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Indonesian Women's Health Determinants

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Abstract

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This study utilized the Indonesian Family Life Survey 5 to investigate the relationships between broad health outcomes and selected biopsychosocial measures. The study population was comprised of 17,480 Indonesian women who ranged in age from 15 years to 103 years with a mean age of 38.27 years. The results of this study showed the biopsychosocial model of health is valid for Indonesian women. Results supported the assumption that the measures of physical health (acute morbidity and medically diagnosed chronic conditions) are significantly correlated with the measures of psychological health (depression, and subjective wellbeing). Results also supported the assumption that biopsychosocial variables significantly impact health. The biopsychosocial variables of income, education, power, community participation, and religiosity were positively significant to overall health, as well as chronic health, acute health, subjective wellbeing and lack of depressive symptoms. Chronic health was the strongest health variable, with 9.5% of the variance accounted for by the biopsychosocial variables, while acute health was the weakest health variable with only .5% of the variance explained by the biopsychosocial variables. Separate regressions showed

religiosity and education were the strongest biopsychosocial variables, while community participation, income and power were not significant to overall health. While the results of this study showed many of the expected relationships between the biopsychosocial variables and health measures, correlations between the four health variables and the five independent variables were generally much weaker than expected, leading to the conclusion that there may be other, stronger variables involved in determining the health of Indonesian women.

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Dedication

I have been very fortunate to have gifted and supportive women throughout my life to inspire me. I dedicate this work to two of these women - my aunt and my mother. My mother, Joy, was a lovely human being who taught me perseverance and inspired me to achieve. She was aptly named. My aunt, Donnye Barnett, has always been a light: glowing quietly, showing me what could be – and what I could be. I am very grateful to have had these remarkable women to light my path.

Indonesian Women's Health Determinants

As health care costs have risen, there has been much discussion in the United States regarding effective and affordable health care. What is effective health care? To determine this, a model is needed to develop theories about health, disease and the delivery of services. Modern studies have shown non-biological variables can have significant effects on biological variables. Yet the prevailing model in the U.S., the biomedical model, is reductionistic and generally does not encompass non-biological variables. In this model, the mind and the body are separate entities and social and psychological factors are seldom considered when treating medical patients. Susan McDaniel from the University of Rochester Medical Center and Frank deGruy from the University of Colorado School of Medicine (2014), maintain that this model, while once useful, has caused separate systems of mental and physical health care which rarely interact. They argue that the biopsychosocial model, a model which medicine is acknowledging through interdisciplinary health teams, provides a more complete picture of health and health care than the biomedical model. In 2012, Hatala defined the Biopsychosocial model as,

> "biological (e.g., genetic predisposition), psychological or behavioral (e.g., lifestyles, explanatory styles, health beliefs), and social factors (e.g., family relationships, socioeconomic status (SES), social support) are all implicated in the various stages of pathogenesis and health etiology" (p. 51).

The World Health Organization (WHO), the United Nation's system authority on international health, used this model to define health as "… a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity," (World Health Organization, 1946). However, the concept of health continues to evolve, as shown by Samal and Bircher's 2013 definition of health as, "a dynamic state of well-being characterized by a physical and mental potential, which satisfies the demands of life commensurate with age, culture, and personal responsibility," (p. 5).

The demands of culture are illustrated by the Australian Aboriginal people's view of health. According to the National Health and Medical Research Council (1996), to Aboriginal peoples, "…Health does not just mean the physical well-being of the individual but refers to the social, emotional, spiritual and cultural well-being of the whole community. This is a whole of life view and includes the cyclical concept of life-death-life" (p. x).

In modern times, the fact that physical and psychological aspects of health are intertwined is well established. Research makes it clear that both physical and psychological aspects need to be considered when viewing health. There are many examples. Perceptions of stress have been proven to influence physical well-being (Dougall & Baum, 2014), while levels of social support and perceptions of the supportiveness of social support have been shown to affect the survival rates of heart disease, cancer and stroke (Vogt, Mullooly, Ernst, Pope, & Hollis, 1992). The original Whitehall Study, a seven-and-a-half-year study of British civil

servants working in London, investigated the relationship between health and grade or level of employment. It found there was a graded relationship between social position and health, with the lower social positions having the poorest health, and health gradually becoming better as social position increased (Marmot, Rose, Shipley & Hamilton, 1978). Later Whitehall studies found the same relationships and also showed people who were in ambiguous employment situations reported poorer physical health than their securely employed colleagues, although no difference in health behaviors between the two groups was detected (Ruiz & Prather, 2014).

Depression has been linked with higher risks of cancer, particularly breast cancer (Gross, Gallo & Eaton, 2010). Pain has been found to be moderated by current mood state (Fernandez & Turk, 1992) and levels of anxiety (Pavlin, Rapp, & Pollisar, 1998). A 2009 study of 309 female victims of domestic violence showed that chronic pain was mediated more by Post Traumatic Stress Disorder than by actual physical injury (Wuest et al., 2009). Diabetics have a significantly greater risk for depression than other populations (Sherrer et al., 2011).

Women's health has often been studied through the lens of reproductive health. Research concerning reproductive health is obviously of great importance to individuals, families and societies worldwide, as half of the world's population is female, and females are responsible for bearing and raising most of the world's children. However, reproductive health is a narrow topic and does not allow a comprehensive understanding of women's health throughout the lifetime. The

WHO discussed the need to consider health through a gender approach rather than simply considering reproduction. It stated a gender approach improves women's health outcomes worldwide as it enables, "the identification of determinants of women's health and the setting of women's health priorities across disciplines around the world." (World Bank & WHO, 2009). The World Health Organization report *Women and Health* (2009) maintains women's health is an important area of focus as health issues that impact both men and women may impact women differently than men and thus women need responses specifically made for women. In addition, the report stated," …. there are conditions only women experience and whose potentially negative impact only they suffer," (p xi).

Thus, this particular research project uses a gender approach to consider broad physical and psychological and social aspects of women's health. Research into the broad biopsychosocial determinants of women's health can assist in determining general health risk and protective factors throughout the lifetime, as well as specific regional, and cultural variations. This can facilitate the design of interventions, as well as prevention methods to help women live longer and healthier lives. Ultimately, this kind of research affects more than women, as women play pivotal roles for their children and families. By helping women live longer, healthier lives, we can also improve the quality of life for their children, families and communities.

In considering the broad ramifications of how health research can help improve women's lives, it is important to consider which women are being studied.

While a study of women of a specific culture can be valuable, the study results may not be applicable to women of all cultures and backgrounds. This is a particular consideration in studies which include psychological variables, as culture has a great impact on people's thoughts, actions, and perceptions. Thus, comparing the results of studies of a specific culture to those of other populations can lead to information about population similarities and differences, which in turn can lead to a more global understanding of women's health. This is an illustration of the value of international research. International research can enable researchers worldwide to expand their focus of women's health to the global level, thus better serving all populations in their respective communities. Viewing issues such as women's health on a global level can be particularly helpful to psychologists, as it can help them avoid the trap of assuming psychological issues and their treatments are the same regardless of country, culture or religion. In addition, while many psychologists agree treatments need to be culturally relevant, it can be difficult for individual psychologists to know how to put this into practice in their own communities. International research enables the individual psychologist access to research of unfamiliar cultures, allowing more culturally relevant treatments in each community. International research also facilitates communication between culturally diverse psychologists and increases the professional knowledge base. The global perspective gained by such research and interactions can be useful in designing more efficacious culturally specific interventions and treatments for diverse populations in-country, as well as expatriate populations abroad.

Additionally, psychological research concerning specific cultures can enable understanding of similar cultures and perspectives.

International research in psychology has become more important as the world becomes increasingly globally interactive. However, undertaking original international research can be expensive and the logistics can be prohibitive. One source of material that lends itself to possible use is the international dataset. Large scale, longitudinal survey results can allow side-by-side examination of an extensive set of variables regarding the lives and perceptions of individuals, families, and communities. A dataset can give researchers a vibrant 'snapshot' of a culture at a certain point in time or across certain points of time. This rich data enable a wide array of future examinations and comparisons by researchers. However, these resources are typically underused in regards to psychological interpretations. International datasets are generally designed to enable economic, societal, or physical health studies, yet there may be a mine of psychological implications inherent in the material. As the need for additional international psychological research becomes more apparent, international datasets can be constructive for psychologists in attaining culturally relevant material that may have broad psychological significance. Thus, international datasets are resources which can be very useful, in particular to psychologists.

The RAND (Research and Development) Indonesian Family Life Survey (IFLS) is one of these resources. It is a rich, encompassing dataset that explores economics, health, relationships, law, and culture on an individual, familial, and

societal level among a representative sample of the Indonesian Islands. This study uses the data from the RAND IFLS to explore the biopsychosocial factors of women's health in Indonesia. As RAND IFLS is so extensive, researchers are able to study a vast array of variables that impact people's lives and determine possible relationships and correlations. These relationships and correlations can also be tracked through generations as the RAND IFLS has a longitudinal design. In addition, the distribution of the study participants allows the RAND IFLS results to be generalized among the entire population of Indonesia.

Chapter II

Literature Review

When evaluating an international research study, it is useful to have general knowledge of the country and culture being studied. As this study uses data collected in Indonesia, a brief discussion of the country and culture is germane. More specific information concerning health in Indonesia, and women's health in particular, are also discussed.

Indonesia

Indonesia is a diverse country and its national motto, *Bhinneka Tunggal Ika,* reflects that national identity with its meaning of "many, yet one." According to the 2013-14 World Fact Book (Central Intelligence Agency, 2014), Indonesia's 17,000 islands are home to hundreds of ethnic groups and 40% of its 246 million people belong to the Javanese majority. Bahasa Indonesia is the major language spoken, but most ethnic groups have their own languages or dialects of Bahasa Indonesia. Eighty-seven percent of the population is Muslim and the government recognizes six official religions. While living conditions vary greatly in rural and urban areas, the average life expectancy is 69 years for men and 74 years for women. It is a fairly literate population, with an average of 13 years of education for its citizens and a literacy rate of 95% for men and 90% for women. The Indonesian government is decentralized, and the country has 31 governing provinces, each divided into districts and municipalities that use national and local funds to develop and implement their own health plans (Central Intelligence

Agency, 2014).

Health care. While the 2000 amendment to the constitution gave every Indonesian citizen the right to live in a healthy environment and have access to health services and social insurance, the WHO (2008) reported the decentralization of the health sector begun in 2000, "has considerably weakened the unified national health system, including the once well-established disease surveillance system, as well as other public health programmes," (p.1). This has led to a difficulty in gaining accurate and comprehensive national health data. While the national and local governments have been working to address health issues, access to and the quality of health care varies depending on location and people's abilities to pay for private health care. Those living on smaller islands or remote locations have little access to care, while those in urban areas, particularly larger cities, have ample access to health care (WHO, 2008). According to Indonesia's 2007 Demographic and Health Survey reference, Jakarta, the largest island, had 97 percent of the births in 2007 attended by skilled providers, while only 33 percent of births in the more isolated Maluku Islands were attended in a similar manner. The World Bank (2010) reported the infant mortality rate in Indonesia varied widely depending on geographical area. In addition, where public health centers were available, they tended to be underutilized, with the WHO postulating that high fees and the unpredictability of fees deterred those seeking services (WHO, 2008).

Mental health care also appears to be problematic. Mental health is an underserved area throughout Southeast Asia. According to the Mental Health Atlas

(WHO, 2014) there are only 4.8 mental health workers for every 100,000 people in Southeast Asia. Those mental health workers are composed mainly of nurses (2.6 per 100,000 population), while only .1 psychologists and .4 psychiatrists are available for every 100,000 people. Considering Indonesia specifically, the WHO (2008) reported mental and neurological disorders in the Indonesian population lead to an estimated annual 12.3% loss in productivity. Mental health in Indonesia "has long been neglected," (WHO, 2008, p 8). This neglect may be due to the stigmatization of mental health disorders, particularly in Asian cultures. A summary of studies of developing Asian countries from 1996-2006 showed pervasive stigmatization and discrimination of those with mental illness (Lauber, & Rossler, 2007).

Cultural, gender and societal considerations. Women's health care appears particularly problematic in Indonesia. Niaz and Hassan (2006) contend that when women's health is addressed in Southeast Asia, it is generally through reproductive health. The actions of the WHO appear to give this credence. The WHO stated in 2011 that it recognized women's health as an area of particular concern for Indonesia and then discussed goals focused only on reproductive health. This was in spite of a 2009 World Bank and WHO report that stated more than reproductive health needed to be addressed when discussing women's health. While reproductive health is undeniably important, focusing on this area alone neglects all other women's health issues, and ignores the health issues of women and girls not of childbearing age.

In considering mental health, Niaz and Hassan (2006) cite studies that show mental disorders are more prevalent in Southeast Asian women than Southeast Asian men. Indonesia has unique societal characteristics that may foster psychological distress and increase physical stress in women. Discriminatory marriage and family laws make poor women, who are already at risk, more vulnerable to discrimination and abuse (Musawah, 2009). Special problems for these women in Indonesia include the legal status of marriages. In Indonesia, sexual relations outside marriage are unlawful and considered so shameful that unmarried women who are thought to engage in sexual activities are ostracized or even driven from their villages. Thus, marriage is very important. Polygamy is legal according to Indonesian interpretations of the Sharia or Islamic law. However, for these marriages to be legalized by the state, they must be approved by the first wife (Sabarini, 2009). If this approval is not gained, the husband must pay a fee (Vignato, 2012). Unlike state law, religious law allows another marriage without approval of the first wife, given that the first wife is not performing her wifely duties in some manner (Hari, 2009).

