, and impulse control disorders. The higher level of income inequality is also associated with higher levels of obesity, physical inactivity, and calorie intake in men, women, children, and adolescents. The prevalence of obesity is more pronounced among low SES groups and for women. Income inequality is also related to higher rates of teenage pregnancies and teenage births. Moreover, high inequality is associated with mortality from a wide variety of causes. Deaths from cardiovascular diseases and homicides were among the most popular causes of mortality related to income inequality. Finally, income inequality is strongly related to higher rates of

homicides and violent crimes. In general it was argued that societies with higher levels of income inequality suffer from lower overall national health.

The psychosocial problems discussed in this chapter have traditionally been central to the interest of psychologists. Psychologists have proposed a wide variety of interventions to reduce and/or treat the prevalence of mental disorders, obesity, community violence, teenage pregnancy, and premature mortality. In implementing interventions to deal with these psychosocial problems, psychologists have hardly discussed the issue of income inequality. However, as I discussed in this chapter, income inequality has a powerful impact on the prevalence of psychosocial problems. Given the magnitude of psychosocial costs of income inequality, it is important that psychologists take into account the issue of income inequality in their theoretical and practical frameworks, in order to improve the psychosocial well-being of populations.

Chapter Three

Explaining the Relation between Income Inequality and Psychosocial Well-being

In the previous chapter, I illustrated the psychosocial costs of income inequality on well-being. I suggested that income inequality is related to a host of psychological and social problems that negatively impact well-being. Income inequality was associated with increased prevalence of mental illness, obesity, teenage pregnancy, violent crime, and homicide. Income inequality was also associated with lower life expectancy and lower overall health status. The growing evidence has shown that the inequality in the distribution of income is one important determinant for psychosocial well-being. The repeated corroboration of this hypothesis has lead to the search for possible mechanisms through which income inequality leads to negative outcomes for well-being. In this chapter, I discuss the two theoretical frameworks provided for explaining the relationship between income inequality and well-being: the psychosocial environment explanation and the neo-material explanation.

The psychosocial environment explanation argues that income inequality negatively impacts well-being through cognitive and emotional perceptions of relative inequalities in income hierarchies (Wilkinson, 1996, 2005; Marmot, 2004). According to this theory, certain psychosocial factors serve as pathways for the negative impacts of income inequality. The three major categories of psychosocial pathways that I will discuss are social status, quality of social relationships, and discrimination. On the other hand, the neo-material explanation argues that well-being is negatively affected by income inequality, not because of perceptions of relative inequality, but because of the accumulation of negative exposures due to systematic underinvestment in a wide range of

human, physical, health, and social infrastructures (Macinko, Shi, Starfield, & Wulu, 2003; Lynch, Davey Smith, Kaplan, & House, 2000). According to the neo-material theory, the explanation of the relation between income inequality and health inequalities should begin with the analysis of structural factors responsible for the creation of conditions of material deprivation (Lynch et al., 2000).

In this chapter, I argue that both of the psychosocial and neo-material explanations are important for psychology. The psychosocial explanation provides insights for psychologists about how psychosocial aspects of life are influenced by broader social problems such as income inequality to affect well-being. The neo-material explanations provide insights about the underlying social and political processes responsible for the creation of uneven income distribution. This type of explanation is more applicable for the implementation of structural interventions to reduce health inequalities.

The Psychosocial Environment Explanation

According to the psychosocial environment theory, income inequality negatively affects well-being through the mechanisms of psychosocial pathways. In general the psychosocial pathways refer to the cognitive and emotional processes that impact well-being as a result of the material causes (Wilkinson, 1996, 2005). For example, material causes such as financial insecurity, debt, and housing insecurity, impact health through variety of psycho-social pathways such as feelings of worry, stress, anger, anxiety, and depression, lack of sense of control, and hopelessness (Wilkinson, 1996, 2005). Richard Wilkinson and Michael Marmot are the two major proponents of the psychosocial environment theory. In terms of income inequality, the psychosocial environment theory

argues that income inequality negatively impacts psychosocial well-being through the perceptions of relative inequality (Wilkinson, 1996, 2005; Marmot, 2004).

According to this theory, the absolute income levels are of lesser importance comparing to relative income levels. This is because after reaching the point of epidemiological threshold, well-being is no longer predominantly related to the direct effects of material living standards. In poor developing countries where living standards are too low to satisfy basic necessities for health (such as adequate housing, access to clean water, and nutritious food) gains in economic development lead to direct improvements in well-being (Wilkinson, 1994a; Marmot, 2004). As countries continue to grow economically and pass the point of epidemiological threshold, fewer people go without basic necessities for well-being. As a result the relation between economic development and well-being weakens and eventually disappears (Wilkinson, 1994, 1996; Marmot, 2004).

A paradox reveals itself when well-being appears to be highly sensitive to income levels within each country, while it is not responsive to the large national differences in GDP between countries. Within each country, there is an overwhelming evidence for a graded relationship between income levels and well-being (Marmot, 2004). At every level of income hierarchy, individuals do relatively better in terms of health than the level below them. They also do relatively worse than the level above them. What accounts for this paradox? What matters for well-being within developed countries is not the national economic growth or absolute income. It is the relative income comparing to others (Wilkinson, 1996). Once the essential necessities for health are satisfied it does not matter how much more people have of each item (Marmot, 2004). It is what they have

relative to others that is crucial for well-being (Wilkinson, 2005; Marmot, 2004). According to the psychosocial environment theory, the perceptions of relative inequality lead to poor health outcomes through variety of psychosocial pathways. Social status, friendships, social trust, social cohesion, and discrimination are the major psychosocial pathways through which income inequality damages well-being. In the following sections, I discuss each of these psychosocial pathways.

Social Status

Social status is one of the most important psychosocial pathways through which income inequality affects well-being (Wilkinson, 1996, 2005; Wilkinson & Pickett, 2010; Marmot, 2004). As discussed in the previous section, what matters for well-being is not the national growth or absolute income, but the relative income comparing to others. Relative income is a marker for social status (Marmot, 2004). It represents one's position within the social hierarchy. Social status is a powerful inequality pathway, which carries important physiological, social and psychological implications for the well-being of individuals (Wilkinson, 2005).

The Whitehall study.

An evidence for the negative impact of social status on well-being comes from the famous Whitehall study. The Whitehall study shows how social status negatively impacts well-being through the perceptions of relative inequality in income hierarchy. The Whitehall study examined eighteen thousand civil servants in four employment grades: Professional/executive, administration, clerical, and other (Marmot, Rose, & Shipley, 1984). The health inequalities were analyzed for three age groups of 40-64, 65-69, and 70-89. A steep inverse relation between employment grade and mortality was observed

among the civil servants. It was found that men at the bottom of the office hierarchy (Other and Clerical) had four times the risk of death as the top of the office hierarchy (administrators and executives) (Marmot, Rose, & Shipley, 1984). The civil servants in the lowest employment grade had three times the mortality rate from coronary heart disease compared to the highest grade (Marmot, Rose, & Shipley, 1984). This shows that a sharp social gradient of health was found among the different grades of civil servants.

What is interesting about this study is that the civil service is rather a homogenous population. According to Marmot (2004), the civil service is very similar to a white-collar community. The four job categories examined were all office jobs. There were no manual jobs or exposure to industrial hazards. All the employees had high job security regardless of their grades. There were no very rich employees or very poor ones. There were no unemployed or unemployable civil servants in the community. All of the civil servants also had equal access to medical care. Yet, regardless of the fact that all employees benefit from a minimum material standard a stark health difference was observed among the civil servants. This health difference could not be accounted for by low income, poverty, health habits, or lifestyle factors. The social gradient of health was powerfully accounted for by the relative inequalities in income and position, which is represented by social status. When the effect of absolute material deprivation fades away the effects of psychosocial factors on health become more evident (Wilkinson, 1996). Above the minimum level of resources, it is what a person has relative to others that is crucial for well-being. What a person has relative to others is related to his/her position in social and income hierarchies (Marmot, 2004).

However, this does not mean that social status, not income inequality, is responsible for health inequalities. Income inequality leads to the escalation of status differentials within a society (Wilkinson, 1996; 2005). According to Wilkinson and Pickett (2010), as the level of income inequality increases, individuals become more anxious about their social status. Social status negatively impacts well-being by creating negative emotions of stress, shame, and anxiety through individuals' perception of relative inequality income hierarchies (Wilkinson, 1996; 2005; Marmot, 2004). Therefore, social status works as a psychosocial pathway for income inequality to negatively impact psychosocial well-being.

Based on the psychosocial environment theory, the perceptions of relative inequality in status differentials due to income inequality lead to negative emotions that translate into poor health via psycho-neuro-endocrine mechanisms (Wilkinson, 1996). The evidence for a causal relation between social status and poor health due to perceptions of relative inequality comes from experimentally manipulated animal studies (see Shively & Clarkson, 1994)[3]. The animal studies have shown a causal relation between social status and poor health through the activation of psycho-neuro-endocrine mechanisms. The civil servants in the Whitehall study demonstrated very similar psycho-

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[3] Shively and Clarkson (1994) demonstrated a causal relation between social status and poor physiological outcomes in monkeys. To make sure that the outcome of this study is due to differences in status hierarchies, the absolute material conditions were kept constant among monkeys of different status. All monkeys lived in the identical compounds and were fed the same diet regardless of status. Social status was measured based on agonistic or competitive behaviors to dominate other members. Shively and Clarkson (1994) experimentally manipulated social status by removing high status monkeys from their groups and putting them together so some had to become subordinate. Low status animals were also removed and put together so some had to become dominant. Shively and Clarkson (1994) found a number of physiological effects of low social status among monkey that was also found among humans. These include a rapid buildup of arteriosclerosis, a poor ratio of high to low density blood fats, and a tendency for central obesity and insulin resistance. Since in these experimental conditions material differences were the same, the changes observed in the health status of monkey can only be attributed to the differences in social status.

neuro-endocrine mechanisms comparing to what was observed in animal studies. A social gradient was found in levels of low-density lipoproteins and high-density lipoproteins among civil servants (Brunner, 1996). The low-density lipoproteins increase the likelihood of clogged blood vessels and heart disease; and the high density lipoproteins help clear cholesterol. The poor ratio observed among the low status civil servants increase the chance of cardiovascular disease (Brunner, 1996).

The social gradient in fibrinogen accounted for 1/3 of the increased heart disease among low ranking civil servants (Brunner, 1996). The biological responses observed in the Whitehall study point to the role of social stress due to being in a subordinate social position. The low status civil servants exhibited the same physiological responses to chronic stress as low status baboons in Sapolsky's (1993) study[4]. The chronic stress of having a subordinate social status affects the hypothalamic pituitary adrenal system, which results in elevated levels of corticosteroids, central obesity, insulin resistance, poor lipid profile and an increased tendency for blood clot (Brunner, 1996).

In terms of health behaviors, habits such as smoking, diet, and exercise were observed to be more prevalent among the low status civil servants, but health habits only accounted for 1/3 of the social health gradient observed in the study (Marmot, Shipley, & Rose, 1984; Marmot, 2004; Wilkinson, 2005). According to Marmot (2004), the graded relation between health and relative inequality is not caused by life style choices and health habits. This is because of the fact that even if we control for unhealthy habits the

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[4] In an experimental study, Sapolsky (1993) observed increased risk of cardiovascular disease in low status animals. Low status animals were observed to have elevated blood pressures. It was found that after exposure to a stressful event the elevated blood pressure in low status animals took a longer time to drop compared to high status animals. Even after the blood pressure declined it did not reach to low levels found among high-status animals. Therefore, low status baboons face a significantly higher risk of heart disease.

social gradient of health still remains intact. For example, if smoking is excluded from the analysis, a steep gradient in mortality from CHD is observed among non-smoker civil servants (Marmot, Shipley, & Rose, 1984). If we only look at smoker members, the same health gradient is found. Moreover, it was observed that a steep gradient in mortality from lung cancer was found not only among smokers but also among non-smoker participants (Marmot, Shipley, & Rose, 1984).

According to Marmot (2004), it is not the case that if people stopped smoking and substituted vegetables for their fries and hamburgers everybody will be healthy and the social gradient of health will disappear. Marmot (2004) states "Indeed, some people think that is all there is to it. Rid the world of smoking and concerns about people's place in the social hierarchy would have little to do with health" (p. 44). If the mortality rates of low status groups are completely excluded from the health gradient since they are more vulnerable to risk factors such as smoking, blood pressure, cholesterol, and blood sugar, we are still going to find a graded relation between health and relative inequality within the rest of the population (Marmot, 2004). The adjustment for the diseases of the poor and low status groups accounts for less than 1/3 of the health gradient in mortality (Marmot, 2004).

The psychological effects of social status on well-being.

Aside from the empirical evidence for the impact of social status, the theoretical discussions identify social status as a powerful source of stress in modern developed societies with important implications for psychological well-being (Wilkinson & Pickett, 2010; Wilkinson, 2005). The psychological impact of social status is through feelings related to self-esteem, social insecurity, anxiety from social evaluative threats, feelings of

shame, humiliation, and hostility (Wilkinson & Pickett, 2010; Wilkinson, 1996,2005;Kawachi & Kennedy, 2002). This is because social status has an important impact on our lives and in shaping our social experiences. Our position in the social hierarchy determines the type and number of social resources we have access to. It also determines how many choices are available to us as we go about living our lives. According to Wilkinson and Pickett (2010), social status is an outward sign of success or failure. It is closely related to defining individuals' worth and value. The higher the status within the social hierarchy the more superior, successful, and able the person is viewed in the social eye. The higher the social status the easier it is to feel a sense of pride, dignity, and self-confidence (Wilkinson & Pickett, 2010). In contrast, having low social status is synonymous with feelings of inferiority, negative self-image, and low self-confidence (Wilkinson & Pickett, 2010).

According to Wilkinson (2005), greater income inequality leads to greater social distancing and the creation of hierarchies of domination and subordination. In this condition, social position gains particularly unique social importance due to inequality. Individuals strive to move up the social ladder by competing over scarce power and financial resources (Wilkinson, 2005; Wilkinson & Pickett, 2010). In such societies, social relationships become characterized based on competition rather than cooperation (Kawachi & Kennedy, 2002; Wilkinson, 2005). As a result, individuals are more insecure about their social image and more sensitive to their socio-economic position (Kawachi & Kennedy, 2002; Wilkinson, 2005). They are more vulnerable to anxieties from negative social evaluations, social exclusion, and threats to self esteem; and are more at risk of feelings of inferiority, negative self affect, depression, and learned helplessness (Kawachi

& Kennedy, 2002; Wilkinson, 2005; Wilkinson & Pickett, 2010).

Summary.

As discussed above, social status is one of the pathways through which income inequality negatively impacts psychosocial well-being. The individuals' perceptions of relative inequality in status differentials lead to creation of negative cognitive and emotional processes which have negative psychological and biological consequences. From the psychological point of view inequalities in social status impact psychosocial well-being through feelings of inferiority, low self esteem, feelings of self depreciation, anxiety from social evaluative threats, and depression. These feelings negatively impact biological health via activation of psycho-neuro-endocrine mechanisms. This increases the risk of cardiovascular diseases and the risk of poor immune function among individuals with a relatively lower social status. As it was shown in the Whitehall study, factors such as health habits and life style do not account for these outcomes. Moreover, absolute material standards do not account for the health inequalities either. The social health gradient observed in the measures discussed above was most powerfully explained by the gaps in social status produced by perceptions of relative inequality.

The Quality of Social Relationships

The second category of psychosocial pathways through which income inequality negatively impacts psychosocial well-being is the quality of social relationships. The three major components of social relationships affected by income inequality are friendships, social trust, and social cohesion. Inequality is a powerful social divider that negatively impacts social relations (Wilkinson, 1996; Wilkinson & Pickett, 2010). The quality of relationships decays as societies become more unequal (Wilkinson, 2005,

1996; Wilkinson & Pickett, 2010; Kawachi & Kennedy, 2002). As social status differences increase and class gaps become wider societies become less friendly and less socially cohesive (Wilkinson, 2005; Wilkinson & Pickett, 2010). The level of social trust also decreases as income inequality increases (Wilkinson, 2005; Wilkinson & Pickett, 2010; Kawachi & Kennedy, 2002). In this section, I discuss how social disintegration, unfriendly relations, and lack of social trust produced by income inequality harms psychosocial well-being.

Friendships.

Unequal societies are less friendly and are characterized by poor quality of social relations (Wilkinson, 2005; Kawachi and Kennedy, 2002). This is because in societies where inequalities are greater, social interactions become characterized by competition based on power and position to access the scarce resources essential for well-being.As a result, social interactions become increasingly infused with the logic of power differentials, dominance, and subordination (Wilkinson, 2005). The establishment of power hierarchies creates social distancing and weakens friendship bonds. Friendships more often appear among near equals with similar status (Prandy, 1990). We tend to choose our friends from among our near equals and have little in common with those who are much richer or poorer from us (Wilkinson & Pickett, 2010). It is much more difficult to form friendships across different levels of social status or class. There is a connection between income inequality and social distancing in which wider income gaps create greater social differentials, which in turn leads to less friendly social interactions (Wilkinson, 1996, 2005; Wilkinson & Pickett, 2010; Kawachi & Kennedy, 2002).

