OPTIMISM ASSOCIATIONS WITH WELL-BEING INDICATORS

AMONG OLDER PEOPLE IN THE U.S.

by

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ABSTRACT

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Introduction

This study is an analysis of associations between optimism and other psychological well-being indicators among people over age 65 in the U.S. The analysis is based on a stratified random sample collected in 2001 (Wave 1) with a 2004 follow up (Wave 2). The original survey was restricted to African American and Caucasian respondents who were "Christian." The purpose of this study is to provide social workers a better understanding of the function of well-being, particularly optimism, among older people.

Literature Review

Literature comparing well-being indicators to optimism among older populations is very limited. There are a few studies that compare older and younger groups in their level of well-being, and some include optimism as an indicator of well-being. However, few existing studies attempted to control for more than one or two well-being indicators as when considering optimisms' association to particular components of well-being.

Methods

Using an existing database, baseline demographics and well-being indicators were compared in chi-square and multiple regression equations to consider relationships between optimism, the demographics and other well-being indicators. Baseline demographics and well-being indicator scores, including optimism, were then compared to changes in other indicator scores between Wave 1 and Wave 2. Finally, baseline demographics and well-being indicator scores were compared to Wave 2 scores to determine which most strongly predicted future scores in optimism and the other well-being indicators.

Data Analysis and Implication

In an equation where the baseline well-being indicator scores and the demographic were regressed on baseline optimism scores, solely depression scores (of the well-being indicators) was not significantly associated.. However, only self-reported health, forgiveness of others and self-esteem predicted changes in optimism over time or future optimism independent of baseline optimism. Additionally, perceived personal

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control, self-esteem and death anxiety appeared to influence changes in optimism scores

indirectly through baseline optimism scores.

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CHAPTER 1

INTRODUCTION

Understanding the effects of optimism among older people may prove more of a necessity than the simple "feel good" perspective that optimism studies often receive. In the U.S., and internationally, people over 65 years of age are an ascending populace that has the highest suicide rate of any population segment (American Psychological Association Online, 2003). Ironically, they are also said to have the highest optimism (Chang, 2002a), which queries the role of optimism in perceived well-being among the older people in the U.S.

With the growing interest in positive psychology, studies considering physical and psychological benefits of positive attitude, such as optimism, are on the rise. Such studies among social workers may have no more apt focus for benefits than improving the lives of our older adults. The expanding population among people over age 65 is no longer a speculation, it is an occurring reality. In the U.S. there are already more than 35.6 million people over 65 years of age (Department of Health and Human Services, 2003) and about 77,000 of those are over 100 years old (Volz, 2000). By 2030, those over age 65 are expected to increase to 70 million and those over 100 years of age are projected to rise to between 834,000 (Volz, 2000) and 1 million by 2050 (National Center for Gerontological Social Work Education, 2006). Such increases among a population known to have higher biopsychosocial needs can only overwhelm U.S.

welfare programs that are already overextended. Better understanding of well-being indicators among older populations may provide avenues for optimal benefit in existing programs, or alternatives when other programs are unavailable or not desired by clientele. However, older people are at times considered alien to younger adults, perhaps due to the fear of getting old, or related to a belief that well-being is not a part of later years of life. For example, Gellis, Sherman, and Lawrence (2003) found that first year graduate social work students "reported negative attitudes toward older adults on productivity, adapting to change, independence, and optimism" (p. 1). If such findings are present among students of social work, who will be the protectors of the disadvantaged, how do those who are less public welfare minded view people over age 65? This dissertation is a study of the relationship of optimism to other indicators of well-being among people over age 65 in order to assist social workers to better understand older people and how to improve their quality of life in an effective way.

<u>Specification of Terms</u>

Many of the terms in this study are used both commonly and in research. To better understand intended constructs, term meanings are clarified in this section.

Aging

The terms *older people*, *seniors*, or *elderly individuals* will be used interchangeably to reference individuals age 65 and over. The term *aging* will refer to characteristics of normal aging common to most people of this age group, such as wrinkles. Less universal disease or experiences, such as liver disease or abuse, will be specified.

Well-being

Well-being "is the generally pervasive experience of meaningful and rewarding physical, emotional, social, mental and spiritual engagement and realization of one's potential" (Universal Education Foundation, n.d.). Research on well-being often addresses one or more of these components and may focus on objective or subjective measures. Bowling et al. (2002) suggests self-report of well-being concepts can be more powerful than objective facts in explaining the variance in *Quality of Life* (QOL) scores. Most measures in this study are self-report items, and will include the well-being indicators self-rated health, perceived personal control, depression, life satisfaction, self-esteem, death anxiety, and forgiveness of others.

Optimism

Optimism studies usually focus on one of three types. The first, *Explanatory Optimism,* refers to individuals perceiving problems in their lives to be temporary, specific, and having external causes (Gillham, Shatte, Reivich, & Seligman, 2002). The second type, *Strategic Optimism,* refers to the setting of high expectations about the outcome of their behavior that is generally compatible with the individual's perceptions of themselves and their past experiences (Norem, 2002). The type of optimism referenced in this study is *Dispositional Optimism*, which is used most commonly in optimism research and will be described more fully in the next section.

Dispositional Optimism Theory

Dispositional Optimism is defined as "the tendency to believe that one will generally experience good vs. bad outcomes in life" (Scheier & Carver, 1993, p. 202-

203). Expectation of bad outcomes in life is considered pessimism. Theory for dispositional optimism is based on Scheier and Carver (1985) model of behavioral self-regulation that suggests goal directed behavior is guided by a hierarchy of closed loops. In these loops (see Figure 1.1), perception of the situation and personal values are compared to determine how well personal behavior is reducing discrepancies between the two for a goal over time, or how well it is enlarging discrepancies for anti-goals (Carver and Scheier, 2002). The amount of discrepancy is considered the basis for deciding to engage a task or giving up (Carver & Scheier, 2002), but the comparison is based on a perception of the effect, and may not be factual. Dispositional optimism
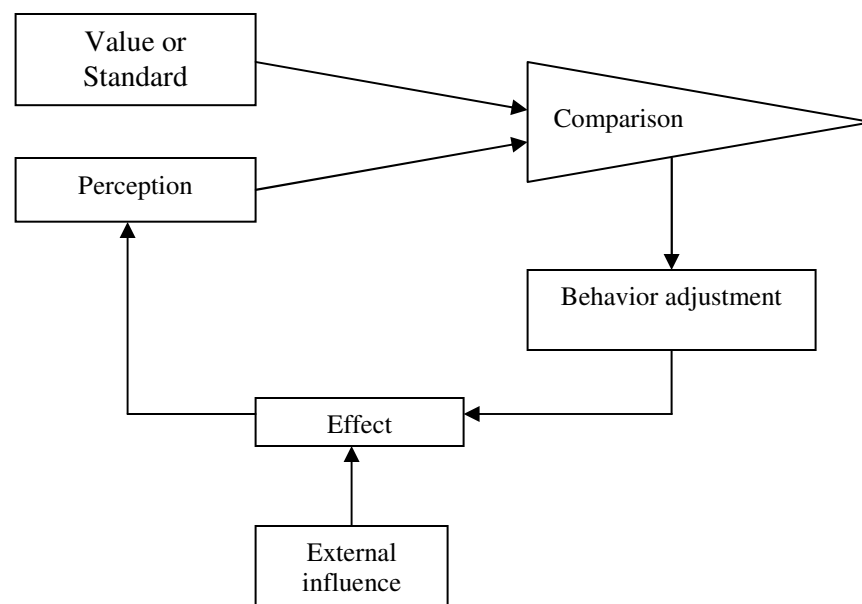
Figure 1.1: A schematic simplification of the feedback loop concept in Carver and Scheier's (2002) dispositional optimism.

and pessimism are terms for an individual's confidence or doubt of effectively reducing or increasing the discrepancy, depending on whether goals or anti-goals are the focus. Tones of Julian Rotter's Social Learning Theory are evident in dispositional optimism, particularly in the role of reinforcement value and expectancy in activating behavior. A more detailed comparison of the two will be discussed in Chapter 2.

Dispositional optimism is considered to be "relatively stable across time and context, and as forming the basis of an important characteristic of personality" (Scheier & Carver, 1992, p. 202). This does not mean dispositional optimism is a constant as can be seen in Table 1.1 data from a U.S. nationwide survey (Krause, Neal. RELIGION, AGING, AND HEALTH SURVEY, 2001) that compares well-being indicator scores at baseline (2001) to those obtained during the follow up survey (2004). The table shows

Table 1.1 Well-being Indicator Paired Samples Correlations
Across Wave 1 and 2

	Well-being Indicators	N	Correlation	Sig.
Pair 1	Optimism W1 & Optimism W2	837	.204	.000
Pair 2	PP-Control W1 & PP-Control W2	866	.177	.000
Pair 3	DI W1 & D1 W2	979	.275	.000
Pair 4	L-Sat Score W1 & L-Sat W2	872	.308	.000
Pair 5	SE Scores W1 & SE W2	985	.187	.000
Pair 6	FoD W1 & FoD W2	862	.258	.000
Pair 7	Forgiveness W1 & Forgiveness W2	936	.326	.000
Pair 8	SR-Health W1 & SR-Health W2	928	.422	.000

a. Surveys were conducted in 2001 and 2004
b. PP-Control = perceived personal control
c. DI = depression
d. SE = self-esteem
e. FoD = death anxiety

optimism score stability over a three year period is comparable to that of the other measured indicators. As can be seen, optimism has neither the highest or lowest baseline/follow up correlations. It can then be said that Optimism scores, as compared

with other well-being indicator scores, are relatively stable, but that some change is likely.

Measures commonly used for dispositional optimism are the Life Orientation Test (LOT; Scheier & Carver, 1985) and the Revised Life Orientation Test LOT-R (Scheier, Carver, & Bridges, 1994). The LOT is a ten item measure with a five point Likert scale containing two filler questions, four positively worded statements and four reverse scored statements. The LOT-R addresses colloquialisms of the original measure and contains four filler questions, 3 positively worded statements, and three reverse scored statements. Scheier and Carver's (1985) initial validation study reported adequate internal consistency and test-retest reliability, and convergent and discriminate validity when compared with measures of self-esteem, hopelessness, depression, social anxiety, alienation, perceived stress and internality (Terrill, Friedman , Gottschalk, & Haaga, 2002). However some have complained that the LOT items confound future expectancy with other concepts such as neuroticism or negative affectivity (Smith, Pope, Rhodewalt, & Poulton, 1989) and that it is more easily faked than other similar measures (Terrill, Friedman , Gottschalk, & Haaga, 2002). Several studies have mentioned that instead of considering the LOT a one-dimensional measure, it would be better interpreted through a bi-dimensional model with optimism and pessimism as separate factors (Chang, D'Zurilla, and Maydeu-Olivares, 1994; Chang & McBride-Chang, 1996; Robinson-Whelen, Kim, MacCallum, & Kiecolt-Glaser, 1997).

The purpose of this research is to determine how optimism associates with other components of well-being over time among people over age 65. Optimism is considered

an indicator of well-being (Peterson & Bossio, 2002; Scheier, Carver, & Bridges, 2002), therefore it would be reasonable to assume that optimism and well-being indicators would correlate. However, there are a variety of indicators of well-being. If optimism and suicide rates are higher among older adults, it may be that optimism either has a polarization effect on well-being indicators associated with suicide rates, has a positive relationship with these indicators, or has little effect. To better understand current theory of associations of optimism and other indicators of well-being, a review of current literature on optimism and well-being indicator studies is needed.

CHAPTER 2

LITERATURE REVIEW

To consider well-being and optimism associations among older people in the U.S., the concept of well-being must be broken down into components that are measurable. Although there are a variety of ways to consider well-being, indicators used in this research were those available in the existing database upon which this study is based (Krause, Neal. RELIGION, AGING, AND HEALTH SURVEY, 2001). These well-being indicators are of interest due to their individual inclusion in a variety of well-being research projects, some of which included optimism measures. The well-being indicators included here are self reported health, perceived personal control, depression, life satisfaction, self-esteem, death anxiety and forgiving others. To determine the relationship of optimism to well-being, and to identify what additional knowledge is required, previous literature considering dispositional optimism and these well-being indicators may be helpful.

<u>Optimism and Well-being Indicator Studies</u>

Optimism is considered an indicator of well-being (Peterson & Bossio, 2002; Lewis & Dember, 1995; Scheier and Carver, 1987). Accordingly, it has been compared in studies with some of the other well-being indicators. However, few of these studies have attempted to control the influence of the various well-being indicators when attempting to determine associations (see Appendix A).

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Studies of physiological indicators of well-being using self-rated assessment and evaluation by others indicate a number of physical benefits associated with optimism. Scheier and Carver (1985) reported that dispositional optimism was associated with lower levels of physical symptoms than was pessimism. In a review of literature studying physiological associations with optimism, many of which were longitudinal studies, Peterson and Bossio (2002) indicated that most relevant studies report a .20 to .30 correlation coefficient between optimism and good health.

Several studies targeted the benefit of optimism related to specific physical ailments. Allison, Guichard, and Gilain (2000) reported that optimism was linked with better quality of life in cancer patients before and after treatment. Brenes, Rapp, and Rejeski (2002) found that pessimism was associated with poorer physical functioning among adults experiencing knee pain while controlling for demographics and health variables.

Optimism has been associated with reduced incidence of disease (Peterson & Bossio, 2002), such as coronary heart disease (Kubzansky et al., 2001), or suffering a Myocardial Infarction (MI) during the previous six months for patients recovering from Coronary Artery Bypass Surgery (CABS) (Scheier et al., 1989). Peterson and Bossio (2002) reported that optimism likely reduces incidents of illness onset, can minimize the severity of the illness, and can make relapse less likely.

Optimism has also been associated with recovery following injury or surgery (Scheier & Carver, 1993). Scheier et al. (1990), in a five year post operative follow-up

study, established that optimists experienced pain that was less severe than pessimists. The Scheier et al. (1989) study reported that during recovery from CABS, optimists were significantly less likely to infarct during surgery, and were rated by rehabilitation staff members as showing more favorable physical recovery. Additionally they were more likely to resume vigorous physical exercise and returned to prior recreational activities more quickly than pessimist.

More general physiological associations with optimism include the Scheier et al. (1990) findings that optimists are more likely to report feeling rested after sleeping and less likely than pessimists to report early morning awakenings. This may relate to optimism's association with reduced anxiety reported by Scheier, Carver, and Bridges (1994). In an attempt to better understand how optimistic beliefs benefit physical health, Fournier, De Ridder, and Bensing (2002) studied unrealistic expectations of patients as opposed to positive efficacy expectancies. They found that unrealistic beliefs, at time present in dispositional optimism, are helpful when patients were faced with uncontrollable disease where self-care options were limited. They also reported that positive efficacy expectancies, more similar to strategic optimism and perceived personal control, are helpful when a patient faces a controllable disease where self-care efforts are more likely to be effective. These findings may indicate that although optimism is beneficial in physiological issues, there are types that better match specific situations, and could perhaps be encouraged to "optimize" benefit.

Part of the details of how optimism affects physical health can be explained by its influence on behavior. Steptoe, Wright, Kunz-Ebrecht, and Iliffe (2006) used

separate and combined optimism/pessimism scores in a study of 128 men and women between 65 and 80 years of age. They reported that optimism was positively related to self reported health status independent of healthy behaviors, and that physical health status was associated with optimism independent of social demographic, clinical condition, negative affect or body mass, but that the effect was "attenuated when health behaviors were taken into account" (p. 71). The authors further specified that the findings were only evident when combining LOT scores, and that LOT subscales showed less consistent findings. Although, other studies support the indirect relationship of optimism with health status through associations with healthy behavior (DeKeukelaere, 2006; Lin & Peterson, 1990; Taylor et al. 2004), the Steptoe et al. (2006) findings further imply that even when controlling for healthy behaviors, optimism positively correlates with health, which had been suggested by Gottlieb and Rooney (2004).

Although several of these studies were conducted on older populations, few have attempted to control the influence of well-being indicators when attempting to determine associations, or considered association in indicator change over time. Without considering these associations it isn't clear whether optimism's affect on health is largely explained by its association with other well-being indicators or if its affect is largely independent. In the optimism/healthy-behavior/health pathway, perceived personal control would seem necessary to motivate an individual to activate the necessary healthy behavior in order to achieve good health (see Dispositional Optimism Theory).

Perceived Personal Control

Perceived personal control has been positively associated with life satisfaction (Caplan & Schooler, 2003), well-being (Bowling, Banister, Sutton, Evans, & Windsor, 2002; Cohen, 2002), and reduced odds of dying (Krause & Shaw, 2000) among older people. It has been negatively associated with higher levels of illness, disability, mortality (Caplan & Schooler, 2003), and depressive symptoms (Berg, Hassing, McClearn, & Johansson, 2006)

The concept of personal control is related to a variety of other terms that are used in research such as *self-confidence*, *self-advocacy*, *locus of contro*l, *fatalism*, and *learned helplessness* (Caplan & Schooler, 2003). All of these concepts revolve around the idea of personal ability, or the capacity to achieve an objective. They are not solely about ability itself, but about personal belief in that ability. Verbrugge and Jette (1994) describe disability as "the gap between personal capability and environmental demands" (p. 1). Disability could be considered the opposite of a person's ability to control their lives. Accordingly, perceived personal control then could be defined as the personal belief in self capacity to resolve environmental demands. This relationship to capability supports the idea that perceived personal control plays an important role in interaction between optimism and well-being of people over age 65. When optimistic people believe a certain healthy behavior is within their ability to achieve, and that it will be successful, improved health is a likely out come. But does perceived personal control contribute positively to the optimism/health association when healthy behavior is controlled for?

In the few recent articles comparing personal control to optimism, associations reported suggest they are correlates, but are different constructs. Aspinwall, Sechrist and Jones (2005) studied concern and preparation for Y2K among 697 respondents averaging 32.10 years of age. They reported that optimism had a significant and positive association (factor loading = .32) with primary control coping efforts (involving direct personal action), but was differentiated among secondary control such as accepting the situation or reliance on a higher power. The authors did not attempt to differentiate the optimism/control association by other well-being indicators. Bruininks and Malle (2006) considered hope, optimism and personal control among undergraduates and found that optimism involved less important but more likely outcomes than hope, and was more strongly associated with personal control.

Other optimism/personal control studies have focused on construct differences. McKenna (1993) studied underestimation of potentially negative events and found that while illusion of personal control was related, optimism, even when unrealistic, was not. Tomich and Helgeson (2006) found that personal control, but not optimism or self-esteem, was associated with worse physical and mental function, & less benefit finding among women diagnosed with breast cancer. However the study focused on personal control over their breast cancer specifically, which may not afford the optimism association more likely to occur when respondents consider their control over their life generally. These Studies suggest that optimism, even when groundless, has, if not a benefit, a less harmful effect than delusional belief of personal control.

