POVERTY, STRESS, HAPPINESS,

& PSYCHOLOGICAL CAPITAL IN GHANA

POVERTY, STRESS, AND HAPPINESS:

EXAMINING THE MODERATING ROLE OF PSYCHOLOGICAL CAPITAL ON

THE RELATION BETWEEN POVERTY AND HAPPINESS AMONG FARMERS

AND FISH FARMERS IN GHANA

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Abstract

Although much research has been conducted on the association between poverty and happiness, little is known about its mediators and moderators. Thus, our understanding of *how* – and the conditions under which -- poverty affects happiness is imprecise. This study assessed stress as a mediator of the negative association between poverty and happiness using a sample of 345 farmers and fish farmers living in Ghana. Further, Psychological Capital (PsyCap, consisting of hope, optimism, resilience, and self-confidence) was examined as a two-stage moderator of the poverty-happiness relationship, as mediated by stress. There was no support for the stage 1 moderation, and while there was support for stage 2 moderation, it was in a direction opposite from what was hypothesized (for overall PsyCap and PsyCapF2). The negative moderation at stage 2 suggests that PsyCap (overall and PsyCap2) is associated with a weakening of an unexpected positive association between stress and happiness. PsyCapF2, appears to reflect agency or general self-efficacy. Although the hypothesized model was not supported this study has provided insights into how future research of Ghanaians might be better designed. It also has shown that the positive PsyCap-happiness relationship found in several Western samples is replicable among Ghanaian farmers, a collectivist and highly religious community.

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To my beautiful wife,

Sevda,

Who has given me dreams to look forward to.

And to my sweet son,

Seyed Elias,

The most joyful miracle of our life.

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CHAPTER 1:

LITERATURE REVIEW, THEORETICAL BACKGROUND AND HYPOTHESES

1.1 Introduction

Poverty has long been regarded as a purely economic condition reflected by indices such as income levels, individual or family unit consumption, educational level, assets, and living standards. A growing body of research is investigating relationships between these economic indicators of poverty and self-reported psychological factors such as stress and happiness (Kahneman & Krueger, 2006; Kanbur, 2002; Rojas, 2004). Research into the mediators and moderators of the poverty-happiness relationship is now needed. Moreover, poverty alleviation efforts to improve the happiness and well-being of impoverished people can be enhanced if the underlying mediation processes are better understood (Lever, Piñol, & Uralde, 2005). Accordingly, this study evaluates stress as a possible mediator of the negative association between poverty and happiness using a sample of farmers from Ghana. Further, Psychological Capital (PsyCap, consisting of hope, optimism, resilience, and self-confidence) (Luthans, Avolio, Avey, & Norman, 2007) is examined as a two-stage moderator of the poverty-happiness relationship, as mediated by stress. Specifically, it is anticipated that PsyCap will weaken the associations between both poverty and stress and stress and happiness (See Figure 1.1).

As reflected in Figure 1.1, individuals' subjective experience of poverty broaden our understanding of poverty, including its adverse effects, the means by which poverty relates to stress and happiness, and the contexts in which these relationships are likely to vary. As suggested in the PsyCap literature (e.g., Luthans, Avey, Avolio, Norman, & Combs, 2006), identifying the *psychological* dynamics underlying one's experience of poverty could uncover new interventions for alleviating its ill effects.

Investigating the proposed model with Ghanaian land and fish farmers adds to the literature in that most previous studies of these variables have been conducted using Western samples. Using a Ghanaian sample provides assessment of cross-cultural generalization of established relationships. Furthermore, the widespread poverty and harsh living conditions experienced by Ghanaian farmers (at least relative to Western samples) provides a particularly suitable environment within which to test the model proposed here.

1.2 Happiness: A Construct of Interest to Public Policy Makers and Scholars

The current study was motivated in large part by my interest in exploring ways in which the negative experiences of poverty can be lessened by building one's hope, resilience, optimism, and self-confidence (i.e., their psychological capital, cf. Luthans et al., 2007). Recent studies show many positive benefits of psychological capital enhancing interventions in the organizational sciences (Luthans et al., 2006), with potential applicability to the fast growing international development efforts to build personal capacity, agency and happiness among the poor.

In 2000, eight Millennium Development Goals (MDGs) were established and accepted by all 193 UN member states (UN, 2000).These goals include: (1) eradicating extreme poverty and hunger, (2) achieving universal primary education, (3) promoting gender equality and empowering women, (4) reducing child mortality rates, (5) improving maternal health, (6) combating HIV, malaria, and other diseases, (7) ensuring environmental sustainability and, (8) building a global partnership for development (Dolan & Harrison, 2013). These MDGs are relevant here in that they represent recent and typical initiatives to combat the more tangible (non-psychological) ill-effects of poverty, which contrast with the current study's focus on the psychological aspects of well-being. Progress has been made on these MDGs, though many of them are now part of the newly established Sustainable Development Goals (SDGs) (Bergink, 2015).

Historically, assessments of the degree to which progress had been made on achieving the MDGs had been dominated by a reliance on purely objective indicators. Reports of well-being and other psychological states were rarely addressed (Bergink, 2015). More recently studies have investigated happiness, the value of a "positive mind-set and positive beliefs" (Avey, Reichard, Luthans, & Mhatre, 2011, p. 128), often led by a varied group of scholars, religious figures, policymakers, and national and international institutions (Argyle, 2001; Dolan & Harrison, 2013; Kahneman & Krueger, 2006). Happiness as a critical indicator of national well-being and progress was adopted by Bhutan in the early 1970s, when the Himalayan kingdom introduced a measure of national prosperity known as the Gross National Happiness (GNH) index. It focused on people's happiness along with economic development (Graham, 2005; UN, 2012). While

in recent years Bhutan has moved from including enhancement of happiness among its economic objectives, developing and advocating this index triggered a new global movement towards considering happiness as an important poverty indictor (Harris, 2013).

In July 2011, the UN General Assembly called on "Member States to undertake steps that give more importance to happiness and well-being in determining how to achieve and measure social and economic development" (UN, 2012). A conference "Wellbeing & Happiness: Defining a New Economic Paradigm" was subsequently held at the UN's headquarters in New York in April 2012. The UN Secretary-General, Ban Ki-moon, told the 600 delegates, including leaders and scholars from around the world, that development efforts should reflect the importance of a "sustainability based economic paradigm" that includes happiness. Such efforts continued at the UN Sustainable Development Conference, also known as Rio+20, held in Brazil in June 2012. Further, the UN General Assembly passed a resolution selecting March 20th as the date to annually celebrate happiness worldwide (ABCNEWS, 2012; PRWEB, 2012; UN, 2012).

Commissioned for the April 2012 UN Conference on Happiness (mandated by the UN General Assembly) (Bhutan, 2012), a "World Happiness Report" was published to promote happiness as an important consideration for government policy makers. As will be considered in more detail in subsequent sections, this report documented scientific evidence showing that happiness can be reliably measured (The Earth Institute, 2012), and the importance of happiness to national economic and social well-being.

Although happiness was not among the 17 priorities introduced in the published SDGs in 2015, awareness of the importance of happiness and well-being, along with more typical objective concerns, such as education and wealth, has increased among national and international policy makers (Bergink, 2015; Dolan & Harrison, 2013). Within this context there is growing interest in assessing the "happiness impact" of different policies and programs targeted to alleviate poverty (Dolan & Harrison, 2013). Subsequent policymaking decisions may be based on the systematic measurement of human well-being and its antecedents and consequences.

Happiness has also been studied widely in the field of Positive Organizational Behavior (POB) in which positive psychology variables such as hope, life satisfaction, and optimism have been incorporated into the organizational behaviour literature (Avey, Luthans, Smith, & Palmer, 2010; Luthans & Church, 2002; Luthans & Youssef, 2007; Luthans, 2002). Drawing on the broader literature on positive psychology (Luthans, 2002), meta-analyses show that happiness associates positively with education, romantic relationships (Lyubomirsky, King, & Diener, 2005), physical health (Sheldon Cohen & Pressman, 2006), and income (Oishi, Diener, & Lucas, 2007). Boehm & Lyubomirsky (2008) concluded that happy people, relative to their less happy counterparts, experience greater job autonomy, job satisfaction, job involvement and job commitment. They also exhibit higher organizational citizenship behaviour (OCB), less burnout, less absenteeism and less turnover (e.g., Boehm & Lyubomirsky, 2008; Fisher, 2010). However, further research is required to ascertain the directionality of these relationships.

With a few notable exceptions (e.g., studies in Ghana, described below) research of happiness is based almost entirely on Western English speaking participants such that the generalizability of the findings across nations and cultures is unknown (Addai, Opoku-Agyeman, & Amanfu, 2014; Boehm & Lyubomirsky, 2008). Generally speaking, most published research on happiness has given little consideration to context (Csikszentmihalyi & Hunter, 2003). In this respect, the current study of psychological capital as a moderator of the relationships between poverty and stress, and stress and happiness, among Ghanaian land- and fish- farmers of various levels of poverty, makes a value-added contribution to this literature.

1.3 Selection of Ghana for Study

Ghana is located in West Africa, neighboring countries such as Burkina Faso, Côte d'Ivoire, and Togo. South of the country lies the Gulf of Guinea, which itself is in the South Atlantic Ocean. Ghana has a population of about 26 million, 50.3% of which is female, and 39% of which is below the age of 14 (The World Bank, 2014). The mean household size in Ghana is 4. This varies across regions (e.g., 4.5 for rural; 3.6 for urban). About 70% of the households are headed by males. More than 71% of rural workers are engaged in agricultural jobs. The mean annual per capita expenditure in Ghana is about 2800 USD. However, the mean household expenditure in urban regions is about 1.5 times higher than in rural regions. The unemployment rate is low (i.e., 5.2%), however, about one third of the employed population work less than 35 hours a week (Ghana Statistical Service, 2014).

Ghana is particularly suitable for the current study for several reasons. First, studying Ghanaians satisfies my interest in international development initiatives. Ghana has been attracting considerable and growing attention among social scientists because of its fast-paced economic reforms and as "the gateway to Africa" (Weiss, 2012). Second, while measuring and monitoring happiness of nations has taken on growing importance to national and international decision-making bodies, the most important one being the United Nations (Bergink, 2015; Dolan & Harrison, 2013), happiness among non-student samples of Ghanaians has not been studied sufficiently (Dzokoto, 2012). Third, Ghana's official language is English, which facilitates data collection. For example, while some modifications were required to adapt study measures to the Ghanaian culture, language translation was unnecessary (likewise for oral communications), though there were particular challenges collecting data from less literate participants from rural communities, as detailed later. Fourth, I found an NGO (Farmerline) that was enthusiastic about helping me secure study participants. Through voice and text message applications, Farmerline provides information to Ghanaian farmers to enhance their skills in maintaining profitable farms (Additional information on Farmerline is provided in the "sampling strategy" section of this dissertation). Fifth, Ghana has a long history of democratization, not common among other developing countries. This has nourished its long-standing peace and stability, positively transforming its economy (Aryeetey, Kanbur, & others, 2005), resulting in poverty falling from approximately 36% in 1991 to approximately 24% in 2012, with a continuing downward trajectory (Addai et al., 2014; The World Bank, 2014). So, compared to other African nations, Ghana offered stable,

secure and safe conditions for conducting this research. Sixth, relative to many developed countries, the daily challenges of living in a third-world African country, with ongoing scarcity of life-sustaining resources, provides especially pronounced experiences of poverty, stress and disaffection (Dzokoto, 2012) thereby offering suitable conditions for assessing the proposed moderating role of PsyCap. This is supported further by the high resilience of Ghanaians (Dzokoto, 2012) – they are adaptive to their life circumstances.

Moreover, other reasons for conducting this study in Ghana include the collectivist Ghanaian culture (i.e., the unique socio-cultural Ghanaian system) (Acquaah & Eshun, 2010) and the high prevalence of religiosity in Ghana (Dzokoto, 2012). Both high collectivism and religiosity could buffer the adverse effects of poverty on stress, and the adverse effects of stress on happiness. So it is of value to see whether the relationships among these variables established in non-collectivist (i.e. individualistic western nations) and less uniformly religious societies hold up in Ghana. So, for example, does individual poverty positively predicted self-reported stress in a collectivist society where help is readily available via the reciprocity principle? Further, a Ghanaian sample allows for determining whether the western-based conceptualizations and operationalizations of poverty, stress and happiness generalize to a distinctly different culture such as Ghana.

The current study adds to other studies of happiness of Ghanaians. For example, Tsai & Dzorgbo (2012) investigated the effects of familial reciprocity on happiness, concluding that there was a positive relationship between the two. For this study, the data were drawn from the Core Welfare Indicators Questionnaire of Ghana, a national sample of household heads (N males=33,949, N females=13,900) collected in 2003. Familial

reciprocity was measured through a two part question: "Does the household (a) give and (b) get regular financial or in-kind support to (from) parents, grown children, or any other relatives, either living with the respondent or living elsewhere?" Responses ranged from "never" to "very regularly", on a 5-point scale. Happiness on the other hand, was measured through the following single question: "Taking all things together would you say your household is: very happy, quite happy, not very happy, or not at all happy?"

   Using 2005-2008 data from the World Values Survey (n=1533), Addai et al., (2014) identified multiple predictors of the happiness of Ghanaians. Some of these predictors were: ethnic background, regular attendance at religious services, community engagement, valuing honesty, being single, and living in the Southern parts of the country, as opposed to the Northern regions. Moreover, individuals who had elementary education compared to those without any formal education reported being happier. Those in the upper and middle income brackets were more likely to be happy than those in the lower income bracket. And finally, a higher self-reported health status increased the likelihood of the individual reporting happiness. Similar to the study by Tsai & Dzorgbo (2012), happiness was measured with a self-reported single-item (i.e., "Taking all things together would you say you are: [1 = very happy to 4 = not at all happy]").

   Bull et al. (2010) used semi-structured group-interviews of 50 women (divided across four groups) from two villages located in very poor rural regions in Northern Ghana. This study set out to find answers to the following question: "When daily challenges revolve around survival, what contributes to feeling good and being satisfied with life?" Factors such as meeting survival needs (e.g., "food security", or "having a level of health good

enough to engage in work") contributed most to feeling happy. The conclusions (as noted above) relied on thematic analysis, based on transcribing, coding, categorizing, and labeling qualitative responses to interview questions within an exploratory framework (Creswell, 2009).

In another study of Ghanaians, academic achievement, romantic love, positive family events (e.g., weddings), and religion (Dzokoto, 2005) associated positively with happiness. However, similar to Bull et al. (2010), Dzokoto (2005) used exploratory thematic analysis (not structured measures of either happiness or its correlates). Moreover, Dzokoto (2005) noted that the sample (i.e., 185 Ghanaian college students) used in her study does not represent Ghana's population, as only 6% of Ghanaians were enrolled in post-secondary education in 2005 (The World Bank, 2016).

Dzokoto (2012) reviews the cultural context of experiencing and expressing happiness among Ghanaians. She notes, for example, that the color white seems to be closely associated with being happy in Ghana, and that "In Ghana, football time is happy time". In studying the words and proverbs associated with the experience and expression of happiness among people of Ghana, Dzokoto (2012) concludes that happiness for them is a "culturally grounded" phenomenon affected largely by cultural norms, language, and types of communication and social relationships (Dzokoto, 2012); and that Ghanaians seem to be more tolerant of the unexpected, as compared to people of other nations, with their slow pace of life (especially in rural regions), and general laid back sense of time and work, contributing to this happiness,

1.4 Conceptualizing Happiness (Proposed Criterion)

Various definitions and categorizations of happiness have been offered. For example, happiness has been considered an affective dimension of a broader construct, Subjective Well Being (SWB). The other component of SWB (i.e., life satisfaction) is based on a cognitive judgment of one's life (Diener, 2000; Peterson, Ruch, Beermann, Park, & Seligman, 2007). So, essentially, SWB is an indicator of one's quality of life, referring to one's emotional reactions and cognitive judgments (Ryan, 2015). Happiness refers specifically to a transient state, linked to the specifics of a situation (Oswald, 1997), that captures the emotional evaluation someone makes of their life circumstances (Lever et al., 2005; Park, Peterson, & Seligman, 2004).

There are at least three additional theoretical perspectives concerning happiness (Diener, Oishi, & Lucas, 2009). First, in line with Freud's (1920) pleasure principle and Maslow's (1970) hierarchical needs model, happiness derives from satisfaction of personal needs, desires and goals (Diener et al., 2009). A second perspective suggests that happiness arises from engagement in interesting and meaningful activities (Csikszentmihalyi, 1975), and a third perspective holds that happiness is personality based (Diener, Sandvik, Seidlitz, & Diener, 1993).

Drawing from the first two of the above perspectives, Seligman (2002) categorized happiness as consisting of three dimensions (pleasure, meaning, and engagement) and developed scales to measure them (Peterson, Park, & Seligman, 2005). Thus, for example, individuals are likely to be happy when they experience pleasure associated

with satisfying physical needs (e.g., tasty food, a warm bath, a cold drink on a hot day) and/or when they believe they are a part of something of both personal and collective value, that transcends the self (Peterson et al., 2007). In the current study, Seligman's (2002) happiness model (noted above) was used in defining and measuring happiness.

1.5 Conceptualizing Poverty (Proposed Predictor)

As described earlier, poverty has been operationalized traditionally in terms of income, personal expenditure, and/or individual or household consumption level (Kanbur, 2002; Lever et al., 2005; Ravallion, Gelb, & Harrison, 2010; Rojas, 2004).

Income and personal expenditure, or consumption measures, are indirect gauges of actual living conditions (Alkire & Santos, 2013) that are considered crucial to assessing a person's life circumstances (e.g., Cummins, 2000; Diener, Sandvik, Seidlitz, & Diener, 1993; Diener, 2009). Accordingly, poverty is often measured by income or consumption-centered scales (Kanbur, 2002; Lever et al., 2005; Ravallion et al., 2010; Rojas, 2004).

Most poverty-related studies identify an income level below which primary needs cannot be met (Alkire & Santos, 2013). For example, the World Bank and the UN have defined *extreme poverty* as consisting of a daily income of less than $1.25 (US) per day, which is intended to reflect basic global purchasing power (Ravallion & Chen, 2011). *Moderate poverty* is defined as individual income of $2.00 (US) per day (The World Bank, 2012; UN, 2012). While the above operationalizations of extreme and moderate poverty are absolute metrics, relative poverty metrics have also been used (Atkinson & Hills, 1998; Bourgignon, 1999; Ravallion & Chen, 2011).

