

THE RELATIONS BETWEEN SUBJECTIVE WELL-BEING, PSYCHOPATHY, AND  
THE NEO BIG FIVE PERSONALITY TRAITS

by

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## Abstract

Psychopathy is a personality disorder characterized by the manipulative use of others, callousness, shallow affect, lack of empathy, pathological lying, egocentricity, superficial charm, and impulsive behaviour. The present study investigated the relation between psychopathy and subjective well-being in 436 undergraduates. Subjective well-being was defined as high levels of positive affect and life satisfaction and low levels of negative affect. Participants rated their levels of subjective well-being using the Oxford Happiness Inventory, Satisfaction With Life Scale, Faces Scales (assessing both momentary and overall happiness), Subjective Happiness Scale, Scale of Eudaimonic Well-Being, Positive and Negative Affect Schedule, and Center for Epidemiological Studies Depression Scale. Psychopathy was assessed using two self report measures: The Levenson Self-Report Psychopathy Scales (LSRP) and the Self-Report Psychopathy Scale III R-12 (SRP-III). Personality was measured using the 60 item NEO Five-Factor Inventory. Psychopathy was associated with high levels of depression and negative affect and low levels of life satisfaction, happiness, and positive affect. Scores on the two psychopathy measures (LSRP and SRP-III) accounted for significant portions of the variance in depression (16.6%), negative affect (18.5%), life satisfaction (13.8%), happiness (6.1-20%) and positive affect (11.3%). However, psychopathy failed to account for variance in these measures of well-being above and beyond the variance accounted for by the Big Five personality traits. These results are consistent with the position that personality disorders can be conceptualized as a constellation of extreme levels of normative personality traits. The factor structure of psychopathy was examined using confirmatory factor analysis and the data supported the two-factor model of psychopathy over the more recent four-factor model. This study

represents one of the first attempts to investigate subjective well-being in individuals with psychopathy. Implications and directions for future research were also discussed.

## Preface

The following research project required approval from the University of British Columbia Behavioural Research Ethics Board. Approval was obtained August 8<sup>th</sup>, 2008, certificate number H08-01610.

Some information from sections 1.2 [The Importance of Studying SWB] and 1.6 [Defining Psychopathy] in the Introduction were submitted for publication to Nova Publishers for publication as a chapter: Love, A.B., & Holder, M.D. (in press). The Contribution of Personality to Positive Psychology. *Personality Traits: Classification, Effects and Changes*. Nova Science Publishers, Inc. Hauppauge, N.Y. As first author I was responsible for a large portion of the writing of the Chapter.

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## Dedication

To John. Thank you for your love, support, and understanding throughout this process.

## 1. Introduction

Traditionally the field of psychology has focused on the treatment of pathologies rather than on the promotion of positive states (Cheng & Furnham, 2003; Compton, 2005; Joseph, Linley, Harwood, Lewis, & McCollam, 2004). Until recently, researchers have emphasized the diagnosis and treatment of illness and dysfunction, focusing on depression, anxiety, personality disorders, and various pathologies. This research is important but it should not eclipse the study of positive well-being. A change in emphasis was promoted in part by Martin Seligman who, in 1998, pushed for more research into the realm of positive psychology as president of the American Psychological Association (Compton, 2005; Fredrickson, 2003; Peterson & Seligman, 2004). Rather than simply researching the negative aspects of psychology, he argued that it is also important to study what is right with individuals and how these traits can be encouraged. Together with fellow researcher Mihaly Csikszentmihalyi, Seligman encouraged researchers to discover the correlates and contributors of human flourishing (Fredrickson, 2003). This promotion of positive human potentials, motives, and capacities is termed positive psychology (Compton, 2005; Sheldon & King, 2001). Positive psychology is concerned with understanding the positive, adaptive, creative, and emotionally fulfilling elements of human behaviour (Compton, 2005; Fredrickson, 2003; Sheldon & King, 2001). This neglect is showing signs of being addressed, as there is a heightened interest in positive psychology, demonstrated by a proliferation of research publications (Cheng & Furnham, 2003; Fredrickson, 1998, 2001, 2003; Fredrickson & Joiner, 2002) and non-academic writings (e.g., self-help books [e.g., *The How of Happiness* and *The Art of Happiness: A Handbook for Living*]) (Dalai Lama & Cutler, 1998; Lyubomirsky, 2007).

A major focus of positive psychology is the study of SWB. SWB is an overarching construct characterized by a prevalence of positive affect (preponderance of positive emotions

[e.g., happiness]), low levels of negative affect (e.g., depression), and an overall satisfaction with one's life (Busseri, Sadava, & Decourville, 2007; Lyubomirsky, Sheldon, & Schkade, 2005). It is important to note that this definition of SWB includes both cognitive appraisals (i.e., life satisfaction) and affective evaluations (i.e., positive and negative affect) of one's life (Froh, Fives, Fuller, Jacofsky, Terjesen, & Yurkewicz, 2007; Keyes, Shmotkin, & Ryff, 2002; Lucas, Diener, & Suh, 1996). While SWB is characterized by high levels of positive affect, it does not mean that individuals high in SWB never experience negative emotions. Individuals who score high on well-being measures typically experience medium to moderately strong positive emotions (they rarely feel ecstatic or euphoric) (Diener & Seligman, 2002). Also, these very happy individuals often experience negative emotions, just not as often as positive emotions (Diener & Seligman, 2002). Researchers have typically conceptualized happiness as being a component of positive affect (examples of other components of positive affect are joy and contentment). For the purposes of this study, the term happiness will be used to describe a component of positive affect (positive emotionality) and SWB will be used to describe the overarching construct combining positive affect (happiness), negative affect, and life satisfaction.

### 1.1 Positive Psychology in the Research Literature

It is important that researchers study positive psychology due to its correlations with several psychological, physiological, and interpersonal benefits. Despite these benefits it is widely acknowledged that positive psychology has been largely understudied. For example, PsycINFO (a search engine for research articles in psychology) returns 136,668 journal articles using the key word depression. The same search engine returns 7,494 articles if the key word happiness is used. More articles (30,536) are found if the more global term well-being is used, but it is still a fraction of the articles studying depression. This number decreases dramatically if

personality disorders are included in the search. There are approximately 153 research articles studying the relation between depression and psychopathy, and only 12 examining happiness and psychopathy. While research in the realm of positive psychology has increased dramatically in the past decade, positive psychology is a neglected field when compared to negative affect, especially with reference to personality disorders. There are several reasons why researchers have overlooked the study of positive psychology for so long. First, SWB has been neglected by researchers because the promotion of positive affect and life satisfaction are not thought of as pressing when compared to treating dysfunction (Fredrickson, 1998). Depression is correlated with increased anxiety, poor health (e.g., an increase in cardiovascular problems), as well as feelings of hopelessness and loneliness (Musselman, Evans, & Nemeroff, 1998; Weeks, Michela, Peplau, & Bragg, 1980). These problems demand immediate attention, and the benefits of promoting positive well-being are often overlooked when compared to these more life-threatening matters (Fredrickson, 1998). Despite its less grave nature, it is a mistake to neglect positive affect as it is correlated with a wide range of physiological (e.g., improved health) and interpersonal (e.g., better social relationships) benefits (Barak, 2006; Myers, 2000). Positive affect is important due to its role in prevention. Promoting positive affect is a pro-active way of preventing negative affect and the costs of this negative affect, including (but not limited to) decreased health, poorer sleep quality, fewer and less rewarding interpersonal relationships, and increased anxiety (Eley & Stevenson, 1999; Luo & Inoué, 2000; Musselman et al., 1998; Rosselló & Bernal, 1999).

A second reason why SWB has received little attention is the controversy surrounding its structure. While most researchers would agree that SWB is characterized by both affective and cognitive-appraisal factors, there is little consensus as to how these components combine and interact to form a model of SWB (Busseri et al., 2007). Several theoretical models of SWB have

emerged. One model postulates that SWB is actually a higher order latent variable, with positive and negative affect and life satisfaction acting as indicator variables. While there is some support for this model (Vitterso & Nilsen, 2002), SWB is more than the shared variance between positive affect, negative affect, and life satisfaction (Busseri et al., 2007). Other models have been proposed which postulate that either the three components of SWB are distinct, separable factors, or that SWB is defined by a composite score of these three components (Busseri et al., 2007). More research is needed for investigators to reach a consensus as to how the different components of SWB interrelate.

## 1.2 Importance of Studying SWB

Research on SWB is important because the predictors and correlates of positive affect may differ from the predictors and correlates of negative affect, and it is inadequate to simply study negative affect. For example, happiness may not be the reverse of depression, but may represent a conceptually distinct construct (Cheng & Furnham, 2002; Lucas et al., 1996; Valiant, 1993). Cheng and Furnham (2002) compared the personality correlates of happiness to the personality correlates of loneliness (a sub-component of depression). They discovered that while happiness and loneliness are negatively correlated constructs, they are conceptually distinct, and are associated differently across many variables. Happiness was predicted by friendship, extraversion, and low levels of neuroticism while loneliness was predicted by self-confidence (lack thereof) and psychoticism. The absence of certain factors that predict happiness do not automatically imply loneliness and the opposite is also true (Cheng & Furnham, 2002). This research supports the hypothesis that happiness and depression may not be opposite ends on a single continuum, but rather orthogonal dimensions, albeit negatively correlated dimensions. Additional support for this theory is based on correlations between measures of happiness and

measures of depression. The Oxford Happiness Inventory and the Beck Depression Inventory have a negative correlation of .57, which is high, but not perfect, indicating that they may be conceptually distinct (Cheng & Furnham, 2003; Valiant, 1993). While positive and negative affect are not independent at any given moment, over time they do show independence (Valiant, 1993). Also, depression rates are much higher for women than for men (Leach, Christiensen, Mackinnon, Windsor, & Butterworth, 2008; Weissman, Leaf, Holzer, Myers, & Tischler, 1984) but happiness levels do not show clear gender differences. Research generally reports that women and men are similarly happy (Lyubomirsky et al., 2005). These findings support the theoretical conception of happiness and depression as orthogonal dimensions.

While some research suggests that happiness and depression are negatively correlated, conceptually independent constructs, other research suggests that happiness and depression may be best measured using a single, bipolar instrument (Argyle, Martin, & Crossland, 1989; Joseph, Linley, Harwood, Lewis, & McCollam, 2004; Joseph & McCollam, 1992). Joseph and colleagues (2004) demonstrated that the Short Depression-Happiness Scale (SDHS), a six item measure that conceptualizes happiness and depression as opposite ends of a single continuum had good convergent validity with established measures of depression and happiness (Joseph et al., 2004). Due to conflicting research, continued investigation is necessary to determine whether happiness and depression are more appropriately conceptualized as orthogonal dimensions or as opposite poles of a single, bipolar dimension.

Studies have indicated that positive states (e.g., happiness) are related to health (actual health as well as perceived health) (Mahon, Yarcheski, & Yarcheski, 2005). Happiness is highly correlated with optimism, and optimists experience better moods, higher numbers of helper T cells, and higher natural killer cell cytotoxicity (linked to increased immunity) (Barak, 2006). Happier people also experience better sleep, are less likely to commit suicide, and are generally

more successful (Koivumaa-Honkanen, Honkanen, Viinamäki, Heikkila, Kaprio, & Koskenvuo, 2001; Lyubomirsky, King, & Diener, 2005; Luo & Inoué, 2000) and researchers have argued that the ability to be happy and satisfied with life is a crucial component of adaptation and positive mental health (Lyubomirsky, Sheldon, & Schkade, 2005).

Happier individuals are less likely to get sick and, if they do get sick, report fewer symptoms than less happy individuals. Participants were exposed to two different rhinoviruses (RV23 and RV39) to evaluate whether emotional style was related to susceptibility to the common cold (Cohen, Doyle, Turner, Alper, & Skoner, 2003). Cohen and colleagues (2003) discovered that individuals who had a high positive emotional style (evaluated using positive adjectives such as happy, calm, or energetic) were less likely to develop a cold, and if they did develop a cold, reported fewer symptoms than individuals who had a negative emotional style (evaluated using negative adjectives such as sad, tense, or hostile). In a follow up study, individuals were exposed to either Rhinovirus 39 (RV39) or Influenza A and compared for susceptibility and severity of symptoms to emotional style (Cohen, Alper, Doyle, Treanor, & Turner, 2006). Once again, individuals who had a positive emotional style were less susceptible to both the rhinovirus and influenza, and reported less severe symptoms if they did get sick. Furthermore, this improvement in health was primarily attributed to an increase in immune functioning and not an increase in health related behaviours or a decrease in stress related factors.

Longevity is also associated with higher levels of SWB. Danner and colleagues (2001) examined the diaries of 180 Catholic nuns between the ages of 18 and 32 ( $M = 22$ ) and scored their diary entries for emotional content (positive, negative, or neutral). The emotional content was then examined to see if longevity could be predicted when the nuns were 75 to 95 years of age. The nuns who expressed positive emotions in their diaries lived longer than the nuns who did not express this positive emotional content, and the difference was substantial (Danner,

Snowden, & Friesen, 2001). Nuns whose diary entries were scored in the highest quartile for positive emotional content lived on average 6.9 years longer than nuns whose diary entries were scored in the lowest quartile.

Evaluating well-being is important due to the possible independence of positive and negative psychological states. Positive states may have more ability to bolster health than negative states have to deplete it. If positive psychological states do influence health more than negative ones, it is important to promote these positive psychological states with their correlated health benefits (Lai, Evans, Ng, Chong, Siu, Chan, et al., 2005). Cohen and colleagues (2003) discovered that while positive emotional style was related to a decrease in susceptibility and symptom severity for the common cold, negative emotional style had little influence on infection or symptom severity (although negative emotional style was related to reporting more unfounded symptoms, or symptoms that could not be validated with objective markers of illness) (Cohen et al., 2003).

Well-being is a key contributor to success in the workplace (Georgellis, Gregoriou, Healy, & Tsitsianis, 2008; Martin, 2005; Staw, Sutton, & Pelled, 1994; Wright & Bonnett, 2007). Compared to people with lower levels of happiness, individuals who are happy have several advantages in the workplace including higher salaries and better job performance (Boehm & Lyubomirsky, 2008). Depressed Canadians reported being unable to work 32 days each year compared to the national average of 9.7 days of missed work in 2006 (Statistics Canada, 2006; Statistics Canada, 2007). The cost associated with absenteeism and loss of productivity due to depression was \$6.2 billion in Canada in 1998 and \$44 to \$51.5 billion annually in the United States (Lerner, Adler, Chang, Lapitsky, Hood, & Perissinotto et al., 2004; Stephens & Joubert, 2001). Happy individuals get sick less often, have fewer missed days, and are more productive and creative on the job (Avey, Patera, & West, 2006; Hirt, Devers, & McCrae, 2008). The

frequent explanation for the relation between job success and happiness is that success in the workplace causes an increase in happiness and life satisfaction. However, research shows that the reverse may also be true. In other words, happiness often precedes success in the workplace and this positive affect contributes to desired results in the workplace (Boehm & Lyubomirsky, 2008).

Happier people demonstrate higher levels of creativity (defined as the ability to produce ideas, insights, or solutions to problems that are both novel and relevant) (Baas, De Dreu, & Nijstad, 2008). Creativity can be separated into several components including cognitive flexibility (i.e., the breadth and number of categories a person accesses when determining uses for an object), fluency (i.e., the number of novel uses an individual can conceptualize for a given object), and originality (i.e., the uniqueness of the solution). An individual can be creative overall, but can lack one or more of the subcomponents of creativity (Baas et al., 2008). For example, an individual can generate many novel, logical uses for a brick (overall creativity) but may only conceptualize the brick as an object to build with, and fail to see its potential as a weapon or a musical instrument (lacking cognitive flexibility) (Baas et al., 2008). A meta-analysis by Baas and colleagues (2008) examined 25 years of mood and creativity research and found that happiness was associated with enhanced creativity. These findings were generalizable across different creativity subtypes (e.g., fluency vs. originality), different populations (i.e., students vs. general adult population), and different study designs (e.g., correlations vs. experimental research) (Baas et al., 2008).

High levels of SWB are also hypothesized to contribute to human resilience, or the ability to overcome difficult situations (Tugade & Fredrickson, 2007; Tugade, Fredrickson, & Barrett, 2004). Positive emotions buffer the effects of negative or difficult situations (Tugade & Fredrickson, 2004; Tugade et al., 2004). Individuals who rate themselves as able to cope with

difficult situations effectively return to baseline levels of physiological responding quickly, indicating that resilience may have a physiological component (not purely psychological) (Tugade et al., 2004). Tugade and Fredrickson (2004) also demonstrated that in addition to recovering more quickly from negative emotional arousal, individuals high in SWB were more resilient in a threatening situation and were more likely to find positive meaning in negative situations. SWB may act as a buffer against the physiological and psychological stressors that are part of a negative situation increasing an individual's ability to cope (Tugade & Fredrickson, 2004; Tugade et al., 2004). By increasing SWB, individuals may be able to increase their resiliency to negative situations (Cohn, Fredrickson, Brown, Mikels, & Conway, 2009; Tugade & Fredrickson, 2007).

Finally, individuals who score higher in SWB tend to experience better interpersonal relationships (Lyubomirsky et al., 2005) and involvement in a quality romantic relationship is one of the key correlates of SWB (Myers, 2000). Individuals who gave higher ratings to the importance of having a high income and job success were twice as likely to rate themselves as unhappy compared to those who placed a higher value on friendships and marriage (Myers, 2000). The relation between marriage and happiness was examined in 17 nations and results demonstrated that marriage was associated with higher levels of happiness in 16 of the 17 nations studied (Stack & Eshleman, 1998). Research has demonstrated that quality romantic relationships contribute to happiness over and above the influence of personality (Demir, 2008) and married individuals report higher levels of happiness than those who are single (never married), divorced, or separated, and marriage quality is strongly related to personal well being (Dush, Taylor, & Kroeger, 2008; Myers, 2000; Proulx, Helms, & Buehler, 2007).

### 1.3 Theories of SWB

There are several theories to explain SWB. The first, the Hedonic Treadmill Hypothesis proposed by Brickman and Campbell (1971) states that all emotion systems adjust to current life circumstances and all reactions are short-lived and relative to prior experience (Diener, Lucas, & Scollon, 2006). Individuals generally maintain a neutral level of emotions, and are only briefly influenced (positively or negatively) before returning back to a neutral state (Diener et al., 2006). The Hedonic Treadmill Hypothesis states that individuals will return to a neutral baseline point after an emotionally significant event (known as adaptation) (Diener et al., 2006). Support for this theory is evidenced by lottery winners who are no happier than controls (return to neutral baseline) once the initial excitement over winning has passed and they grow accustomed to their new wealth (Brickman, Coates, & Janoff-Bulman, 1978).

Several modifications to this theory may be necessary. Recent research has demonstrated that most individuals are happy most of the time (not neutral) (Biswas-Diener, Vittersø, & Diener, 2005; Diener & Diener, 2006) and that different individuals have different baseline levels of SWB due to individual and personality based differences (it is not necessarily the same set point for everyone) (Diener et al., 2006). Genetic studies indicate that SWB has a heritable component (Lykken & Tellegen, 1996), and personality factors are strong correlates of well-being variables (Chamorro-Premuzic, Bennett, & Furnham, 2007). The set point is likely different across individuals due to genetic and personality differences.

Another tenet of the Hedonic Treadmill Hypothesis is that there is only one neutral set point baseline happiness level that individuals consistently return to. It may be the case that there are multiple set points, or baseline levels (Diener et al., 2006). SWB is composed of several separate variables (e.g., life satisfaction, optimism, and positive affect) so it reasonable to hypothesize that different dimensions of SWB would have different set point levels (Diener et al.,

2006; Lucas, Diener, & Suh, 1996). The set point for life satisfaction may differ from that same individual's set point for happiness. It is also quite likely that there are individual differences in terms of the adaptation process (Diener et al., 2006). There may be individual differences in how quickly and completely different people adapt to emotional events. The Hedonic Treadmill Hypothesis also cannot explain why SWB levels can change. Widows and widowers, unemployed individuals, and divorced persons all report long-term changes in SWB (Lucas, 2007; Lucas, Clark, Georgellis, & Diener, 2007). While adaptation and the Hedonic Treadmill Hypothesis are relevant as many individuals do adapt (often quite quickly) to different emotional events, several revisions are necessary to the original model (Diener et al., 2006).

A second, related theory of SWB is the Set-Point Theory of SWB (Lykken & Tellegen, 1996). It is closely related to the Hedonic Treadmill Hypothesis in that adaptation is a key component of the theory. The main difference is that the Hedonic Treadmill Hypothesis states that individuals quickly adapt and return to a neutral set point, whereas the Set-Point Theory of SWB states that individuals quickly return to a baseline set level (this may be neutral, or it may be very happy – the set point is genetically determined and varies across individuals) (Lucas, 2007). Lykken and Tellegen (1996) demonstrated that SWB had a high heritable component, and the variance in SWB across individuals was largely determined by genetic variation (Lykken & Tellegen, 1996). This theory does not explain how SWB levels can show enduring changes (e.g., decreases in SWB following unemployment) (Lucas, 2007).

Evolutionary psychologists suggest a third theory of SWB, that the ability to experience emotions (including happiness) was shaped by natural selection as a way to increase reproductive fitness, in much the same way as anatomical and physiological features (Grinde, 1996, 2002; Nesse, 1990). There are several lines of supporting evidence for this claim. Emotions are shared by all people, regardless of culture, and individuals who have deficits in processing and

recognizing emotions are at a social disadvantage (Nesse, 1990). Individuals with alexithymia, characterized in part by a decreased ability to experience and verbalize emotions, often experience higher levels of depression and difficulty recognizing emotions in others (Hendryx, Haviland, & Shaw, 1991; Honkalampi, Hintikka, Tanskanen, Lehtonen, Viinamäki, 2000). Awareness of emotions is important because emotions create physiological, psychological, and behavioural changes to help individuals cope with stressors and threats and to take advantage of various opportunities in a constantly changing environment (Nesse, 1990). Fear is coupled with a strong desire to flee, the behaviour itself (the act of fleeing), and several physiological changes to ensure the appropriate behaviour is carried out (e.g., increased blood flow to the muscles to facilitate running) (Fredrickson, 1998, 2003). Negative emotions are usually paired with specific action tendencies (e.g., fear is paired with the desire to flee, guilt with the desire to make things right) which caused individuals to act in certain ways, and typically increased their odds of survival (Fredrickson, 1998).

Positive emotions are not linked to specific action tendencies the way negative emotions are (Fredrickson, 1998). Contentment and joy are associated with a vague openness to participate in any interaction that presents itself, rather than a specific action tendency (Fredrickson, 1998, 2001). Because positive emotions are not linked with specific action tendencies, they may not contribute to immediate survival the way negative emotions do. However, research has demonstrated that while positive emotions may not be directly related to survival in the short term, over time they contribute to psychological and physical well being (Fredrickson, 1998, 2001, 2003). The nonspecific desire for activity associated with positive emotions often leads to various types of play behaviour, allowing individuals to develop important physical, intellectual, and social skills (e.g., highly complex fantasy play behaviour in preschool children is related to better social skills, increased popularity, and more positive social activity overall) (Connolly &

Doyle, 1984; Fredrickson, 2001). Positive emotions such as joy, contentment, and SWB promote a state which motivates individuals to develop necessary life skills, making them more attractive potential mates, and increasing their reproductive fitness (Fredrickson, 1998). There is evidence to support this theory of positive emotions. Happiness is a universal phenomenon correlated with increases in reproductive fitness (being admired and loved and having children,) and unhappiness is associated with decreased reproductive fitness (sickness and social rejection) (Nesse, 1990). Experiencing happiness is beneficial because it acts as a motivator to participate in new events which allow the individual to gain valuable life skills and to repeatedly engage in these activities (most play behaviour is pleasurable and contributes to overall positive emotions) (Fredrickson, 1998, 2001; Nesse, 1990). The capacity to experience happiness has a high genetic component (at least 50% of the variance in SWB can be attributed to genetic variation) (Lykken & Tellegen, 1996; Lyubomirsky, Sheldon, & Schkade, 2005) and the capacity to experience happiness became a part of universal human nature through natural selection (Fredrickson, 2001).

Closely tied to evolutionary psychology is the Broaden-and-Build Model of Positive Emotions, developed by Fredrickson (1998). This model states that positive emotions provide non-specific action tendencies which can lead to adaptive behaviour and can also ease the initial changes in cognitive activity that can lead to newer and more adaptive action tendencies. Positive emotions allow individuals time to ponder all available options and make optimal decisions to maximize gain of potential resources, and these resources are often longer lasting than the initial positive emotion. Positive emotions create a desire to be social or to engage in play behaviour, leading to the development of social bonds and these social bonds exist long after the initial positive emotion has faded (Cohn & Fredrickson, 2006; Fredrickson, 1998, 2001, 2003). This is in direct contrast to negative emotions, which generally lead to a narrowing of options for thoughts and behaviours (e.g., if under immediate threat, it is not adaptive to debate about

available options, but rather to make a quick decision and act upon it). This model for positive emotions has been proposed as an alternative to the specific action tendency models of emotion which are relevant for negative emotions, but are not adequate when describing positive emotions (Fredrickson, 1998, 2001).

Supporting this model, individuals experiencing positive affect are more cognitively flexible, creative, integrative, efficient, thorough, and show a preference for variety than individuals experiencing negative emotions (Isen, 2001; Isen, Daubman, & Nowicki, 1987; Isen, Johnson, Mertz, & Robinson, 1985; Kahn & Isen, 1993). Individuals who have been induced to experience positive affect are able to come up with more unusual and diverse associations for neutral words than individuals induced to experience negative affect (Isen et al., 1985).

Fredrickson (1998) is also credited with the Undoing Hypothesis, stating that positive emotions help the body and mind regain a sense of balance and equilibrium after the force of negative emotions (Cohn & Fredrickson, 2006; Fredrickson & Levenson, 1998; Fredrickson, Mancuso, Branigan, & Tugade, 2000). Positive emotions effectively “undo” the effects of the negative emotion. Fredrickson and colleagues (2000) induced anxiety in participants by asking them to prepare a short speech in a limited amount of time. This was followed by a film clip designed to induce a positive, negative, or neutral affective state. Participants’ levels of cardiovascular activity were measured throughout the experiment. Individuals randomly assigned to the positive affective state recovered more quickly from the anxiety provoking stimulus than did individuals assigned to either the negative affective state or neutral state conditions (Fredrickson et al., 2000). Tied to the Undoing Hypothesis is psychological resilience. Individuals who were identified as being more resilient returned to cardiovascular baseline more quickly than less resilient individuals after being exposed to the anxiety inducing speech preparation task (Tugade & Fredrickson, 2004). Resilient individuals had higher levels of

positive emotions both before and after the task, and the quicker return to baseline exhibited by resilient individuals is thought to be mediated by their higher levels of positive emotions.

Resilient individuals may be better able to cope with stressors because they selectively cultivate their positive emotions through a variety of techniques (e.g., humour and optimistic thinking) (Tugade & Fredrickson, 2004). Positive emotions may, over time, build resilience through goal directed behaviour and finding positive meaning in ordinary events (Fredrickson, 2001, 2003).

There is a reciprocal relationship between these behaviours and positive emotions. As individuals experience positive emotions, they are more likely to engage in behaviours that increase their positive emotions, and this increase in positive emotions, in turn, increases the likelihood that individuals will be able to create goals and find positive meaning in ordinary situations due to the broadening of their attention and cognition associated with positive emotions, again leading to an increase in positive emotions (Fredrickson, 2001). Positive emotions accumulate over time to increase an individual's psychological resilience and overall positive affect (Fredrickson, 2001, 2003). Fredrickson and Joiner (2002) conceptualized this cumulative process as an upward spiral of continued growth and prospering (Fredrickson, 2003; Fredrickson & Joiner, 2002). This upward spiral has important implications, not only at the individual level, but also at the group or community level (Fredrickson, 2003). Individuals who experience higher levels of positive affect are more likely to participate in kindness towards others, as positive affect is associated with an increase in kindness related behaviours (Emmons & McCullough, 2003). These kind acts increase the positive affect of both the individual performing the kind act (they may be proud of doing a good deed, or they may feel good because they can see the effects of their kind act on others) and the individual who is on the receiving end of the kind act (their positive affect is increased because someone has been kind to them) (Fredrickson, 2003). This in turn predisposes both individuals to not only perform more kind acts in the future, but also increases their ability

to recognize kindness in others, as an increase in positive affect is not only linked to an increase in kind behaviour but also predisposes individuals towards an increased awareness for the trait itself (Otake, Shimai, Tanaka-Matsumi, Otsui, & Fredrickson, 2006). The Broaden-and-Build Model of Positive Emotions incorporates both the Hedonic Treadmill Hypothesis and the Set-Point Theory of SWB because positive and negative emotions are transitory (individuals quickly return to baseline levels). It differs because it examines the cognitive and behavioural implications of positive emotions, and posits that positive affect is a cumulative process. Positive emotions accumulate over time to contribute to overall positive affect (Fredrickson, 2001).

A final theory of SWB was proposed by Mikulincer and Peer-Goldin (1991) based on Higgins (1987) self-discrepancy theory. Self discrepancy theory incorporates three basic self-states: The actual self (traits an individual believes they possess), the ideal self (traits an individual would like to possess), and the ought self (traits the individual believes they should possess). Mikulincer and Peer-Goldin (1991) suggest that individuals who feel there is a high degree of congruency between their actual self and their ideal self are happier than individuals who believe there are large discrepancies between these two selves. They will also feel relief or calm when the ought self is congruent with the actual self, due to its association with decreased negative outcomes (Mikulincer & Peer-Goldin, 1991). When the ought self (the self appropriate for a given situation) is congruent with the actual self there is little conflict between the individual's behaviour and the appropriate behaviour, leading to decreased anxiety and awkwardness and higher SWB.

#### 1.4 Measuring SWB

Typically, SWB (including happiness and life satisfaction) has been assessed using self-report questionnaires (Diener, Sandvik, Pavot, & Gallagher, 1991; Walker & Schimmack, 2008).