Another reason proposed for the poor quality social relationships in unequal

societies is the intensity and duration of work hours. People in more unequal societies put longer hours into work in order to cope with stagnant wages and increased costs of living (Kawachi & Kennedy, 2002). For example, with the increasing income inequality rates in the USA, American employees in the mid 1990s worked 200 to 400 more hours compared to European employees (Kawachi & Kennedy, 2002). This is a difference of 5 to 10 full work weeks. According to OECD estimates, Americans worked 1952 hours in 1995, compared with 1737 hours for Canadians, 1735 for the British, 1631 hours for the French, 1559 hours for Germans, and 1544 hours for the Swedes (Mishel, Bernstein, & Schmitt, 1999).

Putting more time into work means less time for leisure and activities that make a difference for well-being, such as spending time with family, friends and neighbors (Kawachi & Kennedy, 2002). Social connectedness, availability of social support, and social involvement with the loved ones are among the most important factors in enhancing well-being and preventing immature death (Wilkinson, 2005; Kawachi & Kennedy, 2002). For example, studies on heart attack and breast cancer patients indicate that the recovery and survival rates of patients with better social ties and more social support is significantly higher (Berkman, Leo-Summers & Horwitz, 1992; Spiegel, Bloom, Kraemer, & Gotthei, 1989). Not spending time with family and friends and lack of engagement in social activities puts individuals in greater risk for illness from common colds, pregnancy complications, depression, and attempted suicides (Kawachi & Kennedy, 2002). It also puts individuals at greater risk for heart attacks, strokes, progression of HIV, and cancer (Kawachi & Kennedy, 2002). Individuals who engage in a variety of social activities benefit from resistance to illness. It has been shown that

individuals who take part in leisure cultural activities such as singing in a choir, attending musical concerts, visiting art exhibitions, going to theatre, and sports events have significantly higher life expectancy than those who rarely take part in such activities (Bygren, Boinkum, Konlaan, & Johansson, 1996).

As it was discussed in this section, income inequality negatively impacts the number and quality of friendships in economically unequal societies. Wide gaps in social status produced by unequal distribution of income lead to weakening of friendship bonds. Therefore, economically unequal societies are less friendly and more competitive. Moreover, the rise in inequality has increased the number of working hours, which leaves less time for engagement in social relations and activities. It was observed that the weakening of social bonds has negative outcomes for well-being. Lack of social connectivity is related to increased susceptibility to illness and lower recovery rates from disorders such as cancer and heart attack.

Social Trust.

Another psychosocial factor that serves as an inequality pathway is the levels of social trust. Trust levels are lower in unequal societies (Wilkinson & Pickett, 2010; Wilkinson, 1996, 2005). Using the international data on trust based on the European and World Values Survey, Wilkinson and Pickett (2010) showed that there is a relation between income inequality and trust levels. In this study random samples of population in each country were asked whether or not they think most people can be trusted. It was found that people trust each other the most in Scandinavian countries and Netherlands (Wilkinson & Pickett, 2010). These countries have the lowest levels of income inequality. The highest levels of trust were found in Sweden with 66% of people feeling

that they can trust others (Wilkinson & Pickett, 2010). The lowest level of trust was seen in Portugal where only 10% of the population believe that others can be trusted. The rate of income inequality is significantly higher in Portugal comparing to Sweden. As the study results show, high level of income inequality is related to low levels of social trust (Wilkinson & Pickett, 2010).

The same relationship is observed among US states with unequal states exhibiting low levels of social trust and equal states demonstrating high levels of social trust. The data for trust levels among US states comes from the National Opinion Research Center (1999-2004) report. Similar to the international surveys discussed previously, this survey asked whether or not people think others can be trusted. Based on the data, high levels of trust were found among US states with low levels of inequality; and low levels of trust were seen among states with high levels of inequality. North Dakota with relatively low levels of income inequality had a level of trust similar to that of Sweden, where 67% of the population felt they could trust others (Wilkinson & Pickett, 2010), whereas in Mississippi, with high levels of income inequality, only 17% of the population felt that others can be trusted (Wilkinson & Pickett, 2010).

Similarly, Kennedy and Kawachi (1997) showed that people are much more trusting of each other in more equal states. Using a question from the U.S. General Social Survey, they showed that where income differences are larger, more people believe that others would take advantage of them if they get the chance. The results of this study showed that in equal states (New Hampshire, Utah, Iowa, and North Dakota) only 10 to 15% of the population felt that others can not be trusted while in more unequal states (Louisiana, Mississippi, and New York) 35% to 40% of the population felt that other can

not be trusted.

Kawachi, Kennedy, Lochner, and Prowthrow-Stith (1997) investigated the relation between income inequality and social trust in 39 US states. They also found a strong inverse relationship between income inequalities and trust levels. In this study the measure of social trust was one of the four indicators of social capital. Kawachi, Kennedy, Lochner et al. (1997) found that income inequality is strongly associated with social distrust. Moreover, it was also observed that states with high levels of social mistrust had high levels of mortality. According to Kawachi, Kennedy, Lochner et al. (1997), if the level of trust is improved by an 10% or one standard deviation the mortality rate will decrease by 67.1 per 100,000. This is 8% reduction in mortality rates.

Wilkinson, Kawachi, and Kennedey (1998) surveyed 7679 individuals among 39 US states using the General Social Surveys (GSS) conducted by National Opinion Research Center to estimate state variations in the level of interpersonal trust. This study asked the question: "Generally speaking, would you say that some people can be trusted, or that you can't be too careful in dealing with people?" (p. 309). It was observed that people who trusted others were optimistic. The higher the trust levels, the higher were the chances for collective action and mutual cooperation in a society. Social trust adds to the stock of community's social capital (Wilkinson, Kawachi, & Kennedy, 1998). More societies with higher levels of trust also have high social capital. On the other hand unequal societies with low levels of social trust have lower levels of social capital (Wilkinson et al.,1998).

The studies above show that social trust is low in societies with low levels of income inequality. Social trust is shown to be related to mortality rates. Improvement in

the levels of social trust is related to lower mortality rates. It was shown that higher levels of social trust lead to higher chances for collective action and social participation. This leads to higher levels of social capital in a society. Social trust improves psychosocial well-being by lowering mortality rates and increasing the levels of social capital. Consequently psychosocial well-being suffers in unequal societies where trust levels are low.

Social Cohesion.

Another psychosocial pathway through which income inequality affects psychosocial well-being is social cohesion. Social cohesion is low in economically unequal countries. Economically egalitarian societies are characterized by having high levels of social cohesion. Social cohesion is an essential factor for psychosocial well-being. Socially cohesive societies have higher life expectancies and lower mortality rates; hence, better health status (Kawachi, Kennedy, Lochner et al., 1997; Kawachi, Kennedy, & Glass, 1999). Social cohesion is strengthened by factors such as the level of community participation, social engagement in voluntary activities, and political participation (Wilkinson, 2005). Factors such as community engagement, voluntary activities, and social trust are indicators of social capital (Kawachi, Kennedy, & Glass, 1999). In other words, social capital is a measure of social cohesiveness (Putnam, 2000). Societies with higher investment in social capital are more socially cohesive (Wilkinson, 2005; Kawachi, Kennedy, Lochner et al., 1997; Kawachi, Kennedy, & Glass, 1999; Putnam, 2000). In this section, I discuss research evidence on higher levels of income inequality being related to lower levels of social cohesion and social capital. I demonstrate that psychosocial well-being suffers in economically unequal societies as a

result of social disintegration, lack of social and political involvement, and lack of engagement in community activities.

Putnam, Leonardi and Nanetti (1993) studied social cohesion in twenty different regions of Italy. The indicators measured were social trust and community participation. It was found that there is a strong relation between the measure of income inequality and social cohesion. Participation in community and social trust were higher for the Italian regions with smaller income differences. Citizens living in regions with high levels of social capital were more likely to trust others, value solidarity, equality, and mutual tolerance (Kawachi & Kennedy, 1997). The economically egalitarian Italian regions had higher investments in social capital and consequently were more socially cohesive. Putnam (2000) also observed the same result for the different states of USA. The more economically equal states (such as South/North Dakota, Vermont, and New Hampshire) scored higher on community participation compared to the unequal states (such as Mississippi, Louisiana, and New York).

Kawachi, Kennedy, Lochner et al. (1997) examined the relation between income inequality and social capital defined by civic trust and the extent of participation in civic associations. The data on social capital were obtained in 39 US states from a survey conducted by the National Opinions Research Center between 1986 and 1990. As discussed in the previous section, a strong negative correlation was found between social trust and income inequality in each state. The extent of participation in civic associations (such as membership in church groups, sports groups, fraternal organizations, and labor unions) was also highly correlated with income inequality. Kawachi, Kennedy, Lochner et al. (1997) found that the degree of social distrust and paucity of associational life were

highly correlated with mortality. Societies with low levels of trust and community engagement had high mortality rates.

Besides engagement in social groups and voluntary work, political engagement is also low in economically unequal societies. Political participation is also an indicator of social cohesion. Voting is one of the measures of political participation. The turn out rate for voting is much lower in unequal societies (Wilkinson, 2005; Kennedy & Kawachi, 2002). Using the 90/10 ratio for the index of income inequality, Maher (2002) showed that the voting turnout rate is lower in countries with wider income gaps. It was observed that in the USA, states with highest rates of income inequality had the lowest turn out rates for voting. Belgium, Austria, Sweden, Denmark, Norway, Germany, and Finland have highest turn out rates and lowest rates of income inequality respectively. Canada and Spain were positioned in the middle for both measures. The relationship between income inequality and voting did not hold for some countries. For example, Italy and Australia have higher rates of income inequality compared to Canada but had much higher voting turn out rates. In spite of this there was a significant negative correlation found between income inequalities and voting rates.

Moreover, historical case studies have also documented that social cohesion is responsive to the changes in income inequality levels throughout different time periods. These changes have been evident when societies underwent rapid compression of income distribution or widening of income differentials (Bruhn & Wolf, 1979; Wilkinson, 1996). The narrowing of income differentials in wartime Britain was accompanied by a greater sense of solidarity and social cohesion (Wilkinson, 1996). On the other hand, in the originally close-knit Italian American community of Roseto, rapid inequality in income

distribution during 1960s, lead to breakdown of community cohesion and a sharp increase in death rates from cardiovascular diseases (Bruhn & Wolf, 1979).

In terms of the increase in social cohesion due to narrowing of income gaps, Wilkinson (1996) provides evidence from Britain during the two world wars. During the first and second world wars, a British government policy was designed to foster national unity and a sense of social integration that the burden of war was equally shared across the whole society (Wilkinson, 1996). Not only did income differences narrowed dramatically among the employed, but also unemployment almost disappeared and income tax became much more progressive. As a result of this policy the sense of social cohesion improved dramatically (Wilkinson, 1996). People talked of a strong sense of camaraderie. Remarkably, civilian death rates fell two or three times as fast as in other periods during the twentieth century (Wilkinson, 2005).

An Italian American community in the small town of Roseto, Pennsylvania is an example of decrease in social cohesion due to widening of income gaps. In 1960s the epidemiologists became interested in this town because of its better state of health comparing to the neighboring towns (Wilkinson, 2005). The Rosetans had significantly lower death rate from heart disease, which could not be explained by the differences in smoking or diet. After a thorough investigation, it was concluded that the explanation lied in the remarkably cohesive nature of the community (Bruhn & Wolf, 1979). However, the rapid growth in inequality in income distribution during the 1960s, lead to the breakdown of community cohesion. A later study showed that by the late 1980s, both the health advantage and the cohesive values apparent in the late 1960s had disappeared (Egolf, Lasker, Wolf, & Potvin, 1992).

As discussed in the studies above, economically unequal countries are less cohesive. These societies are characterized by low quality of community engagement. Community participation in social groups, voluntary work, and political participation are low where income gaps are high. Social capital suffers in socially disintegrated societies and carries negative implications for collective well-being. It was observed that higher social cohesion was related to lower levels of mortality (low mortality rates among Rosetans). Mortality rates were shown to be responsive to improvements in social cohesion levels (threefold improvements in mortality rates in post war Britain). In general social disintegration produced by wider income gaps is an important pathway through which collective well-being is compromised.

Discrimination

Discrimination is the last psychosocial pathway discussed in this chapter. Discrimination serves as an important pathway through which income inequality negatively impacts psychosocial well-being. Societies with high levels of income inequality have also high rates of discrimination. As argued by Wilkinson (2005), the processes of social distancing and differentiation are stronger in economically unequal societies (Wilkinson, 2005). In these societies, social position gains a significantly high importance and in this process the originally neutral characteristics such as skin color, accent, religion, and appearance become charged markers for social positions (Wilkinson, 2005). Socioeconomic inequalities often lead to increased levels of prejudice based on ethnicity, race, religion or language. As a result minorities in economically unequal societies experience more prejudice and discrimination. Kennedy, Kawachi, Lochner, Jones, and Prothrow-Stith (1997) measured prejudice using questions from the General

Social Survey asking opinions about why "on average, blacks have worse incomes, jobs and housing than white people". It was found that the explanations of people living in more economically unequal areas were more racially prejudice. These explanations focused on 'black' peoples' ability or inability for their lower status rather than other factors such as injustice and discrimination.

To understand how income inequality works to affect well-being through increased levels of discrimination, it is observed that African Americans who live in predominantly 'white' areas tend to have worse health outcomes than African Americans who live in poorer but predominantly 'black' areas (Wilkinson, 2005). This is because the 'blacks' who live in 'white' neighborhoods are subject to higher levels of discrimination and as a result they experience worse health outcomes. This shows that absolute income levels or national GDP levels do not matter for well-being. A person may live in a rich neighborhood or country but still experience negative health outcomes. This is because what matters for well-being is how much better off or worse off that person is in comparison to others and to what extent that person faces experiences of discrimination and social exclusion.

McCord and Freeman (1990) compared the mortality rates of Harlem to some of the most poverty-ridden areas of rural Bangladesh. It was found that the death rates were higher in Harlem at most ages after infancy than they were in rural Bangladesh (McCord & Freeman, 1990). Even though Harlem is an area in New York City, which is one of the richest cities in USA, individuals living in Harlem do not benefit from better health than those who live in rural Bangladesh. A boy born and brought up in Harlem has less chance of living to 65 years old than a baby in Bangladesh. The relative risks of death in Harlem

compared to the rest of the United States are highest for drug deaths, homicide, alcohol deaths, and cirrhosis for men and women under age 65 (Wilkinson, 1996). Deaths from cirrhosis, homicide, alcohol and drugs together accounted for 43% of excess mortality and 30% of all deaths. This pattern of mortality in a deprived area such as Harlem is a direct effect of discrimination and social exclusion (Wilkinson, 1996).

Another example for how experiences of discrimination produced by relative deprivation affects well-being is that poor people in rich countries still experience worse health outcomes comparing to poor people in poor developing countries. One may assume that poor individuals in rich countries must be better off in terms of absolute levels of deprivation comparing to poor individuals in poor countries. For example, the poorest 20% of individuals in Britain experience negative health outcomes despite the fact that 80% of them own a color television, freezer or refrigerator, washing machine, central heating, telephone, VCR and microwave (Wilkinson, 2005, p.71). The reason why this population still suffers from ill-health is because of the experience of social exclusion, social stress, and social stigma attached to having an older car, a smaller freezer, or less smart cell phone comparing to others (Wilkinson, 2005).

As for the final example for the effects of discrimination produced by relative deprivation, in 1996, 'black' American males with a median income of $26,522 had a life expectancy of 66.1 years. Males in Costa Rica with a median income of $6,410 had a life expectancy of 75 years. Four times as much real income in US bought nine years less life for black American men (Wilkinson, 2005). According to Wilkinson (2005), the explanation for this is the lower social status of black men in US comparing to Costa-Rican males. Black American men are more subject to racism, social exclusion and

inferior social position (Wilkinson, 2005).

According to the studies above, discrimination is one pathway through which income inequality affects psychosocial well-being. Economically unequal countries have higher rates of discrimination. The harmful effects of discrimination on well-being were shown to be independent of absolute income levels. It was discussed that the minority individuals who are financially better off but face social exclusion and discrimination have lower health status comparing to the less well off minority individuals who experience less discrimination. This is because the relative feelings of inequality lead to experiences of social exclusion and stigmatization, which consequently leads to lower status psychosocial well-being.