Many influential scholars such as Adam Smith, and economists such as Sir Anthony Barnes Atkinson, François Bourguignon, and John Maynard Keynes, believed that needs "fall into two classes – those needs which are absolute in the sense that we feel them whatever the situation of our fellow human beings may be, and those which are relative in the sense that we feel them only if their satisfaction lifts us above, makes us feel superior to, our fellows" (Keynes, 1933, p. 3). Therefore, one who is living on an income higher than the *absolute* poverty line is considered to be non-poor with respect to "physical survival capability", while a person living above the *relative* poverty line is considered to be non-poor in terms of "social inclusion capability" (Bourgignon, 1999; Rao, 2001).

While some "needs" are not truly necessary to sustain life, they nonetheless must be met to provide a level of dignity that people are accustomed to in a given social context (Ravallion & Chen, 2011). For example some of the very poor in India spend substantial amounts on celebrations and festivals (Rao, 2001) to maintain social status (Ravallion & Chen, 2011). The social importance of satisfying these "needs" elevates the poverty line such that higher incomes are required to avoid being considered poor within one's social world (Bourgignon, 1999; Ravallion & Chen, 2011). Indeed, perceived income inequality negatively predicts happiness (e.g., Dolan, Peasgood, & White, 2008; McBride, 2010).

A national relative poverty line, based on the World Bank data (2012), refers to the 50th percentile of income per capita in a given country (Ravallion & Chen, 2011). It provides insight concerning economic and social status within one's own country (Atkinson & Hills, 1998; Bourgignon, 1999; Rao, 2001; Ravallion & Chen, 2011). However, relative poverty can also be operationalized within one's region, city, village,

neighborhood, among friends, or family members (Foster, 1998; Hagenaars, 2014). So deciding on whom to compare one's poverty level with requires a well thought-out rationalization. Moreover, as mentioned above in the example of maintaining social status in some Indian societies, relative poverty is sensitive to changes in the general living standard, time, and place (i.e., socially defined) (Hagenaars & van Praag, 1985). Therefore, thorough and continuous investigation into the social context of the society the individual is living in is required in order to understand the population of interest (Rank & Hirschl, 2015). This not only significantly increases the difficulty of conducting research via relative poverty scales, but also decreases the generalizability of data analyses results. Absolute poverty lines on the other hand are consistent over time and among populations being researched (Chen & Ravallion, 2007). This facilitates comparing the results of analyzed models from sample to sample. For the above reasons, in the current thesis, the focus will be solely on absolute poverty (i.e. extreme and moderate poverty) and its effects.

Income, originally reported in this study as the "total monthly income of all household members" was divided by the number of persons in the household to yield the respondents' "monthly income per capita". This was then converted into "monthly income per capita in USD", using the average exchange rate at the time of data collection (1 USD = 2. 256 Ghanaian Cedis). Finally, to enable comparisons based on extreme and moderate poverty lines, a "daily income per capita in USD" (hereafter referred to as "income") was calculated by dividing the monthly figure by 30.

More recent studies have considered other indicators of poverty, including health, education, and standard of living (Kanbur, 2002). These investigations make clear that sole reliance on economic data omits the many other problems or issues encountered by the poor (Kahneman & Krueger, 2006; Rojas, 2004). Accordingly, the UN is also using the Human Development Index (HDI) to categorize and propose policies for developing countries. It is a composite indicator that includes measures of life expectancy (i.e., health), education, and standard of living (Kanbur, 2002). The University of Oxford also identified a set of indicators, the Multidimensional Poverty Index (MPI), which assesses poverty on 3 dimensions, each with 10 sub-categories (OPHI, 2010). These include education (years of school and number of children enrolled), health (child mortality and nutrition), and standard of living variables (i.e., cooking fuel, toilet, water, electricity, floor, and assets). Moreover, the specifics of their measure differ from earlier efforts. Poor health, lack of education, limited access to clean water, sanitation, schools, and land on which to grow food, are examples of the MPI indicators aimed at better understanding individual and household poverty (Kanbur, 2002; Rojas, 2004).

In line with a trend of treating poverty as a multidimensional measure some have argued for including psychological variables, such as feelings of insecurity, lack of voice, insufficient opportunities to better one's life, and low individual subjective well-being (Kahneman & Krueger, 2006; Kanbur, 2002; Rojas, 2004).

As can be inferred from the above, a clear consensus on how best to define poverty is lacking; the question of who is poor, and who is not, remains controversial (Alkire & Foster, 2011a; Kanbur, 2002; Lever et al., 2005). Here poverty is defined as a state in

which an individual lacks the resources (i.e., income, education, health, and some minimal standards of living) to meet basic needs. Details on the metrics used to capture the economic and non-economic aspects of poverty are given in the measurements section.

1.6 Poverty as Related to Happiness

NGOs, international institutions such as the World Bank and the UN, various governments, and many not-for-profits such as the Grameen Foundation and Acumen Fund have devoted substantial resources to gaining a better understanding of poverty, and into developing policies that enhance well-being globally (Ravallion et al., 2010). The UN's 8 MDGs and 17 SDGs noted earlier (e.g., end extreme hunger, universal primary education) reflect these efforts (Bergink, 2015; UN, 2000).

A wide variety of variables, including many indicators of poverty, are associated with happiness. According to the UN World Happiness Report referenced earlier, wealth, political freedom, and the relative absence of corruption help account for differences in well-being among countries. Good mental and physical health, job security, a stable family, strong social networks, employment, marital status, and living standards are especially important positive correlates of an individual's happiness (The Earth Institute, 2012). In peer reviewed academic studies, income, age, personality, gender, ethnicity, education, health, type of work, hours worked, commuting, caring for others, community involvement, exercise, religious activities, trust, relationships, having children, income inequality, inflation, and climate have all been associated with varying levels of happiness

(e.g., Diener & Biswas-Diener, 2011; Diener, Oishi, & Lucas, 2009; Diener & Seligman, 2009; Dolan, Peasgood, & White, 2008; Fisher, 2010; Russell, 2012)

While there are several such studies examining single indicators of poverty as they relate to happiness (variously and often qualitatively measured), they have been largely ad hoc (Ayerakwa, Osei, & Osei-Akoto, 2015a). There are virtually no studies testing a pre-specified (i.e., a priori), theoretically-grounded model linking an aggregate measure of these single poverty indicators to a psychometrically established measure of happiness, along with mediators and moderators.

For example, knowing that low income relates negatively to happiness is uninformative (Diener et al. 1993) because lack of income is typically associated with lack of shelter, food, clean water, and health care, which is expected to lessen one's happiness. A further complication is that the *disparity* between one's income aspirations (whether rooted in relative or absolute benchmarks) and actual income can be more relevant to happiness than actual income itself (Stutzer, 2004), and this disparity is reflected, in part, through one's felt stress, which is proposed in the current study as mediator of the poverty-happiness relationship.

In a review of studies concerning income (one of the indicators of poverty) and SWB, of which "happiness" and "life satisfaction" are components, Diener (2009, p. 147) concluded that:

> "A difficulty with making theoretical conclusions in this field is that the data are so sparse in terms of measures of psychological processes and behavior. Thus, we have correlations of income and subjective well-

being, but are left guessing as to the mediating psychological processes.
For instance, we can make conjectures about rising aspirations, but
measures of desires must be included in the studies, and their effects
ascertained, in order to test these ideas. Similarly, we can make
conjectures about the social relationships, fulfillment of needs, time
pressures, stressors, social comparisons, and daily behaviors of the rich
and poor, to explain the existing patterns of data, but we very much need
measures of these putative intervening variables.… If these possible
mediating variables are measured over time, we will be in a much
stronger position to create meaningful theoretical models".

Lever et al. (2005) is an exceptional case, where these researchers tested and found

evidence of psychological mediation processes linking poverty to SWB. This work merits

detailed consideration because the process used to account for how an impoverished

individual perceives stress and therefore experiences lower SWB provides a basis for

some of the conceptualization used in the current study.

Lever et al. (2005) sampled 918 residents of Mexico City from each of three

socioeconomic levels: extremely poor, moderately poor and not poor. A multi-mediation

model including underlying variables such as stress coping strategies, competitiveness,

mastery, locus of control, depression and self-esteem was tested.

For Lever et al., (2005), financial problems were considered antecedent to stress

because they present threatening circumstances that increase the disparity between one's

current status and personal needs and aspirations in a way that can decrease life

satisfaction. Three paths relating poverty to SWB were found. First, level of consumption

directly predicted SWB (b=0.54, p < .05). Second, level of consumption predicted coping

strategies (b=.16, p. < .05), which predicted locus of control (b=.31, p <.05), which in

turn predicted mastery orientation (e.g., "it is important for me to do things increasingly

better") (b=.52, p < .05), which then was associated with SWB (b=.16, p < .05). Finally, in the third path, level of consumption predicted competitiveness (e.g., "I like to work in situations in which I have to compete with others") (b=.26, p<.05), which predicted mastery orientation (b=.16, p < .05), which then associated with depression (as measured by Zusng's [1965] scale) (b= -.33, p<.05), which in turn predicted SWB (b= -.36, p<.05). No support was found for a direct link between poverty-induced self-esteem and SWB.

Though having been one of very few studies to have incorporated a psychological perspective to understanding poverty and its ill effects, Lever et al. (2005) used a cross-sectional design and therefore replication using a longitudinal design is required to more firmly establish directionality of the relationships tested in their model. Moreover, they used a narrow and purely economic operationalization of poverty (i.e., consumption levels) and used life satisfaction as the sole indicator of SWB.

As with Lever et al. (2005), the current study was designed to add to our knowledge of the mediation processes linking poverty to happiness. What follows is a description of the mediating and moderating variables included in the model tested here (Figure 1.1) as well as the rationale for the paths in this model.

1.7 Conceptualizing Stress (Proposed Mediator)

Stress has been generally considered the negative emotional state produced when the environment is assessed as threatening to the individual (Lever et al., 2005). In line with this conceptualization, stress is experienced when there is distance between perceived demands (or goals) and the ability to satisfy those demands (or goals). Stress tends to be

highest when the goal involved is perceived as especially important and the individual perceives oneself as lacking the ability to achieve it (Harris & Berger, 1983). Stress can be a source of positive motivation (i.e., eustress) or it can be dysfunctional (i.e., distress), depending, for example, on the levels involved (Selye, 1975).

Stress has been a topic of interest in a variety of disciplines, including the medical and the behavioral sciences. The former tends to focus on the physiological manifestations of stress (e.g., hormone counts in urine or blood), whereas social scientists tend to examine behavioral (e.g., nail biting, excessive drinking and smoking) and emotional (impatience) antecedents and/or symptoms (Kim & Garman, 2003; Lever et al., 2005).

Here, stress is conceptualized as an elevated sense of uncontrollability over threatening or challenging situations in one's life, operationalized by the Perceived Stress Scale (PSS) (Cohen, Kamarck, & Mermelstein, 1983).

1.8 Conceptualizing Psychological Capital (Proposed Moderator)

Economic capital (e.g., assets; "what you have"), human capital (e.g., experiences, skills, education, knowledge; "what you know") and social capital (e.g., one's friends, social networks; "who you know") are all critical to the sustained success of individuals and organizations (Luthans, Luthans, & Luthans, 2004; Luthans & Youssef, 2004). Moreover, these types of capital associate positively with job performance, life satisfaction (Vermuri & Costanza, 2006) and happiness (Putnam, 2001), and negatively with employee stress and burnout (Boyas & Wind, 2010).

Psychological Capital (PsyCap) is a form of capital, focused on personal development (Luthans, 2002; Luthans et al., 2007). It is defined as: "an individual's positive psychological state of development and is characterized by self-efficacy, optimism, hope and resilience (Luthans, Youssef, & Avolio, 2007, p. 3). PsyCap is positively associated with desirable employee behaviors and attitudes, including job satisfaction, commitment and performance, and is negatively related to turnover intentions and burnout (Avey et al., 2009; Avey, Luthans, & Youssef, 2010; Avey et al., 2011; Luthans et al., 2007; Youssef & Luthans, 2007).

Self-efficacy, as presented as a defining component of psychological capital, refers to "one's conviction (or confidence) in one's own abilities to mobilize the motivation, cognitive resources, and courses of action needed to successfully execute a specific task within a given context" (Stajkovic & Luthans, 1998, p. 66).

Optimism, as presented as a second defining component of psychological capital, refers to the tendency to view "negative events as external, temporary, and situation-specific, and positive events as having opposite causes (i.e., personal, permanent, and pervasive)" (Avey et al., 2011, p. 130). Importantly, it also includes "a realistic evaluation of what one can and cannot accomplish" (Luthans et al., 2007, p. 548).

Hope, as presented as a third defining component of psychological capital, refers to "a positive motivational state that is based on an interactively derived sense of successful (1) agency (goal-directed energy) and (2) identification of pathways (planning to meet goals)" (Snyder, Irving, & Anderson, 1991, p. 287). It is a source of will and motivational

energy to pursue goals through forecasting potential obstacles and generating alternative solutions as needed (Luthans et al., 2007).

Finally, resilience, presented as the fourth component of psychological capital refers to "the capacity to rebound or bounce back from adversity, conflict, failure, or even positive events" (Luthans, 2002, p. 702).

Importantly, there is evidence supporting the discriminant validity of the four dimensions of PsyCap described above (Avey et al., 2009). Also, as a second-order construct PsyCap and its four components share underlying mechanisms (Avey et al., 2011) that yield a synergistic effect beyond that attributable to the individual components (Luthans et al., 2007). For example, an aggregate measure of PsyCap predicted Chinese factory workers' supervisor-rated performance to a greater degree than each of the four dimensions individually (Luthans et al. 2006). The same was found regarding third-party-rated performance of management students, and in two samples of employees from service and high-technology manufacturing environments (Luthans et al., 2007).

1.9 Developmental Efforts to Strengthen PsyCap

PsyCap components are regarded as more "state-like" than the relatively more stable "trait-like" variables that characterize the Big Five personality factors and many of Peterson and Seligman's (2004) signature character strengths and virtues (Luthans et al., 2007). An important implication is that the components, hope (Snyder, 2000), optimism (Carver & Scheier, 2005), resilience (Masten & Reed, 2002), and self-confidence

(Bandura, 1997), as well as PsyCap as a whole, are trainable (e.g., Luthans, Avey, Avolio, Norman, & Combs, 2006; Luthans, Avey, Avolio, & Peterson, 2010; Luthans et al., 2007; Luthans, Avey, & Patera, 2008).

In an experimental study using a PsyCap Intervention (PCI), Luthans et al. (2006) demonstrated significant increases not only in the participants' PsyCap scores, but also in their post-intervention multisource performance ratings. The intervention included short informational lectures on PsyCap components, and hands-on exercises for developing participants' self-efficacy, optimism, hope, and resilience. Control group participants receiving an unrelated intervention showed no increases in either PsyCap or performance.

In a study conducted in China, Guo, Xiyuan, and Qin (2012) found that PsyCap partially mediated the association between obtaining an MBA and satisfaction as a manager. PsyCap was measured by the Psychological Capital Questionnaire (PCI; Luthans et al. 2007) translated into Chinese, and satisfaction was measured by the Career Satisfaction Scale (Greenhaus, Parasuraman, & Wormley, 1990). Time intervals between measurements were not reported. The authors recommended that MBA programs incorporate PsyCap enhancing interventions into the MBA curriculum as a means to positively influencing the future career satisfaction of MBA graduates.

PsyCap is important to the current study as research suggests that it may help impoverished persons to cope with and manage their adverse life circumstances.

1.10 The Relationship between Poverty and Stress (Path 1 of Proposed Model)

It is likely that experiencing poverty, in all its dimensions (e.g., income, educational status, health, and accessibility to basic life sustaining amenities) triggers stress (Hillemeier, 2009; Lauder et al., 2007; Lever et al., 2005). One reason for this is provided by the "desires fulfillment" perspective"(Diener, 2009), wherein the poor are likely to be stressed because they see themselves as lacking the ability and/or resources to deal with difficult circumstances (Avey, Luthans, & Jensen, 2009) that threaten their ongoing physical and or psychological well-being (Lever et al., 2005). In support of this perspective, lower levels of income and education (i.e., life-enhancing resources) are associated with heightened stress hormone levels (i.e., epinephrine, norepinephrine and cortisol), independent of race, age, gender or body mass index (Cohen, Doyle & Baum 2006; also see, Ahmed, 2005; Chase-Lansdale & Brooks-Gunn, 1997; Kim & Garman, 2003; Lever et al., 2005).

Relative to those with greater means, the impoverished are also more likely to experience a greater number of stressful life events on a daily basis (Banerjee & Duflo, 2012; Chase-Lansdale & Brooks-Gunn, 1997). For example, people with very limited access to cash, credit, assets and insurance, must be especially careful to conserve and protect what they have. This is likely to be accentuated in developing countries with unstable financial infrastructures where accessibility to credit and insurance is highly restricted, leaving many within the population to fend for themselves or to rely heavily on their social and family networks (Dzokoto, 2012). Efficient and effective use of limited

personal resources is a must as their misuse carries greater risk to ones' lives (Banerjee & Duflo, 2012) relative to people from more developed nations.

Accordingly, whether due primarily to a lack of ability and resources required to deal with life-threatening circumstances (Avey et al, 2009) and/or a lack of life affirming experiences (Banerjee & Duflo, 2012), greater impoverishment is likely to be associated with higher levels of self-reported stress. This is likely the case for most countries, not Ghana alone. However, this effect should be especially evident using a sample of Ghanaian farmers for whom poverty is likely more widely and deeply experienced than is typical of most Western-based samples.

Hypothesis 1a (H1a)*: Individual poverty positively predicts self-reported stress.*

1.11 The Relationship between Stress and Happiness (Path 2 of Proposed Model).

Stress is a cause of many unpleasant outcomes, including mental disorders (Nash & Thebarge, 2006). As noted earlier, stress reflects perceptions of disparity between one's current status and one's personal needs and aspirations, along with a sense that one may lack the personal resources to rectify that disparity. This condition is likely to adversely impact one's experienced quality of life in that these anxieties inhibit individuals from fully enjoying life's pleasures, as manifested in lower reported happiness.