Critics of these measures have argued that they are vulnerable to socially desirable responding (SDR), current mood, and the necessity of an individual's self-awareness (Diener et al., 1991). SDR (the tendency to present oneself with the characteristics, attitudes, and behaviours one believes one should possess in a given social context) is arguably the biggest source of error in self-report measures of well-being (Carstensen & Cone, 1983; Diener et al., 1991). However, research has demonstrated that these self-report questionnaires are both reliable and valid at assessing not only happiness, but also life satisfaction. Several studies have shown that responses to SWB measures are consistent over time, explicit (self report) measures of SWB correlate significantly with implicit (non self-report) measures, and outside reports of SWB (usually by a friend or spouse) typically correlate quite highly with self-reported SWB (Diener, Sandvik, Pavot, & Gallagher, 1991; Sandvik, Diener, & Seidlitz, 2009). Men and Women's self-reports of their SWB were highly correlated with significant others (spouse, close friend, or relative) reports of these same individual's well-being ( $r = 0.64$ ) suggesting that these individuals are being honest about their reported levels of happiness (Lepper, 1998).

Implicit or objective measures have been used to validate self-report measures of a variety of psychological constructs (e.g., racism and self-esteem) by overcoming some of the shortcomings of explicit measures, including a participants' willingness to report their attitudes or beliefs (often tied to SDR) and the participants' awareness of the construct being measured (Cunningham, Preacher, & Banaji, 2001; Kim, 2004; Kobayashi & Greenwald, 2003). Implicit tests are disguised measures because participants are unaware of what is actually being assessed and these tests can be used to validate the subjective measures currently being used (Walker & Schimmack, 2008). Implicit measures have been used to validate the Modern Racism Scale, which is a self-report measure of racial attitudes (Cunningham et al., 2001), and implicit tests have also been used to study self-enhancement, self-esteem, and life satisfaction (Jordan,

Spencer, Zanna, Hoshino-Brown, & Correll, 2003; Kim, 2004; Kobayashi & Greenwald, 2003).

Walker and Schimmack (2008) have developed an implicit test to measure happiness. Results indicated that there were low correlations between scores on the implicit happiness test and self-reported SWB, other-reported SWB (best friends rated each other) and measures of SDR, indicating that the implicit happiness test measured a similar, but not equivalent, construct. While the happiness IAT was not measuring the exact construct of SWB and further research is necessary to refine the happiness IAT so that it more closely measures the SWB construct, it measured the construct with low levels of SDR (correlations between scores on the measure of SDR and the happiness IAT were low) indicating that an implicit happiness test would be a very valuable research tool (Walker & Schimmack, 2008).

### 1.5 SWB and Personality

One of the strongest predictors of SWB is personality (DeNeve & Cooper, 1998; Steel, Schmidt, & Shultz, 2008). Research indicates that personality factors are equally predictive of positive affect, happiness, and life satisfaction but less predictive of negative affect (DeNeve & Cooper, 1998). SWB has been consistently positively correlated with three of the five Big 5 personality factors described by McCrae and Costa (1987), Agreeableness (refers to kind, empathic relationships with others and an eagerness to cooperate and avoid conflict), Conscientiousness (control of impulses and persistence of behaviours), and Extraversion (preference for social activity and lively activity and to live out experiences positively) and negatively correlated with Neuroticism (feeling that reality is problematic, threatening and difficult, coupled with heightened anxiety and other negative emotions) (Costa & McCrae, 2003; DeNeve & Cooper, 1998; Hayes & Joseph, 2003; Rolland, 2002). The link between SWB and Extraversion is so strong that some researchers have suggested that happiness is a type of stable

Extraversion (Eysenck, 1983; Francis, 1998). The link between Extraversion and SWB has been replicated many times (Diener, Sandvik, Pavot, & Fujita, 1992; Lee, Dean, & Jung, 2008; Pavot, Diener, & Fujita, 1990) but what remains unclear is how Extraversion is linked to SWB, and the means by which personality influences SWB (Diener et al., 1992; Harris & Lightsey, 2005).

Pavot and colleagues (1990) suggest several reasons why extraverts have higher SWB than nonextraverts: 1) They are more social (they spend more time with others) and quality interpersonal relationships are associated with increased SWB (Meyers, 2000), 2) Often, individuals are forced into social situations, and extraverts experience personality-situational congruence, which leads to increased SWB as opposed to nonextraverts, who experience incongruent personality-situational contexts, and 3) They have more active reward systems (they are more likely to experience SWB, regardless of social context). They tested these three possibilities and also whether the relation between SWB and Extraversion is largely artificial, due to SDR (both SWB and Extraversion are socially desirable characteristics in Western society, and the relation between the two could be partially explained by SDR). Pavot and colleagues (1990) discovered, using nonself-report measures of SWB (e.g., peer reports from participants family and friends and a memory difference measure), a relation between Extraversion and SWB over and above any response artifacts which may be present in self-report measures (e.g., SDR). They also discovered evidence that extraverts experience higher SWB regardless of level of social interaction (Pavot et al., 1990).

Diener and colleagues (1992) further examined the importance of social context for the relation between Extraversion and SWB using data from a national probability sample in the United States to determine whether extraverts were happier living in urban vs. rural areas, living alone or with others, and working in social vs. non-social occupations. They determined that extraverts were happier overall than nonextraverts, across living situations (urban vs. rural), type

of household (living alone vs. living with others), type of occupation (social vs. non-social), as well as gender, racial, and age groups. However, extraverts were more likely to live in urban areas, and to live with others (Diener et al., 1992). While extraverts were more likely to live in urban areas and multi-person households, extraverts living in these situations were no happier than extraverts living in rural areas and/or alone, indicating that there is more to the increased SWB of extraverts than simply contact with others, which further supports the findings by Pavot and colleagues (1990) (Diener et al., 1992).

Social connectedness may mediate the relation between Extraversion and SWB (Lee, Dean, & Jung, 2008). Social connectedness refers to an individual's subjective awareness of belonging to social relationships and being part of the social world, and is a related, but conceptually distinct construct from Extraversion (Lee et al., 2008). Lee and colleagues (2008) examined Extraversion, social connectedness, and SWB in a group of college students and a group of individuals who identified themselves as lesbian, gay, or bisexual (LGB), and discovered that social connectedness fully mediated the relation between Extraversion and SWB in the college group, and partially mediated the relation between Extraversion and SWB in the LGB group. Social connectedness may partially explain the mechanism through which Extraversion and SWB influence one another (Lee et al., 2008).

Another possibility is that SWB is better predicted by low levels of Neuroticism than high levels of Extraversion. Researchers may have missed the strong relation between Neuroticism and SWB because it is the absence of Neuroticism which predicts SWB. Hills & Argyle (2001) proposed that the personality construct of Neuroticism should be reversed and renamed Emotional Stability (ES). Individuals high in ES would be calm, experiencing low levels of worry and anxiety (Hills & Argyle, 2001). If ES were studied rather than Neuroticism, the relation between SWB could be compared to two positive constructs, and researchers would be

able to more easily conceptualize the relation between SWB and ES/Neuroticism and to determine whether it is ES or Extraversion that is most important in terms of SWB (Hills & Argyle, 2001). A meta-analysis by DeNeve and Cooper (1998) demonstrated that ES was one of the traits most closely tied to SWB, and Neuroticism was the strongest predictor of happiness, life satisfaction, and positive affect (DeNeve & Cooper, 1998). Vitterso (2001) studied 264 Norwegian folk high school students (folk high school refers to a learning environment where students choose the areas of study they wish to pursue, there is no set curriculum and no formal evaluations) who were tested at two different times 8 months apart for satisfaction with life, global affect, SWB, and personality factors and found that ES was a stronger predictor of SWB than Extraversion.

Further research is warranted in order to determine the importance of ES when investigating the link between Extraversion, Neuroticism, and SWB. One potential way to further investigate these relations is to examine the relation between personality at the facet level rather than at the trait level (Steel et al., 2008). One reason for a facet level analysis to further clarify these relations is since overarching personality traits are composed of multiple facets, it is possible for different facets to correlate with SWB, but in opposite directions, effectively attenuating the observed relation between the personality trait and SWB. Steel and colleagues (2008) also advocate analyses at the facet rather than trait level because it allows researchers to weight the importance of individual facets based on theory rather than assigning them equal weights for regression analyses. A third possibility is that some facets may be irrelevant in terms of understanding SWB and can therefore be excluded from the analyses (Steel et al., 2008).

## 1.6 Defining Psychopathy

Psychopathy is a personality disorder characterized by the manipulative use of others, callousness, shallow affect, lack of empathy, pathological lying, egocentricity, superficial charm, and impulsive behaviour (Blair, Colledge, Murray, & Mitchell, 2001; Blair, Budhani, Colledge, & Scott, 2005; Brinkley, Schmitt, Smith, & Newman, 1999; Hare, 1999; Lynman, Whiteside, & Jones, 1999; Neumann, Hare, & Newman, 2007). Psychopaths are disproportionately represented in incarcerated populations, approximately 1% of the general population and 15-30% of the prison population show signs of this disorder (Edens, 2006; Glenn & Raine, 2008; Kiehl, 2006; Kiehl, Smith, Hare, Mendrek, Forster, Brink, et al., 2001). Due to the characteristics that define it, it is not surprising that individuals high in psychopathy commit a disproportionate amount of crimes, respond poorly to available treatments, and show high rates of recidivism (Edens, 2006; Hare, 1999; Salekin, 2008).

In the past, some researchers have used the terms psychopathy and antisocial personality disorder interchangeably due to the overlap between the two disorders (Frick, O'Brien, Wootten, & McBurnett, 1994). However, only a subset of individuals with antisocial personality disorder (20-30%), show the full range of psychopathic traits (Blair, 2003; Flor, Birbaumer, Hermann, Ziegler, & Patrick, 2002). One of the key features of antisocial personality disorder is deregulated and uncontrollable anger, whereas psychopathy is typically characterized by low levels of physiological arousal (APA, 2000; Lorber, 2004). While there are many similarities between the two disorders, there is not sufficient overlap to justify using the two interchangeably (Blair, 2001, 2003; Kiehl, 2006; Lorber, 2004).

Individuals with psychopathy exhibit several neurological and cognitive differences from healthy controls (Budhani & Blair, 2005; Dolan & Fullam, 2006). Psychopaths experience difficulty anticipating punishment (Birbaumer et al., 2005), show impoverished aversive

conditioning and passive avoidance learning (Blair, 2005; Blair, Mitchell, Leonard, Budhani, Peschardt, & Newman, 2004), exhibit problems with response reversal (Budhani & Blair, 2005; Budhani, Richell, & Blair, 2006), and demonstrate a decreased ability to form stimulus-punishment associations (Blair et al., 2004). However, stimulus-reward associations do not seem to be affected. Psychopaths also show attenuated skin conductance responses in anticipation of aversive or threatening events (Birbaumer et al., 2005) and a diminished startle reflex when processing aversive stimuli (Justus & Finn, 2007). Psychopaths have a selective difficulty recognizing fearful facial expressions in others, but not happy, angry, or disgusted facial expressions (Blair et al., 2001), and do not recognize fearful vocal tones (Dolan & Fullam, 2006). They also appear to be less responsive to distress cues than nonpsychopaths (Blair, Jones, Clark, & Smith, 1997), and show high levels of both instrumental and reactive aggression (Cornell, Warren, Hawk, Stafford, Oram, & Pine, 1996).

Several theories have been developed in an attempt to explain the lack of socialization and cognitive and interpersonal dysfunctions which characterize psychopathy. The Frontal Lobe Dysfunction Hypothesis explains the characteristics of psychopathy in terms of dysfunctional processing in the frontal lobes, specifically the orbitofrontal cortex (OFC) and the ventrolateral frontal cortex (VFC) (Blair, 2005a). Damage to the OFC can cause impairments in recognition of emotional vocal tone and facial expressions (Adolphs, 2002) as well as “acquired sociopathy”, characterized by irresponsible behaviour and antisocial choices (actions which place little to no importance on the implications of these decisions for others) (Birbaumer et al., 2005). The frontal cortex is important for mediating reactive aggression, as patients with frontal lobe damage often show higher levels of reactive, frustration based aggression (Blair, 2004). This frontal lobe dysfunction is not associated with heightened levels of instrumental aggression, so this model

cannot account for the high levels of instrumental, goal directed aggression exhibited by psychopaths (Blair, 2005a).

The Response Set Modulation Hypothesis posits that the characteristics and antisocial behaviour of psychopaths is due to a problem of selective attention (Blair, 2005a; Hiatt, Schmitt, & Newman, 2004). According to this theory, most healthy individuals experience a shift in attention between the central focus of their attention and peripheral information, and this shift is mostly involuntary and automatic (Hiatt et al., 2004). Psychopaths, once their attention is focused, experience difficulty shifting from central information to peripheral information. Support for this theory is the increased performance of psychopaths on the Stroop task when compared to controls (Hiatt et al., 2004; Vitale, Brinkley, Hiatt, & Newman, 2007). The Stroop paradigm is considered the gold standard for measuring the influence of peripheral information (Hiatt et al., 2004). Typically, individuals are asked to focus on one component of a stimulus while ignoring the other, peripheral components. For example, individuals are shown words corresponding to different colours (e.g., RED) that are displayed in a different colour of ink than the colour the word represents (e.g., the word RED would be printed in blue ink). The individual is then asked to indicate the colour of ink (i.e., discount the word). Most healthy controls find it very difficult to name the colour of ink without being influenced by the actual word (Hiatt et al., 2004). Continuing with the above example, most healthy individuals find it very difficult to simply state that the colour of the ink is blue without reading the word red. Quite often, individuals make mistakes with this task (termed Stroop interference). This is not the case for psychopaths. They are quite good at focusing on the central information (e.g., the colour of the ink) and ignoring the peripheral information (e.g., the actual word that is spelled out for them) (Hiatt et al., 2004; Vitale et al., 2007). This finding is true for both male and female psychopaths (Hiatt et al., 2004; Vitale et al., 2007; Vitale, Newman, Bates, Goodnight, Dodge, & Pettit, 2005).

Hiatt and colleagues (2004) found that psychopaths' decreased Stroop interference was only true if the peripheral information was spatially separated from the central information. Psychopaths can attend to extraneous information, but only if this additional information is spatially tied to the central information (Hiatt et al., 2004). The problem of selective attention observed in individuals high in psychopathy has been used to explain their poor socialization, based on their deficiencies with classical conditioning, specifically association formation (Birbaumer et al., 2005; Flor et al., 2002). Psychopaths show impoverished aversive conditioning (Blair, 2003), decreased ability to form stimulus-reward and stimulus-punishment associations (Blair et al., 2004), and a decreased ability to attend to emotional content, which is often peripheral information, separate from the central information (Hiatt et al., 2004). This could (in part) explain a psychopath's decreased ability to recognize sad and fearful facial expressions, and also why they do not seem to be influenced by the distress of other individuals. Not only do they experience more difficulty recognizing distress in others, but even if they do notice, they would have difficulty pairing the other person's distress with their own actions. While this model can explain some of the deficits characteristic of psychopathy, this reduced Stroop interference was only observed for low-anxiety psychopaths (high-anxiety psychopaths scored similar to controls) (Hiatt et al., 2004; Vitale et al., 2007) and it does not fit within the known research literature on attentional processing (Blair, 2005a).

Another theory of psychopathy is the Fear Dysfunction Hypothesis (Blair, 2005a). This model assumes that socialization is achieved through punishment using a classical conditioning paradigm (Blair, 2005a). The premise is that healthy individuals learn to relate or pair fear of punishment with the act that initiated the punishment, making them less likely to engage in that act in the future (Blair, 2005a). Researchers have postulated that the poor socialization of individuals high in psychopathy may be due to their inadequate ability to develop anticipatory

fear (Blair et al., 2004; Lewis, 1991). Children with high levels of fearfulness on a variety of measures showed higher levels of Conscientiousness (Blair et al., 2001). Support for this model includes the deficiencies psychopaths show at recognizing fearful facial expressions and fearful vocal tone as well as the diminished startle reflex shown by psychopaths and their difficulties forming stimulus-punishment associations (Blair et al., 2004; Dolan & Fullam, 2006).

The Violence Inhibition Mechanism (VIM) model was developed by Blair (1995) to account for the role of empathy in moral socialization. This model proposed that there are two positions that explain the affective characteristics of psychopathy (Blair et al., 2001). The fear impairment position explains the diminished autonomic responses to aversive stimuli (e.g., failure to show potentiation of the startle reflex) and the deficiencies in processing fearful facial expressions and fearful vocal tone (Dolan & Fullam, 2006) as well as the high levels of sensation seeking and proneness to boredom that is characteristic of psychopathy (Blair et al., 2001; Hare, 1999), but cannot account for why individuals high in psychopathy show deficiencies when processing sad facial expressions (Blair et al., 2001). The empathy impairment position explains why individuals with psychopathy fail to respond appropriately to emotional social stimuli, but cannot account for the diminished autonomic responses to aversive stimuli or the deficiencies in fearful expressions, etc. that are accounted for by the fear impairment position (Blair, 2001). The VIM model was created to integrate these two positions (Blair et al., 2001). It is based on the premise that most social animals (including humans) have mechanisms which terminate aggressive advances when submission cues are displayed (Blair 1995, 2005a; Blair et al., 2001). For humans, fearful and sad facial expressions are submission cues in this model (Blair et al., 2001). The VIM is activated whenever submission cues are displayed, which results in cessation of aggression (Blair, Monson, & Fredrickson, 2001). Through the process of classical conditioning, healthy individuals learn to pair the activation of this mechanism with the acts (or

representations of the acts) that caused the distress cues. These acts are termed moral transgressions (Blair et al., 2001). A non-psychopath learns to avoid acts that cause other individuals to display submission cues (Blair et al., 2001). Psychopaths do not, due to their deficiencies at forming stimulus-punishment associations (Blair et al., 2004).

The final theory of psychopathy is the Integrated Emotions Systems (IES) model. This model was created by Blair (2005a), and can be conceptualized as a combination of the VIM model and the Fear Dysfunction Hypothesis which implicates the amygdala as the primary area of dysfunction, and also attributes some of the aggressive aspects of psychopathy to damage of the OFC/VFC (Blair, 2001; Blair, 2005a). It has yet to be determined why there is dysfunction of the amygdala and the OFC/VFC. Blair (2005a) has proposed three possibilities. The first possibility is that damage to the OFC/VFC occurs because of dysfunction of the amygdala. The second, that pathology of the amygdala and OFC/VFC both occur due to a single pathology at another level (e.g., it could be that dysfunction in these two areas is due to disruption of a single neurotransmitter). The third possibility is that dysfunction of the OFC/VFC may be a product of the lifestyle of psychopaths. Psychopaths engage in various types of high risk behaviour (e.g., increased drug use) (Blair, 2005a). While there are multiple theories concerning the causes of psychopathy, it is suggested that only the IES model can account for the emergence of this disorder (Blair, 2005b).

## 1.7 Childhood/Adolescent Psychopathy

Despite the controversy over labelling a child a “psychopath” due to the negative connotations associated with the term, there is evidence to suggest that psychopathy is present in children and adolescents (Frick et al., 1994; Salekin & Frick, 2005). Frick and colleagues (1994) measured psychopathy in two groups of children aged six to thirteen using the Psychopathy

Screening Device, and determined that a two dimensional construct very similar to psychopathy in adulthood was manifested in these children. Blair and colleagues (2001) have also demonstrated that children with psychopathic symptoms exhibit the same callous and unemotional traits as adult psychopaths, demonstrate poor recognition of fearful facial expressions, and show diminished amygdala response while processing these fearful facial expressions (Blair et al., 2001; Marsh et al., 2008).

Due to the presence of psychopathic symptoms in children and the persistence of these symptoms into adulthood, many researchers have proposed that psychopathy is largely caused by genetic factors, and this is especially true for callous and unemotional traits (Viding, Blair, Moffitt, Plomin, 2005). However, despite the contribution that genetics likely makes to the development of psychopathy, it is important to examine the role environmental factors play in the development of the disorder. It is plausible that traumatic experiences during childhood can lead to a blunting of emotions. This blunting of emotions is used as a coping mechanism to avoid the negative feelings elicited by the traumatic event(s). Over time, this coping mechanism may be employed more frequently as the decrease in negative emotions acts as positive reinforcement. With the correct genetic predisposition, an individual using this coping strategy could develop a type of secondary psychopathy, where their emotions are blunted through practice and habit (Porter, 1996).

Despite the fact that the causes of psychopathy are under debate, one issue that remains clear is the importance of determining early interventions for psychopathy, since adult psychopaths are often resistant to treatment, at higher risk for recidivism, and are disproportionately represented in prison populations (Edens, 2006; Glenn & Raine, 2008; Hare, 1999). Dadds and colleagues (2006) demonstrated that the poor recognition of fearful facial expressions characteristic of children with high psychopathic symptoms can be mediated by

focusing the attention on the target individual's eyes. These results are important because if children manifesting early warning signs of psychopathy can be taught to attend to emotions (specifically fear) in other individuals, they may be able to develop a sense of empathy lacking in adults with this disorder (Dadds et al., 2006). The callous and manipulative use of others which is the hallmark of this disorder could possibly be mediated by teaching high-risk children to attend to emotional cues in others at a young age (Dadds et al., 2006). Further research into the etiology of the disorder is necessary to determine early treatment interventions.

## 1.8 Measuring Psychopathy

Psychopathy is typically measured using self-report questionnaires as well as in-depth interviews (Forth, Hart, & Hare, 1990; Hare, Harpur, Hakstian, Forth, Hart, & Newman, 1990; Levenson, Kiehl, & Fitzpatrick, 1995; Williams, Paulhus, & Hare, 2007). While these questionnaires share the same vulnerability to socially desirable responding as measures of SWB, they have been shown to be both reliable and valid at assessing psychopathy in both institutional (e.g., prisons) and non-institutional (e.g., university) settings (Levenson et al., 1995; Williams et al., 2007).

There is some debate as to the underlying factor structure of psychopathy. The first, widely accepted factor structure defined psychopathy in terms of two factors (Hare et al., 1990; Neumann, Kosson, Forth, & Hare, 2006). These two (correlated) factors represent the affective-interpersonal characteristics (e.g., lack of empathy [*factor 1*]) and socially deviant behaviours (e.g., impulsiveness [*factor 2*]) (Hare, 1999; Hare et al., 1990; Harpur, Hakstian, & Hare, 1988; Harpur, Hare, & Hakstian, 1989; Neumann et al., 2006). Early factor analyses supported this two-factor structure, and the most widely used two-factor assessment tool is the Psychopathy Checklist – Revised (PCL-R), designed in 1985 by Hare and colleagues (Bishopp & Hare, 2008;

Kiehl, 2006). The PCL-R is a 20 item (an example of an item is Glibness/Superficial Charm) measure which combines interview and case file data to assign an individual a psychopathy score between 0 and 40 (Hare, 1999; Hare & Neumann, 2005). Typically, a cut-off score of 30 is used, with individuals scoring 30 or higher defined as psychopaths (Hare, 1999; Hare & Neumann, 2005). More recently, the Levenson Self-Report Psychopathy Scales (another measure of psychopathy) adapted this two-factor structure and attempted to validate it using a non-institutionalized population (university students) (Levenson et al., 1995). Levenson and colleagues (1995) termed the affective-interpersonal characteristics (factor 1) as primary psychopathy, and the socially deviant behaviours (factor 2) as secondary psychopathy. While this two-factor model has been largely endorsed by the research community, studies have indicated that it may be flawed, and not able to capture the more subtle nuances of the disorder (Williams et al., 2007). Recent research has indicated that psychopathy is comprised of anywhere from two to five meaningful factors (Bishopp & Hare, 2008; Neumann, Kosson, & Salekin, 2007). A three-factor model has also been proposed by Cooke and Michie (2001). This model subdivides factor 1 into two distinct dimensions, interpersonal style and affective deficits (Cooke & Michie, 2001). This three-factor model has been criticized by researchers because it only includes five of the nine original items measuring factor 2; antisocial items were deleted as the authors proposed that these items were artifacts of other psychopathic features (Bishopp & Hare, 2008; Neumann et al., 2006).

A four-facet model of psychopathy has also been proposed (Kiehl, 2006; Neumann et al., 2006; Hare & Neumann, 2005). The four facets included in this model are Interpersonal (PCL-R items 1,2,4, and 5), Affective (items 6, 7, 8, and 16), Behavioural Lifestyle (items 3, 9, 13, 14, and 15) and Antisocial (items 10, 12, 18, 19, and 20). (Kiehl, 2006; Hare & Neumann, 2005; Neumann et al., 2006). The Interpersonal and Affective facets are part of the

interpersonal/affective component (factor 1) and the Behavioural Lifestyle and Antisocial facets make up the socially deviant behaviours component (factor 2) (Bishopp & Hare, 2008). Research has demonstrated good support for this four-factor structure (Hare & Neumann, 2005). The Self-Report Psychopathy Scales measures psychopathy using this four-factor structure (Williams et al., 2007). This tool has been used to measure both incarcerated and non-incarcerated populations, and has been shown to have high reliability and validity with both (Williams et al., 2007). While historically the two-factor model has been popular, recent research has suggested that the four-factor model may be superior (Neumann et al., 2006).

### 1.9 Correlates of Psychopathy

Psychopathy is a developmental disorder that is consistent across the lifespan (Hare, 1999). As previously discussed, both children and adults have similar symptoms, including a lack of empathy and a propensity for high risk behaviours (Blair, 2005; Hare, 1999). There are several key differences between psychopaths and non-psychopaths (Hare, 1999). One difference involves the use of hand gestures while speaking. Many individuals “talk with their hands”, and these hand gestures during speech are termed beats (Gillstrom & Hare, 1988; Hare, 1999). Beats are defined as rapid hand movements that occur only during speech, but are not part of the storyline (Hare, 1999). These rapid hand movements are hypothesized to facilitate speech, perhaps by increasing the overall activity in various speech centers in the brain as the same centers that control speech control beats (Hare, 1999). Complete thoughts are made up of smaller thought units (Gillstrom & Hare, 1988; Hare, 1999). These thought units can vary from very small (e.g., a single word) to very large (e.g., a complete story line). Typically, thought units are very well integrated, and beats seem to mark off these thought units, so the greater the number of beats, the greater the number of thought units (Hare, 1999). Typically, the more beats an individual uses,

the more difficulty they have expressing themselves (e.g., individuals use more beats when speaking in a foreign language) (Hare, 1999). Psychopaths typically use more beats than the average person, and this is especially true when they are speaking about emotional matters (e.g., how they feel about a family member) (Hare, 1999). This indicates that psychopaths have difficulty conceptualizing and discussing emotional matters (emotions are comparable to a foreign language for psychopaths) (Hare, 1999). This also indicates that psychopaths tend to have smaller, isolated thought units, and these units may be easily moved around and rearranged, providing a possible explanation as to why psychopaths are such skilled liars (Hare, 1999). They are adept at breaking down ideas and rearranging them to suit their purposes (Hare, 1999).

Another difference between psychopaths and nonpsychopaths is the way emotionally laden words are processed (Hare, 1999; Kiehl et al., 2001; Long & Titone, 2007; Williamson, Harpur, & Hare, 1991). Words can have both a dictionary definition as well as emotional significance. For the average person, emotional words convey more information and are more easily remembered than neutral words, because they are being processed in two ways (Hare, 1999; Long & Titone, 2007; Williamson et al., 1991). They are processed in terms of their dictionary definition, and also by the emotional response they evoke in the individual (Hare, 1999). For the average person, emotional words are processed quicker and evoke larger brain responses than neutral words (Hare, 1999; Williamson et al., 1991). For example, the word “table” is not an emotionally laden word, so it is only processed according to its dictionary definition (Hare, 1999). The word “rape” has both a dictionary definition and evokes an emotional response, so it is processed in two ways (Hare, 1999). Psychopaths show deficits when processing emotional words, and this is especially true for negative words (Kiehl et al., 2001; Long & Titone, 2007). Long and Titone (2007) evaluated the hypothesis that psychopaths may show deficiencies when processing emotion words because emotion words tend to be more

abstract that non-emotion words. They balanced emotion words and neutral words for levels of abstractness and found that psychopaths deficit for emotionally laden words persisted (Long & Titone, 2007). This deficit in emotional processing is not only true for words, but also for events and auditory sounds (Christianson, Forth, Hare, Strachan, Lidberg, & Thorell, 1996; Verona, Patrick, Curtin, Bradley, & Lang, 2004). Verona and colleagues (2004) tested incarcerated males' physiological reactions (skin conductance, activity in the zygomatic major muscle [smile] and corrugators supercilli muscle [frown], and heart rate) when presented with three blocks of pleasant (e.g., crowd cheer), neutral (e.g., chicken cluck), or unpleasant (e.g., baby cry) sounds. They discovered that individuals high on factor 1 psychopathy (according to Hare's PCL-R) had a lower skin conductance response for all sounds, and also demonstrated reduced skin conductance response for affective (pleasant and unpleasant) sounds when compared to neutral words. Individuals scoring low on factor 1 showed an increased skin conductance response for affective sounds compared to neutral sounds. Verona and colleagues (2004) also found that individuals high in factor 2 psychopathy had a decelerated heart rate for all three sound categories for the first block of sounds, whereas individuals low in factor 2 only exhibited a decelerated heart rate for affective sounds, which could indicate a delay in the higher cortical processing of the affective significance of these sounds (Verona et al., 2004).

