

**The Relationship between Extraversion-Introversion and Subjective well-being**

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To my loving parents

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## Literature Review

### 1-Subjective well-being

Throughout millennia, thinkers and philosophers have thought about what constitutes quality of life. To some people the ideal state is one of wealth, to others, having important relationships, while some individuals say that helping people in need is central to their quality of life (Eddington & Shuman, 2005). The subjective description of a satisfied life is democratic because everyone can decide whether his or her life is valuable or not. And thus, describing a good life can be labelled as subjective well-being (SWB) and in an informal context it is occasionally labelled 'happiness'. Subjective well-being means individuals' assessments of their lives. Individuals have plenty of SWB when they experience many pleasant and less unlikable emotions, when they are involved in different activities they like, and when they believe that they have a worthwhile life. There are other characteristics of a satisfied life such as engaging in interesting activities, experiencing many pleasures and few pains, however the area of SWB particularly pays attention to individuals' own assessments of their lives (Diener, 2000).

Philosophers historically have regarded happiness as the highest motivation for human acts. However, for many years psychologists have overlooked SWB. After the 1970s, behavioural and social scientists attempted to highlight this issue and thus theoretical and empirical studies have emerged at an ever-increasingly fast pace. The literature on SWB generally focuses on how and why individuals perceive their lives in a positive way, involving both emotional reactions and rational judgements. Actually, it constitutes research that investigates such aspects as happiness, satisfaction, spirituality and positive affect (Diener, 1984).

#### *1.1 The Concept of Subjective Well-being*

The field of SWB contains the scientific evaluation of how people assess their lives, both in the current situation and for longer periods of time such as for the previous year. These assessments constitute individuals' emotional reactions and attitudes towards situations, their psychology, and their judgements about how satisfied they are with their lives, their fulfilment, and satisfaction pertinent to work, life and marriage. Researchers who study SWB state also that a crucial part of a satisfactory life is that an individual likes his own life. How we describe a good life affects our acts of government and the way we teach and parent,

because all of these efforts purport to change people for the better, and therefore necessitate a certain notion of what “the better” is. As a result, research on SWB is concerned with how individuals may look for happiness or satisfaction (Diener, Oishi, & Lucas, 2003).

Understanding SWB has historically been a core human enthusiasm and researchers have devoted a lot of effort towards it. In other words, SWB has been a basic human interest. However, researchers have found it to be a tricky and conflicting subject. In fact, from the onset of intellectual history, there has been a huge argument over which experiences are ‘best’ and what forms a satisfactory life. For example, Greek society looked into eudaemonia, which is living well. During the period of the Hellenistic Greeks, people also searched for ataraxia, a state of calmness (Leahey, 2000, cited in Steel, Schmidt & Shultz, 2008). Clearly, this discussion has attracted a lot of hypothetical and convenient thoughts.

Philosophers in ancient Greek society also indicated that the good life is based on virtue. In a similar way, the Confucian philosophers in ancient China defined a satisfied life in terms of how individuals fulfil their responsibilities and roles in a correct way. Jeremy Bentham, who is regarded as the founder of modern utilitarianism, described the good life as one full of happiness and pleasure, and the desired community as one that values the pleasure of individuals living in the community. Although ancient societies searched for the basis of a good life, only for the last three decades have there been systematic studies on SWB (Diener & Suh, 2000). Modern-day philosophers and psychologists have attempted to give a clear explanation of SWB. Researchers in social science have focused on the issue of what causes individuals assess their lives positively. This characterisation of SWB can be seen as life satisfaction and it depends on people’s standards to determine what constitutes a satisfied life (Diener, 1984).

Originally, Diener (1984, cited in Hills & Argyle, 2001) argued that SWB has at least three components: positive affect, negative affect and cognitive variables such as satisfaction with life. Positive and negative affect form the affective side of SWB. The positive affect can be defined as an increased level of high energy and pleasure, while the negative affect is an increased level of unpleasant emotions and moods. As for the cognitive part, it is mostly related to the assessments of people’s lives overall (life satisfaction) or specific parts of their lives. It is widely thought that these assessments are more fixed throughout one’s life. Jahoda (1958, cited in Diener, Scollon & Lucas, 2003) desired positive states to be included in well-being definitions, which led to a paradigmatic shift in mental health concepts. As stated in the study of Keyes (2006, p. 7), ‘mental health, which is a complete state of SWB (i.e., hedonic

and eudaimonic well-being) as well as the absence of common mental disorders, is unequivocally a valuable asset to both individual and society. However, the absence of mental illness was no longer sufficient for mental health; happiness was also important.

An important finding in SWB research is that positive affect and negative affect are independent (Bradburn, 1969). By showing that positive and negative senses create different factors that are impacted by distinctive variables, Bradburn's findings give empirical support to Jahoda's idea of mental health. What is more, the independence of positive affect and negative affect became valuable to the research of SWB as it indicated that SWB is not unidimensional, but rather is at least two dimensional. That is to say, positive affect and negative affect are not elementarily polar ends of a single continuum, and as a result need to be evaluated separately (Diener, Scollon & Lucas 2003).

Some theorists also include other components such as the lack of negative emotional experiences (Suh & Oishi, 2002). As a matter of fact, this perspective separates the pleasant affect from the unpleasant affect in the hedonic balance facet of SWB (Minkow, 2009, p.152). Some researchers such as Ryff (1989) have stated that the perspective of SWB should be expanded in order to contain other perspectives as well. Other definitions of SWB indicate that positive affect outweighs negative affect. This characterisation of SWB lays emphasis on satisfactory emotional experience.

Since the time of the ancient Greeks, the hedonic and eudaimonic approaches to well-being have played a major role in defining a good life. According to these approaches, there are two basic theoretical ideas that deal with the question of what makes one feel fine and happy: hedonism and eudemonia. Hedonism was introduced by the Greek philosopher Aristippus as a purpose of life. Eudaimonic well-being, on the other hand, was considered as having good luck. In more recent times, hedonic well-being has been related to the idea that elevated pleasure and reduced pain result in happiness. It is directly based on the idea of SWB, while eudemonia indicates an array of personal notions such as life purpose, good interactions with other people and personal improvement (The Children's Society, 2013).

Within the eudaimonic perspective, other extra concepts have been suggested. For instance, a theoretical model of SWB encompassing 6 distinct dimensions of wellness was tested by Ryff and Keyes (1995) with data from a nationally representative sample of adults. These embrace a high level of wellness that includes positive assessment of oneself and one's past life (Self-Acceptance), continuous growth and development as a person (Personal Growth), the idea that one's life is aimful and meaningful (Purpose in Life), having positive

relationships with others (Positive Relations with Others), the competence to deal efficiently with one's life and the enclosing world (Environmental Mastery) and a feeling of self-determination (Autonomy). This contrast of psychological well-being is different from SWB. In their self-determination concept, Ryan and Deci (2000) laid emphasis on the significance of self-actualisation to well-being and have determined the performance of three main psychological necessities (autonomy, competence, and relatedness) as required for psychological evolution, unity, and well-being.

Ryan and Deci (2001) also indicated that 'well-being is a complex construct which relates to optimal experience and functioning'. They discussed that the modern research on well-being has indeed come from two global aspects; the hedonic perspective, which is related to happiness and describes well-being as a means of achieving pleasure and getting rid of pain; and the eudaimonic perspective, which focuses on personal improvement, self-identification, and functioning. From the aspect of hedonic well-being, a satisfied life is mainly the pursuit of people's personal sensual pleasures. As a result, this causes continuous efforts to achieve pleasure, although these do not produce a permanent effect on individual improvement.

Waterman (1993, cited in Ryan and Deci, 2001) stated that, 'whereas happiness is hedonically defined, the eudaimonic conception of well-being calls upon people to live in accordance with their daimon, or true self.' He stated that Eudaimonia emerges when people's lifestyle activities are most harmonious or integrative with profoundly held values and are inseparably or entirely occupied. Under such conditions, individuals could feel deeply lively and unique, and they may be aware of who they really are. Waterman labelled this as personal expressiveness. Although the hedonic approach is mostly pertinent to acting more relaxed and keeping away from problems, personal expressiveness is related to being defiant and making an effort.

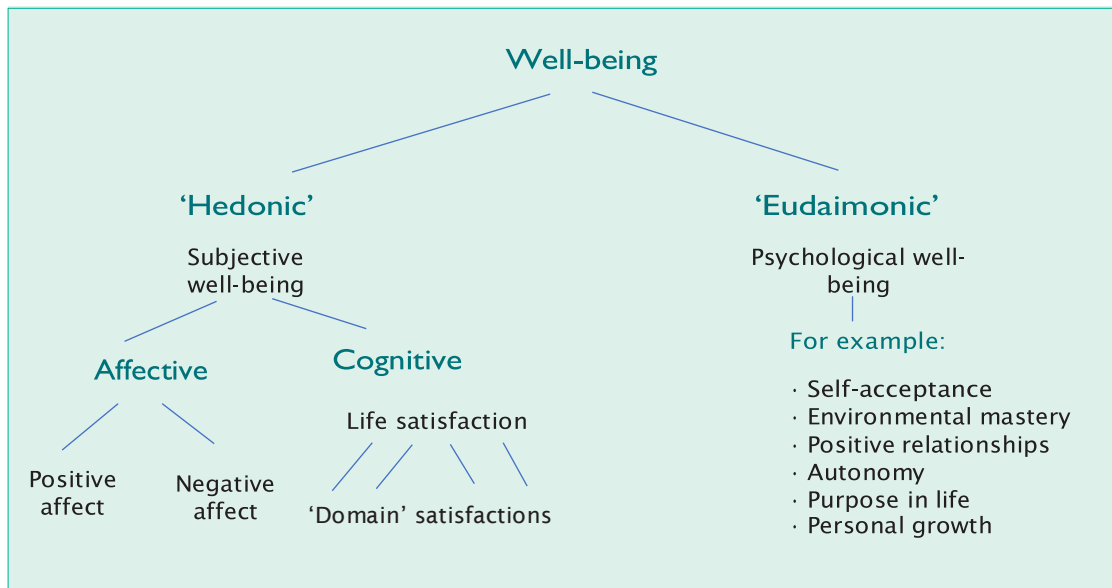


Figure 1. Components of self-reported well-being (The Good Childhood Report, 2013, p. 8)

The field of SWB has also three distinctive features. To begin with, Campbell (1976, cited in Diener, 1984) stated that it is based on the experience of a person. In particular, determining SWB definitions is essential under objective conditions such as health, comfort, merit or prosperity (Kammann & Flett, 1983). Even though such conditions are considered as possible effects of SWB, they are not considered as an innate and crucial part of it. Second, SWB contains positive measures and is not merely the lack of negative aspects, as in most mental health measures. Nonetheless, the association between positive and negative factors has not been totally discovered. Third, the measures of SWB characteristically contain a global evaluation of all parts of an individual's life. Despite the fact that the feeling or satisfaction in a certain area can be evaluated, the emphasis is generally put on an integrated judgement of the individual's life. However, measures might include a time period from several weeks to one's whole life. There is no potential method to choose what timeframe is the best. Researchers need to reveal the relationships of SWB within the various time periods (Diener, 1984).

### 1.2 The Components of SWB

At present, many researchers who explore SWB conceptualise it as a broad, multi-faced domain that comprises cognitive and affective components (Pavot & Diener, 2004). A valuable piece of research conducted by Diener et al. (1999) stated that "Subjective well-being is a broad category of phenomena that includes people's emotional responses, domain

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satisfactions, and global judgements of life satisfaction” (p. 277). Subjective well-being therefore represents a general area of interest, not a particular construct. These components are represented as a conceptual hierarchy with different levels of certainty (see Fig. 2). At the top level of this hierarchy is the SWB itself. At this position, SWB indicates a general assessment of an individual’s life. Researchers working at this level should measure distinct components at lower levels in the hierarchy to obtain an entire pattern of an individual’s general well-being. The next highest level constitutes four specific components that tell one person’s SWB more concisely. These components, pleasant emotions, unpleasant emotions, global life judgements and domain satisfaction, are equably related to one another. Each comprises very important information about the subjective quality of people’s lives (Diener, Scollon & Lucas, 2003).



Fig. 2. A hierarchical model of happiness (Diener, Scollon & Lucas, 2003).

Moods and emotions, which can be labelled together as affect, mean an individual's assessments of the events that happen in their lives. Bradburn and Caplovitz (1965) indicated that pleasant affect and unpleasant affect constitute two independent determinants and should be assessed individually. Diener and Emmons (1984, cited in Diener et al., 1999) showed that pleasant and unpleasant affect have progressively been separated as time has passed. In a well-designed study by Diener, Smith, and Fujita (1995), in order to control measurement error in affect measures, researchers used structural equation modelling and multimethod assessment. It was revealed that the two constructs are partially inversely associated but concisely separable. As researchers in this field are mainly focused on long-standing moods instead of non-permanent emotions, they should encompass measurements of both affects in their studies. Several present theories tried to make clear why variables distinctively pertinent to the separate components of SWB. For instance, researchers in this area have tried to map the personality characteristics of extraversion and neuroticism onto positive and negative affect, respectively (e.g., Larsen & Ketelaar, 1991). The concept of separate emotion systems proposed that rewarding stimuli such as daily pleasures can be more largely related to variability in pleasant affect and punishing stimuli such as daily problems can be more largely pertinent to variability in unpleasant affect (Diener et al. 1999).

An issue that emerges when evaluating affective components of well-being is what kind of emotional experience should be measured. At any given time, an individual might display either a high level or a low level of emotions. Is the person with intense positive feelings often better than the person who is only slightly mildly happy, or is the most important factor in determining an individual's experience, overall mood well-being, related to the frequency of positive emotions? Research shows that the intensity of feeling of a person is not the same as the frequency with which one feels these emotions, and that these two parts of emotional experience have clear results for well-being (Diener, Scollon & Lucas, 2003). In order to show how to separate emotional intensity from its frequency, Schimmack and Diener (1997) used the experience sampling method. Particularly, by evaluating moods and emotions over and over again, researchers may evaluate frequency by adding the number of times an individual presents experiencing an emotion. Intensity can be identified by analyzing the average intensity of emotions when an individual feels it. The significance and validity of

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these two components can be identified by comparing these scores with other well-being measures. Results showed that mean affect scores were mostly determined by the frequency component and much less by the intensity. In addition, pleasant and unpleasant affect intensity scores were highly positively correlated. The findings also support the fact that individual differences in the intensity of emotional experiences can differ from individual differences in the frequency of emotional experiences.

The cognitive components of SWB are related to evaluative judgements of the quality of life (Pavot & Diener, 1993a). In other words, they are described as an individual's continuing assessments of the circumstances in their lives. People may examine the circumstances in their lives, ponder the significance of these circumstances, and after that assess their lives on a scale ranging from a dissatisfied life to a satisfied life. Researchers refer to this global, cognitive judgement as life satisfaction and as they presume that this judgement necessitates a cognitive process. Much research has been conducted into the way that these judgements are passed (Diener, Scollon & Lucas, 2003).