Marriages not registered with the state are problematic. In these marriages, a couple is married according to Adat, local tradition or culture, but the marriage is not registered officially with the Indonesian government (Vignato, 2012). As Indonesia is predominantly Muslim, these marriages are usually performed by a local Islamic official. One study in a small area of Indonesia showed that over 70% of marriages were unregistered marriages (United Nations Development Fund for

Women, 2003). In Indonesia these are called 'nikah siri' or secret marriages (Musawah, 2009). The name itself implies shame and Vignato (2012) states this is because secret marriages are generally considered to be impermanent arrangements - used to hide a new relationship from an existing wife or to allow sexual relations between a couple. As these marriages have no legal standing, children of these marriages cannot be legally registered, have no legal ties to the father, and the nikah siri wife has no legal rights to support from the husband or from the government if he dies or leaves the family. The wife is considered a single citizen under Indonesian law, and thus not entitled to any benefits given a legal wife. The husband may abandon the family at any time, leaving the women and children with no support (Sabarini, 2009). Thus, there are many marriages which are valid locally, but not considered legal by the state, allowing men to have two and three nikah siri wives without committing adultery, while leaving these wives and children without any legal standing. Despite this, when S. Vignato studied women in two differing Indonesian provinces she found a commonality of the view that men were not bad, just impermanent and unreliable as women were the strong, reliable gender. She stated one of her clients said, 'men are like that' (itu laki!), you do not know how long they will stay in a house (p.250)." She stated it was common for a man to leave a wife and disappear or marry another wife, and then simply pay the fee required for not receiving the first wife's permission to marry.

In addition, in Indonesia the husband is legally considered the head of household. Although the government estimates 14.8% of Indonesian households

are headed by women (World Bank, 2015), the 1974 Marriage Act gave the husband the status of head of household and his wife the status of housewife. This means women have no legal standing or recourse to get assistance for their families, even when the husband is no longer in the home (Sabarini, 2009). Even when an Indonesian woman is married, she is dependent on her husband's goodwill, as she is not considered an equal partner in the marriage. According to the 2009 Global Report on Equality in Muslim Families, a 1991 Indonesian presidential decree on the Islamic laws stated that, for Muslims, marriage is not a contract between bride and groom, but between the groom and the bride's father. In addition, the decree states, "Disobedience to one's husband results in the loss of maintenance and is often used to justify acts of domestic violence," (Musawah, 2009, p 16). The Indonesian Deputy Attorney General for General Crimes stated that domestic violence, "...has come about because the civil law system in the country doesn't give husbands and wives equal status," (Osman, 2009).

Domestic violence is another unique societal characteristic that may foster psychological distress and increase physical stress in Indonesian woman. Accurate statistics regarding domestic violence in Indonesia are difficult to determine. The United Nations Development Fund for Women, UNIFEM, (2003) states obstacles to obtaining accurate statistics on domestic violence are due to "societal norms, myths surrounding domestic violence and the fact that the issue is very sensitive and tends to be rationalized away due to conflicts of interest and the prevailing cultural norms," (p.1). The 2005 World Health Organization multi-country study

on women's health and domestic violence against women commented that domestic violence is seen as normal by many women, thus making it difficult to address (WHO, 2005). This appears to be confirmed by Zakiyah Munir (2005), the Director of the Center for Pesantren and Democracy Studies in Indonesia. She contends that one reason comprehensive statistics concerning Indonesian domestic violence in particular are not available is the Indonesian public's perception that domestic violence is a natural part of a woman's life. Domestic violence, she states, is simply not recognized by Indonesian society, as it perceives women as having the task of maintaining family harmony at all costs. A woman is to keep the family together and peaceful regardless of her own experiences or feelings. This collectivist thinking and myth of normality, Munir (2005) maintains, assures that many Indonesian women are silent about abuse they are suffering.

The belief that a Muslim woman should sacrifice herself for the family is seen in comments from Indonesia's Ministry of Religious Affairs. In 2010 Najib Anwar, the head of the family harmony division, said that infidelity and women's awareness of gender equality were main reasons behind the recent steep increase in Indonesian divorce rates. He went on to say that women were more empowered to ask for divorce and thus the Ministry felt "emancipation is now a threat to marriage" (Osman, 2010). Abdul Rohadi Fatah, the Director for Islam and Shariah law at Indonesia's Ministry of Religious Affairs, agreed that modern educated women knew what they wanted, and added their priority should be religion and family regardless of their personal goals (Osman, 2010).

When abused women seek help, it is often difficult to gain. While Indonesia has enacted recent laws to protect women, domestic violence is still significantly underreported and under-prosecuted. The legal process is very difficult and many women do not report domestic violence because they do not wish to go through the process. Many women give up in the initial reporting stages as local police officers are often discouraging. Of those who actually began the legal process of filing domestic violence charges in 2009, most eventually gave up. Fifty percent of complaints filed with the Easy Jakarta Police's Women and Protect Unit were dropped. Seventy percent of charges filed in Depok were dropped and 90% of charges filed in Yogyakarta were dropped (Osman, 2009). Getting legal assistance is particularly difficult for nikah siri wives. The United Nations Populations Fund (2010) states that many local law enforcers treat abuse of unregistered wives as "unpleasant or common violence" under the general penal code, which affords less protection than laws concerning domestic violence, and classify the offense as a violation of human rights.

The strong religious ties and dual court system in Indonesia mean that women suffering abuse in their marriages often initially seek guidance and assistance from their religious leaders. Unfortunately, in this mostly conservative country, governmental laws are not considered and women are often told to be submissive to their husbands. One woman recounted her situation to a branch of Indonesia's' Human Rights Commission; she stated she sought help from her religious leader and was advised to obey her husband as dictated by Islamic Law

(Scarpello, 2009) when she told the religious leader her husband repeatedly raped her.

The lack of legal and societal support for suffering women and the emphasis placed on a woman obeying a husband's authority and maintaining family harmony at all costs may have an impact on women's health. Women in Indonesia may be less disposed to focus on or place importance on their own health, as their own health is considered less important than their duty to care for the family in an all-encompassing manner and bear suffering in silence.

Indonesia is a land of dichotomy. It is a country of many islands and ethnic groups, but generally homogenous in regards to religion. It is a country in which both governmental laws and religious laws are considered valid, even though these laws may conflict. It is a country in which national healthcare has been enacted into law and stated to be a high governmental priority, but healthcare is substandard for many and especially problematic for women and the poor. It is a country where family is considered very important, but the needs of the women who care for the family considered less important than the needs of other family members. When studying women's health in Indonesia, it is important to include these considerations.

Determinants of Women's Health

When considering the determinants of women's health, well known factors come to mind. For example, it has long been established that behaviors such as smoking, drinking too much alcohol, and eating an abundance of unhealthy food

increase a person's risk of disease, just as regular exercise, and eating healthy meals decrease a person's risk of disease. It is also fairly well known that some diseases, such as breast cancer, have hereditary components (James, Nelson, Ralph, & Leather, 1997). However, the psychological components of health are often not as clearly understood or easily identified as behavioral or hereditary components and can thus be easily overlooked. While patients can often understand the need to stop smoking or have yearly mammograms, a request from the physician to lower stress levels or gain more social support can seem unimportant. However, the importance of considering psychological and social determinants of health is becoming more recognized by health professionals across the globe. In 2009, the World Bank and the World Health Organization listed six determinants of women's health which included: reduced opportunities for education and paid employment; lower social status in families, communities and society; limited access to, and control over resources; limited decision-making power; increased vulnerability to sexual and gender-based violence due to unequal gender norms; and a lower value placed on the lives and health of women not of child bearing age. The emphasis on these psychosocial factors is a significant indication of the need to consider the interrelation between the physical, social and psychological aspects of health. While these factors were used as a guideline for determining the variables used in this study, the operational definitions for this study may vary. Thus, each variable and demographic is defined and discussed below.

Income. For the purposes of this study, income is defined as the flow of revenue. As income has a significant impact on socioeconomic factors, it can be argued that income is the most important of the socioeconomic factors (McDonough, Duncan, Williams & House, 1997). Income can affect education, access to services and the quality of those services, social status, and resources. It is well established that people who live on incomes below the median level have worse health outcomes than those in the upper income levels. Lynch, Kaplan, and Shema (1997) studied the income data of 1124 Californians gathered in three sessions over 17 years and determined impoverished people suffer poorer health, and people who endure sustained poverty suffer even poorer health. Health was measured by physical, psychological and cognitive functioning. Compared to people with no history of poverty, those who had incomes less than 200% of the poverty level during all three reporting periods had significantly increased chance of meeting DSM-IV criteria for depression, lacking optimism, being cynically hostile, having more difficulties with activities of daily living, and reporting more difficulties in cognitive functioning. Reverse causation was studied, but poor health and functioning were not found to be statistically significant causal factors of economic hardship. No significant differences in functioning due to economic hardship were found due to sex or age. One method used to examine reverse causation was studying the 1994 functioning of those who reported good health and economic hardship in 1965. The authors reported, "Economic hardship in 1965 was a significant predictor of reduced physical, psychological, and cognitive

functioning in 1994" (p. 1891-1892). Pinquart & Sorensen (2000), in a meta-analysis of studies of the elderly, found income is more highly correlated with subjective well-being than education. A study of Indonesia women using the RAND IFLS dataset found depression was more concentrated among women in the lower economic groups (Christiani, Byles, Tavener and Dugdale, 2015). Interestingly, a comparison of studies from the U.S. and England found that despite England's greater social spending, universal health care coverage, and better overall populace health, the U.S. and England have very similar income disparities in health, with health and income positively correlated (Martinson, 2012).

Lynch, Kaplan and Shema, epidemiologists at the University of Michigan's School of Public Health, did not find gender differences in their 1997 study of health and sustained low income. However, income plays a significant role in determining where people live and housing plays a role in health. A nine-year study by Hahn, Kaplan and Camcho (1987) found that people who lived in a poverty area had higher mortality rates than people who lived in non-poverty areas, even when adjusted for age, sex and race. The World Bank and World Health Organization (2002) give examples of the impacts caused by the inability to pay for good housing when it describes how the poor in some Indonesian cities suffer disease and hardship caused by the flooding of the low-lying slums.

Income has a vital influence on many socioeconomic factors that influence health and women generally have less income than their male counterparts. Women also earn less than their male counterparts. According to the United States Bureau

of Labor Statistics (2009), in 2008 women in the U.S. earned 80% of the income earned by a similarly qualified man and were less represented in higher paying professional positions. Women are also more likely to be single parents paying for childcare, which has been described as the feminization of poverty. In 2009, the World Bank and the WHO stated poverty has a higher negative health impact on women than men. They included an example of cultural and economic practices in some parts of the world where boys and men are given nutritive priority and women and girls suffer greater levels of malnutrition.

Education. For the purposes of this study, education is defined as formal or legally recognized schooling. The correlation between health and education is well established. This may be the result of a better understanding of behavioral aspects that impact health, thus resulting in behavioral changes that improve health. Cutler & Lleras-Muney (2010) analyzed data from several years of the Unites States' National Health Interview Survey. They found people with more education have lower mortality rates and generally report lower morbidity levels, even when adjusted for sex and race. Four years of additional education was found to lower mortality rates by 11%. The authors point out that the increase in education is accompanied by an increase in healthy behaviors and the effect of education on mortality is reduced by 30% when adjusting for the differing health behaviors. However, even when adjusted, the positive impact of education is still great enough that the authors postulate education changes thinking and decision making. In another study, Fayissa, Danyal & Butler (2011) also found higher levels of

education were correlated to better health using U.S. panel data from the *National Longitudinal Survey of Youth*. Witoelar, Strauss, and Sikoki (2009) studied the impacts of education on adults aged 45 years and older. They found education suppresses negative impacts of aging such as memory difficulties, difficulties with independent activities of daily living, and depression. They also found that people with higher levels of education were less likely to smoke after age 45 and more likely to engage in moderate physical activities. They summarized their findings by stating, "…schooling seems to mitigate the aging process (p. 19)." Landiyanto, Ling, Puspitasari and Irianti (2010) used the RAND Indonesian Family Life Survey (IFLS) Data set to determine, "the economics of happiness" (p.1). They determined people who reported more education also reported being happier than less educated respondents. Reports of being happy can be seen to indicate a person's subjective well-being, one's own appraisal of the quality of one's life.

Power. Perceptions of power and status impact social participation, mental health and physical health. As discussed earlier, Indonesian women often have little power in their marriages and in the legal system. Thus, it is likely the issues of power and standing have particular importance to the health of Indonesian women. In the Whitehall studies (Marmot, Rose, Shipley & Hamilton, 1978), strong relationships were found between health and level of employment. Those with higher-level jobs with more perceived power and status, had better health than those with lower power and status jobs. Those with higher-level jobs had lower coronary heart disease (CHD) rates, lower plasma glucose, lower blood pressure,

less body weight, and reported more physical activity. The negative correlation between mortality rate from CHD and grade of employment remained significant after control factors such as blood pressure, which influenced mortality (Marmot, Rose, Shipley & Hamilton, 1978).