Neurotransmitters may also be implicated in the etiology of psychopathy (Glenn & Raine, 2008; Harmer, Bhagwagar, Perrett, Völlm, Cowen, & Goodwin, 2003). Research suggests that serotonin is implicated in social behaviour, and studies have shown that higher levels of serotonin may be involved in social affiliation and dominance (Harmer et al., 2003). Selective Serotonin Reuptake Inhibitors (drugs which increase serotonin) can increase an individual's ability to recognize and process both happy and fearful faces (Harmer et al., 2003). As previously discussed, individuals with psychopathy have trouble recognizing sad and fearful facial

expressions (Blair et al., 2001; Blair et al., 2004). Psychopathy has also been associated with an increased ratio of homovanillic acid (a dopamine metabolite) to 5-hydroxyindolacetic acid (a serotonin metabolite) (Glenn & Raine, 2008). This increased ratio may indicate an impaired regulation of dopamine due to serotonin deficiencies (Glenn & Raine, 2008). Psychopaths also exhibit low levels of cortisol, indicating decreased activity in the hypothalamic-pituitary-adrenal axis. Serotonin has receptor sites in the hypothalamus, and heightened concentrations of serotonin at these receptor sites leads to an increase in cortisol. These lower levels of cortisol may be due to lower levels of serotonin in the brain (Glenn & Raine, 2008).

#### 1.10 Psychopathy and Personality

Though the five-factor model of personality was developed to describe personality in normal populations, some advocates of the model have proposed that these factors are valuable for describing personality disorders as well (Clark, 2006; Lynam, 2002; O'Connor, 2002; O'Connor & Dyce, 2001; Widiger, 2005; Widiger & Costa, 1994). From this perspective, personality disorders can be understood as a constellation of extreme levels on normative personality traits (O'Connor, 2002; Widiger, 2005; Widiger & Costa, 1994) and psychopathy has been strongly linked to the Big 5 factors of personality (Lynam, Caspi, Moffitt, Raine, Loeber, & Stouthamer-Loeber, 2005; Miller & Lynam, 2003). Psychopathy has been linked to low levels of Agreeableness and Conscientiousness and both low (lower self-consciousness) and high (high impulsiveness) Neuroticism and both low (low positive emotions) and high (high excitement seeking) Extraversion (Miller, Lynam, Widiger, & Leukefeld, 2001). When the overarching trait of Extraversion is examined with relation to psychopathy, results have been mixed. For example, Paulhus and Williams (2002) found that Extraversion was positively correlated with psychopathy

when they studied narcissism, Machiavellianism, and psychopathy (the dark triad) with relation to the Big Five personality traits.

In direct contrast to these findings, Lynam and colleagues (2005) found that psychopathy was negatively correlated with Extraversion when they compared both self-reported psychopathy and mother's reports of their child's psychopathy to the Big Five personality traits. This was true for both self-reported levels of psychopathy as well as mother's reports of their child's psychopathic characteristics (Lynam et al., 2005), although only the correlations between the mother's reports of psychopathy and Extraversion were statistically significant. Due to the fact that the relation between psychopathy and Extraversion is inconsistent, additional research is necessary to clarify this association. Research at the facet level may be particularly valuable as previous research has indicated that the facets of Extraversion correlated differently with psychopathy (Miller et al., 2001).

Researchers have mapped the facets of the five different personality dimensions onto the 20 items of the PCL-R (Widiger & Lynam, 1998). One item on the PCL-R is "glib and superficial charm" (Lynam, 2002). High scores on this item indicate a lack of self-consciousness (a facet of neuroticism) (Lynam, 2002; Widiger & Lynam, 1998). The average person is not as charming as the psychopath because they have some degree of anxiety about how their words will be received (Widiger & Lynam, 1998). This does not appear to be the case for the psychopathic personality (Widiger & Lynam, 1998). Another item is "lack of realistic long term goals" and this item corresponds to low levels of several facets of Conscientiousness, including low levels of achievement striving, self-discipline, and deliberation (Lynam, 2002; Widiger & Lynam, 1998). The psychopath does not achieve long term goals because they do not follow through with long term plans. They typically procrastinate, and are easily discouraged (Widiger & Lynam, 1998). While several of the items have more complex interpretations and involve

interactions between several facets of various personality dimensions, Widiger and Lynam (1998) proposed that each item of the PCL-R can be explained by the Big Five personality traits (Widiger & Lynam, 1998; Lynam, 2002). Support for this theory is proposed by Miller and colleagues (2001) who compared personality scores for the Big Five personality traits (scored using the NEO Personality Inventory – Revised [NEO-PI-R]) to both scores on a self-report measure of psychopathy (Levenson Self-Report Psychopathy Scales) with good reliability and validity (Levenson et al., 1995) and expert ratings on 30 bipolar statements (each statement represented a facet of the NEO-PI-R) as to how much each statement represented an individual high in psychopathy (Miller et al., 2001). They discovered that psychopathy experts ratings of the 30 bipolar statements also emphasized low (low self-consciousness) and high (high impulsiveness) Neuroticism, low (low warmth) and high (high excitement seeking) Extraversion, low Agreeableness (low straightforwardness, compliance, altruism, modesty, and tender-mindedness), and low Conscientiousness (low dutifulness, self-discipline, and deliberation) (Miller et al., 2001). There were also several differences between the experts' ratings and the personality facets described by Widiger and Lynam (1998) (e.g., the experts emphasized low anxiety, depression, and vulnerability facets of Neuroticism, whereas Widiger and Lynam (1998) did not, and Widiger and Lynam (1998) emphasized low positive emotions, but the experts did not) (Miller et al., 2001). One possible explanation for this discrepancy is that Widiger and Lynam (1998) were using the PCL-R items to describe the personality facets associated with psychopathy, and the expert raters were not instructed to do so (Miller et al., 2001). The Big Five personality version of psychopathy of Widiger and Lynam (1998) also correlated with scores on the Levenson Self-Report Psychopathy Scales and showed similar correlations with Antisocial Personality Disorder (APD) and substance use/abuse as the PCL-R (Miller et al., 2001).

There are several implications for conceptualizing psychopathy as a combination of extreme variants of normal personality traits (Miller et al., 2001). Interpreting psychopathy according to the Big Five personality version can explain why some researchers emphasize some aspects of psychopathy over others (some researchers may be targeting the Agreeableness traits whereas others may be targeting the traits associated with low Conscientiousness) and why there is comorbidity between psychopathy and other personality disorders (e.g., psychopathy and APD both share low levels of Agreeableness and Conscientiousness, but differ in terms of Extraversion and Neuroticism) (Miller et al., 2001). One last important implication for studying psychopathy as a variant of normal personality is that rather than either identifying an individual as a psychopath or a non-psychopath (using the categorical model), psychopathy can be identified on a dimensional scale (Miller et al., 2001). The categorical model of psychopathy has been criticized by various researchers (Edens, Marcus, Lilienfeld, & Poythress, 2006; Marcus, John, & Edens, 2004) for creating a false dichotomy of psychopathy (an individual who scores just below the cut-off for a diagnosis of psychopathy is probably not fundamentally different from an individual who scores just at or slightly above the diagnostic cut-off) and for losing valuable information (Miller et al., 2001). A dimensional model allows researchers to retain more information about the severity of the disorder, as opposed to simply whether or not the individual meets diagnostic criteria (Miller et al., 2001). Despite several researchers claims that psychopathy is best conceptualized by degrees, there is also evidence to suggest that psychopathy (especially factor 2) can be characterized according to an underlying taxon (Harris, Rice, & Quinsey, 1994; Skilling, Quinsey, & Craig, 2001), and future research is necessary to determine which conceptualization best fits the data.

One criticism for using these personality dimensions to describe pathological personalities is that they are very broad and may not be specific enough for clinical use (i.e., they

may not capture the subtle nuances of the various personality disorders) and different studies have reported different correlations between personality traits and personality disorders depending on which personality inventory is used (e.g., NEO-PI vs. MCMI-II) and which population is studied (e.g., normal adult population or clinical population) (Dyce, 1997; Reynolds & Clark, 2001). Studying the composite facets of the Big 5 personality traits may be one way in which these issues can be addressed (e.g., rather than simply examining Neuroticism, researchers would most likely benefit from studying the facets anxiety, hostility, depression, self-consciousness, impulsivity, and vulnerability that all contribute to the overarching trait of Neuroticism) (Dyce, 1997; Lynam, 2002). Support for studying personality at the facet level comes from research which demonstrates that the neurotic sub-facets of angry hostility and impulsivity are positively correlated with psychopathy, but the sub-facets of anxiety, depression, vulnerability to stress, and self-consciousness are negatively correlated with psychopathy (Miller & Lynam, 2003; Miller et al., 2001).

### 1.11 Psychopathy and SWB

Due to the characteristics which define psychopathy, it is plausible to expect that individuals who score high in psychopathy may be low in SWB. For instance, interpersonal relationships and social ties are important contributors to SWB (Lyubomirsky et al., 2005), but due to the callous and selfish nature of individuals high in psychopathy, their interpersonal relationships are often shallow or nonexistent (Frick, O'Brien, Wootton, & McBurnett, 1994). Psychopaths also show deficits in certain types of processing (e.g., processing in the frontal lobe and the amygdala) and it may also be the case that the brain regions responsible for processing happiness and other positive emotions may also be impaired (Blair, 2005a). Furthermore, different aspects of psychopathy have been associated with low levels of Agreeableness, low

Conscientiousness, and high Neuroticism in adolescents and adults (Lynam et al., 2005; Miller et al., 2001). Psychopathy has been associated with higher levels for several facets of Neuroticism including angry hostility and impulsiveness (Miller & Lynam, 2003). High levels of Neuroticism are also associated with low levels of SWB, therefore it is plausible to expect that psychopathy would be associated with low levels of SWB. SWB is also positively correlated with Agreeableness and Conscientiousness, and both these traits are negatively correlated with psychopathy. High Extraversion scores have also been consistently associated with increased SWB, and while psychopaths score high for the excitement seeking facet of Extraversion, they score quite low on the positive emotions facet, indicating low levels of SWB (Miller et al., 2001). Taken together, there is significant support to suggest that psychopaths would score much lower for SWB than nonpsychopaths.

However, psychopaths typically take what they want with little regard for the consequences or the feelings of others. They are impulsive and primarily concerned with their own needs and comforts. They consistently gratify their own wishes and desires, often to the detriment of other individuals and society as a whole (Hare, 1999). It is plausible to hypothesize that psychopaths may be quite happy because they typically get what they want, one way or another (Hare, 1999). Also, one of the best predictors of SWB is low levels of Neuroticism, and psychopathy is associated with low levels of several facets of Neuroticism, including low levels of anxiety, depression, and self-consciousness (DeNeve & Cooper, 1998; Miller & Lynam, 2003). Psychopathy has also been highly correlated with sub-clinical narcissism (defined by grandiosity, entitlement, superiority, and dominance) (Paulhus & Williams, 2002). Sub-clinical narcissism has been associated with higher SWB (possibly due to its relations with decreased anxiety and Neuroticism and increased self-esteem) (Sedikides, Rudich, Gregg, Kumashiro, &

Rusbult, 2004). It is possible that psychopaths may experience higher levels of SWB than nonpsychopaths.

One way to reconcile this debate may be to examine different types of happiness, as the relation between psychopathy and SWB could be influenced by the type of happiness being measured. Since SWB is composed of cognitive appraisals (life satisfaction) and a preponderance of positive affect (e.g., happiness), it is quite likely that different types of happiness will differentially contribute to overall SWB (Busseri et al., 2007; Keyes et al., 2002; Lyubomirsky et al., 2005). It is much easier to conceptualize a type of happiness which emphasizes immediate gratification and satisfaction of urges as being congruent with the psychopathic personality as opposed to a happiness which emphasizes the good of society or the satisfaction which comes from achieving long-term goals.

### 1.12 Different Types of Happiness

Researchers and philosophers recognize two types of happiness, and happiness can be divided into two different types. Eudaimonic happiness or “living well” is associated with delaying immediate gratification in order to experience long term benefits, or to “do the right thing”. This type of happiness closely corresponds to the concept of trait happiness discussed above, as eudaimonic happiness typically occurs at a later date (as opposed to immediate gratification) and is long lived. Hedonic happiness is associated with immediate gratification that is short lived and does not serve the “greater good”. Hedonic happiness is closely related to momentary fluctuations in happiness, as hedonic happiness is typically quick to occur, but short-lived (much like emotions). Due to the callous, selfish nature of individuals high in psychopathy, it is plausible to expect that they will score high in hedonic happiness, but low in eudaimonic happiness. It is easy to imagine an individual high in psychopathy being more concerned with

immediate gratification or “what feels best right now” rather than putting off gratification for a more long term positive state (Deci & Ryan, 2006; Ryan, Huta, & Deci, 2008).

### 1.13 Online Self-report Measures

The current study used self-report questionnaires administered exclusively online. There are several advantages to online administration. Disposable resources (e.g., paper) are saved, the tests are more standardized, scores can be calculated rapidly and quickly added to a database or uploaded into a spreadsheet, response errors and data entry errors are mostly eliminated, participants can respond from the comfort of their own homes, and participants may be more honest when they are not face to face with the investigator, potentially diminishing the effects of SDR (Barak & English, 2002; Joinson, 1999; Joinson, 2001). While there are several advantages to online administration, the questionnaires used were developed and validated using a paper-and-pencil format and they may not be as reliable or valid administered via the internet (Buchanan, 2003). Also, participants must possess at the very least a basic knowledge of computer use and the internet (Buchanan, 2003). This has the potential to create biased samples, favouring those with personal computers and computer literacy skills (Buchanan, 2003). However, several studies have demonstrated that online administration is appropriate for use with undergraduate university students (the vast majority have access to computers and a basic level of computer literacy) and results are highly correlated with paper-and-pencil administration (Luce, Winzelberg, Das, Osborne, Bryson, & Taylor, 2005; Vallejo, Jordàn, Diaz, Comeche, & Ortega, 2007).

## 1.14 The Current Study

The current study examined the relation between the components of SWB (positive affect [happiness], life satisfaction, and negative affect [depression]) and psychopathy. This research is important for several reasons. First, SWB in general has been largely neglected by researchers, and this study would address that gap in the literature (Compton, 2005). As previously mentioned, positive affect may have several unique correlates and contributors when compared to negative affect. Because of the interpersonal, social, and health benefits associated with increased positive affect, it is important to study it in its own right, rather than assuming that it is the opposite of negative affect (Cheng & Furnham, 2002). Second personality disorders (including psychopathy) have not been widely studied with regards to SWB (there is a paucity of research studying both positive affect and life satisfaction in these individuals). Psychopathy has typically been studied with relation to negative affect. It is important to study the happiness levels of these individuals, as they comprise approximately 1% of the population, and to date, very little is known about the correlates and contributors of happiness in psychopaths (Hare, 1999). Since individuals high in psychopathy have been shown to be different from non-psychopaths in terms of several psychological constructs (e.g., depression and attention), it is quite likely that they will also differ in terms of happiness levels (Lovelace & Gannon, 1999). Psychopathy has been associated with several high risk, antisocial behaviours and traits which are often correlated with breaking the law, poor interpersonal relationships, and the manipulative use of others (Hare, 1999). These behaviours often have negative consequences, not only for the individuals who are directly affected by the psychopaths in their lives, but also for society as a whole, since money, resources, and time are spent dealing with these individuals (Hare, 1999). Happiness is typically associated with a wide variety of pro-social behaviours (e.g., good interpersonal relationships and increased productivity) (Compton, 2005). If researchers can learn more about the distinct

happiness profile of individuals with psychopathy, it may be possible to promote higher levels of happiness in these individuals. Since higher happiness levels are associated with pro-social behaviours, perhaps if the happiness levels of psychopaths were increased, antisocial, destructive attitudes and behaviours might decrease. Initially, it is important to determine whether or not psychopaths are less happy than the average person. If in fact they are, the next step would be to determine the potentially unique contributors for happiness in individuals high in psychopathy. This research could lead to the promotion of happiness in individuals high in psychopathy, and potentially, to a decrease in antisocial behaviours, saving countless hardships and interpersonal conflicts, as well as large sums of money for the legal system. This study takes that first step in identifying whether or not individuals high in psychopathy have higher (or lower) levels of SWB than individuals low in psychopathy. The current study tested the following hypotheses:

1. Measures of psychopathy and measures of life satisfaction will be negatively correlated. Since high levels of the positive emotions facet of Extraversion and low levels of the depression facet of Neuroticism are the best predictors of life satisfaction (Schimmack, Oishi, Furr, & Funder, 2004) it is expected that psychopaths will score lower on measures of life satisfaction than nonpsychopaths. Other studies have also demonstrated that high levels of Extraversion and low levels of Neuroticism are important for higher levels of life satisfaction (DeNeve & Cooper, 1998; Steel et al., 2008).
2. There will be a negative correlation between items measuring eudaimonic happiness and measures of psychopathy. Psychopaths score very low on facets of Conscientiousness (e.g., goal striving) which are important for eudaimonic happiness (Miller et al., 2001; Schmutte & Ryff, 1997).

3. There will be a positive correlation between measures of psychopathy and items measuring hedonic happiness, since psychopaths are typically impulsive and gratify their own wishes (Hare, 1999).
4. The results of this study will support the theory that psychopathy is an extreme variant of normal personality and measures of psychopathy will not account for any of the variance in SWB (happiness, life satisfaction, and depression) over and above the variance already predicted by the personality measure.
5. The data will support the four-factor model of psychopathy over the two-factor model of psychopathy.

## 2. Methods

This study was completed as part of a larger study examining the relations between subjective well-being and personality traits, personality disorders (psychopathy and alexithymia), romantic relationship quality, dissolution of romantic relationships, sleep, and benevolence using several online surveys hosted by SurveyMonkey™. This study focused on the relation between subjective well-being and psychopathy.

### 2.1 Participants

Undergraduate students at the University of British Columbia, Okanagan (UBCO) were recruited voluntarily through Sona, the online psychology subject pool approved for use by the UBCO Research Ethics Board. These students participated in the study in exchange for two percent credits towards their final grades in a participating psychology course of their choice. Initially, 470 students began participating in this study, however 22 (4.68%) participants were excluded from data analysis because they dropped out of the study before completing all questionnaires. An additional 10 (2.13%) participants were excluded from data analysis because they were identified as being either univariate or multivariate outliers. The final sample consisted of 436 students (30.8% males, 69.2% females) with an age range of 17-47 years, and an average age of just over 20 years ( $M = 20.11$ ,  $SD = 3.44$ ). Despite this wide age range, only 7.1% of participants were over the age of 25 so age analyses were not completed due to problems associated with completing statistical analyses using a truncated range.

### 2.2 Materials

Participants completed a battery of online questionnaires hosted by SurveyMonkey™. Nineteen questionnaires were included in the larger study, but only ten were analyzed as part of

this study. Only the questionnaires specific to this study will be discussed further. Of these ten questionnaires, six assessed subjective well-being: 1) The Oxford Happiness Inventory (OHI), 2) Satisfaction With Life Scale (SWLS), 3) Subjective Happiness Scale (SHS), 4) The Faces Scale, 5) the Scale of Eudaimonic Well-Being (SEWB), and 6a) The positive subscale of the Positive and Negative Affect Schedule (PANAS). Two questionnaires assessed negative affect: 6b) The negative subscale of the PANAS, and 7) the Center for Epidemiological Studies – Depression Scale (CESD). Two scales measured psychopathy: 8) Levenson Self-Report Psychopathy Scales (LSRP), and 9) the Self-Report Psychopathy Scales-III R12 (SRP-III). Finally, one scale measured personality: 10) The NEO Five Factor Inventory (NEO-FFI). In addition to these ten questionnaires, two demographic questions were asked of each participant (age and sex).

### 2.2.1 OHI

The OHI was developed by Argyle, Martin, and Crossland (1989) as a counter measure to depression (Francis, Brown, Lester, & Philipchalk, 1998). This questionnaire was designed to measure levels of subjective happiness in individuals, and follows the definition of happiness proposed by Argyle and Crossland (1987): Happiness is characterized by high levels of positive affect and low levels of negative feelings, with high levels of satisfaction reported over a long period of time. This definition implies that happiness is stable over time, and this scale measures happiness as a relatively stable trait, as opposed to the momentary fluctuations, or emotional happiness (Francis et al., 1998). This scale consists of 29 items (some of which are reverse scored) rated on a 6 point scale (e.g., “I am intensely interested in other people” 1 [*strongly disagree*] to 6 [*strongly agree*]). This measure has been shown to have good internal reliability (Cronbach alpha’s of .90) and a 7 week test-retest reliability of 0.78. This measure also shows good construct validity ( $r = -0.52$  when compared to the Beck Depression Inventory and  $r = 0.32$

with the positive affect scale of the Bradburn Balanced Affect measure) and good concurrent validity ( $r = 0.43$  when scores on the OHI were compared to happiness ratings from friends) (Argyle & Hills, 2000; Francis et al., 1998). See Appendix D for a reliability analysis of this measure and all measures discussed below.

### 2.2.2 SWLS

Theoretically, subjective well-being can be broken down into three components: 1) positive affect, 2) negative affect, and 3) life satisfaction. The first two components measure the affective-emotional aspects of well-being, and the third component measures the cognitive-appraisal aspect of well-being (Neto, 1993; Pavot & Diener, 1993). It is important to measure the cognitive-appraisal component separately, as life satisfaction has been shown to have slightly different correlates than the affective components of well-being, and life satisfaction can be differentiated from positive and negative affect, self-esteem, and optimism. (Lucas, Diener, & Suh, 1996; Pavot & Diener, 1993). The SWLS was developed to measure global and stable life satisfaction (Diener, Emmons, Larsen, & Griffin, 1985). It is a unidimensional scale designed to measure the cognitive-appraisal component separately from the other two affective-emotional components (Diener et al., 1985; Shevlin, Brunsten, & Miles, 1998). This measure assesses an individual's life satisfaction as a whole, rather than assessing specific life domains (e.g., health) (Pavot & Diener, 1993). Individuals can then integrate and weight the various domains of their life in whatever way they choose (Pavot & Diener, 1993). This is both an advantage and a disadvantage. The benefit is that the individual being tested can place more emphasis on domains that are personally important to them. The disadvantage is that the researcher does not know which domains are being weighted or emphasized more strongly than others, and there is inconsistency between individuals (one person may consider finances extremely important while

another might consider them unimportant). However, the SWLS has high internal consistency as well as high temporal reliability (coefficient alpha of .87, two month test-retest correlation coefficient of .82) (Diener et al., 1985). The measure consists of 5 items rated on a 7 point scale (e.g., “the conditions of my life are excellent” 1 [*strongly disagree*] to 7 [*strongly agree*]). There are several advantages to using this scale, including its quick administration, and that it has a degree of sensitivity that shows changes in global life satisfaction over time (Diener et al., 1985).

### 2.2.3 SHS

The SHS was designed by Lyubomirsky and Lepper (1999) for the purpose of measuring an individual’s overall, global subjective happiness. Subjective happiness is a broader, more universal indication of happiness than other measures of subjective well-being (e.g., OHI). The SHS is a four-item questionnaire (one item is reverse scored). Participants rate the items on a 7 point scale (e.g., “In general, I consider myself:” [1(*not a very happy person*) to 7 (*a very happy person*)]. This scale has been shown to have good reliability as well as good convergent and discriminant validity (Lyubomirsky & Lepper, 1999).

### 2.2.4 Faces Scale

The Faces Scale was originally developed by Andrews and Withey (1976), and was adapted by Holder and Coleman for use with children (Holder & Coleman, 2008). The measure consists of 7 faces (numbered 1 through 7), ranging from very unhappy (the mouth of the face is very downturned, like a deep frown) to very happy (the mouth is very upturned, like a large smile). The faces are arranged to gradually progress from the most unhappy face (anchored with the word “unhappy” and the number 1) to the most happy face (anchored with the word “happy” and the number 7). This range of faces was paired with two questions, and participants were

asked to select the face that most accurately represented how they felt about each of the two questions. The first item was “please fill in the circle below the face, that overall, best describes how you feel AT THIS MOMENT”, and the second item was “Please fill in the circle below the face, that overall, best describes how you feel MOST OF THE TIME”. The first item was designed to measure momentary fluctuations in happiness (or emotional happiness) and the second item was included to measure happiness as a stable trait (trait happiness). These items were included to determine if there was a difference between an individual’s evaluation of their momentary or emotional happiness and their trait happiness. If these are in fact separate constructs, these two items should not be highly correlated. This scale has been shown to accurately measure happiness levels in children and adults (Holder & Coleman 2008; Holder, Coleman, & Sehn, 2009).

### 2.2.5 SEWB

The SEWB was designed to measure eudaimonic happiness, or the concept of “living well”. The recognition of eudaimonia dates back to Aristotle, who believed that true happiness comes from actions and ideals that serve “the greater good” (Ryan & Deci, 2001). At the center of eudaimonic happiness is the concept of delaying gratification in exchange for larger, future rewards, and to live a moral, pro-social existence (Ryan & Deci, 2001). This is in direct contrast to hedonic happiness, or actions that result in immediate gratification (Ryan & Deci, 2001). It is important to measure eudaimonic happiness, as this concept directly conflicts with some of the key characteristics of psychopathy (e.g., self-centered, “what’s in it for me” attitude). The SEWB consists of 21 items (some of which are reverse scored) that are rated on a 7 point scale (e.g., “I feel more complete or fulfilled when engaging in this activity than I do when engaged in other activities” 1 [*strongly disagree*] to 7 [*strongly agree*]). The SEWB has been shown to have good

reliability and validity, with an alpha coefficient of .85 (Waterman, personal communication, July 9, 2008).

### 2.2.6 PANAS

The PANAS was developed by Watson, Clark, and Tellegen (1988) to measure both transient positive and negative affect (Crawford & Henry, 2004; Watson, Clark, & Tellegen, 1988). The measure consists of 20 single word items rated on a 5 point scale (e.g., “distressed” 1 [*very slightly or not at all*] to 5 [*extremely*]). The scale can be broken down into two subscales (10 items each), one measuring negative affect (unpleasant emotional arousal) and the other measuring positive affect (pleasant emotional arousal) (Watson et al., 1988). The two subscales are highly internally consistent (Watson et al., 1988). The PANAS was designed to measure positive and negative affect independently, although the two factors are at least moderately correlated (Crawford & Henry, 2004). However, correlations between the two subscales are typically low or nonsignificant, the two subscales are relatively independent (shared variance between the two latent factors is 9.0% and 5.8% for observed scores), and the two factor structure has been validated using confirmatory factor analysis (Crawford & Henry, 2004; Joiner, Sandín, Chorot, Lostao, & Marquina, 1997; Watson et al., 1988). This measure shows good reliability, with reliability coefficients ranging from .82 to .89 and excellent convergent and divergent validity (McLennan, Bates, Johnson, Lavery, & Horne, 1993; Terracciano, McCrae, & Costa, 2003).

### 2.2.7 CESD

The CESD was developed by Radloff (1977) and has been used in numerous studies to estimate depression levels in participants. The scale consists of 20 items (some of which are

reverse scored) measured on a 4 point scale (e.g., “I did not feel like eating; my appetite was poor” 0 [*rarely or none of the time (less than 1 day)*] to 3 [*most or all of the time (5-7 days)*]). A score of 16 or higher indicates the presence of depressive symptoms. Four items are reverse scored (Cole, Kawachi, Maller, & Berkman, 2000). This scale has been shown to have good sensitivity, reliability, and internal consistency (Chronbach’s alpha of .89 to .93) (Cuijpers, Boluijt, & van Straten, 2008; Martens, Parker, Smarr, Hewett, Slaughter, & Walker, 2006; Skorikov & Vandervoort, 2003). The CESD has been used to accurately assess depressive symptoms in the elderly as well as adolescents and young adults in both clinical and community samples (Beekman, Deeg, Van Limbeek, Braam, De Vries, & Van Tilburg, 1997; Radloff, 1977; Radloff, 1991).

#### 2.2.8 LSRP

The LSRP consists of two subscales designed to measure psychopathy based on a two factor model of the disorder (primary and secondary psychopathy) (Brinkley, Schmitt, Smith, & Newman, 1999). It consists of 26 items (some of which are reverse scored) rated on a 4 point scale (e.g., “I enjoy manipulating other people’s feelings” 1 [*disagree strongly*] to 4 [*agree strongly*]). The primary psychopathy subscale consists of 16 items measuring an inclination to lie, lack of remorse, callousness, and manipulativeness. The secondary psychopathy subscale consists of 10 items measuring impulsivity, frustration tolerance, quick-temperedness, and lack of long-term goals. Internal reliability for the LSRP factor 1 (primary psychopathy; 16 items) and factor 2 (secondary psychopathy; 10 items) were  $\alpha=0.84$  and  $\alpha=0.68$ , respectively (Lynam, Whiteside & Jones, 1999). Recently, Ross, Molto, Poy, Segarra, Pastor, Montanes (2007) reported  $\alpha=0.83$  for factor 1 and  $\alpha=0.65$  for factor 2. This scale is acceptable for use with a

university sample, as it has been shown to be an accurate, valid, and reliable measure of psychopathy in non-institutionalized populations (Levenson, Kiehl, & Fitzpatrick, 1995).

### 2.2.9 SRP-III

The SRP-III consists of 64 items (some of which are reverse scored) designed to assess psychopathy, based on a four-factor model of the disorder. Participants rate the items using a 5 point scale (e.g., “most people are wimps” 1 [*disagree strongly*] to 5 [*agree strongly*]). Earlier versions of the test have been shown to have good reliability and validity in a non-clinical sample, good internal consistency (SRP-II: overall internal reliability [ $\alpha = .88$ ], subscale internal reliabilities [ $\alpha$  ranged from .67 to .91]), and confirmatory factor analysis shows that this questionnaire accurately measures the four-factor model of psychopathy (Williams, Paulhus, & Hare, 2007). The four factors measured by the SRP-III were Intentional Manipulation (SRP-III-IM), Callous Affect (SRP-III-CA), Criminal Tendencies (SRP-III-CT), and Erratic Lifestyle (SRP-III-EL).

### 2.2.10 NEO-FFI

The NEO-FFI was developed from the 240 item NEO Personality Inventory – Revised (NEO-PI-R). The NEO-FFI replicates the five factor structure of the NEO-PI-R and also shows cross-observer validity (McCrae & Costa, 2007). It consists of 60 items (some of which are reverse scored) designed to measure 5 personality constructs (12 items each) as defined by Costa and McCrae (Extraversion, Neuroticism, Openness to Experience, Agreeableness, and Conscientiousness). All items are rated on a 5 point scale (e.g., “I don’t like to waste my time daydreaming” 1 [*strongly disagree*] to 5 [*strongly agree*]). This measure has been shown to demonstrate good reliability and validity (Cronbach’s alphas ranging from 0.63 to 0.91 for the

five different personality constructs) (Wyman & Vyse, 2008; Archer, Brown, Boothby, Foy, Nicholas, & Lovestone, 2006)).