After long-running research, people know a little about how life satisfaction judgements are made. It is believed that many people do not (and perhaps not) explore all aspects of their lives and then weight them suitably. Rather, as this task is challenging, individuals probably use a huge number of cutoffs with regard to satisfaction judgements (Schwarz and Strack, 1999). Particularly, people tend to use information that is explicit at the time of the judgement. For instance, Schwarz and Clore (1983) stated that apparently irrelevant determinants such as the weather may affect evaluation of life satisfaction. This study indicates that present mood may influence the assessments of life satisfaction, even if that present mood is not demonstrative of an individual's entire levels of affective well-being.

The last component in the hierarchical model of SWB is domain satisfaction. Domain satisfaction refers to the individual's cognitive evaluation of various aspects of his/her life experiences such as leisure and job. Researchers have made huge attempts to assess the important aspects of life and to obtain a universal life satisfaction judgement. Leung, Cheung & Liu (2011) conducted a study to explore the relationship between domain-based life satisfaction and SWB as well as the role of spiritual well-being as a moderator. The result showed that career success, social connectedness, and self-esteem are associated with both psychological and physical well-being. Loewe et al. (2014) conducted a study on 530 Chilean workers to evaluate the impact that satisfaction with multiple life domains has on evaluative judgements of overall life satisfaction. The study explored the influences of seven life domain

satisfactions – health, financial situation, social relationships, one’s self-worth, leisure-time, family, and work. The results indicated that satisfaction with one’s financial situation was the strongest predictor of the entire life satisfaction of the workers. Satisfaction with one’s self-worth, leisure-time, and social relationships did not have statistically significant influences on life satisfaction.

### ***1.3 Measurement of Subjective Well-being***

The measurement of SWB has been studied by social scientists and psychologists for several decades. There has been a substantial increase in research on the field of SWB in recent years. Therefore, as the studies in this field have increased, there has been a growth of measures of SWB (Larsen, Diener & Emmons, 1984). The main characteristic of measurements of SWB is that they are acquired across self-reports: respondents are asked to assess their lives generally or some perspectives of their lives. The questions may be slightly obvious and a frequently used one simply asks, ‘considering all things together, would you say you are ...: very happy, quite happy, not very happy or not at all happy’. The considerable increase in such measures has provided a precise conceptualisation of the elements of SWB. The presence of easily accessible measures has influenced a substantial number of empirical findings on the results, predictors, and correlates of SWB.

Previous SWB research used a single question to determine the level of happiness or life satisfaction such as ‘How do you feel about your life?’ In addition, psychometric evaluations of single-item scales have presented some degree of validity (Andrews & Withey, 1976, cited in Hansson, 2009). However, in spite of the clear advantages of their brevity, these scales have been criticised. For example, Diener (1984, p. 544) stated that “With reliance on a single item the variance due to the specific wording of the item cannot be averaged out”. These measures appear also to be less reliable over time (Kammann & Flett, 1983). As the field improves, multi-item scales with higher levels of reliability and validity than the single-item scales have been seen in the area of SWB (Diener, Oishi & Lucas, 2009).

The perspective of SWB precisely requires an interplay between the researcher and the people being evaluated. Conventionally this has been made across individual interviews, such as interviews conducted with clinical perspectives in hospitals or through life-review questionnaires. There are now a huge number of longitudinal and panel data which contain information related to the participants’ SWB (Diener, Oishi & Lucas, 2009). Subjective well-

being measures generally contain an extensive evaluation of all perspectives of an individual's life. "Although affect or satisfaction within a certain domain may be assessed, the emphasis is usually placed on an integrated judgement of a person's life" (Diener, 1984, p.544). However, measures might include a term ranging from several weeks to an individual's whole life. There is not a precise method to identify what time window is best. Theorists and researchers need to reveal the connections of SWB in due course.

A number of different measures have been recruited by researchers that show something of the nature and variety of the conceptions of SWB. Gurin, Veroff and Feld (1960, cited in Costa & McCrae, 1980) used the most blatant and intuitional way to evaluate happiness: they asked subjects if they were "very happy," "pretty happy," or "not too happy." To obtain a more distinguished method of life satisfaction, Campbell, Converse, and Rodgers (1976, cited in Costa & McCrae, 1980) asked their participants to rate their satisfaction level within each of 10 different fields of life; job, marriage, family, and so on. Campbell (1976) saw this strategy as a "cognitive" evaluation of life satisfaction, because it refrained from any direct reference to feelings or affects and enabled the subject to evaluate satisfaction according to his or her own standards and expectations. A distinct approach, remarkably attained by researchers, was developed by Bradburn and his colleagues at the National Center for Opinion Research (Bradburn, 1969). Rather than resorting to cognitive judgements of the adequacy of the people's lives, feelings and desires were measured by an Affect Balance Scale which adopted the idea that negative affects (boredom, loneliness, depression) experienced throughout the previous fortnight are removed by positive affects (pride, excitement, pleasure).

Much-used multi-item scales are the Positive and Negative Affect Schedule (PANAS) (Watson, Clark & Tellegen, 1988) and the Satisfaction with Life Scale (SWLS) (Diener et al., 1985). Considering these common current measurements, SWLS is used in a widespread manner to measure the cognitive component of SWB (Diener, Emmons, Larsen, & Griffin, 1985). It provides a list of feelings and emotions and participants are asked to show to what extent they felt this way during a given period, e.g. the past week. Most researchers use the PANAS (Watson, Clark, & Tellegen, 1988), focusing particularly on high arousal affect items. PANAS is also very flexible in that it does not specify particular feelings and emotions and many different combinations are possible: interested, distressed, excited, upset, strong, guilty, etc. Previous mood measures have shown correlations of variable strength between positive and negative affect, and these same measures have questionable reliability and

validity. PANAS was, therefore, developed to attempt to provide a better, purer measure of each of these dimensions. The Subjective Happiness Scale (Lyubomirsky & Lepper, 1999) was also commonly used to measure subjective feelings of happiness from the respondent that might be different from real affect experienced in the previous week.

Subjective well-being in particular life domains is also measured by using the *International Wellbeing Index* (IWI) (Cummins et al., 2002) which consists of two parts. The *Personal Wellbeing Index* (PWI), which consists of one part, evaluates satisfaction with life. Respondents need to rate seven items related to life domains: material status, personal health, achievement in life, relationships with family and friends, feelings of physical safety, acceptance by the community and future security. The *National Wellbeing Index* (NWI), which consists of the other part, evaluates how satisfied people are with living conditions in the country. There are six distinct national items and participants are asked to rate how satisfied they are with: the economic situation, state of the environment, social conditions, government, business and national security (Kaliterna Lipovčan & Prizmić-Larsen, 2006).

## 2. Extraversion/Introversion

### 2.1. The Concept of Personality

For a long time, many psychologists and researchers have attempted to define the term `personality`. Almost every day we define and evaluate the personalities of others around us. “He is quite easy going,” you may say about your friend. “She got her great personality from her mum,” you can say about your niece, or you may describe your boyfriend by saying “he is very understanding”. Every individual is born with an innate character, a way that you obtain energy and choose to communicate with the world.

The idea of personality traits may be as old as human language itself. Aristotle (384–322 BC), writing the *Ethics* in the fourth century BC, saw dispositions such as vanity, modesty and cowardice as key determinants of moral and immoral behaviour. Theophrastus (371–287 BC), who is one of the students of Aristotle, wrote a book defining 30 `characters` or personality types (Rusten, 1993, cited in Matthews, Deary & Whiteman, 2009). According to *The Dictionary of Psychology* (Corsini, 2002, cited in Saadullah, Shawish & Abdulbasith, 2017, p. 713) a personality trait is “a relatively stable and consistent behaviour pattern which is considered to be a characteristic component of an individual’s personality.” The literature has a substantial number of personality constructs that sometimes differentiate in label while measuring almost the same thing, and sometimes have the same label while measuring very

distinct things. The most common use of broad traits in psychology studies is the Big Five personalities, namely extraversion, neuroticism, openness, conscientiousness and agreeableness. They have also been correlated with many other personality traits and some behavioural and social outcomes (McCrae & Costa, 1999).

### **2.2. Extraversion-Introversion**

Ever since Jung introduced the terms "introvert" and "extrovert" to describe personality types, the concepts have been used widely, and somewhat ambiguously, in psychological literature. Jung (1928; cited in Coan, 1994) mentioned that introverts and extroverts are distinguished by their basic characteristics. One of the primary concerns of introverts is to build the self-determination and independence of others, while for extroverts, it is generally to look for new companionships and relationships. Eysenck (1991, cited in Matthews, Deary, & Whiteman, 2009) describes the typical extrovert as a high scorer on the introversion-extraversion scale and as a person who likes being social, dies for excitement, takes risks, is interested in practical jokes, is not always reliable, and can sometimes lose his or her temper. Their characterisation of the typical introvert is a person who is quiet and inhibited, is interested in books rather than socialising with people, is serious, keeps feelings under close control, is reliable and has high ethical standards.

The main characteristic of the extrovert is social activity. Extroverted people are happiest when spending time with others and they do not want to experience loneliness. People with high levels of extroversion are likely to feel more relaxed in social situations. Hills, Argyle and Reeves (2000, cited in Hills & Argyle, 2001) explored some motivational factors that may attract young people to certain activities. When considering the nature of these activities, they are generally voluntary, and it appears sensible to suggest that they join in with these activities to gain satisfaction and happiness. One of the reasons these individuals take part in social activities is that they give them the opportunity to create social interaction; seeing a relationship between SWB and being social is a trait of extroverts. This is unlike introverts, who tend to spend time alone as they find spending time with big groups less rewarding, although they enjoy communicating with intimate friends. In addition, their close friendships are likely to be profound and important. They feel more relaxed when they interact one-on-one with other people instead of with a big group.

On the whole, three main aspects of extraversion have been seen as very important by researchers and theorists. First, extraversion is regarded as one of the basic dimensions of

personality (e.g. Costa & McCrae, 1992a; Digman, 1990). Similarly, extraversion has a strong power to explain the correlates of a huge number of behaviours, which is one of the main concerns of the area of personality (Funder, 2001). Second, effective functioning and well-being can be foreseen by extraversion across a number of different aspects from social endeavours (Eaton & Funder, 2003) to social economic situation (Roberts, et al., 2007). Third, “extraversion predicts risk and also resilience for different forms of psychopathology” (Widiger, 2005).

Eysenck (1967; cited in Hills & Argyle, 2001) has attempted to explain the difference between introverted and extroverted individuals in the context of cortical arousal. Extroverts look for stimulation by engaging with other people. They have to find people to talk to, are dying for excitement and take every opportunity to find social interactions, which provide a great sense of happiness. On the contrary, introverted people do not need activities with a high level of external stimulation. They are generally regarded as quiet individuals who are interested in books instead of social interaction; they do not like excitement. Gray (1972, cited in Argyle and Lu, 1990) suggested a neurological theory and a part of it accepts that extraverts exaggerate rewards although introverts exaggerate punishments, due to differences in their brain structures.

### **3- Subjective Well-being and Extraversion-Introversion**

Since the field of SWB has huge importance for the quality of life of individuals, psychologists and researchers have made a substantial number of investigations to reveal the correlates and precursors of distinct elements of SWB in various cultures. Studies have revealed that external factors such as income and health account merely for a modest influence on well-being (Diener et al. 1999).

In more recent times, the research of SWB has set its sights on its association with personality, and a number of research studies have been carried out in this area. Subjective well-being research focuses on comprehending the underpinning factors that make individuals happy and satisfied in life. The relationship between personality and SWB has attracted great attention from researchers and theorists. Previous research in this field showed that both cognitive and affective elements of SWB are affected by personality (Tanksale, 2015). The strong relationship between SWB and personality is one of the explanations of SWB stability, because most research shows that your personality is stabilized throughout your life (e.g., McCrae and Costa, 1982). Personality consists of various dimensions, but

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most researchers accept that neuroticism and extroversion dimensions are part of the construct (Hansson, 2009).

In terms of the Big Five personality traits, extraversion and neuroticism have been found to be the strongest predictors of SWB in many countries. Schimmack et al. (2002) conducted a study to examine the interaction of personality and cultural factors in the prediction of the affective (hedonic balance) and the cognitive (life satisfaction) components of SWB. It was assumed that the impact of personality on life satisfaction is mediated by affective components and that the relationship between affective balance and life satisfaction is moderated by culture. As a result, extraversion and neuroticism impacted affective components to the same degree in all cultures. In addition, life satisfaction was more highly predicted by hedonic balance in individualistic than in collectivistic cultures.

A current British study has shown that certain personality traits in youth can be a credible indicator of well-being in later periods of life. The data acquired from this longitudinal study indicate that individuals with a high score for extroversion in youth are likely to present a high level of well-being in later life. On the contrary, those with a high score for neuroticism in youth present a low level of satisfaction with their lives; these individuals also suffer indirect harmful effects on their life satisfaction because of psychological problems associated with neuroticism (Pugh, 2013). In a study carried out by Tanksale (2015), the researcher attempted to examine the relationship between the Big Five personality traits and SWB in the Indian context. The aim of the study was to explore whether the Big Five personality traits considerably differentiated in their pattern of association with each SWB element in Indian people. In addition, it aimed to understand the most significant Big Five personality precursor for the components of SWB. Consistent with the previous findings, extraversion, neuroticism and conscientiousness were found to be significantly correlated with life satisfaction, positive affect and negative affect. In addition, the Big Five traits accounted for 17% of the variance in life satisfaction, 35% variance in positive affect and 28% variance in negative affect. Among the Big Five personality traits, neuroticism and extraversion were significant predictors of negative and positive affect, respectively.

In addition, Deneve and Cooper (1998) conducted a meta-analysis of 137 personality traits and SWB. This meta-analysis tried to summarise and combine research investigating personality traits as correlates of SWB. In addition, it investigated which specific personality traits were most closely associated with SWB. This study showed that personality is one of the primary estimators of SWB. Life satisfaction, happiness, and positive affect were

predicted equally by personality, but personality is less predictive of negative affect. It was indicated that extroversion has an effect on positive emotion, whereas neuroticism affects negative emotion. Once personality traits were categorised according to the Big Five theory, neuroticism was one of the strongest predictors of life satisfaction, happiness, and negative affect. This finding is consistent with that of Brajša-Žganec, Ivanović, and Lipovčan (2011), who found that personality traits together were responsible for 17% of the variance in life satisfaction, 37% of the variance in positive affect and 52% of the variance in negative affect. The findings supported previous findings that personality, particularly extraversion, emotional stability and conscientiousness are strong predictors of SWB. This study indicated that the relationship between social desirability, personality traits and SWB is more complex than past studies have revealed. Together with the characteristics of personality, it has been shown that social desirability is related to the absence of negative influence, which can only be explained by the associations between social desirability and personality traits.

Joshanloo & Afshari (2011) conducted research to examine the relationship between the Big Five personality traits, self-esteem, and life satisfaction. The findings showed that the Big Five personality traits explained about 25% of the variance in life satisfaction scores. Among the Big Five traits, extraversion and neuroticism were found to be the strongest predictors of life satisfaction. The impact of extraversion and neuroticism on life satisfaction was relatively mediated by self-esteem.