Depression

Depression is a form of mental illness characterized by sadness, general apathy, a loss of self-esteem, feelings of guilt, and at times suicidal tendencies (Lexicon encycloBio, n.d.). An inverse correlation between optimism and depression seems logical, and some research supports this association. Marshall, Wortman, Kusulas, Hervig, and Vickers (1992) found that optimism associated positively with positive mood while Chang, Maydeu-Olivares, and D'Zurilla (1997) reported a positive association linking pessimism and depression. However, both of these studies focused on differences in optimism and pessimism constructs, and were based on separate optimism and pessimism scores using the LOT. Less association was found between depression and optimism then between depression and pessimism. The higher pessimism/depression association is support by a study of 75 patients with rheumatoid arthritis that reported significant optimism/depression correlates of -.31 (p < .01); -.21 when controlling for pessimism scores. The reported pessimism/depression correlates were .42; .38 when controlling for optimism scores. Although other studies have reported similar optimism/depression findings (Fontaine & Jones, 1997; Puskar, Sereika, and Lamb 1999), none found attempted to control for well-being indicators, other than pessimism, when comparing optimism to depression. Accordingly, it was not possible to determine whether the optimism/depression association suggested in these studies is a direct or indirect affect, or whether both are affected by a third indicator of well-being, other than pessimism.

Life Satisfaction

When studied with optimism, life satisfaction has been found to correlate positively (Cummins & Nistico, 2002; Uskul & Greenglass, 2005). Chang, Maydeu-Olivares, and D'Zurilla (1997) found optimism and pessimism were predictors of individual difference in life satisfaction. While studying optimism/age association, Isaacowitz (2005) reported that although older people reported higher dispositional optimism scores, there was no *age X optimism* interaction predictive of depression or life satisfaction, and that the dispositional optimism/age differential was eliminated when covariates where controlled. However Chang (2002b) found that an *optimism X stress* effect on life satisfaction was present in younger groups but was absent among older respondents. Though age may not moderate the optimism/life satisfaction association, it is plausible that in addition to stress other well-being components may influence the degree to which optimism associates with particular well-being indicators that effect older people.

Self-esteem

Self-esteem has been found to positively correlate with optimism. In the LOT initial validation studies, Scheier and Carver (1985) reported positive correlation between dispositional optimism and self-esteem, but that they were not redundant constructs. Accordingly, Reinhoudt (2004) reported a Pearson Correlation r of .50 between Self-Esteem Scale scores (Rosenberg, 1965) and the LOT-R, which is high enough to be considered a strong correlation (Rosenthal, 2001), but below $r = .85$ commonly used as an indicator of failed discriminant validity (Garson, 2006).

Responding to assertions that dispositional optimism was indistinguishable from neuroticism, Scheier, Carver, and Bridges (1994) conducted a study of 4309 subjects. They found that "associations between optimism and both depression and aspects of coping remained significant even when the effects of neuroticism, as well as the effects of trait anxiety, self-mastery, and self-esteem are statistically controlled" (Scheier et al., 1994, p. 1063). It would appear then that dispositional optimism has some similarities in construct with self-esteem contributing to the positive correlation in association, but it is not a duplicate construct of self-esteem or the other well-being factors mentioned.

Optimism/self-esteem association is present even when the optimism is based on religious belief or illusions. Gana, Alaphilippe, and Bailly (2004) found that "retirees who harbored an exaggerated youthful bias (more than 15 years) reported more satisfaction with leisure time, higher self-esteem, better perceived health, and less boredom than those who felt as old as they were…" (p. 58). And in a study of religion and well-being in late life, Krause (2005) found that both optimism and self-esteem positively correlated with a perception of God mediated control, but that the effect was more pronounced among older Blacks than among older Whites. Although this particular study doesn't specify the correlation between optimism and self-esteem, it is plausible. It additionally raises the question of whether relationships between well-being components vary based on race or other demographics.

As with other indicators of well-being previously covered, optimism studies have been considered in correlation, but few studies have attempted to control for the variety of well-being indicators often considered. Without studying these associations it

isn't known whether the correlation between self-esteem and optimism is a direct or indirect relationship in well-being.

Death Anxiety

More than an acceptance of eventual demise, *death anxiety* can be thought of as a fear of the dying process and/or a fear of no longer existing that may be focused on both self and others (Gire, 2002). Considered a negative correlate of psychological and spiritual well-being (Krause, 2005), death anxiety is commonly believed to be associated with aging. Stereotypes of older people promote that seniors reading the obituaries, talking of friends' deaths, and focus on their frailties is based on personal death anxiety, instead of being health and loss related. However, if there is a correlation between aging and death anxiety, it is negative (Kastenbaum, 2006).

There are few studies that have compared death anxiety with optimism. Krause (2005) found that subjects that reported a high sense of God mediated control reported higher optimism and lower death anxiety; however no direct optimism/death-anxiety relationship was explored. The study is supportive of an inverse optimism/death anxiety relationship that seems rational. If a person believes that they will experience good outcomes in life, then it is reasonable to expect that they will have less fear of death and dying. Vaughan and Kinnier (1996) found a more direct association of these constructs, reporting a -.22 Pearson correlation, however no other well-being components were controlled. Contrary to these finding, Dechesne, Greenberg, Arndt, and Schimel (2000) reported that when subjects were reminded about their death they expressed greater optimism about prospects of the national soccer team. However, simply reminding a

person of the inevitability of their death doesn't ensure the fear component of death anxiety, nor does optimism about a team necessarily indicate a positive outlook about ones life that is an explicit part dispositional optimism.

Forgiving Others

This construct has been considered in physiological, psychological, emotional and spiritual well-being studies, although it is more generally thought to be related to religion. In fact, "forgiveness is a key component of the tenets of religions across the globe" (Suchday, Friedberg, & Almeida, 2006). Fincham, Hall, and Beach (2006) defined forgiveness as individual change that causes a reduced inclination to think, feel, or behave adversely towards an offender. It is included here to consider its relationship with optimism when other well-being indicators can be controlled.

Although no optimism/forgiveness studies could be found, it would be logical to intuit a positive association between the two constructs. Optimists tend to believe involvement will lead to positive outcomes (Scheier & Carver, 1993), including in their relationships. It would seem rational then that optimist would believe even poor relationships would likely improve, reducing the desire to maintain adverse feelings or behavior towards others. Additionally, both optimism and forgiveness studies have found similar correlates. Forgiveness, like optimism, has been found to have positive associations with life satisfaction (Toussaint, Williams, Musick, & Everson, 2001), self-esteem (Hebl & Enright, 1993), social support, and healthy behaviors (Lawler-Row & Piferi, 2006) and is reported to increase with age (Toussaint et al., 2001). Also, like optimism, forgiveness is reportedly a negative correlate of anxiety, depression (Hebl &

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Enright, 1993), and stress (Lawler-Row & Piferi, 2006; Suchday et al., 2006). Constructs with similar correlates suggest a possibility, but is not evidence of, a bivariate correlation. The relationship of optimism and forgiveness on other well-being indicators could be completely independent, but this likelihood decreases as the number of similar correlates increases. In this study, many of the correlates were included in the study allowing not only for optimism/forgiveness comparison, but also the ability to determine the directness of the relationship.

Literature Review Conclusions

The review of optimism shows that most of the variables to be considered in this study have been compared to optimism previously, but rarely has there been an attempt to control for other well-being indicators nor did any of the studies compare well-being indicator change over time. The lack of control measures prevents an understanding of the interaction between the well-being indicators and optimism. For example, the studies indicate that there is an inverse relationship between depression and optimism, and positive relationship between optimism and self-esteem (Reinhoudt, 2004); and yet this seems to contradict reports that older people in the U.S. have both increased suicide rates and higher optimism. Isaacowitz (2005), when controlling for certain covariates, suggests that older people of his sample group did not increase in optimism as they aged, but controlling for covariates may simply move predictive influence to indirect pathways. The inclusion of the well-being indicators used in this study can provide a better understanding of direct relationships, as well as those that are indirect.

Additionally, a comparison of the change in these indicators over time will allow for a consideration of demographic and baseline variable influence.

Of the studies listed in Appendix A, about a quarter targeted older adults. Of these only two attempted to differentiate findings by the age of the respondents. Respondents over age 65 can differ in age by over 30 years, and important age related information is lost when respondents of this group are evaluated as if they are the same age. Three of the studies targeting seniors used sample sizes less than 200 indicating fair to moderate power (Rosenthal, 2001), and only two of the studies used any form of randomization in selection of participants, bringing into question the appropriateness of generalizing the findings.

Few of the articles reviewed compared the findings to the demographics, which can provide details of interest to social workers. Although some of the studies did collect gender data, it was often used more to identify characteristics of the sample than to consider gender differences of findings. Even fewer studies considered education, race, and income. An understanding of how optimism presents differently among these demographics could be crucial to social workers considering the level of optimism of clientele.

<div align="center">Theoretical Foundations</div>

Dispositional optimism is about expectancy that a person will be able to reduce discrepancies between their perception of a situation and how they would desire it to be. This is somewhat similar to Julian Rotter's Social Learning Theory formula;

$$BP = f(E \ \& \ RV)$$

where *behavior potential* is seen as a function of *expectancy* and *reinforcement value* (Mearns, 2005). Social Learning Theory suggests that behavior potential is not solely based on one's belief that what is desired can happen, but also considers the personal importance of the desired situation. However, Rotter focuses more on the belief in one's capacity to personally produce, cause or influence what is desired, or *locus of control*; where as dispositional optimism focuses on the general belief that through one's efforts environmental demands will be resolved in such a way that a positive experience will follow. Still, both theories recognized that belief in ability to effect change is an important impetus for behavior. The correlations between dispositional optimism and perceived personal control, presented previously (see *Perceived Personal Control*, p. 12 - 13), support the idea of similarity of constructs.

Similarities to Social Learning Theory may give some predictability to how dispositional optimism interacts with some well-being indicators. Those that have behavioral components such as, health status, perceived personal control, and forgiveness of others are likely to have associations to optimism due to its theoretical behavioral component. Other indicators, such as self-esteem, and life satisfaction are more related to the *reinforcement value* part of Social Learning Theory, suggesting statistical relationships with optimism are likely. Their positive nature seems to mesh with that of dispositional optimism suggesting that they will likely have positive associations.

The remaining indicators, depression and death anxiety, have no obvious positive reinforcement value but are anti-goals; however, there is some question as to

whether behavior can effect change in them. There are some suggestions in Social Learning Theory that irrationally low expectancies can lead to inadequate behavior causing a downward spiral that could manifest itself as depression (Mearns, 2005). If correct, then one would expect a negative statistical association between depression and optimism, and this is supported by the reviewed literature (see section *2.1.3*). However, depression can also be conceptualized as inherited and biochemical in nature (Robinson & Berridge, 2000) with less likely behavioral associations to dispositional optimism, unless it is an optimism reducer affecting the overall disposition of the individual.

In considering death anxiety and Social Learning Theory, there is clearly a negative reinforcement value in the concept of death born into most living beings. As Merrit Mallony once said, "Life is not the opposite of death; it is the absence of death." Those feeling incapable of behavior apt to postpone death could be susceptible to the downward spiral mentioned in Social Learning Theory, and would most likely experience low optimism levels. Consequently, one could expect to see a negative relationship between dispositional optimism and death anxiety. Also, truly optimistic older people, believing in an afterlife, may anticipate a bright future in death, and not experience death anxiety. This would also contribute toward a negative correlation between the two constructs, and may even be a basis for a positive correlation between optimism and suicide if such an association exists.

Objectives and Hypotheses

The objective of this study is to clarify relationships between optimism and self-reported health, perceived personal control, depression, life satisfaction, self-esteem,

and forgiveness of others, with independent variables being controlled by multiple regression equations. Additionally, variable change over time will be considered by comparing variable deltas to baseline scores and demographics. The research questions of this study are:

1. How does optimism among older people associate with self-reported health, perceived personal control, depression, life satisfaction, self-esteem and forgiveness of others, when baseline measures of these variables are controlled for, and how do these effects differ by race, gender, or income?

2. Do baseline optimism scores of older people associate with changes in self-reported health, perceived personal control, depression, life satisfaction, self-esteem and forgiveness of others over time?

3. Do the other baseline well-being indicator scores of older people relate to changes in optimism scores over time?

Based on the literature, and theory based projections, the hypotheses of the study are:

1. People over age 65 with higher optimism scores will have significantly higher self-reported health, perceived personal control, life satisfaction, self-esteem and forgiveness of others scores than those with lower optimism scores when independent variables are controlled for.

2.   People over age 65 with higher optimism scores will have significantly lower depression and death anxiety scores than those with lower optimism scores when independent variables are controlled for.

3.   People over age 65 with higher baseline optimism scores will have significantly higher increases in self-reported health, perceived personal control, life satisfaction, self-esteem and forgiveness of others scores, and significantly greater decreases in depression and death anxiety scores at Wave 2 than those with lower baseline optimism scores when the independent variables and the demographics are controlled for.

4.   People over age 65 with higher baseline self-reported health, perceived personal control, life satisfaction, self-esteem and forgiveness of others scores and lower depression and death anxiety scores will have significantly higher optimism score increases at Wave 2 when the independent variables and the demographics are controlled for.

CHAPTER 3

METHODOLOGY

To study associations between dispositional optimism and well-being indicators among people over age 65 in the U.S. this dissertation used existing data that was collected in 2001 (Wave 1), with a follow-up survey conducted in 2004 (Wave 2). The data for the study comes from a nationwide survey (Krause, Neal. RELIGION, AGING, AND HEALTH SURVEY, 2001) of Caucasians and African-Americans who reported themselves to be Christian. Participants were over 65 years of age, resided in the U.S., were English speaking, and non-institutionalized. According to the survey report documentation;

> (The) data collection looks at religion, self-rated health, depression, and psychological well-being in a sample of older Blacks and older Whites (aged 65 and over) within the United States. Questions were asked regarding religious status, activities, and beliefs among those who currently practice the Christian faith, those who used to be Christian but are not now, and those who have never been associated with any religion during their lifetimes. Demographic variables include age, race, sex, education, and income. Wave 2 was collected in 2004 and reinterviewed 1,024 respondents. There were 75 respondents who refused to participate, 112 who could not be located, 70 that were too ill for participation, 11 who had moved to nursing homes and 208 were deceased (Krause, 2006).

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Due to the sample selection methods, seniors without social security numbers were excluded. Although stratified random selection methods were used, African-Americans were over sampled to obtain a number of participants similar to those of older Caucasians surveyed. Statistical weights were provided for each wave to address differences between the survey data and that of the original census; one to address age, gender and education differences, and the second addresses differences in African American to Caucasian proportions (personal communication with Neal Krause, May 7, 2007). Additional information concerning the sampling procedures can be obtained from the author of the original study (Krause, 2003a).

<div align="center">Measures</div>

The demographics of the survey database include race, gender, age, deaths, income, and marital status. The surveys were limited to individuals selecting *White/Caucasian*, *White/Caucasian and some other race*, *African-American*, or *African-American and some other race*. For the Wave 1 sample, the reported race percentages were;

White/Caucasian	48.5%
White/Caucasian and some other race	2.1%
Black/African American	46.5%
Black/African American and some other race	2.4%

The White to Black balance reflects the over sampling of Black respondents in the survey. Gender was collected as dichotomous data, with respondents selecting either male or female. In the Wave 1 survey, 38.2 % of respondents were male, 61.8% female;

the reported U.S. rates are 41.2% male and 58.8% female for people over age 65 (He, Sengupta, Velkoff, & DeBarros, 2005). Age was collected as scale data, and known deaths of participants of the first survey were reported with the Wave 2 data. Age range for the survey was 65 to 101, with an average age of 75.1.

Income and marital status were collected as categorical data. Reported income for the sample was;

Less than $5,000	4.1%
$5,001-$9,999	14.1%
$10,000-$14,999	12.8%
$15,000-$19,999	8.7%
$20,000-$24,999	8.9%
$25,000-$29,999	5.3%
$30,000-$39,999	6.5%
$40,000-$59,999	5.8%
$60,000-$79,999	3.2%
$80,000+	2.9%

Those choosing not to respond were 18.3%, and 9.4% were not sure, making comparison to national averages difficult. Marital status was reported as;

Married	47.3%
Separated	1.6%
Divorced	7.9%
Widowed	38.2%

Never Married   4.6%

According to He et al. (2005), U.S. men over age 65 are much more likely to be married (71.2%) than are women (41.1%), and less likely to be widowed (14.3%) than women (44.3%). Accordingly, male to female ratios in a sample can have considerable influence on marital statistic. Additionally, the male to female ratio is reduced considerably with age. In the year 2000 survivorship to age 75 was 71.0 percent for women and 57.3 percent for men, while survival rate to age 85 was 42.1% for females and 27.3% for males (He et al., 2005). Subsequently, as a samples average age increases, one would expect sample marital status measures of central tendency to be increasingly similar to those of older females in representative sample's. The marital rates for the original survey at Wave 1 were nearly that of females in national averages, and could be expected given that the sample is made up of 61.8% females. The dependent and independent variables of the current study were formed from similar construct items in sections of the original survey that were summed to form brief composite measures, most of which have been used in other publications.

Optimism

Labeled "Hope/Optimism" in the original survey, the optimism subsection is made up of four questions similar to those of various optimism scales (Scheier & Carver, 1985), and were summed to form the study's Optimism scale scores. The items for measuring optimism are:

1. I always look on the bright side of things.

2. I'm optimistic about my future.

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3. In uncertain times, I usually expect the best.

4. I feel confident the rest of my life will turn out well.

The first three items are taken from the positive questions of the LOT. The fourth item was developed by Krause (2002) and appears to be a close proximity to the definition of dispositional optimism. Test-retest correlation of the LOT is $r = .79$ at 4 weeks (Scheier & Carver, 1985). It has convergent and divergent validity with a .48 correlation with Rosenberg's (1965) Self-Esteem Scale (Scheier & Carver, 1985), a .56 correlation with the generalized Expectancy for Success Scale (GESS, (Fibel & Hale, 1978) and a -0.47 and -0.49 correlation with depression as measured by the Beck Depression Inventory (Scheier & Carver, 1985). Robinson-Whelen, Kim, MacCallum, and Kiecolt-Glaser (1997), in a confirmatory factor analysis, found that the LOT factors on 2 dimensions that they labeled *optimism* and *pessimism*, although the scale was designed as a single factor. The 3 questions from the LOT used in this survey database are those factoring on the optimism dimension, no pessimism questions were used. The internal consistency reliability of the 4 items, assessed using the data in this study, is .8587 ($\overline{X}$ = 12.7402, SD = 2.0789), indicating that they are measuring the same construct (Vogt, 1999). All four items are used in this study to form a scale labeled Optimism.

Self Rated Health

The health status items of the database include:

1. How would you rate your overall health at the present time?

2. Would you say your health is better, about the same, or worse than most people your age?

3. Do you think your health is better, about the same, or worse than it was a

   year ago?

4. How satisfied are you with your health?

Such questions are common in literature focused on the construct of self-perception of

one's health condition. While referencing Idler and Benyamini (1997), Krause (2003b)

states:

> Measures of self-rated health are among the most well-known and widely used
>
> ways of assessing physical health status in survey research. Although indicators
>
> of self-rated health are simple and straightforward, research indicates they are
>
> consistently associated with mortality, and may even be better predictors of
>
> longevity than ratings of health that have been obtained from physicians (p.
>
> 383).