### 2.3 Procedures

As previously discussed, students were recruited through Sona, the online psychology subject pool used by UBCO. A brief description of the study was posted on the sona webpage detailing the amount of time participants would need to devote to the study, credits received as compensation, and what types of questions they would be answering. If after reading about the study students were interested in participating, they were asked to click a link which would direct them to the informed consent sheet for this study. Because this study was conducted entirely online, signed informed consent sheets were not obtained. Students were told that by continuing on to the study questionnaires, they were giving their consent to participate in the study. Students were also informed that they could discontinue participation at any time without fear of penalty, simply by exiting out of their internet browser window. If students agreed to participate, they could click a button at the bottom of the consent form that directed them to the first questionnaire. Once all questionnaires were complete, students were thanked for their participation and directed to exit the study by closing their internet browser window. Because the entire study was conducted online, no personal information (names or student numbers) were ever attached to any specific responses. In order to ensure that participants received credit for participating, a text box was included at the very end of the study where students were asked to enter a 5-digit alphanumeric password. They were then asked to email this password, along with their name and student number, to the researcher. Once the researcher had established that this individual participated in the study, the email linking the individuals name with their password

was deleted. No information was kept that would enable an individual to link specific responses with the individual who responded.

Participants were informed that although the research was minimal risk, should they have any questions or concerns they could contact the principle investigator Dr. Mark Holder, and that group results would be available in the form of public talks and presentations around campus. Participants were also informed that they were free to inquire about group results when they became available (Summer, 2010).

## 2.4 Data Analyses

The data were analyzed using various statistical techniques. Initially, descriptive statistics and Pearson Product moment correlations were calculated. This allowed for an overall, global perspective of the data. Eleven one-way between-subjects ANOVAs were conducted to analyze the possibility of sex differences on the nine measures of SWB and two psychopathy measures. Nine standard multiple regression analyses were conducted, with each SWB variable being used in turn as the criterion variable and the two psychopathy measures (LSRP and SRP-III) as the predictor variables for each of the regressions. The purpose of the multiple regression analyses was to determine how much of the variance in the SWB measures could be accounted for from scores on the two psychopathy measures (LSRP and SRP-III) (Tabachnick & Fidell, 2007). Canonical correlation analysis was also performed between the psychopathy variables as a set and the SWB variables as a second set to analyze the relations between these two sets of variables.

The LSRP and the SRP-III underwent confirmatory factor analysis (CFA) to determine whether the data supported the two-factor model of psychopathy or the more recent four-factor model. The goal of CFA is to use factor analysis to confirm the factor structure of a construct or

trait. CFA is appropriate to use if the factor structure for a given trait is known due to previous research, and the goal of the analysis is to determine if the data are consistent with a proposed model (Tabachnick & Fidell, 2007). In this instance, it was appropriate to use CFA for the LSRP and the SRP-III since a factor structure for these measures had already been proposed, and the data were being analyzed to determine whether or not they supported the proposed models.

Residualized psychopathy variables were calculated (the variance accounted for by personality was partialled out of the two psychopathy variables) for the two psychopathy measures, as well as each of the subscales of both psychopathy measures. This was done to determine if the psychopathy variables could predict any of the variance in the SWB measures over and above the variance already predicted by personality. Residualized scores were calculated by using each of the psychopathy variables (LSRP and SRP-III) and each of the subscales of both these measures as the criterion variable in turn, with the five personality measures acting as the predictor variables. Unstandardized residual scores were calculated from these regression analyses. The descriptive statistics and regression analyses were repeated using the residualized psychopathy scores in order to evaluate the information obtained from the psychopathy measures over and above the information already provided by the personality factors.

## 2.5 Data Cleaning

Initially, 470 students began participation in the study. There were no single-item missing values due to the nature of online research (a participant cannot continue to the next section of the study without completing all questions in the current section). Twenty-two participants were excluded because they opted to discontinue their participation before completing all of the questionnaires. Twelve additional participants were dropped from the analyses because they were

identified as being either univariate or multivariate outliers. The total number of participants excluded from analysis was 34 (7.23%). Due to the large sample size, the exclusion of these participants was of limited concern. Results of analyses to determine linearity, homoscedasticity, and multicollinearity indicated a reasonably normal distribution for all variables of interest.

Skewness analyses were completed to determine the normality of the variables of interest. The following variables violated the assumption of normality, and were transformed accordingly (the OHI, SWLS, SHS, Faces Scale-Overall, PANAS-Positive, CESD, SRP-III-CA, SRP-III-CT, the NEO-FFI Conscientiousness scale, and the NEO-FFI Extraversion scale). After transformation, all variables (with the exception of the NEO-FFI Conscientiousness scale and PANAS-Positive) were more normal, however in several cases the improvement was minor. All statistical analyses were completed using both the transformed and untransformed variables to determine if transforming the variables significantly changed the results of the statistical analyses. Results were very similar with transformed vs. untransformed variables, so all analyses discussed were conducted using untransformed variables. This allowed for easier interpretation of the results of the analyses. Table 1 shows skewness and kurtosis statistics before and after transformation. Table 2 lists the means and standard deviations of all the (untransformed) variables used in the analyses. The LSRP was comprised of two subscales (primary psychopathy and secondary psychopathy), the SRP-III had four subscales (SRP-III-IM, SRP-III-CA, SRP-III-EL, and SRP-III-CT) corresponding to the four factors of psychopathy, the faces scale was divided into momentary happiness (Faces Scale–Momentary) and overall, global happiness (Faces Scale–Overall), and the NEO-FFI was divided into five scores corresponding to the five factors of personality: Openness to Experience (Openness), Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Scores on the CESD, SEWB, four subscales of the SRP-III, five subscales of the NEO-FFI, two subscales of the LSRP, and two subscales of the PANAS were

calculated by summing the items in each of the various scales. Scores on the OHI, the SWLS, and the SHS were determined by calculating an average across the items in each of these scales. Scores for the two subscales of the Faces Scale ranged from 1-7 and simply corresponded to the face chosen by the participant.

Table 1. Skewness and Kurtosis of Study Variables Before and After Transformation

	Transformation	Skewness ( <i>SE</i> )		Kurtosis ( <i>SE</i> )	
		Before	After	Before	After
OHI	square root	-2.71(.12)	-.11(.12)	-1.07(.23)	-1.19(.23)
SWLS	square root	-4.65(.12)	-.47(.12)	-1.72(.23)	-2.09(.23)
SHS	square root	-5.15(.12)	1.56(.12)	.89(.23)	-2.43(.23)
Faces Scale– Momentary	no trans.	-1.26(.12)		.73(.23)	
Faces Scale–Overall	square root	-7.27(.12)	2.04(.12)	5.62(.23)	2.41(.23)
SEWB	no trans.	-.684(.12)		-1.67(.23)	
PANAS-Positive	no trans.*	-2.43(.12)		-1.23(.23)	
PANAS-Negative	logarithmic	6.94(.12)	1.09(.12)	1.54(.23)	-2.66(.23)
CESD	square root	7.09(.12)	1.39(.12)	.867(.23)	-1.91(.23)
LSRP–Primary	no trans.	1.74(.12)		-2.45(.23)	
LSRP–Secondary	no trans.	1.11(.12)		-.25(.23)	
LSRP Total	no trans.	1.45(.12)		-2.24(.23)	
SRP-III-IM	no trans.	1.74(.12)		-.89(.23)	
SRP-III-CA	square root	3.54(.12)	1.13(.12)	-.97(.23)	-1.71(.23)
SRP-III-EL	No trans.	1.01(.12)		-1.91(.23)	
SRP-III-CT	inverse	12.91(.12)	-2.56(.12)	9.69(.23)	-3.51(.23)
SRP-III Total	square root	3.50(.12)	1.44(.12)	-.76(.23)	-1.69(.23)
Openness	no trans.	-.76(.12)		-.56(.23)	
Conscientiousness	no trans.*	-2.23(.12)		-.51(.23)	
Extraversion	square root	-3.58(.12)	-2.45(.12)	.75(.23)	1.72(.23)
Agreeableness	no trans.	-1.78(.12)		-1.78(.23)	
Neuroticism	no trans.	.19(.12)		-1.55(.23)	

Table 2. Means and Standard Deviations of Variables Included in Analyses

Variable Type	Item	Scale	Possible Range	<i>M</i>	<i>SD</i>
<b>Positive Affect</b>					
	Faces Scale-Momentary	1-7	1-7	4.81	1.12
	Faces Scale-Overall	1-7	1-7	5.21	.94
	OHI	1-6	1-6	4.30	.70
	SHS	1-7	1-7	4.99	1.22
	SEWB	1-7	21-147	101.34	16.49
	PANAS-Positive	1-5	10-50	34.62	6.63
<b>Life Satisfaction</b>					
	SWLS	1-7	7-35	24.43	6.11
<b>Negative Affect</b>					
	PANAS-Negative	1-5	10-50	20.01	6.54
	CESD	0-3	0-30	15.88	9.62
<b>Psychopathy</b>					
	LSRP-Primary	1-4	16-64	29.71	7.15
	LSRP-Secondary	1-4	10-40	20.93	3.83
	LSRP Total	1-4	16-64	50.64	9.43
	SRP-III-IM	1-5	16-80	39.44	9.79
	SRP-III-CA	1-5	16-80	36.25	8.69
	SRP-III-EL	1-5	16-80	42.05	9.35
	SRP-III-CT	1-5	16-80	23.45	7.46
	SRP-III Total	1-5	64-320	141.19	28.87
<b>Personality</b>					
	Openness	0-4	0-48	27.76	5.53
	Conscientiousness	0-4	0-48	31.11	6.89
Variable Type	Item	Scale	Possible Range	<i>M</i>	<i>SD</i>
	Extraversion	0-4	0-48	29.65	6.96
	Agreeableness	0-4	0-48	32.09	6.52
	Neuroticism	0-4	0-48	22.73	8.65

*N* = 436

*Note.* For all variables, higher numbers indicate higher levels of that particular trait (e.g., higher scores on the OHI indicate higher levels of happiness).

### 3. Results

#### 3.1 Descriptive and Correlational Analyses

Overall, participants rated themselves as quite happy. On the Overall Item of the Faces Scale (actual item [“Please fill in the circle below the face, that overall, best describes how you feel MOST OF THE TIME”]), 83.2% (363 people) rated themselves in the top 3 categories (see Figure 1). Only 5.3% (23 people) rated themselves in the bottom 3 categories. These findings are consistent with previous research which has demonstrated that most people rate themselves as quite happy (Biswas-Diener, Vittersø, & Diener, 2005; Diener & Diener, 1996).

Bivariate correlations demonstrated that the six SWB measures designed to measure life satisfaction (SWLS) and positive affect (SHS, OHI, SEWB, PANAS-Positive, and the Faces Scale-Overall) were highly correlated (correlations ranged from  $r = .36, p < .0001$  to  $r = .81, p < .0001$ , see Table 3) but not multicollinear ( $r < .90$ ) (Tabachnick & Fidell, 2007). The Faces Scale-Momentary (actual item [“please fill in the circle below the face, that overall, best describes how you feel AT THIS MOMENT”]) was also positively correlated with the other SWB measures, but the correlations were not as strong ( $r = .28, p < .0001$  to  $r = .44, p < .0001$ , see Table 3). The two measures of negative affect (CESD and PANAS-Negative) were significantly correlated with each other ( $r = .67, p < .0001$ ), but not multicollinear, and were significantly negatively correlated with all of the satisfaction with life and positive affect questionnaires (correlations ranged from  $r = -.46, p < .0001$  to  $r = -.65, p < .0001$  for the CESD and from  $r = -.34, p < .0001$  to  $r = -.58, p < .0001$  for the PANAS-Negative, see Table 4).

The two psychopathy measures (LSRP and SRP-III) were also highly correlated ( $r = .69, p < .0001$ ) but not multicollinear. In order to determine prevalence of psychopathic tendencies, percentages of individuals who endorsed primary psychopathic tendencies with either “agree somewhat” or “agree strongly” on the LSRP were calculated. Overall, 12.16% of individuals

endorsed eight or more primary psychopathy items (21.3% of males and 7.67% of females endorsed eight or more primary psychopathy items). This is consistent with previous research which indicated that 23% of males and 6% of females endorsed 8 or more primary psychopathy items (Levenson et al., 1995). Twelve or more items were endorsed by .92% of individuals (.67% of females and 1.47% of males endorsed 12 or more primary psychopathy items). Scores on the SRP-III were also evaluated, and scores for both males and females were consistent with established norms on all four subscales of the SRP-III, although the females in this study scored slightly lower than norms for all four subscales (Paulhus, Hemphill, & Hare, in press).

### 3.1.1 Correlations with Measures of Psychopathy

Both psychopathy measures were significantly negatively correlated with life satisfaction and positive affect measures, and significantly positively correlated with measures of negative affect (see Table 5). The LSRP was negatively correlated with Agreeableness ( $r = -.67, p < .0001$ ), Openness to Experience ( $r = -.22, p < .0001$ ), Conscientiousness ( $r = -.44, p < .0001$ ), and Extraversion ( $r = -.318, p < .0001$ ) and positively correlated with Neuroticism ( $r = .33, p < .0001$ ). The SRP-III was negatively correlated with Agreeableness ( $r = -.70, p < .0001$ ), Conscientiousness ( $r = -.41, p < .0001$ ), and Extraversion ( $r = -.22, p < .0001$ ) and positively correlated with both Openness to Experience and Neuroticism, but after adjusting alpha for multiple comparisons, neither positive correlation was significant ( $r = .02, p = .62$  and  $r = .12, p = .014$  respectively).

The two subscales of the LSRP and the four subscales of the SRP-III were also evaluated. Both the primary and secondary psychopathy subscales of the LSRP significantly negatively correlated with the measures of life satisfaction and positive affect, (with the exception of the correlation between the primary psychopathy subscale and the Faces Scale-Overall [ $r = -.15, p =$

.001]) and were significantly positively correlated with measures of negative affect (see Table 6). After adjusting alpha for multiple comparisons [Bonferroni Adjustment for 150 correlations ( $.05/150 = .00033$ )], the Intentional Manipulation subscale of the SRP-III was significantly negatively correlated with the SHS ( $r = -.22, p < .0001$ ), SWLS ( $r = -.20, p < .0001$ ), OHI ( $r = -.26, p < .0001$ ), and the SEWB ( $r = -.27, p < .0001$ ), and significantly positively correlated with PANAS-Negative ( $r = .25, p < .0001$ ) and the CESD ( $r = .24, p < .0001$ ). The SRP-III-CA was significantly negatively correlated with all the positive affect and life satisfaction measures and was significantly positively correlated with both measures of negative affect (see Table 6). The SRP-III-EL subscale was significantly negatively correlated with the SWLS ( $r = -.20, p < .0001$ ), OHI ( $r = -.21, p < .0001$ ), and the SEWB ( $r = -.26, p < .0001$ ), and significantly positively correlated with PANAS-Negative ( $r = .25, p < .0001$ ) and the CESD ( $r = .23, p < .0001$ ) (see Table 6). The SRP-III-CT subscale was significantly negatively correlated with all measures of life satisfaction and positive affect except for the Faces Scale-Momentary ( $r = -.14, p = .003$ ) (see Table 6).

Agreeableness and Conscientiousness were both significantly negatively correlated with both subscales of the LSRP and all four subscales of the SRP-III (see Table 7). Extraversion was negatively correlated with all subscales of both psychopathy measures and Neuroticism was positively correlated with all subscales of both psychopathy measures, but not all correlations were significant (see Table 7). Openness to Experience was negatively correlated with both subscales of the LSRP, but was only negatively correlated with the SRP-III-CA subscale. Only the correlation between Openness to Experience and the primary psychopathy subscale of the LSRP was statistically significant at the adjusted alpha ( $r = -.22, p < .0001$ ).

### 3.1.2 Correlations with NEO Big 5 Personality Factors

Extraversion, Conscientiousness, and Agreeableness were significantly positively correlated with all of the life satisfaction and positive affect measures, and significantly negatively correlated with both of the negative affect measures (see Table 8). Neuroticism was significantly negatively correlated with all of the life satisfaction and positive affect measures, and significantly positively correlated with both the negative affect measures (see Table 8). After adjusting alpha for multiple comparisons, Openness to Experience was only significantly positively correlated with the SEWB ( $r = .24, p < .0001$ ).

## 3.2 ANOVAs

Eleven separate one-way between-subject ANOVAs were completed to determine if male and female participants differed on any of the nine SWB measures (six positive affect measures, one life satisfaction, and two negative affect measures) and two psychopathy measures. These analyses were conducted because although research has demonstrated that males and females typically report similar happiness and life satisfaction levels, often females report higher levels of negative affect (e.g., depression) and typically males score higher on psychopathy measures than females (Leach, Christiensen, Mackinnon, Windsor, & Butterworth, 2008; Levenson et al., 1995; Levenson et al., 1995; Lyubomirsky et al., 2005; Weissman, Leaf, Holzer, Myers, & Tischler, 1984). Alpha was adjusted for multiple comparisons using a Bonferroni Adjustment and was set at .0045 to indicate statistical significance ( $.05/11 = .0045$ ) (Tabachnick & Fidell, 2007). As expected, there were no sex differences in terms of the positive affect and life satisfaction measures ( $F$  values ranged from  $F = .34, p = .56$  to  $F = 3.27, p = .071$ ). Males scored significantly higher on both the LSRP and the SRP-III ( $F = 22.50, p < .001$  and  $F = 114.92, p < .001$  respectively). These results should be interpreted with caution since there were twice as

many females as males and the standard deviation for the LSRP was twice ( $s.d. = 9.33$ ) the difference between the means for males and females (mean difference was 4.25) and for the SRP-III the mean difference (28.48) was almost equal to the standard deviation ( $s.d. = 27.86$ ). Six additional one-way between subjects ANOVAs were conducted to determine if the sex differences persisted across the two subscales of the LSRP and the four subscales of the SRP-III. For the SRP-III, males scored significantly higher than females for all 4 subscales (SRP-III-IM,  $F=55.29, p < .001$ , SRP-III-CA,  $F = 150.47, p < .001$ , SRP-III-EL,  $F = 58.58, p < .001$ , and SRP-III-CT,  $F = 44.72, p < .001$ ). For the LSRP, males scored significantly higher on the primary psychopathy subscale than females ( $F = 48.64, p < .001$ ), but females scored slightly higher than males for secondary psychopathy, although the difference was not statistically significant ( $F = .92, p = .337$ ). Contrary to expectations, there were no sex differences for the two negative affect measures ( $F = .02, p = .90$  [PANAS-Negative] and  $F = .57, p = .45$  [CESD]).

### 3.3 Confirmatory Factor Analyses

Confirmatory factor analyses (CFA) were conducted using structural equation modeling on both the LSRP and the SRP-III to determine if the data best supported a two- or four-factor model of psychopathy. CFA is a statistical technique used to determine if the data support a proposed model of a construct. Several fit indices are used to evaluate how well the proposed model is supported. The two most commonly reported fit indices are the comparative fit index (CFI), and the root mean squared error of approximation (RMSEA) (Tabachnick & Fidell, 2007). The CFI, RMSEA, and the normed fit index (NFI) were reported for each model below. A CFI and an NFI of greater than .90 and an RMSEA of less than .06 indicate a good model fit (Bentler & Bonett, 1980; Tabachnick & Fidell, 2007). Although males scored significantly higher than females for both psychopathy measures, previous research has reported that the factor structure

differs very little between males and females, so the two models were evaluated for both males and females together, in order to ensure an adequate sample size (Lynam, Whiteside, & Jones, 1999; Tabachnick & Fidell, 2007).

### 3.3.1 LSRP CFA

The CFA for the LSRP indicated that the data were an acceptable fit for the two-factor model of psychopathy,  $\chi^2 = 517.02$ ,  $p < .001$ , CFI = .91, NFI = .82, RMSEA = .04. These results indicate that the distinction between primary psychopathy (factor 1) and secondary psychopathy (factor 2) is valid. However, the data were only an acceptable fit if error terms with high modification indices were allowed to correlate (see Table 10 for a complete list of correlated error terms). Error terms were only allowed to correlate if there were theoretical rationale to support correlations between the items, over and above the relation already implied by the factor structure. For example, the error terms for items 24 and 25 were allowed to correlate because both these items load onto the secondary psychopathy factor (factor 2) which asks respondents about socially deviant behaviours (Levenson et al., 1995). Both items 24 and 25 question the participant about involvement in antisocial behaviours, but also more specifically about anger management (Levenson et al., 1995). This modification to the model was proposed by Lynam and colleagues (1999) and was replicated by Brinkley and colleagues (2001) (Brinkley, Schmitt, Smith, & Newman, 2001). The results of this study are consistent with the results of both studies which used this modification. Results of the CFA before modification were  $\chi^2 = 811.19$ ,  $p < .001$ , CFI = .80, NFI = .72, RMSEA = .06.

### 3.3.2 SRP-III CFA

The CFA for the SRP-III indicated that the data were not a good fit for the four-factor model of psychopathy,  $\chi^2 = 4983.25$ ,  $p < .001$ , CFI = .74, NFI = .61, RMSEA = .05. The NFI and the CFI were both below the cutoff of .90, indicating that the four-factor model was not supported by the data collected, although the RMSEA was below the cutoff of .06. A model was also evaluated where the error terms with the highest modification indices were allowed to correlate (modification proposed by Lynam and colleagues (1999) for the LSRP), the model fit indices were improved, but the data still did not support the four-factor model ( $\chi^2 = 3882.95$ ,  $p < .001$ , CFI = .77, NFI = .63, RMSEA = .05).

### 3.4 Multiple Regression Analyses

Nine standard multiple regression analyses were completed to determine the amount of variance in the six positive affect measures (Faces Scale–Momentary, Faces Scale–Overall, SHS, SEWB, OHI, and PANAS-Positive), two negative affect measures (PANAS-Negative and CESD), and one life satisfaction measure (SWLS) which could be predicted by the two psychopathy measures (LSRP and SRP-III) (see Table 10). Each of the positive affect, negative affect, and life satisfaction measures was used as the criterion variable, and the two predictor variables for each of the regressions were always the two psychopathy measures. The 95% confidence intervals for all of the  $R^2$  values were calculated using R2, a free DOS based program provided by Steiger and Fouladi (1992) and the 95% confidence limits for the regression coefficients were calculated using SPSS 16.0 (Tabachnick & Fidell, 2007). Due to the possibility of an increase in Type I error when conducting multiple analyses, a Bonferroni adjustment was calculated ( $.05/9 = .0056$ ) and the  $p$  value was set at .0056 rather than .05 (Tabachnick & Fidell, 2007). Since there were sex differences for scores on the two psychopathy measures, with males

scoring higher than females, sex was included in all of the regressions below. Sex only significantly contributed variance to the two subscales of the PANAS, so all regressions (with the exception of the two subscales of the PANAS) were reported without sex included in the regression analysis for simplicity of interpretation.

### 3.4.1 Faces Scale–Momentary

For the Momentary Item of the Faces Scale (Faces Scale–Momentary),  $R$  differed significantly from zero,  $F(2,433) = 15.19, p < .0001$ , with an  $R^2$  of .07 and 95% confidence limits from .03 to .11. Due to the large sample size,  $p$  values must be interpreted with caution. Since the 95% confidence interval does not include 0, the null hypothesis of no difference can be rejected with more confidence. The adjusted  $R^2 = .06$ , indicating that just over 6% of the variance in Faces Scale-Momentary was predicted from the scores on the two psychopathy measures. The two psychopathy measures contributed 3.07% of the variance in combination. The LSRP contributed 3.53% of unique variance while SRP-III contributed almost no unique variance to  $R^2$ . Only the regression coefficient for LSRP was statistically significant ( $p < .001$ ). The 95% confidence limits were calculated for both regression coefficients using SPSS 16.0. The confidence limits for the LSRP were from -.05 to -.02 and were from -.01 to .01 for the SRP-III. The inclusion of zero in the 95% confidence limits for the SRP-III further supports the conclusion that the SRP-III is not contributing any significant unique variance to  $R^2$ . The LSRP was considered the more important contributor, based on the squared semi-partial correlations and the fact that the 95% confidence limits did not include zero.

The bivariate correlation between the SRP-III and the Faces Scale-Momentary was statistically significant using a post hoc correction,  $r = -.17, F(2,433) = 6.25, p < .025$ , but not at the adjusted alpha level ( $p = .0056$ ). Since the partial correlations only take into account unique

variance, it is possible that this variable is important for predicting scores on the Faces Scale-Momentary, but the variance it contributes is also contributed by (shared with) the LSRP. However, because the 95% confidence interval did include zero, scores on the SRP-III were considered less important for predicting scores on Faces Scale-Momentary than scores on the LSRP.

### 3.4.2 Faces Scale – Overall Item

For the Overall Item of the Faces Scale (Faces Scale-Overall),  $R$  differed significantly from zero,  $F(2,433) = 15.41, p < .0001$ , with an  $R^2$  of .07 and 95% confidence limits from .03 to .11. Since the 95% confidence interval does not include 0, the null hypothesis of no difference can be rejected with more confidence. The adjusted  $R^2 = .06$ , indicating that just over 6% of the variance in Faces Scale-Overall was predicted from the scores on the two psychopathy measures. The two psychopathy measures contributed 4.02% of the variance in combination. The LSRP contributed 2.43% of unique variance while SRP-III contributed .15% of unique variance to  $R^2$ , and only the regression coefficient for LSRP was statistically significant ( $p = .001$ ). The confidence limits for the LSRP were from -.03 to -.01 and were from -.01 to .00 for the SRP-III. The inclusion of zero in the 95% confidence limits for the SRP-III further supports the conclusion that the SRP-III did not contribute any significant unique variance to  $R^2$ . The LSRP was considered the more important contributor, based on the squared semi-partial correlations and the 95% confidence limits did not include zero.

The bivariate correlation between SRP-III and the Faces Scale-Overall was statistically significant using a post hoc correction,  $r = -.21, F(2,433) = 9.49, p < .001$ . Since the partial correlations only take into account unique variance, it is possible that this variable is important for predicting scores on Faces Scale-Overall, but the variance it contributes is also contributed by

the LSRP. However, because the 95% confidence interval did include zero, scores on the SRP-III were considered less important for predicting scores on the Faces Scale-Overall than scores on the LSRP.

### 3.4.3 SWLS

For the SWLS,  $R$  differed significantly from zero,  $F(2,433) = 35.72, p < .0001$ , with an  $R^2$  of .14 and 95% confidence limits from .08 to .20. Almost 14% of the variance in the SWLS was predicted from the scores on the two psychopathy measures (adjusted  $R^2 = .14$ ). Together, the two psychopathy measures contributed 7.5% of the variance. The LSRP contributed 6.67% of unique variance while SRP-III contributed .03% of unique variance to  $R^2$ , and only the regression coefficient for LSRP was statistically significant ( $p < .001$ ). The 95% confidence limits for the LSRP were from -.31 to -.15 and were from -.03 to .02 for the SRP-III. The inclusion of zero in the 95% confidence limits for the SRP-III further supports the conclusion that the SRP-III did not contribute any significant unique variance to  $R^2$ . The bivariate correlation between SRP-III and the SWLS was statistically significant using a post hoc correction,  $r = -.27, F(2,433) = 17.76, p < .001$ . However, the LSRP was considered the more important contributor, based on the squared semi-partial correlations and the 95% confidence limits did not include zero.

### 3.4.4 SHS

For the SHS,  $R$  differed significantly from zero,  $F(2,433) = 37.90, p < .0001$ , with an  $R^2$  of .15 and 95% confidence limits from .09 to .21. Approximately 15% of the variance in the SHS was predicted from the scores on the two psychopathy measures (adjusted  $R^2 = .14$ ). Together, the two psychopathy measures contributed 7.55% of the variance. The LSRP contributed 7.34% of unique variance while SRP-III contributed very little (.01%) unique variance to  $R^2$ . Only the

regression coefficient for LSRP was statistically significant ( $p < .0001$ ). The 95% confidence limits for the LSRP were from -.06 to -.03 and were from -.01 to .01 for the SRP-III. The bivariate correlation between SRP-III and the SWLS was statistically significant using a post hoc correction,  $r = -.28$ ,  $F(2,433) = 17.75$ ,  $p < .001$ . However, the LSRP was considered the more important contributor, based on the squared semi-partial correlations and the 95% confidence limits did not include zero.

#### 3.4.5 OHI

For the OHI,  $R$  differed significantly from zero,  $F(2,433) = 50.19$ ,  $p < .0001$ , with an  $R^2$  of .19 and 95% confidence limits from .12 to .25. Over 18% of the variance in the OHI was predicted from the scores on the two psychopathy measures (adjusted  $R^2 = .18$ ). Together, the two psychopathy measures contributed 10.72% of the variance in OHI scores. The LSRP contributed 7.9% of unique variance while SRP-III contributed .18% of unique variance to  $R^2$ , and only the regression coefficient for LSRP was statistically significant ( $p < .0001$ ). The 95% confidence limits were calculated for both regression coefficients. The confidence limits for the LSRP were from -.04 to -.02 and were from -.00 to .00 for the SRP-III. The bivariate correlation between SRP-III and the SWLS was statistically significant using a post hoc correction,  $r = -.33$ ,  $F(2,433) = 26.46$ ,  $p < .001$ . However, the LSRP was considered the more important contributor, based on the squared semi-partial correlations and the 95% confidence limits did not include zero.