Summary

The psychosocial theory argues that material conditions exert only weak health effects. According to this line of thinking, if absolute income is of lesser importance to health than relative income, then absolute material standards of living cannot explain much of the observed variation in health status. Thus, it is the psychosocial effects of relative inequality that are important (Lynch, Davey Smith, Hillemeier, Shaw, Raghinathan,& Kaplan, 2001). As discussed in this section, according to the psychosocial environment theory income inequality negatively affects well-being through perceptions of relative inequality. The individuals' perceptions of relative positions in income hierarchies produce negative psychological outcomes such as feelings of shame, anxiety, inferiority, and depression that are translate inside the body into poorer physical health via psycho-neuro-endocrine mechanisms (Lynch, Davey Smith, Kaplan, & House, 2000; Lynch, Due, Muntaner, & Davey Smith, 2000). At the same time, the perceptions of

relative inequality translated outside the person into social distrust, reduced reciprocity and friendships, social disintegration, and low social capital (Lynch, Davey Smith et al., 2000; Lynch, Due et al., 2000). In this way, perceptions of relative income have social consequences for how people interact.

The Neo-Material Explanation

The neo-material theory provides an alternative explanation for the relation between income inequality and well-being. According to the neo-material interpretation inequalities in well-being result from the differential accumulation of negative exposures or experiences that have their sources in the material world (Lynch, Davey Smith, Hillemeier, Shaw, Raghinathan, & Kaplan, 2001). Based on the neo-material interpretation, the effects of income inequality on well-being reflect a combination of negative exposures due to material deprivation and due to systematic underinvestment in a wide range of human, physical, health, and social infrastructures (Macinko, Shi, Starfield, & Wulu, 2003; Lynch, Davey Smith et al., 2000).

The neo-material explanation emerged as a critique of psychosocial theory. The neo-material critique poses three major criticisms to the psychosocial environment theory. According to the neo-material critique, the psychosocial explanation of the relation between income inequality and well-being ignores the analysis of class relations (Muntaner & Lynch, 1999). For instance the psychosocial interpretation does not explain how income is distributed unevenly or how relational positions in social system create inequalities in income (Muntaner & Lynch, 1999).

According to the second criticism, the psychosocial environment theory confounds the structural sources with the subjective consequences of inequality and it

reinforces the impression that the impact of psychosocial factors on well-being can be understood without reference to the material conditions (Lynch, Davey Smith et al., 2000; Muntaner & Lynch, 1999). The consequence of an emphasis on psychosocial factors as mediators of inequality may lead to placing the root of the problem on improving the psychosocial factors rather than tackling the real problem of uneven income distribution. On the other hand, the neo-material interpretation incorporates individual and contextual level factors but emphasizes that health inequalities result from the accumulated negative exposures resulting from structural factors such as poorer physical conditions and reduced quality social services (Macinko, et al., 2003).

The third criticism of psychosocial theory is its limited relevance for progressive public policy and promotion of structural change (Lynch, Davey Smith et al., 2000; Lynch, Due et al., 2000; Muntaner & Lynch, 1999). It is argued that the psychosocial environment theory does not provide any useful strategies in reducing the income gaps. It is not clear how emphasis on psychosocial functioning provides a basis for public policies, advancing public health, and reducing health inequalities (Lynch, Davey Smith et al., 2000). In spite of the criticisms made to the psychosocial environment theory, the proponents of neo-material theory do not deny the importance of psychosocial consequences of income inequality (Lynch, Davey Smith et al., 2000). But they argue that the interpretation of the relation between income inequality and well-being must begin with structural causes (Lynch, Davey Smith et al., 2000). The neo-material theory argues that the association between income inequality and population health is due to unequal distribution of health protective resources and exposures within a country (Lynch, Davey Smith et al., 2000; Lynch, Due et al., 2000).

A study by Lynch, Davey Smith, Hillemeier, Shaw, Raghinathan, and Kaplan (2001), examined the extent to which income related health inequalities between developed countries are accounted for by the psychosocial environment and neo-material explanations. Lynch et al. (2001) looked at cross-sectional associations between income inequality and low birth weight, life expectancy, self-rated health, and mortality among 16 OECD countries. Lynch et al. (2001) reported that characteristics of the psychosocial environment like trust, control, and organizational membership do not seem to be the key factors in understanding health differences between wealthy countries. Even though other studies showed strong evidence for the mediation of psychosocial factors in creating income related health inequalities within countries, Lynch et al. (2001) found that psychosocial factors show inconsistent and weak associations in explaining income related health inequalities between countries. On the other hand, the study found evidence in favor of the neo-material explanations. Lynch et al. (2001) reported that the association between income inequality and population health is more powerfully explained by the unequal distribution of health relevant resources and exposures within a country.

Another study by Bobaka, Pikharta, Roseb, Clyde, Hertzmane, and Marmota (2000) examined the association of psychosocial environment (measured by perceived control) and neo-material condition (measured by education and material deprivation based on availability of food, clothing and heating) to self-rated health in seven post-communist countries. The results suggested that, as in western populations, education and material deprivation are strongly related to self-rated health. Perceived control appeared statistically to mediate some of the effects of income inequalities. According to Bobaka et al. (2000), their study did not contradict the psychosocial hypothesis, but they

argued that in explaining inequalities in well-being on an aggregate level, material deprivation has primacy to psychosocial factors.

According to Lynch, Davey Smith, Kaplan, and House (2000), the neo-material interpretation is a better fit to the available evidence on income inequality and well-being. It better explains the health inequalities observed among the developed countries compared to the psychosocial theory. According to Lynch, Davey Smith et al. (2000), the unequal distribution of income is a consequence of political-economic processes that influence the private resources available to individuals and the resources that shape the public infrastructure. Lynch, Davey Smith et al. (2000) argued that the neo-material explanation has greater potential to inform interventions that advance public health and reduce inequalities. The problem of income inequality should be addressed by specific public policy interventions such as investments in schooling, health care, social welfare and working conditions, and more equal distribution of public and private resources (Lynch, Davey Smith et al., 2000).

Kaplan, Pamuk, Lynch, Cohen, and Balfour (1996) found evidence for the negative impact of income inequality on psychosocial well-being through underinvestment in human and social capital. Kaplan et al. (1996) examined the association between health outcomes in mortality, low birth weight, homicides, and violent crimes, and income inequality within US states. Kaplan et al. (1996) observed that inequality related mortality trends were parallel to under investments in human and social capital. For instance unequal states had higher rates of unemployment, recipients of income assistance, and food stamps. Moreover, unequal states were characterized with a lack of medical insurance, and low educational outcomes. According to Kaplan et al.

(1996), although psychosocial characteristics are strongly patterned by socioeconomic levels, the structural characteristics that distinguish between states with high and low inequality serve a more important role in understanding the inequalities in health outcomes. In explaining health inequalities between different US states Kaplan et al. (1996) identified structural issues such as policies related to taxation, transfer payments, and job creation, as important contributing factors.

According to Davey Smith (1996) increases in income inequality go hand in hand with underinvestment in human and social capital, which will create poor health outcomes in the future. The countries that are experiencing the largest increases in income inequality are precisely the countries that have systematically underinvested in human resources. Davey Smith (1996) observed that same trend is applicable for US states. The poor investment in education and low expenditure on medical care is seen in the states with the most unequal income distributions. Consequently, these states suffer from poor health status. The higher levels of social expenditure and taxation as a proportion of gross domestic product are associated with better health status (longer life expectancy, lower maternal mortality, and lower levels of low birth weight). Similarly, in explaining the relation between income inequality and higher levels of mortality, Kawachi, Kennedy, Lochner, and Prowthrow-Stith (1997) concluded that the degree of income inequality has a strong negative effect on the level of investment in social capital. Disinvestment in social capital appears to be one important mechanism through which income inequality affects population mortality (Kawachi, Kennedy, & Lochner et al., 1997).

Finally, Sanmartin, Ross, Tremblay, Wolfson, Dunn, and Lynch (2003) showed that

health inequalities observed between USA and Canada are a result of distribution of health protective resources and specific policies that influence inequality levels. The negative impact of income inequality on psychosocial well-being was observed to be lower in Canada compared to USA and as a result Canadians benefit from better national health status. According to Sanmartin et al. (2003), specific policies that lead to a more even distribution health protective resources buffer the adverse effects of income inequality on well-being. Income inequality is much lower in Canada and the segregation in accessibility to public services such as schools, housing, public transportation and health care is narrower (Sanmartin et al., 2003). In the USA these resources are distributed by the market place and utilization depends on the ability to pay (Sanmartin et al., 2003). Therefore not all Americans have equal access to health protective resources and this leads to lower levels of health status for them.

As discussed in this section, the neo-material explanation emphasizes the structural factors such as underinvestment in public infrastructures, uneven access to health protective resources, and accumulation of negative exposure due to conditions of material deprivation, in explaining the income related health inequalities between countries (Lynch et al., 2001; Macinko et al., 2003; Lynch, Davey Smith et al., 2000; Kaplan et al., 1996). It argues that income inequality has damaging effects on well-being not because of the perceptions of relative inequality, but because of the structural factors that bring about conditions of material deprivation (Macinko et al., 2003; Lynch, Davey Smith et al., 2000). The neo-material theory gives primacy to the analysis of structural factors responsible for the creation of uneven income distribution, in explaining the

relation between income inequality and psychosocial problems (Lynch, Smith et al., 2000).

The Relevance for Psychology?

I argue that both psychosocial and neo-material explanations are important for psychology. The psychosocial explanations tell us how the effects of income inequality are mediated through psychosocial factors to impact well-being negatively. The psychosocial mediators of income inequality, such as the quality of social relations, are the aspects of psychosocial life central to the focus of psychologists. A considerable amount of psychological literature points to the fact that high quality social relations including friendships, social connectedness, and having social support are important determinants for psychological well-being (Prilleltensky, 2012; Hermon & Hazler, 1999; Granello, 1996). Moreover, psychological research especially from the area of community psychology has provided strong evidence for factors such as sense of community, social cohesion, community participation, and social trust being essential determinants of psychological wellness on both individual and collective levels (Duffy & Wong, 2003).

Psychologists have shown that social disintegration of a community or neighborhood often results in high levels of crime and vandalism, declines in children's mental health, increases in school problems, and loneliness (Ross & Jang, 2000; Caspi, Taylor, Moffitt, & Plomin, 2000; Prezza, Amici,Tiziana, & Tedeschi, 2001). Furthermore, psychologists identified social integration, defined by involvement with community institutions and participation in community's social life, as an important determinant for psychological well-being (Duffy & Wong, 2003). Individuals and groups

experiencing low levels of social integration exhibit significantly higher levels of psychological symptoms and disorders (Holahan, Betack, Spearly, & Chance, 1983).

In improving psychological wellness psychologists have emphasized the importance of having good quality friendships, lower levels of discrimination, greater numbers of social connections, and better social support networks (Holt-Lunstad & Smith, 2012; Rhodes, 2004; Williams & Galliher, 2006; Heim, Hunter, & Jones, 2011). Moreover, community psychologists have also implemented many different interventions to improve the social embeddedness of community members, increase levels of social and political activities, reduce discrimination, and improve the levels of social cohesion, in order to improve the psychosocial well-being of communities and bring meaningful changes (Davidson & Cotter, 1991; Duffy & Wong, 2003). However, as argued in this chapter, the aspects of social life such as social status, quality of social relations, and discrimination, are affected by the broader socio-economic issues such as income inequality. In improving the psychosocial well-being of populations it is important that psychologists acknowledge the ways in which these aspects of social and psychological life are affected by socio-economic inequalities and to understand how these pathways work to bring about negative health outcomes.

However, the analysis of the impact of income inequality should not stop with psychosocial factors. The understanding of psychosocial consequences of income inequality should not be disconnected from the material aspect of life (Lynch, Due et al., 2000; Lynch & Kaplan, 1997). It is important to take into account the political and economic processes that maintain and promote unequal distribution of income. Psychology should not lose sight of the fact that certain communities or neighborhoods

experience aversive psychosocial outcomes because of their poor public infrastructures, lack of investment in human and social capital, and in general low quality social services provided to them. The neo-material explanations provide insight about the political and economic processes that lead to creation of inequalities in income and consequently inequalities in health. Improving the psychosocial environment without addressing the conditions of systemic deprivation is not going to be an effective strategy in dealing with inequalities in well-being. An effective approach to reducing health inequalities should also take into account social processes and policies that systemically underinvest in human, physical, health, and social infrastructures.

Therefore, both the psychosocial and neo-material explanations of income inequality provide valuable insights for psychology. The psychosocial explanation is useful in terms of understanding what aspects of psychosocial life are most vulnerable to macro-level issues of socio-economic inequalities and how well-being is affected by psychosocial mediators of inequality. The neo-material explanations are more useful in terms of implementation of interventions to reduce the uneven distribution of income and consequently reduce inequalities in health.

Chapter Four

Causality and Methodological Criticisms

The relationship between income inequality and well-being has been subject to criticisms on the basis of methodology as well as issues related to causality. The work of Wilkinson and Pickett (2010) has been targeted by two major sources of criticisms: *Beware False Prophets: Equality, the Good Society and The Spirit Level* (2010) by Peter Saunders and *The Spirit Level Delusion: Fact-checking the Left's New Theory of Everything* (2010) by Christopher Snowdon. In terms of the methodological issues most of the criticisms revolve around issues such as choice of health and social problems, selection of country, and issues regarding outliers (Saunders, 2010; Snowdon, 2010). In terms of causality, critics have argued that factors such as culture, race, and ethnicity are the *cause* of the effects observed in *The Spirit Level* (Saunders, 2010; Deaton & Lubotsky, 2003). It is also argued that poverty may be a confounding factor for the effects observed between income inequality and well-being (Saunders, 2010; Deaton, 2003). Other criticisms regarding causality focus on the direction of the causal relation. It is argued that it is not clear whether income inequality creates health problems or health problems create inequalities in income (Black, Townsend & Davidson, 1990; Adler & Snibbe, 2003; Carroll, Davey Smith & Bennett, 1996). In this chapter, I discuss these criticisms and the responses put forth by R. Wilkinson and K. Pickett.

Methodological Criticisms

Selection of Social & Health Problems

Saunders (2010) and Snowdon (2010) both criticized the work of Wilkinson and Pickett (2010) for their selection of social and health problems. They argued that

Wilkinson and Pickett (2010) carefully selected the social problems that fit their argument and left out those problems that did not allow them to make their case. According to Saunders (2010), Wilkinson and Pickett (2010) ignored an array of social indicators that are worse in more equal countries such as suicide rates, HIV infections, alcohol consumption, divorce rates and low fertility rates. Snowdon (2010) argued that Wilkinson and Pickett (2010) did not include crime rates in their index of health and social problems. According to Snowdon (2010), crime rate trends are shown to be higher in more equal countries.

In response to these criticisms, Wilkinson and Pickett (2010) stated that *The Spirit Level* is not a theory of everything. It does not claim to explain every kind of social problem. It is specifically a theory of problems that have social gradients; problems that become worse further down the social ladder. The social gradient of health refers to the systematic distribution of health based on relative income levels (Wilkinson, 1996, 2005; Marmot, 2004). The social gradient represents a graded relationship between health differences and income levels with every level in the social hierarchy having worse health outcomes than the one above it (Wilkinson, 1996). The frequency and intensity of the health problems that demonstrate a social gradient is higher at the lower levels of income hierarchy comparing to the top (Wilkinson & Pickett, 2010).

Wilkinson and Pickett (2010) argued that they would not theorize that alcohol *use* would be related to inequality because it does not have a social gradient and does not increase lower down the social ladder. On the other hand, alcohol *abuse* has a social gradient and deaths from alcoholic liver disease are more common in more unequal US states. Moreover, Wilkinson and Pickett (2010) showed that deaths from breast and

prostate cancer are not related to income inequality since they don't demonstrate a social gradient and do not become more common lower down the social ladder. In contrast, deaths from cardiovascular disease are strongly related to income inequality and demonstrate a sharp social gradient (Wilkinson & Pickett, 2010).

Wilkinson and Pickett (2010) argue that their inclusion of UNICEF Index of Child Wellbeing in Rich Countries was to show that their findings are not a result of selecting problems to suite their arguments. The UNICEF Index combines 40 different aspects of child well-being which Wilkinson and Pickett (2010) played no part in selecting. Wilkinson and Pickett (2010) found that the result of this finding was very similar to their Index of Health and Social Problems showing a strong relationship with income inequality. With regards to crime rates, Wilkinson and Pickett pointed out that homicides are one of the few crimes that can be compared reliably between countries. Other kinds of crime such as car crime and rape are affected by differences in law, reporting, and by other extraneous influences (The Equality Trust, 2010).