Each of the self-report health items in this database addresses a slightly different

aspect. Accordingly, it may be beneficial to consider items individually as well as

combining them into a composite score. The Wave 1 survey uses only the first 3

questions that possess a reliability coefficient of .6132, slightly below what is generally

considered acceptable for a scale (Vogt, 1999). The reliability coefficient of the four

items, used in the Wave 2 survey, yields a satisfactory Cronbach's alpha coefficient of

0.8090 ($\overline{X}$ = 9.1607, SD = 2.2769). Both scales are titled "SR-Health" in this study and

are differentiated by "Wave 1", or baseline, and "Wave 2" labels.

Perceived Personal Control

Labeled "General Feelings of Control" in the original survey, this subsection is made up of four questions generally assessing an individual's perception of their ability to address environmental demands, and were totaled for perceived personal control (PP-Control) scores. The items used to assess this indicator include:

1. I have a lot of influence over most things that happen in my life.

2. I can do just about anything I really set my mind to.

3. When I make plans, I'm almost certain to make them work.

4. When I encounter problems, I don't give up until I solve them.

According to the author of the survey, "The items assess generalized feelings of personal control and were taken from several sources, including the work of John Mirowsky as well as Rotter's Internal External Locus of Control Scale" (personal communication, June 12, 2006). The scale has an internal reliability of alpha = .8634 using the data from the original baseline survey, and is label Perceived Personal Control (PP-Control) in the current study.

Depression

The database assesses depression through eight items, which are:

1. I felt I could not shake off the blues, even with the help of my family and friends.

2. I felt depressed.

3. I had crying spells.

4. I felt sad.

5. I did not feel like eating, my appetite was poor.

6. I felt that everything I did was an effort.

7. My sleep was restless.

8. I could not get going.

Respondents were asked to consider the statements and select a response for each from a 6 point Likert Scale that best described how they had felt in the last week. According to the author of the original study, these items were taken from The Center for Epidemiologic Studies Depression Scales (CES-D, Radloff, 1977). A confirmatory factor analysis has shown that 3 of the first 4 questions (I had crying spells was excluded) make up a separate dimension focused on depressed affect and has a reliability estimate of .84, while the second 4 questions address somatic symptoms of depression and have a reliability estimate of .77 (Krause & Ellison, 2003). The eight items have a Cronbach's Alpha of .8701 ($\overline{X}$ = 27.5836, SD = 4.9077) y, and as a scale in this study are labeled "DI."

Life Satisfaction

Life satisfaction is assessed in the original database through 4 items.

1. These are the best years of my life.

2. As I look back on my life, I am fairly well satisfied.

3. I would not change the past even if I could.

4. Now please think about your life as a whole. How satisfied are you with it?

The author of the database (Krause, 2005) selected the first three of these items from the Life Satisfaction Index A (Neugarten, Havighurst, & Tobin, 1961). These items are also

present on the 15 item Life Satisfaction Index Z, which was designed for measuring life satisfaction among older people (Fischer & Corcoran, 1987). The fourth item "is used widely in the literature and assesses satisfaction with life as a whole" (Krause, 2005, p. 149). When the four items are combined they form a scale with an internal consistency reliability of .7381 ($\overline{X}$ = 12.5940, SD = 2.3779), and labeled "L-Sat" in this study.

Self-esteem

According to the author of the original survey, in the database self-esteem "is assessed with three indicators taken from the widely used Self-Esteem Scale developed by Rosenberg (1965). A high score on these items reflects greater feelings of self-worth. The internal consistency reliability estimate for these three-items is 0.910" (Krause, 2004, p. 401), and the scale is labeled "SE" in this study. The items are:

1. I feel I am a person of worth, or at least on an equal plane with others.

2. I feel I have a number of good qualities.

3. I take a positive attitude toward myself.

The self-esteem assessment items are the same for both survey waves.

Death Anxiety

In this study, the items used to assess death anxiety are:

1. I find it hard to face up to the fact that I will die.

2. Thinking about death makes me feel uneasy.

3. I do not feel prepared to face my own death.

4. I am disturbed by the shortness of life.

The author of the database was less specific about the origin of these items. According to Krause & Ellison (2003) the first three questions were taken from scales in the literature (see Neimeyer, 1994 for a list of the scales) and the reliability estimate using the 3 questions is 0.822 ($\overline{X}$ = 6.022, SD = 1.797). The origin of the fourth item was not found in the authors' writings, however it does appear in the Collett-Lester Fear of Death Scale, which was not published, but available by request since 1969 (Lester, 2007). Adding the fourth item to the death anxiety scale gives an improved reliability estimate of .8578 ($\overline{X}$ = 8.0534, SD = 2.3377). In this study the summed four item scale is titled FoD.

Forgiving Others

Items for assessing forgiveness were developed by the originator of the database following 3 years of focus groups, in-depth interviews and cognitive interviews with a group of 399 older Caucasian and African Americans (Krause, 2002). The items are:

1. How often do you feel resentful toward others for things they have done?

2. How often do you hold a grudge?

3. How often do you forgive others for things they have done to you?

Answer options are frequency related and on a 4 point ordinal Likert scale. The reliability estimate for these items is reportedly .63 (Krause, 2003b), slightly below what is generally considered acceptable. However, the items and their development appear to be a reasonable measure for determining forgiveness of others and were labeled "Forgiveness" in this study.

Reliability and Validity of Measures

These scales are based on relatively few items, most of which come from existing assessment tools. Although they are all measures in a database that has been used in multiple publications, these particular measures have not been used together in previous studies. The reliability estimates for the brief composite scales suggest that they may provide beneficial information about the population studied, but the lack of previous combined usage means the cumulative and interactive effect of the various scales is unknown.

Obviously all measures suggested have face validity, and some of the items are from other assessment tools that report good concurrent, discriminant and convergent validity. This suggests that these items are valuable in the assessment of the given constructs but does not guarantee that the particular items selected have as good validity as the original measurement tools, in fact this is unlikely. Still, in the interest of reducing the length of the survey some reduction of items is reasonable.

Procedures and Data Reconfiguration

The database was obtained from the Inter-university Consortium for Political and Social Research (ICPSR) as a computer file (ICPSR03255-v2), and is intended for statistical analysis and reporting of aggregate data (Krause, 2006). Once downloaded, the files were stored in a computer with firewall and virus protection and files were not available to internet or other user access. Institutional Review Board (IRB) training was completed on February 15, 2007 as required by the University of Texas at Arlington (UTA) Office of Research Compliance (ORC) (2006a). According to the ORC, the

database from ICPSR used in this study, falls "into an exempt category in which prior approval by the IRB has been given and submission of an exempt protocol is not necessary" (Office of Research Compliance, 2006b, p. 1).

A reconfiguration of the database was necessary in order to complete desired statistics. In its original form, the database is made up of two SPSS portable (*.por*) files with several documentation files. To use the files they were uploaded into SPSS then saved as *.sav* files. To facilitate comparison, Wave 1 and Wave 2 databases were combined, while maintaining separate variable names for the different waves. This data already has different variable names for the two waves, no name changes were necessary.

In order to formulate well-being indicator scales that make sense, the response numeration and the increase in the variable strength should positively correlate and be similar to other variables. This was a problem in the database. In most of the response sets the number 1 represents the highest variable strength. To make responses more consistent, and to add clarity, these item response scores and labels were changed to make higher scores reflective of increased variable strength. However depression items and two of three forgiveness items have higher numbers expressing higher variable strength, therefore their scores and labels were not changed.

Another problem in the database was that response sets often include *declined to answer*, *not sure* and *no answer*, each with negative values. While this information may be informative, it was not helpful in calculating well-being indicator scores. To prevent

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the effect of these responses the negative values were viewed as missing data, allowing these responses to fall out of score calculations.

Once variable responses were reordered and relabeled, a score was generated for each well-being indicator by summing the response numeric values of all items of the variable. The individual scores for each well-being measure were recorded in a new variable and used for later comparisons. Well-being indicator change values were generated by subtracting each Wave 1 variable score from those of Wave 2 and outputting the values to a new variable.

CHAPTER 4

DATA ANALYSES

Wave 1 (baseline) and Wave 2 (follow up) of the data from RELIGION, AGING, AND HEALTH SURVEY, 2001 (Krause, 2006) was originally collected to assess characteristic of Black and Whites respondents over age 65 among various Christian religions. In this study, data from the original survey related to well-being and the demographics were considered to determine their relationships to optimism scores among people in the U.S. over age 65.

Demographics Analysis

In the previous section demographics characteristics of the sample were presented in raw data form (no weights). The author of the original survey provided weights with the database to compensate for the over sampling of Black respondents. The weights were to more closely represent gender, income and education data while maintaining a Black to White respondent balance. In this section, analysis included the weights to get a better understanding of the demographics in their relationship to race; *declined to answer*, *not sure* and *other* responses in the race statistics were treated as missing data. *Highest grade completed*, originally scale data, was converted to categories for segment comparisons with well-being indicators mean scores. Of particular interest in this section, is how the demographics of the survey related to respondents who died in between Wave 1 and Wave 2.

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Demographics and the Death Rate

In the 2004 Wave, 1032 of the 1500 original respondents completed the follow-up survey while 73 refused, 80 were no longer eligible, 199 were deceased, and 116 could not be located. Actual age at death was not collected; instead age at Wave 1 of those reported deceased at Wave 2 was used. The original survey over sampled Black respondents to generate similar Black to White subject rates (see Table 4.1). However, by Wave 2 the percent deceased rate was higher among Blacks than White even though average age was slightly older among White participants. This incident caused the number of Whites to be somewhat higher than those of Blacks at Wave 2.

Gender balance at Wave 1 was similar to that of U.S. national rates for this age group, although the death rate was slightly higher for females than males (see Table 4.1). This is a bit unusual considering that male death rates are generally higher, but was likely due to the data weights. Without the weights, the death rate was 14.3% for males and 13.6% for females. Males had higher percentages in both the high and low poles of reported years of education; 5.3% of males reported 4 years or less education as compared to 3.4% of females, while 35.9% of males and 27.2% of female reported 13 years or more. Gender in marital categories was most dissimilar in married, windowed and divorced categories, females represented higher percentages in widowed (81.1%) and divorced (55.7%) marital status and a lower percentage than males among those married (female = 42.7%).

Table 4.1 Study Mortality Rates by Demographics

Category	Pop. @ Wave 1 (#/%)	Pop. @ Wave 2 (#/%)*	Deceased @ Wave 2 (#/%)[b]	% Deceased within category @ Wave 2	Ave. age @ Wave 1
Race[a]					
White/Caucasian	727/48.5	515/50.3	92/12.7	46.2	75.11
White & another race	32/2.1	2/.2	3/9.4	1.5	73.24
Black/African American	698/46.5	459/44.8	101/14.5	50.8	74.40
Black & another race	37/2.5	27/2.7	3/8.3	1.5	73.34
Gender					
Male	619/41.3	402/39.2	81/13.1	40.9	74.21
Female	879/58.7	622/60.8	117/13.3	59.1	75.04
Income[c]					
Less than $5,000	61/5.6	22/3.1	15/24.6	10.6	76.66
$5,001-$9,999	189/17.5	113/15.5	24/12.7	17.0	74.96
$10,000-$14,999	185/17.1	141/19.3	25/13.5	17.7	75.06
$15,000-$19,999	132/12.2	95/13.0	21/15.9	14.9	75.31
$20,000-$24,999	140/12.9	90/12.3	19/13.6	13.5	73.96
$25,000-$29,999	82/7.6	70/9.6	16/19.5	11.3	73.84
$30,000-$39,999	99/9.1	68/9.3	5/5.1	3.5	73.93
$40,000-$59,999	99/9.1	64/8.8	11/11.1	7.8	72.77
$60,000-$79,999	51/4.7	41/5.7	2/3.9	1.4	73.70
$80,000+	45/4.2	25/3.4	3/6.7	2.1	73.48
Marital Status					
Married	736/49.9	489/47.8	76/10.3	38.4	73.55
Separated	24/1.6	18/1.7	1/4.2	.5	73.89
Divorced	122/8.2	86/8.4	14/11.5	7.1	71.65
Widowed	534/35.9	396/38.7	97/18.2	49.0	77.26
Never Married	70/4.7	34/3.3	10/14.3	5.1	73.26
Education					
4 years or less	63/4.2	[d]	13/21	6.5	75.81
5-8 years	223/14.9	[d]	39/17.6	19.5	76.23
9-12 years	752/50.1	[d]	98/13.0	49.0	74.07
13-16 years	347/23.1	[d]	33/9.5	16.5	74.36
17 years or more	116/7.7	[d]	17/14.7	8.5	76.25

a. Respondents selecting other race options were dropped
b. Some respondents at Wave 2 were unavailable, not locatable, or ineligible
c. 416 Respondents were unsure of or did not respond to income questions
d. Education level was not collected at Wave 2
e. Pairwise case exclusion used for missing data
f. N =1500 at Wave 1, N = 1024 at Wave 2
g. Figures were weighted to reflect the over sampling of Black respondents

As mentioned previously, about 20% of income data was attributed to *unsure* or *declined to answer* categories. To get a clear picture of respondent income, these categories were assigned to missing data status yielding the result in Table 4.1. Respondents with income below $5,000/yr represented only 5.6 percent of the Wave 1 population, but had a considerably higher death rate than other income groups, and had the highest average age which may explain the higher death rate to some degree. Additionally, over half of this group had a 10th grade education or less, more than 50% were widowed (16.8% were married), 75.7% were female, and 74.9% were Black or Black and another race. The highest income group, $60,000 - $79,000 included a similar number of respondents representing 4.7% of the Wave 1 population, but reported a much lower percent deceased rate (3.9%) than the below $5,000 income group (24.6%), This difference could partly be explained by the higher income group being on average 3 years younger than the lower income group. Additionally, the high income group had at least 12 year education, with 22% having 16 years or more. Males represented 53.5% of this income group, and 79.7 were married, while 10.7 were widowed; 78.8% were white or white and another race.

The marital status data reveals those who reported being *married*, represented 59.9% of respondents, and had a lower percent deceased rate (10.3%) than those selecting *widowed* (18.2%) or *never married* (14.3%). However the widowed group was older on average (77.26 yrs) than the married group (73.55 yrs), while the never married group was slightly younger (73.26 yrs). These differences could simply reflect the fact that widowhood and death are more likely to occur as people increase in age. This

possibility was supported by an independent samples t test of widowed and married respondents deceased at Wave 2 that revealed those widowed had on average died at a significantly (t(169) = -5.124, p < .001) older age (m = 80.72, sd = 6.8) than those who were married (m = 74.95, sd = 6.79). No significant age difference was found between deceased married and never married groups, but this may have been due to the latter's small size (N=10). It is likely that the higher percent deceased rate among widowed respondents also relates to lower income among this group (Angel, Jimenez et al. 2007); while 59.8% of widowed respondents had income below $14.999 per year, only 19.4% of married respondents reported income that low.

Respondents reporting different marital categories also were different in race, gender and education. While married respondents were 62% White or White and another race and 57.3% male, widowed respondents were 58.8% Black or Black and another race and 81.1% female, and divorced respondents were 65.6% Black or Black and another race and 55.7% female. Marital categories were more similar in the percent of respondents reporting 9-12 years of education with widowed reporting the lowest at 47.94% and divorced respondents reporting the highest at 58.5%. However, 35% of married respondents reported having 13 or more years of education while 28.5% of divorced, 26.8% of widowed, 22.8% of never married and 17.3% of separated respondent reported this education level.

Demographics and Well-being Indicator Scores

In Table 4.2 race and gender demographics were compared to well-being scale scores from Wave 1. Optimism, self-reported health (SR-Health), perceived control

(PP-Control, life satisfaction (L-Sat), self-esteem (SE) and forgiveness of others (Forgiveness) scores showed a statistically significant difference among responses when differentiated by race in One-way ANOVA equations, while depression (DI) and fear of death (FoD) scores did not. Of these, Optimism had the highest *F* ratio followed by Forgiveness, SE, PP-Control and SR-Health. *Black* or *Black and another race respondents* had the highest mean scores in Optimism, SE, and PP-Control. *White* respondents had the highest mean score in SR-Health and the lowest Forgiveness mean score, while *white and another race* had the highest Forgiveness mean score.

Table 4.2 Well-being Mean Scores at Wave 1 by Race and Gender

Category	Opt.	SR-Health	PP-Control	DI	Life Sat.	SE	FoD	Forgive-ness
Indicator Range	4-16	3-10	4-16	8-32	4-17	5-12	4-16	3-12
Sample Mean Scores	12.76	7.08	12.21	12.34	12.58	10.36	8.05	10.20
Race[a]								
White/Caucasian	12.26	7.24	11.95	12.13	12.34	10.12	8.12	9.80
White & another race	12.40	6.91	12.20	12.62	11.92	10.13	7.79	10.79
Black/African American	13.3	6.96	12.48	12.56	12.89	10.62	7.98	10.57
Black & another race	13.11	6.55	12.8	12.07	12.02	10.73	8.29	10.40
Race ANOVA F	20.620	3.764	4.589	.598	4.682	9.578	.393	16.367
Sig.	.000	.002	.000	.701	.000	.000	.805	.000
Gender								
Male	12.64	7.11	12.24	11.84	12.53	10.34	8.18	10.02
Female	12.86	7.06	12.19	12.69	12.62	10.38	7.95	10.33
Gender ANOVA *F*	3.231	.321	.195	10.707	.498	.221	3.229	12.497
Sig.	.072	.571	.659	.001	.480	.638	.073	.000

a. Respondents selecting other race options were dropped for race comparisons only
b. Pairwise case exclusion used for missing data
c. Weights = WEIGHT

When gender was compared to the well-being indicator scores, only DI and Forgiveness had significant ANOVA F values indicating a statistical difference in male and female scores. Of the two, Forgiveness had the highest F value with females on average scoring higher (mean difference = .31). Although depression had a higher mean difference in gender (mean difference = .85) it had a lower F value, and again women scored higher than males. Optimism and FoD were not quite statistically significant at the $p = .05$ level. The means suggest that females may have slightly higher optimism and slightly lower fear of death than males.

Table 4.3 compares well-being indicator scale scores with income, marital status, and education demographics. Among income categories, Optimism, SR-Health, PP-Control, DI and Forgiveness were statistically significant in their mean score differences. There appears to be a slight decline in Optimism scores as income categories increase. But this trend is not consistent across all the categories, for example the less than \$5,000 and \$60,000-\$79,999 income categories have similar Optimism mean scores with the latter being slightly higher. If Wave 1 income, which is ordinal data, is treated as interval data (income categories numbered 1-10), a statically significant weak correlation ($r = -.082$, $p < .05$) exists that supports the suggested trend. However, Wave 2 data did not support a significant relationship between optimism and income, and is therefore likely an anomaly of Wave 1 data.

The comparison of SR-Health scores and income categories revealed the strongest of the well-being indicator associations with income. The mean health status scores generally increased as income increased. A correlation of SR-Health scores and

income categories revealed a statistically significant positive association ($r = .252$, $p < .001$). A slightly weaker, but still significant, correlation was found in Wave 2 data ($r = .167$, $p < .001$). PP-Control scores, although significantly different between income categories, produced an insignificant correlation with income categories ($r = .000$, $p = .992$). This does not mean that factors related to income do not associate with PP-Control, but that the association is not simply about income increase. Given the variety of differences in taxation and benefits available to the varying income groups, well-being association, in some income levels, is likely to be highly influenced by factors not included in this study.