#### 3.4.6 SEWB

For the SEWB,  $R$  differed significantly from zero,  $F(2,433) = 55.42$ ,  $p < .0001$ , with an  $R^2$  of .20 and 95% confidence limits from .14 to .27. Twenty percent of the variance in the SEWB

was predicted from the scores on the two psychopathy measures (adjusted  $R^2 = .20$ ). Together, the LSRP and the SRP-III contributed 10.69% of the variance in SEWB scores. The LSRP contributed 9.67% of unique variance while SRP-III contributed .04% of unique variance to  $R^2$ . Only the regression coefficient for LSRP was statistically significant ( $p < .0001$ ). The 95% confidence limits for the LSRP were from -.96 to -.55 and were from -.08 to .05 for the SRP-III. The bivariate correlation between SRP-III and the SWLS was statistically significant using a post hoc correction,  $r = -.33$ ,  $F(2,433) = 25.95$ ,  $p < .001$ . However, the LSRP was considered the more important contributor, based on the squared semi-partial correlations and the 95% confidence limits did not include zero.

#### 3.4.7 PANAS Positive Subscale

For the positive subscale of the PANAS (PANAS-Positive),  $R$  differed significantly from zero,  $F(3,432) = 19.45$ ,  $p < .0001$ , with an  $R^2$  of .12 and 95% confidence limits from .06 to .18. Over 11% of the variance in PANAS-Positive was predicted from the scores on the three measures (sex, the LSRP, and the SRP-III) (adjusted  $R^2 = .11$ ). Together, sex, the LSRP, and the SRP-III contributed 5.33% of the variance in PANAS-Positive scores. Sex contributed 1.08% of unique variance to  $R^2$ , the LSRP contributed 5.43% of unique variance, and the SRP-III contributed .06% of unique variance to  $R^2$ . Only the regression coefficients for sex ( $p = .022$ ) and the LSRP ( $p < .0001$ ) were statistically significant, and only the regression coefficient for the LSRP was significant at the adjusted alpha level. The confidence limits for sex were from -3.14 to -.26, for the LSRP were from -.32 to -.14 and were from -.04 to .02 for the SRP-III. The bivariate correlation between SRP-III and the SWLS was statistically significant using a post hoc correction,  $r = -.21$ ,  $F(2,433) = 10.71$ ,  $p < .001$ . However, the LSRP was considered the more

important contributor, based on the squared semi-partial correlations and the 95% confidence limits did not include zero.

#### 3.4.8 PANAS Negative Subscale

For the negative subscale of the PANAS (PANAS-Negative),  $R$  differed significantly from zero,  $F(3,432) = 33.83, p < .0001$ , with an  $R^2$  of .19 and 95% confidence limits from .13 to .26. Over 18% of the variance in PANAS-Negative was predicted from the scores on sex, the LSRP, and the SRP-III (adjusted  $R^2 = .19$ ). Together, sex, the LSRP and the SRP-III contributed 9.2% of the variance in PANAS-Negative scores. Sex contributed 1.42% of unique variance, the LSRP contributed 7.29% of unique variance while SRP-III contributed .41% of unique variance to  $R^2$ , and only the regression coefficients for sex ( $p = .006$ ) and for the LSRP ( $p < .0001$ ) was statistically significant. The 95% confidence limits for sex were from .55 to 3.28, for the LSRP from .18 to .35 and were from -.01 to .05 for the SRP-III. The bivariate correlation between SRP-III and PANAS-Negative was statistically significant using a post hoc correction,  $r = .30$ ,  $F(2,433) = 21.71, p < .001$ . However, the LSRP was considered the more important contributor, based on the squared semi-partial correlations and the 95% confidence limits did not include zero.

#### 3.4.9 CESD

For the CESD,  $R$  differed significantly from zero,  $F(2,433) = 44.15, p < .0001$ , with an  $R^2$  of .17 and 95% confidence limits from .11 to .23. Over 16% of the variance in the CESD was predicted from the scores on the two psychopathy measures (adjusted  $R^2 = .17$ ). Together, the LSRP and the SRP-III contributed 8.60% of the variance in CESD scores. The LSRP contributed 8.29% of unique variance while SRP-III contributed .01% of unique variance to  $R^2$ , and only the

regression coefficient for LSRP was statistically significant ( $p < .0001$ ). The 95% confidence limits for the LSRP were from .29 to .53 and were from -.03 to .05 for the SRP-III. The inclusion of zero in the 95% confidence limits for the SRP-III further supports the conclusion that the SRP-III did not contribute any significant unique variance to  $R^2$ . The bivariate correlation between SRP-III and the SWLS was statistically significant using a post hoc correction,  $r = .29$ ,  $F(2,433) = 20.38$ ,  $p < .001$ . However, the LSRP was considered the more important contributor, based on the squared semi-partial correlations and the 95% confidence limits did not include zero.

### 3.5 Canonical Correlation Analysis

A canonical correlation analysis was performed between a set of psychopathy variables (scores on the LSRP and SRP-III) and a set of SWB variables (scores on the Faces Scale–Momentary, Faces Scale–Overall, SWLS, SHS, OHI, SEWB, PANAS-Positive, PANAS-Negative, and CESD) using SPSS Cancorr (Tabachnick & Fidell, 2007). The first canonical correlation was .53 (28% overlapping variance) and the second canonical correlation was .10 (1% overlapping variance). With both canonical correlations included,  $\chi^2(18) = 145.52$ ,  $p < .001$ , and with the first canonical correlation removed,  $\chi^2(8) = 4.57$ ,  $p = .80$ . Only the first pair of canonical variates was significant and accounted for the significant relationship between the two sets of variables. Table 11 shows the correlations between the variables and the canonical variates, standardized canonical variate coefficients, within-set variance accounted for by the canonical variates (proportion of variance), redundancies, and canonical correlations.

Using a cutoff correlation of .30 (Tabachnick & Fidell, 2007), both psychopathy variables and all nine SWB variables were correlated with the first canonical variate. Lower scores on both psychopathy measures predict higher scores on the Faces Scale–Momentary, Faces Scale–

Overall, SWLS, SHS, OHI, SEWB, and PANAS–Positive, and lower scores on the PANAS–Negative and the CESD.

### 3.6 Analysis with Residualized Psychopathy Variables

Residualized psychopathy scores were calculated for both the LSRP and the SRP-III to determine if the psychopathy measures could account for any of the variance in the positive affect, negative affect, or life satisfaction measures after the variance attributed to personality was accounted for. Residualized scores were calculated using SPSS 16.0 and represent psychopathy scores with the variance attributed to personality removed.

All bivariate correlations between the LSRP and the SWB measures were decreased to nonsignificance after alpha was adjusted for multiple comparisons when the variance accounted for by personality was removed (see Table 12). Only two bivariate correlations between the SRP-III and the SWB measures remained significant (see Table 12). The SEWB ( $r = -.14, p = .004$ ) and the SWLS ( $r = -.14, p = .003$ ) were both significantly negatively correlated with the residualized SRP-III scores. Residualized scores were also calculated for the two subscales of the LSRP and the four subscales of the SRP-III. All bivariate correlations between the two subscales of the LSRP and the measures of SWB decreased to nonsignificance (after adjusting alpha for multiple comparisons) once the variance attributed to personality was removed from the psychopathy measures (see Table 13). The bivariate correlations between the four residualized subscales of the SRP-III and measures of SWB were also nonsignificant after adjusting alpha (see Table 13).

All linear regressions were nonsignificant (see Table 14) after adjusting alpha (Bonferroni Adjustment [ $.05/9 = .0056$ ]) except when the two residualized psychopathy variables were regressed on the SEWB ( $F(2,433) = 5.25, p = .004$  with an  $R^2$  of .03 and 95% confidence limits

from .00 to .06). Over 2% of the variance in the SEWB was predicted from the scores on the two residualized psychopathy measures (adjusted  $R^2 = .02$ ). Together, the residualized psychopathy scores account for 1.11% of the variance in the SEWB. The residualized LSRP accounts for .62% and the residualized SRP-III accounts for .77% of the variance in SEWB scores. The canonical correlation between the set of psychopathy variables and the set of SWB variables was also decreased to nonsignificance when the psychopathy variables had the variance attributed to personality removed [with both canonical correlations included  $\chi^2(18) = 22.33, p = .22$ ) and with the first canonical correlation removed,  $\chi^2(8) = 6.30, p = .61$ ] (see Table 15).

Figure 1. Participants' Ratings of Happiness Using the Faces Scale – Overall Item

Please fill in the circle below the face, that overall, best describes how you feel MOST OF THE TIME



Table 3. Pearson Product moment correlations between the seven measures of positive affect and life satisfaction: Faces Scale – Momentary Item, Faces Scale – Overall Item, SWLS, SHS, OHQ, SEWB, PANAS Positive Subscale.

	Faces - Momentary	Faces - Overall	SWLS	SHS	OHQ	SEWB
Faces – Overall	.43*					
SWLS	.41*	.49*				
SHS	.42*	.62*	.65*			
OHQ	.44*	.61*	.69*	.81*		
SEWB	.28*	.36*	.51*	.51*	.61*	
PANAS-Positive	.31*	.46*	.48*	.62*	.71*	.59*

\* p < .0001

Table 4. Pearson Product moment correlations between the seven measures of positive affect and life satisfaction and the two measures of negative affect: Faces Scale – Momentary Item, Faces Scale – Overall Item, SWLS, SHS, OHQ, SEWB, PANAS Positive Subscale, PANAS Negative Subscale, and CES-D.

	Faces - Momentary	Faces – Overall	SWLS	SHS	OHQ	SEWB	PANAS- Positive
CES-D	-.46*	-.45*	-.59*	-.58*	-.65*	-.50*	-.49*
PANAS- Negative	-.36*	-.40*	-.48*	-.52*	-.58*	-.47*	-.34*

\* p < .0001

Table 5. Pearson Product moment correlations of the LSRP and the SRP-III R-12 with all 9 measures of positive affect, negative affect, and life satisfaction: LSRP, SRP-III, Faces Scale – Momentary Item, Faces Scale – Overall Item, SWLS, SHS, OHQ, SEWB, PANAS Positive Subscale, PANAS Negative Subscale, and CES-D.

	LSRP	SRP-III
Faces – Momentary	-.26**	-.17**
Faces – Overall	-.25**	-.21**
SWLS	-.38**	-.27**
SHS	-.39**	-.27**
OHQ	-.43**	-.33**
SEWB	-.45**	-.33**
PANAS-Positive	-.33**	-.21**
PANAS-Negative	.42**	.30**
CES-D	.41**	.29**

\*\* p < .00033 (Adjusted alpha)

Table 6. Pearson Product moment correlations for each of the subscales of the LSRP and the SRP III with the positive affect, negative affect, and life satisfaction variables: LSRP - Primary, LSRP – Secondary, SRP-III-IM, SRP-III-CA, SRP-III-EL, SRP-III-CT, Faces Scale – Momentary Item, Faces Scale - Overall Item, SWLS, SHS, OHI, SEWB, PANAS-P, PANAS-N, and the CES-D.

	Levenson – Primary	Levenson – Secondary	SRP-III-IM	SRP-III-CA	SRP-III-EL	SRP-III-CT
Faces – Momentary	-.17**	-.31**	-.15*	-.17**	-.10*	-.14*
Faces – Overall	-.15*	-.34**	-.15*	-.18*	-.14*	-.21**
SWLS	-.25**	-.46**	-.20**	-.26**	-.20**	-.24**
SHS	-.26**	-.47**	-.22**	-.28**	-.15*	-.26**
OHQ	-.28**	-.55**	-.26**	-.31**	-.21**	-.31**
SEWB	-.35**	-.45**	-.27**	-.26**	-.26**	-.28**
PANAS – Positive	-.21**	-.41**	-.17*	-.19**	-.15*	-.20**
PANAS – Negative	.25**	.56**	.25**	.23**	.25**	.26**
CES – D	.25**	.55**	.24**	.21**	.23**	.30**

\*p < .05

\*\* p < .00033 (Adjusted alpha)

Table 7. Pearson Product moment correlations for each of the NEO Big 5 Personality Factors with the subscales of the LSRP and the SRP-III: LSRP – Primary Psychopathy subscale (LSRP-Primary), LSRP – Secondary Psychopathy Subscales (LSRP-Secondary), SRP-III Intentional Manipulation subscale (SRP-III-IM), SRP-III Callous Affect subscale (SRP-III-CA), SRP-III Erratic Lifestyle subscale (SRP-III-EL), and the SRP-III Criminal Tendencies subscale (SRP-III-CT).

	Agreeableness	Extraversion	Conscientiousness	Neuroticism	Openness to Experience
LSRP – Primary	-.62**	-.24**	-.31**	.12*	-.22**
LSRP – Secondary	-.49**	-.33**	-.50**	.58**	-.13*
SRP-III-IM	-.66**	-.24**	-.32**	.11*	.01
SRP-III-CA	-.71**	-.27**	-.29**	.04	-.08
SRP-III-EL	-.48**	-.03	-.41**	.11*	.13*
SRP-III-CT	-.42**	-.17**	-.30**	.13*	.00

\* p < .05

\*\* p < .00033 (Adjusted alpha)

Table 8. Pearson Product moment correlations for each of the NEO Big 5 Personality Factors with the positive affect, negative affect, and life satisfaction variables: Agreeableness, Extraversion, Conscientiousness, Neuroticism, Openness to Experience, Faces Scale – Momentary Item, Faces Scale - Overall Item, SWLS, SHS, OHQ, SEWB, PANAS-P, PANAS-N, and the CES-D.

	Agreeableness	Extraversion	Conscientiousness	Neuroticism	Openness to Experience
Faces – Momentary	.22**	.30**	.21**	-.40**	.01
Faces – Overall	.24**	.49**	.29**	-.46**	.06
SWLS	.30**	.44**	.34**	-.56**	.13*
SHS	.36**	.68**	.36**	-.63**	.10*
OHQ	.36**	.75**	.51**	-.70**	.12*
SEWB	.30**	.45**	.54**	-.48**	.24**
PANAS – Positive	.22**	.60**	.53**	-.52**	.14*
PANAS – Negative	-.41**	-.40**	-.33**	.65**	-.10*
CES – D	-.33**	-.41**	-.43**	.66**	-.10*

\* p < .05

\*\* p < .0001

Table 9. Complete list of correlated error terms for LSRP Confirmatory Factor Analysis.

Correlated Error Terms	Rationale for Allowing Error Terms to Correlate
4 and 5	Accumulation of resources
10 and 12	Achievement at the cost of others
12 and 14	Disregard for others' feelings
12 and 16	Disregard for others' feelings in the pursuit of goals
13 and 26	Disregard for others' feelings - manipulation
14 and 17	Getting in trouble; hurting others
14 and 24	Hurting others emotionally
15 and 16	Ends justify the means
19 and 20	Pursuit of goals; sticking with plans
20 and 21	Perseverance; sticking with plans
24 and 25	Anger management

Table 10 . Standard Multiple Regression Results with the LSRP and the SRP-III Regressed on SWB Variables.

Criteria	Predictors	$\beta$	$P$	Zero-order correlation	$sr^2$
Faces Scale – Momentary	LSRP	-.26	.00*	-.26	.04
	SRP-III	.01	.90	-.17	.00
Faces Scale – Overall	LSRP	-.22	.00*	-.25	.02
	SRP-III	-.05	.40	-.20	.00
SHS	LSRP	-.38	.00*	-.39	.07
	SRP-III	-.01	.83	-.27	.00
OHQ	LSRP	-.39	.00*	-.43	.08
	SRP-III	-.06	.33	-.33	.00
SEWB	LSRP	-.43	.00*	-.45	.10
	SRP-III	-.03	.66	-.33	.00
SWLS	LSRP	-.36	.00*	-.38	.07
	SRP-III	-.02	.70	-.27	.00
PANAS-Positive	Sex	-.12	.02	-.03	.01
	LSRP	-.33	.00*	-.33	.05
	SRP-III	-.04	.58	-.21	.00
PANAS-Negative	Sex	.14	.01	.01	.01
	LSRP	.38	.00*	.42	.07
	SRP-III	.10	.14	.30	.00
CES-D	LSRP	.40	.00*	.41	.08
	SRP-III	.02	.79	.29	.00

\*  $p \leq .001$

Table 11. Correlations, standardized canonical coefficients, canonical correlations, proportions of variance, and redundancies between psychopathy and SWB variables and their corresponding canonical variates.

	First Canonical Variate		Second Canonical Variate	
	<i>Correlation</i>	<i>Coefficient</i>	<i>Correlation</i>	<i>Coefficient</i>
<b>Psychopathy Set</b>				
LSRP	-1.0	-.96	-.04	-1.01
SRP-III	-.72	-.06	.69	1.39
Percent of Variance	.76		.24	
Redundancy	.23		.00	
<b>SWB Set</b>				
Faces Scale – Momentary Item	.48	.07	.16	.33
Faces Scale – Overall Item	.48	-.10	-.28	-.53
SWLS	.71	.10	-.02	.18
SHS	.73	.11	.06	.63
OHQ	.82	.17	-.24	-1.56
SEWB	.85	.47	-.01	-.18
PANAS – Positive	.62	-.04	.34	1.11
PANAS – Negative	-.79	-.30	-.03	-.31
CES-D	-.78	-.15	-.05	-.02
Percent of Variance	.50		.03	
Redundancy	.14		.00	
Canonical Correlation	.53		.10	

Table 12. Pearson Product moment correlations of the Residualized LSRP and the Residualized SRP-III with all 9 measures of positive affect, negative affect, and life satisfaction: LSRP, SRP-III, Faces Scale – Momentary Item, Faces Scale – Overall Item, SWLS, SHS, OHQ, SEWB, PANAS Positive Subscale, PANAS Negative Subscale, and CES-D.

	LSRP	SRP-III
Faces – Momentary	-.07	-.06
Faces – Overall	-.02	-.09*
SWLS	-.10*	-.14**
SHS	-.07	-.10*
OHQ	-.05	-.12*
SEWB	-.13*	-.14**
PANAS-Positive	-.04	-.06
PANAS-Negative	.06	.07
CES-D	.08	.10

\* p < .05, \*\* p < .0056

Table 13. Pearson Product moment correlations for each of the residualized subscales of the LSRP and the residualized subscales of the SRP-III with the positive affect, negative affect, and life satisfaction variables: RLSRP - Primary, RLSRP – Secondary, RSRP-III-IM, RSRP-III-CA, RSRP-III-EL, RSRP-III-CT, Faces Scale – Momentary Item, Faces Scale - Overall Item, SWLS, SHS, OHQ, SEWB, PANAS-P, PANAS-N, and the CES-D.

	RLSRP – Primary	RLSRP - Secondary	RSRP-III-IM	RSRP-III- CA	RSRP-III- EL	RSRP-III-CT
Faces – Momentary	-.06	-.05	-.03	-.09	-.00	-.04
Faces – Overall	-.01	-.04	-.01	-.07	-.09	-.11*
SWLS	-.08	-.08	-.04	-.16**	-.10*	-.11*
SHS	-.05	-.07	-.02	-.12*	-.06	-.10*
OHQ	-.03	-.07	-.03	-.12*	-.08	-.12*
SEWB	-.14*	-.04	-.07	-.08	-.11*	-.10*
PANAS – Positive	-.04	-.03	-.01	-.06	-.05	-.05
PANAS – Negative	.01	.12*	.02	.03	.07	.08
CES – D	.04	.10*	.05	.06	.06	.13*

\*p < .05  
\*\* p < .0001

Table 14. Standard Multiple Regression Results with the Residualized LSRP and the Residualized SRP-III Regressed on SWB Variables.

Criteria	Predictors	$\beta$	$p$	Zero-order correlation	$sr^2$
Faces Scale – Momentary	LSRP	-.06	.24	-.08	.00
	SRP-III	-.03	.58	-.06	.00
Faces Scale – Overall	LSRP	.022	.68	-.02	.00
	SRP-III	-.11	.05*	-.09	.01
SHS	LSRP	-.03	.56	-.07	.00
	SRP-III	-.09	.09	-.10	.01
OHQ	LSRP	.00	.98	-.05	.00
	SRP-III	-.12	.02*	-.12	.01
SEWB	LSRP	-.09	.10	-.13	.01
	SRP-III	-.10	.06	-.14	.01
SWLS	LSRP	-.05	.32	-.10	.00
	SRP-III	-.12	.03*	-.14	.01
PANAS-Positive	Sex	-.06	.27	-.03	.00
	LSRP	-.02	.75	-.04	.00
	SRP-III	-.07	.20	-.06	.00
PANAS-Negative	Sex	-.03	.51	.01	.00
	LSRP	.04	.51	.06	.00
	SRP-III	.07	.26	.07	.00
CES-D	LSRP	.04	.42	.08	.00
	SRP-III	.09	.11	.10	.01

\*  $p \leq .05$

Table 15. Correlations, standardized canonical coefficients, canonical correlations, proportions of variance, and redundancies between residualized psychopathy and SWB variables and their corresponding canonical variates.

	First Canonical Variate		Second Canonical Variate	
	<i>Correlation</i>	<i>Coefficient</i>	<i>Correlation</i>	<i>Coefficient</i>
<b>Psychopathy Set</b>				
LSRP	-.80	-.51	-.60	-.16
SRP-III	-.89	-.66	.46	.05
Percent of Variance	.72		.28	
Redundancy	.03		.00	
<b>SWB Set</b>				
Faces Scale – Momentary Item	.40	.08	.20	.56
Faces Scale – Overall Item	.39	.02	-.51	-.65
SWLS	.76	.50	-.19	.07
SHS	.55	.14	-.19	.57
OHQ	.56	-.10	-.47	-1.47
SEWB	.82	.83	.06	.35
PANAS – Positive	.32	-.48	-.09	.41
PANAS – Negative	-.39	.29	.01	-.32
CES-D	-.58	-.24	.11	.09
Percent of Variance	.31		.07	
Redundancy	.01		.00	
Canonical Correlation	.19		.12	

## 4. Discussion

### 4.1 Summary of the Current Study

The current study assessed the relation between SWB (positive affect, negative affect, and life satisfaction) and psychopathy while taking into account the importance of personality. Psychopathy, as assessed with the LSRP and SRP-III, was negatively correlated with positive affect, happiness, and life satisfaction, and positively correlated with negative affect and depression. Scores on the LSRP were able to account for significant amounts of variance in all measures of SWB. However, once the variance attributed to personality was accounted for, the variance which could be accounted for by scores on either psychopathy measure was decreased to nonsignificance.

Overall, participants rated themselves as very happy. For instance, only 5.3% of individuals rated themselves in the lowest three categories on the Faces Scale-Overall, and 83.2% of individuals rated themselves in the top three categories. These findings are consistent with previous research indicating that most individuals are happy most of the time (Biswas-Diener, Vittersø, & Diener, 2005; Diener & Diener, 2006). In addition, only 4.3% of individuals rated themselves in the happiest category. This is consistent with previous research which has demonstrated that while most individuals are happy a lot of the time, they are not ecstatic, but rather maintain moderate levels of positive emotions (Biswas-Diener, Vittersø, & Diener, 2005; Diener & Diener, 2006).

In terms of sex differences for the various measures used, results were largely consistent with previous research. As expected, no sex differences were observed for scores on the life satisfaction or positive affect measures and males scored significantly higher than females on both psychopathy measures (Levenson et al., 1995; Lyubomirsky et al., 2005). This was also true for all four subscales of the SRP-III and for the primary psychopathy subscale of the LSRP.

There were no statistically significant sex differences for the secondary psychopathy subscale of the LSRP. Contrary to previous research, there were no sex differences for measures of negative affect.

Prevalence rates for psychopathy were calculated by determining the percentage of individuals who endorsed eight or more primary psychopathy items on the LSRP. Both the LSRP and the SRP-III were designed to measure psychopathy according to a dimensional rather than categorical model. Therefore, cut-off scores have not been established to differentiate psychopaths from nonpsychopaths for either of these measures, but rather to establish the degree of psychopathy for each individual. Levenson and colleagues found that 23% of males and 6% of females endorsed eight or more primary psychopathy items (Levenson et al., 1995). The results of this study were consistent with these findings, with 21.3% of males and 7.7% of females endorsing at least eight primary psychopathy items. Overall, .92% of individuals endorsed twelve or more primary psychopathy items (1.47% of males and .67% of females). Scores on both the LSRP and SRP-III were in line with established norms for both these measures (Levenson et al., 1995; Paulhus, Hemphill, & Hare, in press), suggesting that psychopathy was accurately assessed.

#### 4.1.1 Psychopathy and Subjective Well-Being

Individuals high in psychopathy appear to be less happy and satisfied and more depressed than nonpsychopaths. Both psychopathy measures were positively correlated with measures of depression and negative affect, and negatively correlated with measures of positive affect, happiness, and life satisfaction. All subscales of both the LSRP and SRP-III were positively correlated with negative affect and depression and negatively correlated with life satisfaction, happiness, and positive affect. However, not all correlations were statistically significant at the

adjusted alpha level. As previously mentioned, the LSRP was able to predict significant amounts of variance in all of the SWB variables, but not after the variance attributed to personality was removed from the psychopathy scores.

#### 4.1.2 Psychopathy and Personality

Both psychopathy measures were positively correlated with each other and negatively correlated with Agreeableness, Conscientiousness, and Extraversion, but only the LSRP was significantly negatively correlated with Openness to Experience and positively correlated with Neuroticism. These results are consistent with previous research indicating that psychopathy is associated with low levels of Agreeableness, Conscientiousness, and some facets of Extraversion, and high levels of some facets of Neuroticism (Lynam et al., 2005; Miller et al., 2001). All subscales of both psychopathy measures were negatively correlated with Agreeableness and Conscientiousness. These results are also consistent with previous research indicating that lower levels of Agreeableness and Conscientiousness are associated with both factor 1 and factor 2 psychopathy (Lynam et al., 2005). Extraversion was negatively correlated with all subscales and Neuroticism was positively correlated with all subscales, but not all correlations were statistically significant after adjusting alpha for multiple comparisons. This may be due to the fact that high and low levels of both Extraversion and Neuroticism respectively have been associated with psychopathy, depending on which facets of each are measured (Miller et al., 2001). For example, psychopathy has been associated with high levels of the excitement seeking facet of Extraversion, but also with low levels of the warmth facet of Extraversion (Miller et al., 2001). However, due to time restraints (this study was part of a larger study) all five personality dimensions were measured at the trait rather than facet level. Therefore, it is impossible to measure which aspects of Extraversion and Neuroticism were high and low for this study. Both the primary psychopathy

subscale of the LSRP and the Callous Affect subscale of the SRP-III were significantly negatively correlated with Openness to Experience. Previous research has indicated that Openness to Experience is negatively associated with psychopathy, but these results are often inconsistent (only the closedness to feelings facet has been consistently related to psychopathy) and the negative association is often nonsignificant (Lynam, 2002; Lynam et al., 2005). The relation between psychopathy and Openness to Experience may be inconsistent because Openness to Experience may only be related to some aspects of psychopathy or may depend on the method used to measure psychopathy. For example, Lynam and colleagues (2005) found that Openness to Experience was significantly negatively related to psychopathy for mother's reports, but not for self-reports of psychopathy and personality dimensions.

#### 4.1.3 Subjective Well-Being and Personality

As expected based on previous research (DeNeve & Cooper 1998; Steel et al., 2008), Extraversion was positively correlated with all measures of positive affect and life satisfaction and negatively correlated with measures of negative affect. Neuroticism was negatively correlated with all measures of positive affect and life satisfaction, and positively correlated with all measures of negative affect (DeNeve & Cooper, 1998; Steel et al., 2008). Positive SWB was positively correlated with Agreeableness, Conscientiousness, and Extraversion and negatively correlated with Neuroticism. Negative affect measures were negatively correlated with Agreeableness, Conscientiousness, and Extraversion and were positively correlated with Neuroticism. Openness to Experience was only significantly positively correlated with scores on the SEWB.

#### 4.1.4 Evaluation of Hypotheses

The first hypothesis predicted that psychopathy would be negatively correlated with life satisfaction. This hypothesis was supported, as scores on both psychopathy measures were significantly negatively correlated with scores on the life satisfaction measure (SWLS). Scores on both subscales of the LSRP and all four subscales of the SRP-III were significantly negatively correlated with the SWLS. This is not surprising considering one of the best predictors of life satisfaction, Extraversion, was negatively correlated with scores on both measures of psychopathy. Also, because interpersonal relationships are typically shallow or superficial for individuals high in psychopathy (Barry, Barry, Deming, & Lochman, 2008; Hare, 1999; Sandoval, Hancock, Poythress, Edens, & Lilienfeld, 2000), this may contribute to decreased satisfaction with life compared to those low in psychopathy. Due to the callous, unfeeling nature of psychopaths, perhaps interpersonal relationships are not be as important to individuals high in psychopathy as they are to individuals low in psychopathy. Poor social competence has been linked to aggressive and antisocial behavior in children (Barry et al., 2008; Pardini, Barry, Barth, Lochman, & Wells, 2006). Barry and colleagues (2008) tested a group of high risk aggressive children for early characteristics of psychopathy and social competence, and found that better social functioning was associated with a decrease in psychopathic characteristics over time. Social impairments were associated with more persistent psychopathic characteristics. Despite these preliminary results, more research is necessary to clarify the relation between social functioning and psychopathy (Barry, Barry, Deming, & Lochman, 2008). Barry and colleagues (2008) speculated that social relationships may be an important protective factor and improving social relationships could potentially be used as an intervention to treat psychopathic characteristics. Based on these results, perhaps the poor relationships associated with psychopathy contribute to decreased life satisfaction. Good interpersonal relationships (especially

romantic relationships) are one of the strongest predictors of SWB (Lyubomirsky et al., 2005; Myers, 2000). Also, the Broaden-and-Build model of happiness indicates that there is an upward spiral of positive emotions, with more positive emotions leading to more novel and exploratory behavior. This exploratory (or play) behavior often leads to more positive emotions, which then leads to more play behavior and better social relationships, again leading to more positive emotions, and onward and upward (Fredrickson, 2003; Fredrickson & Joiner, 2002). Since individuals high in psychopathy often experience poor social relationships and do not bond or form emotional connections the way individuals low in psychopathy do, they may not readily experience this upward spiral. This may make it more difficult for them to experience this increase in positive emotions.