Persistent stress negatively affecting individuals' psychological and subjective well-being, including happiness, has been established (Lever et al., 2005; Schiffrin & Nelson, 2010). For example, Schiffrin and Nelson (2010) measured the happiness and the

perceived life events stress of 100 college students. Stress, as measured with the 10-item Perceived Stress Scale (PSS) (Cohen et al., 1983) associated negatively with: (a) an affective and cognitive assessment of one's life (Diener, 2000); (b) a global assessment of happiness (Lyubomirsky & Lepper, 1999) and, (c) a scale reflecting meaning, pleasure, and engagement (Seligman, 2002). The above conceptual arguments, and empirical data, suggest that stress negatively predicts happiness, and this is likely to be a relationship that is evidenced cross-nationally. The relationship may be especially observable among Ghanaian farmers with very limited financial means to securing daily life-sustaining resources (e.g. food, shelter, health care, education).

Hypothesis 1b (H1b): *Stress negatively predicts self-reported happiness.*

1.12 Stress as Mediator of the Poverty-Happiness Relationship.

As mentioned earlier, the poor, as operationally defined using various metrics, are likely to experience stress as they see themselves as lacking the resources to manage situations that threaten their physical and psychological well-being. And when this anxiety increases, engagement in, and experience of, the pleasurable activities of daily life decreases as one spends the majority of his/her time seeking out the basic resources to sustain the physical existence for oneself and one's dependents.

Hypothesis 1c (H1c): *Stress mediates the negative relationship between poverty and happiness.*

1.13 PsyCap as Moderator of the Poverty-Stress Relationship (Stage 1 Moderation)

As detailed above, a negative relationship between poverty and happiness is anticipated, mediated by stress. It is also hypothesized that PsyCap will moderate the relationship at both the first and second stages of the mediation (Figure 1.1). Specifically, PsyCap should diminish the adverse effects of poverty on stress (stage 1 moderation), as well as diminish the effects of stress on happiness (stage 2 moderation).

As described earlier, a common definition of stress is that it encompasses a range of responses, including negative emotions that occur when the perceived demands of a situation are beyond ones' perceived ability to cope with them (Avey et al., 2009). In stage 1 of moderation, PsyCap is expected to diminish perceived threats associated with poverty, and therefore the accompanying experiences of stress. Specifically, PsyCap helps regulate the negative emotions triggered by threatening events such as poverty. It does this by suppressing negative thoughts and prompting positive, motivating energy conducive to goal accomplishment (Emmons & McCullough, 2003; Froh, Sefick, & Emmons, 2008; Gilman, Dooley, & Florell, 2006; Park & Peterson, 2009).

To the extent that PsyCap serves a regulatory function by suppressing the negative emotions triggered by adverse events, we would expect that individuals high in PsyCap would experience less stress *generally* as compared to their lower PsyCap counterparts. Indeed, a number of studies provide support for this (Abbas & Raja; 2011; Avey et al. 2009; Herbert, 2011; Riolli, Savicki, & Richards, 2012). For example, using path analysis of online survey data from 416 working adults across a variety of US industries, Avey et

al (2009) found that PsyCap negatively predicted self-reported stress (as assessed by the Depression, Anxiety, Stress Scale; DASS; Lovibond & Lovibond, 1995) ($B = -.35$; $p < .001$), intentions to quit ($B = -.24$; $p < .01$), and job search behavior ($B = -.16$; $p < .01$) – the latter two often reflective of unhappy workers (Bretz Jr, Boudreau, & Judge, 1993; Tzeng, 2002). Though they did not examine the impact of the four PsyCap components separately, Avey et al. (2009) suggested ways that the PsyCap of employees could be developed to help them cope with workplace stressors (consistent with the notion of PsyCap moderating the poverty-stress relationship).

Abbas & Raja (2011), drawing on a sample of 237 employees from organizations in Pakistan, found that PsyCap (measured as an aggregate construct) associated negatively with self-reported job stress (assessed by the Job Stress Scale; Parker & DeCotiis, 1983) ($\beta = -.14$, $p < .05$. Likewise, using a sample of 209 permanent employees of a construction company in South Africa, Herbert (2011) reported significant negative relationships between PsyCap (aggregate and component parts) and general levels of stress. PsyCap was measured with the PCQ (Luthans et al., 2007) and stress was measured with the PSS (Cohen et al., 1983).

While a direct linear relationship between PsyCap and stress is consistent with an expectation that PsyCap will buffer the negative influence of an adverse life event (e.g., poverty) on stress, PsyCap has yet to be specifically evaluated as a moderator of the stressor (e.g. poverty) – stress (as experienced) relationship, as proposed here (stage 1 moderation Figure 1.1).

Relative to their lower scoring PsyCap counterparts, however, impoverished individuals strong in PsyCap, have more ability to recognize the positive aspects of their less-fortunate circumstances (be optimistic); they are likely to be more confident in their personal strengths and abilities (self-efficacy) to effect a better future for themselves (hope); and will exert "extra effort and tenacious perseverance" to achieve their personal goals in the face of threats and hardships (resilience) (Avey et al., 2006, p. 4).

The above conceptual arguments, and empirical data, suggest the moderating effect of PsyCap cross-nationally (not culture specific). The relationship may be especially observable, however, among Ghanaian farmers where there is likely to be high and varied incidence of poverty induced stress, relative to wealthier Western nations. Specifically, the relationships being investigated would be difficult to test statistically in environments where incidents of poverty were uniformly low (little variance and little poverty). It is difficult to study poverty and its effects among a population experiencing uniformly low rates of poverty.

Hypothesis 2a (H2a): *PsyCap moderates the negative relationship between poverty and stress, such that the relationship is weaker for individuals high in PsyCap than for their lower scoring PsyCap counterparts.*

1.14 PsyCap as a Moderator of the Stress-Happiness Relationship (Stage 2 Moderation)

Above, a case was made for PsyCap buffering the adverse impact of a stressor (e.g., poverty) on the level of stress one experiences. Here it will be argued that PsyCap will

also buffer the ill effects of stress, once experienced, on happiness. Let us consider this with a focus on the individual PsyCap components.

Ghana is known to have a culture of resilience and "tolerance for the unexpected and uncomfortable" (Dzokoto, 2012). The resilient characteristics of Ghanaians when faced with life challenges has been linked to the "social reality of little environmental control and slow socioeconomic and infrastructural development" in Ghana (Dzokoto, 2012). Resilient individuals "are open to new experiences, are flexible to changing demands, and show more emotional stability when faced with adversity" (Avey et al., 2009, p. 682). Accordingly, resilience should help individuals adapt effectively in changing external environments and to regain the psychological strength required to cope (Avey, Patera, & West, 2006; Avey et al., 2009). As Luthans et al. (2010, p. 47) note: "resilience is the difference between those who recover well after adversity and those who remain devastated and unable to move ahead". Accordingly, higher resilience should serve to attenuate the negative effects of stress on experienced happiness.

Optimistic persons tend to sustain positive perceptions and expectations across life circumstances, including its struggles (Abbas & Raja, 2011). An optimist tends to take more credit in positive occurrences and has less guilt in negative ones, perceiving a temporary, external cause for them (Youssef & Luthans, 2007). Optimists also tend to detect, and invest in, positive circumstances and opportunities, and are especially willing to face new demands and challenges, cognitively reframing their experience of stress, and act to lessen this stress, thereby buffering the adverse effects of stress on happiness.

An individual with hope, "expects the best in the future and works to achieve it; believes that a good future is something that can be brought about" (Park et al., 2004, p. 606). Hope protects against perceptions of vulnerability, uncontrollability, and unpredictability (Snyder, 2000), decreasing the level of perceived threats. Accordingly, once people of hope experience stress, they are better positioned to cope with and manage (i.e., cognitively regulate) its adverse effects on the happiness they experience.

 Finally, a person with high self-efficacy, "set[s] challenging goals; persist[s] toward the achievement of their goals, even under difficult and stressful circumstances; recover[s] quickly from failure, even in the face of conditions that would appear to be overwhelming to the average person" (Hmieleski & Corbett, 2008, p. 4). Accordingly, people high in self-efficacy will be less accepting of stress adversely affecting their happiness, and engage cognitive and behavioral strategies to lessen that adverse impact.

 Given its synergistic combination of resilience, optimism, hope, and self-efficacy, people low on the second-order PsyCap construct and who experience stress-inducing life events will likely feel less capable of managing them (e.g., cognitive framing), and be less likely to take actions to lessen the impact of that stress on their happiness. Their high PsyCap counterparts in contrast, will be just the opposite, believing that they have the psychological resources to confront and diminish the ill effects of the stress in their lives. The underlying attribute of PsyCap, shared across its four elements, -an inspirational inclination to achieve personal objectives and goals - is especially relevant here (Luthans et al., 2007); "PsyCap's agentic thinking has a motivating impact that can enhance

internalization, determination, and pathways thinking, counter to the 'giving up' and despair associated with cynicism" (Avey et al., 2010, p. 429).

Consistent with the above reasoning, Herbert (2011) showed that overall PsyCap weakened the positive relationship between stress and both personal burnout ("the degree of physical and psychological fatigue and exhaustion experienced by the person", p. 28) and work burnout ("physical and psychological fatigue and exhaustion that is perceived by the person as related to his/her work" p. 28).

The above conceptual arguments, and empirical data, suggest the moderating effect of PsyCap cross-nationally (not culture specific). The relationship may be especially observable, however, among Ghanaian farmers where there is likely to be high incidence of poverty induced stress, relative to wealthier Western nations. Specifically, the relationships being investigated would be difficult to test statistically in environments where incidents of poverty induced stress were uniformly low (little variance). It is difficult to study poverty-induced stress and its effects among a population experiencing uniformly low rates of poverty-induced stress.

Hypothesis 2b (H2b): *PsyCap moderates the negative relationship between stress and happiness, such that the relationship will be weaker for individuals high in PsyCap relative to their lower scoring PsyCap counterparts.*

CHAPTER 2: METHODOLOGY

2.1 Sampling Strategy

In developing the foundation for this thesis, I participated in many venues (public conferences, webinars, private meetings and multiple negotiations) where poverty alleviation was the focus of discussion. In the process, I formed a valuable and extensive network of contacts involving scholars, NGO representatives, and policy-makers from transnational institutions such as the UN, Engineers without Borders (EWB), the Acumen Fund, and the Grameen Foundation.

In one of these meetings I met the co-founder of Farmerline, a Ghanaian web-based for-profit social enterprise that provides agro industry information to help individuals develop and manage profitable farms *(*http://farmerline.org/*).* For example*,* to enhance agricultural yield, profit, and farmers' autonomy, Farmerline is providing, via voice and text message applications, up-to-date information concerning agricultural best practices, market access, business plan writing, record keeping, and supplier access. As Farmerline notes in the introduction to this pilot project:

> "Many smallholder farmers struggle to access timely agricultural information. Farmers require the latest agricultural information to improve land-use practices and increase harvests, and poor information sharing affects farmers' prospects for selling their products at a reasonable price. Farmerline believes that improving information sharing will encourage uptake of modern agriculture technologies and support modern farming practices."

In 2011, Farmerline won third place in West Africa's prestigious App4Africa competition. App4Africa is an annual funding event sponsored by agencies such as the US Department of State and The World Bank, which offers financial support for technologically driven projects aimed at solving societal problems. Farmerline has won several other awards as well, e.g., the Mobile Web Ghana Competition and the UN World Summit Youth Award (Poverty, Hunger and Disease category). These awards combined with presence at international events such as the 2012 Social Capital Markets Conference, reflect that Farmerline is especially well networked among advisors, charitable organizations, and granting foundations that are crucial to the additional support needed to bring about social change in Ghana and other African countries. As quoted from The Guardian (Nagasaki, 2014):

> "Ghana only has one - governmental - extension agent for every 2,000
> farmers, and poor road and communications infrastructure make access
> to market information particularly difficult for farmers… Farmerline
> Ltd tackles this challenge by bridging this information gap through the
> use of mobile technology… The company's customers, many of whom
> are women, ultimately benefit from increased income."

Based on Farmerline's success in winning the attention of various institutions and NGOs, their help (e.g., access to their facility, database and client workshops) was solicited in the execution of the current research.

2.2 Data Collection Processes

The original intent was to gather all data from Farmerline's clients (i.e., fish farmers living in the Ashanti region, in Ghana). Since many of the fish farmers in Ghana are

members of the governmentally supported Fish Farmers Association (FFA) (FAO, 2005),

their direct support for soliciting study participants was solicited. Moreover, the help of

"Extension officers" was also secured. They are government agents with considerable

knowledge about farming (traditional farming and fish farming) and provide farmers

with help to better manage their farms (FAO, 2005). Each of these extension officers are

in direct contact with farmers in different regions of the country. After a few days of

communication with an extension officer, 22 fish farmers living near Obuasi, Ghana

were invited to a local school to take part in the study. To achieve the desired level of

statistical power (i.e., .80, Cohen, 1988), the sample was expanded beyond fish farmers

to include traditional farmers. To recruit more study participants, other extension

officers in the region were contacted with the help of the Farmerline network. Through

this process I recruited an additional 323 farmers (cocoa farmers) in seven villages near

Kumasi, the second biggest city in Ghana.

   All data collection sessions occurred with the presence and help of 2 field assistants

(both recruited with the help of the Farmerline network) in local schools or churches that

provided chairs and desks. However, in a few instances where the capacity of the place

did not allow such accommodation, participants accepted to come back to take part in a

second round of data collection after the initial one ended. In total, ten data collection

sessions took place, with an average of 35 participants per session (minimum 6,

maximum 60).

Paper versions of the questionnaires were completed in pencil. Although all surveys were in English, discussions had been held with a number of Ghanaian informants to solicit their feedback on the meaningfulness and understandability of survey items. These informants included, for example, Ghanaian university professors, and individuals who had been, or were, working with farmers in Ghana, as well as a manager of a project involving Ghanaian entrepreneurial enterprises in the field of agriculture. This solicitation of feedback happened before collecting survey data to ensure that all survey items were likely to be understood by participating Ghanaian farmers. In this process, a few items were reworded. For example, the idiom: "life is short, eat dessert first" in one of the items of the Orientations to Happiness scale was reworded to "life is short – so enjoy the smaller pleasures as well." Similarly, idioms such as "every cloud has a silver lining" were replaced with simpler worded sentences with equivalent meaning within the Ghanaian community.

In instances where the English wordings of the surveys were not understood by the participant, one of the two field assistants from the research team translated the question to the local language. However, as mentioned when discussing the cultural aspects in Ghana, English words and proverbs are not easily transferable in meaning to the Ghanaian local culture (Dzokoto, 2012), and this is exacerbated among the least literate of the Ghanaian farmers. Accordingly, reworking some of the items based on feedback from local informants, and providing interpreters at the data collection sessions was insufficient to completely eliminate misunderstanding of some survey items. This was

exacerbated by a low literacy rate in rural regions of the country (i.e., 70 percent literacy in urban areas, against 40 percent literacy in rural areas; Ghana Statistical Service, 2008).

2.3 Sample Demographic Statistics

From the total of 345 participants, two were dropped because they did not answer any of the survey items. Another respondent was dropped because 37 items (from a total of 99 items) were not completed.

Both genders were well represented in the sample; 58% (196) were female. Age ranged from 18 to 95, with a mean 46.5 years. On average, 7.57 persons lived in each household. Ninety-one percent stated that their main job was in agriculture.

Nearly 71% (241) were married; 9% (29) reported being single; the remainder were divorced, or widowed. A substantial proportion, 39% (134) reported the death of at least one child in the household.

2.4 Measures

2.4.1 Poverty

2.4.1.2 Multidimensional Poverty Index (MPI)

Although the income per capita poverty line methods reflect financial circumstances, these purely economic indices do not necessarily capture quality of life (Bourguignon & Chakravarty, 1998; Kahneman & Krueger, 2006; Rojas, 2004). As described earlier, there is consensus that low income does not provide a complete perspective concerning the

experience of poverty (e.g., Ferreira & Lugo, 2012). For example as explained by Alkire and Santos (2013, pp. 5–6):

> "First, the pattern of consumption behavior may not be uniform, so attaining the poverty line level of income does not guarantee that a person will meet his or her minimum needs. Second, different people may face different prices, reducing the accuracy of the poverty line … Third, the ability to convert a given amount of income into certain functioning varies across age, gender, health, location, climate and conditions such as disability – i.e., people's conversion factors differ … Fourth, affordable quality services, such as water, health and education, are frequently not provided through the market. Fifth, using the indirect method provides no way to verify the intra-household distribution of income. Sixth, participatory studies indicate that people who experience poverty describe their state as comprising deprivations in addition to low income. Finally, from a conceptual point of view, income is a general purpose means to valuable ends. Measurement exercises should not ignore the space of valuable ends."

Given these limitations, other criteria, including education, health, environment, work status, and standard of living (Alkire & Santos, 2011; Banerjee & Duflo, 2012; Kanbur, 2002; OPHI, 2010) must be considered and ideally, according to some, aggregated into a single scale (e.g., Bourguignon & Chakravarty, 1998; Coromaldi & Zoli, 2012; Ferreira & Lugo, 2012; Foster & Alkire, 2009; Njong & Ningaye, 2008).

As described earlier, one such effort is the MPI (Alkire & Santos, 2011; Duclos, 2011; OPHI, 2010; Silber, 2011), as developed by the Oxford Poverty and Human Development Initiative, in collaboration with the UN Development Program (UNDP) (Alkire & Santos, 2013). The major categories of the MPI consist of education, health and standard of living. When the subcategories are included, 10 indicators (i.e., years of schooling, child school enrolment, child mortality, nutrition, electricity, drinking water, sanitation,

flooring, cooking fuel, and assets) are used to identify individuals surviving under less than the minimum levels of globally accepted living conditions. The MPI does not include income (UNDP, 2013b), but is intended to supplement traditional approaches by examining the level of deprivation people experience (Alkire & Santos, 2013). Hence, MPI was also used in this study to assess poverty.

Deprivation cutoff points have been set for each of the 10 MPI indicators in accordance with internationally accepted standards such as the eight Millennium Development Goals (MDGs; Alkire & Santos, 2013). For example, deprivation in the electricity subcategory means that the person lacks electricity at the house. Nutrition deprivation means that a member of the household is undernourished. Adults are considered to be undernourished if their Body Mass Index (BMI) (calculated using the formula: Mass (kg)/[Height (m)]^2) is lower than 18.5. For children, if their "weight for age" z-score, calculated with the formula: (observed weight - median weight of the reference population) / standard deviation weight value of the age reference population) is less than minus two standard deviations from the median for the reference population, they are regarded as undernourished. Fortunately, free software is available to help calculate z-scores. These programs contain WHO reference population scores such that only the child's weight, age, and sex are required to generate the z-score.