DI mean scores were significantly different between income categories and showed a somewhat inverse pattern. As income increased mean DI score generally decreased. This association is also apparent in the correlation of these two variables when income categories were treated as interval data. The result was a statically significant inverse correlation ($r = -.187$, $p < .001$). Similar to DI scores, Forgiveness scores had significant differences in mean scores between income categories, and appear to decrease as income increases. This observation is supported by a significant inverse correlation ($r = -.160$, $p < .001$) between the two variables. However, while Wave 2 data supported DI and income inverse associations found in Wave 1, it did not support that of Forgiveness and income. At Wave 2, Forgiveness means scores were neither significantly different by income category nor was a correlation evident. Additionally, DI/Forgiveness score similarities presented here do not mean that the two

were positive correlates; in fact they proved to be negatively related (r = -.188, $p <$ .001). Neither L-Sat, SE, nor FoD were significantly different by income category.

The comparison of marital status and well-being components revealed (see Table 4.3) that only DI and Forgiveness scores were significantly different between marital status categories. DI scores had the highest ANOVA F with separated having the highest mean score and married having the lowest. In Forgiveness and marital status, *widowed* respondents reported the highest mean scores and *never married* the lowest.

SR-Health, DI, FoD, and Forgiveness indicators all had means that were significantly different among education categories, while Optimism, PP-Control, L-Sat, and SE did not. SR-Health had the highest ANOVA F value of the well-being indicators and appeared to increase as education category increased. A comparison of SR-Health scores to highest grade completed (scale data) confirms a weak to moderate significant correlation that is a positive association (r = .204, $p <$ .001). DI, FoD and Forgiveness mean scores all had an inverse relationship with education in Table 4.3 that was also supported when scores were compared to the education scale data (r =-.12, $p <$ .001; r = -.056, $p <$ .05; r = -.089, $p <$ .01 respectively).

It may be concluded that the above demographics' interaction with well-being scores are related to age difference among respondents. For example, widowed respondents had higher depression, but were also on average the oldest marital group. However, a comparison of well-being indicator scores to age, shown in Table 4.4,

Table 4.3 Well-being Mean Scores at Wave 1 by Income, Marital Status and Education

Category	Opt.	SR-Health	PP-Control	DI	L-Sat.	SE	FoD	Forgiveness
Indicator Range	4-16	3-10	4-16	8-32	4-17	5-12	4-16	3-12
Sample Mean Scores	12.8	7.1	12.2	12.34	12.6	10.4	8.05	10.2
Income								
Less than $5,000	12.81	6.34	11.21	14.09	12.27	10.40	8.57	10.57
$5,001-$9,999	13.15	6.61	12.30	13.33	12.51	10.32	7.77	10.55
$10,000-$14,999	12.80	7.00	12.46	12.84	12.77	10.35	8.14	10.32
$15,000-$19,999	13.10	6.78	12.18	13.06	12.10	10.35	8.22	10.30
$20,000-$24,999	12.71	7.11	12.38	12.11	12.78	10.41	7.87	9.97
$25,000-$29,999	12.08	7.20	12.19	12.35	12.28	9.96	8.28	10.02
$30,000-$39,999	12.54	7.57	12.26	11.10	12.74	10.39	7.73	9.84
$40,000-$59,999	12.66	7.52	12.17	11.50	12.87	10.51	7.91	9.91
$60,000-$79,999	12.91	7.77	11.98	11.42	12.38	10.55	8.46	9.66
$80,000+	12.47	7.98	11.94	9.91	12.59	10.43	7.65	9.82
ANOVA F	2.186	8.430	2.120	4.683	1.215	.922	1.335	3.366
Sig.	.021	.000	.025	000	.282	.505	.214	.000
Marital Status								
Married	12.60	7.17	12.25	11.66	12.76	10.33	8.06	10.05
Separated	12.72	7.20	12.33	13.56	12.78	9.84	8.01	10.22
Divorced	12.83	6.97	12.19	12.44	12.14	10.33	8.18	10.12
Widowed	12.96	6.98	12.20	13.13	12.47	10.43	7.91	10.46
Never Married	12.5	7.12	12.07	12.87	12.36	10.51	8.50	9.85
ANOVA F	2.128	1.225	.160	7.584	2.261	1.296	1.050	5.188
Sig.	.075	.298	.959	.000	.061	.269	.380	.000
Education								
4 years or less	13.	6.36	12.39	12.84	12.73	10.31	7.78	10.79
5-8 years	12.78	6.54	11.81	13.35	12.53	10.15	8.31	10.36
9-12 years	12.74	7.09	12.30	12.46	12.62	10.39	8.17	10.16
13-16 years	12.74	7.48	12.26	11.70	12.47	10.44	7.75	10.07
17 years or more	12.83	7.17	12.11	11.35	12.77	10.44	7.86	10.16
ANOVA F	.231	14.112	2.253	5.160	.433	1.531	2.707	3.019
Sig.	.921	.000	.061	.000	.785	.191	.029	.017

a. Pairwise case exclusion used for missing data
b. Weights = WEIGHT

reveals that most of the age/well-being indicator correlations were weak, and of these only PP-Control, SE and FoD were consistent in statistically significant correlations with age across both waves.

Table 4.4 Respondent Age and Well-being Score Correlations

Age Comparisons[a]	Opt.	SR-Health	PP-Control	DI.	L-Sat.	SE	FoD	Forgiveness.
Wave 1 Well-being Scores	-.054	-.082	-.131	.025	-.045	-.064	-.061	.101
Significance	.055	.002	.000	.341	.104	.016	.029	.000
Wave 2 Well-being Scores	-.021	-.059	-.109	.053	-.074	-.062	-.110	.047
Significance	.508	.065	.001	.095	.023	.050	.001	.142

 a. Age data was not collected in the Wave 2 survey, Age at Wave 1 was used for both correlation sets
 b. Pairwise case exclusion used for missing data

An additional analysis of the well-being indicators and the demographics was conducted to determine whether those deceased at Wave 2 had different well-being indicators scores at Wave 1 than those of other disposition categories. Using a one way ANOVA with a Tukey's HSD post-hoc comparison in SPSS, mean well-being indicator scores were compared to the Wave 2 disposition categories *completed* (survey),

Table 4.5 Well-being Indicator Scores at Wave 1 and Disposition at Wave 2

	Opt.	SR-Health	PP-Control	DI.	L-Sat	SE	FoD	Forgiveness
Disposition - ANOVA *F*	.349	22.038	3.918	5.719	1.580	.865	2.066	.992
Significance (2 tailed)	.855	.000	.004	.000	.177	.485	.083	.411

refused, not eligible, deceased, and *can't locate*. Health had the highest ANOVA *F* value for the disposition categories (See Table 4.5) indicating these scores were more different among disposition categories than the other well-being measures. Additionally, a comparison of means and a Turkey HSD analysis showed that those deceased at Wave 2 had reported significantly lower SR-Health scores at Wave 1 than any other disposition category (See Table 4.6). PP-Control and DI were also statistically

different among disposition groups but those deceased at Wave 2 were only significantly different from certain disposition groups. Those deceased at Wave 2 had scored significantly lower in PP-Control at Wave 1 than those who completed the

Table 4.6 Well-being Mean Scores at Wave 1 of Respondents Deceased at Wave 2 Compared to Respondents in other Disposition Categories

Well-being Indicator	Disposition	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
SR-Health W1	Complete	-1.1421**	.12527	.000	-1.4842	-.7999
	Refused	-1.1726**	.22043	.000	-1.7747	-.5705
	Not eligible	-.6609*	.21508	.018	-1.2483	-.0734
	Deceased					
	Can't locate	-.7890**	.19154	.000	-1.3122	-.2658
PP-Control W1	Complete	-.6068**	.16769	.003	-1.0648	-.1487
	Refused	-.5019	.28811	.408	-1.2889	.2851
	Not eligible	-.3756	.29356	.704	-1.1775	.4263
	Deceased					
	Can't locate	-.8236*	.25475	.011	-1.5195	-.1277
DI W1	Complete	1.7705**	.38688	.000	.7138	2.8271
	Refused	2.111*	.67003	.014	.2815	3.9416
	Not eligible	1.2860	.66077	.293	-.5188	3.0907
	Deceased					
	Can't locate	1.1297	.58512	.301	-.4684	2.7278

a. Pairwise case exclusion used for missing data
b. Tukey's DSD Analysis using SPSS
* The mean difference is significant at the .05 level.
** The mean difference is significant at the .01 level.

survey and those who could not be located at Wave 2, but not more than those who refused or were not eligible. DI scores were significantly higher at Wave 1 for those in the deceased disposition category of Wave 2 than those completing and those refusing to complete the survey, but not different than those who could not be located or those not eligible.

What has been most remarkable in this comparison of well-being indicator scores and demographic is how little Optimism scores were associated with variants in

the demographics; and in this trend is somewhat similar to L-Sat and SE associations. Optimism scores showed significant difference only among race ($F = 20.62$, $p < .001$) and income categories ($F = 2.186$, $p < .05$), although gender ($F = 3.231$, $p = .072$) and marital status ($F = 2.128$, $p < .075$) were nearly significant. In race, an ANOVA with a Tukey's HSD analysis of race categories and Optimism scores reveals that Black and White respondents had a 1.0342 mean difference with Black respondents averaging higher Optimism scores than Whites. No other race categories were significantly different in Optimism. Income data analysis (Tukey's HSD) revealed no clear pattern in the associations with Optimism.

Optimism and Well-being Indicator Score Analysis

Although optimism was not highly associated with most of the studies demographics, it did have associations with the other well-being indicators. Most of the well-being indicator scores were significantly correlated to one another (See Table 4.7); only SR-Health and Forgiveness scores were not significant in their associations. Optimism scores were significantly associated with all of the well-being indicators, but most highly correlated with SE in Wave 1 and PP-Control in Wave 2. SR-Health, PP-Control, L-Sat, SE and Forgiveness were all positively associated with Optimism, while DI and FoD were inversely correlated. It is particularly interesting that Optimism was the highest well-being correlate of PP-Control, L-Sat, SE and Forgiveness scores suggesting that it may play a role in these factors.

To determine whether certain well-being indicators play a key role in shared variance between the indicators, an exploratory factor analysis was conducted using

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Table 4.7 Well-being Indicator Score Correlations at Wave 1 & 2

Indicator	Opt.	Health	Control	DI	L-Sat.	SE	FoD	Forg.
Opt. W1	1	.214**	.486**	-.228**	.477**	.502**	-.264**	.317**
W2	1	.337**	.612**	-.373**	.522**	.466**	-.196**	.283**
Health W1	.214**	1	.233**	-.350**	.286**	.158**	-.114**	.017
W2	.337**	1	.378**	-.385**	.356**	.225**	-.093**	.055
PP-Control W1	.486	.233**	1	-.206**	.395**	.393**	-.159**	.143**
W2	.612	.379**	1	-.341**	.464**	.378**	-.142**	.177**
DI.W1	-.228**	-.350**	-.206**	1	-.318**	-.175**	.226**	-.188**
W2	-.373**	-.385**	-.341**	1	-.327**	-.193**	.137**	-.185**
L-Sat. W1	.477**	.286**	.395**	-.318**	1	.381**	-.186**	.246**
W2	.522**	.356**	.464**	-.327**	1	.363**	-.159**	.275**
SE W1	.502**	.158**	.393**	-.175**	.381**	1	-.250**	.212**
W2	.466**	.225**	.378**	-.193**	.363**	1	-.297**	.146**
FoD W1	-.264**	-.114**	-.159**	.226**	-.186**	-.250**	1	-.212**
W2	-.196**	-.093**	-.142**	.137**	-.159**	-.297**	1	-.258**
Forg. W1	.317**	.017	.143**	-.188**	.246**	.212**	-.212**	1
W2	.283**	.055	.177**	-.185**	.275**	.146**	-.258**	1

a. All correlations are within Wave associations using no weights
b. Pairwise case exclusion used for missing data
c. N values range = 908 – 1386
d. ** Correlation is significant at the 0.01 level (2-tailed).

Table 4.8 Rotated Component Matrix of Well-being
Indicator Scores

Well-being Indicators	Components	
	1	2
Optimism Scores Wave 1	.784	.203
PP-Control W1	.591	.310
DI W1	-.185	-.710
L-Sat W1	.581	.433
SE W1	.720	.117
FoD W1	-.466	-.115
Forgiveness W1	.601	-.124
SR-Health W1	.02075	.848

a. Extraction Method: Principal Component Analysis.
b. Rotation Method: Varimax with Kaiser Normalization.
c. Rotation converged in 3 iterations.

Principle Component extraction and Varimax with Kaiser Normalization on the variable

scores of Wave 1. The results (see Table 4.8) suggest 2 factors among the variables, one

(eigenvalue = 2.920) with Optimism, and SE scores as the strongest components, and

the second (eigenvalue = 1.102) with SR-Health and DI scores having the highest

shared variance. The results suggest a polarization of well-being indicator association

between optimism and self-reported health. When the same factor analysis was conducted on Wave 2 data, SR-Health and Optimism shared considerably more variance with the other well-being indicators on the first factor (.579 & .813 respectfully).

Explained Optimism Variance

To further consider Optimism's association with the other well-being indicators, a weighted least squares regression equation was generated using SPSS. The stepwise option was selected to determine the best sequence for explained variance in Wave 1 Optimism scores based on variance of the other Wave 1 well-being indicators and the demographics. The outcome indicated an adjusted R^2 of .463; $F_{11, 928} = 74.682$, $p < .001$. The significant variables were

W1 Optimism Predictor Variable.	Beta	t	Sig.
W1 Optimism (Constant)	3.481	.001	
SE Scores W1	.245	8.780	.000
PP-Control W1	.252	9.163	.000
L-Sat Score W1	.217	7.654	.000
Forgiveness W1	.128	4.973	.000
Black or Black and Another Race	.109	4.243	.000
FoD W1	-.089	-3.507	.000
Income $15,000-$19,999	.073	3.021	.003
Married	-.059	-2.391	.017
Income $60,000-$79,999	.047	1.897	.058
SR-Health W1	.055	2.130	.033
Income $25,000-$29,999	-.048	-1.969	.049

Cases 430, 503, 836 were removed as outliers
Weight least squares regression by WEIGHT

Of the Wave 1 well-being indicators, only DI variance did not significantly explain Optimism variance in Wave 1. Optimism scores increased with increases in SE, PP-

Control, L-Sat, Forgiveness, and SR-Health scores. Optimism was also significantly higher for respondents who were Black or Black and Another Race, or those who reported income of $15,000-$19,999. Optimism scores were near significantly different for those reporting income of $60,000-$79,999. Wave 1 Optimism significantly decreases with increased FoD, reporting income of $25,000-$29,999 or being married.

Explained Variance in the Other Well-being Indicators

In addition to Optimism variance being explained by the variance in the other well-being indicators, the reverse was also true, Optimism explained the variance of some of the other well-being indicator scores. In PP-Control, L-Sat, SE, and Forgiveness score variance; Optimism scores had the highest association when other well-being indicators were controlled (see Table 4.9). FoD variance was also significantly explained by Optimism; although more so by DI and SE. Although Optimism had significant correlations with SR-Health and DI scores in Table 4.7, these associations were reduce to insignificance when other well-being indicators were controlled in Wave 1 data. This means that Optimism association with SR-Health and DI is mostly indirect through the other well-being indicators. In the regression equations, DI and SR-Health were more highly associated with each other than with other variables measured. Similar regression analysis using Wave 2 data yielded comparable results, except that Optimism had a beta of -.162 in the equation explaining DI variance when controlling for the other well- being indicator variance. While the Wave 2 findings appear contradictory, it is actually supportive of the factor analysis

Table 4.9 Well-being Indicator Variance Explained by Other Well-being Indicators

DV & Controlled IV.	B	Std. Error	Beta	T	Sig.	Tolerance	VIF
SR-Health (Constant)	6.613	.435		15.209	.000		
DI Scores W1	-.0962	.010	-.289	-10.079	.000	.879	1.137
L-Sat W1	.115	.021	.170	5.527	.000	.762	1.313
PP-Control W1	.096	.024	.120	4.069	.000	.836	1.197
Forgiveness W1	-.094	.027	-.097	-3.455	.001	.925	1.081
Adj. R^2=.173/F=60.830/p<.001							
PP-Control (Constant)	3.523	.420		8.393	.000		
Optimism W 1	.299	.030	.308	9.985	.000	.648	1.542
L-Sat W1	.134	.025	.159	5.397	.000	.714	1.401
SE W1	.226	.041	.163	5.572	.000	.722	1.385
SR-Health Wave 1	.119	.033	.096	3.670	.000	.910	1.099
Adj. R^2 =.296/F= 121.007/p<.001							
DI (Constant)	24.019	1.270		18.919	.000		
SR-Health W1	-.840	.083	-.279	-10.094	.000	.910	1.099
L-Sat W1	-.380	.058	-.187	-6.520	.000	.849	1.178
FoD W1	.286	.057	.136	4.991	.000	.931	1.075
Forgiveness W1	-.319	.082	-.108	-3.914	.000	.906	1.103
Adj. R^2 =.205/F= 74.854/p<.001							
L-Sat (Constant)	2.827	.670		4.220	.000		
Optimism W 1	.287	.036	.250	8.026	.000	.603	1.659
DI W1	-.072	.013	-.148	-5.550	.000	.829	1.207
PP-Control W1	.177	.034	.150	5.227	.000	.717	1.395
SE W1	.217	.047	.132	4.617	.000	.714	1.401
SR-Health W1	.182	.039	.123	4.659	.000	.837	1.195
Forgiveness W1	.126	.037	.087	3.360	.001	.873	1.146
Adj. R^2 =.329/F= 94.458/p<.001							
SE (Constant)	5.511	.332		16.601	.000		
Optimism W1	.229	.021	.328	10.680	.000	.645	1.549
PP-Control W1	.116	.021	.161	5.567	.000	.729	1.371
L-Sat W1	.0856	.018	.140	4.876	.000	.734	1.362
FoD W1	-.070	.016	-.112	-4.360	.000	.925	1.081
Adj. R^2 =.306/F= 127.16/p<.001							
FoD (Constant)	12.822	.648		19.789	.000		
Optimism W1	-.139	.037	-.125	-3.732	.000	.690	1.450
DI W1	.072	.014	.152	5.289	.000	.929	1.076
SE W1	-.217	.051	-.136	-4.237	.000	.742	1.348
Forgiveness W1	-.162	.041	-.115	-3.914	.000	.883	1.133
Adj. R^2 = .123/F= 40.963/p<.001							
Forgiveness (Constant)	8.899	.473		18.827	.000		
Optimism W1	.184	.025	.232	7.243	.000	.734	1.362
FoD W1	-.084	.021	-.118	-4.090	.000	.901	1.110
L-Sat W1	.076	.023	.110	3.395	.001	.709	1.410
SR-Health W1	-.121	.031	-.118	-3.946	.000	.840	1.191
DI W1	-.0389	.010	-.114	-3.735	.000	.801	1.248
Adj. R^2 = .141/F= 38.61/p<.001							

a. Stepwise option used with pairwise deletion of missing data

b. Outliers were ignored

c. The demographics were not included

presented in Table 4.8 that suggests depression associates with two factors, one optimism related & one health related.