Therefore, the health problems demonstrated by Wilkinson and Pickett (2010) to have been affected by the inequality levels are not the result of picking and choosing. The Spirit Level represents those health and social problems that are powerfully influenced by income inequality. Moreover, as I discussed in the second chapter, other studies confirmed Wilkinson and Pickett's (2010) data by finding similar results in terms of the relation between income inequality and problems such as obesity, teenage pregnancy, violence, and mental illness. Although Wilkinson and Pickett (2010) only discussed the relation between homicide rates and inequality, as discussed in the second chapter, there are more than 50 studies showing that inequality is also related to other forms of crime

such as firearm crime, rape, assault and robbery (Hsieh & Pugh, 1993; Elgar & Aitken, 2010).

Country Selection

Saunders (2010) and Snowdon (2010) criticized Wilkinson and Pickett (2010) for arbitrarily choosing countries that suit their argument and for excluding poorer countries from their analyses. In response to this criticism, Wilkinson and Pickett (2010) stated that they did not 'cherry-picked' the countries rather they had strict criteria for country selection. Wilkinson and Pickett (2010) used World Development Indicators Database from World Bank. They took the 50 richest countries which were ranked based on Gross National Income per capita. From this list Wilkinson and Pickett (2010) excluded those countries with no internationally comparable data on income inequality and those with population lower than three million. Wilkinson and Pickett (2010) looked specifically at the richest countries because in these countries well-being is no longer responsive to the differences in Gross National Income per head (GNI pc). If Wilkinson and Pickett (2010) had included poorer countries, the GNI pc would be still very important to well-being and it would be very difficult to distinguish between the effects of absolute and relative income levels on well-being. Therefore, the findings demonstrated by Wilkinson and Pickett (2010) are not the result of cherry-picking countries.

The Problem of Outliers

Saunders (2010) and Snowdon (2010) have repeatedly criticized the work of Wilkinson and Pickett (2010) for not taking out the outliers from their analyses. Saunders (2010) and Snowdon (2010) replicated the majority of the data demonstrated by Wilkinson and Pickett (2010), to examine the extent to which the findings of *The Spirit*

Level were due to the effect of outliers. Saunders (2010) and Snowdon (2010) discussed the effects of outliers for the issues of mental illness, obesity, life expectancy and infant mortality, and teenage pregnancy. In the following four sections, I discuss the arguments surrounding each of these issues.

The general response of Wilkinson and Pickett (2010) to the criticism about outliers was that they kept all the countries in their analyses for three reasons. First, this would represent real variation in population levels of health and social problems. Second, the removal of occasional data points would have invited the accusation that they were picking and choosing data points and third, Wilkinson and Pickett's (2010) aim was to show the consistency of the effects of inequality on different problems across the same group of countries.

Mental Illness.

With regards to the relationship between income inequality and mental illness, Saunders (2010) replicated Wilkinson and Pickett's (2010) data on mental illness among the US states. Since Saunders' (2010) did not have access to Wilkinson and Pickett's (2010) original data set at the time of writing, he built a replica data set that matched their sources. Similar to the measure of income inequality that Wilkinson and Pickett (2010) used, Saunders (2010) used the Gini coefficient to measure income inequality among US states. Saunders (2010) found a significant association of weak strength between income inequality and mental illness. Hawaii appeared to be an extreme low outlier, Kentucky was an extreme high outlier, and West Virginia and Alabama were both high outliers. After excluding these outliers Saunders (2010) found no significant relationship between income inequality and mental illness. Saunders (2010) stated that the effects shown by

Wilkinson and Pickett (2010) were only limited to the influence of the outliers. Moreover, Saunders (2010) stated that Wilkinson and Pickett (2010) did not show their graph for mental illness against income inequality because they failed to find a correlation between mental illness and inequality for males among US states.

In response to this criticism, Wilkinson and Pickett stated that Saunders (2010) totally ignores their international evidence for the relation between income inequality and mental illness (The Equality Trust, 2010). Wilkinson and Pickett (2010) found that the prevalence of mental illness is significantly related to income inequality on an international level. According to Wilkinson and Pickett, Saunders (2010) "does look at mental illness in US states and, although he finds a significant relationship with inequality, he excludes states in his usually inconsistent fashion, until the relationship disappears" (The Equality Trust, 2010, p. 5).

Wilkinson and Pickett also argue that Saunders (2010) does not consider the evidence that the prevalence of mental illness in children was found to be significantly correlated with income inequality among US states. With regards to the prevalence of mental illness among men and state level income inequality, Pickett and Wilkinson (2010) argued that the lack of association observed among men may be due to gender differences of willingness to report mental illness since the data was collected based on self report and not a diagnostic interview. As it was discussed in the second chapter, other studies based on a diagnostic interview have shown state level income inequality (Fiscella & Franks, 2000) and country level income inequality (Kahn, Wise, Kennedy, & Kawachi, 2000) to be associated with significant increased risk of depressive symptoms among men as well as women and children.

Given the extent of research evidence provided by Wilkinson and Pickett (2010) and other studies discussed in the second chapter, it is clear that the prevalence of mental illness is associated with levels of income inequality. Studies by Fiscella and Franks (2000), Henderson et al. (2004), Kahn et al. (2000), and Shi et al. (2002) confirmed that higher levels of income inequality is related to increased levels of anxiety disorders, addictions, and depressive disorders. Therefore, the association between mental illness and income inequality cannot be due to the effects of outliers.

Obesity.

With regards to obesity Saunders (2010) again attributed the significant relationship found by Wilkinson and Pickett (2010) to the effect of outliers. Saunders (2010) replicated Wilkinson and Pickett's (2010) plot of obesity with and without outliers. A significant relationship of medium strength was found in the first graph between obesity and income inequality. In this graph, the USA appeared as an outlier. When excluding the USA from analysis, Saunders (2010) found no significant relationship between the two variables. Saunders (2010) observed the same finding for the relation between child obesity and income inequality. Based on these results, Saunders (2010) concluded that there is no association between obesity and income inequality.

In response to Saunders (2010), Wilkinson and Pickett argued that the USA was not the only outlier on the graph. In fact Greece is a more distant outlier in comparison to the USA. According to Wilkinson and Pickett, if Greece and the USA were removed as outliers together, the significant relation between obesity and income inequality would be restored (The Equality Trust, 2010). With regards to child obesity, Wilkinson and Pickett argued that in comparison to the USA, Canada is a more distant outlier. If the USA and

Canada were both removed from analysis, the significant relation between child obesity and income inequality would still hold (The Equality Trust, 2010).

Another criticism of Wilkinson and Pickett's (2010) data on obesity regards the source of their data. Snowdon (2010) argued that Wilkinson and Pickett (2010) used data from the International Obesity Task Force (IOTF) for measures of obesity. The IOTF does not have sources to collect its own data and instead relies on epidemiological studies that use different methodologies over periods of many years. According to Snowdon (2010), these measures are by no means definitive. Another problem is the time gaps in obesity surveys. Obesity prevalence has risen significantly in the past twenty years. While there is recent data on obesity rates for USA and Britain; the most recent obesity measures for countries such as Belgium and Hungry date from early to mid 1990s. This leads to underrepresentation of the true scale of obesity in such countries (Snowdon, 2010).

In terms of Greece being a more distant outlier, Snowdon (2010) argued that *The Spirit Level* shows a very high obesity rate of 30% for Greece, which was based on a study of a limited age group. IOTF has since abandoned this measure in favor of 17.5% as reported by a study with a larger age group. Snowdon (2010) examined IOTF's best estimates for obesity rates between 1994 and 2004. This graph corrected for the new measure for Greece and also included Israel and Singapore, which were excluded in Wilkinson and Pickett's (2010) analysis. Snowdon (2010) reported that once the missing countries are included, the significant relation between income inequality and obesity disappears. In addition, Snowdon (2010) argued that based on the results Japan, Singapore, Korea, and Hong Kong score low on obesity rates while they have very

different levels of income inequality. Singapore and Hong Kong score very high on the index of income inequality whereas Japan scores very low. According to Snowdon (2010), this shows that the obesity rates for a country such as Japan is not related to the level of income inequality but to diet and /or genetics.

In terms of the exclusion of Singapore and Hong Kong, Wilkinson and Pickett argued that IOTF did not report data on obesity for Singapore in 2002 report, which was available at the time of writing *The Spirit Level* (The Equality Trust, 2010). Wilkinson and Pickett excluded Hong Kong because it is not a nation and even if it were, it does not meet their criteria for country selection (The Equality Trust, 2010). The effects of outlier cannot account for the association between income inequality and obesity. As I discussed in the second chapter, a study by Su, Esqueda, Li, and Pagan (2012) found a significant association between income inequality and obesity among 31 OECD countries, even after excluding the outliers from the analysis. In this study USA and Mexico were found to be the leading OECD countries with highest levels of income inequality and obesity rates. When the two countries were included in the analysis, the results revealed a strong association between obesity and inequality rates. When USA and Mexico were excluded from the analysis a weaker but still significant association was found in the rest of OECD countries.

Moreover, as I discussed in the second chapter, other studies besides *The Spirit Level* found a significant association between income inequality and obesity (see Nikolaou & Nikolaou, 2008; Ploubidis et al., 2012; Kim et al., 2006; & Singh et al., 2008). In addition, higher rates of calorie intake, Body Mass Index (BMI), and physical inactivity were also observed among the more unequal states and countries (Giskes van

Lenthe et al., 2008; Pickett et al., 2005). Although it is acknowledged that factors such as diet and genetics have important impacts on obesity rates, a structural factor such as income inequality influences obesity rates through the physical aspects of environment such as access to recreation facilities, availability of fast food outlets and restaurants, and the buying power of consumers in affording healthier food choices; and through variety of psychosocial pathways such as stress and anxiety (Singh et al., 2008; Lopez, 2007; Pickett, et al., 2005). Therefore, the association between income inequality and obesity cannot be attributed to the effects of outliers or the effects of genetics or diet. According to Wilkinson and Pickett, Saunders (2010) and Snowdon (2010) do not take the evidence from these studies into consideration when rejecting the effects of income inequality on obesity rates (The Equality Trust, 2010).

Infant mortality & life expectancy.

Saunders (2010) examined the relation between income inequality and life expectancy as well as infant mortality. With regards to the relation between infant mortality and inequality on an international level, Saunders (2010) reproduced Wilkinson and Pickett's (2010) data. The USA and the Scandinavian countries appeared at the extreme ends of the graph. Saunders (2010) observed that even if USA and the Nordic countries are excluded from the analysis the significant relationship between infant mortality and income inequality still stands. It was also observed that this relation holds even after controlling for GDP among the remaining countries. Therefore, Saunders (2010) acknowledged the relation between infant mortality and income inequality as a solid fact.

In terms of life expectancy, Saunders (2010) found a weak relationship with

income inequality. Only 15% of the variation in life expectancy was accounted for by income inequality. According to Saunders (2010), Japan, Denmark, and Portugal appeared to be outliers on the graph. It was observed that if Japan is removed from the analysis, the significant relationship between income inequality and life expectancy would collapse. The highly unequal Singaporeans live longer than the highly egalitarian Finns, and the unequal Americans outlive the much more equal Danes. According to Saunders (2010),“ Wilkinson and Pickett have no evidence to link life expectancy to income inequality in the remaining 22 countries despite their claims to the contrary”(pp.50-51).

In response to Saunders (2010), Wilkinson and Pickett stated that the relation between life expectancy and income inequality have been repeatedly demonstrated since 1979 (The Equality Trust, 2010). There are more than 200 studies that confirm the adverse impact of inequality on life expectancy on international and state level analyses. According to Wilkinson and Pickett, the occasional appearance and disappearance of significant associations in cross-sectional studies is due to the long lag periods between the sudden changes in income distribution and their effects on health, given that health is affected by circumstances throughout life (The Equality Trust, 2010).

Another criticism of Wilkinson and Pickett’s (2010) data on life expectancy is from Snowdon (2010). Snowdon (2010) questioned Wilkinson and Pickett’s (2010) source material regarding the relation between life expectancy and income inequality. Wilkinson and Pickett (2010) used 2004 United Nations Human Development report, which shows life expectancy in 2002. These data show a downward trend in life expectancy as countries become more unequal. However, the 2006 report shows that the

correlation between life expectancy and inequality has been replaced by a modest trend in the opposite direction. Life expectancy increases as countries become more unequal. Snowdon (2010) asks why Wilkinson and Pickett (2010) used 2004 report while 2005 and 2006 reports were available to them? Is it because the relationship between income inequality and life expectancy has been replaced by a modest trend in the opposite direction? According to the 2006 data, Hong Kong with high levels of income inequality scored as high as Japan on the measure of life expectancy. The economically equal Sweden is undertaken by several unequal countries such as Switzerland, Australia, and Italy. This shows that economically unequal countries such as Hong Kong can have long life expectancies while egalitarian countries such as Denmark and Korea do poorly.

In response to this criticism, Wilkinson and Pickett argued that in order to avoid the effects of random fluctuations in inequality measures in each country, they took the average of inequality measures published in four consecutive years of the UN Human Development Report (The Equality Trust, 2010). Then they matched the life expectancy data as nearly as possible to the same time frame as the measures of inequality (The Equality Trust, 2010). Wilkinson and Pickett also stated that a recent meta analysis of multi level studies of health and inequality showed that income inequality is significantly related to higher mortality rates even after controlling for variables such as education and individual income (The Equality Trust, 2010). Kondo, Sembajwe, Kawachi, Dam, Subramanian, and Yamagata (2009), conducted a meta-analysis showing a modest adverse effect of income inequality on mortality when controlling for individual income and education. Given the body of literature on the impact of income inequality on life expectancy, this association appears to be much stronger than to be attributed to the

effects of outliers. As I discussed in the second chapter, income inequality was significantly associated with reduced life expectancy regardless of index by which inequality was measured or the level of analysis (whether it was an international, state-level, or area level of analysis).

Teenage Births.

Saunders (2010) acknowledged that the relation between teenage births and income inequality is one of the strongest associations reported by Wilkinson and Pickett (2010). In Saunders'(2010) expanded analysis, the USA appeared to be an extreme outlier. It was observed that even after the exclusion of the USA, the relation between income inequality and teenage birth still remained significant. According to Saunders (2010), what needs to be known is whether or not the relation between income inequality and teenage births is found among all countries and not only among Scandinavian and Anglo countries. Scandinavian and Anglo countries (Australia, New Zealand, UK, and USA) appeared at the extreme ends of the graph. At the one end of the trend line, Scandinavian countries were found with low teen births and at the other end Anglo countries with high teen births.

To examine this hypothesis, Saunders (2010) took out the Anglo and Scandinavian countries from the analysis. It was observed that the relation between teenage births and income inequality disappeared. To confirm this finding, Saunders (2010) ran another analysis involving 31 countries. Russia was included in the analysis so the USA would no longer be an outlier. A significant relation of moderate strength was observed between teenage births and income inequality. However, when Saunders (2010) excluded the Scandinavian and Anglo countries from the analysis it was observed that the

association ceased to achieve significance. Therefore Saunders (2010) concluded, “There is no significant association between inequality and teenage births. The apparent association reported in The Spirit Level is due mainly to the distinctiveness of the Anglo and Nordic countries”(p.65).

In response to Saunders (2010), Wilkinson and Pickett argued that the deletion of Anglo countries removes an important part of the picture. Income inequality explains the higher teenage birth rates in Anglo countries more than any “strange extraneous cultural factor” that may cause English speaking girls to have babies as teenagers (The Equality Trust, 2010, p.7). In general, Wilkinson and Pickett stated that attempts to include or exclude countries from their analyses to make the damaging effects of income inequality disappear are irrelevant to the many other demonstrations of the similar relationships in different settings published in academic journals by other researchers (The Equality Trust, 2010).

It seems that the critics aim at including or excluding countries for their own purpose which is to show that the differences in health and social problems observed among developed countries such as teenage pregnancy is not due to income inequality but other factors such as the effects of outliers or cultural differences. However, other studies besides Wilkinson and Pickett (2010) have confirmed that teenage pregnancy is strongly affected by income inequality. For example, studies by UNICEF (2001) and Gold et al. (2001) have reported a link between income inequality and teenage births on international as well as state level analyses. According to UNICEF (2001), the differences in teenage births and pregnancies between Nordic and English speaking countries are not due to cultural differences. The lower teenage pregnancy and birth rates

of Nordic countries is a result of higher social inclusiveness of these countries as well as higher investment rates on radical social policies that focus on providing sex-education, establishing nation-wide youth clinics, and providing access to contraception (UNICEF, 2001). As I discussed in the third chapter, economically equal countries use their national wealth to have higher investment rates on health protective resources and consequently benefit from lower levels of health and social problems (see Dorling, 2012). In conclusion, the effects of income inequality on teenage pregnancies and births cannot be attributed to the influence of outliers or cultural differences between countries.

The Criticisms Regarding Causality

The majority of the data discussed in the second and third chapters was based on correlational studies. These studies demonstrated that there is a relationship between income inequality and variety of health measures such as obesity, life expectancy, mental illness; and social measures such as community participation, social trust, social cohesion, and the quality of social relationships. However, these studies do not provide evidence for income inequality being the *cause* of the outcomes discussed. Moreover, in cases where a causal relation was demonstrated, there was no evidence for the direction of causality.