The health dimension, especially nutrition, is the most difficult of the MPI indices to obtain (Alkire & Santos, 2013), such that an alternative single item survey question has been developed (Alkire & Santos, 2011; Foster & Alkire, 2009). Appendix A from Alkire and Santos (2013, p. 12) provides a comprehensive picture of the three major dimensions

of the MPI, including their indicators, definitions, weights, and cutoffs. Those who are judged as deprived in more than 3 of the 10 aspects (30% or more) are regarded as *acutely* poor (Alkire & Foster, 2011b; Foster & Alkire, 2009). However, for the current study the full range of possible scores (0-100; higher MPI scores indicate higher impoverishment levels) were used to yield an ordinal scale. The MPI has high robustness and stability with regard to changes in indicator weights, deprivation cutoffs, and sample variability.

Note that to assess deprivation levels, the MPI also has some education and health content concerning other members of the household, as opposed to exclusive focus on the individual. This "allows for interaction, smoothing and mutual sharing within the household, and can create policy efficiencies" (Alkire & Santos, 2013, p. 10). For example, if a child is not attending school, *all* the members of the household are considered as deprived under this indicator, as it is intended to reflect whether the household is part of a society that provides education and learning opportunities (Alkire & Santos, 2013). Analogously, the death of a child in a family is regarded as a "total health functioning failure – one that is direct and tragic, and that influences the entire household" (Alkire & Santos, 2013, p. 11).

The MPI was used in parallel with poverty line cutoffs (Alkire & Foster, 2011b) in this study to gain additional insight into how poverty affects stress and happiness. No effort was made to aggregate the MPI and the poverty line cutoffs into a single index as they do not consistently correspond with one another (Alkire & Santos, 2013; Laderchi, Saith, & Stewart, 2003). For example, Alkire and Santos (2013, p. 22) noted that "over two thirds

of the MPI poor (69%) [in the world] live in lower middle income countries; whereas only just below a third live in low income countries." They note further that the number of individuals considered as impoverished within a household or country differs according to the method by which poverty is measured (Alkire and Santos, 2013). Finally, author subjectively-assigned weights of poverty indicators for the purposes of deriving composite poverty measures has given rise to much controversy (Bourguignon & Chakravarty, 2003; Ferreira & Lugo, 2012; Ravallion, 2011).

2.4.1.3 Progress out of Poverty Index (PPI) for Ghana

   In addition to the income poverty lines and the MPI, the Progress out of Poverty Index (PPI) for Ghana (Grameen Foundation, 2010) (Appendix B) was used. As the name implies, this 10-item assessment concerning living standards and education was designed specifically for use in Ghana. The aggregated score (100 point maximum) was then reverse-scored such that higher PPI scores indicate more impoverishment.

   Both PPI and MPI are developed from living standards items, however, they include (and assign different weights to) different living standards variables. For example, a low number of household members is an important factor (worth 31 points) in an individual's PPI score. However, MPI considers household members' education levels of more importance (worth 33.4 points). Therefore to fully gauge participants' living conditions the PPI and MPI were combined to obtain a single overall aggregate measure of poverty, referred henceforth as the PPIMPI. This aggregate index is simply an average of PPI and MPI scores, with higher PPIMPI scores reflecting more poverty.

Thus, ultimately, the relationships of interest were examined using four poverty indicators; the MPI (Appendix A), PPI (Appendix B), PPIMPI, and income.

2.4.1.4 Resolving Inconsistencies in MPI and PPI Survey Responses

Since many of the items on the PPI and MPI concern living standards that are factually interrelated participant responses were checked for inconsistencies and contradictions (examples provided below). These inconsistencies were corrected as to do otherwise would result in deleting data, resulting in an inefficient use of the dataset and lower statistical power for model testing. In all, five categories of inconsistencies were corrected:

1- In 11 surveys, the sum of household "adult members" (i.e., individuals above the age of 18) and "child members" (i.e., those below the age of 18) summed to *less* than the "total household members with five years schooling". The nature of the correction was to reduce the "total members with five years of schooling" to the maximum possible number, i.e., the sum of "adult members" and "child members" in the household.

2- In response to an item concerning "highest grade completed by the woman head of the house", 11 participants stated that there was "no woman head in the house", yet the "gender" of the participant completing the survey was "female".

In analyzing the possible reasons for this inconsistency, there were two similarly worded options among the answers to the pertinent item, i.e., "none", and "no woman head in the house". Considering the literacy limitations of the participants and/or their

general unfamiliarity with survey research, it was inferred that the 11 participants had intended to select the "none" option instead (i.e., the head woman in the household had no education). Note that while some respondents may have interpreted "woman head" of household as "head of the household", this was unlikely as it had been clearly explained at time of survey administration that if there is a sole woman in the household, she would be considered as "woman head of the house".

3- Three of the respondents indicated that there was "no woman head in the house", but the "gender" of the participant completing the questionnaire was male *and* the "marital status" item indicated that the respondent was "married". In these instances, response to this item was coded to reflect a woman household member with no education (i.e., the "none" response" – no formal education completed by the head woman of the household).

4- Twenty-nine of the surveys had household "flooring" type marked as "other", without elaboration. In these instances, the type of the flooring was corrected to indicate "sand" because all floorings such as sand, dirt, and dung carry the same weight in the MPI scale and, other types of flooring (e.g., wood) were not used in any of the villages of survey participants.

5- Five questionnaires had the household "roof" type item marked as "other", with no elaboration. Using the same rationale as used for the item concerning floors, the roofing for these households was changed to "palm leaves."

To ensure that the above corrections did not unduly impact the overall findings, the means and standard deviations of the affected items, as well as the PPI and MPI as a whole, were compared before and after the corrections. As might be expected given the relatively small numbers of items and participants involved, only slight changes in the overall numbers were observed. For example, mean PPI scores changed slightly from 65.38 percent to 65.75 percent, while the standard deviation changed from 10.33 to 10.36.

Finally, there were a few other internal inconsistencies in the surveys but those cases were simply deleted from the dataset as there was no compelling rationale to do otherwise. Overall, the corrections that were made, as noted above, acknowledges the likely "noise" that will exist within a dataset collected from literacy-challenged Ghanaian farmers residing in rural areas of Ghana, reflecting similar challenges encountered by other social science researchers of this population (Brewer et al., 2006; Dzokoto, 2012).

2.4.2 Stress

The Perceived Stress Scale (PSS) (Cohen et al., 1983; Cohen & Williamson, 1988) (Appendix C) was used. The PSS identifies the extent to which one's life is perceived as stressful (Cohen, Kessler, & Underwood Gordon, 1994), reflecting in particular the perceived unpredictability and uncontrollability of life events. It is short (i.e., 10 items) and easy to complete and score (Herbert, 2011). Moreover, the PSS was designed for global use (Kuiper, Olinger, & Lyons, 1986), has been translated and employed in a variety of contexts, including adults in the US (Cohen & Janicki-Deverts, 2012), teachers at a Brazilian university (Reis, Hino, & Añez, 2010), university students in Turkey

(Örücü & Demir, 2009), pregnant and postpartum women in Arab countries (Chaaya, Osman, Naassan, & Mahfoud, 2010) and policewomen in China (Wang et al., 2011).

Cronbach Alphas for the PSS are typically .80 or higher (.85 in the original work by Cohen et al., 1983). An example item is: **"**in the last month, how often have you felt that you were unable to control the important things in your life?" Five-point Likert response scales are used (0 = never to 4 = very often) (Appendix C contains all PSS items). Four of the items are reverse-keyed and so were reverse coded to be consistent in interpretation with the other six items. For example, "In the last month, how often have you been able to control discomforts in your life" (0 = never to 4 = very often), where a 4 response indicates less (not more) stress, so had to be recoded – reverse scored.

2.4.3 Happiness

As discussed earlier, happiness has been operationalized in a variety of ways. It is sometimes viewed as interchangeable with Subjective Well Being (SWB) and/or life satisfaction (e.g., Vella-Brodrick, Park, & Peterson, 2009), or as an affective subcategory of SWB, with life satisfaction as the cognitive component of SWB (Diener, Suh, Lucas, & Smith, 1999).

Since happiness and life satisfaction are separate constructs with different antecedents and outcomes (Diener, Oishi, & Lucas, 2009), a specific measure of happiness was used - - the 18-item Orientations To Happiness (OTH) questionnaire (Peterson et al., 2005) (Appendix D). Each of the six items of the OTH aligns with one of three different dimensions: pleasure (e.g., in choosing what to do, I always take into account whether it

will be pleasurable; α = 0.84), meaning (e.g., my life serves a higher purpose; α = 0.88), and engagement (e.g., I am rarely distracted by what is going on around me; α = 0.77). Participants responded using a 5-point scale (1 = very much unlike me to 5 = very much like me) (Appendix D).

Finally, like the PSS, the OTH scale has been used in a wide variety of countries including the US (Peterson et al., 2007), Germany (Ruch, Harzer, Proyer, Park, & Peterson, 2010) , the UK, Australia, Canada (Schueller & Seligman, 2010), Japan (Kumano, 2011) and China (Chen, 2012).

2.4.4 Psychological Capital (PsyCap)

PsyCap was assessed using the 24-item self-rated version of the Psychological Capital Questionnaire (PCQ-24; Avey et al., 2010; Luthans et al., 2007). Six items are devoted to each PsyCap dimension. As noted by Herbert (2011, p. 154), the Hope items were adapted from the Snyder et al.'s (1996) State Hope Scale (e.g., there are lots of ways around any problem; α =.87). The Optimism items are from Scheier and Carver`s (1985) Measure of Optimism (e.g., I always look on the bright side of things regarding my job; α =.78). The Self-efficacy items are from the Parker (1998) measure of self-efficacy in the workplace (e.g., I feel confident analyzing a long-term problem to find a solution; α = .87). Finally, the Resilience items are from Wagnild and Young`s (1993) scale (e.g., I can get through difficult times at work because I have experienced difficulty before; α = .72). In all cases, 6-point Likert scales are used (1 = strongly disagree to 6 = strongly agree).

PCQ-24 consists of three reverse-keyed items. From these three items, two ("As a farmer or fish farmer, things never happen in the way I want them to", and "If something

can go wrong for me while farming or fish farming, it will definitely go wrong"), are from the optimism subscale. The remaining item ("When things as a farmer or fish farmer do not go well as I expect, I have trouble doing my other tasks"), belongs to the resilience subscale. After data collection and prior to the analysis, these reverse-keyed items were reverse coded to align their interpretation with the remaining items. A unit weight was assumed for each item when deriving the total scale score.

2.4.5 Control Variables

Several variables that are not a central focus of this study tend to correlate with happiness and therefore were statistically controlled. These include gender (e.g., Alesina, Di Tella, & MacCulloch, 2004), age (e.g., Mroczek & Kolarz, 1998), marital status, number of children, and personality (e.g., DeNeve & Cooper, 1998; Steel, Schmidt, & Shultz, 2008)

Gender was coded (0 = male, 1 = female). Marital status was a categorical variable (i.e., married, single, divorced, and widowed). Age was measured and analyzed as a continuous variable.

Personality was measured with the 10-item Personality Inventory (TIPI) (Gosling, Rentfrow, & Swann Jr, 2003) (Appendix E), a brief measure of the Big-Five personality traits (i.e., extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience). It has adequate test–retest reliability as well as convergent and discriminant validity (Gosling et al., 2003). This instrument has shown to present strong psychometric properties when used on participants from diverse countries such as

Germany (Rammstedt & John, 2007), Spain (Romero, Villar, Gómez-Fraguela, & López-Romero, 2012), Japan (Oshio, Abe, & Cutrone, 2012), Belgium (Hofmans, Kuppens, & Allik, 2008), and South Africa (Joubert, 2015). TIPI has 5 positively-keyed items (one for each of the five dimensions), in addition to 5 reverse-keyed items (one for each of the five dimensions), which were reverse coded to align interpretation with the remaining items.

In all, each participant was given an 11-page survey containing 99 scale items, all of which were ordinal, except for the PPI and MPI content (living standards questions) and income, which was nominal.

2.5 Data Analysis Method

Simultaneously testing for *both* mediation and moderation, as called for in the current study, significantly increases the complexity of the analysis (Ployhart & Ward, 2011; Thoemmes et al., 2010). Ordinary Least Squares (OLS) regression is considered among appropriate approaches for estimating and testing of moderated mediation models (Edwards & Lambert, 2007, Hayes, 2013).

Fortunately, Hayes (2013) has created a tool ("PROCESS") within SPSS for analyzing complex models such as the one tested here. Specifically, he provides seventy-four possible templates of mediation and/or moderation, each depicting a model that includes one or a number of mediators and/or moderators (in different stages) of the relationship between two variables. Equations and statistical diagrams for each template are also provided (cf. Hayes, 2013).

Model 58 (Figure 2.1) best represented the hypothesized model in the current study, and so was the template used when applying PROCESS. In this model, the independent variable (X; Poverty), affects the dependent variable (Y; Happiness) directly and also, indirectly through the mediator (M; Stress), with PsyCap (W) moderating at both stages 1 and 2 of the mediation.

CHAPTER 3: RESULTS

3.1 Sample: Descriptive Statistics

The mean poverty level of the 342 participants, based on the PPI scale (Appendix B), was 66%, and the maximum was 84%. Higher PPI scores indicate higher levels of impoverishment. The average poverty level based on the MPI scale (Appendix A) was 31%, with a maximum of 73% (again, higher scores reflecting higher poverty). Differences between results produced by the two scales can be explained by different indicators being used in the PPI as compared to the MPI. The mean of the combined poverty scales (i.e., PPIMPI) was 48%, with scores approximating a normal distribution. In comparison, 86% of the respondents were below the extreme poverty line (i.e., income below 1.25 USD a day), and 89% were below the moderate poverty line (income below 2 USD per day). In line with these figures, average daily income was only 2.17 USD (ranging from .02 to 164.15 USD per day).

Scores of stress (mean = 1.94; SD = .47; 0-4 scale), happiness (mean = 3.76; SD = .61; 1-5 scale), and PsyCap (mean = 4.69; SD = .55, 1-6 scale) all approximated a normal distribution. Histograms of the mentioned variables, including their means and standard deviations have been provided in Figures 3.1 to 3.6.

3.2 Missing Values: Expectation Maximization and Factor Analysis

There were missing cases associated with some of the variables. PPI, MPI, and income had 13 (3.8%), 25 (7.3%) and 8 (2.3%) such cases respectively. Among the living

standard items, marital status had the most missing values (13 cases). The stress, happiness, and PsyCap variables had 32 (9.4%), 56 (16.4%) and 44 (12.9%) missing values respectively. Conducting a "Missing Completely At Random" (MCAR) test in SPSS yielded non-significance, suggesting that the missing data did not reflect any systematic pattern (Little & Rubin, 2014) and that therefore "missingness does not depend on the values of the variables in the dataset" (Little, 1988, p. 1). Thus, procedures for replacing the missing values were applied, consistent with well-established practices in the organizational behaviour and management literatures (Roth, 1994).

The Expectation Maximization (EM) approach (Dempster, Laird, & Rubin, 1977) replaces missing values using an expected value based on participants' responses to the remaining items in the same scale (Bilmes, 1998). The EM algorithm uses a maximum-likelihood process. It repeatedly develops correlation and mean estimates through two steps (i.e., "expectation" and "maximization"). In the initial step, a series of regressions (i.e., based on the current correlation matrix), are conducted to produce expected missing values. In the next phase, this expectation likelihood is maximized to produce a new, updated set of parameters with changed correlation matrix and means. The new matrix and means are used to conduct another round of expectation and maximization procedures and this is iterated until convergence is met regarding correlations and means (Newman, 2003).

Thus, EM was conducted on each of the subscales for happiness and PsyCap, and on the (single-dimension) stress scale. Conducting separate EMs on each subscale rather than

the entire scale guarantees more accurate replacements for the missing values (Bilmes, 1998). For example, if a missing value exists in the "meaning" subscale of the happiness questionnaire, EM on the "meaning" subscale replaces it through considering the answers to other items of the meaning subscale only.

After replacing the missing values as described above, the items of the PsyCap, happiness and stress scales were subjected to Exploratory Factor Analyses (EFA), separately for each scale. This was considered more appropriate than an omnibus confirmatory factor analysis (CFA) of all study scales because Ghanaians are a culturally different population from U.S. and Western Europe, from which these scales were developed. Specifically, it is less certain that a priori factor structure as commonly obtained on Western samples would be obtained with a Ghanaian sample. Factor analyses were not performed on the poverty scales, as they are comprised of several different indicators of poverty that are not necessarily expected to correlate highly (e.g., number of the household members and the flooring type of the household), and therefore not expected to yield high internal consistency.

Factor analysis (principal axis factorings with direct oblimin rotations; Kim & Mueller, 1978) of the PsyCap items yielded only two factors (PsyCapF1 and PsyCapF2) instead of the expected four (i.e., optimism, hope, confidence, and resilience) (Appendix F). Together they accounted for 26.61 percent of the common variance among scale items (23.33% for the first factor, and 3.28% for the second) and inter-correlated .45.

The four items defining PsyCapF2 seem to reflect a sense of self-confidence, agency, or self-efficacy. The remaining (17) PsyCap items loaded on PsyCapF1, reflecting an overall general PsyCap construct (Appendix F). Since only four items loaded on one factor with the other items loading on another, a single-factor solution was also forced onto the EFA to see whether it could represent the data well. Although this single factor loading accounted for 23.23% of the common variance, four of the items had loadings of less than .30 (Appendix G).

Happiness was defined by a single factor (accounting for 21.5% of the inter-item common variance; Appendix H), as was stress (accounting for 14% of the variance; Appendix I). All happiness items had weightings of higher than .30, except for three ("Life is too short to delay the pleasures it can provide", "I agree with this statement: "Life is short – so enjoy the smaller pleasures as well" and "I am rarely distracted by what is going on around me"; Appendix H). Among all ten stress items, two reverse-keyed items had weightings of lower than .30 ("In the last month, how often have you been able to control discomforts in your life?" and "In the last month, how often have you felt that you have been managing day to day challenges well"; Appendix I).

The EM procedure for missing values was again performed, this time for the factor analytically derived scales noted above -- for the two PsyCap scales (defined by factor 1 and factor 2) and for the happiness and stress scales. Estimated values were substituted for the missing values of each scale.

Cronbach alphas were then calculated for each of these three scales. It was evident that the inclusion of the reverse-keyed items (i.e., after having been reverse-coded) had huge negative effects on internal consistency in most cases. For example, although still fairly low, alpha for the stress scale increased to .59 from .25 after deleting the four reverse-keyed items. Similarly, alpha for overall PsyCap increased to .87 from .78 after deleting its three reverse-keyed items. The deletion of the reverse-keyed items in the PsyCap scale, also increased alpha of PsyCapF1 (to .87), since all the three reverse-keyed items were loaded on this factor.

