

HEALTH AND SUBJECTIVE WELL-BEING: MUTUAL INFLUENCES MODERATED BY PHYSICAL ACTIVITY, SOCIAL SUPPORT, AND OPTIMISM

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Abstract

Many studies have documented a relationship between one's lifestyle and well-being such that the amount of physical activity one engages in, the amount of social support one receives, and the degree of optimism in one's personality each independently affect one's life satisfaction and physical and mental health. However, there has been little integrative research done. The present study examined how the amount of physical activity one engages in, the amount of social support one receives, and the degree of optimism in one's dispositional personality might increase or decrease one's happiness and improve or harm one's health. College students and community residing adults ($N = 105$) were asked to complete a survey packet containing several questionnaires, including the PANAS, MCSPS, LOT-R, and a response chart. Pearson's partial correlational analyses were used to examine the relationship between criterion and predictor variables. Correlational analyses showed that life satisfaction and positive affect were significantly associated with optimism, positive social support, and yoga. Negative affect was significantly associated with negative social interaction.

Implications of these findings for clinical application are discussed.

Key Words: life satisfaction, subjective well-being, happiness, optimism, social support, physical activity, yoga

Health and Subjective Well-Being: Mutual Influences Moderated by Physical Activity, Social Support, and Optimism

Throughout history people have considered happiness to be the pinnacle of a life well lived and the ultimate motivation for human action. Yet, for years, psychologists largely ignored the topic of subjective well-being, focusing instead on negative behavior. In recent decades behavioral and social scientists have corrected this situation, and theoretical and empirical work is emerging at an increasingly faster pace. The scientific study of well-being in social science first appeared in the 1960s, and in 1973 *Psychological Abstracts International* began listing “happiness” as an index term. In 1974 the journal *Social Indicators Research* was founded, with a large number of articles devoted to subjective well-being (Diener, 2009). Thus, modern psychological research encompasses the study of the entire range of well-being from misery to elation.

The literature on subjective well-being is concerned with how and why people experience their lives in positive ways, including both their cognitive judgments and affective reactions (Snyder, 2001). As such, it covers studies that have used such diverse terms as happiness, satisfaction, morale, and positive affect. In 1967, Warner Wilson presented a broad review of subjective well-being research and, based on the limited data available at that time, he concluded that the “happy” person is “young, healthy, well-educated, well-paid, extroverted, optimistic, worry-free, religious, married with high self-esteem, job morale, and modest aspirations” (Diener et al., 1999). Hundreds of studies have been published since Wilson’s review. Are his conclusions still valid compared to the majority of emerging literature which has examined demographic and other external correlates of subjective well-being? Several of Wilson’s conclusions have been

called into question based on modern findings which has led to an increasing number of studies examining the physiological and psychological causes and outcomes of happiness.

Many psychologists and social scientists have concerned themselves with defining well-being, which is commonly known as happiness. The field of positive psychology is particularly concerned with the study of subjective well-being. These researchers have determined that the concept of well-being and happiness encompasses multiple components. Subjective well-being refers to how people experience the quality of their lives and includes both their emotional reactions and cognitive judgments. Psychologists have defined happiness as a combination of life satisfaction and the relative frequency of positive and negative affect. The term affect refers to the emotions, moods, and feelings a person has. These can be positive, negative, or a combination of both positive and negative (Diener, 2009). Bradburn and Caplovitz (1965) suggested that pleasant affect and unpleasant affect are two independent factors and should be measured separately (Larsen et al., 1985). Diener, Smith, and Fujita (1995) used a multi-method assessment to control measurement error in affect measures and found that the two constructs are moderately inversely correlated but clearly separable. In addition to studying affective experiences, subjective well-being researchers are also interested in people's cognitive evaluations of life satisfaction. The domain of life satisfaction concerns the global judgments of one's life. Andrews and Withey (1976) found that life satisfaction formed a separate factor from the two major types of affect. Lucas, Diener, and Suh (1996) used multi-method techniques to demonstrate that pleasant affect, unpleasant affect, and life satisfaction are separable constructs in the concept of happiness. Subjective well-being therefore encompasses moods and emotions, as well as evaluations of one's satisfaction with general and specific areas of one's life.