Research on the links between SWB and extraversion-introversion is important because the strong associations have been so surprising, partly because of the amount and breadth of evidence that has accumulated for the robustness of these effects across different constructs and methods of assessment. Overall, this review tried to explain the main concept of SWB and to explain the traits of extraversion and introversion in a detailed manner. Lastly and most importantly, the relationship between SWB and extraversion/introversion was reviewed. There have been many studies on SWB and almost all measured cognitive and affective components differently. Instead of this, the current study attempted to determine the relationship between SWB and extraversion/introversion, after controlling for affective components.

The research questions were:

- 1- Is there a significant difference in life satisfaction and psychological well-being between males and females?
- 2- Are age and gender significant predictors of life satisfaction and psychological well-being?

## Extraversion/Introversion and Subjective Well-being

3- Is extraversion a significant predictor of life satisfaction and psychological well-being?

4- Is extraversion still a significant predictor of life satisfaction and psychological well-being, after controlling for the influence of age, gender, positive affect and negative affect?



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Extraversion-Introversion and Subjective Well-being

**The Relationship between Extraversion-Introversion and Subjective well-being**

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**Dedication Page**



To my loving parents

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**Abstract**

The relationship between extraversion and subjective well-being (SWB) is one of the most consistently replicated and robust findings in the SWB literature. The present study was conducted in order to examine three key aspects of the relationship: (1) to explore particularly the relationship between introversion-extroversion and SWB; (2) to identify possible gender differences in the measurements of SWB; and (3) to explore the unique contribution of extraversion to predicting life satisfaction and psychological well-being, after controlling for the influence of age, gender, positive affect and negative affect. One hundred undergraduate, Master's and PhD students took part in the study and completed online questionnaires and scales: The Satisfaction with Life Scale, The Flourishing Scale, The Positive and Negative Affect Schedule, and The Mini-IPIP. Analysis revealed that there is no meaningful difference in life satisfaction and psychological well-being between men and women. Age was a slightly significant predictor of life satisfaction and psychological well-being. Regression analysis showed that a significant positive correlation was found between extraversion and satisfaction with life and psychological well-being. Finally, and most importantly, extraversion was still a significant predictor of life satisfaction and psychological well-being, after controlling for the influence of age, gender, positive affect and negative affect.

**Key words:** Extraversion, introversion, subjective well-being

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## 1-Introduction

This research investigates the extent to which extraversion predicts SWB. Subjective well-being is one of the most appealing areas in modern psychology. Within the discipline a consensus grew that self-reports on how well life is going, can convey important information on underlying emotional states, and so the field pushed ahead with measuring what is best referred to as subjective well-being` (Hoorn, 2007, p.1). An increase in academic interest in this field has particularly taken place in the last 10 years, from the beginning of positive psychology as a scientific area (Seligman & Csikszentmihalyi, 2000; Snyder & Lopez, 2002) and the identification of the importance of SWB at the level of a person and the community as a whole (e.g. Diener & Seligman, 2004). Sudden popularisation of the studies on SWB formed some inconsistencies, terminological and conceptual, that created quite a confusion in this field. Despite such a considerable terminological diversity, researchers have a unique opinion on what the SWB structure consists of.

Subjective well-being is an important and comprehensive psychological index that is used to measure the quality of life for people (Wu, 2000, cited in Wu & Zhou, 2010). Although the question, “What is a good life?” might be regarded as simple enough, theorists and researchers have found the subject of well-being to be complex and controversial. Indeed, from the beginnings of intellectual history, there has been substantial discussion about what describes optimum experience and what forms “the good life” (Ng & Fisher, 2013). Precisely, this debate has substantial speculative and practical implications. How we define well-being influences our practices of government, teaching, therapy, parenting, and preaching, as all such endeavours aim to change humans for the better, and thus require some vision of what “the better” is. The concept of SWB refers to how and why people experience their lives in a positive way, involving both emotional reactions and rational judgements. In different research, SWB embodies various terms such as happiness, satisfaction, morale and positive affect (Diener, 1984). Subjective well-being has been described as the cognitive and affective assessments that individuals make about their lives. The cognitive component is evaluated by using satisfaction with life and the affective component is described in terms of the existence of positive affect and the lack of negative affect (Diener, 1994). It is the focus not only of everyday interpersonal investigations (e.g. “What is the good life?”) but also of intense scientific scrutiny. Subjective well-being also has the component of domain

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satisfaction. This refers to the individual's cognitive evaluation of various aspects of his/her life experiences such as leisure and job.

In recent times, research into the scientific element of SWB has improved at speed. Psychologists and other social theorists have progressed significantly in their comprehension of the elements impacting an individual's SWB. The methods to identify the components of SWB have substantially risen and this is expected to continue in the near future (Hoorn, 2007). One explanation for this may be that people living in the Western culture have succeeded in achieving a high level of prosperity and health (Diener and Tay, 2012). In addition, SWB has been more widely studied because scientists and researchers in this field have developed new, better methods of studying SWB, such as multiple item scales.

Because SWB has a great significance for people's quality of life, researchers have tried to find the correlates and predictors of the different components of SWB. Early research on SWB focused on determining the external situations that result in satisfying lives such as demographic factors. In this respect, the most investigated correlates of SWB are sociodemographic variables. Among them, gender has been revealed to not be associated with SWB (Diener, Suh, & Oishi, 1997; Pavot & Diener, 2004), or to related to SWB in interaction with age (Kaliterna-Lipovčan & Prizmić-Larsen, 2006; Shmotkin, 1990) and/or related to SWB in a given cultural context (Inglehart, 2002). Demographic factors such as income, health and education level are responsible for just a limited amount of variance in well-being measurements. The research also indicated that demographic factors do not explain the variance of SWB as successfully as expected (Inglehart, 2002; Inglehart & Klingemann, 2000).

After years of research, researchers have focused their attention on the association between personality and SWB (Diener, Oishi and Lucas, 2003). The relationship between personality and SWB (how people experience the quality of their lives, including both how they feel and think) has received great scientific attention. Psychologists have comprehensively studied the impact of personality on SWB and revealed it to be a powerful factor underpinning differences in SWB between individuals (Hoorn, 2007). The most direct evidence for the importance of personality in SWB comes from studies that examine the association between specific personality factors and SWB. At the end of the 1990s, Deneve and Cooper (1998) conducted a meta-analysis of a comprehensive number of studies on the relationship between personality and two dimensions of SWB: the affective side (positive affect, negative affect,

and the balance between them) and the cognitive side (satisfaction with life). According to the results, personal predispositions are one of the most significant factors that have a long-term impact on SWB. In one of the earliest systematic explorations of the relationships between personality and SWB, Costa and McCrae (1980) particularly tested whether two personality traits – extraversion and neuroticism – were uniquely associated to specific SWB variables. Extraversion was associated with positive affect, neuroticism was related to negative affect, and together these dimensions formed the affective core of the broader SWB construct.

In general, SWB is considered a stable trait (Costa, McCrae & Zonderman, 1987) and therefore, certain personality dimensions are related to this experience of life satisfaction. Personality traits almost account for one third of variance of SWB (Chan & Joseph, 2000). Along these lines, past studies showed that SWB dimensions conform with temperament more than with life or current circumstances (DeNeve & Cooper, 1998; Pavot & Diener, 2004). Some research has also shown that personality traits seem to be one of the most powerful and most persistent precursors of SWB (e.g., Costa & McCrae, 1980; Diener, 1984; Diener & Larsen, 1993; McCrae & Costa, 1991; Myers, 1992; Myers & Diener, 1995, cited in Deneve & Cooper, 1998). In terms of the Big Five personality traits, extraversion has been found to be the strongest predictor of SWB in many countries (Schimmack et al. 2002). As described in Francis and Smith (2016, p.77), “Extraverts prefer to focus their attention on the outer world of people and things and draw their energy from that outer world. When extraverts are tired and need energising they look to the outer world.” Some explorations have revealed that extraversion has a coherent and strong association with SWB (e.g. Headey & Wearing, 1989; Hotard, McFatter, McWhirter, & Stegall, 1989). However, a surprising number of things that scientists know about the relationship between personality traits and SWB have been changed in the light of new findings.

Considering all of this, the strength of the relationship between extraversion and SWB, which includes components such as positive and negative affect and the balance between them, needs to be clarified. Most studies have used PANAS (PANAS; Watson, Clark & Tellegen, 1988) to measure the affective side of SWB. However, there is no specific study focusing on using these dimensions as control variables to see whether extraversion still predicts life satisfaction/psychological well-being after controlling for people’s mood state. In this respect, the main hypotheses in the current study were: (H1) there is a significant difference in the life satisfaction and psychological well-being of males and females; (H2)

Age and gender are significant predictors of life satisfaction and psychological well-being; (H3) Extraversion is a significant predictor of life satisfaction and psychological well-being; H(4) extraversion is still a significant predictor of life satisfaction and psychological well-being, after controlling for the influence of age, gender, positive affect and negative affect

## 2- Method

The following correlational research design was employed to determine whether there is a relationship between introversion-extroversion and SWB. The study was approved by the University of East Anglia Research Ethics Committee and data were gathered between February and April in 2018.

### 2.1. Participants

The participants in this study were one hundred students at the level of undergraduate, Master's and PhD, aged from 18 to 45 years old. This sample came from a larger sample of 146 participants. 43 participants did not complete all of the questionnaires and were excluded from the analyses, and three additional participants were excluded from the analyses for inconsistently reporting their age. Of the 100 participants, 22 were male and 78 were female. The majority of the participants were British (55%), Turkish (29%) and Chinese (10%) with the remaining from other ethnic backgrounds.

Table 1: Descriptives ( $N = 100$ )

	<i>N</i>	%
<i>Age</i>		
18-20 years old	46	46.0
21-23 years old	10	10.0
24-26 years old	17	17.0
27-29 years old	15	15.0
29+	12	12.0

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### *Gender*

Male	22	22.0
Female	78	78.0

### *Education*

Undergraduate	64	64.0
Masters	23	23.0
PhD	13	13.0

### *Nationality*

English	55	55.0
Turkish	29	28.0
Chinese	10	10.0
French	1	1.0
Bruneian	1	1.0
Filipino	1	1.0
Estonian	1	1.0
South Korea	1	1.0
Lithuanian	1	1.0

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## **2.2. Ethical Consideration**

The study was approved by the Ethics Committee at the University of East Anglia, registration number: 2017-0577-001036. Informed consent was obtained from all the participants included in the online study. Information was given about available health care services if any sensitive issues were raised.

## **2.3. Measures and Procedure**

Between mid-January and mid-May the respondents were invited to complete online questionnaires and scales constructed from several published scales that seemed relevant to this study. Three measures were used to evaluate SWB: The Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985), The Positive and Negative Affect Schedule

(PANAS; Watson, Clark & Tellegen, 1988), and The Flourishing Scale (Diener et al., 2010). A further instrument was employed to measure extraversion and introversion: the Mini-IPIP scales (Donnellan, Oswald, Baird, & Lucas, 2006).

Qualtrics was used to distribute the study on different social media platforms. We distributed the study via Facebook, WhatsApp, email and an anonymous link. In addition, a system called SONA was used to obtain more participants. This is used for the scheduling and management of research participants and the studies they participate in. Participants, researchers, principal investigators and instructors all use the system for their respective purposes. Participants were informed about the voluntary character of participation and the possibility to withdraw from the study at any time. All students obtained written information about the study. All measures were represented in a way that participants answer them respectively. Please refer to Appendix E, F, G, and H for the full versions of these integrated questionnaires and scales.

### ***2.3.1. Measure of Subjective well-being***

In order to measure SWB, The Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985) was used (please refer to Appendix G). This 5-item scale was designed to measure global cognitive judgements of one's life satisfaction (not a measure of either positive or negative affect). There are expressions like "In most ways my life is close to my ideal" or "If I could live my life over, I would change almost nothing". Participants indicate how much they agree or disagree with each of the 5 items using a 7-point scale that ranges from 1 (strongly disagree) to 7 (strongly agree). Subjective well-being consists of two main characteristics: the emotional or affective part and the judgemental or cognitive part (Diener, 1984). The judgemental component was conceptualised as life satisfaction. Even though the emotional part of SWB has attracted significant attention, the judgemental part has been slightly ignored. The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) was developed as a measure of the judgemental component of SWB. Some peer reports, a memory measurement and clinical ratings were utilised to validate the measurements. The SWLS is compared with other pertinent measures. It represents a valid and reliable measure of life satisfaction, and it can be used with a variety of age groups. (e.g. Clench-Aas, Nes, Dalgard, & Aarø, 2011; Hultell & Gustavsson, 2008).

The Flourishing Scale (Diener et al., 2009) is the other measure for the evaluation of SWB (please refer to Appendix F). There are 8 statements (e.g. "I am competent and capable in the

activities that are important to me” or “I actively contribute to the happiness and well-being of others”) with which participants may agree or disagree. Using the 1–7 scale that ranges from 7 (strongly agree) to 1 (strongly disagree), the participants indicate their agreement with each item. Flourishing and SWB are closely related constructs. More specifically, the first is a measure of the latter (Huppert & So, 2013). According to Diener et al. (2010), human flourishing comprehends issues such as competence, self-esteem, optimism, and contributions to the well-being of others. Its aim is to provide a brief measure of well-being and, at the same time, to offer a more complete assessment of this construct. In the result section, this will be labelled as psychological well-being.

The third measure used in our study was the PANAS (Watson, Clark & Tellegen, 1988). This scale comprises two mood scales, one that measures positive affect (e.g. “interested, excited or strong”) and the other that measures negative affect (e.g. “distressed, upset or guilty”). Used as a psychometric scale, the PANAS can reveal relationships between positive and negative affect with personality statistics and traits. Ten items (e.g. “interested, excited or strong” for positive affect and “distressed, upset or guilty” for negative affect) are used for each positive affect scale and negative affect to describe their meanings. Participants in the PANAS respond to a 20-item test using a 5-point scale that ranges from very slightly or not at all (1) to extremely (5). Participants read each item and then list the number from the scale next to each word. Participants indicate the extent to which they feel this way right now, that is, at the present moment.

### ***2.3.2. Measure of Extraversion-introversion***

The Mini-IPIP (Donnellan, Oswald, Baird, & Lucas, 2006) is a 20-item scale, with four items measuring each of the five-factor model traits. Each item is a phrase describing a behaviour (e.g., “Am I the life of the party?” Or “Talk to a lot of different people at parties”), and the participants were instructed to indicate how accurate each phrase was for them, using a 5-point Likert-type scale that ranged from 1 (very inaccurate) to 5 (very accurate). Scores for individual items from each scale were summed to produce a total score for each of the five scales.

IBM SPSS Statistics 22 was used for statistical analyses. The main statistical methods were t-test, correlation, and hierarchical regression.

#### ***2.4. The Reliability and Validity of Questionnaires***

Diener et al. (2009) have indicated that the SWLS has respectable psychometric specificity, a strong test-retest coefficient and a high level of internal consistency. Following studies have validated the respectable specificity of the scale in a comprehensive range of samples (Pavot & Diener, 2008). For instance, a variety of studies have revealed a good internal coherence with Cronbach's alpha indexes ranging from 0.79 to 0.91 (Clench-Aas, Nes, Dalgard, & Aarø, 2011; Hultell & Gustavsson, 2008).