When the R^2s and F of the preceding analysis are compared, Optimism clearly had the most variance explained by the other indicators when the controls were added (Wave 1 = R^2 of .441; $F_{5,1132}$ = 129.313 (demographic were excluded), $p < .001$; Wave 2 = R^2 of .515; $F_{5,895}$ = 190.025, $p < .001$). The next highest variance explanation was for L-Sat, followed by SE and then PP-Control (see Table 4.9). FoD variance was least explained by the other well-being indicators suggesting less association.

<u>Optimism and Well-being Indicator Change Analysis</u>

Another important way to consider optimism and well-being association is to compare baseline well-being indicator scores to indicator change values and Wave 2 scores. Conditions to assert a causal relationship between two variables requires, "(a) X must precede Y, (b) X and Y must covary, and (c) no rival explanations account as well for the covariance of X and Y" (Vogt, 1999). While a and b maybe fairly simple to determine, c can be more difficult to prove even in an experimental design, and more so when no control group is available.

In an attempt to determine whether baseline scores predict change and future scores, this section compares baseline well-being scores and the demographic to well-being score change (delta), configured by subtracting Wave 1 scores from Wave 2 scores. The baseline indicators' scores and the demographics were also compared to Wave 2 scores to determine which were predictors of future well-being scores, particularly Optimism scores. Categorical demographics were converted to dummy

variables for inclusion in the regression equations. Each table presents three regression equation results. The first equation regresses the selected dependent variable's delta on the baseline well-being indicators' scores without including the dependent variable's baseline scores in the equation. The results indicate variables that have a more direct influence, and those that indirectly influence the dependent variable's delta scores through its baseline scores. The later are identifiable because they have an inverse relationship as compared to their baseline dependent/independent variable correlations. For example, baseline Optimism (IV) and SE scores (DV), which are positively correlated, will have a negative beta for Optimism in the first regression equation that will disappear in the second equation if Optimism indirectly effects SE delta through SE baseline scores. The *betas* have inverse signs due to baseline SE scores regression toward the mean in regression equations involving SE delta, which is not controlled for in the first equation and is partly expressed through baseline SE's associate baseline Optimism. The second equation controls for the delta variable's baseline scores, expressed as a negative beta which is exaggerated due to mathematical multiplicity (Jamieson 1995; Y-K, Baelum et al. 2005). The worth of this equation is that it shows the direct influence of the demographic and other well-being indicator scores on the selected variable's delta. The third equation is the same as equation 2 but changes the dependent variable to the selected variable's Wave 2 scores to determine the prediction capacity of the independent variables on future scores. Variables with non-significant coefficients are not shown in the tables. Weights were not used in this section due to the complication of involving weight values from two different surveys.

Optimism Change and Well-being Indicators

In the first multiple regression of Table 4.10, the change in Optimism scores between Wave 1 and 2 were regressed on the other well-being indicators baseline scores and the demographics (categorical variables were converted to dummy variables) using the stepwise option of SPSS; baseline Optimism scores were not controlled. The results indicate that PP-Control and SE had negative associations with Optimism delta. This alone would suggest that the two inversely influenced Optimism change given that baseline PP-Control and SE scores proceeded Optimism change and covaried. However, both indicators were positive correlates of baseline Optimism scores, which are a likely avenue of indirect influence on Optimism delta scores, and the source of the negative *betas*.

The second Optimism delta regression equation of Table 4.10 supports the idea of indirect PP-Control and SE influence through baseline Optimism scores. Once baseline Optimism scores are included in the equation, PP-Control and SE effect on Optimism's delta is reduced to insignificance, and a strong inverse correlation between Optimism baseline scores and Optimism delta appears. This latter association is exaggerated and inverse (as are indirect influence though baseline Optimism) due to both regression towards the mean and mathematical multiplicity. As mentioned previously, this occurred due to Optimism change scores being a function of Optimism baseline scores (Jamieson 1995; Y-K, Baelum et al. 2005). Adding baseline Optimism scores to this equation controls for the exaggerated effect allowing for a clearer image of the association of the other well-being indicators on Optimism delta.

SR-Health and FoD also had significant associations with Optimism delta in the first regression equation of Table 4.10. However, controlling for Optimism baseline scores slightly strengthened the SR-Health/Optimism delta association and Forgiveness emerged as a significant contributor, while the FoD/Optimism delta association became insignificant. Considering these first two equations, it appears that the baseline Optimism/Optimism delta relationship suppressed the influence of SR-health slightly and Forgiveness totally. Respondent age at Wave 1 also emerged as a weak predictor of Optimism delta. However, the association was negative; older respondents were slightly less optimistic. To further consider age/optimism associations, a paired *t*-test comparing respondents Optimism scores at Wave 1 and 2, showed that the scores had a mean difference of -.1665 (Wave 2 minus Wave 1) which was not significant ($p = .080$). This means that optimism did not significantly increase or decrease between the waves for respondents who completed surveys at Wave 2. A paired *t*-test without controls for other factors clearly leaves a wide range of influences that may have affected Optimism scores. However, given the correlation, regression and paired *t*-test data, it appears members of this sample did not increase in optimism over the 3 year period of the study. Conversely respondents reporting $30,000-39,999 annual income on average experienced a significant decrease in their Optimism scores between the waves. None of the other demographics were significantly associated with Optimism delta.

Table 4.10 Optimism Score Change Explained by Wave 1 Well-being Indicator Scores and the Demographic

DV & Controlled IV	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1.Optimism Delta[a] (Constant)	3.698	1.069		3.458	0.001		
PP-Control W1	-.275	.057	-.202	-4.803	.000	.813	1.229
SE Scores W1	-.261	.080	-.139	-3.283	.001	.807	1.239
SR-Health W1	.182	.067	.107	2.730	.007	.936	1.068
FoD W1	.113	.047	.096	2.428	.015	.929	1.076
Adj. R^2=.093/F= 17.073/p <.001							
2. Optimism Delta[b] (Constant)	8.095	1.274		6.357	.000		
Optimism Scores W1	-.824	.047	-.624	-17.66	.000	.850	1.177
SR-Health W1	.271	.057	.159	4.72	.000	.937	1.067
Forgiveness W1	.275	.058	.165	4.76	.000	.882	1.134
Age	-.032	.014	-.076	-2.32	.021	.977	1.024
$30,000-39,999 Income	-.712	.313	-.075	-2.28	.023	.985	1.016
Adj. R^2= .331/F= 63.347/p<.001							
3. Optimism W2[c] (Constant)	6.395	.791		8.083	.000		
Forgiveness W1	.277	.053	.192	5.212	.000	.955	1.047
SR-Health W1	.187	.054	.127	3.487	.001	.975	1.026
SE Scores W1	.198	.061	.122	3.252	.001	.931	1.074
Optimism W1			.081	1.849	.065	.682	1.466
Adj. R^2 = .080/F= 21.432/p <.001							

a. DV = Optimism delta, IV = self-reported health, personal control, depression, life satisfaction, self-esteem, fear of death, forgiveness of others, age, income, gender, race and education
b. DV = Optimism delta, IV = baseline optimism, self-reported health, personal control, depression, life satisfaction, self-esteem, fear of death, forgiveness of others, age, income, gender, race and education
c. DV = Optimism scores at Wave 2 was the dependent variable, IV = optimism, self-reported health, personal control, depression, life satisfaction, self-esteem, fear of death and forgiveness of others
d. Stepwise option used with pairwise deletion of missing data
e. Outliers were ignored
f. Non-significant independent variables were drop from the table

The third regression equation was to determine whether baseline well-being indicators and the demographics were significant predictors of Wave 2 Optimism scores when baseline Optimism score were controlled for. Again, SR-health and Forgiveness emerged as significant predictors of Optimism, even in Wave 2. SE reemerged, but this time in a positive association with Optimism. Baseline Optimism was not a significant predictor of Optimism Wave 2 scores at the p < .05 level in the third regression

equation. Its effect on Wave 2 Optimism scores appears to be particularly affected by controlling for Forgiveness scores, without which baseline Optimism becomes the strongest predictor (*beta* = .126, *t* = 2.942, *p* < .01) of Wave 2 Optimism scores. None of the demographics significantly predicted Wave 2 Optimism scores when baseline well-being components were controlled for.

SR-Health Change and Optimism

SR-Health delta, between Wave 1 and 2, had small but significant associations with baseline DI, income less than $5,000, age at Wave 1, Forgiveness and L-Sat when the demographic and baseline well-being indicator scores, except SR-Health, were controlled for (see Table 4.11, 1). DI, income less than $5,000, and Forgiveness had positive associations with Baseline SR-Health, while age, and L-Sat had negative associations. However, like the previous Optimism regression equations, when baseline SR-Health scores were was added to independent variables in the second regression equation, the associations of DI and L-Sat were reduced to insignificance, and the association with highest grade completed and PP-Control became significant. It is apparent then that DI and L-Sat indirectly influenced SR-Health delta through baseline SR-Health, which explains their inverse associations when compared to the previous correlation findings. Age, Forgiveness and income less than $5,000 remained significant predictors of SR-Health delta in the second equation but were not significant in predicting future Wave 2 SR-Health scores in the third regression equation.

Table 4.11 Health Status Score Change Explained by Well-being Indicator Scores
at Wave 1 and the Demographics

DV & Controlled IV	B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1 SR-Health Delta[a] (Constant)	.521	.435		1.198	.231		
DI W1	.019	.007	.109	2.860	.004	.879	1.138
Income less than $5000	.345	.134	.093	2.581	.010	.982	1.018
Age@ W1	-.014	.005	-.106	-2.917	.004	.979	1.021
Forgiveness W1	.053	.019	.102	2.729	.007	.909	1.100
L-Sat Score W1	-.030	.014	-.083	-2.142	.033	.859	1.164
Adj. R^2= .038/F= 6.961/p <.001							
2 SR-Health Delta[b] (Constant)	2.038	.389		5.240	.000		
SR-Health W1	-.241	.018	-.455	-13.640	.000	.946	1.058
Age@ W1	-.016	.004	-.123	-3.738	.000	.975	1.025
Highest grade completed	.029	.008	.115	3.430	.001	.935	1.069
Forgiveness W1	.043	.017	.082	2.518	.012	.980	1.021
Income less than $5000	.266	.122	.072	2.180	.030	.968	1.033
Adj. R^2= .213/F= 41.584/p <.001							
3. SR-Health W 2[c] (Constant)	5.330	.497		10.728	.000		
SR-Health W1	.557	.048	.399	11.611	.000	.948	1.055
Income $10,000-14,999	-.433	.202	-.072	-2.141	.033	.981	1.020
FoD W1	-.066	.033	-.068	-2.016	.044	.986	1.015
Highest grade completed	.045	.023	.068	1.969	.049	.940	1.064
Adj. R^2= .190/F= 43.405p <.001							

a. Dependent Variable = Change in self-rated health, baseline self rated health was not an independent variable in the regression equation.
b. Dependent Variable = Change in self-rated health, baseline self rated health was not an independent variable in the regression equation.
c. Dependent Variable = Self rated health scores at Wave 2
d. Stepwise option used with pairwise deletion of missing data
e. Outliers were ignored
f. Non-significant independent variables were drop from the table

In predicting Wave 2 SR-Health, baseline SR-Health explained a strong significant portion of the variance, and income between $10,000 - $14,999, FoD and highest grade completed were weak but significant predictors. Income between $10,000-14,999 and baseline FoD had negative associations with Wave 2 SR-Health

while baseline SR-Health and highest grade completed had positive associations. Optimism was not a significant predictor of SR-Health delta or Wave 2 scores. The fact that Optimism didn't predict SR-Health even when baseline SR-Health was not controlled supports the idea presented in section 4.2.2 that the Optimism/SR-Health correlation is due to an indirect association, and not likely through baseline SR-Health.

PP-Control Change and Optimism

Change in PP-Control delta had significant associations with baseline Optimism and Forgiveness scores, and reporting income between \$10,000 and \$14,999 in equation 1 of Table 4.12. In this multiple regression equation, the demographics and the other well-being indicators, except baseline PP-Control, were included. The results indicate that those in the \$10,000 - \$14,999 income category reported a significant decrease in PP-Control Delta as compared with other income categories, which continued even when baseline PP-Control was included in the second regression equation. This equation also revealed that respondents in the lowest income group (less than \$5,000) also had a significant decrease in PP-Control scores between Wave 1 and 2. However, respondent reporting income of \$15,000-19,999 or who were married at Wave 1 had significantly higher PP-Control scores at Wave 2. *Age* at Wave 1 significantly predicted both PP-Control delta and Wave 2 PP-Control scores in negative associations when baseline PP-Control scores were included in the regression equation.

Optimism scores had a negative association with PP-Control delta in equation 1; however when baseline PP-Control was added to the independent variables in the equation, baseline Optimism association with PP-Control delta resulted in an

Table 4.12 Perceived Control Score Change Explained by Well-being Indicator Scores and the Demographics at Wave 1

DV & Controlled IV.	B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1. PP-Control Delta[a] (Constant)	2.818	.766		3.678	.000		
Optimism Scores W1	-.39	.051	-.31	-7.75	.000	.900	1.111
Forgiveness W1	.206	.064	.127	3.207	.001	.898	1.113
Income $10,000-14,999	-.73	.267	-.10	-2.73	.007	.998	1.002
Adj. R^2= .091 /*F*= 22.512 /*p* <.001							
2. PP-Control Delta[b] (Constant)	9.678	1.24		7.804	.000		
PP-Control W1	-.84	.044	-.63	-19.1	.000	.898	1.113
SR-Health W1	.20	.054	.12	3.705	.000	.935	1.07
Forgiveness W1	.214	.052	.132	4.118	.000	.959	1.043
Age @ Wave 1	-.04	.013	-.10	-3.22	.001	.961	1.041
Income less than $5,000	-.84	.372	-.07	-2.26	.024	.957	1.045
Income $10,000-14,999	-.49	.226	-.07	-2.16	.031	.980	1.021
Adj. R^2= .364/*F*= 62.634/*p* <.001							
3. PP-Control W2[c] (Constant)	8.794	1.219		7.216	.000		
PP-Control W1	.124	.042	.111	2.958	.003	.910	1.099
Forgiveness W1	.221	.05	.161	4.434	.000	.960	1.042
SR-Health W1	.19	.052	.136	3.685	.000	.937	1.067
Age @ Wave 1	-.03	.013	-.08	-2.24	.025	.938	1.067
Married	.355	.164	.079	2.16	.031	.962	1.04
Income $15,000-19999	.488	.247	.071	1.977	.048	.992	1.008
Adj. R^2= .081/*F*= 11.666/*p* <.001							

a. Dependent variable =change in perceived personal control, baseline PP-Control was not an IV of the regression equation
b. Dependent variable =change in perceived personal control, baseline PP-Control was an IV of the regression equation
c. Dependent variable = perceived personal control at Wave 2
d. Stepwise option used with pairwise deletion of missing data
e. Outliers were ignored
f. Non-significant independent variables were drop from the table

insignificant coefficient in regression equation 2. This suggests that the Optimism score effect on PP-Control delta in the first regression equation is indirect through personal control baseline scores. Additionally, baseline Optimism did not significantly predict Wave 2 PP-Control scores when baseline PP-Control scores were control for. The

association between baseline Forgiveness scores and PP-Control delta remained significant even after baseline PP-Control was added, indicating that the association is likely direct, and not through baseline PP-Control or other independent variable scores. Forgiveness scores were the strongest predictor of Wave 2 PP-Control scores when all the baseline well-being indicators and demographic were controlled. Baseline SR-Health had a significant association with PP-Control delta in the second equation but not the first. This suggests that baseline PP-Control scores dampened the effect of SR-Health on PP-Control delta. When Wave 2 PP-Control was the dependent variable, baseline SR-Health scores were also a significant predictor, even slightly more so than baseline PP-Control.

Depression Change and Optimism

Change in DI scores between Wave 1 and 2 was the next delta compared to baseline well-being indicator scores and the demographics (see Table 4.13). The first multiple regression equation precluded solely baseline DI scores. The results indicate that baseline L-Sat and Forgiveness scores, and being White or White and another race explained a small, but significant part of the DI delta variance. However, when baseline DI scores were controlled for in the second regression equation, the effect of L-Sat and Forgiveness was reduced to non-significance while that of being White or White and another race remained. The results suggest that baseline L-Sat and Forgiveness have an indirect association with DI delta through baseline DI. Additionally, respondents who were White or White and another race reported a significant increase in depression over time independent of baseline DI scores, while those who were Black or Black and

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another race did not. Baseline SR-Health association with DI delta became significant in the second regression equation of Table 4.13. It appears that baseline DI scores diminish the baseline SR-Health/DI delta association, which becomes apparent when baseline depression is controlled for. Highest grade completed and income less than $5,000 also became predictors of DI delta in equation 2. Higher grades were a predictor

Table 4.13 Depression Score Change Explained by Well-being Indicator Scores and Demographics at Wave 1

DV & Controlled IV.	B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1. Depression Delta[a] (Constant)	-8.44	1.614		-5.23	.000		
L-Sat Score W1	.265	.09	.112	2.954	.003	.936	1.068
Forgiveness W1	.412	.132	.121	3.12	.002	.903	1.108
White or White and Another Race	.982	.425	.087	2.312	.021	.949	1.054
Adj. R^2= .031/*F*= 8.548/*p*<.001							
2. Depression Delta[b] (Constant)	13.23	1.14		11.604	.000		
Depression Scores W1	-.752	.037	-.649	-20.56	.000	.873	1.146
SR-Health W1	-.439	.112	-.126	-3.923	.000	.847	1.181
Highest grade completed	-.152	.051	-.093	-2.975	.003	.895	1.117
Income less than $5,000	1.985	.732	.081	2.711	.007	.964	1.038
White or White and Another Race	.756	.344	.067	2.197	.028	.929	1.077
Adj. R^2 =.377/*F*= 87.832/*p*<.001							
3. Depression W2[c] (Constant)	14.11	1.579		8.934	.000		
Depression Scores W1	.204	.037	.208	5.518	.000	.856	1.168
SR-Health W1	-.405	.111	-.137	-3.662	.000	.868	1.152
Gender is Female	.734	.339	.076	2.166	.031	.992	1.008
SE Scores W1	-.245	.117	-.075	-2.097	.036	.958	1.044
Adj. R^2 = .100/*F*= 21.56*p*<.001							

a. Dependent variable = change in depression. Baseline Depression was not in the regression equation

b. Dependent variable = change in depression. Baseline Depression was in the regression equation

c. Dependent variable = Wave 2 depression scores

d. Stepwise option used with pairwise deletion of missing data

e. Outliers were ignored

f. Non-significant independent variables were drop from the table

of significantly decreased DI Delta, while those reporting income below $5,000 had significantly higher increase in depression between Wave 1 and 2 than those of other income categories.

In the prediction of Wave 2 DI scores, baseline DI was the strongest predictor, follow by SR-Heath, being female and SE scores. Higher baseline Depression scores significantly predicted higher Wave 2 Depression scores, as did being female. However, baseline SR-Health and SE scores negatively associated with Wave 2 Depression; higher scores predicted significantly lower depression. Optimism scores had no significant association with DI delta or Wave 2 DI scores in these equations.