The second hypothesis suggesting that psychopathy would be negatively correlated with eudaimonic happiness was also supported. Scores on both psychopathy measures were negatively correlated with the SEWB. The OHI has also been used as a measure of eudaimonic happiness (Maltby, Day, & Barber, 2005). Scores on the OHI were negatively correlated with scores on both psychopathy measures. Both the primary and secondary psychopathy subscales of the LSRP and all four subscales of the SRP-III were negatively correlated with scores on the SEWB and OHI. Scores on both psychopathy measures were significantly negatively correlated with Conscientiousness, a personality trait which is important for eudaimonic happiness (Ryan & Deci, 2001; Schmutte & Ryff, 1997). Schmutte & Ryff (1997) reported that Conscientiousness was positively correlated with self-acceptance, purpose in life, and environmental mastery (ability to manage life and environmental influences), characteristics important for eudaimonic happiness (Schmutte & Ryff, 1997; Ryan & Deci, 2001). Hayes and Joseph (2003) found that Conscientiousness was associated with increased subjective well-being. They found that Conscientiousness was a better predictor of life satisfaction than Extraversion (Hayes & Joseph,

2003). Hayes and Joseph (2003) speculated that the importance of Conscientiousness for predicting the satisfaction with life (cognitive appraisal) component of SWB could be attributed to the fact that individuals high in this personality dimension are able to meet their goals (high levels of goal striving is an important component of Conscientiousness) (Hayes & Joseph, 2003). Given the impulsive, self-centered nature of individuals high in psychopathy, along with their lower levels of Extraversion and Conscientiousness, it is not surprising that they were lower in eudaimonic happiness, which emphasizes a strong life purpose and the greater good.

The third hypothesis, that psychopathy scores would be positively correlated with hedonic happiness (Faces Scale–Momentary) was not supported. Scores on both psychopathy measures were significantly negatively correlated with the momentary item of the Faces Scale (Faces Scale-Momentary). This was also true for both subscales of the LSRP and the SRP-III-CA subscale. Future research using a direct measure of hedonic happiness (as opposed to simply a one item measure of momentary happiness) is necessary to confirm this relation. At first, it seems counterintuitive that psychopathy would be associated with low levels of hedonic happiness. Hedonic happiness is self-indulgent and pleasure based in nature, and psychopaths typically get what they want and do what they want, often with little to no regard for the wants and needs of others (Hare, 1999). This “me first” attitude should be correlated with increased levels of hedonic happiness. However, there are at least two possible explanations to explain why psychopathy is associated with lower levels of hedonic happiness.

Perhaps psychopaths experience lower levels of hedonic happiness because they have difficulty interpreting and understanding emotional material. Since hedonic happiness is pleasure based, an inability to fully experience this emotion may partially explain the lower levels of hedonic happiness associated with psychopathy. As previously discussed, psychopaths are not quicker at processing emotional words over non-emotional words (Hare, 1999; Long & Titone,

2007) and do not demonstrate increased skin conductance when exposed to affective (pleasant and unpleasant) sounds (Verona et al., 2004). Typically, individuals demonstrate quicker processing of emotional words and increased arousal from emotional stimuli (Long & Titone; Verona et al., 2004). The fact that psychopaths do not show this increased performance for emotional stimuli indicates that they may not understand emotions the way nonpsychopathic controls do (Hare, 1999; Long & Titone, 2007; Verona et al., 2004). As previously mentioned, emotional material may be like a foreign language to individuals high in psychopathy (Hare, 1999). Perhaps this deficiency for processing emotional stimuli translates into deriving less pleasure from hedonic experiences. However, while psychopaths do exhibit less arousal to emotional stimuli, they scored higher on both the depression and negative affect measures than non-psychopaths. This indicates that psychopaths are capable of experiencing and identifying negative affect and depression. However, though psychopaths can experience this negative affect, this does not necessarily imply that they are capable of experiencing pleasure. Borkenau and Mauer (2006) found that when pleasant words were presented to the right visual field (vs. the left visual field), response latencies were significantly longer. When unpleasant words were presented to the left visual field (vs. the right visual field), response latencies were significantly longer. This research indicates that unpleasant and pleasant words are processed in different hemispheres (Borkenau & Mauer, 2006). Therefore, damage to one system (e.g., the system used to process positively valenced stimuli) does not necessarily imply damage to another system. These findings are consistent with the theory that positive emotions (e.g., happiness) and negative emotions (e.g., depression) are not opposite ends of the same dimension, but represent independent constructs (Cheng & Furnham, 2002; Lucas et al., 1996; Valiant, 1993). Individuals high in psychopathy may be perfectly capable of experiencing and reporting negative emotional content, but may not be able to process or report positive emotional content at the same level. Since very

little research has examined the relation between psychopathy and positive emotions, more research is needed to clarify this relation.

The second possible reason for the inverse relation between psychopathy and hedonic happiness could be that psychopaths typically have poor social relationships (Hare, 1999). Even though hedonic happiness is self-indulgent in nature, there is research to indicate that having someone to share pleasurable experiences with is a key component of why hedonic experiences are so pleasurable (Raghunathan & Corfman, 2006). Many hedonic activities such as shopping or eating out at a restaurant are social in nature and are typically enjoyed in the company of others (Raghunathan & Corfman, 2006). Raghunathan and Corfman (2006) found that when one individual enjoys a hedonic activity in the company of another individual who also enjoys the activity (congruent opinions), the enjoyment of both individuals increases. They also found that participating in a hedonic activity when one individual enjoys it and the other does not (incongruent opinions) the enjoyment of both decreases. The enjoyment of others directly influences one's ability to enjoy hedonic experiences (Raghunathan & Corfman, 2006). Since individuals high in psychopathy typically experience poor social relationships they may not derive as much pleasure from hedonic experiences as less psychopathic individuals. Often, part of the enjoyment derived from hedonic experiences is having someone else to share the enjoyment with. Poor social relationships can also explain the lower levels of eudaimonic happiness and life satisfaction experienced by individuals high in psychopathy, since good social relationships are one of the most important predictors of both eudaimonic happiness and life satisfaction, as well as SWB overall (Deci & Ryan, 2008; Froh et al., 2007; Lyubomirsky et al., 2005; Myers, 2000).

There are several possible explanations for the inverse relation observed between psychopathy and SWB. Psychopathy was not only associated with lower levels of hedonic happiness, eudaimonic happiness, positive affect, and life satisfaction, but also with higher levels

of negative affect and depression. One possible explanation involves examining the role of attachment style for SWB. There are three types of attachment style in adult romantic relationships, thought to be based on childhood attachment to the primary caregiver (typically the mother) (Hazen & Shaver, 1987): 1) secure attachment (comfortable with intimacy and trusting of partner), 2) avoidant attachment (fear of intimacy and extreme self-reliance), and 3) anxious-ambivalent attachment (characterized by jealousy and a desire for more closeness than the partner is comfortable with) (Hazen & Shaver, 1987; Shaver & Brennan, 1992). Research has demonstrated that personality disorders may be conceptualized as disorders of attachment (e.g., borderline personality disorder is associated with an avoidant attachment style) (Sack, Spurling, Fagen, & Foelsch, 1996). Research suggests that secure attachment styles are atypical of individuals with psychopathy and a secure attachment style is associated with higher levels of psychological well-being (Diehl, Elrick, Bourbeau, & Labouvie-Vief, 1998; Frodi, Dernevik, Sepa, Philipson, & Bragesjö, 2001). As previously mentioned, Barry and colleagues (2008) speculated that psychopathy may be partially mediated by social relationships and they suggested improving the social relationships of individuals high in psychopathy as a possible treatment option. Perhaps targeting the attachment styles of potential or fledgeling psychopaths at a young age may be one way to increase social competence and, by extension, improve social relationships in individuals high in psychopathy. However, one potential caveat to a treatment plan targeting attachment with the primary caregiver is that psychopathy has a genetic component (Blonigen, Carlson, Krueger, & Patrick, 2003; Blonigen, Hicks, Krueger, Patrick, & Iacono, 2005). It is possible that children at high risk for developing psychopathic tendencies may have parents high in psychopathy as well. However, preliminary research by Blonigen and colleagues (2003) has indicated that psychopathy has an emergent pattern of inheritance (Blonigen et al., 2003). Emergent traits involve the inheritance of several independent genes which combine in a

non-additive fashion. Emergent traits are typically indicated when monozygotic (identical) twins exhibit similar levels of the given trait, but dizygotic (fraternal) twins do not. Emergent traits often do not seem to run in families because in order for these types of traits to be expressed, the individual must inherit a specific combination of independent genes. If psychopathy is indeed inherited according to an emergent model as Blonigen and colleagues (2003) propose, children with psychopathy will likely not have parents high in psychopathy.

A second possible explanation for the inverse relation between psychopathy and SWB involves emotional intelligence. Emotional intelligence (EI) refers to an individual's ability to recognize emotions in themselves and others and effectively regulate these emotions (Malterer, Glass, & Newman, 2008). As previously discussed, individuals high in psychopathy exhibit deficient emotional processing when compared to controls (Hare et al., 1999; Verona et al., 2004; Williamson et al., 1991). Petrides and Furnham (2003) found that high EI individuals were quicker at identifying facial expressions in others than low EI individuals. Psychopathy has been associated with a decreased ability to recognize facial expressions, particularly sad or fearful expressions (Blair et al., 2001; Dolan & Fullam, 2006). Malterer and colleagues (2008) tested the relation between psychopathy and EI directly and found that psychopathy was associated with low levels of EI (Malterer et al., 2008). High EI has also been linked to increased SWB, and may be an even more important predictor of happiness than the Big Five personality factors (Furnham & Petrides, 2003). EI is also inversely related to depression and anxiety, with depressed individuals exhibiting lower levels of EI than non depressed controls (Fernández-Berrocal, Alcaide, Extremera, & Pizzaro, 2006). This relation was observed independent of participants' self-esteem. This is an important finding in terms of the relation between EI and psychopathy. One reason why it was hypothesized that psychopaths would have higher hedonic happiness than controls is because they think very highly of themselves, and high self-esteem has been

associated with increased SWB (Furnham & Cheng, 2000). The findings of Fernández-Berrocal and colleagues (2006) indicate that EI is more important for determining SWB than self-esteem. It is possible for an individual to have high self-esteem and be low in EI. Individuals high in psychopathy demonstrate low EI despite their high self-esteem, and perhaps increasing EI by drawing attention to the emotional content and the importance of emotional stimuli may improve (reduce) psychopathic traits. As previously mentioned, Dadds and colleagues (2006) found that if children with psychopathic tendencies were directed to pay attention to the eyes of others, they were better at interpreting their emotions (in this case, fearful facial expressions). Focusing attention on the importance of emotional stimuli may prove to be a valuable therapeutic option for individuals high in psychopathy, especially if this training begins at a young age. More research is necessary to evaluate the possible relation between EI and psychopathic characteristics and how this influences SWB.

A third explanation for the inverse relation between psychopathy and SWB is that individuals high in psychopathy typically experience difficulties in school (e.g., behavior problems and interpersonal difficulties) and are at a high risk for criminal offending (Hare, 1999; Salekin, 2008). Psychopaths are also more likely to reoffend after release and to be involved in violent crimes as opposed to individuals low in psychopathy (Hare, 1999; Salekin, 2008; Walsh & Kosson, 2008). Research has demonstrated that these problems can occur in adolescence, and this can lead to a compounding of problems in the future (e.g., criminal record and drug addiction) resulting in fewer future opportunities to be successful in society for these individuals (Salekin, 2008). It is interesting to note that the relation between violence and psychopathy may be influenced by the factor structure of the disorder. Walsh and Kosson (2008) found that the interaction between the two psychopathy factors was important for predicting future violent recidivism. Specifically, they noted that individuals high in factor 2 (or secondary) psychopathy

were more likely to violently recidivate if they were also high in factor 1 (or primary) psychopathy. Walsh and Kosson (2008) speculated that the empathic component characteristic of factor 1 psychopathy may be a protective factor against the high levels of factor 2 impulsive, antisocial tendencies. In addition, SWB is negatively associated with drug use and other problem behaviours in youth (e.g., teen pregnancy, physical fighting, and carrying a weapon) (Park, 2004). Zullig and colleagues (2001) found that adolescents' substance use (e.g., smoking cigarettes, marijuana use, and drinking alcohol) was inversely related to their levels of SWB. Youth who had experimented with substance use generally reported lower levels of life satisfaction than youth who had not (Zullig, Valois, Huebner, Oeltmann, & Drane, 2001). More recently, McDonald and colleagues (2005) found that life satisfaction was inversely related to violent acts (e.g., carrying a weapon and physical fighting) (McDonald, Piquero, Vallois, & Zullig, 2005). While more research (especially longitudinal research) is necessary to address the roles that criminal offending and school problems play in the relation between psychopathy and SWB (Park, 2004), it is possible that these difficulties are exacerbated by the low levels of EI, type of attachment, and poor interpersonal relationships typical of individuals high in psychopathy.

The overall finding that individuals high in psychopathy experience lower levels of SWB than individuals low in psychopathy is consistent with theoretical models of both psychopathy and SWB. As previously mentioned, individuals high in psychopathy may be less susceptible to the upward spiral described by Fredrickson (1998) as part of her Broaden-and-Build model of positive emotions. This lowered SWB experienced by those high in psychopathy is also consistent with the IES model of psychopathy. Psychopaths experience very little (if any) empathy towards others, and this lack of empathy combined with the callous, selfish nature which characterizes the disorder makes forming meaningful social relationships with others

almost impossible. The fact that individuals high in psychopathy experience lower SWB than those low in psychopathy can be explained by the poor social relationships and the lack of emotional depth demonstrated by these individuals. Future treatments for individuals high in psychopathy may want to focus on building more meaningful social relationships with others and on developing increased awareness of emotional content and empathy.

It was expected that the psychopathy measures would account for a significant amount of variance in the well-being measures. Multiple regression analyses were conducted to evaluate the importance of psychopathy when predicting levels of positive affect, negative affect, happiness, satisfaction with life, and depression. The LSRP (but not the SRP-III) was able to account for a significant amount of unique variance in all SWB measures, indicating that levels of SWB can be predicted (in part) from scores on measures of psychopathy. However, this predictive power was not significant after the variance attributed to personality was accounted for (the only exception was that the residualized LSRP was able to account for a statistically significant amount of variance in the SEWB). Also, the correlations between the two psychopathy measures and the measures of SWB were nonsignificant when residualized psychopathy scores were used (with the exception of the correlations between the SRP-III and the SEWB and SWLS). This was also true for all subscales of the two psychopathy measures, with the exception of the correlation between the SRP-III-CA subscale and the SEWB. A canonical correlation analysis was also performed to determine the relations between the psychopathy and SWB variables as sets of variables. The first canonical correlation was significant and indicated that lower scores on the two psychopathy measures (first set of variables) were correlated with higher scores on the positive affect and life satisfaction measures and lower scores on the measures of negative affect (second set of variables). This significant correlation was nonsignificant when the residualized psychopathy variables were used as the first set of variables. These results indicate that the two psychopathy

measures do not add any predictive power over and above the predictive ability of normal personality. This indicates that a combination of normal personality traits could potentially be used to evaluate levels of psychopathy in individuals. These results provide indirect support for the theory that personality disorders can be conceptualized as a combination of extreme levels of normal personality traits (Clark, 2006; O'Connor, 2002; O'Connor & Dyce, 2001; Samuel & Widiger, 2008; Widiger, 2005). These results support the fourth hypothesis, that scores on the psychopathy measures would not account for any variance in the SWB measures over and above the variance already predicted by the personality measure. The psychopathy measures did not account for a significant amount of variance in the SWB scores over and above the variance already accounted for by personality, indicating that psychopathy could be conceptualized according to a distinct pattern of normal personality traits.

The fifth and final hypothesis, that the data would support the four-factor model over the two-factor model of psychopathy, was not supported. Confirmatory factor analysis indicated that the data best supported the two-factor model of psychopathy. Previous research has indicated that psychopathy can be conceptualized according to anywhere from two to five meaningful factors (Bishop & Hare, 2008). The results of this study are consistent with research indicating that psychopathy is best conceptualized according to primary (refers to the affective-interpersonal characteristics of the disorder) and secondary (socially deviant behaviours) psychopathy (Brinkley et al., 2001). While research has recently indicated that the four-factor model may better define psychopathy (Hare & Neumann, 2005; Neumann et al., 2006; Williams et al., 2007), many researchers continue to study this personality disorder using the two-factor model (Blonigen et al., 2010; Walsh & Kosson, 2008; Uzieblo, Verschuere, & Crombez, 2007).

One possible explanation for the inconsistencies evident in the research literature is that the best factor structure may depend on the sample being tested (Sevecke, Pukrop, Kosson, &

Krischer, 2009). Sevecke and colleagues (2009) compared four samples (a male community sample, a male incarcerated sample, a female community sample, and a female incarcerated sample) to determine the best fitting model to define psychopathy. They found that the best fitting model depended on the sample being tested. When both male samples were tested (community and incarcerated males), the three-factor structure was the best fit for the data. For the female incarcerated sample, the two-factor, three-factor, and four-factor models were all shown to have poor fit. The two-factor model was the best fitting model for the female community sample. These results have important implications for this study, since only a community (university) sample was examined, and the majority of participants were female (69.2% female vs. 30.8% male). The better fit of the two-factor model in this study may be partially explained by these sample characteristics. However, other research has indicated that the factor structure of psychopathy is consistent across gender (Brinkley et al., 2001; Williams et al., 2007). The model fit in this study was first estimated for males and females separately, and similar results were obtained for each gender. Also, research has indicated that the four-factor model is a good fit for a non-institutionalized sample (Williams et al., 2007). More research is necessary to clarify which factor structure is most appropriate for psychopathy.

#### 4.2 Strengths of the Current Study

The current study had several important strengths, including, but not limited to, the following: The first important strength of this study was the use of multiple measures of SWB, with each measure designed to measure a different component of SWB, and multiple measures of psychopathy. Given that similar conclusions were reached based on several different measures, the conclusions are not dependent on the unique assumptions of a single measure. Multiple measures of SWB ensured that SWB was measured in its entirety rather than measuring only

happiness, positive affect, negative affect or life satisfaction. Each measure tapped a different part of the SWB construct (e.g., the SWLS measured life satisfaction while the OHI measured happiness). Similar correlations were found between the various components of positive SWB and personality and psychopathy, indicating that the overarching SWB construct is significantly related to psychopathy. Multiple measures of psychopathy were also used, one relying on the traditional two-factor structure, and the other designed to measure psychopathy according to the four-factor structure. Results indicated that these different measures of psychopathy were consistently related to both SWB and personality. Also, the endorsement rates for the primary psychopathy items for the LSRP and the norms for the SRP-III were consistent with previous research, indicating that psychopathy was accurately assessed. Multiple measures are important to ensure that the construct in question is measured properly and in its entirety.

A second strength was the inclusion of a measure of personality. Any study examining the relation between SWB and psychopathy (or any other personality disorder) should account for personality, as there is research to suggest that psychopathology can be conceptualized according to extreme scores on normal personality traits (Clark, 2006; O'Connor, 2002; Samuel & Widiger, 2008; Widiger, 2005). The measures of psychopathy used in this study did not account for any of the variance in the SWB measures above the variance already explained by the personality measure, indicating that the two psychopathy measures did not measure much that was not already being measured by the personality scale. According to the results of this study, individuals high in psychopathy can be characterized according to a personality profile including low levels of Extraversion, Conscientiousness, and Agreeableness, and high levels of Neuroticism.

An additional strength was that the results of this study replicated previous research findings. All correlations between the SWB and personality measures were of the expected

strength and direction, and the correlations between psychopathy and personality were also consistent with previous research. In addition, this study also provides an analysis of how psychopathy is related to positive SWB, including positive affect, happiness, and life satisfaction.

Another strength of this study is that it also provides validation for the use of self-report measures of psychopathy. Self-report measures of psychopathy are particularly vulnerable to SDR given the psychopaths propensity to lie, cheat, and manipulate. The results of this study indicated that individuals high in psychopathy do report their psychopathic tendencies. This could be because individuals high in psychopathy do not think there is anything wrong with their behavior. This is not surprising due to the grandiose inflated self-worth that is typical of individuals high in psychopathy. Self-report measures of psychopathy are valuable research tools because they are much less labour intensive than in-depth interviews and self-report measures can be used with noninstitutionalized populations because it is not necessary to make diagnostic decisions based on criminal records. This allows for an analysis of the prevalence of psychopathic tendencies in community samples (most individuals in the community do not have criminal records).

Some final strengths of this study which will not be discussed at length, but are nonetheless worth mentioning are the large sample size and the online administration. Increasing sample size also increases the power of the study, or the ability of the researcher to find relations between variables if these relations exist (Tabachnick & Fidell, 2007). Also, large sample sizes are typically more normal (an important assumption for most statistical tests) and skewness and kurtosis are less likely to influence the results of analysis (Tabachnick & Fidell, 2007). The next advantage, online administration may not seem like a significant advantage. However, online administration, especially with large sample sizes, is highly beneficial in terms of time invested by both the participant and the researcher, as well as the cost associated with research studies.

There were several advantages to this type of testing observed throughout this study. The first advantage was that there were no missing values. Participants were restricted from moving from one questionnaire to the next if they hadn't completed all of the questions on the preceding questionnaire. Extensive time and effort on the part of the researcher goes into calculating missing values and these are, at best, only a good estimate. Having complete data sets for every participant is a substantial advantage in terms of the statistical validity of the results. The only missing data in this study were from participants who discontinued participation before completing all of the questionnaires. The second advantage was that because all data were collected online, there was no need to manually enter any of the responses into spreadsheet software. This was completed automatically as part of the online administration process. This eliminated the possibility of incorrect entry of scores and also saved time. The third advantage of online administration is that it was cost effective. All costs associated with photocopying or printing test materials were eliminated, and the cost of hosting the questionnaires online was minimal when compared to the costs of producing printed materials. This allowed more participants to be tested than if paper-and-pencil methods had been used, and made it possible to collect large amounts of data in a relatively short amount of time.

#### 4.3 Limitations of the Current Study

This study was limited in at least four ways. First, personality was measured at the trait level rather than at the facet level. As previously mentioned, personality was measured at the trait rather than facet level due to time constraints. Participants were asked to complete nineteen different psychological measures as part of the larger study (only ten were evaluated as part of this study) and the estimated total time for completion was two hours. If personality had been measured at the facet rather than trait level, the personality measure used would have increased

from 60 items to 240. The costs associated with measuring personality at the facet level outweighed the advantages of having the facet level data. Since this study represents one of the first attempts to measure the relation between psychopathy and SWB, measuring how the trait levels of personality influences this relation still provides meaningful data. However, measuring personality at the facet level allows for a more specific, detailed analysis of personality and how personality interacts with the other variables of interest than measuring personality only at the trait level. Future research should most certainly measure personality at the facet level to determine how this relates to personality measured at the trait level when evaluating the relation between psychopathy and SWB. This may be especially true for Extraversion, as previous research has demonstrated an inconsistent relation between Extraversion and psychopathy at the trait level. As previously mentioned, Steel and colleagues (2008) have highlighted the importance of measuring personality at the facet level rather than at the trait level because it is possible for the variable of interest to correlate with some facets of a trait in one direction and also to correlate with other facets of this same trait in the opposite direction, obscuring the relation if personality is only measured at the trait level. Also, if the researcher only measures personality at the trait level all facets will be weighted equally during statistical analyses, but they may not be of equal importance in terms of the variable of interest. Additional support for analyses at the facet level was previously provided by Schimmack et al. (2004) who discovered that the facets of depression and positive emotions of Neuroticism and Extraversion respectively are sufficient to predict life satisfaction without having to measure each trait in its entirety (Schimmack et al., 2004). Despite the obvious benefits of measuring personality at the facet rather than trait level, this constraint was of limited concern for the purposes of the present study because strong relations were observed between the personality traits and the psychopathy and SWB variables. Since these relations were observed and were the strength and direction expected

based on previous research and theoretical rationale, one can be reasonably confident that the results were not undermined substantially by not including an analysis at the facet level. Measuring personality only at the trait level makes the researcher more likely to miss potential relations between personality and psychopathy because different facets may interact with psychopathy in different directions, obscuring the relation. For example, the relation between psychopathy and Extraversion could have been missed by only measuring personality at the trait level since, as previously discussed, different facets of Extraversion correlate with psychopathy in opposite directions (i.e., the warmth facet of Extraversion is negatively correlated with psychopathy, but the excitement seeking facet is positively correlated with psychopathy). Since the correlation between Extraversion and psychopathy was observed and was in the expected direction, measuring personality at the trait level most likely did not completely obscure the relations of interest. Further, measuring personality at the trait level meant that some variance that could be attributed to personality was being missed, biasing the researcher towards attributing this missed variance to scores on the psychopathy measures. Despite this limitation, the results indicated that psychopathy could not account for any significant variance in SWB over and above personality.

A second limitation is that all questionnaires were administered exclusively online. While there were several advantages to online administration, there are also some limitations. Online administration has the potential to be problematic because the questionnaires used in this study were designed and validated using paper and pencil administration. However, this limitation is probably of minor importance since several studies have indicated that online administration yields valid and reliable responses relative to paper and pencil testing (Luce, Winzelberg, Das, Osborne, Bryson, & Taylor, 2005; Gosling, Vazire, Srivastava, & John, 2004; Riva, Teruzzi, & Anolli, 2003). Confidence can be placed in the results of this study because the measures of

positive affect and life satisfaction were significantly positively correlated with each other and significantly negatively correlated with measures of negative affect as expected. In addition, the correlations between SWB and the personality measure also replicated previous research (for example Extraversion was positively correlated with measures of positive affect and life satisfaction and negatively correlated with negative affect and the opposite was also true for Neuroticism) (DeNeve & Cooper, 1998; Steel et al., 2008). Also as previously mentioned, responses for both measures of psychopathy were in line with established norms for both measures and the correlations between the different personality traits and SWB were of the strength and direction expected based on a review of previous research.

A third limitation is that all questionnaires administered were self-report measures which rely on the participant's honest self-disclosure of their endorsement of each particular item. As previously mentioned, SDR (socially desirable responding) can be problematic with self report measures. However, results indicated that individuals high in psychopathy had lower levels of SWB than those low in psychopathy, meaning that individuals high in psychopathy were willing to endorse negative items. This indicates that they were not trying to present themselves in the best possible way (at least not enough to mask the fact that they had lower levels of SWB). For example, if psychopaths were trying to present themselves in the most socially desirable way, they would not have consistently endorsed such high levels of negative affect and depression and would have consistently endorsed high levels of positive affect, happiness, and life satisfaction. In addition, responses to SWB measures are consistent over time, explicit (self report) measures of SWB correlate significantly with implicit (non self report) measures, and outside reports of SWB (usually by a friend or spouse) typically correlate quite highly with self-reported SWB (Diener, Sandvik, Pavot, & Gallagher, 1991; Sandvik, Diener, & Seidlitz, 2009). These factors indicate that self-report measures accurately assess SWB. Another potential problem with self-

report measures is that often responses are influenced by transient factors such as the mood the participant is experiencing during testing (Diener et al., 1991; Schwarz & Clore, 1983). Schwarz and Clore (1983) induced either a positive or a negative mood and discovered that participants in the negative mood condition reported lower levels of global happiness and life satisfaction and those in the positive mood condition reported higher levels of global happiness and life satisfaction. These results indicated that the participant's mood during testing may induce a bias as to how happy and satisfied they were with their life overall (Schwarz & Clore, 1983). However, Schwarz and Clore (1983) also discovered that participants in the negative mood condition reported significantly lower levels of happiness than controls, but those in the positive mood condition did not report significantly higher levels of happiness than controls. Their results indicate that negative moods have more influence on how individuals perceive their overall happiness and satisfaction than positive moods do. Also, if participants were given a way to attribute their negative mood to an external factor (i.e., the room they were tested in) the negative mood manipulation had a reduced effect (Schwarz & Clore, 1983). Diener and colleagues (1991) found that although current mood can influence measures of SWB, typically the effects are small and a good way of dealing with this potential problem is to take measures of current mood to determine how these measures correlate with more global measures of SWB (Diener et al., 1991). This study attempted to assess the effects of transient mood by including a momentary measure of happiness (Faces Scale–Momentary). The Faces Scale-Momentary was significantly correlated with all measures of positive affect and life satisfaction. It is to be expected that the Faces Scale-Momentary would correlate significantly with more global measures of happiness and well being, because if participants feel happy and satisfied with life most of the time, they are more likely to feel happy and satisfied at the time of testing. Because these correlations were weaker (although still statistically significant) than correlations between the global measures of happiness and life

satisfaction, this indicated that momentary happiness was not as strong of a predictor of life satisfaction and global happiness as other, more global measures would be. Momentary happiness was not as strongly associated with the other variables as the more stable, trait measures of happiness were. The stable, trait measures of happiness were very strongly correlated with each other and negatively correlated with the depression and psychopathy measures despite the influence of momentary, emotional happiness.

A final limitation is that this study did not administer a questionnaire designed to specifically measure hedonic happiness. Hedonic happiness is a momentary, fluctuating appraisal of transient happiness, and was measured using the Faces Scale-Momentary. While there are reasons to claim that this measure is a valid and reliable measure of momentary, transient happiness, its reliability as a measure of hedonic happiness has not been established. Previous researchers have used measures of recent or current happiness levels to measure hedonic happiness. For example, the Depression Happiness Scale (Joseph & Lewis, 1998) has been used as a measure of hedonic happiness because the researchers asked participants to rate the items based on how they felt over the last week (Maltby et al., 2005). While this strategy is plausible based on the fact that hedonic happiness is based in the moment, it does not differentiate between transient happiness based on hedonia (i.e., doing what one wants because one wants it) and residual transient happiness based on more eudaimonic principles (e.g., transient happiness due to helping others or benevolence which causes an increase in happiness immediately but is not hedonic in nature).

#### 4.4 Future Directions

This research represents an important first step in addressing the paucity of research studying the SWB of individuals with personality disorders. This is an important subgroup with a

large (and often detrimental) influence on society. An important next step would be to determine whether individuals with personality disorders other than psychopathy also exhibit these lowered levels of SWB. For example, individuals with major depression and comorbid borderline personality disorder rate their depressive symptoms as more severe than depressed controls with no borderline personality disorder diagnosis (Stanley & Wilson, 2006). Perhaps individuals with personality disorders may be uniquely susceptible to low levels of positive SWB and high levels of negative affect and depression. More research is necessary to determine the effect these lowered levels of SWB have on individuals with personality disorders.