The Flourishing scale is composed of eight items and was found to have good psychometric properties, with Cronbach's  $\alpha$  higher than 0.80 (Diener et al., 2009). It is a brief and concise scale to encompass the main aspects of SWB, and it was introduced following research exploring its suitability in different cultures. For instance, Sumi (2013) conducted a study using the Flourishing Scale, which revealed a high level of similar internal consistency to the original study ( $\alpha = .88$ ). Silva and Caetano (2013) adapted it to the Portuguese context and it presented a high internal consistency coefficient ( $\alpha = .81$ ). Lastly, Hone, Jarden, & Schofield (2013) found also a high internal consistency, with Cronbach's  $\alpha = .91$ .

Reliability and validity, as reported by Watson, Clark & Tellegen (1988), was moderately good. For the Positive Affect Scale, the Cronbach alpha coefficient was 0.86 to 0.90; for the Negative Affect Scale, 0.84 to 0.87. Over an 8-week time period, the test-retest correlations were 0.47-0.68 for the PA and 0.39-0.71 for the NA. The PANAS has strong reported validity with such measures as general distress and dysfunction, depression, and state anxiety.

Baldasaro, Shanahan & Bauer (2013) conducted a study to show the properties of the Mini-IPIP in a large, nationally representative sample of young adults. Reliability was found to be acceptable according to Cronbach's alpha,  $\alpha = .71$ . This study is consistent with the study of Cooper, Smillie & Corr. (2010) who carried out to examine the psychometric properties of the Mini-IPIP using factor analysis. The results from this study highlighted that the measure has acceptable reliability and a clearly interpretable factor structure.

### 3- Results

Analyses were undertaken for each of the major measures in this study, which is extraversion-introversion and SWB, for the undergraduate, Master's and PhD students aged from 18 to 45 years old (78 females and 22 males) who participated in the study.

In the current analysis, a t-test was conducted to show differences in life satisfaction and psychological well-being between genders. Correlational analysis was then run to see the relationship between extraversion-introversion and life satisfaction as a dimension of SWB. Next, a multiple regression model was employed in order to examine how much variance in extraversion-introversion accounts for life satisfaction and psychological well-being. Finally, a hierarchical multiple regression was carried out to identify the unique contribution of extraversion to SWB after controlling for age, gender, positive affect and negative affect.

#### 3.1. Reliability Analysis of Questionnaires

A reliability analysis was carried out on the extraversion subscale of the Mini-IPIP scale comprising 4 items. Cronbach's alpha showed the questionnaire to reach an acceptable reliability,  $\alpha = 0.76$ . Most items appeared to be worthy of retention, resulting in a decrease in the alpha if deleted.

*Table 2. Reliability analysis on extraversion subscale of the mini-IPIP scale*

	<i>Cronbach's alpha if item deleted</i>
1-Am the life of the party	0.71
2-Don't talk a lot	0.71
3-Talk to a lot of different people at parties	0.69
4-Keep in the background	0.72

The life satisfaction scale comprising of 5 items seemed to have a good reliability,  $\alpha = .88$ . All items appeared to be worth of retention.

*Table 3. Reliability analysis on the life satisfaction scale*

	<i>Cronbach's alpha if item deleted</i>
1- In most ways my life is close to my ideal	0.85
2- The conditions of my life are excellent	0.84
3- I am satisfied with my life	0.84

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4- So far, I have gotten the important things I want in life	0.86
5- If I could live my life over, I would change almost nothing	0.87

Another reliability analysis for the Flourishing Scale consisting of 8 items was conducted. Cronbach's alpha indicated that the questionnaire reached a quite high reliability,  $\alpha = 0.90$ .

*Table 4. Reliability analysis on flourishing scale*

	<i>Cronbach`s alpha if item deleted</i>
1- I lead a purposeful and meaningful life	0.90
2- My social relationships are supportive and rewarding	0.89
3- I am engaged and interested in my daily activities	0.89
4- I actively contribute to the happiness and well-being of others	0.88
5- I am competent and capable in the activities that are important to me	0.89
6- I am a good person and live a good life	0.88
7- I am optimistic about my future	0.89
8- People respect me	0.89

According to the reliability analysis of the 10 items for positive affect, the questionnaire reached a very high reliability,  $\alpha = .90$ . Most items appeared to be worthy of retention, resulting in a decrease in the alpha if deleted.

*Table 5. Reliability analysis on positive affect*

	<i>Cronbach`s alpha if item deleted</i>
1- Interested	0.90
2- Excited	0.89
3- Strong	0.90
4- Enthusiastic	0.89
5- Proud	0.89
6- Alert	0.92
7- Inspired	0.89
8- Determined	0.89
9- Attentive	0.90
10- Active	0.90

Finally, the negative affect scale comprising of 10 items had a high level of reliability,  $\alpha = .90$ . All items appeared to be worthy of retention.

Table 6. Reliability analysis on negative affect

	<i>Cronbach`s alpha if item deleted</i>
1- Distressed	0.90
2- Upset	0.89
3- Guilty	0.89
4- Scared	0.88
5- Hostile	0.90
6- Irritable	0.90
7- Ashamed	0.89
8- Nervous	0.89
9- Jittery	0.89
10- Afraid	0.88

### 3.2. Gender Differences in Subjective Well-Being

In order to examine the gender differences in SWB, a t-test for independent samples was administered (Table 7). The hypothesis was that there is a significant difference in the life satisfaction dimension of SWB and psychological well-being between males and females.

The results of the t-test revealed that there is no significant gender difference in life satisfaction,  $t(98) = -.581, p < .56, d = 0.14$ . In addition, there was no significant difference in psychological well-being between men ( $M = 41.36, SD = 6.24$ ) and women ( $M = 42.50, SD = 7.16$ ),  $t(98) = -.675, p < .50, d = 0.17$ . The effect size for these analyses ( $d = 0.14; 0.17$ ) was found to not exceed Cohen`s (1988) convention for a large effect ( $d = .80$ ). This finding indicates that women and men tend to be equally happy and satisfied with their lives. As for extraversion, the differences between males and females were not significant,  $t(98) = -.776, p < .440, d = 0.19$ . As a result, the hypothesis that there is a significant difference in the life satisfaction and psychological well-being of men and women was not supported.

Table 7. Mean Scores for Men and Women on life satisfaction, Psychological Well-being, and Extraversion

Scale	Men	Women	<i>t</i>
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Life satisfaction	<i>M</i>	22.14	23.00	-.581
	<i>SD</i>	5.82	6.25	
Psychological well-being	<i>M</i>	41.36	42.50	-.675
	<i>SD</i>	6.24	7.16	
Extraversion	<i>M</i>	11.36	12.00	-.776
	<i>SD</i>	3.14	3.46	

\*  $p < .05$ , \*\*  $p < .01$ .

### 3.3. Correlates of Subjective Well-Being

In further analysis, correlational analyses were used to examine the relationship between the variables. The hypothesis was that there is a significant relationship between extraversion, satisfaction with life, and psychological well-being.

The relationship between extraversion and psychological well-being was investigated using Pearson's correlation. As expected, a significant positive correlation was found,  $r = .42$ ,  $n = 100$ ,  $p < .001$ . This result showed that extraverted people have more psychological well-being than introverted people. The relationship between extraversion and life satisfaction was also moderate and positive,  $r = .37$ ,  $n = 100$ ,  $p < .001$  (Table 8). Therefore, the hypothesis that there is a significant relationship between extraversion, satisfaction with life, and psychological well-being was supported.

Table 8. Correlations between Extraversion, life satisfaction, and Psychological well-being

	E	PS	LS
Extraversion	1	0.42**	0.37**
Psychological well-being		1	0.72**

Life satisfaction

1

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Note. E = Extraversion, PS = Psychological Strength, LS = Life Satisfaction

\*  $p < .05$ , \*\*  $p < .01$ .

### 3.4. Assumptions for Regression

Before running a regression on the studied variables, assumptions for linear regression were tested. The assumptions include missing values, outliers, normality of dependent variable, multicollinearity and linearity for the relationship between dependent and independent variables. There were less than 35% missing data. No univariate outliers were present in the continuous data. Normality of the dependent variables was confirmed through skewness and kurtosis indices. All the data demonstrated acceptable linearity.

### 3.5. Age and Gender as Predictors

A multiple regression was carried out to investigate whether age and gender could significantly predict participants' life satisfaction. Life satisfaction was entered as the dependent variable and age and gender were entered as potential predictors. The hypothesis was that age and gender are significant predictors of life satisfaction and psychological well-being.

The results of the regression indicated that the model explained just 09% of the variance and that the model was not a significant predictor of life satisfaction,  $F(2, 97) = .58, p < .56, R^2 = .09$ . In other words, while age was negatively correlated, gender did not produce a significant association with life satisfaction (Table 9). As a result, as hypothesised, age is a significant predictor of life satisfaction; however, the hypothesis that gender is a significant predictor of life satisfaction was not supported.

Table 9. Summary of multiple regression analysis for age and gender predicting life satisfaction

Predictor	$\beta$	$t$	$p$
Age	-.094*	-.909	.36
Gender	.04	.388	.70
F			.58

R2

(adjusted) -.09

**Note:**  $\beta$  = betas are from the original step of the regression equation

\*  $p < .05$ , \*\*  $p < .01$ .

Multiple regression analysis showed that the model explained just 01% of the variance and that the model was not a significant predictor of psychological well-being,  $F(2, 97) = .936$ ,  $p < .40$ ,  $R^2 = .01$ . However, age per se is negatively associated with psychological well-being,  $\beta = -.122$ , although gender did not produce a significant association,  $\beta = .04$  (see Table 10). As a result, although the hypothesis that age is a significant predictor of psychological well-being was supported, contrary to expectations, the hypothesis that gender is a significant predictor of psychological well-being was not supported.

*Table 10. Summary of multiple regression analysis for age and gender predicting psychological well-being*

Predictor	$\beta$	$t$	$p$
Age	-.122*	-1.189	.24
Gender	.044	.426	.67
F			.936
R2			
(adjusted)			-.01

**Note:**  $\beta$  = betas are from the original step of the regression equation

\*  $p < .05$ , \*\*  $p < .01$ .

### 3.6. Extraversion as Predictor

To further examine the relationship between extraversion and life satisfaction, a multiple regression analysis was conducted. Life satisfaction was entered as the dependent variable and extraversion was entered as potential predictors. The hypothesis was that extraversion is a significant predictor of SWB.

Multiple regression analysis showed that the model explained 12.7% of the variance and that the model was a significant predictor of life satisfaction,  $F(2, 97) = 15.36$ ,  $p < .001$ ,  $R^2 = .127$  (see Table 11). As a result, the hypothesis that extraversion is a significant predictor of life satisfaction was supported.

Table 11. Summary of multiple regression analysis for extraversion predicting life satisfaction

Predictor	$\beta$	$t$	$p$
extraversion	0.368**	3.919	.001
F			15.36
R2 (adjusted)			0.127*

**Note:**  $\beta$  = betas are from the original step of the regression equation

\*  $p < .05$ , \*\*  $p < .01$ .

Multiple regression analysis showed that the model explained 16.7% of the variance and that the model was a significant predictor of psychological well-being,  $F(2, 97) = 20.918$ ,  $p < .001$ ,  $R^2 = .167$ . Therefore, the hypothesis that extraversion is a significant predictor of psychological well-being was supported.

Table 12. Summary of multiple regression analysis for extraversion predicting psychological well-being

Predictor	$\beta$	$t$	
extraversion	0.419**	4.574	
F			20.918
R2 (adjusted)			0.167**

**Note:**  $\beta$  = betas are from the original step of the regression equation

\*  $p < .05$ , \*\*  $p < .01$ .

### 3.7. Extraversion as a Predictor After Controlling for Age, Gender, Positive Affect and Negative Affect

Hierarchical regression analysis was used to assess the unique contribution of extraversion to predicting life satisfaction and psychological well-being, after controlling for the influence of age, gender, positive affect, and negative affect. Because theoretically positive and negative affects are ‘states’ and are normally included in a study to control for the person’s mood at the time they complete the questionnaire, we included these as control variables in this

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regression analysis to see whether extraversion still predicts life satisfaction/psychological well-being after controlling for a person's mood state. The hypothesis was that extraversion is still a significant predictor of SWB, after controlling for the influence of age, gender, positive affect and negative affect. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity and homoscedasticity. Life satisfaction was entered as the dependent variable. In the first block, age and gender were entered as potential predictors, and positive and negative affect were entered in the second block. Finally, extraversion was entered in the last block. The results showed that after entering extraversion at step 3, the total variance explained by the model was 32.9%,  $F(5, 94) = 10.711$ ,  $p < .001$ . Extraversion was still a significant predictor of life satisfaction after controlling for age and gender, positive and negative affect,  $\beta = .211$ ,  $p < .017$ . As a result, the hypothesis that extraversion is still a significant predictor of life satisfaction, after controlling for the influence of age, gender, positive affect and negative affect, was supported.

Table 13. Summary of Hierarchical Regression Analysis after Controlling Age, Gender, Positive and Negative Effect for Predicting Life Satisfaction

Predictors	$\beta$	$t$	$R^2$ (adjusted)	$F$
Step 1				
Age	-.07	-.821	-.009	.582
Gender	.056	.665		
Step 2				
Positive affect	.446**	5.095	.295**	11.336
Negative affect	-.326**	-3.737		
Step 3				
Extraversion	.211**	2.425	.329**	10.711

**Note:**  $\beta$  = betas are from the original step of the regression equation

\*  $p < .05$ , \*\*  $p < .01$ .

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Psychological well-being was entered as the dependent variable. In the first block, age and gender were entered as potential predictors, and positive and negative affect were entered in the second block. Finally, extraversion was entered in the last block. After entering extraversion at step 3, the total variance explained by the model was 47.1%,  $F(5, 94) = 18.604$ ,  $p < .001$ . Extraversion was still a significant predictor of psychological well-being after controlling for age and gender, positive and negative affect  $\beta = .230$ ,  $p < .004$ . As a consequence, the hypothesis that extraversion is still a significant predictor of psychological well-being, after controlling for the influence of age, gender, positive affect, and negative affect, was supported.

Table 14. Summary of Hierarchical Regression Analysis after Controlling Age, Gender, Positive and Negative Effect for Predicting Psychological well-being

Predictors	$\beta$	$t$	$R^2$ (adjusted)	$F$
<b>Step 1</b>				
Age	-.087	-1,151	-.001	.936
Gender	.059	.784		
<b>Step 2</b>				
Positive affect	.501**	6.446	.427	19.427
Negative affect	-.427**	-5.502		
<b>Step 3</b>				
Extraversion	.230**	2.979	.471	18.604

**Note:**  $\beta$  = betas are from the original step of the regression equation

\*  $p < .05$ , \*\*  $p < .01$ .