Each of the five personality traits were measured using one positively-keyed item, and one reverse-keyed item (which was reverse coded before analysis). However, the alphas of these five dimensions were all negative. Accordingly, all the reverse-keyed items (i.e., 4 from stress, 3 from PsyCap, and 5 from the personality assessment) were deleted from the dataset and the EM process was applied a third time for the remaining items of each scale. In all, final alphas of the variables were .87 (overall PsyCap), .87 (PsyCapF1), .57 (PsyCapF2), .80 (Happiness), and .59 (Stress) (See Table 3.1).

Replacing missing values for the PPI (13 cases, 3.8%) and the MPI (25 cases, 7.3%) scales through application of the EM procedure was not appropriate because these measures were not designed with the intent that the items would necessarily relate strongly to one another (an assumption underlying EM). Accordingly, for each of these scales, a normalized sum was calculated for each respondent with missing values. For example, if the question on stove ownership was unanswered (10 points; see Appendix B

for how points were distributed), the PPI score was normalized accordingly, i.e.,

calculated based on only 90 points, then converted to a 100 point scale. From the total 13

cases involving missing values for PPI, scores for four of the cases' were normalized

based on total possible scores of 69 and 70 points; two scores for two cases were

normalized from total possible scores of 83 and 86; and seven cases were normalized

from total possible scores of 90 or more. For MPI, there were two cases' for which scores

were normalized from a total possible score of 77.7 points; another fourteen case scores

were normalized from 88.8 and 83.3 points, and the rest (nine cases) had their scores

normalized from a total of 94.4 points.

3.3 Zero-Order Correlations

The scores from the scales derived from the factor analyses as reported above

(following replacement of missing values using the EM procedure) were used to represent

their respective constructs for model testing (Figure 1.1). Stress was operationalized by

six positively-keyed items; happiness by 18 positively-keyed items, PsyCap by 21

positively-keyed items, PsyCapF1 by 17 items, and PsyCapF2 by 4 items. The means,

SDs, reliabilities and zero-order correlations of these variables are shown in Table 3.1.

None of the poverty scales correlated significantly with stress or happiness, though

stress and happiness were, unexpectedly, *positively* related (r = .16, p < .01). Overall

PsyCap and its two factors were positively correlated with one another (PsyCap and

PsyCapF1, r = .96, p < .01; PsyCap and PsyCapF2, r = .66, p < .01; PsyCapF1 and

PsyCapF2, r =.43, p < .01). PsyCap also correlated positively with happiness (r=.59 for

overall PsyCap, $p < .01$; r=. 58 for PsyCapF1, $p < .01$; and r=.34 for PsyCapF2) $p < .01$;
see Table 3.1).

PPI and MPI were positively related (r = .21, $p < .01$) as were PPIMPI and MPI (r = .85, $p < .01$). As expected, there was a strong positive association between the PPI and PPIMPI as well (r = .69, $p < .01$). No significant relation was found between income and any of the other three poverty scales (See Table 3.1).

3.4 Control Variables

Among the control variables, only the Big-5 personality dimensions correlated with happiness. Specifically, happiness related to extraversion (r = .26, $p < .01$), conscientiousness (r = .34, $p < .01$), openness to experience (r = .39, $p < .01$), agreeableness (r=.33, $p < .01$), and emotional stability (r = .14, $p < .05$). The "big five" personality dimensions were also all positively related ($p < .01$) to PsyCap and both of its subscales (see Table 3.1).

3.5. Testing for Moderated Mediation Effects using PROCESS

Twelve (12) models were developed to test the hypothesized model of Figure 1.1 using Template 58 as presented in Hayes (2013; pg. 454) and reproduced in Figure 2.1. There were 12 models tested to allow testing of the hypothesized model using different sets of operationalization of the study variables. All these twelve models include happiness as the dependent variable (Y) and stress as mediator (M). However, they differ regarding the operationalization of the independent variable - poverty (X; i.e., PPI, MPI, PPIMPI, or

income), and the operationalization of the moderator (W; i.e., PsyCap, PsyCapF1, or

PsyCapF2). For example, In Model 1 PPI is used as independent variable, stress as

mediator, happiness as dependent variable, and overall PsyCap as moderator. Model 2 has

PsyCapF1 as moderator, rather than overall PsyCap. This is done for all possible

combinations (12) of the different operationalizations of the model variables (See Table

3.2). Each model was then analyzed separately using the SPSS PROCESS approach,

controlling for all control variables (i.e., gender, age, marital status, number of children,

extraversion, agreeableness, conscientiousness, emotional stability, and openness to

experience).

   There was no direct effect of poverty (i.e., PPI, MPI, PPIMPI, or income) on happiness

in any of the 12 tested models, nor was there an indirect effect with stress as mediator

(H1c not supported). Further, there was no support for PsyCap, PsyCapF1, or PsyCapF2

providing stage 1 moderation of the poverty-stress relationship (no support for H2a).

   In the models with PsyCap as moderator of the relationship between stress and

happiness (stage 2 moderation), the moderation effects were negative ($\beta = -.10$, $p < .05$),

contrary to H2b (this was the case for all operationalizations of PsyCap – Models 1, 4, 7

and 10 – Table 3.3 for Model 1 output). Also contrary to H2b, in the models which have

PsyCapF2 as moderator, and PPI, MPI, or PPIMPI as independent variable (i.e., Models

3, 6, 9, and 12), PsyCapF2 negatively moderates the positive relation between stress and

happiness ($\beta = -.08$, $p < .05$ in all the four models; see Table 3.4 for Model 3 output).

PsyCapF1 showed no moderating effect in the models which have PsyCapF1 as

moderator, and PPI, MPI, PPIMPI, or income as independent variable (i.e., Models 2, 5, 8, and 11). To facilitate understanding of the results, Table 3.5 summarizes the results of all PROCESS analyses performed.

To help visualize the 2nd stage moderation of PsyCap in Models 1, 4, 7, and 10, the association between stress and happiness was plotted for Model 1 (as an example), when PsyCap had a value of its mean (i.e., medium level of PsyCap), and for when it was one standard deviation lower (i.e., low level of PsyCap), and one standard deviation higher (i.e., high level of PsyCap) than its mean (Figure 3.7). As seen in Figure 3.7, as PsyCap scores increase, the relationship between stress and happiness becomes less positive.

Similarly to show the 2nd stage moderation effect of PsyCapF2 in Models 3, 6, 9, and 12, the association between stress and happiness was plotted for Model 3 (Figure 3.8). As seen in Figure 3.8, as PsyCapF2 scores increase, the relationship between stress and happiness becomes less positive.

3.6 Testing Alternative Models

Two alternative models were run. Based on the first alternative model, poverty (i.e., independent variable) causes unhappiness, which in turn positively predicts stress; Figure 3.9). With this in mind, all the twelve models developed earlier were changed to allow for testing of this Alternative Model 1 (Figure 3.9). However, as can be seen from Table 3.6, all the original models provide better fit then this alternative model, as represented by a higher R-square and a lower Mean Squared Error (MSE) (Hayes, 2013).

In a second alternative model, happiness acts as the independent variable, with stress as the dependent variable, and poverty as the mediator. Here, the happier an individual is, the lower probability there is of one being poor (e.g., greater sense of agency associated with higher affect) (Boehm & Lyubomirsky, 2008), which in turn, decreases one's stress levels (Haushofer & Fehr, 2014; Wagle, 2002) (Figure 3.10). In this alternative model it is proposed that people who are chronically unhappy behave in ways that adversely affect their social relationships, opportunities for employment, career success, etc. (Boehm & Lyubomirsky, 2008). This can lead to their impoverishment (i.e., less income), which in turn increases their stress levels. All the original twelve models were changed to represent the new alternative model. Again, the original models fitted better in all the twelve cases (i.e., all the original models show higher R-squares, and lower MSEs; Table 3.6), which suggests that a model in which the causal ordering is reversed is not consistent with the data.

CHAPTER 4: DISCUSSION

4.1 Overview

Both poverty and happiness have been studied extensively in various contexts, but the possibility of psychologically-based mediation and/or moderation processes have not been considered. Thus, our understanding of *how* poverty affects happiness is imprecise. To fill this gap, stress was examined as a mediator of the poverty-happiness relationship among Ghanaian land- and fish- farmers. However, poverty was not related to either self-reported stress or happiness.

It was also hypothesized that PsyCap (and its two factors) would moderate the relationship between poverty and happiness, at both stage 1 (poverty-stress) and stage 2 (stress-happiness) of the poverty-stress-happiness model. There was no support for the stage 1 moderation, and while there was support for stage 2 moderation, it was in a direction opposite from what was hypothesized (for overall PsyCap and PsyCapF2). The negative moderation at stage 2 suggests that PsyCap (overall and PsyCap2) is associated with a weakening of the positive association between stress and happiness. PsyCapF2, as noted earlier, appears to reflect agency or general self-efficacy.

4.2 The Poverty and Happiness Relationship

As detailed earlier, the definition of poverty remains controversial among researchers and practitioners alike (Alkire & Foster, 2011a; Bourguignon & Chakravarty, 2003; Ferreira & Lugo, 2012; Kanbur, 2002; Lever et al., 2005; Ravallion, 2011). The low

correlations among the PPI, MPI, and income, along with inconsistencies in whether a given participant is considered impoverished depending on the measure of poverty used, reflect the difficulties of arriving at a globally accepted definition of poverty. For example, although income shows 86% of the study sample could be considered as experiencing *extreme* poverty (incomes lower than 1.25 USD a day), the MPI and PPI suggest 32% and 66% poverty rates respectively. Thus, conclusions concerning poverty levels in general must consider the specifics of the particular poverty measure used. Perhaps poverty is best considered a multi-faceted composite measure of various metrics that are only moderately correlated (cf. Edwards, 2010; Johnson, Rosen, & Chang, 2011).

As explained earlier, both the MPI and PPI focus on poverty-related living conditions (Alkire & Santos, 2013; Appendix A, and Appendix B). Importantly, the appropriate interpretation of these indices is challenging given the psychological and cultural context of this study. For example, the PPI is substantially influenced by the number of members in a household (31 points) and since the number of persons per household (7.57) was high, this weighting had a significant impact on the number of participants regarded as impoverished using the PPI. Nonetheless, harmonious community living is an important component in Ghanaian culture (Boakye, 2013; Ejizu, 1990), where it is anticipated that those who can will take responsibility for others who are older, less privileged and/or who require financial support (Addai et al., 2014; Ayerakwa, Osei, & Osei-Akoto, 2015). This sense of obligation increases the tendency for people to care for their extended family (Aboderin, 2004) such that while numbers in a household may be high, happiness levels tend to be as well (Smacademia, 2011; Tsai & Dzorgbo, 2012). More specifically,

fulfilling one's sense of familial duty may simultaneously enrich the self-concept, giving purpose and meaning to one's life, and fuel happiness. Thus, the weight the PPI gives to the number of household members may account, at least partly, for the lack of a significant *negative* relationship between PPI and happiness. Similar unanticipated cultural influences could also "muddy" the interpretation of relationships involving other poverty measures.

Also unanticipated was the lack of a relationship between absolute poverty, stress and happiness. Likely this can be explained, in part, by the cultural dynamics of the sort noted in the preceding paragraph. Though poverty may be very stressful and "happiness-diminishing", other aspects of the lives of Ghanaians (family, religious values, etc.) may buffer them from such ill effects. Additionally, research shows that happiness is closely linked to one's genetics and personality (Headey, 2008; Myers & Diener, 1996; Weiss, Bates, & Luciano, 2008), and therefore, relatively unaffected over the long term by external (situational) variables (positive nor negative) (Lykken & Tellegen, 1996). Indeed, longitudinal studies have found happiness is fairly stable over ones' lifetime (Costa et al., 1987; Headey, 2006; Suh, Diener, & Fujita, 1996), with temporary changes lasting only one to two years following a precipitating event.

The notion of only relatively temporary bursts or declines in happiness (Brickman & Campbell, 1971; Clark, Diener, Georgellis, & Lucas, 2008) in relation to ones' set-point are in line with the lack of impact on happiness attributed to stress and poverty. Consistent with this trait-based explanation of happiness, in the current study happiness correlated ($p < .05$) with all of the Big Five personality scores (Table 3.1), consistent with

the meta-analysis reported by Steel, Schmidt and Shultz (2008b). These points

notwithstanding, it has been argued that major stressors such as unemployment (Lucas,

Clark, Georgellis, & Diener, 2004), serious disabilities (Easterlin, 2003), or divorce

(Lucas, 2005), might result in permanent change to ones' set-point. Of course, the

relevance of this possibility with regard to poverty cannot be evaluated in the context of

this study since longitudinally-based pre- and post- assessments would be required.

The positive association between stress and happiness can be partly interpreted

through the unique Ghanaian cultural context discussed earlier. For example, number of

family members in a single household, though likely stressful (i.e., high demands on

limited resources), appears to be a source of happiness for collectivist societies like

Ghana (Smacademia, 2011). Such happiness may be founded in a personal satisfaction

that accompanies fulfilling one's perceived familial and communal obligations

(Smacademia, 2011; Tsai & Dzorgbo, 2012).

Moreover, stress as defined previously, carries a sense of being threatened by the

perceived lack of provisions in one's environment to satisfy personal and family needs.

This feeling catalyzes Ghanaian farmers to seek out more resources (e.g., financial,

educational, social). In developing countries such as Ghana, gaining access to resources

requires more engagement in one's community (e.g., establishing businesses with the help

of friends or relatives, attending educational/training programs, and/or seeking the help

and support of others in the community more generally). This outreach to the broader

social network nourishes social bonding and community building, thereby contributing to

a collective self-identity – a feeling of "being part of something that transcends the self",

eliciting feelings of personal happiness, even where stress endures daily (Krause & Wulff,

2005; Leung, Kier, Fung, Fung, & Sproule, 2013).

Another source of collective bonding that may be catalyzed by a daily experience of

stress is religiosity -- attending church, collective worship and partaking in the many

socially planned activities associated with one's church. Religiosity is prominent in the

Ghanaian culture (Dzokoto, 2012), and farmers experiencing daily stress seek out shelter

and protection in their religious community, which, again provide for a collective self-

identity, and sense of being part of something greater than the self. Indeed, attendance of

religious ceremonies relates positively to the happiness reported by Ghanaians (Addai et

al., 2014; Dzokoto, 2005).The above provides a culturally contextual interpretation for

the positive relationship between stress and happiness. However, I did not measure

variables related to religiosity thereby preventing me from empirically testing the above

interpretation of findings.

4.3 PsyCap: Moderation and Direct Effects

Of particular note is the positive association between stress and happiness, together

with the negative moderating effect of PsyCap on this relationship, suggesting that this

positive relationship weakens when individuals have higher levels of PsyCap.

The negative moderating effects of overall PsyCap and PsyCapF2 (sense of

efficacy/agency) on the positive association between stress and happiness can also be

contextually interpreted. For example, it was proposed that when a Ghanaian farmer experiences stress from a threatening situation, he/she attends meaningful and community-based religious ceremonies, or other socially engaging activities to enhance one's ability to secure needed resources to care for self and others and to fulfill one's duty to family and community, thereby elevating personal happiness. However, individuals high in PsyCap depend more on their resilience, hope, optimism and self-confidence to motivate them to agency, thereby explaining the weaker positive relationship between stress and happiness for them, relative to their lower PsyCap counterparts -- the happiness they experience could be more direct and grounded in the defining components of PsyCap, and their strong sense of individual agency.

4.4 Implications

Only recently has PsyCap become widely recognized as having the potential to transform the life experience of individuals. Given the increasing importance accorded to happiness by both scholars and policy makers, there is value in continuing to study the influence of PsyCap on happiness and its role in the poverty-happiness relationship. The direct relationships between the four components of PsyCap and happiness are well documented (e.g., self confidence [Baumeister, Campbell, Krueger, & Vohs, 2003]; resilience [Cohn, Fredrickson, Brown, Mikels, & Conway, 2009]; hope [Myers, 2000]; optimism [Scheier & Carver, 1992]). However, the current study, in line with other similar ones (Choi & Lee, 2014; Luthans, Youssef, Sweetman, & Harms, 2013), shows that the overall measure of PsyCap is also a direct positive predictor of happiness.

The study sample, agricultural and fish farmers from Ghana, is unique to both the happiness and PsyCap literatures, which are dominated by findings from Western White-Anglo-Saxon nations. However, that the poverty-stress-happiness relationship was not supported here necessitates further research to either confirm or reject the cultural robustness of earlier findings linking poverty to happiness (Lever et al., 2005; The Earth Institute, 2012).

PsyCap is a trainable, state-like variable (e.g., Luthans et al., 2010; Luthans et al., 2007). Informational lectures and hands-on PsyCap-enhancing exercises have been effective (Luthans et al., 2006) in building PsyCap. Moreover, research has consistently supported positive associations between PsyCap and happiness (Choi & Lee, 2014; Luthans et al., 2013). Together these results, along with the ones reported in the current study showing a direct positive relationship between PsyCap and happiness, suggest that PsyCap-enhancing interventions could be effective for improving the life experience and happiness of people in developing nations.

As proposed and confirmed as effective in Luthans et al. (2006), PsyCap interventions could be tailored to the four aspects which comprise the PsyCap concept (i.e., self-confidence, resilience, hope and optimism). As an example, in optimism-enhancing workshops participants are asked to think of potential "bad events" that they might encounter and what they could do to overcome them. The process of preparing for obstacles seems to be effective in increasing one's optimism, which enhances one's PsyCap (Luthans et al., 2006). In the "hope" section of the PsyCap intervention, after

deciding and documenting their valued objectives, participants are asked to generate various methods to reach those goals. After a few discussions, less realistic pathways are eliminated, leaving the individual with a few realistic attainable goals, which in turn increases one's hope of attaining such goals (Luthans et al., 2006). Similar hands-on activities are conducted for increasing self-confidence and resilience, which combined with the hope and optimism-enhancing activities, positively affect one's PsyCap.

Specifically, incorporating workshops or informational lectures aimed at enhancing PsyCap seem to be culturally sound for Ghanaian farmers as well since there have been (and continue to be) many effective programs by international and national bodies conducted in Ghana which are implemented with the help of these kinds of interventions (e.g., Farmerline, 2016; Global Affairs Canada, 2016; UNDP, 2013a).