The Whitehall studies subjects were British males. Unaiza Niaz, the Director of the Psychiatric Clinic and Stress Research Center in Karachi, and Sehar Hassan, an associate professor at the National University of Technology and Sciences in Islamabad, state there are gender power differences that impact women's mental health in Southeast Asia. They maintain a culture of feminine powerlessness contributes to the prevalence of mental health problems for Southeast Asian women as compared to Southeast Asian men. As mentioned earlier, women in Southeast Asia generally have less power in their families and society than men. Niaz and Hassan (2006) state, "The tendency of women to internalize pain and stress, and their lower status with less power over their environment, render them more vulnerable to depression when under stress," (p. 119). The WHO recognized the negative impact on women's quality of health care and access to health care by the personal power inequalities between men and women (World Bank & WHO, 2009).

In the 2007-8 Indonesian Family Life Study community participation was found to be high for those in the dominant social group, the group of social power, those who were considered heads of households and their spouses, and those who held power in the family (Beard, 2005).

Religiosity. Higher levels of religiousness is generally seen as a protective factor as it correlates with lower mortality rates (Powell, Shahabi, & Thoresen, 2003). Many studies have shown a correlation between better health and church attendance. One way in which religion may be a protective factor is that it may promote a healthier lifestyle.

A longitudinal study of inner city men found men who regularly attended church reported less smoking and alcohol use than less religious peers (Koenig &Vaillant, 2009). Another reason religiousness may be protective is because it provides social support. People in the same religion tend to have similar values and provide moral support for each other. They also tend to meet regularly, have activities that promote their beliefs or provide fellowship for members, and often have activities in the community, providing social opportunities and support for their members.

Age is also a factor in levels of religiosity. An analysis of the Marital Instability Over the Life Course study, a 12-year random study of married couples in the U.S. found several significant correlations with religiosity. The authors found religiosity, "increases steadily with age," (Argue, Johnson, & White, 1999, p.429), with the largest increase before age 30 years, then mostly stabilizing after age 50 years. Gender was found to be a significant factor, with females reporting higher levels of religiosity than males (Argue, Johnson, & White, 1999).

A 2005 study found geographical differences in religiosity and subjective wellbeing. Ellison & Gray (2005) examined data from the National Survey of

Black Americans (NSBA) and found age mediates the effects of religion on subjective well-being for non-southern Black Americans only. They also found high levels of subjective well-being reported by southern Catholics and non-southern members of traditional black religious organizations.

Many studies show a correlation between religion and other biopsychosocial aspects of health. This illustrates the many ways in which biopsychosocial factors impact each other and emphasizes the importance of considering these factors when studying health.

Community participation. Social support, a person's community social integration, is very important for human health. In reviewing 80 studies of social support, Wills and Ainette (2014) state, "scores for network size or social integration are inversely related to mortality," in almost every study (p.466). As discussed earlier, perception of social support has been found to affect the survival rates of heart disease, cancer and stroke (Vogt, Mullooly, Ernst, Pope, & Hollis, 1992). Pinquart and Sorensen (2000) analyzed 286 studies of the elderly and found income, education and social network are positively associated with subjective wellbeing. However, they also found the quality of social relationships was more important than the quantity of relationships. A 2008 study found that widowed individuals who live in neighborhoods with higher numbers of widowed individuals have a lower mortality rate over the next year as compared with those who do not live near other widowed individuals, possibly supporting the importance of social support (Subramanian, Elwert, & Christakis, 2008).

A 1991 meta-analysis which reviewed the existing studies on social support and maternal health found that social support was positively correlated to maternal health. Mothers who took prenatal classes had less complicated labors and deliveries, as well as increased physical and mental health after the birth. The presence of a companion during the birth also led to less complicated labors and deliveries, as well as decreased postpartum depression (Gjerdingen, Froberg & Fontaine, 1991). A study of 1,359 Iranian women of child bearing age found that women who had higher incomes and higher levels of education self-reported more perceived social support than their less wealthy and less educated peers (Baheiraei, Mirghafourvand, Mohammadi, Charandabi, & Saharnaz, 2012).

The impact of income on community participation appears to vary. In a meta-analysis of 286 studies of the elderly, Pinquart and Sorensen (2000) found no difference between community participation and income. When examining the effects of cumulative poverty, Lynch, Kaplan and Shema (1997) found no relation between social isolation and economic hardship. They hypothesized people suffering increased distress due to sustained economic hardship were not socially isolated as the nature of their economic circumstances demanded increased social assistance and social contact. Conversely, Beard's study of the 2003 Indonesian Family Life Study data (2005) found men and women with fewer assets participated less than those with more assets.

A note of interest is that community participation, this study's measure of social support, was measured differently by gender in the RAND IFLS waves. The

questions involved different organizations for men and women, based on traditional Indonesian gender roles, which generally involve family based activities for women and community based activities for men (Beard, 2005). In an analysis of the 2007-8 IFLS, community participation was found to be high for those in the dominant social group, the employed, those considered heads of households and spouses of heads of household. Age was a factor of participation, with participation being most likely with those between the ages of 31 and 45 years. Marriage, higher levels of education, and having older children increased participation rates for women (Beard, 2005).

Social contact is strongly correlated with health. For the purposes of this study, social contact is measured through community participation.

Demographics. While these factors are not the key variables under study in this investigation of women's health, previous research findings indicate we can predict correlations regarding demographic information and health.

Marital status. In 2012, seventy-eight percent of American men and 55.9% of American women aged 65 to 74 years were married (Federal Interagency Forum on Aging Related Statistics, 2012). However, Lin and Brown (2012) maintain that aging Baby Boomers are increasingly unmarried, with negative consequences. Brown and Linn utilized the 1980, 1990, and 2000 Census 5% samples and the 2009 American Community Survey and found unmarried Baby Boomers had poorer health and less access to health insurance and economic resources. Twenty-two percent of the unmarried respondents reported being disabled, compared to

11% of the married respondents. Only 75% of the unmarried respondents reported having health insurance, while almost all the married respondents reported having it. There were significant differences among the unmarried also. Among unmarried men, the never-married men are the poorest and most likely to live alone. Among unmarried women, widows are the poorest, and also suffer the poorest health (Lin & Brown, 2012). Married people have been shown to live longer after myocardial infarction (Wiklund, et al. 1998) and a 2010 review of the 2007-8 IFLS data found that people who were in a formal marriage reported greater happiness than those who were not (Landiyanto, Ling, Puspitasari and Irianti, 2010). A 2006 study of life strains and unmarried people also found differences among the unmarried. Pudrovska, Schieman, and Carr (2006) found black women overall reported less strain than white women, while white men and black men who were divorced or never married reported similar levels of strain. Overall, marriage seems to be a protective factor when considering health.

Age. It is well established that many of our physical and mental faculties begin to decline after age 25 years. The older adult years are a time of multiple losses. Increasing social losses, physical losses, and cognitive losses predominate during this time of life. Hearing and eyesight, as well as the senses of smell and taste, become increasingly less acute. Immune processes and cardiovascular functioning become less effective. Joints deteriorate and bones become more brittle. Physical tasks may become more effortful or painful. Cognitively, fluid intelligence, which includes processing speed and inhibitory mechanisms, declines

(Broderick & Blewitt, 2006). Visual-motor flexibility declines, which decreases the ability to translate visual information into new motor responses. The ability to recall information decreases. While age has obvious physical impacts, it also impacts other biopsychological variables of health.

Landiyanto, Ling, Puspitasari and Irianti (2010) stated data from the IFLS showed age is negatively correlated with happiness, as older Indonesian respondents reported being less happy than younger respondents. As mentioned earlier, Beard (2005) analyzed data from the IFLS and found age was a factor of community participation, with participation being most likely with those between the ages of 31 and 45 years. Witoelar, Strauss, and Sikoki (2009) found negative impacts of aging such as memory difficulties, difficulties with independent activities of daily living, and depression were increasingly suppressed as education levels increased.

Religion. Most of the Indonesian population reports to be of Islamic faith, and thus likely have in-group benefits.

Urban/Rural. As discussed earlier, Indonesians who lived in more populous areas tend to have better access to health care services and likely enjoy better health than their more rural and isolated peers.

Conclusion. The study of women's health is of great importance worldwide, yet has been under-examined throughout the world. Studying the Indonesian population of women allows an opportunity to examine a unique culture and determine if the results are similar to studies from other parts of the world. This

will help others form interventions and policies to improve the lives of women and their families worldwide. The RAND dataset provides a wide array of data to be mined for these purposes. The biopsychosocial variables of health selected from the RAND dataset, (income, education, power, religiosity, and community participation) not only affect the selected variables of health, but interact among themselves. The relationships are complicated, and worth further analysis.

Scope

Using the data from the 2007-2008 RAND Indonesian Family Life Study (IFLS), this study will examine the relationships between selected biopsychosocial factors and four broad health outcomes of Indonesian women above age 14 years. This IFLS survey was done as a part of the RAND Labor and Population series. It is the fourth wave of a study begun in 1993 and was designed to take a broad picture of the way Indonesians lived, worked and interacted.

The RAND IFLS data set has been used for many studies. Such studies range from examinations of mother's social capital and child health, to analysis of long-term economic growth and standard of living, to determinants of education attainment, smoking behaviors, and maternal health (RAND, 2015). The wide range of data allows for a wide array of studies. There are many advantages for using the RAND data set. It is a universal study, which means it is not focused on a specific topic, but is wide ranging and inclusive. It is a longitudinal study that includes information about families, households, communities, and individuals. Changes that occur can be traced back to prior waves of the study to determine possible causes or influences of change. This kind of data set also allows for the analysis of the impact of national and world concerns on individuals, communities and families.

There are some disadvantages to using a universal study instead of a study specifically dedicated to women's psychological and physical health. Dedicated studies are often careful to ensure the psychological safety of the women with

whom they interact by speaking with the women privately. The RAND study did not make that distinction. They asked researchers to list others who were present during the interview, but no attempt was made to talk to the woman alone in a private area. Thus, women in dedicated studies may have felt more comfortable to disclose personal information and may have given more accurate personal data than women in the RAND study. In addition, the personal approach of a verbal face-to-face interview may have hindered disclosure. The United Nations Children's Fund (2000) mentions a study in which researchers received many more reports indicating domestic violence when women were given a smiley/frowny face graphic that they could place anonymously in a box, rather than be asked to verbally respond.

Some limitations of the data for this study were due to local custom. Strauss, et el., (2009) mentions difficulty gathering data in parts of Indonesia where it was against social and/or religious mores for women to talk with researchers without a male relative being present – even when the researchers were female. Studies in these areas of Indonesia were finally discontinued, because a large number of women refused to meet with researchers or answer questions without their husbands' presence. Obviously, the data used in this study will not have information from that population.

Another difficulty with the RAND study, as with many large universal data sets, is the simplicity of the questions pertaining to psychological issues. As the study was not designed specifically for psychological assessment, questions

pertaining to psychological issues are brief and provide only general data. However, the RAND study is valuable as it contains a great many variables of Indonesian life and allows us to explore women's health and many other subjects in a broader context. While detailed psychological information will not be available, the data should allow a sense of how broad biopsychosocial factors impact the health of Indonesian women.

Expected Outcomes of Study

While many of the studies cited in this paper have focused on the United States population, few have focused on Asia or Indonesia. This study is based on the premise that health is comprised of biological, psychological and social variables. Thus, there is a need to understand the relationships between the physical, social and psychological aspects of health when considering health policy, diagnosis, and treatment. While there is a great deal of data supporting this premise, much of it comes from outside Asia and very little is from Indonesia. One value of a study such as this one is in its ability to compare results with other populations, such as the U.S. population, to determine what is etic or universal to all women, and what is emic, variations due to culture, ethnicity or region. This is of particular interest in regards to physical and mental variables of health, as international datasets are typically under-used in regards to psychological interpretations. Indonesia is a good base for study as it is representative of a developing country, yet has a population spread over many remote islands and the distinction of having the largest Muslim population in the world. This gives a unique opportunity to determine which variables are universal and which are not.

This study will investigate the relationships of selected biopsychosocial factors on women's health in Indonesia to determine whether the concept of health as a biopsychosocial model is valid for these women. Results are expected to be similar to those of other cultures and regions, supporting the hypothesis that the biopsychosocial model of health is a universal truth for all women. Analysis of the

individual health factors will indicate regional or cultural differences. The biopsychosocial factors to be included are: decision making, level of poverty, level of religiosity, community participation, and educational level. Health will be defined broadly to include both physical and mental health and will be assessed using the variables of acute morbidity, medically diagnosed chronic conditions, depression, and subjective wellbeing.