In the absence of causality, there are possibilities for other mechanisms being responsible for the psychosocial outcomes discussed in the two previous chapters. One explanation proposed is that instead of income inequality, factors such as ethnic mixture, racial diversity, and cultural differences are responsible for the psychosocial effects observed (Saunders, 2010). It is argued that race, ethnicity, and culture are at times more powerful predictors of problems such as teenage pregnancy, infant mortality, and trust,

comparing to income inequality (Saunders, 2010). In the following sections, I discuss the criticisms regarding causality between income inequality and index of health and social problems.

Cultural Diversity

According to Saunders (2010), the psychosocial effects shown in *The Spirit Level* (2010) are due to cultural diversity rather than income inequality. In majority of the graphs, the English speaking countries performed poorly on the index of health and social problems while the Nordic countries did well. Saunders (2010) argued that the effects Wilkinson and Pickett (2010) are demonstrating are not the effects of income inequality but ethnic and cultural diversity. As Saunders (2010) argued, Sweden and Japan have been repeatedly shown to perform well on a variety of health outcomes. This may be due to the fact that these two countries share similarities in their social compositions that lead to better social outcomes comparing to other countries.

Wilkinson and Pickett (2010) have initially argued that the psychosocial outcomes observed in their data cannot be attributed to the cultural and ethnicity factors. According to their argument, Japan and Sweden are very different countries is terms of culture but both perform very well on various psychosocial measures because both of these countries have a characteristic in common and that is equal distribution of income. However, Saunders (2010) disagreed with this proposition. According to Saunders (2010), both Sweden and Japan are ethnically homogenous societies. They have been historically closed to immigration and to inter-marriage with outsiders. They are both agrarian societies which became developed after Britain and USA, but maintained their strong folk tradition.

According to Saunders (2010), the reason Japan and Sweden do better on measures of social trust, social cohesion, and community participation is because of their strong folk culture that emphasizes on national identity and distinctiveness with others. On the contrary countries such as USA, Australia, and New Zealand are all settler nations with tradition which emphasizes open borders and free trade (Saunders, 2010). The English culture is highly individualistic in contrast to the collectivist cultures of Sweden and Japan. Moreover, Anglo countries such as USA, UK, Australia, and New Zealand have a long history of immigration, slavery, and exploitation. These countries are much more ethnically mixed comparing to Japan and Sweden. Based on Saunders' (2010) argument, USA, Australia, and New Zealand do much worse on the measures of social cohesion, social trust, and community participation because of their individualistic cultures and ethnic mixture.

In response to Saunders' (2010) criticism about cultural similarity, Wilkinson and Pickett (2010) provide evidence for two culturally similar countries of Spain and Portugal that score very differently on psychosocial outcomes due to their differences in the levels of income inequality. According to Wilkinson and Pickett (2010), Spain and Portugal have many cultural similarities and both had dictator regimens until the mid 1970s. However, income inequality in Portugal is now much higher in comparison to Spain. As was shown in *The Spirit Level* (2010), Portugal suffers more from health and social problems comparing to Spain. According to Wilkinson and Pickett's (2010) argument, countries' performance on the psychosocial measures is not related to their cultural similarities.

Moreover, Canada, USA and UK have fairly similar cultures. Canada is also

ethnically diverse in its major metropolitan areas and has been open to foreign immigration. However, Canada scores significantly better than the USA, the UK, New Zealand and Australia on the index of health and social problems as shown by Wilkinson and Pickett's (2010) graph (see p. 20). Ross, Wolfson, Dunn, Brethelot, Kaplan, and Lynch (2000) found that Canada has a better overall national health status comparing to the USA due to its lower levels of income inequality. This evidence provides support for health inequalities among countries being attributed to income inequality and not cultural similarities.

To show that cultural differences also do not account for the differences in performance of psychosocial outcomes, Wilkinson and Pickett (2010) compared USA with Japan. There is a stark cultural difference between USA and Japan. However, in the 1950s the USA was more equal than Japan and had better national health status. But in the second half of the twentieth century, the USA and Japan came close to switching the positions on the international measures of life expectancy and income inequality. As the USA became more unequal, Japan became less unequal, and its life expectancy rate exceeded the USA's rate. This shows that cultural differences did not stop the countries from switching positions. According to Wilkinson and Pickett (2010), cultural differences or similarities do not account for the countries' performance. What matters for how well countries do on psychosocial measures is their scale of income inequality.

Although the arguments for and against cultural diversity are based on examples, the evidence discussed above suggests that the relation observed between income inequality and the prevalence of health and social problems cannot be attributed to cultural diversity. Rather it is income inequality that is responsible for the health

inequalities observed among countries. One of the difficulties in demonstrating a causal relationship between income inequality and the prevalence of health and social problems is that income inequality cannot be experimentally manipulated between different conditions, since income inequality is an aggregate measure not an individual one. Therefore, in demonstrating the interactions between inequality levels and health problems, the data depends on historical trends in changes in inequality and specific case examples.

Ethnic & Racial Diversity

The second criticism regarding the relation between income inequality and well-being is targeted on the issues of racial and/or ethnic diversity. With regards to *The Spirit Level*, Saunders (2010) argued that in drawing a relation between income inequality and well-being, Wilkinson and Pickett (2010) did not take factors such as race and ethnicity into account. According to Saunders (2010), racial and ethnic diversities are more powerful determinants of problems such as homicide, violence, infant mortality, life expectancy, and teenage pregnancy. Similarly, Deaton and Lubotsky (2003), argued that the correlation between income inequality and well-being is confounded by racial composition. The criticisms regarding race and ethnicity are elaborated in the following sections.

Homicide & violence.

Saunders (2010) argued that when analyzing crime and homicide rates, Wilkinson and Pickett (2010) do not take the issue of race into account. *The Spirit Level* showed that homicide and crime rates in USA were significantly high. The correlation between imprisonment rates and inequality was one of the strongest associations shown by *The*

Spirit Level. However, according to Saunders (2010), Wilkinson and Pickett (2010) do not take into account that ethnicity mix or race can be confounding variables for the violence related outcomes such as homicide. Saunders (2010) argued that income inequality is closely related to ethnic diversity. In the USA, the wider income differences are in those states with larger African-American populations. The same states also struggle with the negative social and health outcomes. It is not clear whether or not it is income inequality or racial diversity that is causing the crime and homicide problems.

To investigate this issue, Saunders (2010) replicated Wilkinson and Pickett's (2010) graph of homicide rates against income inequality for the US states. Saunders (2010) stated that many of the states with highest homicide rates are in the south such as Louisiana, Maryland, Missouri, and South Carolina. Saunders (2010) reported that murder rate in the south is almost double comparing to the rest of the country. In spite of the observation that the significant correlation between income inequality and homicide rates still remained even after excluding the southern states, Saunders (2010) claimed that racial diversity is the real reason for high homicide rates. According to Saunders (2010), the size of the black population explains half of the variance in homicide rates and in fact that it is a stronger predictor of homicide rates than the extent of income inequality. Saunders (2010) concluded that "income inequality does not explain state's homicide rate; the size of its black population is the only predictor we need – and it is a strong one"(p. 83).

In response to Saunders' (2010) claim about the proportion of African American population, Wilkinson and Pickett argued that a study by Daly and Wilson (2010) has recently shown the claim that US violence is driven by 'southern culture' is spurious (The

Equality Trust, 2010). In this study, Daly and Wilson (2010) found that when southern and northern states are analyzed separately, violence is related to inequality. This study reported that the rate of violence rose along with inequality amongst both 'black' and 'white' perpetrators of violence. According to Chon (2012), the empirical evidence for the relation between racial diversity and homicide rates is inconsistent. Some studies have found a positive relationship between the two variables and other studies found no significant relationship between the two[5]. Chon (2012) examined the relations between population diversity, income inequality, and homicide rates. It was found that the effects of income inequality and population diversity were independent of each other. Even though population diversity was related to higher rates of homicide, it did not render the effects income inequality insignificant.

An alternative way of interpreting the association between income inequality, homicide, and racial diversity can be based on the fact that inequalities in the distribution of income are often paralleled with differences in race and ethnicity. In other words, gender and ethnic minorities are more likely to suffer from economic disadvantage and consequently struggle with higher levels of health and social problems such as homicide or violent crimes. According to McCall, Land, and Parker (2010), areas with higher rates of racial minorities have higher levels of resource deprivation, concentrated poverty, higher income inequality, and higher unemployment rates have also higher rates of homicide. Therefore, the negative effects of income inequality can disproportionately impact racial/ethnic minorities due to conditions of material deprivation, which may lead

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[5] The inconsistencies found between studies are due to the fact that each study looked at different racial groups. For example some studies looked at Hispanics, Asians, and Middle Eastern while others only looked at 'blacks' (Chon, 2012).

to higher rate of violence and homicide and consequently poor health outcomes.

Infant mortality & life expectancy.

With regards to the relation between infant mortality and state level inequality, Saunders (2010) argued that the real cause in variation of infant mortality among US states is not income inequality but race. Saunders (2010) initially observed that there is a significant but weak relation between infant mortality and income inequality among US states. Mississippi appeared to be an outlier, and if removed, the association between infant mortality and state level inequality would dissipate. To show that the effect observed in *The Spirit Level* is due to race and not income inequality, Saunders (2010) examined the plot of racial compositions among US states against infant mortality. It revealed a clear trend line with a much steeper slope comparing to the one for income inequality. According to Saunders (2010), the proportion of African-Americans in the population of US states explains more than half the variance in infant mortality rates. Saunders (2010) concluded, "infant mortality rates reflect the racial composition of the states… but not their degree of income inequality, which is wholly unimportant"(p. 87).

In terms of the relationship between life expectancy and state level income inequality, Saunders (2010) found that inequality explains 20% of variation in life expectancy among US states. Saunders (2010) observed that if the sample states were separated into two groups of southern and northern states, the significant relation between income inequality and life expectancy would collapse. Moreover, when Saunders (2010) replaced racial composition for income inequality he reported a stronger model than the one reported by Wilkinson and Pickett (2010). Based on these results, Saunders (2010)

concluded that racial composition is the most powerful predictor of average life expectancy among US states while income inequality appears to be marginal.

Wilkinson and Pickett did not directly respond to Saunders (2010) argument about racial composition being a more powerful predictor of life expectancy and infant mortality among US states. But they argued that life expectancy is shown to be responsive to the changes in income inequality throughout different time periods (The Equality Trust, 2010). A study by Clarkwest (2008) has shown a strong negative association between the changes in income inequality and changes in longevity. The US states with larger increases in inequality between 1970 and 2000, were observed to have less improvement in life expectancy than those states with smaller increases in inequality. The implication of this finding is that if the variation in life expectancy among US states were due to racial composition, the rates life expectancy would not change as a response to changes in inequality.

Similar to Saunders' (2010) argument, Deaton and Lubotsky (2003) argued that the correlation between income inequality and mortality rates among US states is confounded by racial composition. When in US states and Metropolitan Statistical Areas (MSAs) the fraction of black population is higher, inequality between incomes of 'blacks' and 'whites' is also higher. Deaton and Lubotsky (2003) reported that conditional on the fraction black, neither city nor state mortality rates are correlated with income inequality. Mortality rates are higher where the fraction black is higher. Deaton and Lubotsky (2003) indicated that the higher mortality rates in higher black fraction areas is not only due to low incomes of blacks but also because of the higher mortality of whites in these areas. Deaton and Lubtsky (2003) concluded that race is a confounding

variable in the relation between income inequality and mortality.

In response to criticisms regarding race, Ram (2005) examined the effects of race and racial composition in relation to income inequality and population health. Using state-level data for year 2000, Ram (2005) reported that results do not support the view that inclusion of race or racial composition variables renders income inequality insignificant. Moreover, it was observed that racial composition does not cause income inequality to lose significance with regards to population health.

In a very similar study, Subramanian and Kawachi (2003) examined whether or not the relation between income inequality and population health across US states has been confounded by race. Controlling for demographic variables such as race, gender, and age, state level income inequality was associated with poor self-reported health. It was found that controlling for the proportion of state population who are black did not explain the effect of income inequality. While being black at the individual level was associated with poorer self-rated health, no significant relationship was found between poor self-rated health and the proportion of black residents in a state. Subramanian and Kawachi (2003) reported that neither race, at the individual level, nor racial composition, as measured at the state level, explain away the previously reported association between income inequality and poorer health status among US states.

The difficulty in determining which study provides the correct results is due to the fact that the studies are not directly comparable. They use different methods of analysis and have imprecise use of categories such as 'health' or 'fraction black'[6]. It seems that

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[6] In terms of health, Deaton and Lubotsky (2003) measure mortality while Subramanian and Kawachi (2003) measure self-rated health. The social exposures associated with self rated health and mortality may not be the same (Lynch, Harper, & Davey Smith, 2003). Moreover, it is not clear whether or not fraction

there is empirical evidence for both sides of the argument. However, what is important is how these evidences are interpreted. For instance, Deaton and Lubotsky (2003) rejected the effects of health services, education, and regional differences as explanations for the effect of race/ethnic composition. They endorsed a direct psychosocial explanation that the physical presence of greater concentrations of non-white race/ethnic groups reduces community trust levels and induces stress that affects white mortality.

However, as discussed by Lynch, Harper, and Davey Smith (2003), the proportion of non-white race/ethnic groups can be associated with many other factors. Places with high racial mixtures tend to under-invest across broad spectrum of infrastructures that influence health (Lynch et al., 2003). The conditions of material deprivation bring about negative health outcomes not only for 'black' individuals but also 'white' individuals living in racially mixed areas (Lynch et al., 2003). As I discussed in chapter three, high levels of income inequality go hand in hand with underinvestment in health protective resources (see Davey Smith, 1996). The policies that promote and maintain uneven distribution of income also promote conditions of material deprivation damaging for well-being (Kaplan, Pamuk, Lynch, Cohen, and Balfour, 1996). The negative effects of income inequality are magnified for racial and ethnic minorities. The higher proportion of blacks and racial minorities suffer greater overall poverty, lower average incomes, lower educational attainments, and less health insurance coverage (Lynch et al., 2003).

Therefore, one interpretation is to attribute the negative health outcomes to racial mixture, fraction black, or percentage of non-white groups. Or one can attribute aversive health outcomes to the underlying structural factors such as lack of health protective

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black in Deaton and Lubotsky's (2003) is an aggregate (percentage of African American) or individual (individual race) measure (Subramanian & Kawachi, 2003).

resources more commonly seen in areas with higher levels of racial mixture. In this thesis, I argue for the latter interpretation. Racial and ethnic minorities are more vulnerable to the negative impacts of income inequality. Individuals living with economically unequal areas with high levels of racial mixture suffer from lower overall health status due to lack of access to health protective social resources.

Teenage Births.

With regards to the relation between teenage pregnancy and income inequality among US states, Saunders (2010) argued that ethnicity is a better predictor of teenage pregnancy than income inequality. According to Saunders (2010), teenage pregnancy is a kind of phenomenon where cultural differences should be taken seriously. Wilkinson and Pickett (2010) indeed acknowledged this fact, and stated that Hispanic and African American girls are twice as likely to become teenage mothers. However, Wilkinson and Pickett (2010) stated that ethnicity does not influence the interpretation of the effect of income inequality on teenage births because minority populations "don't have much impact on the ranking of countries and states by teenage pregnancy or birth rates"(p. 124).

Saunders (2010) disagreed with this proposition and claimed that the proportion of minority population does have an effect on the ranking of US states by teenage pregnancy. To show this, Saunders (2010) plotted teenage birth rates of the 50 US states against the proportion of African American population in each state. The result was a plot very similar to Wilkinson and Pickett's plot of teenage births against income inequality with states such as Mississippi and Louisiana scoring high on teenage birth rates. When taking the size of the Hispanic population into account, Saunders (2010) found that the

proportion of minority population account for the 27% variance in the rate of teenage births as opposed to the 19% variance attributed to income inequality in the Wilkinson and Pickett's (2010) data. Therefore, Saunders (2010) concluded that ethnicity is a better predictor of teenage birth rates comparing to income inequality.