#### 4-Discussion

As outlined in the introduction, the main purpose of this study was to examine the relationship between introversion-extroversion and SWB. The hypotheses in our study were: (H1) there is a significant difference in the life satisfaction and psychological well-being of males and females; (H2) age and gender are significant predictors of life satisfaction and psychological well-being; (H3) extraversion is a significant predictor of life satisfaction and psychological well-being; (H4) extraversion is still a significant predictor of life satisfaction and psychological well-being, after controlling for the influence of age, gender, positive affect and negative affect. On the basis of previous studies (Tanksale, 2015; Deneve & Cooper, 1998; Brajša-Žganec, Ivanović, and Lipovčan, 2011) on SWB and personality traits, it was anticipated that extraversion would be the greatest indicator of SWB.

Opposed to this hypothesis, there is no meaningful difference in life satisfaction and psychological well-being between men and women. That is to say, women have the same level of life satisfaction and psychological well-being as males. This is consistent with an early study by Clemente and Sauer (1976, cited in Batz & Tay, 2017) where they found no significant differences between men and women on life satisfaction in a sample of over 1,000 people from the USA. In general, large-scale, nationally representative studies on life satisfaction have revealed a certain extent of mixed results on gender differences in life satisfaction. For example, there are studies showing that there is a difference in life satisfaction between men and women. Blanchflower and Oswald (2004) compared over 20,000 people from both the USA and Great Britain, and showed a small impact with women reporting higher levels of life satisfaction than men in both Great Britain and the USA. Important data also comes from the World Value Survey (Inglehart, 1990, cited in Eddington & Shuman, 2005) in which nearly 170,000 participants from 16 nations were surveyed; the differences in SWB between men and women were very tiny.

Consistent with large-scale representative samples, previous meta-analyses have also been investigated the question of gender differences in life satisfaction and have reported mixed results. One of the large-scale studies conducted by Haring, Stock & Okun (1984) investigated empirical studies from the US that identified gender as a precursor of SWB. Their findings indicated that men had slightly higher levels of SWB, which included life satisfaction, than women. Another meta-analysis conducted by Pinqart and Sorensen (2001) looked for differences between men and women aged 55 years. The study included 174 studies that searched for gender differences in life satisfaction. They revealed that men had

slightly higher levels of life satisfaction. Considering all the studies together, the majority of the results from the meta-analyses concluded that men and women differ significantly in life satisfaction, with men having higher levels of life satisfaction than women, while the magnitude of the difference is small, contrary to our findings.

In many areas of research, there is a concern that the literature is concerned only with results that are significant, and that those which are not significant are removed to a “file-drawer” (Rosenthal, 1979). While this is under no circumstances a new problem, or an issue pertinent to the research on gender differences in SWB, it is a problem that should be considered carefully in an area of research most interested in differences by the very nature of the question being asked. Results that do not reveal significant differences should be equally important if researchers want to have a balanced and exact perspective on this issue, and significant results should be duplicated to strengthen confidence in these findings (Pashler & Harris, 2012; Hyde, 2007). There is a need for further empirical work on the specific theoretical reasons proposed for why gender differences exist, rather than simply relying on secondary analyses to answer this question.

Age was a slightly negative significant predictor of life satisfaction and psychological well-being. Since the mid-1960s, researchers have made huge attempts to study the relationship between age and SWB, reporting some conflicting results. Xing and Huang (2013) showed that there exists a statistically significant relationship between age and SWB, although the relationship is to some degree weak. Age is not always a strong significant predictor of SWB when a different dependent variable is adopted in multiple regression analysis. A further study conducted by Ramsey and Gentzler (2014) published scatterplots that indicated non-linear associations between age and SWB. There was a significant non-linear effect of age on SWB, with middle-aged adults reporting the lowest SWB and, as expected, older adults reporting the highest SWB. Theories of age effects in SWB generally suggest that (1) SWB is affected by the objective conditions of an individual's life (e.g., income, social support), and that these conditions are prone to worsen as people become older (Diener and Suh, 1998), or (2) SWB is affected by an individual's ability to organise emotions, and that this ability is prone to develop as people become older (Lawton, 1996). Thus, some theorists argue that SWB should increase with age, while others argue that SWB decreases with age.

In line with our hypothesis, a significant positive correlation was found between extraversion and satisfaction with life and psychological well-being. Within the perspective of the Big Five, these results supported the findings of DeNeve and Cooper (1998). This result is also in line with the findings of Pychyl & Little (1998), who found a significant association between extraversion and the life satisfaction dimension of SWB. Zhai et al. (2013) also showed that extraversion was found to have the strongest predicting power for SWB out of the Big Five traits. An interesting finding comes from the study conducted by Hotard et al. (1989). They showed that a strong relationship between extraversion and SWB occurred only among individuals who were highly neurotic or who had poor social relationships.

As hypothesised, the most important finding of the study is that extraversion was still a significant predictor of life satisfaction and psychological well-being, after controlling for the influence of age, gender, positive affect and negative affect. Most studies made huge attempts to reveal the relationship between the Big Five personality traits and SWB but no-one studied the relationship between them after controlling for their affective side. These findings supported previous studies which reported that there is a strong association between extraversion and SWB and it contributed new findings to the existing literature about whether this strong relationship between them still exists after controlling for the positive and negative components of SWB.

### ***4.1. Study Limitations and Future Research***

While our findings wait to be further duplicated in samples of different ages and cultures, they give distinct approaches to the relationship between extraversion and SWB. Some of the most encouraging directions for future research are dependent on the limitations found in this study. The most obvious limitation in the present investigation is the sample. Although 150 participants were found to take part in the study, only 100 participants answered all of the questions. Thus, the rest of the participants were excluded from the study. If the sample size of a study is too small, it is difficult to find significant relationships from the data, as statistical tests normally require a larger sample size to guarantee a representative distribution of the population and to comprise representative groups of individuals to whom the findings will be generalised. Future studies should be carried out in such a way that more respondents are involved in the study. Therefore, a large sample size will enhance the statistical power of the study.

A second, related limitation in the present study is not to have a homogeneous sample in terms of gender. A system called SONA was used to recruit participants, in addition to those contacted by email, WhatsApp, and an anonymous link. This system is used for scheduling and managing research participants and the studies they participate in. Although we attempted to reach an equal number of male and female participants, because of the nature of the study, females were more reluctant to participate. This had an influence on the outcomes of the study because an unequal number of male and female participants may introduce bias and mask the actual outcomes. Future studies should consider this issue and try to recruit even numbers of males and females in order to achieve more reliable results.

A third area that needs to be given more attention in future research is the self-reports items that were used to evaluate both personality traits and SWB. The nature of SWB indicates that, in general, self-reports are the best method for measuring this construct. However, a considerable body of research has established that both self-reports and peer reports provide significant and valuable information about personality traits. As a result, future studies with multi-method designs – particularly studies that gather both self-report and peer-report personality data – could help to reveal important relationships between personality traits and well-being from self-perception biases and other methods.

In addition, the low ethnic and cultural diversity of the sample in this research may have limited the generalisability of the study. The lack of an adequate cell size for each of the represented ethnic minorities limited the scope of the study's analyses. In particular, the researcher was unable to evaluate whether participants' self-identification with their culture and ethnicity related to their reported need for extraversion, life satisfaction, and SWB. Future research should deal with this limitation in a detailed manner.

Finally, a significant limitation in this investigation is the focus on one aspect of SWB. Subjective well-being generally is measured in terms of affective well-being (positive affect, negative affect) and cognitive well-being (life satisfaction), and the current study focused on the latter part. Although there is an overlap between the definition of the affective component of well-being and the personality traits, it is crucial to examine both components of well-being in a single study to provide a full picture of the relationship between extraversion and SWB. However, the current study tried to control the affective side of SWB as positive and negative affects are 'states' and they are generally embodied in a study to control for the person's mood at the time they complete the questionnaire or scale.

### **5-Conclusion**

In conclusion, despite the above-mentioned limitations, the study contributes to the extant literature on introversion-extroversion and well-being. Specifically, given the highly replicable nature of the extraversion and SWB link, it is not surprising that the connection is multiply determined. The contribution of the current study, in addition to showing the generality of this finding, is in suggesting that it adds to and supports the findings of previous research that examined the link between extraversion-introversion and SWB. The results show that personality appears to be one of the important predictors of SWB. The findings of the study also show that life satisfaction and psychological well-being appear to be influenced by extraversion. While age was slightly associated with SWB, gender did not produce a significant association. In addition, extraversion was still a significant predictor of life satisfaction and psychological well-being after controlling for age and gender, and positive and negative affect.

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## APPENDICES

### Appendix A

#### Information Sheet

Study Title: 'Personality and its relation to well-being'

Thank you for your interest in this study. Before you decide whether to take part, please read the following information carefully (this sheet is for you to keep). You may ask me any questions if you would like more information.

#### ***What is this research looking at?***

This study aims to reveal the relationship between personality and wellbeing (how people experience the quality of their lives and includes both how you feel and think).

#### ***Do I have to take part?***

*It is up to you to decide to join the study. We will describe the study and go through this information sheet. If you agree to take part, we will then ask you to sign a consent form. You are free to withdraw at any time, without giving a reason. This would not affect you in any way.*

#### ***What will happen if I agree to take part?***

*This is just a brief description of the procedure. You will be asked to fill out a questionnaire and questions about your everyday behaviour. Completing time will be approximately 15 minutes.*

#### ***Are there any problems with taking part?***

Taking part will take about 15-20 minutes of your time.

#### ***Will it help me if I take part?***

*Typically, the answer is no, but it will benefit the programme of research.*

#### ***How will you store the information that I give you?***

*All information which you provide during the study will be stored in accordance with the 1998 Data Protection Act and kept strictly confidential. The chief investigator will be the custodian of the anonymous research data. Any identifiable data will be stored separately in a password protected file and will be securely disposed of as soon as it is no longer necessary, and within 5 years. All anonymized results will be stored indefinitely in order to comply with open practice standards. Our data will be on a password protected computer. The data won't be linked to anyone's name. In this study, just the chief researcher and supervisor will have access to the data.*

#### ***How will the data be used?***

The data will be written up and presented in a Psychology masters dissertation and it might be presented in journals or conferences.

## Extraversion-Introversion and Subjective Well-being

### ***What happens if I agree to take part, but change my mind later?***

*If you change your mind, you should email to researchers 1 week after completing the questionnaire.*

### ***How do I know that this research is safe for me to take part in?***

*All research in the University is looked at by an independent group of people, called a Research Ethics Committee, to protect your safety, rights, wellbeing and dignity. This research was approved by the Psychology Research Ethics Committee at the University of East Anglia on [22 January 2018].*

**You are under no obligation to agree** to take part in this research.

If you do agree you can **withdraw at any time without giving a reason.**

### **Researcher Contact details:**

Email: [S.yilmaz@uea.ac.uk](mailto:S.yilmaz@uea.ac.uk)

Supervisor email: [l.biggart@uea.ac.uk](mailto:l.biggart@uea.ac.uk)

Do also contact us if you have any worries or concerns about this research.

School of Psychology Ethics Committee:  
[ethics.psychology@uea.ac.uk](mailto:ethics.psychology@uea.ac.uk); Phone 01603 597146

Head of School Professor Kenny Coventry:  
[k.coventry@uea.ac.uk](mailto:k.coventry@uea.ac.uk); Phone 01603 597145

## **Appendix B**

### Consent form

Study Title: 'Personality and its relation to well-being'

Name of Researcher: Sakir Yilmaz

Dear Potential participant,

Thank you for your interest in this project on personality and its relation to well-being. The questionnaire will only take 15 minutes and is part of a research project by Sakir Yilmaz for a master dissertation.

This study aims to reveal the relationship between personality and wellbeing (how people experience the quality of their lives and includes both how you feel and think).

- Your participation is voluntary, and you are free to withdraw at any time without giving any reason and without it affecting you at all.
- Your personal information will not be shared outside of the research team or published in the final report(s) from this study.

By answering the questions that follow it is assumed that you consent to take part and for your data to be used in academic research and for publications.

We are interested in your genuine responses so please take the questions at face value and give your personal opinion. If you have any questions about this study, please contact the researchers.

#### **Researcher Contact details:**

*Email:* [S.yilmaz@uea.ac.uk](mailto:S.yilmaz@uea.ac.uk)

*Supervisor email:* [l.biggart@uea.ac.uk](mailto:l.biggart@uea.ac.uk)

Do also contact us if you have any worries or concerns about this research.

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Head of School Professor Kenny Coventry:  
[k.coventry@uea.ac.uk](mailto:k.coventry@uea.ac.uk); Phone 01603 597145

## Appendix C

### Debrief

Thank you for participating in this study. Your time and efforts are much appreciated.

This study aims to reveal the relationship between personality and wellbeing (how people experience the quality of their lives and includes both how you feel and think).

If you have any questions regarding this study please feel free to ask or contact the researcher or supervisor of this study now, or at a later date. If you wish to withdraw your data please contact the researcher [1 week after completing the questionnaire]

If any sensitive issue may have been raised, potential sources of supports are Mind UK, Norwich Mind, and UEA Student Support Service listed below.

Contact details:

Mind UK

15-19 Broadway, Stratford, London E15 4BQ

T: 020 8519 2122, F: 020 8522 1725

Email: [supporterservices@mind.org.uk](mailto:supporterservices@mind.org.uk)

Norwich Mind

Norwich & Central Norfolk Mind

50 Sale Road, Norwich NR7 9TP

Telephone: 01603 432457

Email: [headoffice@norwichmind.org.uk](mailto:headoffice@norwichmind.org.uk)

UEA Student Support Service

**Telephone:** +44 (0) 1603 59 2761

**Email:** [studentsupport@uea.ac.uk](mailto:studentsupport@uea.ac.uk)

If you would like to receive a report of the main findings of the study when it is completed please contact the researcher, however individual feedback on your results cannot be given.

#### **Researcher Contact details:**

*Email:* [S.yilmaz@uea.ac.uk](mailto:S.yilmaz@uea.ac.uk)

*Supervisor email:* [l.biggart@uea.ac.uk](mailto:l.biggart@uea.ac.uk)

Do also contact us if you have any worries or concerns about this research.

School of Psychology Ethics Committee:

[ethics.psychology@uea.ac.uk](mailto:ethics.psychology@uea.ac.uk); Phone 01603 597146

Head of School Professor Kenny Coventry:

[k.coventry@uea.ac.uk](mailto:k.coventry@uea.ac.uk); Phone 01603 597145

Thank you again for your participation.

## Appendix D

### Invitation Letter

Study Title: 'Personality and its relation to well-being'

Name of Researcher: Sakir Yilmaz

Dear Potential participant,

We are conducting a questionnaire as part of a research study. This study aims to reveal the relationship between personality and wellbeing (how people experience the quality of their lives and includes both how you feel and think).

The questionnaire takes approximately 15 minutes. Your responses to the questions will be kept confidential. You will be asked to create an ID code (e.g. last 3 letters of surname and last 3 digits of mobile number) to help ensure that personal identifiers are not revealed during the analysis and write up of findings.

There is no compensation for participating in this study. However, your participation will be a valuable addition to our research and findings could lead to greater public understanding of psychology and the people in the field.