Given the previous studies in this area, it is expected that mental health and physical health factors will be shown to have significant correlations and support the theory that both factors are an integral part of a person's health (Hypothesis I). As increased education and increased income have been shown to be positively correlated with health, the factors of education and income are expected to also positively correlate to health with the Indonesian women in this study (Hypothesis II a, Hypothesis II b). Perception of power and status affects health. It is thus expected power in this study will be shown to have a positive correlation with health. In this study, power is defined by the women's role in household decision making (Hypothesis II c). As studies have shown higher levels of religiosity correlate with increased health, it is expected the same will be seen in this study of Indonesian women (Hypothesis II d). Also, it is expected this study will show increasing age negatively impacts health, given previous studies which show age and the physical health and subjective well-being, are negatively correlated (Hypothesis II e). Given marriage has been shown to be a protective factor in other populations, it is expected that Indonesian women who report they are married will

report better health than non-married women (Hypothesis II f). However, this data set does not allow for marital and relationship distinctions. Women who report they are married may be village wives or second wives. As these marriages are somewhat ambiguous, women in these situations may or may not report they are married. Given the previous results of the IFLS, it is expected that stronger community participation will result in better health and age will be confirmed to be a factor of community participation (Hypothesis II g). As urban citizens have been shown to have access to better health care than their rural counterparts, it is expected urban citizens will report better health than their rural peers (Hypothesis II h). It is also expected that Indonesians who are Muslims will report better health than non-Muslims due to in-group benefits (Hypothesis II i) .

Hypotheses

I. Health is a construct that includes both physical and psychological factors. Thus, the measures of physical health (acute morbidity and medically diagnosed chronic conditions) will be highly correlated with the measures of psychological health (depression, and subjective wellbeing).

II. Biopsychosocial variables impact health. Thus, the selected biopsychosocial factors will be highly correlated with the measures of health (acute morbidity, medically diagnosed chronic conditions, depression, and subjective wellbeing).

   a. The reported quality of health of Indonesian women who report higher levels of education will be significantly better than those who report lower levels of education.

   b. The reported quality of health of Indonesian women who report higher levels of income will be significantly better than that of those who report lower levels of income.

   c. The reported quality of health of Indonesian women who report higher levels of household power will be significantly better than that of those who report lower levels of household power.

   d. The reported quality of health of Indonesian women who report higher levels of religiosity will be significantly better than the reported health of those who report lower levels of religiosity.

e. The reported quality of health of younger Indonesian women will be significantly better than the reported health of older Indonesian women.
f. The reported quality of health of Indonesian women who report strong community participation will be significantly better than the reported health of women who report lesser community participation.
g. The reported quality of health of Indonesian women who report living in an urban location will be significantly better than the reported health of women who report living in a rural location.
h. The reported quality of health of Indonesian women who report being Muslim will be significantly better than the reported health of women who report not being Muslim.

Chapter III

Method

This study will utilize data from the 2007-2008 Fourth Wave of the Indonesian Family Life Survey (Strauss, Witoelar, Sikoki, & Wattie, 2009). The IFLS is a large scale, longitudinal study that began in 1993 and was intended to document the health and socioeconomic status of the population. This survey was carried out by the non-profit corporation RAND Labor and Population division, the University of Gadjah Mada's Center for Population and Policy Studies, and Survey Meter. The Fourth Wave version was determined to be most appropriate for the needs of this study as it has the most current data. The survey results have been provided to independent researchers who applied for its use. However, RAND stated that it is expected the information will be treated confidentially. Thus, in this study no effort will be made to identify specific individuals, families or communities.

Structure of the Indonesian Family Life Survey

The sample for the Indonesian Family Life Survey, "…represented about 83% of the Indonesian population living in 13 of the country's 26 provinces" in 1993 (Strauss, Witoelar, Sikoki and Wattie, 2009, p. ii). The original 1993 sample households were random choices from selected provinces. The provinces were selected to minimize study costs, and to show Indonesia's diversity, while maintaining an accurate representation of the population. The researchers specified that in the original IFLS, they oversampled from small provinces as well as urban

provinces, to allow for better comparison between both urban and rural populations, and Javanese vs non-Javanese populations (Strauss, et el., 2009).

The study asks individuals in selected households questions regarding community life, family life, education, work, consumption, prices, health status, economic status, and individual and family history, as well as questions regarding relationships and quality of life. *Households* were defined as, "a group of people whose members reside in the same dwelling and share food from the same cooking pot," (Strauss, et el., 2009, p. 4). In the 2007-2008 Fourth Wave of the study, 44,103 individuals from 13,535 Indonesian households were interviewed. The individuals and households surveyed were those from the original 1993 wave, the succeeding waves of 1997, 1998, 2000, and their split-offs. Split-offs were defined as original "target" household members who moved into different households. The researchers noted that due to cost control, not all split-off individuals were tracked; as the distances and ability to track were at times prohibitive.

Indonesian Family Life Survey Books

To gather information in a standardized manner, the RAND researchers developed standard questionnaires that were divided into books. The Fourth Wave used eight books for the household questionnaire: books T, K, I, II, IIIA, IIIB, IV and V. Books T, K, I and II collected data generally from the household head or spouse and concerned information at the household level. The head of household (HH) was defined as, "the person who is responsible keeping up the daily needs of the household or a person whom the members of the household consider to be the

head (Strauss et al. 2009). In general, the husband was considered the head of household when the household was headed by a married couple. For the purposes of the study, a couple was considered married if they were cohabitating or married through religious or governmental institutions. To ensure inclusion of 'second' or 'little' wives, the adult questionnaire Book IIIB specifically asks men, "do you have another wife?" (p. 22). If the man answers yes, information is also gathered about the next wife.

Books IIIA, IIIB, IV collected the adults' data on an individual level, while Book V collected information on the individual children. Two books, book US1 and US2, were developed as individual measures of general health, while one book, EK, provided individual assessments of general cognitive functioning and math skills for householders over the age of seven years. Some of the sections, such as Marital History, are in more than one book to ensure the inclusion of different perspectives and accurate information. The Survey also collected information on community, health and school facilities.

Participants

The participants are women aged 14 years and older who completed Books K, IIIA and IIIB of the 2007-2008 RAND Indonesian Life Survey (IFLS IV). During the span of the IFLS IV, each woman was given a unique personal identifier, a PID number, to allow her responses to be tracked throughout the survey (Strauss et al. 2009). Care was taken to sample a random populace that reflected the composition of Indonesian society. Thus, these women were seen as

representative of Indonesian women above the age of 14 years. For this study, missing responses were not counted. The questions used for this study are attached in appendix A.

Instrument

For the particular needs of this study, information will be obtained from the IFLS IV Books K, IIIA, and IIIB. See Appendix for the actual measures of variables and their locations.

The variables are discussed below:

Social variables.

Level of poverty (income). Income was determined by questions relating to earnings. Each household member's earning was combined to gain a total income for the household. USD approximate values were given to facilitate broad comparison of total incomes among households. Data for the IFLS 5 was gathered during 2014 and 2015. The average currency exchange rate for 2014 was 11,849.58 Rp to one USD, while the average currency exchange rate for 2015 was 13,400.98 Rp to one USD. The average of these currency exchange rates was 12,625.28 Rp to one USD which was used to approximate USD values.

Education. Education was determined by the highest level of education completed by the participant. Respondents were given a set of general responses and asked to indicate their highest level of education. For the purposes of this analysis, the responses were grouped into 6 ascending levels. The levels are as follows: 1 = elementary school, 2 = junior high school, 3 = senior high school, 4 =

some college, 5 = a bachelor's degree, 6 = graduate school.

Role in decision making (power). The variable of power was measured using the level of participation in common household decisions. Eighteen common household decisions were presented in the IFLS 5 question chosen for this variable. Reponses indicating a respondent had sole power were given a value of 2, while responses indicating a respondent shared power were given a value of 1. Responses indicating a respondent had no power were given a value of 0. Values were averaged for each respondent.

Religiosity. Religiosity was measured using a range of four responses. When asked, "How religious are you?" respondents could answer very religious, religious, somewhat religious and not religious. In SPSS these responses were converted to ascending levels with the response "not religious" as numeral 1.

Community participation. This was measured using the respondent's level of participation in local activities during the past twelve months. The respondent was asked yes/no questions about eighteen specific activities. The sum of each respondent's "yes" answers were used to determine community participation.

Health variables.

Acute morbidity. Acute morbidity was measured using a list of acute symptoms experienced within the previous four weeks. The "yes" responses from thirteen possible symptoms were tallied to gain a total for each individual. Responses from the sub-questions Ca, Cb, Cc, Da, Db, Ia, Ib, and Ic were deleted as these sub-questions simply asked for details concerning the yes responses.

Medically diagnosed chronic conditions. Chronic conditions were measured using two questions which ask about 22 chronic illnesses. Respondents indicated whether they had been diagnosed with any of these illnesses by a medical professional. The yes responses were summed to gain a total for each individual.

Depression. Depression was determined following the ten question Center for Epidemiologic Studies Depression Scale (CES-D 10). This is a ten item scale derived from the 20 question CES-D. The CES-D was developed specifically to study depression symptomology in general populations. The CES-D 10 was derived from the CES-D as a shorter version to improve ease of administration and scoring, as well as decrease response burden (Weiss, 2015). The CES-D takes about 2 minutes to administer and addresses the chief domains of depressive symptomology. A Comparative Fit Analysis found the CES-10 has a CFI score of 95% that showed good unidimensionality with depression (Amtmann, et al., 2015). Reliability of the CES-D 10 is good (Cronbach 0.80), as is the sensitivity (97%) (Irwin, Artin & Oxman, 1999). According to Strauss et al. (2009), the short CED-S scale was used in the IFLS 4 to allow better comparisons with international surveys. For the purposes of this study, items E and H (positive response items) were reverse scored and the yes responses tallied to gain a total of depressive symptoms reported for each individual.

Subjective wellbeing. Subjective well-being was measured using two items concerning happiness and satisfaction. The first item stated, "Taken all things together how would you say things are these days – would you say you were very

happy, happy, unhappy or very unhappy?" Responses were converted in SPSS to ascending levels with the response "very unhappy" as numeral 1 and "very happy" as numeral 4. The second item asked about life satisfaction and offered 5 responses. Responses of "Completely Satisfied" and "Very Satisfied" were merged into one category of "Very Satisfied" to allow responses similar to the happiness item. Responses were converted to ascending levels with the response "Not at all satisfied" as 1, "Not very satisfied" as 2, "Somewhat satisfied" as 3, and "Very satisfied" as 4. Scores from each question were converted to z scores. The Subjective Wellbeing score was derived from the sum of each respondent's happiness and satisfaction z scores.

Demographic variables.

Age. Age was determined as the age in years reported by the respondent.

***Marital Status*.** Marital status was determined by a yes response, which means currently married, or a no response, which includes widows, divorcées, those never married and those who do not consider themselves married. There are no means to determine whether women who report being married are legally married, as women involved in village marriages may or may not consider themselves married.

Urban/Rural. These variables were determined by the classifications given by the RAND researchers. The larger islands are generally considered urban, while the small islands are generally considered rural. In SPSS, responses of urban were converted into the numeral 1, responses of rural into the numeral 3.

Religion. As stated earlier, while Indonesia officially recognizes 6 religions, 87% of the population is Muslim. Thus, this study follows the example of Beard's 2005 study, *Individual determinants of participation in community development in Indonesi*a, in which religious affiliation was categorized as either Muslim or other, with the 13% of the population practicing other religions being categorized as "other." In SPSS, responses of "Islam" were converted into the numeral 1, while all other religious choices were converted into the numeral 3.

Number of members in household. This was added during data analysis as it was important to calculating household income. The total number of respondents with the same HHID were tallied before the males and female children were deleted from the data set.

Procedure

The RAND data set was requested from the RAND organization. The received data set was converted from the STATA to SPSS format. Responses relating to the variables (as listed in Appendix A) along with respondent data, were extracted from the RAND data set books IIIA, IIIB, K, and U.S. 1 into a working set using the PID and HHID of respondents. Total household income and number of members in household were calculated. Responses from males were eliminated from the working set. Responses from females under the age of 15 were also eliminated from the set. Demographic data was calculated to give a brief picture of the participants. This data included age, marital status, urban or rural environment, and religious affiliation.

For Hypothesis I, Confirmatory Factor Analysis was used to determine whether the variables of physical health (Acute Morbidity and Medically Diagnosed Chronic Conditions) and the variables of psychological health (depression and subjective well-being) show strong correlations and support the theory that the model of health is composed of both physical and mental health.

For Hypothesis II, a multi-regression analysis was used to analyze the strength of the relationships between the biopsychosocial variables and overall health, as well between each health variable. Overall health was derived from the sum of the z-scores of the 4 health variables. A regression model was used to determine the strength of inter-correlations among the biopsychosocial independent variables (power, level of poverty, religiosity, community participation, and educational level) as well as among the dependent health variables (acute morbidity, medically diagnosed chronic conditions, depression, and subjective wellbeing) and demographics (age, marital status, urban/rural, religion, and number of members in household.)

Chapter IV

Results

Sample Characteristics

General descriptive statistics for all variables are presented in Table 1. The final data set was comprised of 17,480 participants who ranged in age from 15 years to 103 years with a mean age of 38.27 years. Almost half of the participants were less than 35 years of age, and 15% were above the age of 56 years. Those 70 years of age and older comprised only 5% of the sample (see Table 2). Eighty-six percent of the participants were married, 58.9% reported living in an urban area, and 41.1% reported living in a rural area. Most participants (90%) identified as being Muslim. The mean number of household members was 6.42. However, there was a significant range in the number of household members and several outliers which resulted in a standard deviation of 3.39 (see Table 3). Over half of all households were reported to have annual incomes below 24,552,000 IDR (1945 USD), while the top 5% of household incomes ranged from 132,000,000 IDR (10,456 USD) to 3,011,999,993 IDR (23,857 USD). Due to these huge disparities, the average annual household income was 43,207,860 IDR (3,422 USD) with a standard deviation of 84,902,017 IDR (6,724 USD).