As it was discussed earlier, economic disadvantage is highly associated with increased rates of teenage births and pregnancies (UNICEF, 2001; Ermisch & Pevalin, 2003). Teenagers living in relative poverty, having a mother who was a teenage parent, and having parents with low educational attainments face higher chances of becoming pregnant or giving birth (Maynard, 1997). This is because teenagers from low SES backgrounds do not have enough resources at their expense for sex education and contraception, have reduced access to health clinics, and usually don't receive much help when they become pregnant (UNICEF, 2001). Moreover, teenagers living in economic disadvantage may not have the same access to quality education as teenagers from middle class and withstand lesser chance for getting hired in high paid jobs as adults (UNICEF, 2001). More teenagers from racial and ethnic minority groups suffer from economic disadvantage, and from higher rates of pregnancies and births (UNICEF, 2001). As I discussed in the second chapter, teenage births demonstrate a social gradient with income levels. Ermisch and Pevalin (2003) showed that teenagers from low income households are twice as likely to give birth comparing to teenage girls from middle class households and four times as likely to give birth comparing to girls from upper class households. This social gradient shows that teenage birth and pregnancy rates are directly influenced by the levels of income inequality with higher levels of negative impacts for the groups at the bottom of income hierarchy such as racial/ethnic minority groups.

Moreover, Saunders (2010) only examined the effect of race/ethnicity for the US states. The international comparisons have confirmed the higher rates for teenage births and pregnancies in economically unequal countries (Pickett, Mookherjee, & Wilkinson, 2005; Gold et al., 2001; UNICEF, 2001). Another important point to take into account is the interpretation of empirical evidence. According to UNICEF (2001), "Disaggregating national data is almost always useful for the purpose of more closely informing analysis and policy. But too often ethnic differences are used to draw the wrong conclusions while other equally important ways of breaking down the statistics are ignored"(p. 14). The evidence for higher rates of teenage pregnancies and births among racial ethnic minorities can be either attributed to race or it can be attributed to the material conditions under which racial minorities live and the structural factors that put them in higher risk of a problem such as teenage pregnancy. I argue for the latter interpretation, and highlight the fact that reduction of inequality levels are crucial in reducing problems such as teenage births and pregnancies.

Poverty

The third criticism to the relation between income inequality and well-being is focused on poverty. Saunders (2010) and Deaton (2003) argued that poverty is responsible for the effects observed in terms of health and social problems rather than income inequality. Saunders (2010) argued that poverty is responsible for creating the effects of social distrust shown in *The Spirit Level (2010)*. At first Saunders (2010) argued that the statistically significant correlation between income inequality and trust is because of the influence of Nordic counties. The Nordic countries and the Netherlands cluster on the top left corner quadrant of the graph and create a strong negative

association between income inequality and trust. When Saunders (2010) took out the Nordic countries from the analysis, it was observed that a statistically significant association between income inequality and trust still remained but to a weaker degree. In another analysis, Saunders (2010) chose 26 countries and examined the relation between trust and income inequality. It was observed that there is strong correlation between income inequality and trust levels. Again, Scandinavian countries formed a distinct cluster. According to Saunders (2010), the countries that scored low on trust levels were countries with high levels of poverty as well as income inequality. Saunders (2010) argued that the effect of social distrust might be due to poverty and not income inequality.

To determine how much of the social distrust is related to income inequality, Saunders (2010) measured trust in relation to income inequality as well as wealth distribution. Saunders (2010) stated that "we get a good, strong predictive model accounting for almost two-thirds of the variance in countries' trust levels, but we find that most of the explanatory work is being done by GDP, not by income inequality"(p. 43). GDP appeared to have more than twice an impact on trust levels than income inequality. Saunders (2010) argued that in contrast to Wilkinson and Pickett's (2010) statement that wealth is irrelevant when it comes to trust, it seems that prosperity matters more for trust levels than income inequality. Therefore, the effect of social distrust is related to poverty in a greater extent than to income inequality.

In response to Saunders (2010) criticisms, Wilkinson and Pickett argued that the evidence for the relation between income inequality and trust is not only based on the country level analysis (The Equality Trust, 2010). As it was discussed earlier, Wilkinson

and Pickett (2010) found a relation between income inequality and trust among the US states. This finding is completely independent of the influence of Nordic countries. Wilkinson and Pickett also argued that the relation between income inequality and trust have been confirmed by other studies (The Equality Trust, 2010). Kennedy and Kawachi (1997) showed that people are much more trusting of each other in more equal states. Kawachi, Kennedy, Lochner, and Prowthrow-Stith (1997) showed that not only social trust is higher in egalitarian societies but it is also related to better health. Kennedy, Kawachi, Prothrow-Stith, Lochner, & Gupta (1998) found that in addition to the fact that income inequality is associated with firearm violence, it is also associated with social distrust among US states. Moreover, Rothstein and Uslaner (2005) demonstrated a causal relationship between income inequalities and trust levels. Using a cross national statistical analysis, Rothstein and Uslaner (2005) argued that inequality is a key factor in shaping generalized trust but that there is no direct effect of trust on inequality. The causal direction starts with inequality.

Another criticism with regards to poverty is from Deaton (2003). Deaton (2003) argued that the observed correlation between income inequality and mortality may be a reflection of the effect of poverty on health. Income inequality itself is not a determinant of population health. As Deaton (2003) argued, infant and child mortality in developing countries is primarily a consequence of poverty. Therefore, conditional on average income, income inequality is important only because it is effectively a measure of poverty. According to Deaton (2003), it is low incomes that are important not inequality and there is no evidence that income inequality is hazardous to population health.

Both absolute and relative income levels are important determinants of well-

being. Poverty relates to absolute income levels while income inequality relates to relative income levels (Wilkinson, 2005). The effects of absolute and relative income are interrelated when speaking of low-income levels. Groups positioned at the bottom of income hierarchy are more likely to suffer from effects of both absolute and relative income levels (Wilkinson, 2005). However, as I have discussed, absolute income levels become a less relevant once passing the poverty threshold and cannot determine poor health outcomes among conditions with equal absolute income levels. Income inequality is a better determinant for health inequalities when looking at conditions with equal absolute income levels.

Moreover, a study by Ram (2005) examined the role of poverty with regards to the relation between income inequality and population health. Ram (2005) reported that income inequality retains statistical significance with population health, both with and without inclusion of poverty in the model. Poverty does not show significance at any sensible level without the presence of income inequality. Ram (2005) reported that in general poverty seem to have some mortality-increasing consequence among the US states. But the role of income inequality appears stronger and it is unlikely that income inequality parameters reflect the effects of poverty. Finally, the bulk of studies discussed in this thesis demonstrated that it is not only poverty and low incomes levels that are important for population health, but also inequalities in the distribution of income plays an extremely important role in determining national health status. As argued by Wilkinson (1996), the richest countries do not benefit from the best national health status. Rather it is the more economically egalitarian ones that exhibit optimal national health.

The Direction of the Relation between Income Inequality and Well-Being

The last criticism posed to the income inequality hypothesis is focused on the direction of the relationship between income inequality and well-being. It is argued that health problems lead to the inequalities in income and social problems. According to this argument, individuals with poorer health drift down the socio-economic hierarchy due to their deteriorating health condition while individuals with superior health conditions rise upwards (Townsend & Davidson, 1990; Adler & Snibbe, 2003; Carroll, Davey Smith & Bennett, 1996).This explanation is called natural and social selection or biological drift (Black, Townsend, & Davidson, 1990; Adler & Snibbe, 2003).

As shown by *The Spirit Level* (2010), societies with high levels of income inequality did not only perform poorly on one particular measure but they did poorly on most of the health and social problem measures. In response to the proposition that health and social problems being a cause of income inequality, Wilkinson and Pickett (2010) argue that this explanation does not describe why societies that perform poorly on one particular health or social problem also do poorly on most of the other problems. If all of these problems were *not* a result of the same thing (income inequality) then there would be no reason why societies, which for example score high on obesity rates, would also score high on violence (Wilkinson & Pickett, 2010).

Moreover, some of the health and social problems are unlikely to lead to serious loss of income (Wilkinson & Pickett, 2010). For example, even though childhood outcomes are worse in unequal countries, low child well-being will not have a major influence on loss of income in adulthood. Or homicide rates are not considered a major cause of income inequality even though their rate is higher in unequal societies. If social problems were responsible for creating income inequalities, the adverse health effects

would not affect the whole income spectrum but only the poor (Wilkinson & Pickett, 2010). However, as it was discussed throughout the thesis, this is not the case. The relationships discussed between income inequality and social problems are not only limited to the poor. Even if there is some loss of income among those who are ill or experience social problems, it does not explain why people with good incomes still experience worse health in more unequal countries comparing to their counterparts in equal countries. For these reasons, it is unlikely that the direction of the relation goes from social and health problems to income inequality.

Conclusion

As discussed above, the income inequality theory has been subject to many criticisms. This theory has been subject to criticisms regarding race, ethnicity, and cultural diversity being causal determinants in creating the effects discussed in this thesis. One reason that income inequality is targeted by such criticisms is because of the difficulty to prove causality in the relation between income inequality and well-being. A difficulty in proving causality is due to the fact that income inequality cannot be experimentally manipulated in half of the sample and not in the other half. Therefore it is empirically difficult to demonstrate causality between income inequality and health and social problems.

In spite of this, some studies have shown a causal relationship between income inequality and various health measures. For instance, some associations that are observed among humans are shown to be causal in animal experiments. As an example, the Whitehall study showed that cardiovascular health declines with declining social status. The experimental manipulation by Sapolsky (1993) discussed in the third chapter,

showed that moving down the status hierarchies is causally related with higher risk of cardiovascular disease in macaque monkeys. Moreover, Rothstein and Uslaner (2005) demonstrated a causal relation between income inequality and social trust. It should be pointed out that the critics themselves did not prove causality either. As I discussed, the critics included or excluded various data points to obtain desired effects or they argued that other factors such as ethnicity, race or culture have primacy over income inequality by finding greater effect size for these factors (see Snowdon, 2010; Saunders, 2010).

Even though the empirical evidence for a causal relation between income inequality and well-being is not strong, causality is not the only criterion upon which the theory of relative inequality should be judged. According to the philosopher of science, Karl Popper (1902-1994), the strength of a scientific theory relies on its testability. Popper (1960) argued that when a theory is testable it implies that events of a certain kind cannot happen and so it asserts something about reality. In order to test a scientific theory, we make genuine conjectures that are highly informative guesses or predictions that are not previously known about a particular condition under study. If the conjecture turns out to be false, then the theory is falsified. On the other hand, if the conjecture turns out to be true, then the theory is corroborated. Therefore, the best test of validity of a theory is its ability in making true predictions of relations not already known.

According to Wilkinson and Pickett (2010), many successful predictions have come out of the income inequality theory. One example is when evidence was found that unequal countries have higher obesity rates it was hypothesized that calorie consumption levels should also be high per person in those societies. When testing this new hypothesis, it was found that calorie intake per person was in fact higher in more unequal

societies. Another example is when the relation was found that more unequal societies have more punitive sentencing and higher imprisonment rates, it was hypothesized that this should also apply to children. Wilkinson and Pickett (2010) found that the age of criminal responsibility was found to be lower in unequal countries. As a result children are more likely to be tried as adults and face harsher sentencing.

Looking at the empirical evidence discussed in the second and third chapters as well as the arguments for and against the income inequality theory, I argue that there is more evidence corroborating this theory than towards refuting it. As I have shown in this thesis, the relation between income inequality and well-being is too strong to be attributed to chance. It was observed that factors such as cultural diversity, racial composition, ethnicity, and poverty do not account for the relation between income inequality and well-being. In addition, health and social problems do not account for creating inequalities in income.

Moreover, it has been shown that changes in health measures parallel changes in the degree of income inequality. For instance, as observed in Britain and the Roseto community, social cohesion changed in response to the narrowing or widening of income inequality in different time periods. Similarly, shown in the case of the USA and Japan, life expectancy was shown to be responsive to changes in income inequality over time. According to Wilkinson and Pickett (2010), "If health and inequality went their separate ways and passed only coincidentally, like ships in the night, we would not keep catching repeated glimpses of them in close formation" (p. 190).

The reason for the increased level of debates and controversies on the relation between income inequality and well-being is because income inequality is not only an

academic and social subject matter but it is also a political matter. The empirical evidence on the relation between income inequality and well-being has profound impacts in terms of social policies which consequently affect population health at large. Based on the evidence discussed so far, higher levels of income inequality do have adverse impacts on population well-being. Since significant parts of psychology are concerned with improving the well being of individuals, it is crucially important for psychologists to take the issue of income inequality seriously. However, as I discuss in the next chapter, an effective solution to improving population well-being cannot be limited to a psychological intervention. Rather psychologists must take socioeconomic realities into account. An effective solution to improving population well-being should include a structural intervention directed at narrowing the income gaps within a society.

Chapter Five

What Can Psychologists Do about the Issue of Income Inequality?

As I have discussed so far, income inequality has a spillover effect on a wide set of problems ranging from mental illness, obesity, and reduced life expectancy to distrust, social disintegration, and violence. The research on social determinants of well-being, stimulated by the Whitehall studies, has evolved into three generations of research. According to the APA Task Force on SES (2007) report, the first generation of research, which has been generated outside of the discipline of psychology, explored the SES related health gradient across different countries and established its universality among the industrialized nations. The second generation of research, which involved the participation of psychologists, has examined the different pathways through which socioeconomic status gets under the skin to damage well-being. Psychologists have looked at variety of factors including health behaviors, life style choices, personality traits, and differential exposure to stress as potential pathways to understanding SES related health disparities (APA Task Force on SES, 2007). The third generation of research examines the socioeconomic inequality itself. Psychologists haven't been very active in analyzing or addressing socioeconomic inequalities directly as a way of preventing psychosocial problems.

In this chapter, I argue that elimination of aversive consequences of income inequality on well-being would not be effectively possible, if psychologists only focus on investigating the psychosocial pathways, and aim at improving the psychosocial environment through behavioral interventions. The reduction in prevalence of psychosocial problems requires that psychologists address income inequality directly. In

this chapter, I also argue that it is important that psychologists conceptualize income inequality as a structural problem and aim at addressing this issue through structural interventions. Finally, I discuss the various ways psychologists can address the issue of inequality and contribute to reducing the income gaps.

Directing Research Focus to Inequalities in Income

As I have previously discussed, the social gradient of health shown by the Whitehall study posed serious challenges to the mainstream psychology's assumptions about health determinants. The problem was that the traditional health determinants identified by psychologists stopped short of explaining the health disparities observed by the social gradient of health. Factors such as health habits, life style choices, and genetic makeup account only for one third of the disparities observed by the social gradient of health (Marmot, 2004). In addition, according to the APA Task Force on SES (2007), the knowledge about psychosocial pathways does not reveal why the social gradient of health occurs in the first place. Furthermore, the critics of psychosocial environment theory have argued that this explanation does not provide an effective solution for eradicating SES related psychosocial problems (See Lynch, Davey Smith et al., 2000; Muntaner & Lynch, 1999).

Since socioeconomic inequalities most powerfully account for systemic differences in psychosocial problems observed by the social gradient of health, it is important for psychologists to not only focus on the psychosocial pathways but also focus on economic inequality itself. Psychologists have also emphasized the importance of looking at economic inequalities directly in addition to investigating the psychosocial pathways. According to Adler (2007), when many studies repeatedly point out that the

level of parental socio-economic status is positively correlated with the experiences of stress among adolescents, the improvement of adolescents' educational experience should entail creation of equal access to socio-economic resources for vulnerable families. Increasing educational and career opportunities for low SES children not only helps closing the health disparities for their generation but for their next generation as well. According to Adler (2007), the ideal way to reduce disparities is to attack the inequalities in SES itself (see p. 106).

Conceptualizing Income Inequality as a Structural Problem

As I have previously discussed, economic inequalities are conceptualized based on individualistic notions within the psychological discipline (Harper, 2003). The understanding of income inequality based on individualistic attributes entails that unequal income status is an outcome of personal characteristics and life style choices of individuals (Lynch & Kaplan, 1997; Dorling, 2012). Consequently, attempts at implementing change regarding economic problems would also be individualistic in focus (Bullock & Limbert, 2009). On the other hand, the structuralist understanding of economic inequalities entails that income inequality is a structural problem that is a product of the processes of powerful social institutions (Graham, 2007; Bryant, 2012).

It is important that psychologists conceptualize income inequality as a structural problem and implement structural interventions in order to address this problem. Psychologists including Bullock and Lott (2007) and Carroll and Davey Smith (1997) have emphasized the necessity and the importance of a structural analysis in psychology when dealing with the issue of income inequality. According to Bullock and Lott (2007), a shift from an individualistic focus to a structural one with regards to economic

problems, is the most fundamental and transformative shift psychologists can make. Similarly, Carroll and Davey Smith (1997) have highlighted the importance of implementing a structural approach in reducing SES related health disparities by discussing the *HMS Titanic* disaster.