Life Satisfaction Change and Optimism

L-Sat delta variance was significantly explained by baseline Optimism scores, income $15,000 - $19,999, baseline SE scores, age, Black or Black and another race, highest grade completed and income $5,001- $9,999 when the demographics and other baseline well-being, except L-Sat, were controlled for in a stepwise multiple regression process (see Table 4.14). When baseline L-Sat was entered into the equation, all of the significant predictors of equation 1, except age and Black or Black and another race became insignificant, meaning that the other variables' associations with L-Sat delta were indirect through baseline L-Sat. Regression equation 2 indicates that age and Black or Black and another race appear to have a direct influence on L-Sat delta. SR-Health, Forgiveness, and income $10,000 - $14,999 emerged as significant associates with L-Sat delta. SR-Health and Forgiveness only appear to have significant

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Table 4.14 Life Satisfaction Score Change Explained by Well-being Indicator Scores
and Demographic at Wave 1

DV & Controlled IV.	B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1. L-Sat Delta[a] (Constant)	6.631	1.471		4.507	.000		
Optimism W1	-.299	.057	-.23	-5.286	.000	.714	1.4
Income 15,000-19,999	1.07	.311	.131	3.442	.001	.949	1.054
SE Scores W1	-.221	.08	-.12	-2.768	.006	.731	1.368
Age @ W1	-.0309	.015	-.07	-2.02	.044	.982	1.018
Black or Black and Another Race	.453	.217	.085	2.085	.037	.833	1.2
Highest grade completed	.09296	.032	.119	2.951	.003	.845	1.183
Income 5,001-9,999	.644	.287	.091	2.246	.025	.825	1.211
Adj. R^2= .101 /F= 11.523 /p <.001							
2. L-Sat Delta[b] (Constant)	8.346	1.129		7.39	.000		
L-Sat Score W1	-.763	.037	-.68	-20.725	.000	.851	1.175
SR-Health W1	0.241	0.053	0.145	4.55	.000	0.897	1.115
Forgiveness W1	0.174	0.052	0.107	3.336	.001	0.887	1.128
Age @ W1	-0.0344	0.013	-0.08	-2.742	.006	0.972	1.029
Income $10,000-14,999	-0.472	0.216	-0.07	-2.181	.030	0.989	1.011
Black or Black and Another Race	0.366	0.168	0.068	2.176	.030	0.924	1.082
Adj. R^2 = .402 /F= 74.504 /p <.001							
3. L-Sat W2[c] (Constant)	7.263	0.725		10.022	.000		
L-Sat Score W1	0.257	0.04	0.265	6.408	.000	0.71	1.408
Forgiveness W1	0.19	0.053	0.136	3.621	.000	0.862	1.161
SR-Health W1	0.185	0.053	0.13	3.495	.001	0.885	1.13
Income $10,000-14,999	-0.549	0.217	-0.09	-2.525	.012	0.969	1.032
Married	0.381	0.168	0.083	2.26	.024	0.912	1.096
White or White and Another Race	-0.467	0.173	-0.10	-2.695	.007	0.861	1.161
Optimism W1	-0.0959	0.047	-0.086	-2.053	.040	0.688	1.453
Adj. R^2 = .137 /F= 17.103/p <.001							

a. Dependent variable = change in life satisfaction, baseline L-sat not controlled

b. Dependent variable = change in life satisfaction with baseline L-Sat an IV in the regression equation.

c. Dependent variable = Wave 2 life satisfaction scores

d. Stepwise option used with pairwise deletion of missing data

e. Outliers were ignored

f. Non-significant independent variables were drop from the table

associations with L-Sat delta after controlling for L-Sat baseline scores suggesting the baseline L-Sat has a dampening effect upon the associations. L-Sat delta was significantly higher as baseline SR-Health and Forgiveness scores rose and for those who were Black or Black and another race. However L-Sat delta significantly decreased with age and for the $10,000 - $14,999 income group.

In the comparison of baseline well-being indicators with L-Sat at Wave 2 (equation 3), baseline L-Sat was clearly the strongest predictor, followed by Forgiveness, SR-Health, income $10,000 - $14,999, married, White or White and some other race, and Optimism. Higher baseline L-Sat scores was the strongest predictor of higher Wave 2 L-Sat scores. Forgiveness, SR-Health and income $10,000 - $14,999 had association with Wave 2 L-Sat similar to those of L-Sat delta. Respondents who were married had significantly higher Wave 2 L-Sat scores than other martial status group, while those who were White or White and some other race reported significantly lower scores than those who were Black or Black and another race. Baseline Optimism had a small negative association with Wave 2 L-Sat in equation 3, which seems at odds with the positive correlation between the two (r = .129, p < .001).

Self-esteem Change and Optimism

In Table 4.15 equation 1, well-being indicators at baseline, except SE, are regressed on SE delta. Optimism and L-Sat were the only variables with significant coefficients, however both had negative *betas* contrary to their positive correlations with both Wave 1 and 2 SE, and both associations become insignificant in equation 2 when baseline SE is controlled. It is apparent that at least part of their association with

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SE delta is indirect though baseline SE, which explains their negative *beta*. When baseline SE is controlled for in equation 2, age, Forgiveness, and highest grade completed emerge as weak but significant predictors of SE delta. Both Forgiveness and highest grade completed were predictors of SE score increase between Wave 1 and 2, while age was negatively associated with SE delta. However, in the regression comparing baseline well-being indicators with Wave 2 SE scores, age, Forgiveness, and highest grade completed effects were insignificant, and Optimism had the strongest predictor ahead of baseline SE. Pearson's correlations with Wave 2 SE were $r = .195$, $p < .001$ for baseline Optimism and $r = .187$, $p < .001$ for baseline SE supporting the tables 3rd regression equation.

Table 4.15 Self-esteem Score Change Explained by Well-being Indicator Scores and the Demographics at Wave 1

DV & Controlled IV.	B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1. SE Delta^a (Constant)	3.423	.461		7.424	.000		
Optimism Scores W1	-.194	.037	-.21	-5.185	.000	.772	1.295
L-Sat Score W1	-.066	.033	-.08	-2.03	.043	.772	1.29
Adj. R^2 = .066/F = 26.585/p < .001							
2. SE Delta^b (Constant)	9.087	.83		10.955	.000		
SE Scores W1	-.833	.04	-.63	-21.04	.000	.938	1.07
Age @ W1	-.026	.009	-.09	-3.01	.003	.977	1.02
Forgiveness W1	.111	.035	.095	3.156	.002	.932	1.07
Highest grade completed	.0406	.016	.073	2.46	.014	.976	1.02
Adj. R^2 = .378/F = 112.01/p < .001							
3. SE W2^c (Constant)	7.846	.432		18.161	.000		
Optimism Scores W1	.102	.031	.136	3.278	.001	.748	1.34
SE Scores W1	.128	.044	.119	2.881	.004	.748	1.34
Adj. R^2 =.046/F = 19.073/p < .001							

a. Dependent variable = change in self-esteem, baseline self-esteem was not controlled

b. Dependent variable = change in self-esteem, baseline self-esteem was controlled

c. Dependent variable = Wave 2 self-esteem

d. Stepwise option used with pairwise deletion of missing data

e. Outliers were ignored

f. Non-significant independent variables were drop from the table

Fear of Death Change and Optimism

Fear of death delta and Wave 2 scores were regressed on baseline well-being scores and the demographics in Table 4.16. In equation 1, only SE scores significantly explained FoD delta when baseline FoD scores were not controlled for. Note that the beta is positive, as apposed to the negative FoD/SE correlation presented in Table 4.7.

Table 4.16 Fear of Death Score Change Explained by Well-being Indicator Scores and the Demographics at Wave 1

DV & Controlled IV.	B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1. FoD Delta[a] (Constant)	-2.475	.851		-2.910	.004		
SE Scores W1	.241	.082	.115	2.953	.003	1.000	1.000
Adj. R^2 =.013/*F*= 8.718/*p*<.05							
2. FoD Delta[b] (Constant)	11.029	1.477		7.467	.000		
FoD W1	-.762	.045	-.580	-16.94	.000	.912	1.097
DI W1	.04.924	.021	.079	2.291	.022	.908	1.102
Age @ W1	-.0422	.015	-.091	-2.754	.006	.980	1.021
Highest grade completed	-.0843	.030	-.095	-2.798	.005	.927	1.079
Income $60,000-$79,999	1.068	.482	.074	2.216	.027	.953	1.049
Forgiveness W1	-.137	.063	-.074	-2.176	.030	.911	1.097
Adj. R^2 = .309/*F*= 49.249/*p*<.05							
3. FoD W2[c] (Constant)	9.721	1.505		6.461	.000		
FoD W1	.267	.042	.233	6.354	.000	.945	1.059
L-Sat Score W1	-.147	.044	-.132	-3.375	.001	.828	1.207
Age @ W1	-.0354	.015	-.088	-2.418	.016	.969	1.032
Highest grade completed	-.0721	.028	-.093	-2.546	.011	.947	1.056
Income $60,000-$79,999	1.034	.457	.082	2.262	.024	.956	1.046
PP-Control W1	.112	.052	.085	2.161	.031	.821	1.218
Adj. R^2 = .094 /*F*= 13.283/*p* <.05							

a. Dependent Variable = Change in Fear of Death, baseline FoD was not controlled
b. Dependent Variable = Change in Fear of Death, baseline FoD was controlled
c. Dependent Variable = Wave 2 Fear of Death Scores
d. Stepwise option used with pairwise deletion of missing data
e. Outliers were ignored
f. Non-significant independent variables were drop from the table

SE effect appears to be indirect through FoD and disappears when baseline FoD is controlled for. In equation 2, baseline DI, age, highest graded complete, income $60,000 - $79,999, and Forgiveness emerged as predictors of FoD delta when baseline

FoD was controlled for. As respondents' age, highest grade completed and Forgiveness scores increased, FoD delta significantly decreased. FoD delta significantly increased with increased baseline DI scores and for those in the $60,000 - $79,999 income group as opposed to other income levels.

In the comparison of baseline well-being indicator and demographics to Wave 2 FoD, age, highest grade completed and income $60,000 - $79,999 had similar associations to those in equation 2. However, baseline DI and Forgiveness scores become insignificant, while L-Sat and PP-Control emerged as significant predictors. As Wave 1 L-Sat scores increased, Wave 2 FoD scores decreased, and PP-Control emerged a positive predictor of Wave 2 FoD scores. Optimism scores were not a significant predictor of variance in any of these FoD equations.

Forgiveness of Others Change and Optimism

In Table 4.17 equation 1, DI, highest grade completed, and Optimism scores were significant predictors of Forgiveness delta when the demographics and all the baseline well-being indicators, except baseline Forgiveness, were considered in a stepwise linear regression equation. However the effect each of these independent variables became insignificant when baseline Forgiveness was controlled for in equation 2. This suggests that baseline DI, Optimism and highest education completed affect Forgiveness delta through baseline Forgiveness scores. Once baseline Forgiveness is a part of the regression equation, baseline L-Sat, income $25,000 - $29,999, gender being male and being Black or Black and another race appeared as

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significant predictors of Forgiveness delta. As baseline L-Sat scores increased or when

respondents were Black or Black and another race, Forgiveness scores between Wave 1

Table 4.17 Forgiveness Score Change Explained by Well-being Indicator Scores and
the Demographics at Wave 1

DV & Controlled IV.	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1. Forgiveness Delta[a] (Constant)	.02209	.601		.037	.971		
Depression Scores W1	.03640	.015	.093	2.379	.018	.931	1.074
Highest grade completed	.04651	.021	.084	2.204	.028	.982	1.018
Optimism Scores W1	-.07066	.035	-.077	-1.993	.047	.947	1.057
Adj. R^2 = .019/*F*= 5.391/*p*<.05							
2. Forgiveness Delta[b] (Constant)	6.365	.435		14.619	.000		
Forgiveness W1	-.726	.037	-.628	-19.510	.000	.895	1.117
L-Sat Score W1	.09203	.025	.115	3.656	.000	.936	1.069
Income $25,000-$29,999	-.458	.220	-.064	-2.077	.038	.991	1.009
Gender is male	-.260	.119	-.067	-2.191	.029	.988	1.012
Black or Black and Another Race	.245	.119	.064	2.055	.040	.944	1.059
Adj. R^2 = .356/*F*= 77.798/*p*<.05							
3. Forgiveness W2[c] (Constant)	6.819	.524		13.002	.000		
Forgiveness W1	.249	.037	.249	6.735	.000	.868	1.152
L-Sat Score W1	.07956	.025	.115	3.200	.001	.917	1.090
Black or Black and Another Race	.371	.117	.112	3.181	.002	.948	1.055
Gender is Female	.308	.116	.092	2.660	.008	.990	1.010
FoD W1	-.05446	.025	-.076	-2.144	.032	.934	1.071
Adj. R^2 = .143/*F*= 25.163/*p*<.05							

a. Dependent Variable = Change in forgiveness of others; baselines Forgiveness scores were not
controlled.
b. Dependent Variable = Change in forgiveness of others; baselines Forgiveness scores were
controlled.
c. Dependent Variable = Wave 2 forgiveness of others
d. Stepwise option used with pairwise deletion of missing data
e. Outliers were ignored
f. Non-significant independent variables were drop from the table

and Wave 2 increased on average. When respondents were male or reported income of

$15,000 $29,999, Forgiveness scores tended to decrease.

In the third regression equation of Table 4.17, Wave 2 scores were significantly

predicted by baseline Forgiveness, L-Sat and FoD scores, and when respondents were

Black or Black and another race or were female. All of these variables, except FoD, had

positive associations with Wave 2 Forgiveness scores. Baseline Optimism scores did not predict Forgiveness delta or Forgiveness Wave 2 scores when baseline Forgiveness scores were included in the regression equation.

CHAPTER 5

DISCUSSION AND IMPLICATIONS

The purpose of the study was to clarify relationships between optimism and self-reported health, perceived personal control, depression, life satisfaction, self-esteem, and forgiveness of others among people over age 65 when independent variables were controlled in multiple regression equations. With the expanding worldwide population of people in this age category, better understanding of well-being indicators among older people are important in social work practice to allow for the most effective and appropriate allocation of welfare funding and services. This study was based on existing data from a stratified random sample of U.S. residents over age 65 representative of those living in all zip codes within the U.S. (Krause, Neal. RELIGION, AGING, AND HEALTH SURVEY, 2001). Black respondents were over sampled to match the number of white respondents and data was restricted to these two race categories. Additionally, only data from respondents who reported being "Christian" was included in the database.

Optimism and the Demographics

Optimism scores at Wave 1 and 2 showed differentiation among some of the various demographics. When compared with race in a one way ANOVA, Optimism scores had the highest significant F ratio out of all the well-being indicators, meaning that it had the greatest mean difference among race categories. A mean comparison

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revealed that respondents who selected Black or Black and another race for race had higher Optimism mean scores than that those who selected *White* or *White and some other race*. Krause (2005) reported that Blacks had higher significant associations between God mediated control and life satisfaction, optimism, self-esteem and death anxiety than did White respondents. However, in this study Blacks in the sample on average had significantly higher Life Satisfaction (L-Sat), Optimism and self-esteem (SE) scores, but there was no significant difference in death anxiety (FoD) scores. The association of Blacks optimism to their higher religious involvement or belief was not considered in this study and it is not known whether higher optimism among older Blacks extends to non-Christian groups or age groups.

Income categories also had a significant ANOVA *F* ratio for Optimism mean scores, which appears to decrease somewhat with a rise in income categories. However this trend was not consistent. Some categories such as $5,001 - $9,999, $15,000 - $19,999 and $60.000 - $79,999 had higher than average Optimism scores while $25,000 - $29,999 had the lowest Optimism scores. With differences in taxation and benefits partially due to income category, it is not clear what attributes of the income categories actually associated with Optimism scores.

Gender and Marital Status had nearly significant *F* ratios ($p = .072$ & $p = .075$) in Optimism mean scores. Females in this sample had slightly higher Optimism scores than men, but then again were more highly represented in the widowed martial category, which had higher Optimism scores than other marital categories. Additionally, when other well-being indicators and the demographics were controlled, respondents

who were married had significantly lower Optimism score and were over represented by males. Since this last equation also controlled for gender, it appears that it is Optimism's association with marital status that is more of a factor in this analysis.

Surprisingly, education categories did not have significantly different Optimism mean scores. Here the results appeared to support Scheier and Carver's (1992) assertion of the stability of optimism more so than in any other aspect of the data. It is well known that increased education opens a variety of opportunities to individuals, but apparently none of these benefits had high enough association with optimism to force a significant association with optimism and education in this sample. Additionally, well-being indicators that had more shared variance with Optimism scores (PP-Control, L-Sat, & SE), also had no significant difference in education categories, although Forgiveness scores were an exception.

Some difference of Optimism scores among the demographics may be thought to be due to age differences. For example, widows' average age was 77.26 years as compared with 73.55 years for respondents who were married. If optimism increases with age for those over age 65, then the Optimism score difference found between married and widowed respondents would be expected. However, neither Wave 1 nor Wave 2 data revealed a significant correlation between Optimism scores and age ($r = -.54$, $p = .055$ & $r = -.021$, $p = .508$), although the analysis of Optimism change found that Optimism delta decreased slightly with age when the other well-being indicators and the demographics were controlled. These finding appear to contradict Chang's (2002a) writings that optimism increases with age, however the present study did not

use the pessimism items from the Life Orientation Test, which may be more age affected. Also, only people over age 65 were sampled; it may be that those of this age group as a whole have higher optimism than younger groups.

An additional demographics consideration was whether Optimism scores at Wave 1 would predict which respondents would be deceased by Wave 2, three years later. Since optimism has been associated with health benefits (Peterson & Bossio, 2002; Scheier et al, 1990; Steptoe et al, 2006) one would expect lower deceased rates among those with higher optimism. However, unlike self reported health (SR-Health), PP-Control, and depression (DI) scores, Optimism scores were not significantly different among the Wave 2 disposition categories. In fact, Optimism scores at Wave 1 had the lowest F ratio of all the well-being indicators when compared to Wave 2 disposition categories ($F = .349$, $p = .855$). This means that those who were deceased at Wave 2 did not have Wave 1 Optimism scores significantly different than those who were still living at Wave 2. These finding suggest that respondents' optimism does not predict or influence their mortality rate, and therefore is not likely to influence suicide rates. The original survey data did not differentiate suicides among the deceased data. However, if optimism was significantly associated in either a positive or negative relationship with suicide rates, one would expect to see greater Optimism mean score difference among disposition categories. Therefore the findings of this study suggest that optimism and suicide rates are unrelated.

Optimism and Well-being Indicator Associations

The first hypothesis of this study stated that the participants of this study with higher Optimism scores would report significantly higher SR-Health, PP-Control, L-Sat, SE, and Forgiveness scores than those with lower Optimism scores, when the independent variables were controlled. The second hypothesis stated that higher Optimism scores would be associated with significantly lower DI, and death anxiety (FoD) scores than those with lower Optimism scores when independent variables were controlled. Clearly, the finding of this study proved these hypotheses to be accurate for some of the well-being indicators, but not over all, even though Optimism scores were significantly correlated with all other well-being scores in both Wave 1 and 2.