In the decades since Wilson's review, investigations of subjective well-being have further evolved. Although researchers now know a great deal more about the correlates of happiness, they are less interested in simply describing the demographic characteristics that correlate with it. Instead, they focus their efforts on understanding the processes that underlie one's well-being. Studies have demonstrated complex relationships between one's biological, psychological, and social dispositions and one's happiness. As a result, many researchers have found evidence that health and subjective well-being may mutually influence each other (Diener, 2009).

Numerous studies have unmistakably demonstrated that physical activity is positively correlated with physiological health (Caspersen et al., 1985; Taylor et al., 1985). Those who engage in regular aerobic exercise experience a wide array of health benefits that improve their living condition and life expectancy, including reduced risk of obesity, cardiovascular disease, Type 2 diabetes, metabolic syndrome, and cancer (Katz et al., 2009). However, studies have also suggested that regular physical activity can improve mental health and mood. Research has shown that doing aerobic exercise or a mix of aerobic and muscle-strengthening activities three to five times a week for thirty to sixty minutes can reduce one's risk of depression and may improve sleep (Katz et al., 2009). Novel studies suggest that physical activity also increases happiness. The Leisure Trends Group polled 1,000 Americans using a "happiness index," which measures eight aspects of Americans' lives in order to determine their happiness on a 10-point scale. The survey also asked the participants whether they had been active in any sports or recreational activities during the past three months. Respondents who answered positively had an average happiness level of 7.2, as opposed to 7.0 for the sedentary respondents (Taylor & Francis, 2013). Although slight, the results suggest that physical activity does boost happiness.

Mack et al. (2012) demonstrated that physical activity is associated with feelings of satisfaction with life, positive affect, and eudonic well-being. After investigating whether a change of one's level of physical activity affected their hedonic and eudonic well-being, they found that those who increased their level of physical activity demonstrated greater satisfaction regarding the need for competence, autonomy, and relatedness. Additionally, all of these variables were associated with greater well-being. Their findings suggest that physical activity allows one to meet the satisfaction of these key needs. This suggests that one can promote feelings of well-being by participating in physical activity. Although previous findings offer evidence that aerobic exercise, such as running, brisk walking, and swimming, improve physical and mental health, there has been little research conducted to evaluate the relationship between less intense exercise and physiological and psychological well-being. The present study aims to determine whether the regular engagement of non-aerobic exercises, specifically yoga, influences happiness.

Research demonstrates that not only is engagement in physical activity related to happiness, but there is also evidence to suggest that engagement in social interaction is linked to well-being. Burns and Machin (2012) demonstrated that social support is generally perceived as being beneficial for an individual's well-being. After evaluating participants' psychological functioning, quantity and quality of interpersonal relationships, frequency of negative life events, and overall health, they found that psychological functioning and quality of interpersonal relationships were both associated with well-being, but the quantity of interpersonal relationships was insignificant in improving one's health. Based on these findings, they concluded that interpersonal relationships moderate the affect of life events. Specifically, those who report

higher levels of quality of interpersonal relationships, also report lower negative affect following stressful life events, which in turn, prevented them from experiencing health deficits. These outcomes suggest that despite the number of stressful life events one experiences, individuals are more likely to report higher life satisfaction and demonstrate better mental and physical health if they perceive that they receive quality social support from their interpersonal relationships.

Research conducted by the Behavioral and Social Research Program at the National Institute on Aging (2009) evaluated happiness and health over the life course and found loneliness is related to negative physical health outcomes in older adults, including higher blood pressure, elevated hormone levels, and less restorative sleep (Population Research Bureau, 2009). Those with fewer social interactions also demonstrated less alertness and difficulty in improving memory and performance (Hawkey et al., 2007). Although previous findings offer evidence that those who perceive that they receive quality social support from their interpersonal relationships demonstrate better mental and physical health, fewer studies have been conducted to examine the relationship between the quantity and quality of social interactions and subjective well-being. The present study aims to examine the relationship between the quantity of positive and negative social interactions and happiness.