Carroll and Davey Smith (1997) have argued that the *Titanic* death rate differences were not arbitrary but systemically related to the quality and cost of the accommodation. The fatality rate of women passengers in the third class was 45.3 per 100 people while the fatality rates of the cabin class and first class were 16.1 and 2.8 per 100 respectively. According to Carroll and Davey Smith (1997), to eliminate the social gradient of mortality in the case of *Titanic* disaster a behavioral strategy would be to swim. However, this strategy would not be effective given the freezing temperature of ocean water. The psychological strategy would be to teach and promote relaxation and stress management. This strategy would not be any more effective because the people on board will eventually drown. The ideal life saving strategy would be to have sufficient lifeboats on board for all of the classes. To implement this approach through a structural change would be to abolish the cabin-class system, which allows all passengers have access to upper decks and lifeboats regardless of their class. The arguments put forth by these psychologists challenge the psychological discipline to ask more structural questions regarding the impact of income inequality on psychosocial well-being.

Contrary to the public assumption, income inequality is not a fixed and inevitable consequence of macro-economic structures rather it can be changed based on the type of social policies implemented by social institutions (Cahill, 2005; Graham, 2007). The framework that views income inequality as an inevitable consequence of macro-

economic structures is dominant in mainstream psychology (Cahill, 2005). This view puts emphasis on global forces to explain the ever growing income gaps and argues that all countries will sooner or later demonstrate signs of growing inequality because they are exposed to the same forces of international competition and technological change (Atkinson, 1995). In this perspective, the policies available to nation states, such as taxes, benefits, and welfare services, are viewed to be insufficient to moderate the polarizing effects of market forces (Atkinson, 2002).

The alternative view is that the widening inequalities in income among the developed countries are not inevitable and as Cahill (2005) argues it is crucial that psychologists acknowledge this fact. In contrary to the first view where global forces are emphasized, the second view emphasizes the social policies (Graham, 2007). According to this perspective, the extent of economic inequalities within a society depends on the type of policies that are at work. Based on the type of social policy implemented, economic inequalities can be either moderated or intensified (Bryant, 2012; Graham, 2007). Given the influence of social policies on the extent of income inequality, in the following sections I argue that psychologists can address income inequality by investigating the impacts of macro-economic structures and redistributive policies on psychosocial well-being.

Investigating the Impact of Macroeconomic Structures

It has been observed that the style of governance and institutional arrangements of a society have direct effects on the levels of income inequality and on population well-being (Woolf & Aron, 2013). This is because the institutional arrangements of a society determine population entitlement and access to social determinants of health such as

housing, health care, education, social security, and employment (Woolf & Aron, 2013). There are three general types of macroeconomic systems with different welfare state structures: the Nordic model (Social Democratic welfare state), the Continental European model (Christian Democratic or Conservative welfare state), and the Anglo-Saxon model (Liberal welfare state) (Bryant, 2010; Navarro & Shi, 2003). The difference between these welfare state systems derive from the choice of dividing welfare responsibilities between three welfare producing factors: the market, the family, and the state (Navarro & Shi, 2003).

The Nordic model, places the responsibility of welfare on the state (Navarro & Shi, 2003). The social democrat societies (such as Sweden, Finland, Norway, and Denmark) are characterized by universalistic social policies (Navarro & Shi, 2003; Raphael, 2003). The welfare state in social democrat nations has a strong redistributive impact (Joumard, Pisu, & Bloch, 2012). The social democratic nations have strong socialist parties, high union density and have high employment expenditures, which focus on implementing full employment strategies (Bryant, 2010; Navarro & Shi, 2003). Moreover, social democratic nations have the highest rates of public spending on health care, education, employment, social security and welfare (Bryant, 2010; Navarro & Shi, 2000). These societies earn a higher percentage of national income from wages rather than from capital and have high levels of government intervention in free markets (Bryant, 2010). As a result of these policies, earning income inequality is lower in social democrat nations and these societies also benefit from highest levels of population well-being (Bryant, 2010; Wilkinson & Pickett, 2010).

The Continental European model places the welfare responsibility primarily on families (Navarro & Shi, 2000). The Christian democrat or conservative nations which operate under continental European model include Belgium, Netherlands, Germany, France, Italy, and Switzerland (Navarro & Shi, 2000; Bryant, 2010). In this model, the provision of social services to the elderly, the disabled, and children is relied on the family; whereas in the Nordic model this responsibility is on the state (Navarro & Shi, 2003). The welfare state of continental European model is characterized by large cash transfers; but the redistributive effect of the state is lower compared to the Nordic model (Navarro & Shi, 2003; Joumard, Pisu, & Bloch, 2012). The conservative nations have lower social spending compared to social democrat nations but have higher spending comparing to the liberal nations (Navarro & Shi, 2003). The conservative nations have weaker labor movements and have higher percentage of unemployment (Navarro & Shi, 2003). These societies earn a higher percentage of their national income from the capital comparing to social democrat countries (Navarro & Shi, 2003). Therefore, income inequality is higher in the conservative nations comparing to social democrat nations (Bryant, 2010; Navarro & Shi, 2003). In terms of psychosocial well-being, the conservative nations perform worse than Nordic nations, but better than liberal nations (Wilkinson & Pickett, 2010).

The Anglo-Saxon model, which operates with a liberal welfare state, puts the welfare responsibility on the market. The liberal nations, such as Canada, US, and UK, are governed by policies that are committed to a full expression of market forces with minimal state intervention (Navarro & Shi, 2003). In this model, the welfare functions are assigned to the private sector with state covering only the minimum (Navarro & Shi,

2003). With the exception of Canada and UK, the liberal nations have the lowest public expenditures on health care (Navarro & Shi, 2003). The rates of unemployment and the percentage of low income earners is higher in liberal nations (Navarro & Shi, 2003). The liberal nations earn a higher percentage of their national income from the capital. Therefore, income inequality is higher among the liberal nations (Bryant, 2010). In terms of psychosocial well-being, liberal nations score poorly on Wilkinson and Pickett's (2010) scale of income inequality comparing to the other two categories of nations.

As discussed above, the level of income inequality is influenced by certain policies that determine the type of macroeconomic structure and governance styles. Since the different macro-economic systems have different implications for the extent of income inequality and for psychosocial well-being, psychologists can explore the impact of different macro-economic systems on psychosocial well-being. By analyzing the effects of different elements of macro-economic systems, psychologists can provide valuable information about the aspects of economic systems that are related to psychosocial problems. Moreover, societies can choose between distinct economic options and this choice carries important implications for the well-being of society members. As an example, Sweden lowered the negative impact of income inequality by restructuring its macroeconomic system through reductions in unplanned capital mobility, increase in worker's control over production, and reduction of economic distance between social classes (Cahill, 2005). Therefore, as argued by Cahill (2005), by investigating the impact of macro-economic structures, psychologists can take an important role in facilitating choices between alternative economic options that lead to better psychosocial outcomes for populations.

Investigating the Impact of Redistributive Policies

Taxes and transfers have been the two most commonly discussed ways to reduce income inequality. Taxes refer to the charges imposed on taxpayers by the state; and cash transfers refer to governments' distribution of fiscal resources, generated by the economy, to the population (Bryant, 2010). Taxes and transfers have important impacts on lowering the levels of income inequality and relative poverty. Income inequality after taxes and transfers was 25% lower on average in the OECD area in the late 2000s (Joumard, Pisu, & Bloch, 2012). For the same period, poverty measure after taxes and transfers was 55% lower (Joumard, Pisu, & Bloch, 2012). Cash transfers reduce income dispersion more than taxes in most OECD countries. Three quarters of the reduction in inequality between market and disposable income are due to cash transfers (Joumard, Pisu, & Bloch, 2012).

The redistributive impact of taxes and transfers vary widely across countries. The redistributive impact of transfers depends on the size and progressivity of transfers. According to Joumard, Pisu, and Bloch (2012), welfare systems in OECD countries have three main objectives. The first objective is the redistribution of income over life cycle with public old age pensions that are largely financed out of social security contributions or general taxation. The second objective is to provide income maintenance or insurance to help citizens cope with adverse risks such as unemployment, disability, and sickness. The third objective is to avoid poverty or a too wide dispersion in living standards, with benefits financed mostly out of taxation.

The welfare state in social democratic nations has a strong redistributive impact due to large cash transfers and high taxation rates that aim at equalizing income not only

across the life span of individuals (in the form of old age pensions or child benefit) but also aim at equalizing income between the rich and the poor (Joumard, Pisu, & Bloch, 2012). In this system, the personal income tax, which is the most progressive form of taxation, plays a large role while consumption taxes account for a small share of total taxes (Joumard, Pisu, Bloch, 2012). These cash transfers are both based on means tested and universal benefits with a de-familialisation of welfare responsibilities. Therefore, these cash transfers are more progressive in a sense that they meet all the three objectives stated above (Joumard, Pisu, Bloch, 2012).

In the continental European system, the redistributive effect of income is focused on equalizing income over individuals' life cycle as opposed to equalizing income between the rich and the poor (Joumard, Pisu, & Bloch, 2012). As a result, the redistributive effect of the state is lower than social democrat nations and also less progressive since transfers rely on social insurance with benefits financed out of social security contributions (Navarro & Shi, 2003; Joumard, Pisu, & Bloch, 2012). The common cash transfers in conservative system are in the form of pension for old age and childhood benefits. The benefits in conservative nations are based on earning abilities and work contribution rather than universal policies (Navarro & Shi, 2003). In this system personal income tax has a marginal role in total taxes (with the exception of Germany and Italy) (Joumard, Pisu, Bloch, 2012). This kind of a transfer gives priority to the first two objectives. The liberal model is characterized by small cash transfers with low distributive impact (Joumard, Pisu, & Bloch, 2012).

The liberal nations have residual assistant welfare states (Navarro & Shi, 2003). This approach to social welfare operates with the assumption that individuals are

responsible for their wellness (Bryant, 2010). In this model cash transfers are supplemented by benefits acquired through labor market that are means-tested (Navarro & Shi, 2003; Joumard, Pisu, & Bloch, 2012; Bryant, 2010).

Psychologists can examine the redistributive impact of taxes and cash transfers on psychosocial well-being. As argued by Adler and Newman (2002), there is a need for more research on the impact of redistributive policies on psychosocial well-being. Psychologists can investigate the effects of various tax and transfer policies that lead to better outcomes for psychosocial well-being. As seen in the Nordic model, the promotion of higher taxation, larger transfers, and more universal redistributive processes are essential in reducing income inequality, which consequently lead to better health outcomes.

As I have already discussed, progressive transfers that play an effective impact on income inequality are the types of transfers that not only equalize income across the life cycle or protect individuals against the aversive outcomes, but equalize income across individuals (between the rich and the poor). In Canada, USA, and UK, while redistributive processes across age groups and life stages are commonly accepted, support for broader redistributive processes across individuals is highly muted (Graham, 2007). Moreover, from mid 1990s to the late 2000s the redistributive impact of cash transfers have weakened on average for the 19 OECD countries (Joumard, Pisu, & Bloch, 2012). The narrowing of income gaps requires more radical redistributive processes that not only reduce income gaps horizontally, across age groups and life stages, but also vertically across different socio-economic stages. Psychologists can advocate the need for higher

levels of vertical cash transfers that have more progressive effects in reducing income inequality and enhancing population well-being in the long run.

Investments on Human and Social Capital

Although in reducing income inequality taxes and transfers play a very important role, narrowing the income gaps can not be accomplished through transfers alone. This is because of two reasons: first, reducing income inequality through taxes and transfers becomes more progressively expensive as inequality between the incomes at the top and the bottom of the hierarchy keeps rising (Besharov & Call, 2009). Second, higher marginal taxation on top incomes reduces income inequality at the cost of lowering the GDP per capita. This type of taxation is more progressive but could potentially lower incentives to work, save, and invest (Joumard, Pisu, & Bloch, 2012).

With regards to the first point, decline in income inequality is purchased at a high price. According to Besharov and Call (2009), in 2003, 28 OECD nations spent an average of 7.4 % of GDP on income transfers to reduce income inequality. These income transfers included cash assistance, disability, housing, and unemployment. Taking into account the old age and health benefits, the average GDP spent on social welfare programs went up to 21.4% of GDP. Using income transfers to reduce income inequality further becomes more progressively expensive. As one moves up the income ladder, many more people have to receive benefits to have a comparable impact on rates of income inequality. For instance, USA requires an income transfer of 5.9% of total

national disposable household income at 50% of median income and 8.3% at 60% of median income to fill its aggregate poverty gaps[7] (Besharov & Call, 2009).

As another example, reducing child poverty below 5% by 2020 in the UK requires an additional 30.5 billion pounds (in 2006 pounds) in that year, more than twice what is being spent on the child credit (Besharov & Call, 2009). This estimate does not include housing costs. If housing costs are taken into account the number of children in poverty increases from 2.8 million to 3.8 million and the amount needed to reduce child poverty would be higher (Besharov & Call, 2009). As the gap between the working poor and the rich increases a greater percentage of GDP must be allocated to reduce the impact of income inequality. The investment on human and social capital is important because in the end making real progress against income inequality will require increasing earning capacities of groups at the lower end of income hierarchy and enhancing socioeconomic mobility.

As I have discussed in the third chapter, based on the neo-material explanation, income inequality damages psychosocial well-being through under investment in social and human capital. Economically unequal countries typically invest fewer resources on human capital and have lower levels of social expenditure on education, employment, health care, and social welfare (Davey Smith, 1996; Kaplan, Pamuk, Lynch, Cohen, & Balfour, 1996). For instance there is a striking contrast between expenditures in social infrastructure between the USA and other industrialized countries. The USA spends 33% of GDP on current general governmental expenditures and 16% of GDP on public social

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[7] Aggregate poverty is the combined income shortfall of all of the poor compared to a poverty threshold (Besharov & Call, 2009).

expenditures. These rates are among the lowest of OECD nations (Raphael, 2003). The USA also spends significantly less on education, health programs, unemployment insurance and welfare supports (Raphael, 2003). Among 30 OECD countries, the USA spends 13.3 % of GDP on social services which is less than OECD average of 16% and less than all OECD countries except Ireland, Korea, Mexico, New Zealand, and the Slovak Republic (Raphael, 2003).

Investment on human, social, and public infrastructures and higher social expenditures lower levels of income inequality and improve well-being. This does not mean that taxations and transfers should be eliminated. Rather it means that income inequality can be most effectively reduced by the combination of taxation and transfer policies as well as policies that would increase investments on human and social capital (Besharov & Call, 2009). In the following three sections, I discuss three strategies in investments on human and social capital, that have the double benefit of reducing income inequality and boosting economic growth. These strategies include investments on education, labor market policies, and on integration of minority groups into workforce. I also discuss the roles psychologists can play in each of these domains in order to contribute to the reduction of inequality levels.

Equity in Education

Education is one of the most commonly discussed ways to reducing income inequality. The countries that devote more resources to public education as a percentage of gross domestic product (GDP) have lower income inequality in subsequent years (Sylwester, 2002). Investment on education is argued to have a double benefit of reducing income inequality and boosting economic growth (Koske, Fournier, & Wanner,

2012). Investments on education decreases income inequality by improving the skills of a nation's labor force, and by increasing the earning capacity of the groups at the lower end of income hierarchy (Koske, Fournier, & Wanner, 2012; OECD, 2012a; Sylwester, 2002). To help reduce income inequality through education, psychologists can investigate strategies and policies that would help ensuring more equality in education. A more equitable distribution of educational opportunities has been shown to entail a more equitable distribution of labor income (Koske, Fournier, & Wanner, 2012; OECD, 2012a). Regarding reducing inequality levels, Weir (2013, October) in APA Monitor on Psychology magazine, emphasized the importance of investment on education and highlighted the unique opportunity for psychologists to get involved with educational reforms in reducing the income gaps.

With regards to educational equality, psychologists have already established a considerable body of research work regarding gender and racial inequalities in education. For instance feminist psychologists have examined various gender stereotypes and stigmatization of women in educational settings (See Valian, 2007). However, there is still much to be done in promoting a greater equality in educational settings. Psychologists can further implement strategies to reduce gender and racial stereotypes and foster a better integration of women, racial minorities, and SES disadvantaged students into educational settings. Educational psychologists are well positioned for this objective. Educational psychologists can investigate the unique problems experienced by women, racial minorities and SES disadvantaged students and channel more supportive resources to these groups to facilitate the their educational success and prevent drop-outs.

Furthermore, psychologists can promote educational reforms that would have positive impact on educational outcomes for the minority students. For instance, postponing early tracking and enhancing the bond between school and home for students. In addition, the implementation of strategies that would limit the influence of personal and social circumstances on education, offers disadvantaged students with a greater level of educational opportunities. Postponing early tracking, strengthening the relation between school and home, limiting the influence of personal and social circumstances are found to promote educational equality (OECD, 2012b). Finally, promoting early education for children, especially from socioeconomically disadvantaged families, is another important way for psychologists to enhance equity in education. Access to early education for SES disadvantaged students has profound effects on future educational success and better earning potentials of these children (OECD, 2012b).