If you have any question, please do not hesitate to ask.

Thanks!

#### **Researcher Contact details:**

*Email: [S.yilmaz@uea.ac.uk](mailto:S.yilmaz@uea.ac.uk)*

*Supervisor email: [l.biggart@uea.ac.uk](mailto:l.biggart@uea.ac.uk)*

Do also contact us if you have any worries or concerns about this research.

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Head of School Professor Kenny Coventry:  
[k.coventry@uea.ac.uk](mailto:k.coventry@uea.ac.uk); Phone 01603 597145

## Appendix E

### The Mini-IPIP Scale

Instructions: On the following pages, there are phrases describing people's behaviours. Please use the rating scale below to describe how accurately each statement describes you. Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you are, and roughly your same age. So that you can describe yourself in an honest manner, your responses will be kept in absolute confidence. Please read each statement carefully, and then fill in the bubble that corresponds to the number on the scale.

1. Am the life of the party (E)
2. Sympathize with others' feelings (A)
3. Get chores done right away (C)
4. Have frequent mood swings (N)
5. Have a vivid imagination (I)
6. Don't talk a lot (E)
7. Am not interested in other people's problems (A)
8. Often forget to put things back in their proper place (C)
9. Am relaxed most of the time (N)
10. Am not interested in abstract ideas (I)
11. Talk to a lot of different people at parties (E)
12. Feel others' emotions (A)
13. Like order (C)
14. Get upset easily (N)
15. Have difficulty understanding abstract ideas (I)
16. Keep in the background (E)
17. Am not really interested in others (A)
18. Make a mess of things (C)
19. Seldom feel blue (N)
20. Do not have a good imagination (I)

## Appendix F

### Flourishing Scale

Below are 8 statements with which you may agree or disagree. Using the 1–7 scale below, indicate your agreement with each item by indicating that response for each statement.

1. I lead a purposeful and meaningful life
2. My social relationships are supportive and rewarding
3. I am engaged and interested in my daily activities
4. I actively contribute to the happiness and well-being of others
5. I am competent and capable in the activities that are important to me
6. I am a good person and live a good life
7. I am optimistic about my future
8. People respect me



## Appendix G

### The Satisfaction with Life Scale

**DIRECTIONS:** Below are five statements with which you may agree or disagree. Using the 1-7 scale below, indicate your agreement with each item by placing the appropriate number in the line preceding that item. Please be open and honest in your responding.

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



## Appendix H

### 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 list the number from the scale below next to each word. Indicate to what extent you feel this way right now, that is, at the present moment.

- |                 |                |
|-----------------|----------------|
| 1. Interested   | 11. Irritable  |
| 2. Distressed   | 12. Alert      |
| 3. Excited      | 13. Ashamed    |
| 4. Upset        | 14. Inspired   |
| 5. Strong       | 15. Nervous    |
| 6. Guilty       | 16. Determined |
| 7. Scared       | 17. Attentive  |
| 8. Hostile      | 18. Jittery    |
| 9. Enthusiastic | 19. Active     |
| 10. Proud       | 20. Afraid     |

**UNIVERSITY OF EAST ANGLIA  
SCHOOL OF PSYCHOLOGY  
RESEARCH ETHICS APPLICATION**

**Section I: Project Details**

Project reference:	2017-0577-001036
Project Title: This will be the title through review.(max 100 chars)	Introversion-extroversion and its relation to subjective wellbeing.
SONA Title: This will be the exact title you use on SONA.(max 100 chars)	Introversion-extroversion and its relation to subjective wellbeing.
Project Funder:	None
R project code:	
Project officer:	
Can you confirm that financial gain will not be indicated in the title of your advert (if SONA credits are being awarded)	yes
Start Date:	25-01-2018
End Date:	30-08-2018
Brief Summary of the Project (not more than 100 words):	This study aims to investigate the relationship between introversion-extroversion and subjective well-being. In order to explore the relation between them, participant will be completed the extraversion and neuroticism subscales of Eysenck personality Questionnaire-Revised short form (EPQR-S), The mini-IPIP scale, The Satisfaction with Life Scale, The Positive and Negative Affect scale and Flourishing Scale.
If a standard research protocol with existing ethics approval is being used please give the title of the protocol and the reference number.	N/A
Has your study already received a Research Ethics Review, or has been reviewed in full by another institution because it is part of a larger study? If yes, you are required to upload the approval documentation as an appendix.	no

**Section II: Applicant Details**

Name of applicant:	Sakir Yilmaz
Name or researcher who is gathering the data:	Sakir Yilmaz
Supervisor:	Laura Biggart
School:	Psychology
Email address:	S.Yilmaz@uea.ac.uk
Telephone number:	07561356116

**Section III: For Taught Students Only (UG and PG)**

Course:	Developmental Science
Department:	Psychology
Module:	Dissertation
Module number:	PSY-7001X
Module leader's name:	LAURA BIGGART

**Section IV: Research Checklist**

Will the study involve recruitment of patients through the NHS or Social Care, or the use of NHS patient data or premises and/or equipment? <b>All research involving patient data must be reviewed by the NHS NRES</b> (Recruitment of NHS staff or use of NHS data/equipment can go through the psychology ethics committee.)	no
Does the study involve participants age 16 or over who are unable to give informed consent (e.g. people with learning disabilities: see Mental Capacity Act 2005)? <b>All research that falls under the auspices of the MCA must be reviewed by NHS NRES</b>	no
Will tissue samples (including blood) be obtained from participants? <b>All research involving human tissue must be reviewed by the UEA Faculty of Medicine and Health Sciences Research Ethics Committee</b>	no
Would you like to continue and complete the full ethics approval checklist and review even though you have answered YES to some of the above?	no

If you have answered 'Yes' to any of the questions above you will need to submit your research for ethical approval to the appropriate external body. See the [UEA Research Governance Guidance for Researchers and Supervisors](#) **Send the completed and signed Checklist to the Deputy Chair for registration.**

Once ethical approval is granted by the external body, a copy of the approval should be sent to your School

Research Ethics Officer (SCI) or Faculty Research Ethics Administrator for their records.

### Section IV: Research Checklist

Does the research involve animals?	no
Does the research involve <b>vulnerable groups</b> (children, those with cognitive impairment, or those in unequal relationships e.g. your own students in class)?	no
Will the study require the <b>co-operation of a gatekeeper/subject panel</b> for initial access to the groups or individuals to be recruited (e.g. students at school, members of self-help group, residents of Nursing home, prisoners)?	no
Will it be necessary for participants to take part in the study without their knowledge and consent at the time (e.g. <b>covert observation</b> of people in non-public places)?	no
Will <b>deception</b> be used?	no
Will the study involve <b>discussion of sensitive topics</b> (e.g. sexual activity, drug use, ethnicity, political behaviour) or involve elite interviews?	no
Will the research involve access to records of <b>personal/ sensitive/ confidential information</b> , or involve commercial confidentiality/national security?	no
Are drugs, placebos or other <b>substances</b> (e.g. food substances, vitamins) to be administered to the study participants or will the study <b>involve invasive, intrusive or potentially harmful procedures</b> of any kind?	no
Is <b>pain or more than mild discomfort</b> likely to result from the study?	no
Could the study induce <b>psychological stress or anxiety</b> or cause harm or negative consequences beyond the risks encountered in normal life?	no
Will the study <b>involve</b>	no

<b>prolonged or repetitive testing</b> beyond a regular laboratory experiment?	
Will the research <b>involve administrative or secure data that requires permission from the appropriate authorities</b> before use?	no
Is there a possibility that the <b>safety of the researcher may be in question</b> (e.g. in international research: locally employed research assistants)?	no
Does the research <b>involve members of the public in a research capacity</b> (that is, the participants themselves will be carrying out research)?	no
Will the <b>research take place outside the UK?</b>	no
Will the research expose respondents to the <b>internet</b> or other visual/vocal methods where <b>respondents may be identified?</b>	no
Will research involve the sharing of data or confidential information beyond the initial consent given (e.g. <b>secondary use of data</b> )?	no
Will <b>financial inducements</b> (other than reasonable expenses and compensation for time as in regular laboratory experiments) be offered to participants?	no

If you have answered Yes to ANY of questions on this page, please explain your YES-answers briefly:(max 300 words)

The issues highlighted above should be considered carefully when completing the full ethical review form which follows.

#### Section IV: Research Checklist

Is this a project funded by a research council such as the ESRC? Y (full committee)/N – see below	no
Is this a project which is highly sensitive ethically? Y (full committee)/N see below.	no
Is this a staff or postgraduate	yes

research project? Y (2 reviewers)/N – see below.	
Is this an undergraduate project on a potentially vulnerable population (including participants under 18 years old)? Y (2 reviewers)/N – see below	no
Is this an undergraduate project which has some sensitive issues and the views of a second reviewer would be beneficial? Y (2 reviewers)/N – see below	no
Is this an undergraduate project in which none of the above apply? Y (1 reviewer)	no

## Methods

Background and issues, aims, design (e.g.interview, experimental, observational, survey), research questions / hypotheses (2-300 words):	This study aims to investigate the relationship between introversion-extroversion and subjective well-being. In order to explore the relation between them, participants will complete the extraversion and neuroticism subscales of the Eysenck personality Questionnaire-Revised short form (EPQR-S), The mini-IPIP scale, The Satisfaction with Life Scale, The Positive and Negative Affect Scale and Flourishing Scale. The study will take approximately 15-20 minutes to complete. DeNeve and Cooper (1998) conducted a meta-analysis of 137 personality traits and subjective well-being. The results of different studies exploring personality traits and their relationships with subjective well-being were examined in the study.They all focused on different personality traits in their studies. The reason why we especially want to focus on extraversion and introversion and how these influences subjective well-being is that as seen in the study, only a few studies directly focused on extraversion-introversion personality trait.
How many participants do you intend to include in the study?(numeric value only please)	100
What are the characteristics of the participants? (Please list all inclusion and exclusion criteria)(max 300 words)	Participants will be university students over 18 years.
What is the process of recruitment, how will participants be approached and invited to take part?(max 300 words)	SONA system will be used to recruit students.In addition, via social media such as facebook, email, online link will be sent to participants to complete the study.
Will external organisations/people's consent be required?	no
If Yes please detail:(max 300 words)	N/A
Is the planned sample size achievable and appropriate for meaningful data analysis?	yes
Is this research taking place via	yes

the internet/post?	
If the study is conducted via the internet have you included safeguards to ensure that participants are not vulnerable or underage?	yes
What are those safeguards?(max 300 words)	1. Sona system will be used which is only accessible to PSY students. 2. Qualtrics will have two questions at the beginning: - Are you are student? and - Are you over 18 years old. if participants reply "yes", they will be directed to answer the questions.However, if they reply "no", they will be directed to end and debrief.
If data is being gathered via the internet are you gathering IP addresses?	no
If yes are you ensuring that participants explicitly consent to this?	no
Are you using the standard <a href="#">School of Psychology guidelines</a> for participant reimbursement (credits for SONA or payment for funded studies)?	no
If not why not?(max 300 words)	N/A
Is your recruitment process non-coercive and is it clear there are no consequences for non-participation?	yes
Please outline what the participants will experience including what measures, materials or apparatus will you use? (Please give details and include copies of questionnaires, interview schedules, experimental stimuli etc. Be mindful that not all research requires asking personal and sensitive questions and this should be considered when deciding on measures)(max 300 words)	In this study, participants will answer questions in the extraversion and neuroticism subscales of Eysenck personality Questionnaire-Revised short form (EPQR-S),The mini-IPIP scale, The Satisfaction with Life Scale, The Positive and Negative Affect Scale and Flourishing Scale. The study will take approximately 15-20 minutes to complete. -The extraversion and neuroticism subscales of Eysenck personality Questionnaire-Revised short form (EPQR-S) More recently Eysenck, Eysenck and Barrett (1985) devised a short form of the Revised Eysenck Personality Questionnaire (EPQR-S) which consists of 48 items that assess neuroticism, extraversion, psychoticism, and lying for use among adults and each sub-scale contains 12 items. In our study, just extraversion and neuroticism sub-scales will be used. -The mini-IPIP scale The Mini-IPIP personality scale is a recently developed short measure of the five-factor model personality traits, derived from items in the International Personality Item Pool (Goldberg, 1999). -The Satisfaction with Life Scale (SWLS) The SWLS is a short 5-item instrument designed to measure global cognitive judgments of satisfaction with one's life. The scale usually requires only about one minute of a respondent's time. -The Positive and Negative Affect Scale The Positive and Negative Affect Schedule (PANAS) is a self-report questionnaire that consists of two 10-item scales to measure both positive and negative affect. -Flourishing Scale The Flourishing Scale is a brief 8-item summary measure of the respondent's self-perceived success in important areas such as relationships, self-esteem, purpose, and optimism. The scale provides a single psychological well-being score.