In addition to finding indication that health and happiness is related to frequent and positive social interactions, there is also evidence which suggests that one's outlook on life is associated with one's happiness. Scheier et al. (2006) demonstrated that optimism is associated with a range of benefits not only for general well-being, but also for mental and physical health. After assessing participants' dispositional optimism and the frequency that participants generated positive and negative mental images, they found that those who demonstrated a higher vividness

for images generated of positive future events also displayed higher levels of dispositional optimism. Those with higher rates of optimism also had higher levels of life satisfaction and positive affect, as well as lower number depressive symptoms. Their findings suggest that when optimists imagine the future, they can literally see, in their mind's eye, vivid scenes of positive possibilities which further positive impacts their general well-being. These outcomes suggest that if future avenues of research are able to develop novel interventions that will enable more people to take such an optimistic outlook, they can improve mental health and physical well-being.

In addition to a clear connection between optimism, mental health, and happiness, there is research examining a correlation between positivity and physical health. A series of carefully designed studies suggesting that just as good health tends to be associated with greater happiness, positive emotions and optimism can have beneficial influence on health. Optimism has been shown to be linked to life longevity. Maruta, Colligan, Malinchoc, and Offord (2000) examined whether explanatory styles served as risk factors for early death. Using the Minnesota Multiphasic Personality Inventory, the researchers categorized medical patients as optimistic, mixed, or pessimistic and found that for every ten point increase in a person's score on their optimism scale, the risk of early death decreased by 19%. Optimism has also been shown to play a role in the recovery from illness and disease. Multiple studies (Carver et al., 1993; Schou et al., 2005) investigating the role of optimism in people undergoing treatment for cancer have found that optimistic people experience less distress, less disruption of normal life, and less fatigue when faced with life-threatening cancer diagnoses. These findings suggest that optimism appears to protect one's immune system, their "fighting spirit," and their likelihood of living longer with chronic diseases. Although existing research supports the association among optimism, physical

and mental health, and happiness, few studies have been conducted to evaluate a relationship between one's level of optimism and social health. The present study aims to find a potential association between one's life expectations (positive or negative) and their well-being.

When considered collectively, prevailing evidence seems to indicate that one's well-being and health are mutually influential. The amount of physical activity one engages in, the amount of social support one receives, and the degrees of optimism in one's personality each independently affect one's happiness and physical and mental health. Despite recent studies that offer potent evidence that one's well-being and one's overall health are conjointly influential, there has been little integrative research done that studies the influences that physical activity, social support, and optimism might play in altering happiness. As a result of the popular shift from injurious medicine to preventative medicine, there is a current emphasis on strategies to protect one's health, which as the previously mentioned studies suggest is possible to moderate by increasing one's happiness. In light of these circumstances, examining effective methods to increase one's life satisfaction and the relative frequency of positive affect while reducing the relative frequency of negative affect has become vital. To help meet these demands, more research needs to be conducted. The present study was designed to address this issue by examining how the amount of physical activity one engages in, the amount of social support one receives, and the degree of optimism in one's dispositional personality might increase or decrease one's happiness. The specific hypotheses of this study include: participants who engage in more physical non-aerobic activity (yoga, Tai Chi) will report greater instances of life satisfaction and positive affect and will report fewer instances of negative affect; participants who indicate more social interactions and more positive interpersonal relationships will report

greater instances of life satisfaction and positive affect and will report fewer instances of negative affect; and finally, participants who demonstrate more instances of thinking optimistically as compared to negatively will report greater instances of life satisfaction and positive affect and will report fewer instances of negative affect. In addition to examining the main effects of each predictor variable on well-being, I will determine which predictor exerts the strongest effect on well-being.

Method

Participants

The study was conducted in the southeastern region of the United States. Participants ($N = 105$) were recruited from a college campus ($N = 62\%$) and from yoga studios in the community where the college is located ($N = 38\%$). Females comprised 82% of the sample and most of the participants were either White (83%) or Black (8.6%). Regarding age, the respondents' ages ranged from 18 to 62, with most participants falling in the 18 to 28 age range (61.9%).