Most participants reported the last school grade they completed was in a primary or secondary secular school (77.2%), while 8.6% of participants reported last attending a primary or secondary Islamic school (see Table 5). Levels of education were well dispersed with last attended grades as follows: 34.2 %

elementary, 20.3 % Junior High, 31.3 % Senior High and 14.2% college. The mean for power was 1.21 (*SD* .32) which indicated some autonomy given a range of scores from zero to two, and 73% of participants had scores that ranged between .89 and 1.55 (see Table 6). Almost 64 % of participants stated they were religious (a score of three when given a range of one to four) and the mean for religiosity was 2.96 (see Table 7). Most respondents (82%) indicated they participated in three community activities or less. The mean for participation was 2.05 (*SD* 1.81) (see Table 8).

Overall, most participants reported few health problems. Over half the participants (57.9%) denied any long-term health problems, while 26% reported only one long-term health problem (see Table 9). Current health scores were more dispersed. Almost half the participants (46.7%) reported having fewer than 2 current health problems, 29% reported having three or four, and 24% reported having five or more (see Table 10). Most participants also denied major depressive symptomology, with an average mood of 33.52 (range 10 – 40) and a standard deviation of 4.89. Over ten percent of participants rated their subjective well-being as high as possible, while 85% of participants had subjective well-being scores of 6 or 7 (range 2-8, mean 6.36, *SD* 1). See Table 12. Two scores determined subjective well-being, happiness and satisfaction. Over 78% of participants stated they were happy (see Table 13). Satisfaction scores were not as cohesive. 45.8% of participants reported they were very satisfied with their lives (score of 4), while almost 42% reported they were somewhat satisfied with their lives (see Table 14).

The Overall Health Model

Hypothesis I stated the variables of physical health (acute morbidity and medically diagnosed chronic conditions) and the variables of psychological health (depression and subjective well-being) would show strong correlations, thus supporting the theory that the model of health is composed of both physical and mental health. Confirmatory factor analysis was used to test this hypothesis (see Figure 1). Initial results showed a poor model fit due to strong correlations between the error terms of subjective well-being and depression. When the analysis was adjusted for the error terms, the four health variables together showed good fit with the model (see Table 15). While the chi-square was significant, this is typically an artifact of sample size requirements for this type of analysis. All four health variables in the model were significant. Lack of acute health symptoms loaded strongly into overall health, lack of depressive symptoms and lack of chronic symptoms had moderate loads, and subjective well-being was weakly loaded into overall health (see Table 16). These results support the hypothesis that overall health is composed of both physical and mental health variables. Correlations among the four health variables are shown in Table 17.

Biopsychosocial Predictors of Health

Hypothesis II stated the selected biopsychosocial variables of household income, power, religiosity, community participation and education would be highly correlated with the measure of overall health, as well as with each health measure (acute morbidity, medically diagnosed chronic conditions, depression, and subjective wellbeing). Correlation and multiple regression analyses were conducted to test this hypothesis. The multiple regression model for overall health was significant $R^2 = .036$, $F(9, 10{,}577) = 44.24$, $p < .001$. As can be seen in Table 18, religiosity and education had significant positive regression weights, indicating women who have more education or rate themselves as more religious are expected to have better overall health, after controlling for the biopsychosocial variables of power, participation and income, as well as the demographic variables of age, urban environment, religion, and number in household. While power was significantly correlated with overall health, once the other variables were accounted for the regression weight was not significant. Participation and income did not contribute to the model.

Correlation and multiple regression analyses for the four separate measures of health were also conducted. In each multiple regression analysis, all biopsychosocial predictors were entered and controlled by the demographics of age, urban environment, religion, and number in household. The multiple regression models for all four health variables were significant. The regression for lack of chronic health symptoms produced $R^2 = .095$, $F(9, 10{,}577) = 122.73$, $p <$

.001. Education, income, religiosity and community participation were all significant to the model (see Table 19). The regression for lack of acute health symptoms produced $R^2 = .005$, $F(9, 10{,}557) = 6.15$, $p < .001$. Religiosity was the only biopsychosocial variable significant to the model (see Table 20). The regression for lack of depressive symptoms produced $R^2 = .020$, $F(9, 10{,}557) = 23.58$ $p < .001$. Education, income, and religiosity were the biopsychosocial variables significant to the model (see Table 21). The regression for subjective well-being produced $R^2 = .065$, $F(9, 10{,}557) = 82.14$, $p < .001$. All biopsychosocial variables were significant to the model (see Table 22).

The strongest models were the chronic health model, in which the model accounted for 9.5% of the variance, and the subjective wellbeing model, in which the model accounted for 6.5% of the variance. The depression and acute models were weaker. The depression model accounted for 2% of the variance, while the acute model accounted for .5% of the variance. Regression results for the individual biopsychosocial variables in each health model are discussed below.

The individual biopsychosocial variables in Hypothesis II were identified as education, household income, power, religiosity, and community participation. When controlling for the demographic variables and other biopsychosocial variables, education had significant positive regression weights with lack of depressive symptoms and subjective wellbeing, a significant negative regression weight with lack of chronic health symptoms, and no significant regression weight with acute symptoms. This indicates Indonesian women who report higher levels of

education are expected to have fewer depressive symptoms, better subjective wellbeing, and more chronic health symptoms. Education did not have a significant regression weight with lack of acute health symptoms.

When controlling for all other variables, income had significant positive regression weights with lack of depressive symptoms and subjective wellbeing, and a significant negative regression weight with lack of chronic health symptoms. This indicates Indonesian women with higher incomes are expected to have fewer depressive symptoms, better subjective wellbeing and more chronic health symptoms.

Household power had a significant negative regression weight for subjective wellbeing, but was not significant for depressive symptoms or acute health symptoms, after controlling for the other variables in the model. This indicates Indonesian women who report more power in household decision making are expected to report lower levels of subjective wellbeing. Household power was significantly correlated with lack of chronic health symptoms, but once the other variables were considered the regression weight was insignificant.

When controlling for all other variables, level of religiosity had significant positive regression weights with all four health variables. This indicates Indonesian women who report higher levels of religiosity are expected to have fewer chronic and acute health symptoms, better subjective wellbeing and fewer depressive symptoms. Religiosity's significant positive regression weight for lack

of chronic health symptoms was the result of a suppressor effect as its correlation with the criterion was negative.

Community Participation has a significant positive regression weight with subjective wellbeing and a significant negative regression weight with lack of chronic health symptoms. This indicates Indonesian women who report higher participation in community activities are expected to have better subjective wellbeing and more chronic health symptoms. While Community Participation was significantly positively correlated with lack of depressive symptoms, the regression weight was found to be insignificant after controlling for the other variables. Community participation was not significant in relation to acute health symptoms.

In addition to the biopsychosocial variables, three demographic variables (age, urban environment, and religion) were mentioned in hypothesis II. Age has significant negative regression weights with lack of chronic health symptoms and subjective wellbeing, and a significant positive regression weight with lack of depressive symptoms, after controlling for the other demographic variables and biopsychosocial variables. It has no significance with acute health symptoms. These results indicate older Indonesian women are expected to have fewer depressive symptoms, lower subjective wellbeing, and more chronic health symptoms.

Urban environment has significant regression weights with all four health variables. After controlling for all variables, urban environment has a significant positive regression weight with subjective wellbeing and significant negative

regression weights with lack of acute health symptoms, lack of depressive symptoms, and lack of chronic health symptoms. This indicates Indonesian women who live in urban environments are expected to have more depressive, chronic and acute health symptoms, but report higher subjective wellbeing.

Religion has significant positive regression weights for subjective wellbeing and lack of depressive symptoms, but is not significant for the acute or chronic symptom models. This indicates Indonesian women who report being of the in-group religion (Islam) are expected to report higher subjective wellbeing and fewer depressive symptoms than their non-Muslim peers.

Summary. The results for hypothesis II vary. While the regression models for overall health and the four health variables with all five biopsychosocial variables were shown to be significant, religiosity and education were the only two individual biopsychosocial variables which had significance in regards to overall health. This supports the hypothesis that the overall health of Indonesian women who report higher levels of education and higher levels of religiosity will be significantly better. However, it does not support the hypotheses that Indonesian women with higher levels of power, income, and community participation will have better overall health. Of the individual biopsychosocial variables, religiosity was the only variable to show positive significance to all four health variables. The sub-hypothesis that those with increased religiosity will also have increased health was fully supported. The hypothesis that those women with increased household power will have improved health was not supported. Community participation was

only helpful for subjective wellbeing, while education and income were positively significant for subjective wellbeing and lack of depressive symptoms only. The sub-hypotheses that younger age and urban environments result in improved health were supported only by one health factor each, while the sub-hypothesis that in-group religion would lead to increased health was supported only by two biopsychosocial variables.

Chapter V

Discussion

In recent years, researchers have posited the biopsychosocial model of health as a better model for understanding health and health care than the traditional medical model as it considers a person's physical, mental, and social attributes rather than simply considering the physical variable (McDaniel &DeGruy, 2014). Numerous studies have shown significant relationships between the physical and psychological aspects of health (Dougall & Baum, 2014; Vogt, Mullooly, Ernst, Pope, & Hollis, 1992; Ruiz & Prather, 2014; Gross, Gallo & Eaton, 2010; Wuest et al., 2009; Sherrer et al., 2011). However, many of these studies have been based on North American and European populations and results may not be germane to different populations, such as the population of Indonesia. Indonesia's population is diverse, spread among 6,000 islands in which some of the population live in highly populated urban areas and some live in isolated rural areas (CIA, 2014). Indonesia differs culturally and economically from its North American and European cohorts.

This study was conducted to explore whether the biopsychosocial model of health is valid for Indonesian women. The relationships between selected biopsychosocial variables, and overall health were examined, as well as the relationships between the selected biopsychosocial variables and the four broad health outcomes that together comprised overall health. The selected biopsychosocial variables were decision making power, level of poverty (income),

level of religiosity, community participation, and educational level. Results were expected to be similar to those of other cultures and regions, supporting the hypothesis that the biopsychosocial predicters of health are universal for all women.

Hypothesis I stated the variables of physical health (acute morbidity and medically diagnosed chronic conditions) and the variables of psychological health (depression and subjective well-being) would show strong inter-correlations, thus supporting the theory that the model of health is composed of both physical and mental health. Hypothesis I was supported by confirmatory factor analysis. The four health variables of acute morbidity, medically diagnosed chronic conditions, depression, and subjective wellbeing together showed good fit in comprising overall health. Lack of acute health symptoms had a strong load on overall health, while lack of chronic symptoms and depressive symptoms denied had moderate loads. Subjective wellbeing had a weak load on overall health. While all four health measures were significantly intercorrelated, depression and subjective wellbeing were the most strongly correlated with each other. This was expected as many studies show the strong relationship between depression and subjective wellbeing (Ahmad, Aftab & Rizwan, 2007; Zheng, 2016). The significant loads of depressive symptoms denied and subjective wellbeing on overall health support the World Health Organization's (2016) position that, "..there is no health without mental health…." (Mental health: strengthening our response). Obviously, psychological and physical variables interact and impact overall health. These

results indicate relevant psychological and social variables need to be given the same consideration as physical variables when assessing and treating the health of Indonesian women, as well as when planning for health policy and community interventions.

Hypothesis II stated the selected biopsychosocial variables of household income, power, religiosity, community participation and education would be highly correlated with the measure of overall health, as well as with each health measure (acute morbidity, medically diagnosed chronic conditions, depression, and subjective wellbeing). Hypothesis II was supported, as expected given the literature review. The multiple regression model for overall health was significant. Religiosity and education were significant for overall health, as expected, while unexpectedly participation, income and power were not significant for overall health. After controlling for the other variables, Indonesian women who have more education or rate themselves as more religious are expected to have better overall health.

Multiple regression models for each of the four health variables were significant. The biopsychosocial variables more strongly predicted chronic health and subjective wellbeing than depression and acute health. When controlling for all other variables, education, income, religiosity and community participation were all significant for chronic health symptoms. Religiosity was the only biopsychosocial variable significantly related to acute health symptoms, with a positive relationship between lack of acute health symptoms and religiosity.

Education, income, and religiosity were the biopsychosocial variables significantly predictive of depressive symptoms. All biopsychosocial variables were significant for subjective wellbeing.

Hypothesis IIa stated the reported quality of health of Indonesian women who report higher levels of education will be significantly better than those who report lower levels of education. This hypothesis was supported. Education had a significant positive regression weight in the overall health regression model, after controlling for all other variables, which indicated Indonesian women who report higher levels of education also report better levels of overall health. However, when separate analysis of the four health variables was done, Indonesian women who report higher levels of education were shown to have fewer depressive symptoms, better subjective wellbeing, but more chronic health symptoms. These results support a 2008 study which found education increased reporting of physical health symptoms (D'Uva, O'Donnell, & van Doorslaer., 2008). While these results may appear contradictory - higher education seems to be increasing ill health, while also helping people feel happier - the data may not reflect an actual difference in illness levels. While chronic health symptoms which require a health professional's diagnosis are higher for the more educated, education showed no significance for acute symptoms which require only a self-report. As Egerter, Braveman, Sadegh-Nobari & Dekker of the Robert Wood Johnson Foundation's Commission To Build a Healthier America (2009) stated, "Education can increase people's knowledge and cognitive skills, enabling them to make better-informed choices among the

health related options available for themselves and their families, including those related to obtaining and managing medical care," (p.5). Thus, people with more education may be better able to recognize problem symptoms and be more efficacious at finding health resources and gaining official diagnoses than less educated peers.