However, applying a more contextually embedded approach might be helpful to increasing effectiveness in cultures such as Ghana. For example, the PsyCap sessions proposed and tested by Luthans et al. (2006) are designed to be conducted through small group discussions. In Ghana, and for the purposes of generating benefit to the larger community in which Ghanaians are highly socially enmeshed, it might be important to broaden the group, and ensure that there are individuals included that are part of their closest social network, such as family and friends, with benefits to family and community emphasized. This recognizes more directly the collectivist culture of Ghanaians compared to their Western counterparts (Dzokoto, 2012), for whom virtually all PsyCap enhancing interventions have been targeted, with a predominant emphasis on individual

empowerment and agency. Exercises and dialogue can be provided within this collectivist

perspective. Moreover, given the heavy and widespread involvement in religion, PsyCap-

enhancing cases and discussions that bring in the religious context might also enhance

program effectiveness. Addressing this suggestion might take the form of defining the

four dimensions of PsyCap (i.e., hope, resilience, self-confidence, and optimism) within

the scope of the religious beliefs of the Ghanaian sample. By contextualizing the training

to embed collectivism and religiosity, the perceived relevance of the intervention (and

therefore effectiveness) is likely to be enhanced (Kreitzer, Abukari, Antonio, Mensah, &

Kwaku, 2009; Perin, 2011).

   Another interesting fact about conducting these interventions in some rural regions of

Ghana, especially in the Northern regions of the country, is the role of tribal chiefs on

Ghanaians' decisions to participate in research or change-oriented programs. Ghanaians

"look up" to their elders and community leaders to gain their approval to participate in

such activities (Tindana, Kass, & Akweongo, 2006). Thus, it is important to consider this

(e.g., get the elders' to approve of the participation of all within their community, without

introducing biases with respect to the actual composition of the sample).

   Because of the widespread problem of poverty, many institutions such as the UN and

The World Bank are trying desperately to alleviate, or at least diminish, poverty in all its

aspects. To ensure the efficiency, effectiveness, and sustainability of these poverty

alleviating efforts, precise ongoing monitoring of their impact is required. Most

assessments of poverty alleviation initiatives have focused solely on traditionally studied

variables such as household income, assets, cash flow deficits, savings, nutrition, and credit-worthiness. But, as demonstrated in the current study, it cannot simply be assumed that psychologically-based outcomes such as happiness will align with these more commonly used poverty metrics. Accordingly, a comprehensive evaluation of poverty reduction efforts must include theoretically relevant psychological variables that are operationalized with care, including nuancing psychometric scales developed in Western cultures to fit non-Western cultures, and complementing qualitative data (e.g., interviews, focus group sessions) with quantitative data.

4.5 Shortcomings and Challenges

4.5.1 Research Design Limitations

Like much of the research that has provided the basis for the proposed model, a self-report cross-sectional design was used here despite its inherent methodological limitations (MacKinnon et al., 2012; Ployhart & Ward, 2011). Specifically, a mediator "explains the process by which one variable [predictor] causes another [outcome variable]" (MacKinnon et al., 2012, p. 1) and thus, at least in theory, the predictor precedes the mediator in time, and the mediator precedes the outcome in time, as the mediation process unfolds (Gelfand, Mensinger, & Tenhave, 2009; Maxwell & Cole, 2007; Ployhart & Vandenberg, 2010). Since, by definition, cross-sectional designs involve collecting all the data at a single point in time, it is not possible to accurately capture and interpret changes in the predictor and its effects. However, to show that the proposed model's relationships are more viable than other possible alternatives, reverse

causation was assessed through testing two alternative models. Results showed that these alternative models fitted the data even less well than did the originally proposed model.

Longitudinal examinations of mediation have fewer methodological shortcomings than cross sectional studies (MacKinnon et al., 2012; MacKinnon, 2007; Ployhart & Ward, 2011) in that the incorporation of the passage of time is a crucial aspect of the design. Collecting data at multiple points of time provides a better opportunity to understand the nature of causal relationships (Ployhart & Vandenberg, 2010; Ployhart & Ward, 2011), while collecting data on the independent and dependent variables at separate points in time diminishes some of the common method variance associated with the use of self-reports (Conway & Lance, 2010). Longitudinal designs require data collection using the same measures on at least three separate occasions (MacKinnon et al., 2012; Ployhart & Ward, 2011); data collection over two time periods is insufficient because changes in the predictor cannot be distinguished definitively from measurement error (Ployhart & Vandenberg, 2010; Ployhart & Ward, 2011).

Obviously conducting a well-designed longitudinal study presents significant operational challenges, often necessitating considerable financial resources and ongoing commitment from study participants across theoretically compelling time intervals (Ployhart & Ward, 2011). Indeed, in line with the needs noted in the literature, the intent here was to implement a longitudinal design. Unfortunately, a combination of challenges necessitated a cross-sectional approach. For example, almost an entire month was spent negotiating with institutions to gain access to a sufficient number of participants to enable a cross-sectional study.

One suggestion for implementing a successful longitudinal field research design is to spend more time and resources on communicating the details of the research with field assistants, before arriving on site for data collection. Still the immense commitment of time and resources, and logistical demands of implementing a longitudinal study in this context, could prove prohibitive. For example, the logistics of effectively following up, over time, with study participants were formidable, given that most participants lived in remote villages, and communication channels were often weak and indirect, requiring the scheduling of face-to-face visits in the midst of unpredictable time commitments of these participants, given their daily cultural and familial duties. Combined with frequent power and water cuts, on-going transportation difficulties, and time constraints, the originally intended longitudinal design became untenable. For similar reasons, efforts to gather data using one-on-one interviews with farmers were also unsuccessful. Despite all of these challenges, however, the Ghanaians (field assistants, data collection participants, and all others in general) were admirably welcoming, warm, and energetic.

4.5.2 Measurement and Participant-Related Concerns

Although all surveys were reworded to correspond to the literacy levels of all the Ghanaian participants, and translators were present at all data collection sessions, there was frequent confusion especially with reverse-keyed items. This was clearly evident in the negative effect that including these items had on the Cronbach alpha reliabilities of the scales. These confusions on reverse-keyed items led to the decision to delete these items in all scales (i.e., 4 from stress, 3 from PsyCap, and 5 from the personality assessment), which in turn, resulted in other problems. For example, the personality scale

was left with solely 5 items (one for each of the five personality dimensions), which undermines confidence that these measures reflect the construct they were intended to measure (i.e., construct deficiency; MacKenzie, 2003). Furthermore, the unexpected results of the factor analyses of PsyCap and happiness items might also be partly attributed to the less literate participants' inability to distinguish between alternate wordings of the items reflecting different dimensions of the variables.

Measurement challenges were not limited to the psychological variables. For example, although the income item had very few missing values (2.3%; 8 cases), accurate reporting was a concern. Firstly, many of the participants received income from their primary farming job either annually or bi-annually. This was not known until after data collection and is of importance because the item used asked for household *monthly* income, which raises the possibility that some participants did not report their lump sums. Another issue was that many participants were unsure of the income of the entire household and were then asked to report their own income instead. In all, consistent with other studies conducted in Ghana (Dzokoto, 2012), it is quite likely that household income was significantly under-reported, which would account for the high income impoverishment rate (e.g., 86% below the extreme poverty line and an average daily income of 2.17 USD per capita). Also, lack of significant effects for income could partly be explained by the low variability in income when family income is consistently underreported.

4.6 Future Research

The quality of any empirical study – whether cross-sectional or longitudinal – begins with reliable and valid measurement of the targeted constructs. As explained earlier, there were a variety of measurement related issues in this study that complicated the interpretation of the findings. Thus, one line of future research could focus on developing custom surveys that conform to Ghanaian culture in a manner that reflects their understanding of the variables of interest. For example, because of Ghanaians' sense of responsibility towards close relatives they may experience stress differently from Western individuals. A stress survey that assigns more weight to stresses arising from fulfilling obligations towards others may be more appropriate in the Ghanaian culture.

Variables critical in Ghanaian life should also be incorporated in psychologically-based studies. For example, more than 85% of Ghanaians have self-identified as being either Christian or Muslim (Dzokoto, 2012). Religiosity and attendance at religious events have shown to be significantly associated with happiness among Ghanaians (Addai et al., 2014) and other nationals (e.g., Francis & Lester, 1997; Francis, Robbins, & White, 2003; Lelkes, 2006). Moreover, based on previous literature on religion, it can be shown that religiosity not only decreases stress levels (e.g., Graham, Flowers, & Burke, 2001; Nooney, 2005), but also positively associates with all four PsyCap dimensions (hope [Van Ness & Larson, 2002], optimism [Scheitle, 2005], resilience [Ní Raghallaigh & Gilligan, 2010], and self-confidence [Pargament, 2001]). In all, if religion had been measured and incorporated into the current study, more light could have been shed not

only on the poverty, stress, and happiness relationships, but also on the role of PsyCap in this model.

Although it is controversial whether objective measures, as compared to subjective self-report scales, are more valid and reliable when measuring psychological variables (Addai et al., 2014), it might be informative to conduct a similar study using relatively objective indices such as salivary cortisol or blood tests (e.g., simple prick of the finger) to measure stress. This would lessen concerns over the role of common method variance as well (Conway & Lance, 2010). However, use of objective measures introduce new challenges (e.g., hiring professionals who are to conduct blood tests on-site, or complying with health and safety standards in high-risk regions), which escalate concerns over budgetary limitations and ethics approvals. Another suggestion for improving the measurement of stress is to qualitatively study the various contextual stressors present in the participants' lives. Understanding the situations Ghanaians consider stressful can act as a valuable input to uniquely customized questionnaires of stress in Ghana.

Another important focus of future research concerns the implementing and executing a longitudinal design. As noted previously variations over time in participants' happiness levels and income are likely. Given the positive associations found between PsyCap and happiness, longitudinal studies allow a more definitive testing of the impact of PsyCap-enhancing interventions (e.g., Luthans et al., 2006).

Moreover, research has shown that Ghanaian rural inhabitants, those living in the urban areas, and ones who have migrated from rural areas, tend to differ from each other

in terms of income (Ghana Statistical Service, 2008; Lipton, 1980), standards of living (Sahn & Stifel, 2003), health indicators (Aikins, 2005; Anarfi, 1993; Yobo, Custovic, Taggart, Asafo-Agyei, & Woodcock, 1997), and psychological capacities (Agyemang, 2006). For example, stress disorders are higher among immigrants as compared to urban inhabitants (Agyemang, 2006). Income and living standards tend to be higher among Ghanaians living in the city compared to those in rural areas (Ghana Statistical Service, 2008; Konadu-Agyemang, 2000; Lipton, 1980; Sahn & Stifel, 2003). Since study participants were mostly from rural regions, to attain a certain level of generalizability, this research should be extended to the urban population of Ghana.

Differences in income and living standards among rural and urban Ghanaians raises the importance of considering relative poverty as well as absolute poverty, when investigating how one's poverty level affects one's psychological status. An individual's tendency to compare one's poverty level to others (e.g., one's counterparts in the same country, the same region, the same neighborhood, relatives, or simply, other humans), might affect one's stress, happiness or other psychological variables' levels. For example, the majority of the inhabitants of a village might be considered poor based on absolute poverty indicators (e.g., income below 1.25 USD a day). However, since all of one's relatives and friends are in the same impoverished situation, one might assume an external factor for this condition instead of an internal reason related to one's inability to deal with the threatening/challenging situation. Thus, this shared status can decrease the stress levels one experiences compared to an individually experienced impoverishment.

4.7 Concluding Remarks

Studies of happiness are receiving increasing attention from scholars in various disciplines and nations and from others in the public and private sectors. Yet, our understanding of how poverty relates to happiness is not well understood. As explained earlier, there are few studies of the poverty-happiness link that include potentially important mediators and moderators. The current study was an attempt to address this shortcoming, examining stress as a mediator, and PsyCap as a moderator. Although the hypothesized model was not supported this study has provided insights into how future studies of Ghanaians might be better designed to fit with that culture. It also has shown that the positive PsyCap-happiness relationship found in several Western samples is replicable among Ghanaian farmers, a collectivist and highly religious community.

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Tables

Table 3.1. Means, Standard Deviations, and Correlations among Variables[a]

	M	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1- MPI	31.69	14.76																		
2- PPI	65.64	10.60	.21**																	
3- PPIMPI	48.67	9.94	.85**	.69**																
4- Income	2.17	13.33	.04	-.08	-.01															
5- Stress	2.01	.73	-.02	-.03	-.03	.10	(.59)													
6- Happiness	3.70	.63	-.03	.10	.03	-.08	.16**	(.80)												
7- PsyCap	4.91	.70	-.10	-.02	-.09	-.09	-.02	.59**	(.87)											
8- PsyCapF1	5.08	.72	-.17**	-.03	-.14**	-.12*	-.02	.58**	.96**	(.87)										
9- PsyCapF2	4.18	1.10	.14**	.00	.10	.04	-.02	.34**	.66**	.43**	(.57)									
10- Children	5.30	3.00	.20**	.46**	.39**	-.04	-.07	.01	-.09	-.11*	.01									
11- Gender[b]	.58	.50	.09	.10	.12*	.04	-.03	-.03	-.07	-.09	.01	.02								
12- Marital[c]	.27	.45	.19**	-.17**	.05	.18**	-.08	-.07	-.10	-.13*	.03	-.20**	.21**							
13- Age	46.49	15.56	.24**	.24**	.31**	.06	-.12*	.08	-.01	-.07	.18**	.50**	-.01	.09						
14- Ext.[d]	5.86	1.80	-.06	-.06	-.07	-.11*	-.02	.26**	.35**	.36**	.16**	-.17**	-.02	-.03	-.10					
15- Cons. [d]	5.82	1.75	-.10	-.03	-.09	-.09	.01	.34**	.39**	.40**	.18**	-.13*	-.03	-.11	-.04	.29**				
16- Opn.[d]	6.09	1.56	-.12*	.02	-.08	-.05	.05	.39**	.46**	.49**	.17**	-.04	-.14**	-.13*	-.02	.24**	.34**			
17- Agr.[d]	6.02	1.68	-.06	.02	-.04	-.04	.03	.33**	.40**	.42**	.17**	.02	-.11*	-.10	-.03	.22**	.22**	.33**		
18- Stb.[d]	5.14	2.18	.07	-.02	.05	.01	-.01	.14*	.20**	.18**	.17**	.00	-.11	-.03	-.01	.08	-.01	.07	.12*	

[a] Cronbach alpha coefficients for multi-item scales are listed on the diagonal in parentheses.

[b] Gender coding: male = 0, female = 1.

[c] Marital status, which was recoded as a dichotomous variable (i.e. divorced, single and widowed collapsed into "single"; married = 0, single = 1) for purpose of the correlation matrix.

[d] Extraversion, conscientiousness, openness, agreeableness, and stability, which were each measured using a single item.

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

* Correlation is significant at the 0.05 level (2-tailed).

Table 3.2: Twelve (12) models developed to test the hypothesized model (Figure 1.1)

Model #	Independent Variable	Mediator	Moderator	Dependent Variable
Model 1	PPI	Stress	PsyCap	Happiness
Model 2	PPI	Stress	PsyCapF1	Happiness
Model 3	PPI	Stress	PsyCapF2	Happiness
Model 4	MPI	Stress	PsyCap	Happiness
Model 5	MPI	Stress	PsyCapF1	Happiness
Model 6	MPI	Stress	PsyCapF2	Happiness
Model 7	PPIMPI	Stress	PsyCap	Happiness
Model 8	PPIMPI	Stress	PsyCapF1	Happiness
Model 9	PPIMPI	Stress	PsyCapF2	Happiness
Model 10	Income	Stress	PsyCap	Happiness
Model 11	Income	Stress	PsyCapF1	Happiness
Model 12	Income	Stress	PsyCapF2	Happiness

Table 3.3: Model 1 Output

Outcome: Stress
Mediator Variable Model Summary

R	R-sq	MSE	F	df1	df2	p
.0577	.0033	.5411	.3514	3.0000	316.0000	.7881

Model

	coeff	se	t	p	LLCI	ULCI
Constant	3.9150	1.8901	2.0713	.0391	.1961	7.6339
PPI	-.0282	.0281	-1.0054	.3155	-.0835	.0270
PsyCap	-.3939	.3842	-1.0251	.3061	-1.1499	.3621
PPI x PSyCap	.0058	.0057	1.0202	.3084	-.0054	.0171

Outcome: Happiness
Dependent Variable Model Summary

R	R-sq	MSE	F	df1	df2	p
.6652	.4425	.2375	18.6851	13.0000	306.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
Constant	-1.0131	.5667	-1.7879	.0748	-2.1282	.1019
Stress	.6606	.2472	2.6729	.0079	.1743	1.1470
PPI	.0050	.0030	1.6888	.0923	-.0008	.0109
PsyCap	.6036	.1068	5.6503	.0000	.3934	.8138
Stress x PsyCap	-.0998	.0486	-2.0546	.0408	-.1954	-.0042
Number of Child	.0002	.0120	.0152	.9879	-.0234	.0238
Gender	.0564	.0584	.9661	.3347	-.0585	.1713
Marital Status	.0024	.0238	.0993	.9209	-.0444	.0492
Age	.0040	.0021	1.8556	.0645	-.0002	.0082
Extraversion	.0138	.0171	.8056	.4211	-.0199	.0474
Consciousness	.0429	.0175	2.4531	.0147	.0085	.0774
Openness	.0377	.0202	1.8683	.0627	-.0020	.0774
Agreeableness	.0377	.0183	2.0598	.0403	.0017	.0738
Stability	.0140	.0131	1.0713	.2849	-.0117	.0397

Direct effect of PPI on Happiness

Effect	SE	t	p	LLCI	ULCI
.0050	.0030	1.6888	.0923	-.0008	.0109

Conditional indirect effect(s) of PPI on Happiness at values of the moderator (PsyCap)

Mediator	PsyCap	Effect	Boot SE	BootLLCI	BootULCI
Stress	4.2014	-.0009	.0011	-.0034	.0012
Stress	4.9036	.0001	.0007	-.0012	.0015
Stress	5.6057	.0004	.0008	-.0006	.0027

Values for moderators are the mean and plus/minus one SD from mean.
Number of bootstrap samples for bias corrected bootstrap confidence intervals: 10000

Table 3.4: Model 3 Output

Outcome: Stress
Mediator Variable Model Summary

R	R-sq	MSE	F	df1	df2	p
.0937	.0088	.5381	.9329	3.0000	316.0000	.4250

Model

	coeff	se	t	p	LLCI	ULCI
Constant	3.8795	1.1573	3.3523	.0009	1.6025	6.1564
PPI	-.0282	.0174	-1.6143	.1075	-.0625	.0062
PsyCapF2	-.4443	.2659	-1.6707	.0958	-.9675	.0789
PPI x PSyCapF2	.0067	.0040	1.6653	.0968	-.0012	.0146