**Informed consent and briefing**

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Is informed consent to be obtained from participants?	yes
Will you append a copy of the invitation letter/advert?	yes
Will you append a copy of the participant information sheets?	yes
Is your participant information sheet based on the official template?	yes
If not why not?(max 300 words)	N/A
Will you append a copy of the consent form?	yes
Will participants be explicitly informed of what the researcher's role/status is?	yes
Will participants be told of the use to which data will be put (e.g., research publications, teaching purposes, media publication)?	yes

### Right of withdrawal

When is the last point of withdrawal?(max 300 words)	If participants change their mind, they should email to the researchers 1 week after completing the questionnaire. Each participant will be asked to create an ID code (e.g. last 3 letters of surname and last 3 digits of mobile number) to help ensure that personal identifiers are not revealed during the analysis and write up of findings.
Is this clear from your consent/participant information form?	yes
How will you deal with anonymity issues for late withdrawal (e.g. use of participant codes)?(max 300 words)	Each participant will be asked to create an ID code (e.g. last 3 letters of surname and last 3 digits of mobile number) to help ensure that personal identifiers are not revealed during the analysis and write up of findings.
Are participants given a genuine, unpressured opportunity to withdraw?	yes
If NO, explain why not:(max 300 words)	N/A

### Debriefing

Will the participants be debriefed? (Please append verbal or written text)	yes
If YES, how will they be debriefed (e.g., verbally, debriefing sheet; give details or attach the debriefing information to this form) or if NO, why not?(max 300 words)	-Debriefing form will be attached to this form. if any sensitive issue may have been raised, potential sources of supports will be Mind UK and Norwich Mind. Mind UK 15-19 Broadway, Stratford, London E15 4BQ T: 020 8519 2122, F: 020 8522 1725 e: supporterservices@mind.org.uk Norwich Mind Norwich & Central Norfolk Mind 50 Sale Road, Norwich NR7 9TP Telephone: 01603 432457 Email:headoffice@norwichmind.org.uk - Debriefing sheet will be given

	to participants.
Does the debrief offer Sources of Support where relevant?	yes
Does it offer an easily understandable lay explanation of the research?	yes
Does it contain contact details for the researcher and ethics committee?	yes
If the study is being completed via the internet remember participants may exit part way through without receiving the debrief - does the design and or initial consent information take this into account?	yes
Are you using the debrief template?	yes

### Confidentiality

Will you meet the participants?	no
Will the participants sign anything?	no
Will IP addresses be collected?	no
If none of the above are answered 'yes' will the data be gathered anonymously?	yes
If NO, how will you protect the identity of your participants and ensure that any personal information you receive will be kept confidential?(max 300 words)	N/A
Will you remove identifying information from the data and, if necessary, replace it with ID numbers or pseudonyms?	yes
Will you store data securely (e.g., in a locked filing cabinet or password-protected electronic file)?	yes
Are you storing contact details such as email addresses separately to responses?	yes

### Risk assessment

What inconveniences might participants experience?(max 300 words)	Completing questionnaire and scales will take participant's time, about 15-20 minutes.
What steps will you take to	Participants will be informed of how long the questionnaire and scales will take

minimize these?(max 300 words)	(15-20mins).
Will involvement in the research put participants at risk of physical or psychological harm, distress or discomfort greater than that encountered in their everyday lives?	no
If YES, describe the nature of the risk and the steps you will take to minimise it(max 300 words):	N/A
Will you complete the researcher safety checklist, and will you review the researcher safety checklist for each member of the research team (see appendix)? If the details of the research are not known at this time, then details from the checklist should be logged with the committee prior to collecting data.	no
Is a risk assessment necessary?	no
Does involvement in the research put you at risk of physical or psychological harm, distress or discomfort greater than that encountered in your everyday life?	no
If YES, describe the nature of the risk and the steps you will take to minimise it: (See Researcher Safety Policy).(max 300 words)	N/A

### Other permissions and clearances

Is ethical clearance required from any other ethics committee?	no
If YES, please give the name and address of the organisation:	N/A
Has such ethical clearance been obtained yet? If YES, please attach a copy of the ethical approval letter	no

Please note that it is your responsibility to follow the University of East Anglia Research Ethics Policy, Principles and Procedures and any relevant academic or professional guidelines in the conduct of your study. **This includes providing appropriate information sheets and consent forms, following appropriate recruitment policies, and ensuring confidentiality in the storage and use of data.**

**Any significant change in the question, design or conduct over the course of the research should be notified to the Research Ethics Committee and may require a new application for ethics approval.**

## Extraversion-Introversion and Subjective Well-being

Please enter your name and the date to confirm that you are the applicant and have read and understood the above:

Name:Sakir Yilmaz

Date:04-01-2018



**T-Test- Gender Differences in Subjective Well-Being**

**Group Statistics**

What is your gender?		N	Mean	Std. Deviation	Std. Error Mean
lifesatisfaction	Male	22	22.1364	5.81701	1.24019
	Female	78	23.0000	6.24812	.70746
sumflourishing	Male	22	41.3636	6.23772	1.32989
	Female	78	42.5000	7.16548	.81133
sumpositiveaffect	Male	22	31.2727	9.52781	2.03134
	Female	78	28.5641	8.50911	.96347
sumnegativeaffect	Male	22	20.4545	7.73814	1.64978
	Female	78	18.8846	7.21467	.81690
sumextraversionIPIP	Male	22	11.3636	3.14030	.66951
	Female	78	12.0000	3.46410	.39223

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
lifesatisfaction	Equal variances assumed	.339	.562	-.581	98	.563
	Equal variances not assumed			-.605	35.855	.549
sumflourishing	Equal variances assumed	1.089	.299	-.675	98	.501
	Equal variances not assumed			-.729	38.102	.470
sumpositiveaffect	Equal variances assumed	.021	.885	1.284	98	.202
	Equal variances not assumed			1.205	31.082	.237
sumnegativeaffect	Equal variances assumed	.003	.957	.887	98	.377
	Equal variances not assumed			.853	32.035	.400
sumextraversionIPIP	Equal variances assumed	.025	.874	-.776	98	.440

Extraversion-Introversion and Subjective Well-being

Equal variances not assumed				- .820	36.709	.417
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**Independent Samples Test**

		t-test for Equality of Means			
		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
				Lower	Upper
lifesatisfaction	Equal variances assumed	-.86364	1.48662	-3.81379	2.08652
	Equal variances not assumed	-.86364	1.42779	-3.75973	2.03246
sumflourishing	Equal variances assumed	-1.13636	1.68428	-4.47876	2.20604
	Equal variances not assumed	-1.13636	1.55784	-4.28976	2.01703
sumpositiveaffect	Equal variances assumed	2.70862	2.10923	-1.47707	6.89432
	Equal variances not assumed	2.70862	2.24824	-1.87621	7.29346
sumnegativeaffect	Equal variances assumed	1.56993	1.76948	-1.94154	5.08140
	Equal variances not assumed	1.56993	1.84095	-2.17980	5.31966
sumextraversionIPIP	Equal variances assumed	-.63636	.82012	-2.26386	.99114
	Equal variances not assumed	-.63636	.77595	-2.20900	.93628

**Correlations- Correlates of Subjective Well-Being**

		<b>Correlations</b>		
		lifesatisfac tion	sumflourishi ng	sumextrave rsionIPIP
lifesatisfaction	Pearson Correlation	1	.722**	.368**
	Sig. (2-tailed)		.000	.000
	N	100	100	100
sumflourishing	Pearson Correlation	.722**	1	.419**
	Sig. (2-tailed)	.000		.000
	N	100	100	100
sumextraversionIPIP	Pearson Correlation	.368**	.419**	1
	Sig. (2-tailed)	.000	.000	
	N	100	100	100

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

**Regression- Age and Gender as Predictors**

**Descriptive Statistics**

	Mean	Std. Deviation	N
lifesatisfaction	22.8100	6.13764	100
How old are you?	23.2950	5.19085	100
What is your gender?	1.7800	.41633	100

**Correlations**

		lifesatisfacti on	How old are you?	What is your gender?
Pearson Correlation	lifesatisfaction	1.000	-.102	.059
	How old are you?	-.102	1.000	-.199
	What is your gender?	.059	-.199	1.000
Sig. (1-tailed)	lifesatisfaction	.	.157	.281
	How old are you?	.157	.	.024
	What is your gender?	.281	.024	.
N	lifesatisfaction	100	100	100
	How old are you?	100	100	100
	What is your gender?	100	100	100

**Variables Entered/Removed<sup>a</sup>**

Model	Variables Entered	Variables Removed	Method
1	What is your gender?, How old are you? <sup>b</sup>	.	Enter

a. Dependent Variable: lifesatisfaction

b. All requested variables entered.

Extraversion-Introversion and Subjective Well-being

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2
1	.109 <sup>a</sup>	.012	-.009	6.16373	.012	.582	2	97

**Model Summary<sup>b</sup>**

Model	Change Statistics
	Sig. F Change
1	.561

a. Predictors: (Constant), What is your gender?, How old are you?

b. Dependent Variable: lifesatisfaction

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	44.207	2	22.104	.582	.561 <sup>b</sup>
	Residual	3685.183	97	37.992		
	Total	3729.390	99			

a. Dependent Variable: lifesatisfaction

b. Predictors: (Constant), What is your gender?, How old are you?

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations
		B	Std. Error	Beta			Zero-order
1	(Constant)	24.340	4.333		5.617	.000	
	How old are you?	-.111	.122	-.094	-.909	.365	-.102
	What is your gender?	.589	1.518	.040	.388	.699	.059

**Coefficients<sup>a</sup>**

Model		Correlations			
		Partial	Part	Tolerance	VIF
1	(Constant)				
	How old are you?	-.092	-.092	.961	1.041

Extraversion-Introversion and Subjective Well-being

What is your gender?	.039	.039	.961	1.041
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a. Dependent Variable: lifesatisfaction

**Collinearity Diagnostics<sup>a</sup>**

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	How old are you?	What is your gender?
1	1	2.928	1.000	.00	.01	.01
	2	.059	7.050	.00	.37	.43
	3	.013	14.777	1.00	.63	.56

a. Dependent Variable: lifesatisfaction

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	20.5366	23.5259	22.8100	.66824	100
Std. Predicted Value	-3.402	1.071	.000	1.000	100
Standard Error of Predicted Value	.699	2.798	1.008	.354	100
Adjusted Predicted Value	19.9098	23.7586	22.8131	.68893	100
Residual	-13.30447	12.47054	.00000	6.10115	100
Std. Residual	-2.159	2.023	.000	.990	100
Stud. Residual	-2.176	2.044	.000	1.004	100
Deleted Residual	-13.51767	12.72336	-.00305	6.28403	100
Stud. Deleted Residual	-2.219	2.078	-.001	1.011	100
Mahal. Distance	.282	19.407	1.980	2.669	100
Cook's Distance	.000	.072	.010	.014	100
Centered Leverage Value	.003	.196	.020	.027	100

a. Dependent Variable: lifesatisfaction

**Regression- Extraversion as Predictor of Life Satisfaction**

**Descriptive Statistics**

	Mean	Std. Deviation	N
lifesatisfaction	22.8100	6.13764	100
sumextraversionIPIP	11.8600	3.39048	100

**Correlations**

		lifesatisfac tion	sumextrave rsionIPIP
Pearson Correlation	lifesatisfaction	1.000	.368
	sumextraversionIPIP	.368	1.000
Sig. (1-tailed)	lifesatisfaction	.	.000
	sumextraversionIPIP	.000	.
N	lifesatisfaction	100	100
	sumextraversionIPIP	100	100

**Variables Entered/Removed<sup>a</sup>**

Model	Variables Entered	Variables Removed	Method
1	sumextrave rsionIPIP <sup>b</sup>	.	Enter

a. Dependent Variable: lifesatisfaction

b. All requested variables entered.

**Model Summary<sup>a</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2
1	.368 <sup>a</sup>	.135	.127	5.73573	.135	15.360	1	98

**Model Summary<sup>b</sup>**

Model	Change Statistics			
	Sig. F Change			
1	.000			

a. Predictors: (Constant), sumextraversionIPIP

## Extraversion-Introversion and Subjective Well-being

b. Dependent Variable: lifesatisfaction

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	505.325	1	505.325	15.360	.000 <sup>b</sup>
	Residual	3224.065	98	32.899		
	Total	3729.390	99			

a. Dependent Variable: lifesatisfaction

b. Predictors: (Constant), sumextraversionIPIP

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations
		B	Std. Error	Beta			Zero-order
1	(Constant)	14.907	2.096		7.111	.000	
	sumextraversionIPIP	.666	.170	.368	3.919	.000	.368

**Coefficients<sup>a</sup>**

Model		Correlations			
		Partial	Part	Tolerance	VIF
1	(Constant)				
	sumextraversionIPIP	.368	.368	1.000	1.000

a. Dependent Variable: lifesatisfaction

**Collinearity Diagnostics<sup>a</sup>**

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	sumextraversionIPIP
1	1	1.962	1.000	.02	.02
	2	.038	7.171	.98	.98

a. Dependent Variable: lifesatisfaction

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	17.5724	26.9014	22.8100	2.25927	100

## Extraversion-Introversion and Subjective Well-being

Std. Predicted Value	-2.318	1.811	.000	1.000	100
Standard Error of Predicted Value	.574	1.454	.782	.216	100
Adjusted Predicted Value	17.4744	27.3477	22.8289	2.24582	100
Residual	-14.90236	12.09671	.00000	5.70669	100
Std. Residual	-2.598	2.109	.000	.995	100
Stud. Residual	-2.623	2.120	-.002	1.005	100
Deleted Residual	-15.18578	12.21911	-.01888	5.82497	100
Stud. Deleted Residual	-2.706	2.159	-.003	1.013	100
Mahal. Distance	.002	5.374	.990	1.215	100
Cook's Distance	.000	.081	.010	.016	100
Centered Leverage Value	.000	.054	.010	.012	100

a. Dependent Variable: lifesatisfaction

**Regression- Extraversion as Predictor of Psychological Well-being**

**Descriptive Statistics**

	Mean	Std. Deviation	N
sumflourishing	42.2500	6.95785	100
sumextraversionIPIP	11.8600	3.39048	100

**Correlations**

		sumflourishing	sumextraversionIPIP
Pearson Correlation	sumflourishing	1.000	.419
	sumextraversionIPIP	.419	1.000
Sig. (1-tailed)	sumflourishing	.	.000
	sumextraversionIPIP	.000	.
N	sumflourishing	100	100
	sumextraversionIPIP	100	100

**Variables Entered/Removed<sup>a</sup>**

Model	Variables Entered	Variables Removed	Method
1	sumextraversionIPIP <sup>b</sup>	.	Enter

a. Dependent Variable: sumflourishing

b. All requested variables entered.

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2
1	.419 <sup>a</sup>	.176	.167	6.34847	.176	20.918	1	98

**Model Summary<sup>b</sup>**

Model	Change Statistics
	Sig. F Change
1	.000

a. Predictors: (Constant), sumextraversionIPIP

b. Dependent Variable: sumflourishing

Extraversion-Introversion and Subjective Well-being

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	843.046	1	843.046	20.918	.000 <sup>b</sup>
	Residual	3949.704	98	40.303		
	Total	4792.750	99			

a. Dependent Variable: sumflourishing

b. Predictors: (Constant), sumextraversionIPIP

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations
		B	Std. Error	Beta			Zero-order
1	(Constant)	32.042	2.320		13.809	.000	
	sumextraversionIPIP	.861	.188	.419	4.574	.000	.419

**Coefficients<sup>a</sup>**

Model		Correlations			
		Partial	Part	Tolerance	VIF
1	(Constant)				
	sumextraversionIPIP	.419	.419	1.000	1.000

a. Dependent Variable: sumflourishing

**Collinearity Diagnostics<sup>a</sup>**

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	sumextraversionIPIP
1	1	1.962	1.000	.02	.02
	2	.038	7.171	.98	.98

a. Dependent Variable: sumflourishing

**Residuals Statistics<sup>a</sup>**

## Extraversion-Introversion and Subjective Well-being

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	35.4850	47.5346	42.2500	2.91815	100
Std. Predicted Value	-2.318	1.811	.000	1.000	100
Standard Error of Predicted Value	.635	1.610	.866	.239	100
Adjusted Predicted Value	35.1061	47.6489	42.2678	2.91178	100
Residual	-20.67395	13.62950	.00000	6.31633	100
Std. Residual	-3.257	2.147	.000	.995	100
Stud. Residual	-3.312	2.158	-.001	1.006	100
Deleted Residual	-21.38423	13.76742	-.01785	6.45309	100
Stud. Deleted Residual	-3.497	2.200	-.004	1.018	100
Mahal. Distance	.002	5.374	.990	1.215	100
Cook's Distance	.000	.188	.011	.023	100
Centered Leverage Value	.000	.054	.010	.012	100

a. Dependent Variable: sumflourishing

Extraversion-Introversion and Subjective Well-being

**Regression- Extraversion as a Predictor of Life Satisfaction After Controlling for Age, Gender, Positive Affect and Negative Affect**

**Descriptive Statistics**

	Mean	Std. Deviation	N
lifesatisfaction	22.8100	6.13764	100
How old are you?	23.2950	5.19085	100
What is your gender?	1.7800	.41633	100
sumpositiveaffect	29.1600	8.76600	100
sumnegativeaffect	19.2300	7.32211	100
sumextraversionIPIP	11.8600	3.39048	100