Hypothesis IIb stated the reported quality of health of Indonesian women who report higher levels of income will be significantly better than that of those who report lower levels of income. This was not supported. Income was not significant to overall health, after controlling for all other variables. This is unexpected given the literature results and could result from the fact that the questions used for income in this study ask about salary while 38.9% of the Indonesian work force is in agriculture and may not earn a formal salary (CIA, 2015). In addition, Angus Deaton, the Dwight D. Eisenhower Professor of International Affairs at Princeton University (2003), stated, "the positive correlation between health and economic status implies that social inequalities in wellbeing are wider than would be recognized by looking at income alone" (Health, Income and Equality). Thus, income alone is likely not adequate to address economic status, particularly in countries with diverse work forces such as Indonesia. Separate regression analysis of the four health variables indicated Indonesian women with higher incomes are expected to have fewer depressive symptoms, better subjective wellbeing and more chronic health symptoms. Again, this would seem to be contradictory. However, while higher income showed more

chronic health conditions, income was not significant to acute health. Thus, only the conditions diagnosed by health professionals (chronic) were shown to be negatively impacted by income. This is supported Egerter, Braveman, Sadegh-Nobari & Dekker of the Robert Wood Johnson Foundation's Commission To Build a Healthier America (2009). They stated higher income can allow a greater knowledge of health, as well as a greater knowledge of available resources and greater access to quality healthcare. Thus, chronic conditions which are diagnosed by health professionals may be more prevalent in those with higher incomes, and this may indicate they have the resources to gain professional health care, rather than indicating increased disease in that population.

Hypothesis IIc stated the reported quality of health of Indonesian women who report higher levels of household power will be significantly better than that of those who report lower levels of household power. This was not supported. Power was not significant to overall health, after controlling for all other variables. Power was the weakest biopsychosocial variable, showing significance only with subjective wellbeing and that relationship was negative. These results were surprising given the literature which states the importance of power and the perception of power. Similar to the income question, it is possible the small range of the power scale question in this study could be part of the problem. The scale asks a variety of questions about home decisions and does not include important decisions made at work or in other arenas. In addition, the power question was answered only by the married women, thus excluding 13.5% of the unmarried

sample. Culture may also be an important variable in the results regarding power. Studies of Western populations show perceptions of power impact health (Ruiz & Prather, 2014). However, in Indonesia a woman's traditional role is in the home and her husband is expected to be the leader of the marriage and family. Thus, according to cultural and religious mores the husband should have more power than the wife in his role as leader and protector (Musawah, 2009). This could explain why the study showed Indonesian women who reported having more power also reported lower subjective well being, as a woman taking more responsibility could feel she is taking a role her husband should have and is not being protected by her husband or not following cultural and religious standards.

Hypothesis IId stated the reported quality of health of Indonesian women who report higher levels of religiosity will be significantly better than the reported health of those who report lower levels of religiosity. This was supported. Religiosity showed the greatest predictive value of all the biopsychosocial variables. (For this study, participants were given an ascending scale and asked to simply rate how religious they were.) Religiosity was significantly correlated to overall health, as well as all four health variables. These results were expected, given similar results in the United States and Europe, and supported by results found in studies of Muslim cultures (Abdel-Khalek & Singh, 2014; Abdel-Khalek & Lester, 2013). According to these studies, religion may play a protective role as it provides a like-minded community, social activities, social support and motivation to increase healthier behaviors.

Hypothesis IIe stated the reported quality of health of younger Indonesian women will be significantly better than the reported health of older Indonesian women. This was supported and expected given the literature review. Age had a significant negative regression weight to overall health, after controlling for all other variables, which predicted younger Indonesian women have better levels of overall health. Separate regression analysis of the four health variables indicated older Indonesian women are expected to have fewer depressive symptoms, lower subjective wellbeing, and more chronic health symptoms.

Hypothesis IIf stated the reported quality of health of Indonesian women who report strong community participation will be significantly better than the reported health of women who report lesser community participation. This was not supported. Community participation was not significantly correlated to overall health, after controlling for all other variables. This was surprising. It is possible the questions regarding community activities did not allow the women to fully show their level of participation. In future, it would be useful to allow women to write in community activities which are not listed by the study designers. Separate regression analysis of the four health models indicated Indonesian women who report higher participation in community activities are expected to have better subjective wellbeing and more chronic health symptoms. It is possible the increased chronic health symptoms could be due to the need for increased community support and services when suffering illness. Women with more illness could be seeking community support. It is also possible that women who participate

more in community activities are more aware of available health resources, and better able to utilize these resources. Therefore, they have more formal health diagnoses – which would result in higher levels of chronic conditions.

Hypothesis IIg stated the reported quality of health of Indonesian women living in an urban location will be significantly better than the reported health of women who live in a rural location. This was not supported. This was another surprising result. Urban environment was significantly negatively correlated to overall health, after controlling for all other variables, which indicates that urban Indonesian women will have worse overall health than those living in a rural environment. While this result contradicts hypothesis II, it is supported by other research. A 2016 study of 1,569 dyads of family caregivers and family patients which utilized the Indonesian Family Life Survey IV, found caregivers in urban areas reported higher rates of depressive symptoms (Kashiwagi, Tamiya, & Sandoval, 2016). A 2015 study utilizing the same survey found that women in urban settings have significantly more chronic health conditions and associated risk factors than women in rural areas even at younger ages (Christiani, Byles, Tavener & Dugdale). According to David Vlahov of the Center for Urban Epidemiologic Studies, urban problems contributing to ill health include problems with the physical environment such as waste disposal and safe housing, problems with the social environment such as crime, violence and psychological stressors , and problems with provisions of health and social services due to a prevalence of marginalized populations and those of lower socioeconomic status which stresses

resources which are often already inadequate (Vlahov & Galea, 2002). Another surprising result was that separate regression analysis of the four health variables indicated Indonesian women who live in urban environments are expected to have more depressive, chronic and acute health symptoms, but report higher subjective wellbeing.

Hypothesis IIh stated the reported quality of health of Indonesian women who report being Muslim will be significantly better than the reported health of women who report not being Muslim. This was supported. Being of Islamic religion was significantly correlated to overall health, after controlling for all other variables, which indicated Indonesian women who report being Muslim also report better overall health. Separate regression analysis of the four health variables indicates Indonesian women who report being of the in-group religion (Islam) are expected to report higher subjective wellbeing and fewer depressive symptoms than their non-Muslim peers. These positive results are supported by a 2012 study by Walton, Cohen, Cwir, and Spencer which found that feeling even a weak connection to a group increases motivation and enthusiasm as well as feelings of warmth toward the group. In a 2011 study, Cwir, Carr, Walton & Spencer found when they connected people socially, the subjects reacted both psychologically and physiologically to the other person's emotional and physical states. Thus, people in a group feel better emotionally, are likely to feel as others do, and are more motivated to perform group approved behaviors. In the Islamic faith, this includes improving health by practicing moderation.

Of the four health variables, chronic health was the best predicted by the five biopsychosocial variables with 9.5 % of the variance accounted for. However, chronic health had negative relationships with most of the variables, which was surprising. The question regarding chronic conditions required participants to endorse a condition only if given an official diagnosis by a health professional, while the question regarding acute conditions was a self diagnosis. As discussed earlier for each variable, studies support the theory that the increased number of chronic conditions in various populations did not show an actual decrease in health, but rather the ability of that population to access health services and gain an official diagnosis.

Only .5% of the variance of acute health was accounted for by the five biopsychosocial variables. This made acute health the weakest health variable predicted by the five biopsychosocial variables. Religiosity was the only variable significant to acute health. These results were surprising as it was expected acute health symptoms would have more significance, given it did not require a diagnosis by a health professional. However, Thomas and Frankenberg (2000) state that health self-reports, while useful, are subject to systematic bias, including the bias that one's health is closer to ideal than it actually is. This bias would not be seen in the question of chronic health as it asks which conditions have been diagnosed by a health professional. The bias would be seen with the question of acute health as it asks the participants to judge their own health. In addition, Indonesia women may be less likely to report problems given gender roles in which Indonesian women are

responsible for family harmony and expected to place other's needs above their own. Given the gender role, they may be less focused on their own health and not recognize symptoms like headaches. They also may not be willing to endorse items of ill health, unless they have been officially diagnosed and thus cannot be perceived as complaining. In addition, Thomas and Frankenberg (2000) make the point that self-reports show the participants' beliefs concerning what constitutes good and bad health. Thus, Indonesian women may have not endorsed items on the acute scale such as headache because the severity of the headache was not enough to complain.

Overall, the results were surprising in that for Hypothesis II, variance accounted for by the five biopsychosocial variables was much lower than expected given the evidence presented in the literature review. Martikainen, of the University of Helsinki, discusses the need to explore macro (societal, community, and family) as well as micro (individual) level factors to fully understand health (Martikainen, Bartley and Lahelma, 2011). While this study did attempt to include both macro and micro level variables, is obvious there are other variables involved in determining the health of Indonesian women which this study did not explore.

There are several reasons results may have differed from expectations. First, variables specifically important to the health of Indonesian women were not included in this study. As this study used archival data, it was bound by what was included in the original survey.

Second, the data were collected face to face, which has been noted to cause

difficulties for populations such as those in which women are prohibited from meeting with strangers without a male relative present (Strauss, et el., 2009). This causes difficulties collecting data, as well as ensuring the data is accurate, as the woman has no privacy in which to speak to the interviewer. Some studies also have indicated more accurate data are collected when women can report on sensitive topics in an anonymous manner (United Nations Children's Fund, 2000). Data collection more sensitive to specific cultural and religious norms may increase the accuracy of the dataset.

Third, the data used were self-reported to a data collector. Self-reports provide useful information, but self-reports regarding health are also biased to some extent by a respondent's education, knowledge, and cultural norms (Thomas & Frankenberg, 2000). More accuracy could result from allowing respondents to record responses anonymously, accounting for individual bias, or finding ways in which to rely less on self-reports. The Indonesian Family Life Survey 5 (IFLS 5) has done this to some extent by taking physical measurements and health exams of selected respondents. Using this instead of self-reports of physical health data may have given a different picture of physical health. This is noteworthy as self-reported acute health was very poorly predicted by the biopsychsocial variables, while chronic health (diagnosed by a health professional) showed stronger correlations. Researchers have also considered determining the level of a self-reporting respondent's bias and adjusting the individual's data to account for it. The IFLS 5 has included vignettes which could be used to determine the level of an individual's

bias. These vignettes give varying scenarios and ask the respondent to make a judgment. This allows comparison to other individual's responses and could enable an adjustment of that individual's data for accuracy. A study using data from the 2006 U.S. Health and Retirement Study (HRS) and the 2007 Disability Vignette Survey compared health responses from individuals and a set of vignettes the same individuals completed. It found significant reporting differences varying by age, gender, education, race/ethnicity and the health factor measured and suggested using the vignettes to discover these differences and adjust for them (Dowd & Todd, 2011).

The biopsychosocial model of health is valid for Indonesian women. As some of the biopsychosocial variables utilized in this study predicted health as expected, and some did not, it would be useful to identify other biopsychosocial variables important to Indonesian women's health by investigating the lives of these women, as well as perceptions pertaining to health and cultural norms. These likely vary given Indonesia's widespread population of large cities and isolated islands. However, as it is known that biological, psychological and social variables interact to predict overall health for Indonesian women as well as Western populations, it seems reasonable to consider the biopsychosocial interventions used in Western populations to determine if they could be modified for Indonesian populations. Modifications to interventions should ensure the interventions are culturally appropriate, effective, valid and reliable. Consider education. Education was significant to overall health in both Western and Indonesian populations. Some Western interventions target mothers to promote the importance of education for

their daughters. Indonesian mothers want their children to succeed just as much as Western mothers do. However, a rural Indonesian mother living on an isolated island far from a large island may not respond enthusiastically to materials promoting her child as a pilot or scientist. Her values are likely to be different from those of urban Indonesians as well as people in the Western world. She may feel it is most important for her daughter to become a good wife and mother. Perhaps promoting the ways in which education can help her daughter raise healthier children would appeal to this mother. It is important to investigate local cultures to recognize these sorts of issues to determine when a different approach or unique intervention is needed.

This study showed that the variables of participation, income and power were significant to overall health for only Western populations. Thus, implementing interventions designed to utilize these variables would not be appropriate. This would change if further investigations of different measures of participation, income and power in Indonesia discovered a significance to overall health. In addition, interventions specifically designed for the Indonesian population could be explored for use in other Asian and Muslim populations.

Limitations of Study

The IFLS 5 dataset is a broad dataset meant to show a picture of the daily lives of Indonesian families and individuals. As it is so broad, it has less detail than a study designed specifically to examine biopsychosocial predictors of health. This limits the specificity of the data and the range of available psychological research areas. In addition, the study surveyed a very large population, and there were many

skipped questions for which there were no explanations. We do not know if specific populations skipped certain questions or if questions were skipped randomly. While the vast number of participants renders the IFLS 5 data valid, it would have been useful to know why questions were skipped. This would allow suggestions for revisions of study questions, as well as give valuable information regarding the individuals who skipped the questions. Regarding specific variables, as the study asks only married women about power, we cannot fully address the power variable. However, the IFLS 5 is the only way some of the research questions can be answered, given the difficulties of undertaking such a large study in such a diverse country.