Outcome: Happiness
Dependent Variable Model Summary

R	R-sq	MSE	F	df1	df2	p
.6063	.3676	.2694	13.6797	13.0000	306.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
Constant	.0231	.4151	.0555	.9557	-.7938	.8399
Stress	.5161	.1509	3.4214	.0007	.2193	.8130
PPI	.0054	.0032	1.7081	.0886	-.0008	.0117
PsyCapF2	.2951	.0705	4.1834	.0000	.1563	.4339
Stress x PsyCapF2	-.0837	.0331	-2.5270	.0120	-.1488	-.0185
Number of Child	-.0038	.0127	-.2967	.7669	-.0289	.0213
Gender	.0632	.0622	1.0164	.3103	-.0592	.1856
Marital Status	-.0129	.0254	-.5102	.6103	-.0629	.0370
Age	.0034	.0023	1.4536	.1471	-.0012	.0079
Extraversion	.0342	.0180	1.8977	.0587	-.0013	.0696
Consciousness	.0647	.0183	3.5394	.0005	.0287	.1006
Openness	.0791	.0206	3.8296	.0002	.0384	.1197
Agreeableness	.0677	.0189	3.5843	.0004	.0306	.1049
Stability	.0241	.0139	1.7390	.0830	-.0032	.0513

Direct effect of PPI on Happiness

	Effect	SE	t	p	LLCI	ULCI
	.0054	.0032	1.7081	.0886	-.0008	.0117

Conditional indirect effect(s) of PPI on Happiness at values of the moderator (PsyCapF2):

Mediator	PsyCapF2	Effect	Boot SE	BootLLCI	BootULCI
Stress	3.0749	-.0020	.0016	-.0056	.0007
Stress	4.1761	.0000	.0007	-.0013	.0013
Stress	5.2774	.0005	.0007	-.0002	.0026

Values for moderators are the mean and plus/minus one SD from mean.
Number of bootstrap samples for bias corrected bootstrap confidence intervals: 10000

Table 3.5: Summarized results of all PROCESS analyses performed

	Ind. Var.	Med.	Mod.	Dep. Var.	Direct Effect	Med. Effect	1st Stage Mod.	2nd Stage Mod.
Model 1	PPI	Stress	PsyCap	Happiness	-	-	-	β = -.10*
Model 2	PPI	Stress	PsyCapF1	Happiness	-	-	-	-
Model 3	PPI	Stress	PsyCapF2	Happiness	-	-	-	β = -.08*
Model 4	MPI	Stress	PsyCap	Happiness	-	-	-	β = -.10*
Model 5	MPI	Stress	PsyCapF1	Happiness	-	-	-	-
Model 6	MPI	Stress	PsyCapF2	Happiness	-	-	-	β = -.08*
Model 7	PPIMPI	Stress	PsyCap	Happiness	-	-	-	β = -.10*
Model 8	PPIMPI	Stress	PsyCapF1	Happiness	-	-	-	-
Model 9	PPIMPI	Stress	PsyCapF2	Happiness	-	-	-	β = -.08*
Model 10	Income	Stress	PsyCap	Happiness	-	-	-	β = -.10*
Model 11	Income	Stress	PsyCapF1	Happiness	-	-	-	-
Model 12	Income	Stress	PsyCapF2	Happiness	-	-	-	β = -.08*

Table 3.6: Model Fit for the original, and first and second alternative models

	Ind. Var.	Med.	Mod.	Dep. Var.	R-sq	R-sq (A1)	R-sq (A2)	MSE	MSE (A1)	MSE (A2)
Model 1	PPI	Stress	PsyCap	Happiness	.44	.05	.05	.24	.52	.51
Model 2	PPI	Stress	PsyCapF1	Happiness	.43	.05	.05	.24	.52	.51
Model 3	PPI	Stress	PsyCapF2	Happiness	.37	.04	.05	.27	.52	.51
Model 4	MPI	Stress	PsyCap	Happiness	.44	.05	.05	.24	.52	.51
Model 5	MPI	Stress	PsyCapF1	Happiness	.43	.05	.05	.24	.52	.51
Model 6	MPI	Stress	PsyCapF2	Happiness	.36	.04	.03	.27	.52	.52
Model 7	PPIMPI	Stress	PsyCap	Happiness	.44	.05	.05	.24	.52	.51
Model 8	PPIMPI	Stress	PsyCapF1	Happiness	.43	.05	.05	.24	.52	.51
Model 9	PPIMPI	Stress	PsyCapF2	Happiness	.36	.04	.03	.27	.52	.52
Model 10	Income	Stress	PsyCap	Happiness	.44	.06	.05	.24	.52	.52
Model 11	Income	Stress	PsyCapF1	Happiness	.44	.06	.05	.24	.52	.52
Model 12	Income	Stress	PsyCapF2	Happiness	.36	.05	.04	.27	.52	.52

Figures

Figure 1.1: The Proposed Model
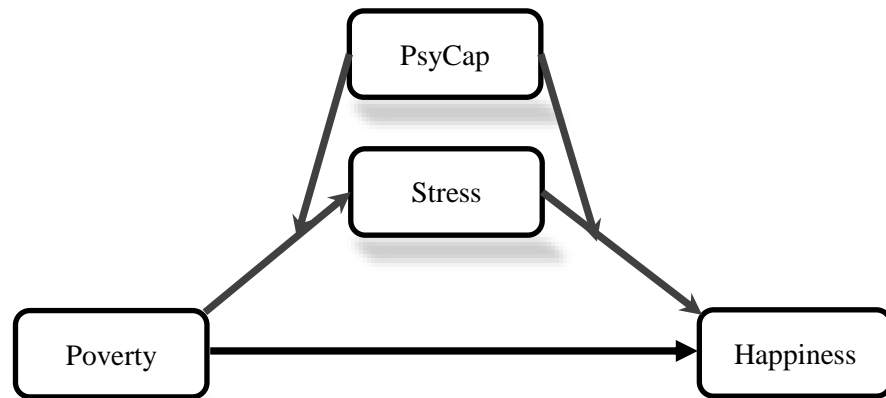
Figure 2.1: Model 58 (Hayes, 2013)
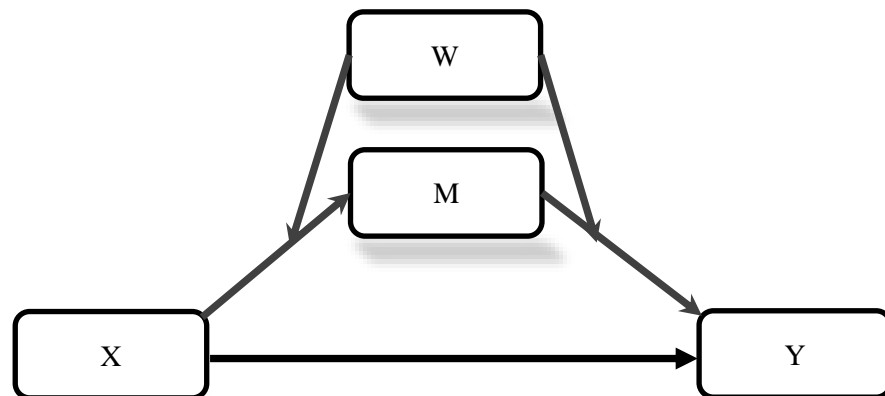
Figure 3.1: Histogram of PPI
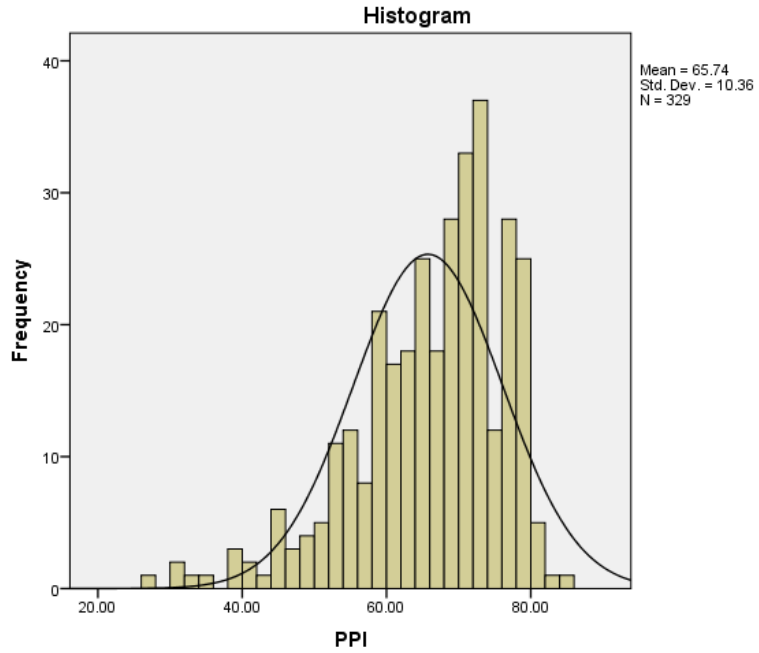
Figure 3.2: Histogram of MPI
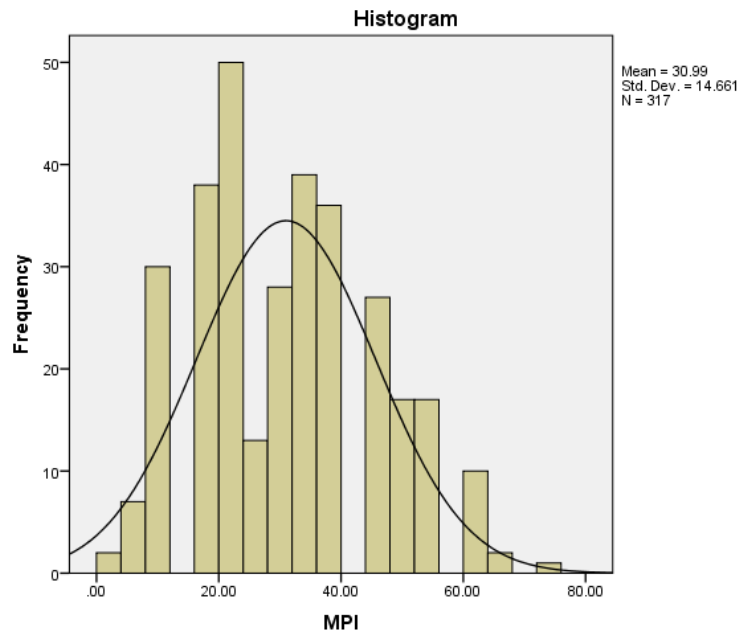
Figure 3.3: Histogram of PPIMPI
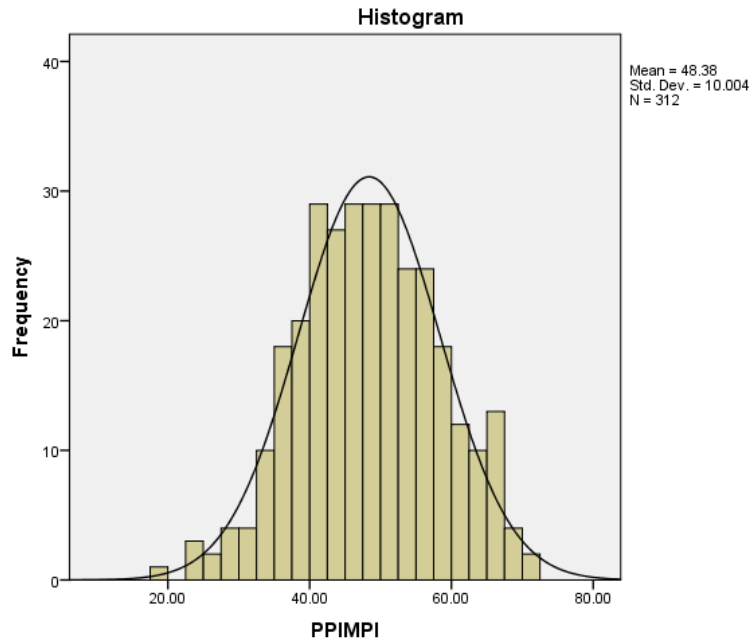
Figure 3.4: Histogram of Stress
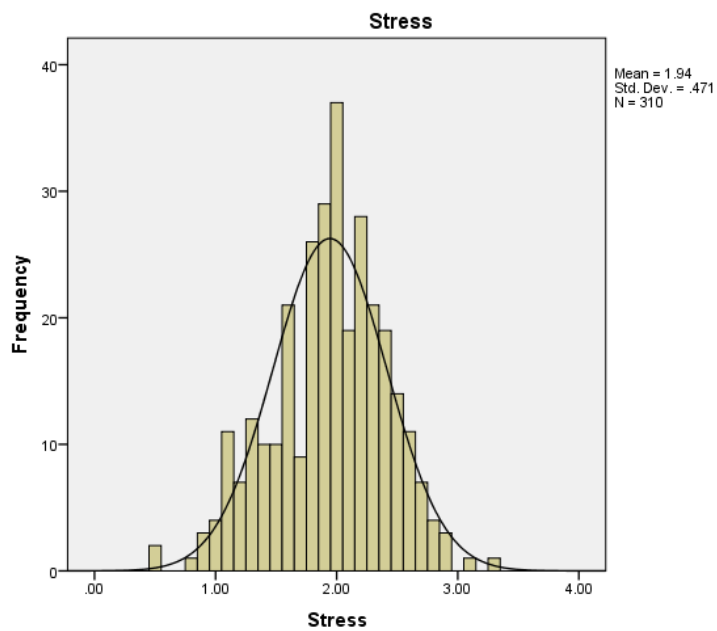
Figure 3.5: Histogram of Happiness

Figure 3.6: Histogram of PsyCap
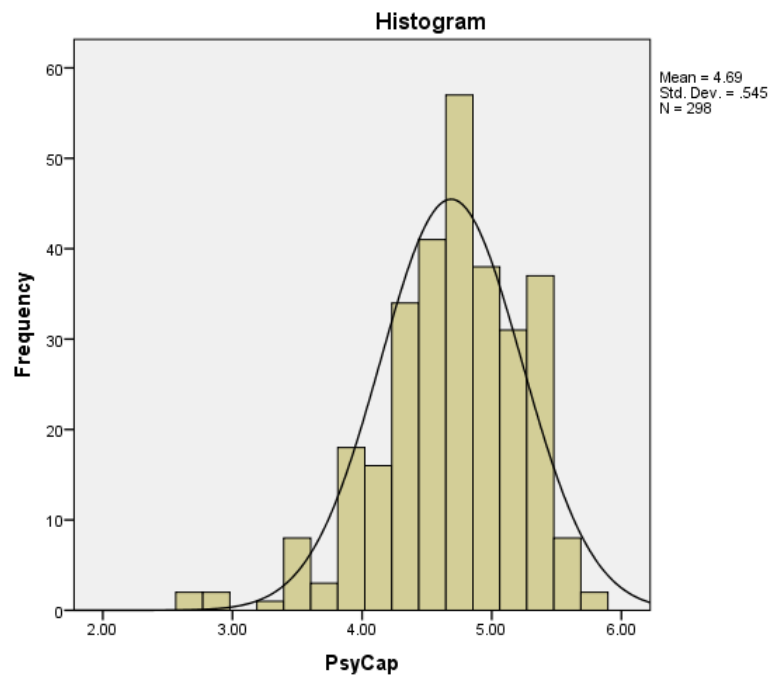
Figure 3.7: Plotting of the moderation of PsyCap on stress and happiness
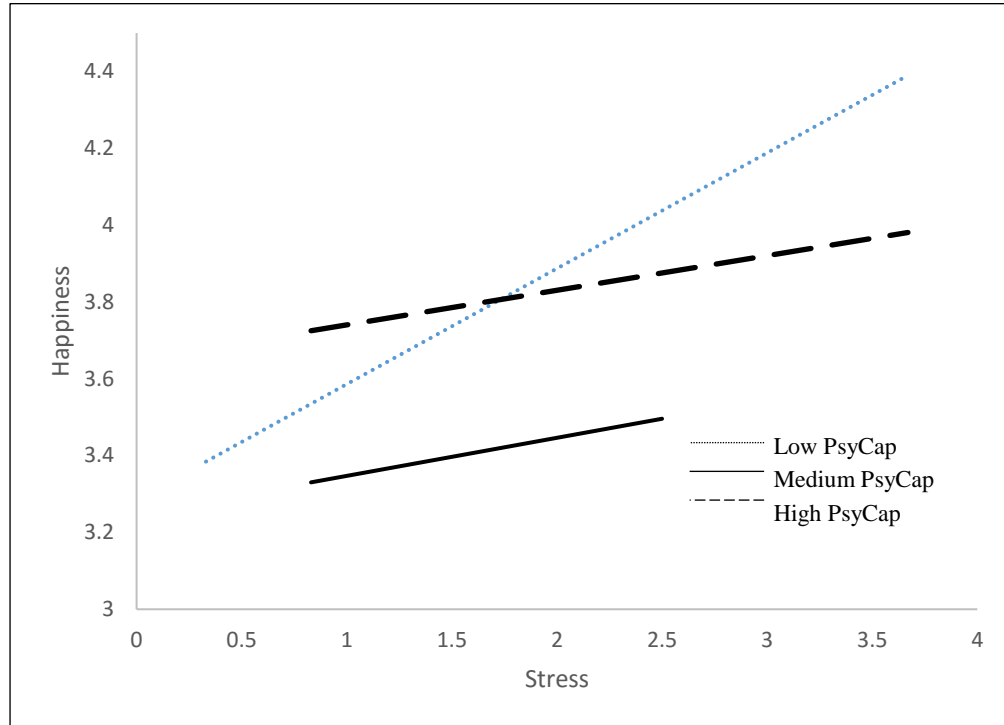
Figure 3.8: Plotting of the moderation of PsyCapF2 on stress and happiness
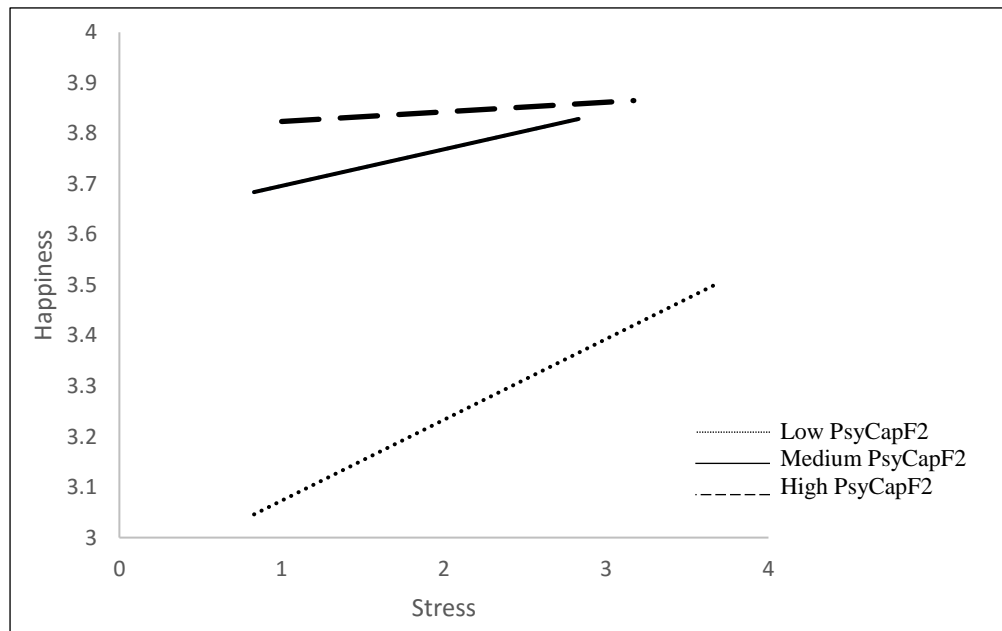
Figure 3.9: First Alternative Model
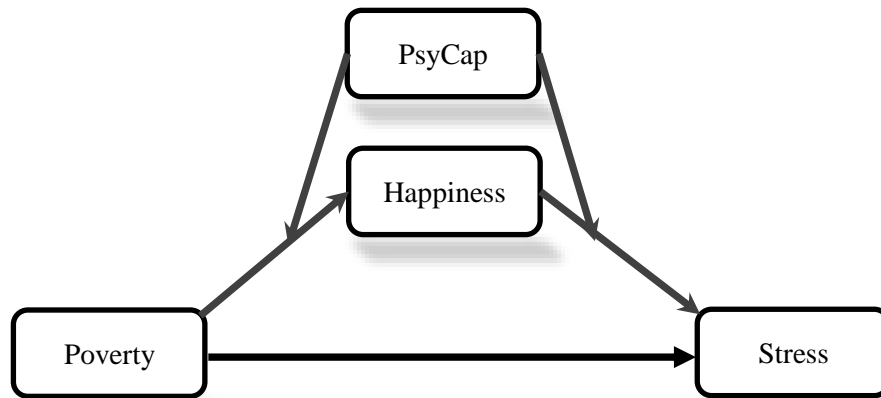
Figure 3.10: Second Alternative Model
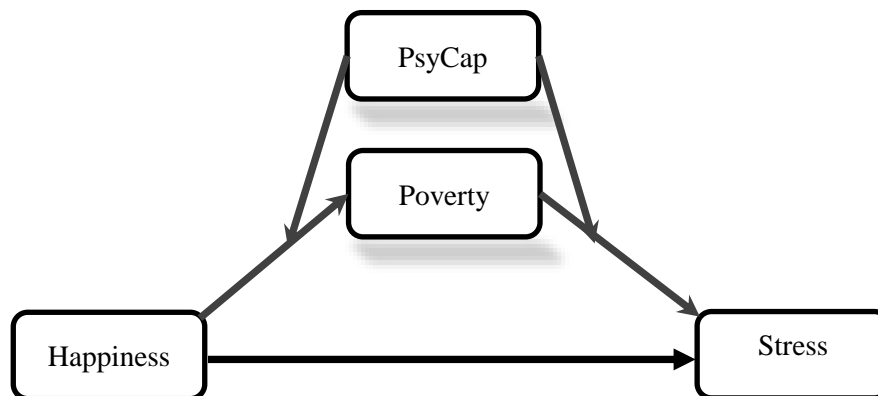
Appendices