Materials

Several questionnaires were used to assess the dynamic relationship between one's biological, psychological, and social components and overall well-being. Specifically, we assessed the amount of physical activity one engages in, the amount of social support one receives, and the level of optimism in one's dispositional personality.

The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) was used to assess positive affect (PA) and negative affect (NA). Individuals are asked to rate

themselves on 20 descriptors (e.g. attentive, excited, distressed, upset) based on how they feel *in general*, and each descriptor is responded to by using a 5-point Likert scale (1 = very slightly to 5 = extremely). The 20 descriptors were divided evenly between PA and NA, and the scores on each subscale can range from 10 to 50. Internal consistency reliability coefficients in this study were .82 and .86 for the PA and NA scale, respectively. Information about the validity of the PANAS can be found in Watson et al. (1988).

The short-form of the Marlowe-Crowne Social Desirability Scale (MCSDS; Reynolds, 1982) was used to assess the potential tendency that subjects might have to portray themselves in an overall socially appropriate or non-deviant manner. The inventory contains 13 items that subjects respond to by indicating whether the statement is true or false. Scores can range from 0 to 13 with higher scores indicating a stronger social desirability response bias. In this study, the internal consistency reliability coefficient for the MCSDS was .70.

The Revised Life Orientation Test (LOT-R; Scheier, Carver, & Bridges, 1994) was used to assess optimism. The LOT-R consists of six items (plus four filler items) that assess generalized expectancies for positive versus negative outcomes. The participants use a 5-point response scale that ranges from 0 = “strongly disagree” to 4 = “strongly agree” and scores on the LOT-R can range from 0 to 24 (higher scores indicate higher levels of optimism). In our sample the internal consistency reliability of the LOT-R was $\alpha = .84$, which is consistent with past reports (Scheier, et al., 1994). Information regarding the validity of the test can be found at Scheier et al. (1994).

A response chart was used to assess physical activity and social support. The inventory contains 3 items which measure the frequency of yoga participation, positive social interactions, and negative social interactions. The subjects use a 8-point response scale that ranges from 0 = “zero days a week” to 7 = “seven days a week” to indicate how often they engage in each activity. Higher scores indicate more frequent occurrence.

Procedure

Participants were solicited to participate on campus and at yoga studios in the community. For the campus sample, participants received research credit for participating in the study and they completed the surveys in group testing sessions. For the community sample, participants were given the opportunity to pick up the survey instruments, which included an informed consent form, and were instructed to complete the materials in the privacy of their homes. They were instructed to return the packet to the Department of Psychology via the pre-paid, addressed envelope provided in the packet. Analyses which will be reported in the Results section of this paper show that the data from the campus sample are equivalent to the data collected from the community sample. After data collection concluded participants were sent information regarding the purpose and results of the study.

Results

Prior to addressing the hypotheses of the study some preliminary analyses were conducted. That is, we tested whether the distributions of the variables in the study met the assumptions of normality. No subscales were found to be skewed.

To address the hypotheses of the study, correlational analyses were first conducted. Pierson's partial correlational analyses were used to examine the relationship between criterion and predictor variables. In all of these analyses, social desirability was used as a control variable.

Results were analyzed to test the prediction that participants who demonstrate more instances of thinking optimistically as compared to negative thinking will report greater instances of life satisfaction and positive affect and will report fewer instances of negative affect. This set of analyses showed that optimism was positively and significantly associated with life satisfaction. Those who evidenced greater expectancies for positive outcomes ($r(96) = .331, p = .0001; R^2 = .109$) reported greater levels of life satisfaction. Optimism was also found to be positively and significantly related to positive affect. Those with a more positive outlook ($r(96) = .605, p = .0001; R^2 = .366$) reported greater levels of positive affectivity. Additionally, optimism was found to be negatively and significantly related to negative affect. Those who scored higher on optimism ($r(96) = -.453, p = .0001; R^2 = .205$) displayed lower levels of negative affectivity.