Future Research

The IFLS 5 data were appropriate for use in examining the biopsychosocial variables of health and the breadth of the data allowed many choices for study. It is obvious that these types of broad international datasets can be extremely useful for research applications other than the more typical physical health and economics studies. With such a wide array of data available, researchers have many types of data and behaviors to examine. However, while physical attributes, health and behaviors are questioned extensively in the IFLS 5, there are fewer questions concerning the psychological aspects of health. More of these types of questions would allow a greater breadth of study, and provide a better understanding of which variables are significant to most populations, and which are specific to a certain region or culture. An example of such questions would be that which

explore aspects of personality. Using a large international dataset like the IFLS 5 to study personality characteristics and health could provide very interesting information for health professionals worldwide. The latest version of the IFLS (the IFLS 5) uses the Big Five Index 15, which allows a respondent to rate himself on 15 questions concerning the 'big five' personality traits of extraversion**,** agreeableness**,** openness, conscientiousness, and neuroticism. Studies exploring how personality is related to variables which impact health, such as education or religiosity, could inform more efficacious health assessment and treatment.

Another area of future research concerns marital status. It would be useful to be able to track marital status in detail when studying populations where polygamy may be an issue. There may be a great deal of difference in the overall health of the participants, as well as between the health of a first wife and second wife.

In this study, religiosity was found to be very important, which followed studies of other cultures. However, the strength of the results was surprising as religiosity was a very good predictor of all the health variables, as well as overall health. It would be interesting to further study whether religiosity means the same thing in these cultures. The religiosity question was vague and seemed open to broad interpretation. It simply asked, "How religious are you?" To a woman of Orthodox Jewish faith, a rating of religiosity may be based on adherence to strict laws and guidelines. To a woman of Christian faith, a rating of religiosity may be based on belief in the Bible and personal spirituality, or it may be based on the

actions of regular church attendance and doing works of charity and outreach. Is the religiosity of Indonesian women actually similar to that of women in other areas of the world? Do Indonesian women assess religiosity in a similar manner amongst themselves? Asking a more specific question or allowing participants to list what constitutes religiosity would give more specific information and allow better comparisons between and among populations.

The results of this study showed that the biopsychosocial model of health is valid for Indonesian women. While the results of this study showed many of the expected relationships between the biopsychosocial variables and health measures, not all results were as expected. Correlations between the four health variables and the five independent variables were generally much weaker than expected, leading to the conclusion that there may be stronger variables involved in determining the health of Indonesian women which this study did not explore. One variable not addressed is the status of the woman's marriage. As nikah siri or secret marriages are considered shameful, women in these marriages may suffer worse health and have less advantageous biopsychosocial circumstances than women in a legal, monogamous marriage (Musawah, 2009; Vignato, 2012). Another variable not addressed is abuse or violence. An Indonesian woman's lifetime exposure to physical violence is 11%, while her lifetime exposure to sexual violence is 22% (Hayati, Hogberg, Hakimi, Ellsberg & Emmelin, 2011). The health risks of abuse are numerous. The World Health Organization (2013) states abused women are twice as likely to suffer depression, more likely to get a venereal disease, and twice

as likely to abuse alcohol. The Centers for Disease Control (2015) states abuse is correlated with many adverse health outcomes, including injuries and death. As the percentage of Indonesian women who will experience abuse is significant, it would be worthwhile to examine this variable to determine its impact on their health.

Conclusion

The rich data provided by the large scale, longitudinal RAND Indonesian Family Life Study 5 allowed an examination of an extensive set of variables regarding the health of Indonesian women. While not designed specifically for psychological interpretations, a dataset such as the IFLS 5 can be very useful for psychologists. For this study, the IFLS 5 data allowed an American researcher to analyze biopsychosocial variables and health for Indonesian women and determine the similarities and differences with Western populations. It is a good example of how these datasets can be used for attaining culturally relevant material that may have broad psychological significance.

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Table 1. Descriptive Frequencies for All Variables

Variable	*N*	Range	Mean (*SD*)	Percentage
Age	17,478	15 - 103	38.27 (16.07)	-
Marital Status (married)	14,035	-	-	86.5%
Urban	17,480	-	-	58.9%
Religion (Islamic)	16,626	-	-	90.1
# in Household	17,480	1 - 40	6.42 (3.39)	-
HH Income	17,415	0 – 23,857 USD[a]	3,422 USD[b] (6,724 USD)[c]	-
Education[d]	15,984	1 - 6	2.36 (1.28)	-
Power	11,173	0 - 2	1.21 (.32)	-
Religiosity	16,609	1 - 4	2.96 (.65)	-
Participation	16,291	0 - 18	2.05 (1.81)	-
Lack of Acute Conditions (Current Health)	17,382	0 - 13	10.02 (2.28)	-
Lack of Chronic Conditions (Long Term Health)	17,385	0 - 22	21.33 (.998)	-
Subjective Wellbeing	16,637	2 - 8	6.36 (1.01)	-
Lack of Depressive Symptoms (Mood)	16,609	10 - 40	33.52 (4.89)	-

Note. USD figures are approximate based on 12,625 Rp to one USD. This is the average of the annual currency exchange rates of the years IFLS data was gathered, 2014 and 2015 (Yearly Average Exchange Rates for Currencies, 2015).

[a] 0 – 3,011,999,993 IDR. [b]43,207,860 IDR. [c] 84,902,017 IDR. [d]Education levels are as follows: 1 = elementary school, 2 = junior high school, 3 = senior high school, 4 = some college, 5 = a bachelor's degree, 6 = graduate school.

Table 2. Descriptive Frequencies for Age

Age in Years	*N*	Percent	Cumulative Percent
15 - 19	1889	10.8	10.8
20 - 24	1891	10.8	21.6
25 - 30	2169	12.4	34.0
31 - 35	2492	14.3	48.3
36 - 40	2324	13.3	61.6
41 - 45	1537	8.8	70.4
46 - 51	1266	7.2	77.6
52 - 56	1160	6.6	84.3
57 - 61	1040	6.0	90.2
62 - 66	575	3.3	93.5
67 - 72	438	2.5	96.0
73 - 77	336	1.9	97.9
78 - 82	220	1.3	99.2
83 - 87	90	.5	99.7
88 +	51	.3	100
Total	17480		100

Table 3. Descriptive Frequencies for Household Numbers

Number in Household	*N*	Percent	Cumulative Percent
1 - 5	8203	46.9	46.9
6 - 10	7235	41.4	88.3
11 - 15	1755	10.0	98.4
16 - 20	246	1.4	99.8
21 - 40	41	.2	100.0
Total	17480	100.0	

Table 4. Descriptive Frequencies for Household Income

Indonesian Rupiah (IDR)	**Approx. USD**	***N***	**Percent**	**Cumulative Percent**
0	$0.00	1839	10.60	10.6
1 IDR – 7,170,000 IDR	$1 - $568	1926	11.06	21.6
7,170,001 IDR – 12,096,000 IDR	$569 - $958	1743	10.01	31.6
12,096,001 IDR – 18,020,000 IDR	$959 - $1427	1744	10.01	41.6
18,020,001 IDR – 24,552,000 IDR	$1428 - $1945	1730	9.93	51.6
24,552,001 IDR – 34,400,000 IDR	$1946 - $2725	1752	10.06	61.6
34,400,001 IDR – 45,600,000 IDR	$2726 - $3612	1743	10.01	71.6
45,600,001 IDR – 64,950,000 IDR	$3613 - $5145	1737	9.97	81.6
64,950,001 IDR – 104,300,000 IDR	$5146 - $8261	1745	10.02	91.6
104300001 IDR +	$8262 +	1456	8.3606	100.0

Note. USD figures are approximate based on 12,625 Rp to one USD. This is the average of the annual currency exchange rates of the years IFLS data was gathered, 2014 and 2015 (Yearly Average Exchange Rates for Currencies, 2015).

Table 5. Descriptive Frequencies for Last Educational Grade or Degree Attended

Last Educational Level Completed	*N*	Percent	Cumulative Percent
Elementary School (1)	5464	34.2	34.2
Junior High School (2)	3239	20.3	54.4
Senior High School (3)	5005	31.3	85.8
Some College (4)	674	4.2	90.0
Bachelor's Degree (5)	1516	9.5	99.5
Graduate (6)	86	.5	100.0
Total	15984		

Table 6. Descriptive Frequencies for Power

Average Level of Power	N	Percent	Cumulative Percent
0	20	.2	.2
.01 - .222	41	.4	.5
.223 - .444	174	1.6	2.1
.445 - .666	362	3.2	5.3
.667 - .888	940	8.4	13.8
.889 - 1.11	2078	18.6	32.4
1.12 - 1.33	3449	30.9	63.2
1.34 - 1.55	2695	24.1	87.3
1.56 - 1.78	1054	9.4	96.8
1.79+	360	3.2	100.0
Total	11173	100.0	

Note. Average level of power score is the mean of responses to questions relating to decision making power. Participants responded 0 for no power, 1 for shared decisions, and 2 for independent decisions.

Table 7. Descriptive Frequencies for Religiosity

Religiosity	*N*	Percent	Cumulative Percent
Not Religious (1)	318	1.9	1.9
Somewhat Religious (2)	2864	17.2	19.2
Religious (3)	10618	63.9	83.1
Very Religious (4)	2809	16.9	100.0
Total	16609	100.0	

Table 8. Descriptive Statistics for Community Participation

# Activities	*N*	Percent	Cumulative Percent
0	3007	18.5	18.5
1	4507	27.7	46.1
2	3689	22.6	68.8
3	2201	13.5	82.3
4	1254	7.7	90
5	787	4.8	94.8
6	403	2.5	97.3
7	224	1.4	98.7
8	123	.8	99.4
9+	96	.6	100.0
Total	17382		

Table 9. Descriptive Statistics for Long Term Health (Lack of Chronic Symptoms)

Long Term Health (# of denied symptoms)	***N***	**Percent**	**Cumulative Percent**
<12	0	.0	0
13	4	.0	.0
14	5	.0	.0
15	6	.0	.0
16	28	.2	.2
17	76	.4	.6
18	235	1.4	2.0
19	672	3.9	5.9
20	1725	9.9	15.8
21	4570	26.3	42.1
22	10064	57.9	100.0
	17385	100.0	

Note. Range = 0 - 22

Table 10. Descriptive Statistics for Current Health (Lack of Acute Symptoms)

Current Health (# of denied symptoms)	***N***	**Percent**	**Cumulative Percent**
3 -	123	.7	.7
4	185	1.1	1.8
5	369	2.1	3.9
6	678	3.9	7.8
7	1117	6.4	14.2
8	1683	9.6	23.9
9	2264	13.0	36.9
10	2795	16.0	53.0
11	2926	16.7	69.8
12	2742	15.7	85.6
13	2500	14.3	100.0
Total	17382		

Note. Range = 0 – 13

Table 11. Descriptive Frequencies for Mood (Depressive Symptoms Denied)

Mood (Depressive Symptoms Denied)	***N***	**Percent**	**Cumulative Percent**
< 12	0	0	0
12 - 15	16	.2	.2
16 - 19	165	1.0	1.2
20 – 23	555	3.2	4.6
24 - 27	1395	8.0	12.6
28 - 31	2654	20.4	33.0
32 - 35	4827	27.6	59.6
36 - 39	5897	33.8	93.4
40	1100	6.6	100.0
Total	16609	100.0	

Note. Range = 10 – 40

Table 12. Descriptive Statistics for Subjective Well-being (SWB)

SWB Sum	*N*	Percent	Cumulative Percent
2	41	.2	.2
3	115	.7	.9
4	689	4.1	5.1
5	1581	9.5	14.6
6	6427	38.6	53.2
7	6077	36.5	89.7
8	1707	10.3	100.0
Total	16637		

Note. Higher scores indicate higher SWB. Range = 2 – 8

Table 13. Correlations with Demographic Variables

	Age	Married	Urban	Religion	N_HH
Age	1.00	-.453	-.037	-.032	.143
Married	-.453	1.00	NS	NS	-.119
Urban	-.037	NS	1.00	.023	NS
Religion	-.032	NS	.023	1.00	-.022
N_HH	.143	-.119	.006	-.022	1.00
Education	-.360	.148	.219	.-.078	-.082
Power	.091	-	NS	.042	-.031
Religiosity	.163	-.043	-.039	-.110	.036
Participation	.166	.035	.024	NS	NS
Income	.020	NS	.103	-.039	.177

Note. NS= not significant at .05

Table 14. Correlations with Independent Variables

	Education	Power	Religious	Particip.	HH Income
Age	-.360	.091	.163	.166	.020
Married	.148	-	-.043	.035	.016
Urban	.219	NS	-.039	.024	.103
Religion	-.078	.042	-.110	NS	-.039
N_HH	-.082	-.031	.036	NS	.177
Education	1.00	NS	-.082	.029	.159
Power	NS	1.00	NS	.085	NS
Religious	-.082	NS	1.00	.070	NS
Participation	.029	.085	.070	1.00	.033
Income	.159	NS	NS	.033	1.00

Note. NS= not significant at .05

Table 15: Pre and Post Modification Indices Results for Overall Health Model with Four Health Factors

Model	Comparative Fit Index (CFI)[a]	Tucker-Lewis Index (TLI)[a]	Root Mean Square Error of Approximation (RMSEA)[b]
Pre MI	.885	.656	.105
Post MI	.996	.977	.027

[a]scores above .9 indicate good model fit. [b]scores below .06 indicate good model fit.