One limitation of this study which was not previously discussed was the sample studied. This study relied exclusively on a university population, and therefore generalizability to other populations cannot be determined. While many studies rely exclusively on university populations (Gosling et al., 2004), an important future direction would be to test whether the relations between psychopathy and SWB are generalizable to additional populations (for example, clinical or incarcerated populations).

Another important application of this research would be to develop interventions for individuals high in psychopathy. A large portion of incarcerated individuals meet the criteria for psychopathy, and even if they are never institutionalized, psychopaths often operate in antisocial, manipulative, and self-serving ways (Hare, 1999). Psychopaths typically respond very poorly to treatment, and psychopaths are charged with more violent and non violent criminal offenses than nonpsychopaths (Edens, 2006; Salekin, 2008; Walsh & Kosson, 2008). New types of interventions for psychopathy need to be developed and tested. As previously discussed, increasing the EI of individuals high in psychopathy and targeting their maladaptive attachment styles may improve their social relationships. Good social relationships may increase the empathy felt by individuals high in psychopathy, and by extension, decrease their psychopathic

traits. Low levels of SWB may be a symptom of the poor social relationships experienced by individuals high in psychopathy. Increasing SWB in these individuals may facilitate better social relationships with others, which could increase their levels of SWB, and so on (consistent with Fredrickson's upward spiral of positive emotions). SWB may be a key factor in this relation between social relationships and psychopathy, and more research is necessary to clarify this relation.

An important downside to any type of intervention which increases SWB and/or social relationships is that traditionally, psychopaths have used various types of treatments as ways to further manipulate individuals and the legal system. They employ the skills they learn in therapy to become more proficient at manipulating others, lying, stealing, and various other types of antisocial behavior (Thornton & Blud, 2007). However, despite this potential problem, increasing SWB and EI and improving attachment styles and social relationships represents a new type of treatment for psychopathy, one that has not been tested and could potentially prove effective, especially if treatment is initiated at a young age. Manipulating a psychopath's levels of SWB may be a way to lessen their antisocial tendencies. For example, interventions designed to increase subjective well-being have been successful in non-clinical populations (Emmons & McCullough, 2003; Otake, Shimai, Tanaka-Matsumi, Otsui, & Fredrickson, 2006). Emmons and McCullough (2003) assigned groups of university students to either a gratitude condition (participants were to write down up to five things in their lives that they were grateful for), a hassles condition (participants were to reflect on the past day and write down up to five hassles that had occurred to them), and a downward social comparison group (participants were instructed to think of and record ways that they were better than others and had things that others did not). Participants were assigned to these groups over a two week period, and were instructed to reflect on the day as a whole and make their journal entries before going to bed each evening.

Individuals in the gratitude condition showed increased positive affect during the two week period, and were more likely to have helped someone during this time as well. Despite the fact that previous treatment attempts have typically been unsuccessful, it is possible that psychopaths would respond to an alternative type of treatment (in this case, designed specifically to target their low levels of SWB) (Edens, 2006). By increasing SWB (and as demonstrated by Emmons and McCullough, increasing kindness), social relationships may also be improved. These types of interventions may be particularly helpful for individuals who demonstrate moderate levels of psychopathy, as opposed to those who are very high in psychopathy.

High levels of SWB are associated with higher levels of EI, better interpersonal relationships, and a secure attachment style. If, by increasing SWB, EI could be increased, psychopaths may become better at understanding and interpreting both their emotions, and emotions in others. This may, in turn, make them more likely to view their victims with empathy rather than disdain. In addition, increasing the likelihood of good interpersonal relationships between psychopaths and others could make them less likely to engage in antisocial behavior. Future research is necessary to determine how viable increasing SWB could be as a treatment option for individuals high in psychopathy. Experimental research designs are necessary to determine the causality of this relationship (i.e., does high SWB lead to higher EI, does high EI lead to higher levels of SWB, or are the high levels of both SWB and EI due to some third factor such as good social relationships).

The current research indicated that psychopaths have significantly lower levels of positive SWB than the average person. This is despite the fact that psychopaths experience little remorse or guilt, less social anxiety, do not concern themselves with the wants and needs of others, and do what they want when they want to do it (Blair, 2003; Hare, 1999; Hofmann, Korte, & Suvak, 2009). Lower levels of anxiety are also associated with psychopathy, although this relation seems

to only hold true for the primary, affective components of psychopathy, not secondary or total psychopathy scores (Dolan & Rennie, 2007) and psychopathy has also been associated with a decreased stress response, but this relation was only true for male participants (O’Leary, Loney, & Eckel, 2007). At face value, it would seem that this is counterintuitive. A diminished stress response and less guilt and remorse coupled with an ability to take advantage of others would seem likely to contribute to an increase in SWB. However, a crucial contributor of SWB is good interpersonal relationships (Lyubomirsky et al., 2005; Myers, 2000) and psychopaths typically do not experience good interpersonal relationships (Hare, 1999). In addition, psychopathy is associated with low levels of EI and a maladaptive attachment style. As previously discussed, low EI and a maladaptive attachment style are associated with lower levels of SWB. The current study was correlational in nature and cannot address why psychopaths have lower levels of SWB, only that they do. An important next step would be to determine if these poor interpersonal relationships are in fact contributing to the lower levels of positive SWB reported by psychopaths, and if they are, develop treatment interventions which address a psychopath’s inability to maintain good interpersonal relationships. If psychopaths experience the same type of elevation in SWB as demonstrated by Emmons and McCullough (2003), perhaps they may become kinder as a result. Altruism and benevolence are associated with increased SWB, longevity, and better mental and physical health (Post, 2005). Krueger and colleagues (2001) found that altruism was associated with positive emotionality as well as social closeness and a lack of aggression and Musick and Wilson (2003) found that volunteering was associated with decreased levels of depression in individuals 65 and older (Krueger, Hicks, & McGue, 2001; Musick & Wilson, 2003). Future research should attempt to determine how SWB, interpersonal relationships, EI, and attachment styles interact and how they influence psychopathy. It would most likely be a very challenging endeavour to develop an intervention to increase SWB and

improve social relationships given the psychopaths propensity to take advantage of others and previous failed treatment attempts. However, it is worth the effort given the cost these individuals represent both to those close to them and society in general, and improving SWB and social relationships may be one way to target the lack of empathy associated with psychopathy (Barry et al., 2008; Edens, 2006; Hare, 1999).

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## Appendices

### Appendix A

#### Information Letter and Consent Form

Title of Study: Online Happiness Two

Principle Investigator: Dr. Mark Holder, Psychology (250-807-8728)

Co-Investigators: Ashley Love (UBCO Graduate Student), Naomi Brady (UBCO Undergraduate Student), Gavin Docherty (UBCO Undergraduate student), and Damien Leitner (UBCO Undergraduate student). This research will be used for Naomi Brady, Gavin Docherty, and Damien Leitner's Honours thesis projects and Ashley Love's Master's thesis project, and the results will be submitted for publication in academic journals

Support: This research is supported by a grant from the Michael Smith Foundation for Health Research awarded to Dr. Holder.

Study Procedure: If you agree to participate, you will be given several questionnaires. These will include measures of sleep, fatigue, physical health, subjective well being, happiness, relationship quality, personality, beliefs about relationships, recovery from a relationship ending, and depression. The entire study should take about two hours.

Potential Risk: There are very few potential risks associated with participation in this study. You will be evaluating your emotional states, both good and bad. This, however, is no more serious than normal day-to-day evaluations.

Potential Benefits: This research involves the study of happiness and will give researchers a better understanding of what is involved in happiness. A better understanding of happiness could lead to more individuals being aware of what contributes to happiness and how to increase their own levels of happiness.

Remuneration/Compensation: Each participant will be eligible for 1.5 bonus credits for participating in this study. The credit will be assigned through the online Sona system, and you will be able to assign this credit to the participating class of your choice.

Confidentiality: Responses of all participants are strictly confidential (individual responses will only be seen by the researchers). Each questionnaire will be coded in order to link the answers from each participant. Only researchers will know this code. After the data are collected, the codes will be destroyed so individuals cannot be identified. Questionnaires will be kept in a locked room. When the study is completed, all questionnaires will be shredded. We plan to submit the findings for publication. Participants' names will not be used in any reports of the study. The results will only be reported for groups with no possibility of individual participants being identified.

Follow-up: Our findings will be summarised and the results will be posted on Dr. Holder's office door (Arts 320). Public presentations of our results will be made on campus and these will be advertised in advance.

Contact for information about the study: If you have any questions about this study, contact Dr. Mark Holder (250-807-8728).

Contact for concern about the rights of research participants: If you have concerns about how you and other participants are treated, contact the Chair of Research Ethics Board through the UBCO Office of Research Services (250-807-8150).

Consent: Your participation in our study is completely voluntary and you may refuse to participate or withdraw from the study at any time without penalty.

By continuing on to the questionnaires you are giving informed consent to participate in this study.

## Appendix B

Questionnaires used in this study, including the Oxford Happiness Inventory, Satisfaction With Life Scale, Subjective Happiness Scale, Faces Scale, Scale of Eudaimonic Well-Being, Positive and Negative Affect Schedule, Center for Epidemiological Studies Depression Scale, Levenson Self-Report Psychopathy Scales, Self Report Psychopathy Scale III, and NEO Five Factor Inventory. Reverse scored items are indicated by \* where applicable.



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The Oxford Happiness Inventory

INSTRUCTIONS: Below are a number of statements about happiness. Would you please indicate how much you agree or disagree with each by entering a number alongside it according to the following code:

1 = strongly disagree;      2 = moderately disagree;      3 = slightly disagree;  
4 = slightly agree;      5 = moderately agree;      6 = strongly agree.

You will need to read the statements carefully because some are phrased positively and others negatively. Don't take too long over individual questions; there are no 'right' or 'wrong' answers and no trick questions. The first answer that comes into your head is probably the right one for you. If you find some of the questions difficult, please give the answer that is true for you in general or for most of the time.

I don't feel particularly pleased with the way I am*	1	2	3	4	5	6
I am intensely interested in other people	1	2	3	4	5	6
I feel that life is very rewarding	1	2	3	4	5	6
I have very warm feelings towards almost everyone	1	2	3	4	5	6
I rarely wake up feeling rested*	1	2	3	4	5	6
I am not particularly optimistic about the future*	1	2	3	4	5	6
I find most things amusing	1	2	3	4	5	6
I am always committed and involved	1	2	3	4	5	6
Life is good	1	2	3	4	5	6
I do not think that the world is a good place*	1	2	3	4	5	6
I laugh a lot	1	2	3	4	5	6
I am well satisfied about everything in my life	1	2	3	4	5	6

I don't think I look attractive*	1	2	3	4	5	6
There is a gap between what I would like to do and what I have done*	1	2	3	4	5	6
I am very happy	1	2	3	4	5	6
I find beauty in some things	1	2	3	4	5	6
I always have a cheerful effect on others	1	2	3	4	5	6
I can fit in everything I want to	1	2	3	4	5	6
I feel that I am not especially in control of my life*	1	2	3	4	5	6
I feel able to take anything on	1	2	3	4	5	6
I feel fully mentally alert	1	2	3	4	5	6
I often experience joy and elation	1	2	3	4	5	6
I do not find it easy to make decisions*	1	2	3	4	5	6
I do not have a particular sense of meaning and purpose in my life*	1	2	3	4	5	6
I feel I have a great deal of energy	1	2	3	4	5	6
I usually have a good influence on events	1	2	3	4	5	6
I do not have fun with other people*	1	2	3	4	5	6
I don't feel particularly healthy*	1	2	3	4	5	6
I do not have particularly happy memories of the past*	1	2	3	4	5	6



Satisfaction With Life Scale

Below are five statements which which you may agree or disagree.  
Using the 1-7 scale below indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding. The 7 – point scale is as follows:

- 1 = strongly disagree
- 2 = disagree
- 3 = slightly disagree
- 4 = neither agree nor disagree
- 5 = slightly agree
- 6 = agree
- 7 = strongly agree

- \_\_\_\_\_ 1. In most ways my life is close to my ideal. 1 2 3 4 5 6 7
- \_\_\_\_\_ 2. The conditions of my life are excellent. 1 2 3 4 5 6 7
- \_\_\_\_\_ 3. I am satisfied with my life. 1 2 3 4 5 6 7
- \_\_\_\_\_ 4. So far I have gotten the important things I want in life. 1 2 3 4 5 6 7
- \_\_\_\_\_ 5. If I could live my life over, I would change almost nothing. 1 2 3 4 5 6 7



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The Positive And Negative Affect Schedule

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you generally feel this way, that is, how you feel on the average.

Use the following scale to record your answers.

1	2	3	4	5
very slightly or not at all	a little	moderately	quite a bit	extremely
	___ interested		___ irritable	
	___ distressed		___ alert	
	___ excited		___ ashamed	
	___ Upset		___ inspired	
	___ strong		___ nervous	
	___ Guilty		___ determined	
	___ scared		___ attentive	
	___ hostile		___ Jittery	
	___ enthusiastic		___ active	
	___ proud		___ afraid	



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Subjective Happiness Scale (SHS)

For each of the following statements and/or questions, please fill in the circle on the scale that you feel is most appropriate in describing you.

1. In general, I consider myself:

1	2	3	4	5	6	7
Not a very happy person				A very happy person		

2. Compared to most of my peers, I consider myself:

1	2	3	4	5	6	7
Less happy			More happy			

3. Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you?

1	2	3	4	5	6	7
Not at all				A great deal		

4. Some people are generally not very happy. Although they are not depressed, they never seem as happy as they might be. To what extent does this characterization describe you? \*

1	2	3	4	5	6	7
Not at all				A great deal		



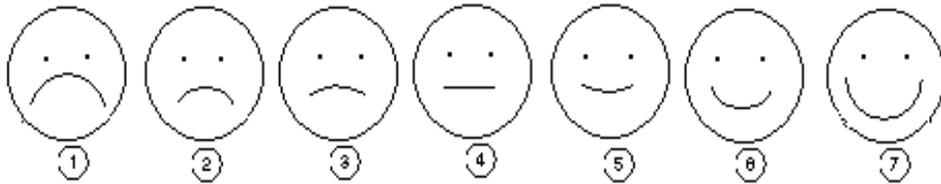
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Faces Measure Scale

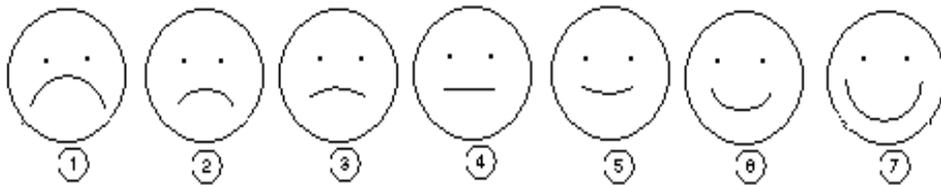
*Please fill in the circle below the face, that overall, best describes how you feel AT THIS MOMENT.*



Very Unhappy

Very Happy

*Please fill in the circle below the face, that overall, best describes how you feel MOST OF THE TIME.*



Very Unhappy

Very Happy



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Center for Epidemiological Studies Depression Scale (CES-D)

Circle the number of each statement which best describes how often you felt or behaved this way  
– DURING THE PAST WEEK.

DURING THE PAST WEEK:

	Rarely or none of the time (Less than 1 day)	Some or a little of the time (1 -2 days)	Occasionally or a moderate amount of the time (3-4 days)	Most or all of the time (5 – 7 days)
1. I was bothered by things that don't usually bother me	0	1	2	3
2. I did not feel like eating; my appetite was poor	0	1	2	3
3. I felt that I could not shake off the blues even with help from my family or friends	0	1	2	3
4. I felt that I was just as good as other people*	0	1	2	3
5. I had trouble keeping my mind on what I was doing	0	1	2	3
6. I felt depressed	0	1	2	3
7. I felt that everything I did was an effort	0	1	2	3
8. I felt hopeful about the future*	0	1	2	3
9. I thought my life had been a failure	0	1	2	3
10. I felt fearful	0	1	2	3
11. My sleep was restless	0	1	2	3
12. I was happy*	0	1	2	3
13. I talked less than usual	0	1	2	3
14. I felt lonely	0	1	2	3
15. People were unfriendly	0	1	2	3
16. I enjoyed life*	0	1	2	3
17. I had crying spells	0	1	2	3
18. I felt sad	0	1	2	3
19. I felt that people disliked me	0	1	2	3
20. I could not get "going"	0	1	2	3



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Irving K. Barber School of Arts and Sciences  
Psychology and Computer Science

NEO-Five Factor Inventory

The following pages contain statements that can be used to describe personality characteristics, attitudes, feelings and behaviors. Do not be concerned if a few statements seem unusual--they are included to describe a wide variety of people. Try to be as honest and serious as you can in your responses. Using the 1-5 scale below, please rate the accuracy each statement by placing the appropriate number on the dash beside each statement.

1	2	3	4	5
strongly disagree	disagree	neutral	agree	strongly agree

- \_\_\_\_ (1) I am not a worrier.\*
- \_\_\_\_ (2) I like to have a lot of people around me.
- \_\_\_\_ (3) I don't like to waste my time daydreaming.\*
- \_\_\_\_ (4) I try to be courteous to everyone I meet.
- \_\_\_\_ (5) I keep my belongings clean and neat.
- \_\_\_\_ (6) I often feel inferior to others.
- \_\_\_\_ (7) I laugh easily.
- \_\_\_\_ (8) Once I find the right way to do something, I stick to it.\*
- \_\_\_\_ (9) I often get into arguments with my family and co-workers.\*
- \_\_\_\_ (10) I'm pretty good about pacing myself so that I get things done on time.
- \_\_\_\_ (11) When I'm under a great deal of stress, sometimes I feel like I'm going to pieces.
- \_\_\_\_ (12) I don't consider myself especially "lighthearted".\*
- \_\_\_\_ (13) I am intrigued by the patterns I find in art and nature.
- \_\_\_\_ (14) Some people think I'm selfish and egotistical.\*
- \_\_\_\_ (15) I am not a very methodical person.\*
- \_\_\_\_ (16) I rarely feel lonely or blue.\*
- \_\_\_\_ (17) I really enjoy talking to people.
- \_\_\_\_ (18) I believe letting students listen to controversial speakers can only confuse and mislead them.\*
- \_\_\_\_ (19) I would rather cooperate with others than compete with them.
- \_\_\_\_ (20) I try to perform all the tasks assigned to me conscientiously.
- \_\_\_\_ (21) I often feel tense and jittery.
- \_\_\_\_ (22) I like to be where the action is.

- \_\_\_ (23) Poetry has little or no effect on me.\*
- \_\_\_ (24) I tend to be cynical and skeptical of others' intentions.\*
- \_\_\_ (25) I have a clear set of goals and work toward them in an orderly fashion.
- \_\_\_ (26) Sometimes I feel completely worthless.
- \_\_\_ (27) I usually prefer to do things alone.\*
- \_\_\_ (28) I often try new and foreign foods.
- \_\_\_ (29) I believe most people will take advantage of you if you let them.\*
- \_\_\_ (30) I waste a lot of time before setting down to work.\*
- \_\_\_ (31) I rarely feel fearful or anxious.\*
- \_\_\_ (32) I often feel as if I'm bursting with energy.
- \_\_\_ (33) I seldom notice the moods or feelings that different environments produce.\*
- \_\_\_ (34) Most people I know like me.
- \_\_\_ (35) I work hard to accomplish my goals.
- \_\_\_ (36) I often get angry at the way people treat me.
- \_\_\_ (37) I am a cheerful, high-spirited person.
- \_\_\_ (38) I believe we should look to our religious authorities for decisions on moral issues.\*
- \_\_\_ (39) Some people think of me as cold and calculating.\*
- \_\_\_ (40) When I make a commitment, I can always be counted on to follow through.
- \_\_\_ (41) Too often when things go wrong, I get discouraged and feel like giving up.
- \_\_\_ (42) I am not a cheerful optimist.\*
- \_\_\_ (43) Sometimes when I am reading poetry or looking at a work of art, I feel a chill or a wave of excitement.
- \_\_\_ (44) I'm hardheaded and tough-minded in my attitudes.\*
- \_\_\_ (45) Sometimes I'm not as dependable or reliable as I should be.\*
- \_\_\_ (46) I am very seldom sad or depressed.\*
- \_\_\_ (47) My life is fast-paced.
- \_\_\_ (48) I have little interest in speculating on the nature of the universe or the human condition.\*
- \_\_\_ (49) I generally try to be thoughtful and considerate.
- \_\_\_ (50) I am a productive person who always gets the job done.
- \_\_\_ (51) I often feel helpless and want someone else to solve my problems for me.
- \_\_\_ (52) I am a very active person.
- \_\_\_ (53) I have a lot of intellectual curiosity.
- \_\_\_ (54) If I don't like people, I let them know it.\*
- \_\_\_ (55) I never seem to be able to get organized.\*
- \_\_\_ (56) At times I have been so ashamed I just wanted to hide.
- \_\_\_ (57) I would rather go my own way than be a leader of others.\*
- \_\_\_ (58) I often enjoy playing with theories or abstract ideas.
- \_\_\_ (59) If necessary, I am willing to manipulate people to get what I want.\*
- \_\_\_ (60) I strive for excellence in everything I do.

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## Levenson Self-Report Psychopathy Scales

Please rate the following items using the four point scale provided below:

1	2	3	4
Disagree Strongly	Disagree Somewhat	Agree Somewhat	Agree Strongly

### Primary Psychopathy

1. Success is based on survival of the fittest; I am not concerned about the losers.
2. For me, what's right is whatever I can get away with.
3. In today's world, I feel justified in doing anything I can get away with to succeed.
4. My main purpose in life is getting as many goodies as I can.
5. Making a lot of money is my most important goal.
6. I let others worry about higher values; my main concern is with the bottom line.
7. People who are stupid enough to get ripped off usually deserve it.
8. Looking out for myself is my top priority.
9. I tell other people what they want to hear so they will do what I want them to do.
10. I would be upset if my success came at someone else's expense.\*
11. I often admire a really clever scam.
12. I make a point of trying not to hurt others in pursuit of my goals.\*
13. I enjoy manipulating other people's feelings.
14. I feel bad if my words or actions cause someone else to feel emotional pain.\*
15. Even if I were trying very hard to sell something, I wouldn't lie about it.\*
16. Cheating is not justified because it is unfair to others.\*

### Secondary Psychopathy

1. I find myself in the same kinds of trouble, time after time.
2. I am often bored.
3. I find that I am able to pursue one goal for a long time.\*
4. I don't plan anything very far in advance.
5. I quickly lose interests in tasks I start.
6. Most of my problems are due to the fact that other people just don't understand me.
7. Before I do anything, I carefully consider the possible consequences.\*
8. I have been in a lot of shouting matches with other people.
9. When I get frustrated, I often "let off steam" by blowing my top.
10. Love is overrated.



Scale of Eudaimonic Well-Being

This questionnaire contains a series of statements that refer to how you may feel things have been going in your life. Read each statement and decide the extent to which you agree or disagree with it. Try to respond to each statement according to your own feelings about how things are actually going, rather than how you might wish them to be.

Please use the following scale when responding to each statement.

Strongly Disagree   1   2   3   4   5   6   7   Strongly Agree

1. I find I get intensely involved in many of the things I do each day.
2. I believe I have discovered who I really am.
3. I think it would be ideal if things came easily to me in my life.\*
4. My life is centered around a set of core beliefs that give meaning to my life.
5. It is more important that I really enjoy what I do than that other people are impressed by it.
6. I believe I know what my best potentials are and I try to develop them whenever possible.
7. Other people usually know better what would be good for me to do than I know myself.\*
8. I feel best when I'm doing something worth investing a great deal of effort in.
9. I can say that I have found my purpose in life.
10. If I did not find what I was doing rewarding for me, I do not think I could continue doing it.
11. As yet, I've not figured out what to do with my life.\*
12. I can't understand why some people want to work so hard on the things that they do.\*

13. I believe it is important to know how what I'm doing fits with purposes worth pursuing.
14. I usually know what I should do because some actions just feel right to me.
15. When I engage in activities that involve my best potentials, I have this sense of really being alive.
16. I am confused about what my talents really are.
17. I find a lot of the things I do are personally expressive for me.
18. It is important to me that I feel fulfilled by the activities that I engage in.
19. If something is really difficult, it probably isn't worth doing.\*
20. I find it hard to get really invested in the things that I do.\*
21. I believe I know what I was meant to do in life.



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SRP III – R12

Please rate the degree to which you agree with the following statements about you. You can be honest because your name will be detached from the answers as soon as they are submitted.

1	2	3	4	5
Disagree Strongly	Disagree	Neutral	Agree	Agree Strongly

1. I'm a rebellious person.
2. I'm more tough-minded than other people.
3. I think I could "beat" a lie detector.
4. I have taken illegal drugs (e.g., marijuana, ecstasy).
5. I have never been involved in delinquent gang activity.\*
6. I have never stolen a truck, car or motorcycle.\*
7. Most people are wimps.
8. I purposely flatter people to get them on my side.
9. I've often done something dangerous just for the thrill of it.
10. I have tricked someone into giving me money.
11. It tortures me to see an injured animal.\*
12. I have assaulted a law enforcement official or social worker.
13. I have pretended to be someone else in order to get something.
14. I always plan out my weekly activities.\*
15. I like to see fist-fights.
16. I'm not tricky or sly.\*
17. I'd be good at a dangerous job because I make fast decisions.
18. I have never tried to force someone to have sex.\*

19. My friends would say that I am a warm person.\*
20. I would get a kick out of 'scamming' someone.
21. I have never attacked someone with the idea of injuring them.\*
22. I never miss appointments.\*
23. I avoid horror movies.\*
24. I trust other people to be honest.\*
25. I hate high speed driving.\*
26. I feel so sorry when I see a homeless person.\*
27. It's fun to see how far you can push people before they get upset.
28. I enjoy doing wild things.
29. I have broken into a building or vehicle in order to steal something or vandalize.
30. I don't bother to keep in touch with my family any more.
31. I find it difficult to manipulate people.\*
32. I rarely follow the rules.
33. I never cry at movies.
34. I have never been arrested.\*
35. You should take advantage of other people before they do it to you.
36. I don't enjoy gambling for real money.\*
37. People sometimes say that I'm cold-hearted.
38. People can usually tell if I am lying.\*
39. I like to have sex with people I barely know.
40. I love violent sports and movies.
41. Sometimes you have to pretend you like people to get something out of them.
42. I am an impulsive person.
43. I have taken hard drugs (e.g., heroin, cocaine).
44. I'm a soft-hearted person.\*
45. I can talk people into anything.
46. I never shoplifted from a store.\*
47. I don't enjoy taking risks.\*
48. People are too sensitive when I tell them the truth about themselves.
49. I was convicted of a serious crime.

50. Most people tell lies everyday.
51. I keep getting in trouble for the same things over and over.
52. Every now and then I carry a weapon (knife or gun) for protection.
53. People cry way too much at funerals.
54. You can get what you want by telling people what they want to hear.
55. I easily get bored.
56. I never feel guilty over hurting others.
57. I have threatened people into giving me money, clothes, or makeup.
58. A lot of people are “suckers” and can easily be fooled.
59. I admit that I often “mouth off” without thinking.
60. I sometimes dump friends that I don’t need any more.
61. I would never step on others to get what I want.\*
62. I have close friends who served time in prison.
63. I purposely tried to hit someone with the vehicle I was driving.
64. I have violated my probation from prison.



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Demographic Questions:

How old are you in years? \_\_\_\_\_

What is your sex? (please chose one)      Male      Female

## Appendix C

The following appendix provides reliability analyses for the following questionnaires: The Oxford Happiness Inventory, Subjective Happiness Scale, Scale of Eudaimonic Well-Being, Satisfaction With Life Scale, Center for Epidemiological Studies – Depression Scale, Levenson Self-Report Psychopathy Scale – Primary Psychopathy Subscale, Levenson Self-Report Psychopathy Scales – Secondary Psychopathy Subscale, Self-Report Psychopathy Scale – Intentional Manipulation Subscale, Self-Report Psychopathy Scale – Callous Affect Subscale, Self-Report Psychopathy Scale – Erratic Lifestyle Subscale, Self-Report Psychopathy Scale – Criminal Tendencies Subscale, NEO-FFI – Openness to Experience Subscale, NEO-FFI – Conscientiousness Subscale, NEO-FFI – Extraversion Subscale, NEO-FFI – Agreeableness Subscale, NEO-FFI – Neuroticism Subscale, Positive and Negative Affect Schedule – Positive Subscale, and the Positive and Negative Affect Schedule – Negative Affect Subscale. Cronbach’s alphas were calculated for each measure listed above. A Cronbach’s alpha of .70 or greater indicates good reliability (Santos, 1999).

### Oxford Happiness Inventory

Cronbach’s alpha for the Oxford Happiness Inventory was calculated to be  $\alpha = .920$ , indicating good reliability. Corrected item-total correlations and Cronbach’s alpha if item deleted values are presented in Table 16. Removal of any of these items does not substantially improve the reliability of the measure. The corrected item-correlations indicate that most items contribute significantly to the measure.

Table 16. Reliability Analysis for the Oxford Happiness Inventory (OHI).