Additional analyses tested the prediction that participants who indicate more social interaction and more positive interpersonal relationships will report greater instances of life satisfaction and positive affect and will report fewer instances of negative affect. The number of positive social interactions was found to be positively and significantly associated with life satisfaction and positive affect. Those who engaged in more frequent meaningful conversations with family and friends reported greater levels of life satisfaction ($r(95) = .259, p = .005; R^2 = .067$) and positive affect ($r(95) = .212, p = .019; R^2 = .044$). Positive interpersonal relationships were shown to be negatively and marginally significantly related with negative affect. Those who

reported more frequent positive interactions with friends and family displayed lower levels of negative affectivity ($r(95) = -.105, p = .153; R^2 = .011$), although this effect was not significant.

Conversely, results were analyzed to test the prediction that participants who reported less social interactions and more negative interpersonal relationships will report lower levels of life satisfaction and positive affect and will report greater instances of negative affect. Those who engaged in more frequent distressing conversations with family and friends reported higher levels of negative affect ($r(96) = .260, p = .005; R^2 = .067$). Negative interpersonal relationships were not significantly related with life satisfaction ($p = .182$) and positive affect ($p = .179$).

Continued analyses tested the prediction that participants who engage in more physical non-aerobic activity (i.e. yoga) will report greater instances of life satisfaction and positive affect and will report fewer instances of negative affect. This set of analyses did display a significant positive association between non-aerobic activity and positive affect, however, yoga was found to only be marginally significantly related to life satisfaction. Those who practiced yoga frequently reported higher levels of positive affectivity ($r(96) = .408, p = .0001; R^2 = .166$) and slightly higher levels of life satisfaction ($r(96) = .130, p = .101; R^2 = .017$). Non-aerobic exercise was shown to be associated with lower levels of negative affect. Those who engaged yoga more frequently reported lower levels of negative affectivity ($r(96) = -.302, p = .001; R^2 = .091$).

Additionally, regression was used to test which of the predictor variables was most strongly related to criterion variables. Social desirability was always entered in the first step of the equation. The second step of the equation included all of the predictor variables. Within the

analyses examining life satisfaction, optimism was a significant predictor ($B = .358, t = 3.189, p = .002$), as was positive social interactions ($B = .242, t = 2.577, p = .012$). The full model accounted for 20% of the variance in life satisfaction.

Within the analyses examining positive affect, optimism was a significant predictor ($B = .526, t = 6.231, p = .0001$), as was non-aerobic exercise ($B = .169, t = 2.068, p = .041$). Positive social frequency was found to be marginally related ($B = .142, t = 1.934, p = .056$). The full model accounted for 48% of the variance in positive affect.

Within the analyses examining negative affect, optimism was a significant predictor ($B = -.332, t = -3.413, p = .001$), as was negative social interactions ($B = .227, t = 2.620, p = .01$). The full model accounted for 31% of the variance in negative affect.

Discussion

Researchers in social psychology have acknowledged that one's well-being and health are mutually influential. Prevailing evidence indicates that the amount of physical activity one engages in, the amount of social support one receives, and the degrees of optimism in one's personality each independently affect one's happiness, as well as physical and mental health (Augusto-Landa et al., 2011; Carver et al., 1993; Maruta et al., 2000; Scheier et al., 2006). Despite recent studies that offer potent evidence that one's well-being and one's overall health are conjointly influential, there has been little integrative research done that studies the influences that physical activity, social support, and optimism might play in altering happiness. This study compared the relationships between non-aerobic exercise, social support, and optimism, and the perceived impact of these variables, both independently and collectively, on

life satisfaction, as well as positive and negative affect. Indeed, in this study the practicing of yoga, social support, and optimism were found to be significantly related to all forms of subjective well-being as assessed through life satisfaction, positive affect, and negative affect.

In regards to the association between non-aerobic activity and happiness, those who practiced yoga more frequently exhibited higher levels of positive affect, lower levels of negative affect, and moderately higher levels of optimism. Results from this study shed new light on the relationship between exercise and subjective well-being. Although numerous studies (Taylor & Francis, 2013; Katz et al., 2009; Mack et al., 2012) have confirmed a significantly positive relationship between aerobic exercise (i.e. running, brisk walking, biking) and happiness, little research has explored the relationship between non-aerobic exercise (i.e. yoga) and subjective well-being. Results from the current study suggest that yoga is also positively related to happiness. Therefore, those who practice yoga more frequently will likely display higher levels of positive affect and life satisfaction than those who do not engage in such exercise.