Table 16: Health Factor Loads on Overall Health

			Estimate
Lack of Acute	<---	Overall_Health_Test	.837
Lack of Chronic	<---	Overall_Health_Test	.280
Subjective Well-being	<---	Overall_Health_Test	.129
Depressive Denied	<---	Overall_Health_Test	.347

Table 17: Correlations Between the Four Health Variables

		Depressive Denied	SWB	Lack of Chronic	Lack of Acute
Depressive Denied	Pearson's *r*	1	.205**	.097**	.300**
	N	16609	16608	16609	16605
SWB	Pearson's *r*	.205**	1	.064**	.109**
	N	16608	16637	16610	16606
Lack of Chronic	Pearson's *r*	.097**	.064**	1	.234**
	N	16609	16610	17385	17381
Lack of Acute	Pearson's *r*	.300**	.109**	.234**	1
	N	16605	16606	17381	17382

**Correlation is significant at the 0.01 level (2-tailed).

Table 18. Hierarchical Regression with Overall Health as the Dependent Variable

		Unstandardized Coefficients				Correlations	
DV: Overall Health		B	β	t	Sig.	Zero-order	Sig.
Demo							
	Age	-.005	-.129	-12.110	.000	-.130	.000
	Urban	-.072	-.056	-5.697	.000	-.047	.000
	Religion	.100	.047	4.879	.000	.036	.000
	N_HH	-.011	-.062	-6.249	.000	-.077	.000
	Marriage	-	-	-	-	.110	.000
Indep							
	HH_Income	1.048E-10	.014	1.416	.157	-.002	.403
	Power	-.029	-.015	-1.512	.130	-.024	.006
	Religiosity	.106	.108	11.021	.000	.080	.000
	Participation	.003	.010	.975	.329	-.005	.249
	Education	.014	.028	2.631	.009	.058	.000

Note. Regression model produced R^2 =.036, F(9, 10,557) = 44.24, p < .000

Table 19. Hierarchical Regression with Lack of Chronic Health Symptoms as the Dependent Variable

		Coefficients				Correlations	
DV: Lack of Chronic Symptoms		**b**	**β**	**t**	**Sig.**	**Zero - Order**	**Sig.**
Demo							
	Age	-.018	-.289	-27.954	.000	-.268	.000
	Urban	-.166	-.082	-8.584	.000	-.094	.000
	Religion	.041	.012	1.303	.193	.026	.000
	N_HH	-.012	-.040	-4.181	.000	-.083	.000
	Marriage	-	-	-	-	.096	.000
Variables							
	Income	-.5.215E-10	.-.044	-4.618	.000	-.079	.000
	Power	.017	.005	.575	.565	-.022	.010
	Religiosity	.033	.021	2.255	.024	-.022	.002
	Participation	-.020	-.036	-3.786	.000	-.087	.000
	Education	-.059	-.075	-7.187	.000	.004	.328

Note. Regression model produced $R^2 = .095$, $F(9, 10{,}577) = 122.73$, $p < .001$

Table 20. Hierarchical Regression with Lack of Acute Health Symptoms as the Dependent Variable

		Coefficients				Correlations	
DV: Lack of Acute Symptoms		**b**	**β**	**t**	**Sig.**	**Zero - order**	**Sig.**
Demo							
	Age	.002	.017	1.577	.115	.017	.013
	Urban	-.249	-.054	-5.376	.000	-.056	.000
	Religion	-.042	-.006	-.565	.572	-.010	.104
	N_HH	-.020	-.030	-3.007	.003	-.027	.000
	Marriage	-	-	-	-	.031	.000
Variables							
	Income	-.5.550E-11	.-.002	-.206	.837	-.012	.053
	Power	.038	.005	.538	.590	.005	.281
	Religiosity	.101	.029	2.897	.004	.032	.000
	Participation	-.017	-.013	-1.346	.178	-.009	.121
	Education	-.005	.003	.250	.802	-.015	.025

Note. Regression model produced $R^2 = .005$, $F(9, 10{,}557) = 6.15$, $p < .001$

Table 21. Hierarchical Regression with Lack of Depressive Symptoms as the Dependent Variable

		Coefficients				Correlations	
DV: Lack of Depressive		**b**	**β**	**t**	**Sig.**	**Correlation**	**Sig.**
Demo							
	Age	.036	.118	10.950	.000	.102	.000
	Urban	-.213	-.021	-2.157	.031	-.012	.056
	Religion	.692	.042	4.319	.000	.028	.000
	N_HH	-.073	-.050	-5.073	.000	-.033	.000
	Marriage	-	-	-	-	.016	.031
Variables							
	HH_Income	1.321E-9	.023	2.297	.022	.022	.002
	Power	-.014	-.001	-.092	.926	.013	.083
	Religiosity	.367	.049	4.926	.000	.059	.000
	Participation	.048	.018	1.816	.069	.043	.000
	Education	.207	.054	4.977	.000	.008	.161

Note. Regression model produced R2 = .020, F(9, 10,557) = 23.58, p < .001

Table 22. Hierarchical Regression with Subjective Well-Being as the Dependent Variable

		Coefficients				Correlations	
DV: Subjective Well-being		b	β	t	Sig.	Zero-Order	Sig.
Demo							
	Age	-.008	-.133	-12.659	.000	-.142	.000
	Urban	.040	.020	2.040	.041	.046	.000
	Religion	.229	.068	7.121	.000	.044	.000
	N_HH	-.009	-.032	-3.296	.001	-.043	.000
	Marriage	-	-	-	-	.125	.000
Variables							
	HH_Income	6.878E-10	.058	5.964	.000	.066	.000
	Power	-.149	-.047	-4.984	.000	-.054	.000
	Religiosity	.250	.161	16.713	.000	.126	.000
	Participation	.027	.048	4.977	.000	.038	.000
	Education	.072	.091	8.625	.000	.139	.000

Note. Regression model produced R2 = .065, F(9, 10,557) = 82.14, p < .001

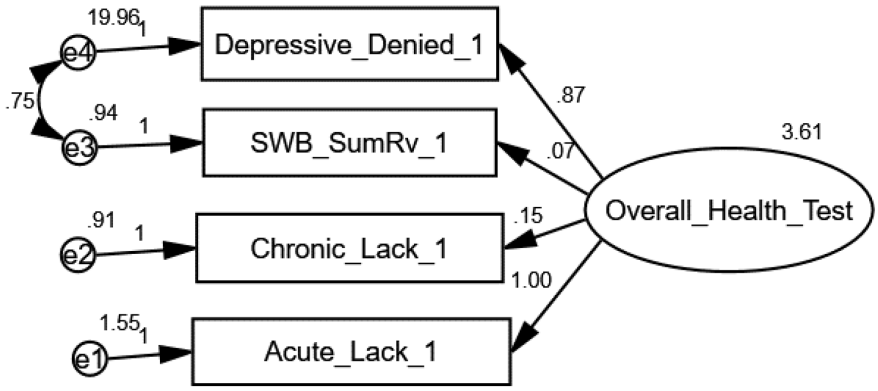

Figure 1. Confirmatory Factor Analysis of Overall Health Model with Four Heath Factors

Appendix

Table A1: Items and responses from IFLS 5 Book 3A

Variable	Section	Question	Responses
Religion	TR 12	What is your religion? *(7 responses)*	1. Islam 2. Catholic 3. Protestant 4. Hindu 5. Budha 6. Konghucu 7. other
Education	DL 06	What is the highest education level attended? *(1 of 21 responses)*	2. Elementary 3. Junior High General 4. Junior High Vocational 5. Senior High General 6. Senior High Vocational 60. College (D1, D2. D3) 61. University (Bachelor) 62. University (Master) 63. University (Doctorate) 11. Adult Education A 12. Adult Education B 15. Adult Education C 13. Open University 14. Islamic School (Pesantren) 17. School for Disabled 72. Islamic Elementary 73. Junior/High School 74. Islamic Senior High School 90. Kindergarten 98. Don't know 95. Other
Role in Decision Making	PK 18	In your household, who makes decisions about…	A. Me

		A1. Expenditure of food eaten at home A2. Choice of food eaten at home B. Routine purchases for the household of items such as cleaning supplies C. Your clothes D. Your spouse's clothes E. Your children's clothes F. Your children's education G. Your children's health H. Large expensive purchases for the household (i.e., refrigerator or TV)? I. Giving money to your parents/family J. Giving money to your spouse's parents/family K. Gifts for parties/weddings L. Money for monthly arisan (savings lottery) M. Money for monthly savings N. Time the husband spends socializing O. Time the wife spends socializing P. Whether you/your spouse works Q. Whether you and your spouse use	B. Spouse C - P. Other family members X. Never used money for this purpose (L, M only) y. Never consider the use of contraceptives (Q only) w. No children (E,F,G only) z. Can't answer *(18 variables, 1-18 responses, many combinations)*
Marital Status	PK 00a	Are you currently married/cohabitate?	1. yes 3. no
Religiosity	TR 11	How religious are you? *(5 responses)*	1. Very religious 2. Religious 3. Somewhat religious 4. Not religious 7. Refused
Subjective Well Being	SW 12	Taken all things together how would you say things are these days - would you say you were very happy, happy, unhappy, or very unhappy? *1 of 4 responses*	1. Very happy 2. Happy 3. Unhappy 4. Very unhappy
Subjective Well Being	SW 00	Please think about your life as a whole. How satisfied are you with it? *1 of 5 responses*	1. Completely satisfied 2. Very Satisfied 3. Somewhat satisfied 4. Not very satisfied 5. Not at all satisfied

Table A2: Items and responses from IFLS 5 Book 3B

Variable	Section	Question	Responses
Community Participation	PM 01	Have you participated in arisan in the last 12 months? *(y/n)*	1. yes 3. no
Community Participation	PM 16	During the last 12 months did you participate in or use____? A. Community meeting B. Cooperatives C. Voluntary labor D. Program to improve village/neighborhood N. Youth groups activity O. Religious Activities P. Village Library Q. Village savings and loans R. Health fund R1. PNPM R2. Political Party E. Neighborhood security organization F1. Water for drinking system/supply H. System for garbage disposal I. Women's association activities (PKK) J. Community weighing post J1. Community weighing post Lansia	1. yes 3. no *(17 variables, yes/no)*
Depression	KP 01	Now we would like to ask some questions about how you feel in the past week. A. I was bothered by things that don't usually bother me B. I had trouble concentrating in what I was doing C. I felt depressed D. I felt everything I did was an effort E. I felt hopeful about the future F. I felt fearful G. My sleep was restless H. I was happy I. I felt lonely J. I could not get going	1. rarely or none 2. some days (1-2 days) 3. Occasionally (3-4 days) 4. Most of the time (5-7 days) *(10 variables, yes/no)*

Acute Morbidity	MA 01	Did you ever experience ____ in the last 4 weeks? A. Headache B. Runny nose C. Cough a. Dry cough b. Cough with phlegm c. Bloody cough D. Difficulty breathing a. Wheezing b. Short, rapid breath E. Fever F. Stomach ache H. Nausea/vomiting I. Diarrhea minimal of 3x per day a. Mixed with blood b. Mixed with mucous c. Pale liquid P. Swollen legs K. Skin infection (boil, abscess, itching) L. Eye infection M. Toothache U. Cold sores	1. yes 3. no *13 variables: y/n*
Chronic Conditions	CD 01	Did a doctor/paramedic/nurse/midwife ever diagnose you with____? A. Physical disabilities B. Brain damage C. Vision problem D. Hearing problem E. Speech impediment F. Mental retardation I. Autism	1. yes 3. no *(7 variables, y/n)*
Chronic Conditions	CD 05	Have a doctor/paramedic/nurse/midwife ever told you that you had____? A. Hypertension B. Diabetes or high blood sugar C. Tuberculosis D. Asthma E. Other lung conditions	1. yes 3. no *(15 variable, y/n)*

		F. Heart attack, coronary heart disease, angina, or other heart problems	
		G. Liver H. Stroke I. Cancer or malignant tumor J. Arthritis/rheumatism M. High cholesterol (total or LDL) O. Kidney disease (except for tumor or cancer) P. Stomach or other digestive disease Q. Emotional, nervous, or psychiatric problems R. Memory related disease	

Table A3: Items and responses from IFLS 5 Book US 1

Variable	Section	Question	Responses
Age	US 01	Sex *(male/female)*	1.male 3.female
Sex	US 03	Age	(numeral in years)

Table A4: Items and responses from IFLS 5 Book K

Variable	Section	Question	Responses
urban/rural	SC 05	Area *(urban/rural)*	1. urban 2. rural
Wage Earnings	AR 15bx	What were the total earnings of ____ in the last 12 months? *(3 responses)*	1. _ _ _,_ _ _, _ _ _ Rp. 6. Unpaid family worker 8. Don't know