**Correlations**

		lifesatisfac tion	How old are you?	What is your gender?	sumpositive affect
Pearson Correlation	lifesatisfaction	1.000	-.102	.059	.401
	How old are you?	-.102	1.000	-.199	.123
	What is your gender?	.059	-.199	1.000	-.129
	sumpositiveaffect	.401	.123	-.129	1.000
	sumnegativeaffect	-.294	.161	-.089	.204
	sumextraversionIPIP	.368	-.107	.078	.179
	Sig. (1-tailed)	lifesatisfaction	.	.157	.281
How old are you?		.157	.	.024	.110
What is your gender?		.281	.024	.	.101
sumpositiveaffect		.000	.110	.101	.
sumnegativeaffect		.001	.054	.189	.021
sumextraversionIPIP		.000	.145	.220	.038
N		lifesatisfaction	100	100	100
	How old are you?	100	100	100	100
	What is your gender?	100	100	100	100
	sumpositiveaffect	100	100	100	100
	sumnegativeaffect	100	100	100	100
	sumextraversionIPIP	100	100	100	100

Extraversion-Introversion and Subjective Well-being

**Correlations**

		sumnegativeeffect	sumextraversionIPI P
Pearson Correlation	lifesatisfaction	-.294	.368
	How old are you?	.161	-.107
	What is your gender?	-.089	.078
	sumpositiveeffect	.204	.179
	sumnegativeeffect	1.000	-.201
	sumextraversionIPI	-.201	1.000
Sig. (1-tailed)	lifesatisfaction	.001	.000
	How old are you?	.054	.145
	What is your gender?	.189	.220
	sumpositiveeffect	.021	.038
	sumnegativeeffect	.	.023
	sumextraversionIPI	.023	.
N	lifesatisfaction	100	100
	How old are you?	100	100
	What is your gender?	100	100
	sumpositiveeffect	100	100
	sumnegativeeffect	100	100
	sumextraversionIPI	100	100

**Variables Entered/Removed<sup>a</sup>**

Model	Variables Entered	Variables Removed	Method
1	What is your gender?, How old are you? <sup>b</sup>	.	Enter
2	sumpositive affect, sumnegativ eeffect <sup>b</sup>	.	Enter
3	sumextrave rsionIPI <sup>b</sup>	.	Enter

a. Dependent Variable: lifesatisfaction

## Extraversion-Introversion and Subjective Well-being

b. All requested variables entered.

**Model Summary<sup>d</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2
1	.109 <sup>a</sup>	.012	-.009	6.16373	.012	.582	2	97
2	.568 <sup>b</sup>	.323	.295	5.15492	.311	21.840	2	95
3	.602 <sup>c</sup>	.363	.329	5.02742	.040	5.880	1	94

**Model Summary<sup>d</sup>**

Model	Change Statistics	
	Sig. F Change	
1	.561	
2	.000	
3	.017	

a. Predictors: (Constant), What is your gender?, How old are you?

b. Predictors: (Constant), What is your gender?, How old are you?, sumpositiveaffect, sumnegativeaffect

c. Predictors: (Constant), What is your gender?, How old are you?, sumpositiveaffect, sumnegativeaffect, sumextraversionPIP

d. Dependent Variable: lifesatisfaction

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	44.207	2	22.104	.582	.561 <sup>b</sup>
	Residual	3685.183	97	37.992		
	Total	3729.390	99			
2	Regression	1204.937	4	301.234	11.336	.000 <sup>c</sup>
	Residual	2524.453	95	26.573		
	Total	3729.390	99			
3	Regression	1353.549	5	270.710	10.711	.000 <sup>d</sup>
	Residual	2375.841	94	25.275		
	Total	3729.390	99			

a. Dependent Variable: lifesatisfaction

b. Predictors: (Constant), What is your gender?, How old are you?

c. Predictors: (Constant), What is your gender?, How old are you?, sumpositiveaffect, sumnegativeaffect

## Extraversion-Introversion and Subjective Well-being

d. Predictors: (Constant), What is your gender?, How old are you?,  
sumpositiveaffect, sumnegativeaffect, sumextraversionIPIP

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations
		B	Std. Error	Beta			Zero-order
1	(Constant)	24.340	4.333		5.617	.000	
	How old are you?	-.111	.122	-.094	-.909	.365	-.102
	What is your gender?	.589	1.518	.040	.388	.699	.059
2	(Constant)	19.248	4.114		4.678	.000	
	How old are you?	-.104	.103	-.088	-1.011	.315	-.102
	What is your gender?	1.055	1.278	.072	.826	.411	.059
	sumpositiveaffect	.348	.061	.498	5.719	.000	.401
	sumnegativeaffect	-.314	.073	-.375	-4.304	.000	-.294
3	(Constant)	14.891	4.396		3.387	.001	
	How old are you?	-.083	.101	-.070	-.821	.414	-.102
	What is your gender?	.831	1.250	.056	.665	.508	.059
	sumpositiveaffect	.312	.061	.446	5.095	.000	.401
	sumnegativeaffect	-.274	.073	-.326	-3.737	.000	-.294
	sumextraversionIPIP	.382	.158	.211	2.425	.017	.368

**Coefficients<sup>a</sup>**

Model		Correlations	
		Partial	Part
1	(Constant)		
	How old are you?	-.092	-.092
	What is your gender?	.039	.039
2	(Constant)		
	How old are you?	-.103	-.085
	What is your gender?	.084	.070
	sumpositiveaffect	.506	.483
	sumnegativeaffect	-.404	-.363
3	(Constant)		
	How old are you?	-.084	-.068
	What is your gender?	.068	.055

## Extraversion-Introversion and Subjective Well-being

sumpositiveeffect	.465	.419
sumnegativeeffect	-.360	-.308
sumextraversionIPIP	.243	.200

a. Dependent Variable: lifesatisfaction

**Excluded Variables<sup>a</sup>**

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	sumpositiveeffect	.429 <sup>b</sup>	4.612	.000	.426	.973
	sumnegativeeffect	-.284 <sup>b</sup>	-2.872	.005	-.281	.971
	sumextraversionIPIP	.360 <sup>b</sup>	3.778	.000	.360	.985
2	sumextraversionIPIP	.211 <sup>c</sup>	2.425	.017	.243	.895

a. Dependent Variable: lifesatisfaction

b. Predictors in the Model: (Constant), What is your gender?, How old are you?

c. Predictors in the Model: (Constant), What is your gender?, How old are you?, sumpositiveeffect, sumnegativeeffect

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	10.9809	32.3885	22.8100	3.69759	100
Std. Predicted Value	-3.199	2.590	.000	1.000	100
Standard Error of Predicted Value	.685	2.437	1.188	.328	100
Adjusted Predicted Value	11.1523	32.3361	22.8049	3.72684	100
Residual	-14.57170	10.35029	.00000	4.89882	100
Std. Residual	-2.898	2.059	.000	.974	100
Stud. Residual	-3.011	2.185	.000	1.006	100
Deleted Residual	-15.72922	11.66163	.00512	5.22067	100
Stud. Deleted Residual	-3.151	2.231	-.001	1.016	100
Mahal. Distance	.850	22.264	4.950	3.546	100
Cook's Distance	.000	.120	.011	.020	100
Centered Leverage Value	.009	.225	.050	.036	100

a. Dependent Variable: lifesatisfaction

**Regression- Extraversion as a Predictor of Psychological Well-being After Controlling for Age, Gender, Positive Affect and Negative Affect**

**Descriptive Statistics**

	Mean	Std. Deviation	N
sumflourishing	42.2500	6.95785	100
How old are you?	23.2950	5.19085	100
What is your gender?	1.7800	.41633	100
sumpositiveaffect	29.1600	8.76600	100
sumnegativeaffect	19.2300	7.32211	100
sumextraversionIPIP	11.8600	3.39048	100

**Correlations**

		sumflourishing	How old are you?	What is your gender?	sumpositiveaffect
Pearson Correlation	sumflourishing	1.000	-.131	.068	.437
	How old are you?	-.131	1.000	-.199	.123
	What is your gender?	.068	-.199	1.000	-.129
	sumpositiveaffect	.437	.123	-.129	1.000
	sumnegativeaffect	-.390	.161	-.089	.204
	sumextraversionIPIP	.419	-.107	.078	.179
Sig. (1-tailed)	sumflourishing	.	.097	.251	.000
	How old are you?	.097	.	.024	.110
	What is your gender?	.251	.024	.	.101
	sumpositiveaffect	.000	.110	.101	.
	sumnegativeaffect	.000	.054	.189	.021
	sumextraversionIPIP	.000	.145	.220	.038
N	sumflourishing	100	100	100	100
	How old are you?	100	100	100	100
	What is your gender?	100	100	100	100
	sumpositiveaffect	100	100	100	100
	sumnegativeaffect	100	100	100	100
	sumextraversionIPIP	100	100	100	100

Extraversion-Introversion and Subjective Well-being

**Correlations**

		sumnegativeeffect	sumextraversionIPI P
Pearson Correlation	sumflourishing	-.390	.419
	How old are you?	.161	-.107
	What is your gender?	-.089	.078
	sumpositiveeffect	.204	.179
	sumnegativeeffect	1.000	-.201
	sumextraversionIPIP	-.201	1.000
Sig. (1-tailed)	sumflourishing	.000	.000
	How old are you?	.054	.145
	What is your gender?	.189	.220
	sumpositiveeffect	.021	.038
	sumnegativeeffect	.	.023
	sumextraversionIPIP	.023	.
N	sumflourishing	100	100
	How old are you?	100	100
	What is your gender?	100	100
	sumpositiveeffect	100	100
	sumnegativeeffect	100	100
	sumextraversionIPIP	100	100

**Variables Entered/Removed<sup>a</sup>**

Model	Variables Entered	Variables Removed	Method
1	What is your gender?, How old are you? <sup>b</sup>	.	Enter
2	sumpositive affect, sumnegativ eeffect <sup>b</sup>	.	Enter
3	sumextrave rsionIPIP <sup>b</sup>	.	Enter

a. Dependent Variable: sumflourishing

b. All requested variables entered.

Extraversion-Introversion and Subjective Well-being

**Model Summary<sup>d</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2
1	.138 <sup>a</sup>	.019	-.001	6.96238	.019	.936	2	97
2	.671 <sup>b</sup>	.450	.427	5.26791	.431	37.219	2	95
3	.705 <sup>c</sup>	.497	.471	5.06233	.047	8.873	1	94

**Model Summary<sup>d</sup>**

Model	Change Statistics	
	Sig. F Change	
1		.396
2		.000
3		.004

- a. Predictors: (Constant), What is your gender?, How old are you?
- b. Predictors: (Constant), What is your gender?, How old are you?, sumpositiveaffect, sumnegativeaffect
- c. Predictors: (Constant), What is your gender?, How old are you?, sumpositiveaffect, sumnegativeaffect, sumextraversionIPIP
- d. Dependent Variable: sumflourishing

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	90.700	2	45.350	.936	.396 <sup>b</sup>
	Residual	4702.050	97	48.475		
	Total	4792.750	99			
2	Regression	2156.413	4	539.103	19.427	.000 <sup>c</sup>
	Residual	2636.337	95	27.751		
	Total	4792.750	99			
3	Regression	2383.797	5	476.759	18.604	.000 <sup>d</sup>
	Residual	2408.953	94	25.627		
	Total	4792.750	99			

- a. Dependent Variable: sumflourishing
- b. Predictors: (Constant), What is your gender?, How old are you?
- c. Predictors: (Constant), What is your gender?, How old are you?, sumpositiveaffect, sumnegativeaffect
- d. Predictors: (Constant), What is your gender?, How old are you?, sumpositiveaffect, sumnegativeaffect, sumextraversionIPIP

Extraversion-Introversion and Subjective Well-being

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations
		B	Std. Error	Beta			Zero-order
		1	(Constant)	44.759			4.894
	How old are you?	-.164	.138	-.122	-1.189	.237	-.131
	What is your gender?	.731	1.715	.044	.426	.671	.068
2	(Constant)	39.208	4.204		9.325	.000	
	How old are you?	-.144	.106	-.107	-1.361	.177	-.131
	What is your gender?	1.264	1.306	.076	.967	.336	.068
	sumpositiveaffect	.443	.062	.558	7.108	.000	.437
	sumnegativeaffect	-.456	.075	-.480	-6.109	.000	-.390
3	(Constant)	33.819	4.427		7.640	.000	
	How old are you?	-.117	.102	-.087	-1.151	.253	-.131
	What is your gender?	.986	1.259	.059	.784	.435	.068
	sumpositiveaffect	.398	.062	.501	6.446	.000	.437
	sumnegativeaffect	-.406	.074	-.427	-5.502	.000	-.390
	sumextraversionIPIP	.472	.159	.230	2.979	.004	.419

**Coefficients<sup>a</sup>**

Model		Correlations	
		Partial	Part
1	(Constant)		
	How old are you?	-.120	-.120
	What is your gender?	.043	.043
2	(Constant)		
	How old are you?	-.138	-.104
	What is your gender?	.099	.074
	sumpositiveaffect	.589	.541
	sumnegativeaffect	-.531	-.465
3	(Constant)		
	How old are you?	-.118	-.084
	What is your gender?	.081	.057
	sumpositiveaffect	.554	.471
	sumnegativeaffect	-.494	-.402

Extraversion-Introversion and Subjective Well-being

sumextraversionIPIP	.294	.218
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a. Dependent Variable: sumflourishing

**Excluded Variables<sup>a</sup>**

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	sumpositiveaffect	.470 <sup>b</sup>	5.190	.000	.468	.973
	sumnegativeaffect	-.378 <sup>b</sup>	-3.971	.000	-.376	.971
	sumextraversionIPIP	.409 <sup>b</sup>	4.402	.000	.410	.985
2	sumextraversionIPIP	.230 <sup>c</sup>	2.979	.004	.294	.895

a. Dependent Variable: sumflourishing

b. Predictors in the Model: (Constant), What is your gender?, How old are you?

c. Predictors in the Model: (Constant), What is your gender?, How old are you?, sumpositiveaffect, sumnegativeaffect

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	26.2992	54.9280	42.2500	4.90701	100
Std. Predicted Value	-3.251	2.584	.000	1.000	100
Standard Error of Predicted Value	.690	2.453	1.196	.330	100
Adjusted Predicted Value	26.3515	55.4358	42.2622	4.92671	100
Residual	-13.30447	12.92368	.00000	4.93283	100
Std. Residual	-2.628	2.553	.000	.974	100
Stud. Residual	-2.835	2.710	-.001	1.009	100
Deleted Residual	-15.48630	14.56106	-.01223	5.29520	100
Stud. Deleted Residual	-2.949	2.807	-.002	1.021	100
Mahal. Distance	.850	22.264	4.950	3.546	100
Cook's Distance	.000	.220	.012	.029	100
Centered Leverage Value	.009	.225	.050	.036	100

a. Dependent Variable: sumflourishing