In regards to the association between social support and subjective well-being, those who engaged more frequently in positive social interactions reported greater levels of positive affect, higher levels of life satisfaction, and marginally lower levels of negative affect. In contrast, those who reported more frequent negative social interactions displayed greater levels of negative affect and moderately lower levels of positive affect and life satisfaction. These results are in line with findings from previous studies. By evaluating participants' psychological functioning, quantity and quality of interpersonal relationships, frequency of negative life events, and overall health, Burns and Machin (2012) found that the quality of interpersonal relationships was associated with well-being, however, they did not find that the quantity of interpersonal

relationships was significant in improving one's happiness. In contrast, the current study found evidence that both the quantity and quality of social interactions influences one's subjective well-being. Those who displayed any degree of positive social interaction reported higher levels of positive affect and life satisfaction, while those who reported any instances of negative social interactions displayed greater levels of negative affect. Additionally, those who reported more frequent positive conversations with friends displayed greater levels of positive affect and life satisfaction than those who reported only a few instances of positive interaction. Conversely, those who reported more frequent negative conversations with friends displayed higher levels of negative affect than those who reported only a few instances of negative interaction.

In regards to the relationship between optimism and happiness, those who exhibited higher levels of optimism were shown to display greater levels of positive affect and life satisfaction, as well as lower levels of negative affect. These results are consistent with previous findings. While examining the associations between dispositional optimism/pessimism and psychological well-being, Augusto-Landa et al. (2010) found a positive relationship between optimism and psychological well-being dimensions. Together, these findings suggest that optimism is a strong predictor of one's subjective well-being.

While the results of this investigation hold theoretical and practical merit, a number of limitations require acknowledgment to advance our understanding of subjective well-being in the context of physical activity, social support, and optimism. First, the present study relied exclusively on self-reported methods, which are susceptible to response bias and distortion from common methods variance. However, our data analyses did control for social desirability, which reduces the likelihood of biased results. Moreover, our data are correlational in nature and thus

causal inferences should not be drawn. Additionally, our sample might be biased in that rather healthy, well educated, socially supported individuals took part. Future studies aiming at replicating this study's results in a more representative sample is clearly needed.

To summarize, the goal of this study was to examine the relationship between one's lifestyle, relationships, and disposition and to determine how the amount of physical activity one engages in, the amount of social support one receives, and the degree of optimism in one's dispositional personality might increase or decrease one's happiness. Consistent with our hypotheses and existing literature, results suggested that yoga, positive social support, and optimism are positively related to greater levels of happiness whereas negative socialization is associated with lower levels of happiness. Researchers have already determined that the concept of well-being and happiness encompass multiple components. Instead of simply describing the demographic characteristics that correlate with subjective well-being, researchers should focus their efforts on understanding the complex relationships between one's biological, psychological, and social dispositions and one's happiness. This would provide an exciting new line of research regarding the factors that facilitate happiness and health. As an example, one avenue of research that should be explored is the relationship among non-aerobic exercise and aerobic exercise and how they are individually and collectively related to happiness. If studies offer support that non-aerobic exercise is more significantly associated to subjective well-being than aerobic activity, it would offer great support for expanding the exercises that are offered to students in existing traditional physical education classes to include activities such as yoga. Another example of research that should be investigated is the relationship between family relationships and friendships and how they are independently and conjointly related to subjective well-being. If

research suggests that one type of relationship is more closely related to happiness, it would offer great support for focusing on family and friend dynamics. Finally, because optimism proved most important of all the variable in predicting happiness, much future research should be devoted to this subject. Future research should explore the effectiveness of applying learned optimism techniques to change one's mind and one's life. If studies offer support that learned optimism is an equally beneficial psychological characteristics as dispositional optimism, the findings that come out of this line of research could have important implications for clinicians working with depressed patients.

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