Appendix A: Dimensions, indicators, and weights of the MPI (Alkire & Santos, 2013, p.12)

Dimension	Indicator	Deprived if…	Relative Weight
Education	**Years of Schooling**	No household member has completed five years of schooling	16.7%
	Child Attendance to School	Any school-aged child is not attending school in years 1 to 8	16.7%
Health	**Mortality**	Any child has died in the family	16.7%
	Nutrition	Any adult to child for whom there is nutritional information is malnourished*	16.7%
Living Standard	**Electricity**	The household has no electricity	5.6%
	Sanitation	The household's sanitation facility is not improved (according to MDG guidelines), or it is improved but shared with other households**	5.6%
	Water	The household does not have access to safe drinking water (according to MDG guidelines) or safe drinking water is more than 30 minutes waling from home, roundtrip***	5.6%
	Floor	The household has dirt, sand, or dung floor	5.6%
	Cooking Fuel	The household cooks with dung, wood, or carbon	5.6%
	Assets	The household does not own more than one of the following assets: radio, television, telephone, bicycle, scooter or refrigerator, and does not own a car or a truck	5.6%

* Adults are considered malnourished if their BMI is below 18.5. Children are considered malnourished if their z-score of weight-for-age is below minus two standard deviations from the median of the reference population. This was estimated following the algorithm provided by the WHO Child Growth Standards (WHO 2006) (www.who.int/childgrowth/software/en/).

** A household is considered to have access to improved sanitation if it has some type of flush toilet or latrine, or ventilated improved pit or composting toilet, provided that they are not shared.

*** A household has access to safe drinking water if the water source is any of the following types: piped water, public tap, borehole or pump, protected well, protected spring or rainwater, and it is within a distance of 30 minutes' walk (roundtrip).

Appendix B: Progress out of Poverty Index (PPI) for Ghana

Progress out of Poverty Index™ for Ghana

Indicator	Value	Points	Score
1. How many members does the household have?	A. Seven or more	0	
	B. Six	6	
	C. Five	8	
	D. Four	11	
	E. Three	15	
	F. Two	23	
	G. One	31	
2. Are all children ages 5 to 12 in school?	A. No	0	
	B. Yes, or no children ages 5 to 12	4	
3. What is the highest grade completed by the female head/spouse?	A. No female head/spouse	0	
	B. None or pre-school	4	
	C. Primary or middle	7	
	D. Any JSS, SSS, S, L, U, or higher	10	
4. Is the main job of the male head/spouse in agriculture?	A. Male head/spouse has no job	0	
	B. Yes, main job is in agriculture	8	
	C. No, main job is not in agriculture	10	
	D. No male head/spouse	10	
5. What is the main construction material used for the roof?	A. Palm leaves/raffia/thatch, wood, mud bricks/earth, bamboo, or other	0	
	B. Corrugated iron sheets, cement/concrete, asbestos/slate, or roofing tiles	3	
6. What is the main source of lighting for the dwelling?	A. Not electricity (mains)	0	
	B. Electricity (mains)	5	
7. What is the main source of drinking water for the household?	A. Borehole, well (with pump or not, protected or not), or other	0	
	B. River/stream, rain water/spring, or dugout/pond/lake/dam	5	
	C. Indoor plumbing, inside standpipe, sachet/bottled water, standpipe/tap (public or private outside), pipe in neighbors, water truck/tanker, or water vendor	7	
8. Does any household member own a working stove (kerosene, electric, or gas)?	A. No	0	
	B. Yes	10	
9. Does any household member own a working iron (box or electric)?	A. No	0	
	B. Yes	6	
10. Does any household member own a working radio, radio cassette, record player, or 3-in-1 radio system?	A. None	0	
	B. Only radio	2	
	C. Radio cassette but no record player nor 3-in-1 (regardless of radio)	6	
	D. Record player but no 3-in-1 (regardless of radio or cassette)	9	
	E. 3-in-1 radio system (regardless of any others)	14	

Microfinance Risk Management, L.L.C.   Total score

This PPI was updated in March 2010. For up-to-date PPIs and other information on the Progress out of Poverty Index™ for Ghana and other countries go to www.progressoutofpoverty.org

Appendix C: Perceived Stress Scale (PSS)

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, please indicate with a check how often you felt or thought a certain way.

1- In the last month, how often have you been upset because of something that happened unexpectedly?

0=never	1=almost never	2=sometimes	3=fairly often	4=very often

2- In the last month, how often have you felt that you were unable to control the important things in your life?

0=never	1=almost never	2=sometimes	3=fairly often	4=very often

3- In the last month, how often have you felt nervous and "stressed"?

0=never	1=almost never	2=sometimes	3=fairly often	4=very often

4- In the last month, how often have you felt confident about your ability to handle your personal problems?

0=never	1=almost never	2=sometimes	3=fairly often	4=very often

5- In the last month, how often have you felt that things were going your way?

0=never	1=almost never	2=sometimes	3=fairly often	4=very often

6- In the last month, how often have you found that you could not cope with all the things that you had to do?

0=never	1=almost never	2=sometimes	3=fairly often	4=very often

7- In the last month, how often have you been able to control discomforts in your life?

0=never	1=almost never	2=sometimes	3=fairly often	4=very often

8- In the last month, how often have you felt that you have been managing day to day challenges well?

0=never	1=almost never	2=sometimes	3=fairly often	4=very often

9- In the last month, how often have you been angered because of some situations in your fishing business that were outside of your control?

0=never	1=almost never	2=sometimes	3=fairly often	4=very often

10- In the last month, how often have you felt difficulties were becoming more than what you could manage?

0=never	1=almost never	2=sometimes	3=fairly often	4=very often

Source:Cohen, S., Kamarck, T., Mermelstein, R. (1983). A global measure of perceived stress. Journal of Health and Social Behavior, 24, 385-396.

Cohen, S., & Williamson, G. (1988). Perceived stress in a probability sample of the United States. In S. Spacapam & S. Oskamp (Eds.), The social psychology of health: Claremont Symposium on applied social psychology. Newbury Park, CA: Sage.

Appendix D: Orientations to Happiness Scale (OTH)

Please answer the degree to which each item applies to you.

1- My life is in service to others and myself.

1=very much unlike me	2=unlike me	3=neutral	4=like me	5=very much like me

2- Life is too short to delay the pleasures it can provide.

1=very much unlike me	2=unlike me	3=neutral	4=like me	5=very much like me

3- Regardless of what I am doing, time passes very quickly.

1=very much unlike me	2=unlike me	3=neutral	4=like me	5=very much like me

4- I go out of my way to feel happy.

1=very much unlike me	2=unlike me	3=neutral	4=like me	5=very much like me

5- What I do matters to mankind.

1=very much unlike me	2=unlike me	3=neutral	4=like me	5=very much like me

6- I seek out situations that challenge my skills and abilities.

1=very much unlike me	2=unlike me	3=neutral	4=like me	5=very much like me

7- In choosing what to do, I always consider whether it will be pleasurable.

1=very much unlike me	2=unlike me	3=neutral	4=like me	5=very much like me

8- Whether at work or play, I am usually fully engaged and not conscious of myself.

1=very much unlike me	2=unlike me	3=neutral	4=like me	5=very much like me

9- I have a responsibility to make the world a better place.

1=very much unlike me	2=unlike me	3=neutral	4=like me	5=very much like me

10- I am always very focused on what I do.

1=very much unlike me	2=unlike me	3=neutral	4=like me	5=very much like me

11- For me, the good life is the pleasurable life.

1=very much unlike me	2=unlike me	3=neutral	4=like me	5=very much like me

12- In choosing what to do, I always consider whether it will fully engage me.

1=very much unlike me	2=unlike me	3=neutral	4=like me	5=very much like me

13- My life is meaningful.

1=very much unlike me	2=unlike me	3=neutral	4=like me	5=very much like me

14- I agree with this statement: ''Life is short – so enjoy the smaller pleasures as well.''

1=very much unlike me	2=unlike me	3=neutral	4=like me	5=very much like me

15- I am rarely distracted by what is going on around me.

1=very much unlike me	2=unlike me	3=neutral	4=like me	5=very much like me

16- I have spent a lot of time thinking about what life means and my place or role in life.

1=very much unlike me	2=unlike me	3=neutral	4=like me	5=very much like me

17- I love to do things that excite me.

1=very much unlike me	2=unlike me	3=neutral	4=like me	5=very much like me

18- In choosing what to do, I always consider whether it will benefit other people.

1=very much unlike me	2=unlike me	3=neutral	4=like me	5=very much like me

Source: Peterson, C., Park, N., & Seligman, M. E. (2005). Orientations to happiness and life satisfaction: The full life versus the empty life. *Journal of happiness studies*, *6*(1), 25–41.

Appendix E: Ten Item Personality Inventory (TIPI)

Here are a number of personality traits that may or may not apply to you. Please write a number next to each statement to indicate the extent to which *you agree or disagree with that statement*. You should rate the extent to which the pair of traits applies to you, even if one characteristic applies more strongly than the other.

Disagree strongly	Disagree moderately	Disagree a little	Neither agree nor disagree	Agree a little	Agree moderately	Agree strongly
1	2	3	4	5	6	7

I see myself as:
1. _____ Extraverted, enthusiastic.
2. _____ Critical, quarrelsome.
3. _____ Dependable, self-disciplined.
4. _____ Anxious, easily upset.
5. _____ Open to new experiences, complex.
6. _____ Reserved, quiet.
7. _____ Sympathetic, warm.
8. _____ Disorganized, careless.
9. _____ Calm, emotionally stable.
10. _____ Conventional, uncreative.

TIPI scale scoring ("R" denotes reverse-scored items): Extraversion: 1, 6R; Agreeableness: 2R, 7; Conscientiousness; 3, 8R; Emotional Stability: 4R, 9; Openness to Experiences: 5, 10R.

Source: Gosling, S. D., Rentfrow, P. J., & Swann Jr, W. B. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in personality*, *37*(6), 504–528.

Appendix F: PsyCap Two Factor Loadings*

	Item Number	Factor 1	Factor 2
Confidence	PCQ1	.559	-.112
	PCQ7	.482	.068
	PCQ9	.464	.176
	PCQ11	.586	-.041
	PCQ14	.454	.253
	PCQ23	.341	.305
Hope	PCQ2	.594	-.075
	PCQ4	-.070	.519
	PCQ6	.405	.110
	PCQ16	.558	.089
	PCQ19	.180	.362
	PCQ20	.438	.083
Optimism	PCQ3	.470	.035
	PCQ10	.534	-.008
	PCQ15	.612	.060
	PCQ24	.620	-.080
	PCQ8 (R)	-.161	-.010
	PCQ18 (R)	-.281	.077
Resilience	PCQ12	.462	.159
	PCQ13	.476	-.008
	PCQ17	.037	.621
	PCQ21	.066	.370
	PCQ22	.483	.085
	PCQ5 (R)	-.454	.028

Factor	Extraction Sums of Squared Loadings		
	Total Eigenvalues	% of Variance	Cumulative %
1	5.599	23.33	23.33
2	.787	3.28	26.61

* PsyCap scale items have been excluded from the thesis report because of copyright concerns.

Appendix G: PsyCap Single Factor Loadings*

	Item Number	Factor 1
Confidence	PCQ1	.478
	PCQ7	.515
	PCQ9	.564
	PCQ11	.548
	PCQ14	.600
	PCQ23	.519
Hope	PCQ2	.534
	PCQ4	.242
	PCQ6	.466
	PCQ16	.603
	PCQ19	.394
	PCQ20	.482
Optimism	PCQ3	.483
	PCQ10	.519
	PCQ15	.638
	PCQ24	.557
	PCQ8 (R)	-.165
	PCQ18 (R)	-.229
Resilience	PCQ12	.552
	PCQ13	.463
	PCQ17	.399
	PCQ21	.287
	PCQ22	.527
	PCQ5 (R)	-.428

	Extraction Sums of Squared Loadings		
Factor	Total Eigenvalue	% of Variance	Cumulative %
1	5.576	23.23	23.23

* PsyCap scale items have been excluded from the thesis report because of copyright concerns.

Appendix H: Happiness Single Factor Loadings

	Item Number	Item	Factor 1
Meaning	OTH1	My life is in service to others and myself.	.355
	OTH5	What I do matters to mankind.	.488
	OTH9	I have a responsibility to make the world a better place.	.624
	OTH13	My life is meaningful.	.594
	OTH16	I have spent a lot of time thinking about what life means and my place or role in life.	.526
	OTH18	In choosing what to do, I always consider whether it will benefit other people.	.633
Pleasure	OTH2	Life is too short to delay the pleasures it can provide.	.038
	OTH4	I go out of my way to feel happy.	.416
	OTH7	In choosing what to do, I always consider whether it will be pleasurable.	.426
	OTH11	For me, the good life is the pleasurable life.	.346
	OTH14	I agree with this statement: ''Life is short – so enjoy the smaller pleasures as well.''	.106
	OTH17	I love to do things that excite me.	.570
Engagement	OTH3	Regardless of what I am doing, time passes very quickly.	.417
	OTH6	I seek out situations that challenge my skills and abilities.	.374
	OTH8	Whether at work or play, I am usually fully engaged and not conscious of myself.	.444
	OTH10	I am always very focused on what I do.	.609
	OTH12	In choosing what to do, I always consider whether it will fully engage me.	.561
	OTH15	I am rarely distracted by what is going on around me.	.278

	Extraction Sums of Squared Loadings		
Factor	Total Eigenvalue	% of Variance	Cumulative %
1	3.869	21.50	21.50

Appendix I: Stress Single Factor Loadings

Item Number	Item	Factor 1
PSSQ1	In the last month, how often have you been upset because of something that happened unexpectedly?	.477
PSSQ2	In the last month, how often have you felt that you were unable to control the important things in your life?	.409
PSSQ3	In the last month, how often have you felt nervous and "stressed"?	.413
PSSQ4 (R)	In the last month, how often have you felt confident about your ability to handle your personal problems?	-.400
PSSQ5 (R)	In the last month, how often have you felt that things were going your way?	-.336
PSSQ6	In the last month, how often have you found that you could not cope with all the things that you had to do?	.339
PSSQ7 (R)	In the last month, how often have you been able to control discomforts in your life?	-.283
PSSQ8 (R)	In the last month, how often have you felt that you have been managing day to day challenges well?	-.232
PSSQ9	In the last month, how often have you been angered because of some situations in your fishing business that were outside of your control?	.324
PSSQ10	In the last month, how often have you felt difficulties were becoming more than what you could manage?	.458

	Extraction Sums of Squared Loadings		
Factor	Total Eigenvalue	% of Variance	Cumulative %
1	1.401	14.01	14.01