In a linear regression equation with baseline Optimism scores as the dependent variable and the remaining baseline well-being indicators and the demographics (with categorical variable changed to dummy variables) as independent variables, PP-Control scores explained the largest portion of Optimism variance followed by SE, L-Sat and Forgiveness scores. Of the variables measured in this study, these well-being indicators had the strongest direct associations with Optimism when the independent variables were controlled for. Additionally, the fact that these variables had even higher Pearson correlations with Optimism is indicative of additional indirect pathways that may be through the other well-being indicators or sources not measured in this study.

SR-Health and FoD had minor, but significant association with Optimism scores in the regression equation. Optimism scores tended to increase only slightly with SR-Health score increase or FoD scores decreased. DI scores did not significantly associate

with Optimism scores in the regression equation. These findings are surprising in light of the quantity of research supporting optimism/health associations (see the section titled Self Rated Health and Health Status). In a linear regression equation where SR-Health was the dependent variable and the other well-being indicators were the independent variables, SR-Health scores associated most highly with DI scores followed by L-Sat, PP-Control and Forgiveness scores. Optimism scores did not significantly explain SR-Health scores when other variables were controlled, although bivariate SR-Health/Optimism correlations were small to moderate (Wave 1 $r = .214$; Wave 2 $r = .337$) and in the range reported by Peterson and Bossio (2002). These findings suggest that the Optimism/SR-Health association is mostly indirect, and most likely through PP-Control, L-Sat and Forgiveness scores, all of which associated with both Optimism and SR-Health when the other well-being indicators are controlled. However SR-Health also has a slight direct effect on Optimism as well.

The fact that no significant Optimism/DI association was found in the baseline regression equations further supports the idea that suicide, which has been found to associate with depression (de Lara, Brezo et al. 2007), is not likely associated with optimism ether positively or negatively. However, Scheier & Carver (1992), the original developers of the LOT (upon which the Optimism items in this study is partially based), reported that it was pessimism about the future, more than depression, that predicted suicide. This could mean that suicide may correlate with optimism measures in spite of having little association with DI scores. Conversely, would not necessarily be true if optimism and pessimism are not just opposite ends of the same construct, but two

similar yet inversely related constructs, as has been suggested by various studies (Chang, D'Zurilla, & Maydeu-Olivares, 1994; Chang & McBride-Chang, 1996; Robinson-Whelen, Kim MacCallum, & Kiecolt-Glaser, 1997). The latter possibility is supported by the findings of this study. Optimism, in this analysis, did not predicted increased or decreased mortality rates 3 years later among the sample population, while SR-Health, PP-Control and DI scores did. Pessimism's association with the death rates in this study are not known due to pessimism measures being excluded from the original survey data.

The higher Optimism/PP-Control association supports the idea of similarity between Social Learning and Dispositional Optimism theories as presented in the section titled *Theoretical Foundations*. The Optimism/PP-Control correlations was $r = .486$ in Wave 1 data and $r = .612$ in Wave 2 data. And when other well-being indicators and the demographics were controlled in a multiple regression equation, PP-Control significantly explained Optimism variance with a *beta* $= .252$. When their positions were reversed (PP-Control was the dependent variable and the other well-being indicators were controlled), Optimism also explained the greatest portion of PP-Control variance with a *beta* of .299. The data doesn't explain the reason for the closeness of these two constructs, but theoretically it can be assumed to be related to the role that perceived ability and expectation of positive outcome have on empowering behavior. Optimistic people tend to act on their beliefs as do those with self-efficacy. The findings suggest that these constructs are not completely unique, but share considerable amount of variance. Both Optimism and PP-Control also had SE as their second highest *beta*

(.252 & .226 respectively) when they were individually considered as dependent variables in a multiple regression equation with the other variables controlled for. And all three of these well-being indicators shared L-Sat as their third highest *beta* in similar regression equations (.217, .134 & .140 respectfully). In a factor analysis of Wave 1 well-being indicators, Optimism had the highest shared variance in the first of two factors (.784). In the same factor, .720 of SE, .601 of Forgiveness, .591 of PP-Control, and .581 of L-Sat also shared variance. Of the variables considered in this study, these are clearly the most closely related constructs to optimism even when independent variables and the demographics are controlled.

Among the demographics, respondents being Black or Black and another race explained the most Optimism variance when the other well-being indicators and demographics were controlled in a multiple regression equation. Since we know that optimism does not cause a person to become Black, we can intuit that being Black, or some unmeasured aspect of being Black, influenced slightly higher Optimism scores. Additionally, those respondents that reported that they were married had slight but significant negative associations with Optimism (*beta* =.-059). Although some income categories had significantly higher or lower Optimism scores, and Optimism scores appear to decrease somewhat with the rise of income reported, still no statically supported pattern was found. Once again, given differences in taxation, benefits and demographic difference among income categories, it would be difficult to determine why optimism rates varied by income in this study with the given data. No other

demographics in the regression equation had significant association with Optimism in these regression equations.

Optimism scores, as the dependent variable, had more of the variance explained by the remaining well-being indicators' variance than when any of the other indicators were placed as the dependent variable in a linear regression equation. Additionally, when a factor analysis of the entire well-being indicator scores in Wave 1 was conducted, two prominent factors emerged (see Table 4.8 & Figure 5.1). The strongest factor had Optimism scores as the variable with the highest shared variance, follow by SE, Forgiveness, PP-Control, L-Sat, FoD, DI, and SR-Health. The second factor had SR-Health with he highest share variance followed by DI, L-Sat, PP-Control, Optimism, Forgiveness, SE, and FoD. These results and the results of the multiple
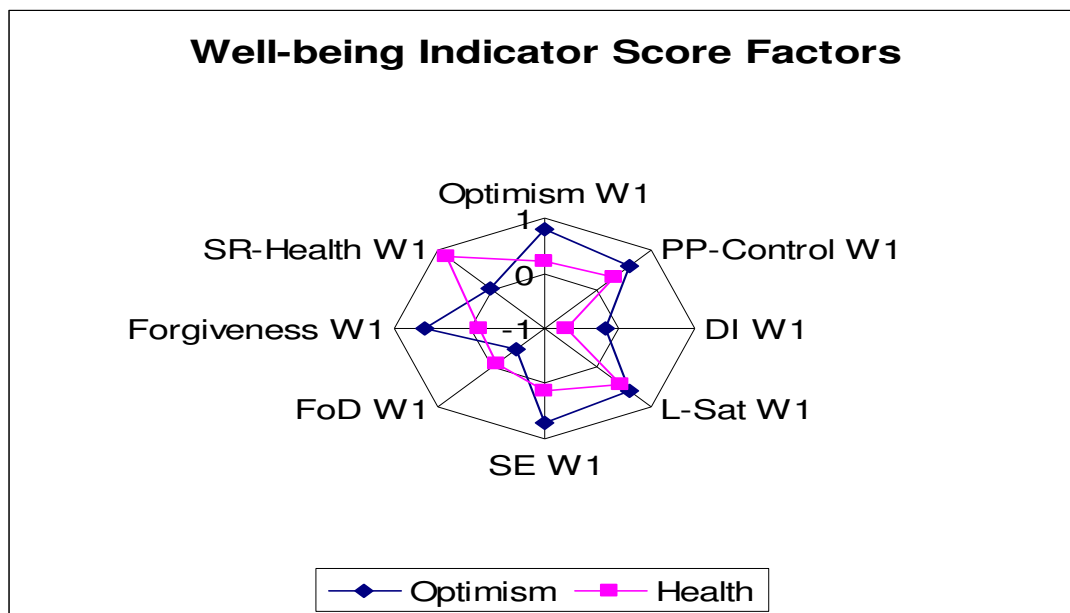

Figure 5.1: A radar presentation of the 2 principle components of well-being indicator scores shared variance using Varimax rotation with Kaiser Normalization. The optimism dominated factor was the strongest component with an eigenvalue = 2.920. The health dominated component had an eigenvalue of 1.102

regression analysis seem to promote that there are two poles within the well-being indicators measured; one dominated by Optimism scores, and the other by SR-Health. Although both are based on self-reported data, it appears the first factor is more about psychological well-being while the second is more health related. Wave 2 data was less polar about Optimism and SR-Health association in the factor analysis, with more of Optimism variance being shared with the other well-being indicators (.813) and over half of SR-Health variance involved in the same first principle component. The difference in SR-Health association with the other well-being indicators between Wave 1 and 2 may be due to the addition of one question to the SR-Health scale for Wave 2 not in the baseline survey resulting in a higher reliability coefficient for the Wave 2 SR-Health scale, and likely differing degrees of association.

A prominent optimism association with other well-being indicators could be particularly useful to social workers in practice where evaluation time is limited. If a brief measure could give the practitioner a broad indication of client psychological and perhaps physical well-being then the quality of screening of clients could be improved. According to the results presented here, optimism screening could provide a good indication of self-esteem, perceived personal control and life satisfaction among people in the U.S. over age 65. Optimism screening can provide to a lesser degree information about death anxiety, and possibly self reported health. However additional research would be needed to determine whether the well-being associations extend to all religious groups and races of this age group.

Optimism and Well-being Indicator Change

The third hypothesis of this study stated that baseline Optimism scores would predict changes in the other well-being indicators in the 3 year period between baseline and follow up measures when the other well-being indicators and the demographics were controlled for. Some problems arose in making these comparisons. For example, baseline SR-Health scores being compared to figures partially derived from the same scores (Wave 1 SR-Health scores subtracted from Wave 2 SR-Health scores) may have caused some exaggeration of baseline SR-Health association with SR-Health change. The same was true for all the well-being change analyses. Another problem is that Likert scales with smaller response options are prone to regression toward the means in longitudinal comparisons. This is caused by reduced score variance due to the brevity of response options and extreme scores being more likely to be less extreme on follow up tests than scores closer toward the mean. These problems were addressed by comparing change scores (the dependent variable) to baseline score multiple regression equations with and without controlling for the dependent variable's baseline scores. This allowed for the identification of direct associations with the dependent variable's delta values and indirect association through the dependent variables baseline scores.

Well-being Indicator Change Predicted by Optimism

Baseline Optimism scores did not directly predict any of the other well-being indicator delta values. However, Optimism scores did indirectly affect PP-Control, L-Sat, SE, and Forgiveness change values through their baseline scores. This means that due to baseline Optimism's close association with, say baseline PP-Control, it

influences PP-Control delta through the PP-Control baseline/delta association. Additionally, Optimism scores did significantly predict future scores in L-Sat, and SE. Although baseline Optimism scores did indirectly predict change scores in some of well-being indicator, hypothesis #3 was still incorrect for all the well-being indicators because it focused on direct associations between optimism and change in the other well-being indicators, but not future scores.

Well-being Indicators Predicting Optimism Change

The final hypothesis stated that higher baseline SR-Health, PP-Control, L-Sat, SE, and Forgiveness scores, and lower DI, and FoD scores would predict Optimism score increase at Wave 2 over Wave 1 when the other well-being indicator scores and the demographic were controlled for. When not controlling for baseline Optimism scores, baseline PP-Control, SE and FoD indirectly predicted Optimism change through Optimism baseline scores while SR-Health scores directly predicted Optimism change. As SR-Health scores increased at baseline, Optimism scores increased over the 3 year period. When baseline optimism scores were controlled for, SR-Health solely continued as a direct predictor of Optimism change (*beta* = .159, *p* < .001), while Forgiveness (*beta* = ..165, *p* < .001) and *age* (*beta* = -.076, *p* < .01) emerged as predictors that had been suppressed by baseline Optimism scores in the regression equation. Optimism scores increased over the longitudinal period as baseline Forgiveness scores increased, and decreased slightly as baseline age increased.

Baseline well-being indicator scores and the demographics were also compared to Wave 2 Optimism scores in a multiple regression equation to determine whether

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future Optimism scores were predicted by the baseline scores in a format independent of the problems with indicator deltas mentioned previously. The results were that Forgiveness, SR-Health and SE scores at baseline were actually more predictive of Optimism scores at Wave 2 than baseline Optimism scores, which did not have a significant coefficient at the $p < .05$ level ($p = .065$) in the regression equation. In particular, controlling for Forgiveness scores was principally effective in reducing baseline Optimism influence on Wave 2 Optimism. When Forgiveness was excluded from the regression equation, baseline Optimism became the strongest predictor of Wave 2 Optimism. It appears then, that of the variables and demographics considered, that forgiveness of others, self reported health and self-esteem directly influenced future optimism in this sample.

Forgiveness scores in the data analysis were the strongest predictor of Optimism change and future scores when baseline Optimism, other welling indicators, and the demographics were controlled. Within the variables used in this analysis, the Forgiveness/Optimism relationship appears to be direct and positive, however Optimism scores did not significantly predict Forgiveness scores. Although the literature review identified that Forgiveness and Optimism had similar bivariate correlates, the findings here were greater than expected. Optimism may require letting go of the past to some degree, which is often mentioned in relationship to forgiveness of others, which may explain the relationship between the two. However this possibility was not pursued in this study. It is not known whether the association found is related to

the sample being limited to "Christian" respondents or whether this is a general trend among people over age 65.

Baseline Forgiveness scores also had significant associations with baseline SR-Health, DI, L-Sat and FoD scores when the other well-being indicators were controlled. Baseline Forgiveness scores also predicted change and future scores for PP-Control and L-Sat scores, and change scores for SR-Health, SE, and FoD when the other well-being indicators and the demographics were controlled. Evidently, in this study, Forgiveness had a relationship to the other well-being indicators, and this finding is supported by other research (Hebl & Enright, 1993; Suchday, Friedberg, & Almeida, 2006; Toussaint et al., 2001). More studies are needed to determine how forgiveness relates to optimism both theoretically and in practice applications.

The results of both the baseline and longitudinal analyses suggest that a person's view of their health associates with Optimism baseline scores (mostly indirectly), can influences changes in Optimism scores over time, and can predict future Optimism scores. This appears to contradict other studies that report it is optimism that influences health. However, it should be remembered that this study focused solely on self-reported health, which may influence a number of factors that affect health, including optimism. Based on both research (DeKeukelaere, 2006; Lin & Peterson, 1990;, Taylor et al. 2004) and theory, it is likely that optimism is a necessary predecessor of the healthy behavior essential (see Figure 5.2) for good health; although direct optimism influence on health has also been reported (Steptoe et al. (2006). It appears that healthy behavior is enhanced through the positive expectation component that optimism

provides. Finally, previous research reports that physical health is associated with self reported health (Idler & Benyamini, 1997; Krause, 200b) completing the loop of Figure 5.2. The analysis of this data did not determine to what degree Optimism scores moderated SR-Health's affect on healthy behaviors or why Optimism scores did not significantly predict SR-Health scores; leaving this analysis for future studies. If

Health and Optimism Associations

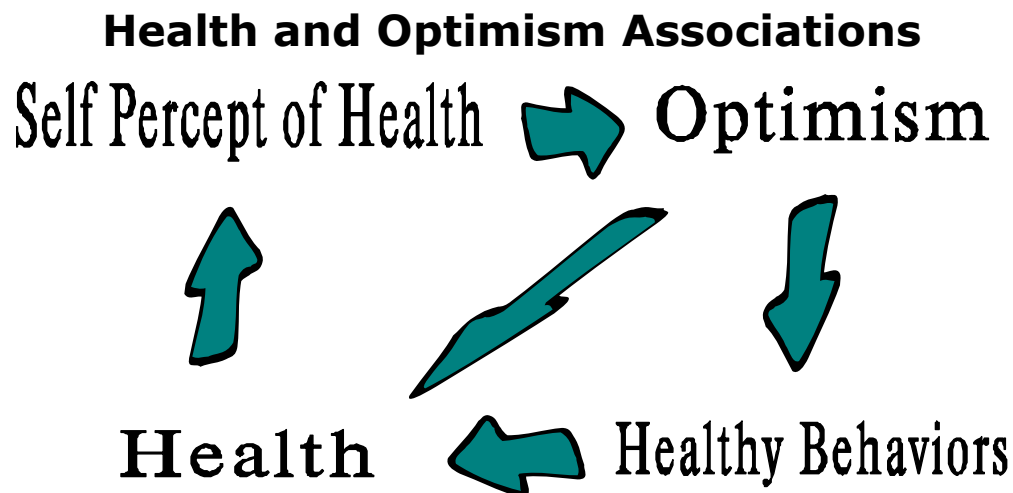Self Percept of Health → Optimism

Health ← Healthy Behaviors

Figure 5.2: Self reported health predicts both current and future optimism, which influences health both directly and indirectly through healthy behaviors.

Self-esteem appeared to have the close relationship with optimism, particularly among Wave 1 data. A factor analysis of all well-being indicators score revealed that SE scores had the most similar amount of shared variance as Optimism scores on the most prominent factor. When other variables were controlled, baseline SE scores were the second strongest predictor of baseline Optimism scores, and also indirectly predicted change in Optimism scores through baseline Optimism. Additionally, SE predicted future Optimism scores more highly than baseline Optimism scores. On the other hand, baseline Optimism scores were the strongest predictor of baseline and future

SE scores, but did not significantly predict change in SE scores when the other well-being indicators and baseline SE were controlled.

<div align="center">Implications</div>

Among people over age 65 in the U.S., optimism is an indicator of psychological well-being that is highly associated with perceived personal control, life satisfaction, self-esteem and forgiveness of others. In this study the factors most influential in predicting future optimism were a person's willingness to forgive others, a person's perception of their own health, and their self-esteem. Accordingly, the results of this study have application in social work research, policy and practice.

Optimism and Social Work Practice

Assessing a person's optimism level can give some indication of the status of these other well-being indicators, and self reported health to some degree. However, optimism assessment does not appear to be a good indicator of depression level or of death anxiety, nor does it appear to preclude or predict suicidal tendency; a pessimism assessment may be beneficial in this area. If only two well-being tests could be given, then the Life Orientation Test (LOT), or a revised version, and the Beck Depression Inventory might be good options in that they would cover a considerable percentage both of the two main factors of psychological well-being, including positive aspects. However, it would be better to separate the optimism and pessimism components into two separate scores. Optimism scores could then be used as an indication of perceived personal control, self-esteem, life satisfaction and forgiveness, while pessimism may give an indication of depression (Chang, Maydeu-Olivares, & D'Zurilla, 1997; Fontaine

<div align="center">89</div>

& Jones, 1997; Puskar, Sereika, and Lamb 1999), suicidal tendencies (Scheier & Carver, 1992), and medical physical problems (Brenes, Rapp, and Rejeski, 2002; Scheier & Carver, 1985).

Increased optimism does not appear to increase a person's self-reported health directly, but can be an indication of a positive health self-image, and may play an important role in activating health behaviors necessary for good health. Accordingly, optimism has been associated with health benefits in a variety of studies (see section 2.1.1). Social workers should then be alert to clients overall optimism, and not solely that related to their present treatment. Although there is a push for evidence based practice in social work, this philosophy should not be pressed on clients at the expense of their overall view that life will turn out well for them, including their treatment. Studies have shown that irrational optimism is particularly helpful in cases where self-care options are limited (Fournier, De Ridder, & Bensing, 2002). However, social work practitioners will work with some clients who attach their optimism to improbable avenues when more likely options are available. Such client will likely need help redirecting their optimism in order to activate behavior in a more promising direction.