Oxford Happiness Inventory item	Corrected item-total correlation	Cronbach's alpha if item deleted
I don't feel particularly pleased with the way I am	.59	.92
I am intensely interested in other people	.25	.92
I feel that life is very rewarding	.65	.92
I have very warm feelings towards almost everyone	.40	.92
I rarely wake up feeling rested	.41	.92
I am not particularly optimistic about the future	.56	.92
I find most things amusing	.42	.92
I am always committed and involved	.52	.92
Life is good	.74	.92
I do not think that the world is a good place	.39	.92
I laugh a lot	.63	.92
I am well satisfied about everything in my life	.71	.92
I don't think I look attractive	.44	.92
There is a gap between what I would like to do and what I have done	.32	.92
I am very happy	.79	.91
I find beauty in some things	.30	.92
I always have a cheerful effect on others	.57	.92
I can fit in everything I want to	.44	.92
I feel that I am not especially in control of	.53	.92

Oxford Happiness Inventory item	Corrected item-total correlation	Cronbach's alpha if item deleted
my life		
I feel able to take anything on	.57	.92
I feel fully mentally alert	.62	.92
I often experience joy and elation	.75	.92
I do not find it easy to make decisions	.21	.92
I do not have a particular sense of meaning and purpose in my life	.63	.92
I feel I have a great deal of energy	.69	.92
I usually have a good influence on events	.64	.92
I do not have fun with other people	.49	.92
I don't feel particularly healthy	.49	.92
I do not have particularly happy memories of the past	.43	.92

## Satisfaction With Life Scale

Cronbach's alpha for the Satisfaction With Life Scale was calculated to be  $\alpha = .854$ , indicating good reliability. This scale appears to be a reliable measure of life satisfaction. Corrected item-total correlations and Cronbach's alpha if item deleted values are presented in Table 17. Removal of any of these items does not substantially improve the reliability of the measure. The corrected item-correlations indicate that all items contribute significantly to the measure.

Table 17. Reliability Analysis for the Satisfaction With Life Scale (SWLS).

Satisfaction With Life Scale item	Corrected item-total correlation	Cronbach's alpha if item deleted
In most ways my life is close to my ideal	.73	.81
The conditions of my life are excellent	.69	.82
I am satisfied with my life	.72	.81
So far I have gotten the important things I want in life	.68	.82
If I could live my life over again, I would change almost nothing.	.56	.86

## Subjective Happiness Scale

Cronbach's alpha for the Subjective Happiness Scale was calculated to be  $\alpha = .871$ , indicating good reliability. This scale appears to be a reliable measure of happiness. Corrected item-total correlations and Cronbach's alpha if item deleted values are presented in Table 18. Removal of any of these items does not substantially improve the reliability of the measure. The corrected item-correlations indicate that all items contribute significantly to the measure.

Table 18. Reliability Analysis for the Subjective Happiness Scale (SHS).

Subjective Happiness Scale item	Corrected item-total correlation	Cronbach's alpha if item deleted
In general, I consider myself: <i>Not a very happy person through a very happy person</i>	.76	.83
Compared to most of my peers, I consider myself: <i>Less happy through more happy</i>	.79	.81
Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you? <i>Not at all through a great deal</i>	.77	.82
Some people are generally not very happy. Although they are not depressed, they never seem as happy as they might be. To what extent does this characterization describe you? <i>Not at all through a great deal</i>	.64	.88

### Scale of Eudaimonic Well-Being

Cronbach's alpha for the Scale of Eudaimonic Well-Being was calculated to be  $\alpha = .844$ , indicating good reliability. Corrected item-total correlations and Cronbach's alpha if item deleted values are presented in Table 19. Removal of any of these items does not substantially improve the reliability of the measure. The corrected item-correlations indicate that all items contribute significantly to the measure with the exception of the items "I think it would be ideal if things came easily to me in my life" and "I am confused about what my talents really are". The item-total correlations indicate that all items are significantly contributing to the measure with the exception of the item "I think it would be ideal if things came easily to me in my life". A cutoff of 0.2 was used to indicate acceptable corrected item-total correlation values (Bagby, Parker, & Taylor, 1994).

Table 19. Reliability Analysis for the Scale of Eudaimonic Well-Being (SEWB).

Scale of Eudaimonic Well-Being item	Corrected item-total correlation	Cronbach's alpha if item deleted
I find I get intensely involved in many of the things I do each day	.61	.83
I believe I have discovered who I really am	.61	.83
think it would be ideal if things came easily to me in my life	.13	.85
My life is centered around a set of core beliefs that give meaning to my life	.52	.83
It is more important that I really enjoy what I do than that other people are impressed by it	.42	.84
I believe I know what my best potentials are and I try to develop them whenever possible	.66	.83
Other people usually know better what would be good for me to do than I know myself	.43	.84
I feel best when I'm doing something worth investing a great deal of effort in	.53	.83
I can say that I have found my purpose in life	.59	.83
If I did not find what I was doing rewarding for me, I do not think I could continue doing it	.26	.84
As yet, I've not figured out what to do with my life	.40	.84
I can't understand why some people want to work so hard on the things that they do	.40	.84
I believe it is important to know how what I'm doing fits with purposes worth pursuing	.29	.84

Scale of Eudaimonic Well-Being item	Corrected item-total correlation	Cronbach's alpha if item deleted
I usually know what I should do because some actions just feel right to me	.55	.83
When I engage in activities that involve my best potentials, I have this sense of really being alive	.63	.83
I am confused about what my talents really are	-.48	.88
I find a lot of the things I do are personally expressive for me	.52	.83
It is important to me that I feel fulfilled by the activities that I engage in	.55	.83
If something is really difficult, it probably isn't worth doing	.47	.84
I find it hard to get really invested in the things that I do	.55	.83
I believe I know what I was meant to do in life	.54	.83

### Positive and Negative Affect Schedule – Positive Subscale

Cronbach’s alpha for the Positive and Negative Affect Schedule – Positive Subscale was calculated to be  $\alpha = .874$ , indicating good reliability. This scale appears to be a reliable measure of positive affect. Corrected item-total correlations and Cronbach’s alpha if item deleted values are presented in Table 20. Removal of any of these items does not substantially improve the reliability of the measure. The corrected item-correlations indicate that all items contribute significantly to the measure.

Table 20. Reliability Analysis of the Positive and Negative Affect Schedule (PANAS) - Positive Subscale.

PANAS-Positive Subscale item	Corrected item-total correlation	Cronbach’s alpha if item deleted
Interested	.59	.86
Excited	.57	.86
Strong	.55	.87
Enthusiastic	.63	.86
Proud	.64	.86
Alert	.57	.86
Inspired	.63	.86
Determined	.65	.86
Attentive	.64	.86
Active	.51	.87

### Positive and Negative Affect Schedule – Negative Subscale

Cronbach’s alpha for the Positive and Negative Affect Schedule – Negative Subscale was calculated to be  $\alpha = .862$ , indicating good reliability. This scale appears to be a reliable measure of life satisfaction. Corrected item-total correlations and Cronbach’s alpha if item deleted values are presented in Table 21. Removal of any of these items does not substantially improve the reliability of the measure. The corrected item-correlations indicate that all items contribute significantly to the measure.

Table 21. Reliability Analysis of the Positive and Negative Affect Schedule (PANAS) – Negative Subscale.

PANAS-Negative Subscale item	Corrected item-total correlation	Cronbach’s alpha if item deleted
Distressed	.57	.85
Upset	.58	.85
Guilty	.56	.85
Scared	.64	.84
Hostile	.53	.85
Irritable	.51	.86
Ashamed	.55	.85
Nervous	.60	.85
Jittery	.56	.85
Afraid	.64	.84

### Center for Epidemiological Studies Depression Scale

Cronbach's alpha for the Center for Epidemiological Studies Depression Scale was calculated to be  $\alpha = .899$ , indicating good reliability. Corrected item-total correlations and Cronbach's alpha if item deleted values are presented in Table 22. Removal of any of these items does not substantially improve the reliability of the measure. The corrected item-correlations indicate that all items contribute significantly to the measure.

Table 22. Reliability Analysis for the Center for Epidemiological Studies Depression Scale (CESD).

CES-D item	Corrected item-total correlation	Cronbach's alpha if item deleted
I was bothered by things that don't usually bother me	.46	.89
I did not feel like eating; my appetite was poor	.35	.90
I felt that I could not shake off the blues even with help from my family or friends	.71	.89
I felt that I was just as good as other people	.47	.90
I had trouble keeping my mind on what I was doing	.47	.90
I felt depressed	.75	.89
I felt that everything I did was an effort	.29	.90
I felt hopeful about the future	.48	.89
I thought my life had been a failure	.62	.89
I felt fearful	.50	.89
My sleep was restless	.39	.90
I was happy	.68	.89
I talked less than usual	.46	.90
I felt lonely	.65	.89
People were unfriendly	.38	.90
I enjoyed life	.71	.89

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CES-D item	Corrected item-total correlation	Cronbach's alpha if item deleted
I had crying spells	.49	.90
I felt sad	.65	.89
I felt that people disliked me	.58	.89
I could not get "going"	.54	.89

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## Levenson Self-Report Psychopathy Scales

Cronbach's alpha for the Levenson Self-Report Psychopathy Scales was calculated to be  $\alpha = .831$ , indicating good reliability. Corrected item-total correlations and Cronbach's alpha if item deleted values are presented in Table 23. Removal of any of these items does not improve the reliability of the measure. The corrected item-correlations indicate that all items contribute significantly to the measure.

Table 23. Reliability Analysis of the Levenson Self-Report Psychopathy Scales (LSRP).

LSRP item	Corrected item-total correlation	Cronbach's alpha if item deleted
Success is based on survival of the fittest; I am not concerned about the losers	.41	.82
For me, what's right is whatever I can get away with	.58	.82
In today's world, I feel justified in doing anything I can get away with to succeed	.56	.82
My main purpose in life is getting as many goodies as I can	.58	.82
Making a lot of money is my most important goal	.50	.82
I let others worry about higher values; my main concern is with the bottom line	.43	.82
People who are stupid enough to get ripped off usually deserve it	.51	.82
Looking out for myself is my top priority	.43	.82
I tell other people what they want to hear so they will do what I want them to do	.55	.82

LSRP item	Corrected item-total correlation	Cronbach's alpha if item deleted
I would be upset if my success came at someone else's expense	.36	.83
I often admire a really clever scam	.44	.82
I make a point of trying not to hurt others in pursuit of my goals	.31	.83
I enjoy manipulating other people's feelings	.49	.82
I feel bad if my words or actions cause someone else to feel emotional pain	.28	.83
Even if I were trying very hard to sell something, I wouldn't lie about it	.33	.83
Cheating is not justified because it is unfair to others	.31	.83
I find myself in the same kinds of trouble, time after time	.39	.83
I am often bored	.35	.83
I find that I am able to pursue one goal for a long time	.21	.83
I don't plan anything very far in advance	-.35	.85
I quickly lose interests in tasks I start	.33	.83
Most of my problems are due to the fact that other people just don't understand me	.40	.82
Before I do anything, I carefully consider the possible consequences	.21	.83

LSRP item	Corrected item-total correlation	Cronbach's alpha if item deleted
I have been in a lot of shouting matches with other people	.29	.83
When I get frustrated, I often "let off steam" by blowing my top	.34	.83
Love is overrated	.33	.83

Levenson Self-Report Psychopathy Scales – Primary Psychopathy Subscale

Cronbach’s alpha for the Levenson Self-Report Psychopathy Scales – Primary Psychopathy Subscale was calculated to be  $\alpha = .841$ , indicating good reliability. Corrected item-total correlations and Cronbach’s alpha if item deleted values are presented in Table 24. Removal of any of these items does not improve the reliability of the measure. The corrected item-correlations indicate that all items contribute significantly to the measure.

Table 24. Reliability Analysis of the Levenson Self-Report Psychopathy Scales (LSRP) – Primary Psychopathy Subscale.

LSRP-Primary item	Corrected item-total correlation	Cronbach’s alpha if item deleted
Success is based on survival of the fittest; I am not concerned about the losers	.47	.83
For me, what’s right is whatever I can get away with	.58	.83
In today’s world, I feel justified in doing anything I can get away with to succeed	.61	.82
My main purpose in life is getting as many goodies as I can	.62	.82
Making a lot of money is my most important goal	.51	.83
I let others worry about higher values; my main concern is with the bottom line	.46	.83
People who are stupid enough to get ripped off usually deserve it	.53	.83
Looking out for myself is my top priority	.45	.83
I tell other people what they want to hear	.54	.83

LSRP-Primary item	Corrected item-total correlation	Cronbach's alpha if item deleted
so they will do what I want them to do		
I would be upset if my success came at someone else's expense	.37	.84
I often admire a really clever scam	.46	.83
I make a point of trying not to hurt others in pursuit of my goals	.32	.84
I enjoy manipulating other people's feelings	.48	.83
I feel bad if my words or actions cause someone else to feel emotional pain	.28	.84
Even if I were trying very hard to sell something, I wouldn't lie about it	.37	.84
Cheating is not justified because it is unfair to others	.32	.84

### Levenson Self-Report Psychopathy Scales – Secondary Psychopathy Subscale

Cronbach's alpha for the Levenson Self-Report Psychopathy Scales – Secondary Psychopathy Subscale was calculated to be  $\alpha = .576$ , indicating moderate to poor reliability. Corrected item-total correlations and Cronbach's alpha if item deleted values are presented in Table 25. Removal of the item "I don't plan anything very far in advance" would improve the reliability of the measure. The corrected item-correlations indicate that all items contribute significantly to the measure.

Table 25. Reliability Analysis of the Levenson Self-Report Psychopathy Scales (LSRP) – Secondary Psychopathy Subscale.

LSRP item	Corrected item-total correlation	Cronbach's alpha if item deleted
I find myself in the same kinds of trouble, time after time	.47	.49
I am often bored	.40	.51
I find that I am able to pursue one goal for a long time	.27	.55
I don't plan anything very far in advance	-.39	.70
I quickly lose interests in tasks I start	.36	.53
Most of my problems are due to the fact that other people just don't understand me	.39	.51
Before I do anything, I carefully consider the possible consequences	.20	.56
I have been in a lot of shouting matches with other people	.34	.53
When I get frustrated, I often "let off steam" by blowing my top	.40	.51
Love is overrated	.26	.55

## Self-Report Psychopathy Scale

Cronbach's alpha for the Self-Report Psychopathy Scale was calculated to be  $\alpha = .925$ , indicating excellent reliability. Corrected item-total correlations and Cronbach's alpha if item deleted values are presented in Table 26. Removal of any of the items does not improve the reliability of the measure. The corrected item-correlations indicate that all items contribute significantly to the measure, with the exception of the item "I avoid horror movies".

Table 26. Reliability Analysis for the Self-Report Psychopathy Scales (SRP-III).

SRP III item	Corrected item-total correlation	Cronbach's alpha if item deleted
I'm a rebellious person	.45	.92
I'm more tough-minded than other people	.34	.92
I think I could "beat" a lie detector	.43	.92
I have taken illegal drugs (e.g., marijuana, ecstasy)	.31	.93
I have never been involved in delinquent gang activity	.37	.92
I have never stolen a truck, car or motorcycle	.24	.93
Most people are wimps	.53	.93
I purposely flatter people to get them on my side	.40	.92
I've often done something dangerous just for the thrill of it	.56	.92
I have tricked someone into giving me money	.51	.92
It tortures me to see an injured animal	.29	.92

SRP III item	Corrected item-total correlation	Cronbach's alpha if item deleted
I have assaulted a law enforcement official or social worker	.39	.92
I have pretended to be someone else in order to get something	.51	.92
I always plan out my weekly activities	.25	.92
I like to see fist-fights	.60	.92
I'm not tricky or sly	.52	.92
I'd be good at a dangerous job because I make fast decisions	.44	.92
I have never tried to force someone to have sex	.33	.92
My friends would say that I am a warm person	.31	.92
I would get a kick out of 'scamming' someone	.52	.92
I have never attacked someone with the idea of injuring them	.43	.92
I never miss appointments	.25	.92
I avoid horror movies	.19	.93
I trust other people to be honest	.29	.92
I hate high speed driving	.37	.92
I feel so sorry when I see a homeless person	.30	.92
It's fun to see how far you can push people before they get upset	.55	.92
I enjoy doing wild things	.45	.92

SRP III item	Corrected item-total correlation	Cronbach's alpha if item deleted
I have broken into a building or vehicle in order to steal something or vandalize	.49	.92
I don't bother to keep in touch with my family any more	.37	.92
I find it difficult to manipulate people	.47	.92
I rarely follow the rules	.60	.92
I never cry at movies	.39	.92
I have never been arrested	.33	.92
You should take advantage of other people before they do it to you	.52	.92
I don't enjoy gambling for real money	.28	.92
People sometimes say that I'm cold-hearted	.50	.92
People can usually tell if I am lying	.38	.92
I like to have sex with people I barely know	.49	.92
I love violent sports and movies	.51	.92
Sometimes you have to pretend you like people to get something out of them	.46	.92
I am an impulsive person	.34	.92
I have taken hard drugs (e.g., heroin, cocaine)	.23	.92
I'm a soft-hearted person	.42	.92
I can talk people into anything	.33	.92
I never shoplifted from a store	.31	.92
I don't enjoy taking risks	.28	.92

SRP III item	Corrected item-total correlation	Cronbach's alpha if item deleted
People are too sensitive when I tell them the truth about themselves	.45	.92
I was convicted of a serious crime	.30	.92
Most people tell lies everyday	.31	.92
I keep getting in trouble for the same things over and over	.39	.92
Every now and then I carry a weapon (knife or gun) for protection	.38	.92
People cry way too much at funerals	.40	.92
You can get what you want by telling people what they want to hear	.46	.92
I easily get bored	.30	.92
I never feel guilty over hurting others	.39	.92
I have threatened people into giving me money, clothes, or makeup	.46	.92
A lot of people are "suckers" and can easily be fooled	.47	.92
I admit that I often "mouth off" without thinking	.47	.92
I sometimes dump friends that I don't need any more	.39	.92
I would never step on others to get what I want	.40	.92
I have close friends who served time in prison	.40	.92
I purposely tried to hit someone with the	.34	.92

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	Corrected item-total	Cronbach's alpha if item deleted
SRP III item	correlation	

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vehicle I was driving		
I have violated my probation from prison	.26	.92

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## Self-Report Psychopathy Scale – Interpersonal Manipulation Subscale

Cronbach’s alpha for the Self-Report Psychopathy Scale – Interpersonal Manipulation Subscale was calculated to be  $\alpha = .851$ , indicating good reliability. Corrected item-total correlations and Cronbach’s alpha if item deleted values are presented in Table 27. Removal of any of the items does not substantially improve the reliability of the measure. The corrected item-correlations indicate that all items contribute significantly to the measure.

Table 27. Reliability Analysis of the SRP-III Intentional Manipulation Subscale.

SRP III R-12 Interpersonal Manipulation Subscale item	Corrected item-total correlation	Cronbach’s alpha if item deleted
I think I could "beat" a lie detector	.44	.84
I purposely flatter people to get them on my side	.52	.84
I have pretended to be someone else in order to get something	.47	.84
I’m not tricky or sly	.50	.84
I would get a kick out of ‘scamming’ someone	.50	.84
I trust other people to be honest	.28	.85
It's fun to see how far you can push people before they get upset	.50	.84
I find it difficult to manipulate people	.52	.84
You should take advantage of other people before they do it to you	.55	.84
People can usually tell if I am lying	.42	.84
Sometimes you have to pretend you like people to get something out of them	.61	.83

SRP III R-12 Interpersonal Manipulation Subscale item	Corrected item-total correlation	Cronbach's alpha if item deleted
I can talk people into anything	.43	.85
Most people tell lies everyday	.34	.85
You can get what you want by telling people what they want to hear	.58	.84
A lot of people are "suckers" and can easily be fooled	.48	.84
I would never step on others to get what I want	.41	.85

### Self-Report Psychopathy Scale – Callous Affect Subscale

Cronbach's alpha for the Self-Report Psychopathy Scale – Callous Affect Subscale was calculated to be  $\alpha = .800$ , indicating good reliability. Corrected item-total correlations and Cronbach's alpha if item deleted values are presented in Table 28. Removal of any of the items does not substantially improve the reliability of the measure, with the exception of the item "I avoid horror movies". The corrected item-correlations indicate that all items contribute significantly to the measure, with the exception of the item "I avoid horror movies".

Table 28. Reliability Analysis of the SRP-III Callous Affect Subscale.

SRP III R-12 Callous Affect Subscale item	Corrected item-total correlation	Cronbach's alpha if item deleted
I'm more tough-minded than other people	.30	.80
Most people are wimps	.50	.78
It tortures me to see an injured animal	.35	.79
I like to see fist-fights	.58	.78
My friends would say that I am a warm person	.42	.79
I avoid horror movies	.18	.87
I feel so sorry when I see a homeless person	.35	.79
I don't bother to keep in touch with my family any more	.36	.79
I never cry at movies	.44	.79
People sometimes say that I'm cold- hearted	.53	.78
I love violent sports and movies	.51	.78
I'm a soft-hearted person	.44	.79
People are too sensitive when I tell them the truth about themselves	.45	.79
People cry way too much at funerals	.44	.79
I never feel guilty over hurting others	.41	.79
I sometimes dump friends that I don't need any more	.33	.79

### Self-Report Psychopathy Scale – Erratic Lifestyle Subscale

Cronbach's alpha for the Self-Report Psychopathy Scale – Erratic Lifestyle Subscale was calculated to be  $\alpha = .803$ , indicating good reliability. Corrected item-total correlations and Cronbach's alpha if item deleted values are presented in Table 29. Removal of any of the items does not substantially improve the reliability of the measure. The corrected item-correlations indicate that all items contribute significantly to the measure.

Table 29. Reliability Analysis of the SRP-III Erratic Lifestyle Subscale.

SRP III R-12 Erratic Lifestyle Subscale item	Corrected item-total correlation	Cronbach's alpha if item deleted
I'm a rebellious person	.50	.79
I have taken illegal drugs (e.g., marijuana, ecstasy)	.37	.80
I've often done something dangerous just for the thrill of it	.62	.78
I always plan out my weekly activities	.29	.80
I'd be good at a dangerous job because I make fast decisions	.43	.79
I never miss appointments	.26	.80
I hate high speed driving	.41	.79
I enjoy doing wild things	.59	.78
I rarely follow the rules	.55	.78
I don't enjoy gambling for real money	.29	.80
I like to have sex with people I barely know	.29	.79
I am an impulsive person	.44	.79
I don't enjoy taking risks	.39	.79
I keep getting in trouble for the same things over and over	.33	.80
I easily get bored	.29	.80
I admit that I often "mouth off" without thinking	.41	.79

### Self-Report Psychopathy Scale – Criminal Tendencies Subscale

Cronbach's alpha for the Self-Report Psychopathy Scale – Criminal Tendencies Subscale was calculated to be  $\alpha = .790$ , indicating good reliability. Corrected item-total correlations and Cronbach's alpha if item deleted values are presented in Table 30. Removal of any of the items does not substantially improve the reliability of the measure. The corrected item-correlations indicate that all items contribute significantly to the measure.

Table 30. Reliability Analysis of the SRP-III Criminal Tendencies Subscale.

SRP III R-12 Criminal Tendencies Subscale item	Corrected item-total correlation	Cronbach's alpha if item deleted
I have never been involved in delinquent gang activity	.48	.77
I have never stolen a truck, car or motorcycle	.42	.78
I have tricked someone into giving me money	.32	.79
I have assaulted a law enforcement official or social worker	.50	.78
I have never tried to force someone to have sex	.35	.78
I have never attacked someone with the idea of injuring them	.40	.78
have broken into a building or vehicle in order to steal something or vandalize	.57	.77
I have never been arrested	.49	.77
I have taken hard drugs (e.g., heroin, cocaine)	.37	.78
I never shoplifted from a store	.35	.79
I was convicted of a serious crime	.43	.78
Every now and then I carry a weapon (knife or gun) for protection	.33	.78
I have threatened people into giving me money, clothes, or makeup	.50	.78
I have close friends who served time in	.46	.77

SRP III R-12 Criminal Tendencies	Corrected item-total	Cronbach's alpha if item deleted
Subscale item	correlation	
prison		
I purposely tried to hit someone with the vehicle I was driving	.45	.78
I have violated my probation from prison	.36	.79

### NEO Five-Factor Inventory Agreeableness Scale

Cronbach's alpha for the NEO Five-Factor Inventory Agreeableness Scale was calculated to be  $\alpha = .792$ , indicating good reliability. Corrected item-total correlations and Cronbach's alpha if item deleted values are presented in Table 31. Removal of any of the items does not substantially improve the reliability of the measure. The corrected item-correlations indicate that all items contribute significantly to the measure.

Table 31. Reliability Analysis of the NEO-FFI Agreeableness Scale.

NEO-FFI Agreeableness Scale item	Corrected item-total correlation	Cronbach's alpha if item deleted
I try to be courteous to everyone I meet	.46	.78
I often get into arguments with my family and co-workers	.45	.78
Some people think I'm selfish and egotistical	.57	.76
I would rather cooperate with others than compete with them	.36	.78
I tend to be cynical and skeptical of others' intentions	.45	.78
I believe most people will take advantage of you if you let them	.33	.79
Most people I know like me	.33	.79
Some people think of me as cold and calculating	.63	.76
I'm hardheaded and tough-minded in my attitudes	.35	.79
I generally try to be thoughtful and considerate	.44	.78
If I don't like people, I let them know it	.41	.78
If necessary, I am willing to manipulate people to get what I want	.48	.77

## NEO Five-Factor Inventory Extraversion Scale

Cronbach's alpha for the NEO Five-Factor Inventory Extraversion Scale was calculated to be  $\alpha = .821$ , indicating good reliability. Corrected item-total correlations and Cronbach's alpha if item deleted values are presented in Table 32. Removal of any of the items does not substantially improve the reliability of the measure. The corrected item-correlations indicate that all items contribute significantly to the measure.

Table 32. Reliability Analysis of the NEO-FFI Extraversion Scale.

NEO-FFI Extraversion Scale item	Corrected item-total correlation	Cronbach's alpha if item deleted
I like to have a lot of people around me	.51	.80
I laugh easily	.49	.81
I don't consider myself especially "lighthearted"	.32	.82
I really enjoy talking to people	.55	.80
I like to be where the action is	.40	.81
I usually prefer to do things alone	.46	.81
I often feel as if I'm bursting with energy	.50	.81
I am a cheerful, high-spirited person	.67	.79
I am not a cheerful optimist	.61	.80
My life is fast-paced	.42	.81
I am a very active person	.43	.81
I would rather go my own way than be a leader of others	.36	.82

### NEO Five-Factor Inventory Neuroticism Scale

Cronbach's alpha for the NEO Five-Factor Inventory Agreeableness Scale was calculated to be  $\alpha = .871$ , indicating good reliability. Corrected item-total correlations and Cronbach's alpha if item deleted values are presented in Table 33. Removal of any of the items does not substantially improve the reliability of the measure. The corrected item-correlations indicate that all items contribute significantly to the measure.

Table 33. Reliability Analysis of the NEO-FFI Neuroticism Scale.

NEO-FFI Neuroticism Scale item	Corrected item-total correlation	Cronbach's alpha if item deleted
I am not a worrier	.41	.87
I often feel inferior to others	.56	.86
When I'm under a great deal of stress, sometimes I feel like I'm going to pieces	.61	.86
I rarely feel lonely or blue	.62	.86
I often feel tense and jittery	.59	.86
Sometimes I feel completely worthless	.70	.85
I rarely feel fearful or anxious	.54	.86
I often get angry at the way people treat me	.45	.87
Too often when things go wrong, I get discouraged and feel like giving up	.60	.86
I am very seldom sad or depressed	.60	.86
I often feel helpless and want someone else to solve my problems for me	.55	.86
At times I have been so ashamed I just wanted to hide	.49	.87

## NEO Five-Factor Inventory Openness to Experience Scale

Cronbach's alpha for the NEO Five-Factor Inventory Openness to Experience Scale was calculated to be  $\alpha = .693$ , indicating moderate reliability. Corrected item-total correlations and Cronbach's alpha if item deleted values are presented in Table 34. Removal of any of the items does not substantially improve the reliability of the measure. The corrected item-correlations indicate that all items contribute significantly to the measure.

Table 34. Reliability Analysis of the NEO-FFI Openness to Experiences Scale.

NEO-FFI Openness to Experiences Scale item	Corrected item-total correlation	Cronbach's alpha if item deleted
I don't like to waste my time daydreaming	.20	.69
Once I find the right way to do something, I stick to it	.07	.70
I am intrigued by the patterns I find in art and nature	.47	.65
I believe letting students listen to controversial speakers can only confuse and mislead them	.32	.68
Poetry has little or no effect on me	.43	.66
I often try new and foreign foods	.18	.70
I seldom notice the moods or feelings that different environments produce	.28	.68
I believe we should look to our religious authorities for decisions on moral issues	.16	.70
Sometimes when I am reading poetry or looking at a work of art, I feel a chill or a wave of excitement	.52	.64

NEO-FFI Openness to Experiences Scale item	Corrected item-total correlation	Cronbach's alpha if item deleted
I have little interest in speculating on the nature of the universe or the human condition	.49	.65
I have a lot of intellectual curiosity	.39	.67
I often enjoy playing with theories or abstract ideas	.44	.66

### NEO Five-Factor Inventory Conscientiousness Scale

Cronbach's alpha for the NEO Five-Factor Inventory Conscientiousness Scale was calculated to be  $\alpha = .839$ , indicating good reliability. Corrected item-total correlations and Cronbach's alpha if item deleted values are presented in Table 35. Removal of any of the items does not substantially improve the reliability of the measure. The corrected item-correlations indicate that all items contribute significantly to the measure.

Table 35. Reliability Analyses of the NEO-FFI Conscientiousness Scale.

NEO-FFI Conscientiousness Scale item	Corrected item-total correlation	Cronbach's alpha if item deleted
I keep my belongings clean and neat	.44	.83
I'm pretty good about pacing myself so that I get things done on time	.55	.82
I am not a very methodical person	.29	.84
I try to perform all the tasks assigned to me conscientiously	.49	.83
I have a clear set of goals and work toward them in an orderly fashion	.59	.82
I waste a lot of time before setting down to work	.43	.83
I work hard to accomplish my goals	.65	.82
When I make a commitment, I can always be counted on to follow through	.47	.83
Sometimes I'm not as dependable or reliable as I should be	.45	.83
I am a productive person who always gets the job done	.67	.82
I never seem to be able to get organized	.55	.82
I strive for excellence in everything I do	.51	.83