Labor Market Policies

Psychologists, especially in the area of Industrial Organizational (IO) psychology, can analyze the impact of labor market policies that lower earning income inequality within the market, and advocate for higher levels of government spending on health enhancing labor market policies. The aspects of labor force policies that have significant impact on the levels of earning income inequality include: the gap between employment protection on temporary and permanent work, density and strength of work unions, and the level of spending on Active Labor Market Policies (ALMP). Reducing the gap between employment protection on temporary and permanent work, higher unionization, and greater extent of ALMPs not only reduce levels of income inequality but also boost economic growth (OECD, 2012a).

IO psychologists can emphasize the importance of reducing the gap between employment protection on temporary and permanent work. A large gap between employment protection on temporary and permanent work leads to higher levels of earning income inequality (OECD, 2012a; Koske, Fournier, & Wanner, 2012). Workers on temporary contract earn 25% less than workers on permanent contracts (OECD, 2012a). The incomes at the bottom of economic hierarchy are more vulnerable to this type of work contract comparing to the top incomes (OECD, 2012a). Reducing the gap between employment protection on temporary and permanent work helps to reduce earning income inequality within the work force (Koske, Fournier, & Wanner, 2012). This labor market reform stands out as having a positive effect on both employment the labor market prospects of those at the margins (OECD, 2012b). It also reduces the income gap between immigrants and natives (Koske, Fournier, & Wanner, 2012).

The second factor that is important to the extent of earning income inequality is the labor unions. IO psychologists can investigate the influence of unions on labor income inequality, employment rates, and employee well-being. The influence of unions depend on density (number of people covered by collective agreements) and the union's bargaining power (OECD, 2012a; Koske, Fournier, & Wanner, 2012). Empirical evidence shows that on average across countries a rise in the share of workers affiliated to a trade union is associated with lower wage inequality among full-time workers (Koske, Fournier, & Wanner, 2012). The effect of Union memberships on labor income inequality among the employed is not the same across different countries (OECD, 2012a). Higher union membership is found to decrease the dispersion of wages in Australia, Canada, Switzerland, and USA (OECD, 2012a). In these countries union

membership appears to raise the income of low-income workers the most. Therefore, higher levels of union membership will have a lowering effect on income inequality in these countries. Psychologists can highlight the importance of higher levels of unionization in reducing income inequality.

Finally, Psychologists can study the effects of higher spending on Active Labor Market Policies (ALMP) on income inequality. ALMPs reduce unemployment by implementing programs that would enhance workers productivity (Koske, Fournier, & Wanner, 2012). The efficiency of ALMPs depend on program designs and efficiency in addressing the unique needs of certain groups (World Bank, 2000). Psychologists can explore the effectiveness of various programs in terms of design, size, type and assess how well these programs address the needs of low-income groups or unemployed groups. Psychologists can recommend changes that would enhance the effectiveness of job matching process and the skills of the inactive via training programs. Moreover, high public spending on ALMPs contributes to reducing income inequality by mitigating the negative employment effects of generous unemployment benefits, and by improving the income share of those at the bottom while reducing the income share of those at the top of income hierarchy (Koske, Fournier, & Wanner, 2012). Psychologists can emphasize the importance of allocating higher levels of GDP spending on ALMPs to reduce income inequality and improve psychosocial well-being.

Integration of Marginalized Groups into Workforce

A greater integration of marginalized groups into work force will reduce income inequality and boosts economic growth. This entails fostering a greater participation of women, immigrants, racial/ethnic minorities into workforce. Countries with lower levels

of income inequality have higher percentage of women, immigrants, and racial/ethnic minorities in the workforce. Social democratic nations (with the exception of Austria) have a very high rate of women's participation in labor force (Navarro & Shi, 2003). Women in these countries earn higher wages comparing to liberal and conservative nations. Although labor force participation of women in liberal countries is high, their earning wages is very low and have low social protection (Navarro & Shi, 2003).

Fostering a better integration of marginalized groups have been among psychology's important objectives and essential for enhancing psychosocial well-being of communities (Duffy & Wong, 2003). Community psychologists have been especially involved in delivering this objective. Regarding integrating immigrants and racial/ethnic minorities into work force, psychologists can identify the structural barriers to employment of immigrants and foster policies that would eliminate these barriers. For example, community psychologists, Mukkath and Jaffray (2006), identified that structural barriers such as Canadian work experience limits access and full utilization of immigrant employees in the Canadian work force. The consequence of this requirement is that immigrant job seekers are under-employed based on the assumption that they are gaining Canadian experience. Other structural barriers include non inclusive practices where employers discriminate against immigrant candidates because they do not recognize foreign training and education (Mukkath & Jaffray, 2006; OECD, 2012b). In addition, employers often have difficulty assessing and verifying foreign credentials. As a result, immigrant job seekers have to pass professional exams or re-do certification that are expensive and time consuming (Mukkath & Jaffray, 2006). Another barrier is agencies'

lack of ability to provide language courses as part of pre-employment services due to budget cuts (Mukkath & Jaffray, 2006; OECD, 2012b).

As argued by Mukkath and Jaffray (2006) some interventions that can be implemented on the part of community psychologist to foster a greater integration of racial/ethnic minorities into work force include the following. Promotion of promising practices for sourcing, recruiting, developing, and retaining more immigrants. Providing information about foreign credential assessment service to employers. Addressing issues of licensing, credential assessment by advocating for an effective and accessible system for assessing and verifying foreign credentials.

With regards to enhancing the integration of women into workforce, psychologists have determined factors such as child care responsibilities, elderly care that have significant impacts on the choice of career, hour worked, and pay for women (Matlin, 2012). Moreover, psychologists have identified different forms of discrimination within the labor market (Matlin, 2012). In addition to promoting a higher level of participation in education for women, psychologists can foster a greater integration of women into work force by advocating policies that improve availability of formal care for children and elderly. Moreover, psychologists can promote policies and programs that would reduce gender difference in working hours and pay. Finally, psychologists can advocate policies that improve long run living standards through higher participation rates; such as policies that promote higher earning equality by influencing women's career choices.

Conclusion

I discussed that psychologists can get involved in addressing income inequality by investigating the impacts of various macro-economic systems, redistributive policies, and labour market policies on psychosocial well-being, and by advocating for health enhancing economic systems and policies. I also emphasized the importance of greater investments on human and social capital in reducing the income gaps. This objective can be executed through higher government spending on active labor market policies, education, and social services. I discussed that promoting a higher level of educational equality is among the many ways psychologist can contribute to reducing the income inequality. By facilitating the integration of gender, race, and class minorities in education systems, psychologists can help ensuring the academic success of disadvantaged students and improving their future earning potentials.

I furthermore argued that psychologists, especially from the IO area, are uniquely positioned to investigate different aspects of labor market policies and emphasize inequality reducing policies such as higher unionization, better employment protection for low income jobs, and greater spending on ALMPs, that would benefit employees specifically those at the lower end of SES hierarchy. Finally, I discussed that psychologists are uniquely positioned to foster greater integration of minority groups into workforce. Psychologists can achieve this objective by eliminating some of the structural employment barriers faced by women and racial/ethnic minorities as well as by advocating for policies that would allow for a greater labor force participation of minority groups.

Conclusion

In this thesis, I argued that income inequality is a powerful determinant for psychosocial well-being and it is important that psychologists pay critical attention to this issue. Well-being as a broad category for Psychology is a multidimensional concept. It is promoted and maintained not only in the micro (family and personal relations) and meso (work and school) spheres but also in the macro spheres (community, society) (Prilleltensky & Prilleltensky, 2003; Kazak, Klonoff, & Bosch, 2012). In promoting psychosocial well-being, psychology has traditionally focused on analyzing issues related to micro and meso levels and has paid little attention to the impact of macro level problems (Marks, 1996). I argued that since significant parts of psychology are concerned with improving the well being of individuals, it is crucial for psychology to address the issues related to the broader macro-economic structures, such as income inequality, that have direct relevance for psychosocial well-being.

Although income inequality has important consequences for psychosocial well-being, its impact has been relatively under-researched in psychology. Psychology has investigated the impact of economic problems such as low income and poverty on psychological health, to a much greater extent comparing to income inequality. In spite of this, the topic of income inequality has attracted the interest of some psychologists in the recent years and concerns have been voiced about the lack of psychological research work on this issue (see Bullock & Lott, 2001; Belle & Doucet, 2003; Oishi, Kesebir, & Diener, 2011). In the first chapter, I analyzed how income inequality has been discussed in psychology. I argued that economic inequalities have been studied in the context of attribution research. This type of research has been criticized for its individualistic focus

and political naiveté (see Harper, 2003; Bullock & Limbert, 2009). The second area of psychological research regarding economic inequalities is the study of SES related psychosocial pathways (see Adler & Snibbe, 2003). Psychologists have looked at the influence of behavioral and psychological factors, such as life styles that can potentially operate as pathways to create health disparities. Other psychological studies have looked at the relation between income levels, happiness and quality of life (See Phan, 2008; Oisi et al., 2011; Myers & Diener, 1995). In general, psychological research has not studied income inequality extensively.

As I discussed in the second chapter, income inequality has profound negative impacts on psychosocial well-being. High levels of income inequality are strongly associated with higher prevalence of problems such as mental illness, obesity, teenage pregnancy, premature mortality, homicides, and violent crimes. Individuals living in high inequality areas suffer from greater prevalence of mental disorders including anxiety disorders, depression, addiction, impulse control disorders and severe episodes of mental illness (Wilkinson & Pickett, 2010; Fiscella & Franks, 2000; Henderson et al., 2004; Kahn et al., 2000). High levels of income inequality are also associated with higher rates of calorie intake, Body Mass Index (BMI), and physical inactivity among men, women, children, and adolescents (Wilkinson & Pickett, 2010; Pickett et al., 2005; Su et al., 2012; Nikolaou & Nikolaou, 2008; Kim et al., 2006; Singh et al., 2008). Income inequality on an international, state level, and area level analyses is related to reduced rates of life expectancy and higher rates of infant mortality (Wilkinson & Pickett, 2010; Waldmann, 1992; Kennedy et al., 1996; Ben-Shlomo, White, & Marmot, 1996; Lynch, Kaplan et al., 1998).

Furthermore, the rates of teenage births and pregnancies are systematically related to the extent of income inequality. Economically unequal countries and states have significantly higher rates of teenage births (Wilkinson & Pickett, 2010; Pickett, Mookherjee et al., 2005; Gold et al., 2001; Crosby & Holtgrace, 2006). Finally, income inequality on an international, state level, and area level analyses was strongly related to higher levels of homicide and violent crimes (Hsieh & Pugh, 1993; Wilkinson & Pickett, 2010; Kaplan, Pamuk et al., 1996; Kennedy, Kawachi, Prowthrow-Stith et al., 1998). Income inequality levels were also related to other forms of violence such as assault, robbery, and rape but to a weaker extent (Blau & Blau, 1982; Carroll & Jackson, 1983; Jacobs, 1981; Petterson & Bailey, 1988).

The psychosocial problems discussed in this chapter have traditionally been subjects of interest to psychology. Psychologists have established an extensive literature investigating these topics and developing a wide variety of interventions and treatments to reduce the prevalence of these problems (Passer, Smith, Atkinson, Mitchell, & Muir, 2011; Cavanaugh & Blanchard-Fields, 2006; Taylor & Sirois, 2009). However, they have seldom analyzed the issue of income inequality. Given the significant negative impact of income inequality on the health and social problems discussed, I suggested that psychologists would benefit from taking into account the issue of income inequality when addressing psychosocial problems that have important implications for well-being.

In the third chapter, I analyzed the two major theoretical frameworks put forth to explain the relation between income inequality and psychosocial well-being: the psychosocial environment theory and the neo-material theory. The psychosocial environment theory argues that income inequality negatively impacts well-being through

cognitive and emotional perceptions of relative inequalities in income hierarchies (Wilkinson, 1996, 2005; Marmot, 2004). According to this theory, certain psychosocial factors serve as pathways for the negative impacts of income inequality. The major psychosocial pathways discussed were social status, friendships, social trust, social cohesion, and discrimination. According to the psychosocial environment theory the individuals' perceptions of relative positions in income hierarchies produce negative psychological outcomes such as feelings of shame, anxiety, inferiority, and depression that are translated inside the body into poorer physical health via psycho-neuro-endocrine mechanisms (Lynch, Davey Smith, & House, 2000; Lynch, Due, Muntaner, & Davey Smith, 2000).

At the same time, the perceptions of relative inequality translated outside the person into social distrust, reduced reciprocity and friendships, social disintegration, and low social capital (Lynch, Davey Smith, & House, 2000; Lynch, Due, Muntaner, & Davey Smith, 200). As I discussed in the third chapter, the high levels of social distrust, low quality friendships, social disintegration, hostile and discriminatory social interactions characterized by economically unequal societies lead to lower levels of psychosocial well-being (Holahan, Betack, Spearly, & Chance, 1983; Duffy & Wong, 2003; Ross & Jang, 2000; Caspi, Taylor, Moffitt, & Plomin, 2000; Prezza, Amici,Tiziana, & Tedeschi, 2001).

On the other hand, the neo-material explanation argues that well-being is negatively affected by income inequality not because of perceptions of relative inequality but because of the accumulation of negative exposures due to material deprivation and due to systematic underinvestment in a wide range of human, physical, health, and social

infrastructures (Macinko, Shi, Starfield, & Wulu, 2003; Lynch, Davey Smith, Kaplan, & House, 2000). According to the neo-material theory, the explanation of the relation between income inequality and psychosocial problems should begin with the analysis of structural factors responsible for the creation of uneven income distribution (Lynch et al., 2000). I argued that both of the psychosocial and neo-material explanations are important for psychology. The psychosocial explanation provides insights for psychologists about how psychosocial aspects of life are influenced by broader social problems such as income inequality and in what ways well-being is impacted by psychosocial pathways. The neo-material explanations provide insights about the underlying social and political processes responsible for the creation of uneven income distribution. This type of explanation is more applicable for the implementation of structural interventions to reduce health inequalities.

The methodological criticisms and the issues related to causality regarding the relation between income inequality and psychosocial well-being were discussed in the fourth chapter. In terms of the methodological issues, the work of Wilkinson and Pickett (2010) were criticized for the choice of health and social problems, selection of country, and issues regarding outliers (Saunders, 2010; Snowdon, 2010). In terms of causality, the critics have argued that factors such as culture, race, ethnicity, and poverty are responsible for the effects observed between income inequality and psychosocial well-being (Saunders, 2010; Deaton, 2003; Deaton & Lubotsky, 2003). However, as I discussed in the fourth chapter, the effects of income inequality on psychosocial well-being were not a result of picking and choosing social problems or "cherry picking" countries. The relation observed between income inequality and psychosocial problems

was not due to the effects of outliers either. Moreover, I argued that cultural diversity, race/ethnic mixture, or poverty do not account for causing the negative effects observed on psychosocial well-being.

One reason that income inequality is targeted by such criticisms is because of the difficulty in proving causality in the relation between income inequality and well-being. In spite of this, I discussed studies that have shown a causal relationship between income inequality and various health measures (see Sapolsky, 1993; Shively & Clarkson, 1994; Daly & Wilson, 2010; Rothstein & Uslaner, 2005). Moreover, I pointed out that the critics themselves did not prove causality either. The critics included or excluded various data points to obtain desired effects or they argued that other factors such as ethnicity, race or culture have primacy over income inequality by finding greater effect size for these factors (see Snowdon, 2010; Saunders, 2010).

I argued in the fourth chapter that even though the empirical evidence for a causal relation between income inequality and well-being is not strong, causality is not the only criterion upon which the theory of relative inequality should be judged. According to the philosopher of science, Karl Popper (1902-1994), the strength of a scientific theory relies on its ability to make true predictions. As shown by Wilkinson & Pickett (2010), many successful predictions have come out of the income inequality theory. In general I argued that looking at the empirical evidence discussed in this thesis as well as the arguments for and against the income inequality theory, there is more evidence towards corroboration of this theory than towards its refutation.

Finally, in the last chapter, I discussed the various roles psychologists can play in contributing to the reduction of income gaps. I stated that it is crucial that psychologists

conceptualize income inequality as a structural problem, and address this issue through structural interventions. I discussed that psychologists can get involved in reducing inequality levels by investigating the impacts of various macro-economic systems, redistributive policies, and labor market policies on psychosocial well-being and by advocate for health enhancing economic systems and policies. In addition, I argued that promoting a greater level of educational equality is another way psychologists can contribute to reducing the income gaps. By facilitating the integration of gender, race, and class minorities in education systems, psychologists (especially educational psychologists) can improve the academic success of disadvantaged students and their future earning potentials. This will lower labor market earning income inequality in the long term.

Furthermore, I argued that psychologists, more specifically from the Industrial Organizational area, can investigate different aspects of labor market policies, such as employee protection, unionization, and work training programs, and advocate health labor market policies that would allow greater participation of marginalized groups into workforce. Finally I argued that psychologists can contribute to the reduction of income gap by fostering a greater integration of gender and racial minorities into workforce by addressing some of the structural barriers to their employment.

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