In the sample of this study, very few of the demographic had much affect on a person's optimism, meaning optimism has very little ties to class, or station. Two groups who one might think would have low optimism, Blacks due to poverty and widows due to loss and poverty, actually had higher average Optimism scores, so clinicians should be careful not to make assumptions about optimism among older populations. Although it has been considered to be a personality trait, optimism levels

do change some what, and the changes may be related to changes in health, perception of control, self-esteem, life satisfaction and forgiveness of others. Also, clinicians should know that optimism levels may decline slightly with age for people over age 65, although, as a whole they reportedly more optimistic than younger groups. If a clinician desires to increase a client's optimism they should consider focusing on health, perceived personal control, self-esteem and forgiveness of others issues.

Social Work Research on Optimism

Due to the focus of the original survey data used in this study, race, religion, and age were restricted to contain Black and White races, Christians, and people in the U.S. over age 65. It would be beneficial to know whether the findings presented here are unique to Black and White Christians, or whether they also apply to other races and religious belief system. Age being restricted to those over age 65 was beneficial for the primary focus of this study but prevents determining whether the relationship between optimism and other well-being indicators are similar in younger groups or whether there are different trends at different ages.

It would be particularly interesting to determine to what degree optimism moderates self reported health's influence on healthy behavior. Previous studies have shown optimism effects health both directly and indirectly through healthy behavior. In this study self-reported health increase appeared to influenced optimism increase. However the degree to which self reported health indirectly associates with healthy behavior was not evaluated. Nor did the analysis of this data determine to what degree Optimism scores moderated SR-Health's affect on healthy behaviors or why Optimism

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scores did not significantly predict SR-Health scores; leaving these analyses for future studies.

In this study optimism and forgiveness of others scores had higher associations than expected, and forgiveness was the highest predictor of optimism increase over a 3 year period and of optimism scores at Wave 2. Although there are studies that have compared forgiveness to well-being indicators, none were found that compared optimism to forgiveness until this study. However, theoretical connections between the two constructs was not investigated but should be considered in future research. It is plausible that optimism requires letting go of the past, which is often mentioned as a component of forgiving others, and may be the connection between the two construct. However this idea needs to be further pursued in empirical studies.

Optimism and Social Work Policy

In relation to this study, no article could be found specifically targeting policy directed at optimism among older adults. Although there are phrases about *welfare optimism* used in social policy (Taylor-Gooby 1997), the phrase is a misnomer used to reference expansive improbable social problems that are not fiscally sound. However, according to the literature presented here, optimism is positive expectation about unpretentious events that are probable for the most part (Bruininks and Malle, 2006). Expansive less likely events are distinguished as *hope*. Accordingly then, *hope welfare* would be a more accurate term.

For the most part, when programs target those over age 65, they tend to be about Medicare, medication, or medical/physical well-being. Little thought appears to be put

into mental well-being, which could be argued is what makes life worth living. When governments act in their own best interest they are not likely to instill confidence and sense of optimism in older people. If policy makers are interested in improving optimism among this population, they should consider focusing on a number of avenues, including, self-reported health, perceived personal control, life satisfaction and forgiveness of others skills. Clearly, no one policy can address all of these areas, but requires a variety of contributors including religious organizations. If the findings of this study and others are correct, optimism plays an important role in activating healthy behavior necessary for good health and treatment success. With all of the concern for who will support the growing number of retirees, it seems prudent to capitalize on any factor likely to reduce health care and support costs.

Some political and policy statements appear to be designed to manipulate the functional mechanisms of optimism for all age groups. When events are not going well for an incumbent, they often down play facts and use hopeful generalities in the form of expectancies. I know gas prices are high so I am calling for price-fixing investigations and several measures aimed at holding down the fast-rising costs of driving (referencing a statement by President Bush in VandeHei & Mufson, 2006). Such statements would play well in the short-term for dispositional optimism where the perception that things are improving would motivate the benefits of optimism even though change is not likely or not intended. The benefit to the politician is temporary complacency of their constituency. However, it could also be argued that if nothing could be done to change the situation, then the public may also receive the only available benefit, perceived

well-being, and hopefully the backlash following the public's discovery of the ruse will be on the next administration.

A down side to this type of policy is that it can be used to make the public complacent to prevent an undesirable reaction. Take the current high gasoline prices for example. The message coming out of the White House is that they are doing what they can but little can be done. If the public does not believe this and blames the White House, responses may be devastating for President Bush and the Republican Party in the upcoming elections, a very different reaction than if the administration is believed.

Political and policy statements also target explanatory optimism. Recalling that this type of optimism is based on the perception that the present situation is specific, impermanent, and other-caused, this type of influence is used by those hoping to defeat incumbents and promote the importance of change through voting. As with dispositional optimism, attempts to influence through explanatory optimism can involve deception. Facts about the stability, nature, and cause of the problem may be misrepresented, and the candidate's ability to resolve the problem may be false. The results would be the encouragement of action through optimism that addresses the party's goal of election, but does not resolve the continuants' concerns of openness and resolution, but once again there will be a backlash.

If people over age 65 are more optimistic than other age groups as Chang's (2002b) suggests, then they may also be more susceptible to politicians' optimism manipulations. The results of this study showed that when well-being indicators and demographic were controlled, older peoples' optimism does not increase with age.

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However, this age group may still have higher optimism than younger groups and not increase optimism with age within the group. Neither the susceptibility of seniors to optimism manipulation nor optimism increases over younger groups was proven in this study; more research in needed in this area. A recent AARP (2005) study involved 10 nations with participants between ages 30 and 65. Respondents reported little confidence of their government's delivery of pension and health care benefits in retirement, although they were generally optimistic about their personal retirement outlook. It is not known if older adults feel similarly due to a lack of comparable surveys among people over 65 years of age. However, government statements about retirement benefits are more promising, and factual for older groups (Social Security, 2006) than for younger groups. This is partly due to the Social Security funding problem increasing with time as the over 65 population expands with the baby boomers' retirement. Additionally, the problem becomes increasingly difficult to determine as one looks farther into the future owing to the impact of policy changes and public opinion (Altman & Shactman, 2002). Accordingly, administrations prefer focusing on an outlook relative to their time in office, deferring future problems to future administrations.

Planning for retirement may provide younger groups more optimism in personal retirement plans than those based government support, but 40% of seniors say that they were required to retire before they had planned (Weston, 2006), some as early as 15 years (Helyar, 2005). This brings into question whether financial expectation of younger groups will match the actuality of their retirement. Currently most retires

appear to be overall satisfied with their retirement. A study by the Urban Institute found that 62% of seniors reported being highly satisfied with their retirement, while an additional 33% said they were somewhat satisfied (Kantor, 2005). However 36% reported that money was a serious or very serious problem and 30% expressed concern of running out of their pension. It isn't clear how many of those reporting financial concern also stated they were less than satisfied with retirement, or if the highest satisfaction rate was influenced by dispositional optimism, suggesting an area for future policy analysis.

What can be said is that people in the U.S. over age 65 are mostly satisfied with their retirement and that information regarding their social security benefit is more promising than for younger groups (Social Security, 2006). Also it appears that older individuals have optimism that does change, but not necessarily due to age. What isn't known is if their optimism relates to policy promises that they believe (dispositional), or if they have optimism based on a lack of internal blame and their perceived capacity to meet their needs (explanatory). Answering this question is important for social workers to be able to determine and address the vulnerability of seniors to political propaganda and in assure their quality of life. Additionally, if policy is to be designed to increase optimism then it must target their feelings about their health, feeling of personal control over their lives, self-esteem, their satisfaction with life and ability to forgive others.

<u>Study Limitations</u>

This descriptive longitudinal study has a rather large sample size (n = 1500) and focused on the population of interest (people over age 65 of the U.S.). Additionally it

had several well-being indicator measures needed for the study and a follow-up survey. However, the original sample was limited by race (African and Caucasian Americans only), religion (only Christians), and required a social security number, meaning the results can't be generalized to other races or religious groups, or to the large U.S. illegal alien population.

Another limitation is that the follow-up was conducted only once at 3 years following the baseline survey, bringing into question what interim measures might have revealed concerning well-being indicator scores stability. Also, with the subjects being from different parts of the U.S., 3 years was ample time for local historical events to have had an effect on the internal validity of the study. Another time related problem is that test-retest impact for this length of time is unknown. Although some of measure had retest reliability calculation for shorter periods, none were studied at 3 years. However, it could be assumed that the length is sufficiently long for there to be minimal influence at follow-up from previous testing, and that score differences likely reflect actual change in the subjects.

The well-being indicator scales were, for the most part, reduced versions of longer standardized tests. However, the reliability coefficient for each score was computed and most were in the acceptable range, although SR-Health and Forgiveness had scores in the .60s.

Experimental mortality was somewhat of an internal validity problem for this study. Subjects scoring higher or lower on certain measures were more likely to die, or become unavailable for contact between the assessment periods. For example, Blacks

had higher mean Optimism scores in this study and, although weighted for racial balance in both waves, more Blacks died over the longitudinal period causing an imbalance when the two waves were compared and missing data was deleted. This slightly skewed some measures of central tendency of variable scores at Wave 2. Using listwise deletion methods to remove subjects not available for Wave 2 testing would have screwed baseline scores for measures associated with subject unavailability. To avoid this pairwise deletion methods were used.

<p style="text-align:center">Ethical Concerns</p>

Much of the necessary subject confidentiality was solved prior to the survey data's availability through ICPSR. All names, addresses and other identifying information had been removed from the data with only subject numbers remaining. Subjects were informed of the intended use of the data in the original surveys (see Krause, 2006). Downloaded files were stored on a computer with firewall and virus protection, and files were not available to internet or other user access. IRB training was completed on February 15, 2007 as required by the University of Texas at Arlington (UTA) Office of Research Compliance (ORC) (2006a). According to the ORC, the database from ICPSR used in this study, falls "into an exempt category in which prior approval by the IRB has been given and submission of an exempt protocol is not necessary" (Office of Research Compliance, 2006b, p. 1).

APPENDIX A

OPTIMISM AND WELL-BEING INDICATOR ASSOCIATION STUDIES

Optimism and Well-being Indicator Association Studies

		Characteristics				
Article	Subjects	Indicators Studied	Controlled Variables	Measures	Type	Results
Allison, Guichard, & Gilain, 2000	88 w/ a mean age of 58.2	QOL, Opt.	Cogn. & social func., Phys. factors	FLOT – French LOT	Pre-post	↑ Opt. better role, cogn. & emotional function, ↓ pain & fatigue
Aspinwall, Sechrist, & Jones, 2005	697 mean age = 32.13	Personal control, optimism	Day, age, education, sex, worry	LOT-R	Cross	Opt. positively assoc. w/ primary control but not secondary control
Brenes, Rapp, and Rejeski, 2002	400 older adults w/ knee pain	Opt., phys. Function	Age, gender, race, Ed. comorbities	LOT	Cross	Pess. related to all tasks, Opt. only Walking
Bruininks & Malle, 2006	52 undergraduates	Hope, opt. & personal control	None mentioned	Exp. Coding	Cross	Hope is emotion, assoc. w/ more important & less likely outcomes. Opt more assoc. w/ control
Chang, Maydeu-Olivares, & D'Zurilla, 1997	425 undergraduates	Opt., pess., L-Sat and depressive symptoms	Pos & neg. affectivity, opt, L-Sat, pess.	ELOT – extended LOT	Cross	Opt. explained an additional 5.4% of L-Sat variance when affectivity was controlled, but not in depress. symptoms
Chang, 2002b	340 age M=20.4 316 age M=46.6	Opt, pess, L-Sat, psyc. adjustment	Opt., pess., stress	LOT-R, PSS, SCL-90R, BDI, SWLS	Cross	Opt./stress effect on L-Sat present in younger group but absent among older group
Cummins & Nistico, 2002	None	Opt, control, L-Sat., SE	none	None	Lit.	Well-being homeostasis is controlled by positive cogn. biases of self

Dechesne, et al., 2000	53 High & 50 College students	Death awareness, Opt.	None	Person. Ques.	Cross	Subjects reminded about their death expressed greater opt. about national soccer team
Fontaine & Jones, 1997	53 female volunteers, age M=31	SE, opt. & depress.	Opt. controlled in SE/Depress regression	LOT & SES	3 cross	SE had a neg. assoc. w/ depress. when controlling for opt.
Fournier, De Ridder, & Bensing,2002	276 ages 18 – 65	Expectancy and disease	Efficacy, outcome, expect., & unrealistic thought	LOT-R	Cross	Optimism is helpful w/ uncontrollable disease
Gana, Alaphilippe, & Bailly, 2004	857 Retirees	Pos. illusion & mental & phys. health	None found	RSE, SWLS, BPS,	Cross	Youthful bias exaggeration = ↑ sat., ↑ SE, better perceived health, ↓ boredom
Gottlieb and Rooney,2004	Mean age of 61	Coping effectiveness	Healthy behaviors	LOT	Cross section	↑ opt. = ↑ pos. judgment of their coping effectiveness
Issacowitz, 2005	100 young, 86 middle age, 94 older adults	Opt., age, depress., L-Sat	Age	ASQ, LOT, CES-D, & SWLS	Cross	No age difference in dispositional opt. when covariates are controlled
Krause,2005	1500 black and whites over age 65	God mediated control, L-Sat, SE, Opt. Death Anxiety	Race	3 LOT items, & Death anxiety items	Cross	both SE and opt. positively assoc. w/ a sense of God-mediated control, ↑ for older blacks
Kubzansky et al., 2001	1306 men w/ coronary heart disease	Coronary heart disease	Not specified	MMPI	Long.	Opt. may protect against risk of coronary heart disease in older men

Lawler–Row & Piferi, 2006	425 age 50 – 95 adults	Trait forgiveness, depress. stress, health	Health behave., social support, spiritual well-being	FP, CHIPS, RESTQ subsect., BDI, SWLS, PWB, HB, SS	Cross	Forgiveness assoc. w/ sub. Well-being, depression, & stress
Marshall, et al.,1992	2 Navy recruit groups N=346, N=543	Comparison of opt. & pess. constructs	None mentioned	LOT	Cross	Opt. & Pess are different but related constructs, effects links to mood & personality
McKenna,1993	99 University staff	Unreal Opt. & illusion of control	None	Opt statements	Cross	Opt. correlates pos. with perceived personal control
Peterson & Bossio, 2002	Various	Health status, opt	Not specified	LOT and ASQ	Lit	.20 to .30 corr. for opt. & health
Puskar, Sereika, & Lamb 1999	624 adoles., rural high schools,	Opt., depress., anger, & life events	None	LOT–R RADS	Cross	Pess. ($r = .524$) more corr. with depress. than Opt. ($r = −.391$)
Scheier & Carver, 1985	Undergraduates	Phys. Sympt. & opt.	Private self-consciousness	LOT	Long.	Optimism ↑ w/ physical sympt. ↓
Scheier & Carver, 1993	Men – CABS	Phys.reaction to surgery	None mentioned	LOT	Log.	Opt. was neg. assoc. w/ markers for myocardial infarction
Scheier, Carver, and Bridges,1994	4309 undergrads	Opt, depress., Neuroticism, trait anxiety, SM, SE	Neuroticism, trait anxiety, self-mastery, SE	LOT	Cross	Assoc. between opt. & both depress. & coping remain sig. when the effects of neuroticism, trait anxiety, SM, & SE were controlled

Study	Sample	Outcome	Controls	Measure	Design	Findings
Scheier et al.,1990	Men – CABS	Perceived pain	None mentioned	LOT	Pre-post	Optimists'. pain less severe than pess. & are more rested after sleep
Scheier et al.,1989	Men – CABS	Recovery from CABS	None mentioned	LOT	5 yr post opt f/u	Opt. were sig. < likely to infarct, had > favorable phys. recovery, & more likely to resume exercise & prior rec. activities more quickly than pess.
Steptoe et al.,1994	College students	Health behaviors	Social desirability	LOT	Cross	Opt. assoc. positively w/ 16 healthy behaviors
Suchday et al., 2006	188 college students	Forgiveness, rumination, stress	Forgiveness, rumination, stress	PSS, CHIPS	Cross	Forgiveness is assoc. w/ ↑ phys. health & well-being
Tomich and Helgeson,2006	70 women diagnosed with breast cancer	control over illness	Control, self-esteem	LOT	Base-line & f/up	Personal control, but not opt. or SE was assoc with ↓ physical and mental function, & ↓ benefit finding
Toussaint, et al., 2001	1432 age 18 and above	Psych. Distress, L-Sat, Health	Religious involvement, forgiveness	Developed items	Long.	Forgiveness and report of mental and phys. health varies with age.
Uskul & Greenglass, 2005	181 Turkish immigrants	Opt., L-Sat, depress.	Opt. & coping for L-Sat regression.	LOT-R	Cross	Proactive coping & opt. predicted depress. & L-Sat
Vaughan and Kinnier,1996	27 HIV diag. adults	SE, Opt., Death Anxiety	None	LOT, SES	Pre/post	–.22 correlation in death anxiety and opt. scores

ASQ = Attributional Style Questionnaire
BDI = Beck Depression Inventory
BPS = Boredom Proneness Scale
CES-D = Center for Epidemiological Studies-Depression Scale
Cohen-Hoberman Inventory of Physical Symptoms
FP = The Forgiving Personality Inventory (Jones, Kamat, Hopko, &Lawler-Row)

HB = The Health Behavior Checklist
LOT = Life Orientation Test
Opt. = Optimism
Pess. = Pessimism
PSS = Self Appraised Life Stress
PWB = Scale of Psychological Well-being
RAD = Reynolds Adolescent Depression Scale
RESTQ = Recovery-Stress Questionnaire (Kallus, 1995)
RSE = Rosen Self-Esteem Scale
SCL-90-R = Symptoms Checklist-90-Revised
SES = Self-Esteem Scale (Rosenberg)
SE = Self-Esteem
SM = Self-Mastery
SS = Social Provisions Scale
SWLS = Satisfaction with Life Scale

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BIOGRAPHICAL INFORMATION

After serving 2 years as a volunteer among impoverished natives of Ecuador, South America and then completing 4 years in the USAF, Dan Vandergriff attended the University of Texas at Austin and earned a Bachelor of Arts degree in Psychology. He then attended West Virginia University in Morgantown, WV and received a Master's Degree in Social Work (MSW) with emphasis on clinical practice in rural communities. While participating in a practicum as a part of the MSW program, Dan was hired by the Veteran Administration's (VA) psychiatric hospital, located on Highland Dr. in Pittsburgh, Pennsylvania, to work as a Post Traumatic Stress Disorder Counselor. Later Dan was hired by the VA in Amarillo, Texas as an Addictions Counselor where he worked for 11.5 years. Looking forward to new challenges he then applied, and was accepted, into the Social Work PhD program of the University of Texas at Arlington. Having learned of the importance of attitude among chemically addicted veterans at the VA, Dan's PhD emphasis has been on the benefits, components and influence of positive psychology components among older people. He is married to a very supportive and wonderful wife and has five fantastic children.