

**Smoking behaviour and its correlates: personality, self-esteem,
self-efficacy, and coping strategies. Age-effect perspective.**

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Abstract

This study examined the personality characteristics, self-esteem, self-efficacy, coping types of groups of non-smokers, ex-smokers, and current smokers. The sample consisted of college students. No significant differences were observed between the three groups on self-esteem, self-efficacy, and coping types. No age effect was observed either. Significant differences were observed between smokers, and non-smokers on extraversion, $F(2, 122) = 5.1, p < .01$. The hierarchical multiple regression model has found extraversion ($\beta = .34, p < .001$), neuroticism ($\beta = .2, p < .05$), conscientiousness ($\beta = -.18, p < .05$), and age ($\beta = .34, p < .001$) predictive of number of smoking cigarettes a day.

Introduction

The World Health Organization (2002) identifies tobacco smoking as a major, preventable risk factor for disease, and death. It is estimated that tobacco use is responsible for more deaths than alcohol, HIV virus, and illicit drugs combined (Ezzati, Lopez, Rodgers, Vander & Murray, 2002). Effects of smoking are also reflected in morbidity rates. For every smoker that dies in a given year, there are another 20 who suffer from comorbid, disabling diseases (Hyland et al, 2003). Apart from obvious physical consequences of tobacco use, there is growing evidence that smoking also influences emotional states. Smokers are twice as likely as non-smokers to develop signs of mental illness (Farrell et al, 2001). Even though evidence suggests causal link between mental disorders and smoking behaviour, it is argued that reverse relationship can also occur (West & Jarvis, 2005). Further, it has been found that smoking among adolescents preceded the onset of depression and other affective disorders. This could be explained in terms of effects of nicotine on neurotransmitters and resulting mood alteration.

Tobacco use starts early; the majority of smokers begin to smoke before the age of 18 (The Global Youth Tobacco Survey Collaborative Group, 2002). Research has found that there is a direct association between the age of initiation of smoking behaviour, and future nicotine dependence. Additionally, the earlier an individual starts smoking, the longer the addiction is likely to last (Burns, Major, & Shanks, 2003). For those reasons, majority of research focuses on young population. This study will look at the adult population in order to re-examine associations between smoking behaviour, and personality characteristics. Age demographic will be given a

lot of attention because it might reflect changing social perceptions. During the last few decades, prevalence rates in Europe have dropped considerably. With that, smokers became less representative of the general population. Those assumptions will be tested in the current study by examining associations from the age perspective.

Smoking prevalence rates have a bell-shaped form. They are low for young and older population, with peak rates around the middle twenties (French et al, 2010). Further, tobacco use is often associated with socio-economical status. Individuals with higher income are less likely to start smoking, and are more likely to succeed in their attempts to stop smoking (Jarvis & Wardle, 2005). In countries with a high awareness of the negative consequences of smoking, and strict tobacco control policies, such as, Ireland, this association is weaker (Jarvis & Wardle, 2005). The overall smoking prevalence in Ireland reported in June 2010 for a 12-month period was 23.6%. Smoking rates were highest among younger adults, reaching 30% in the 25-34 year old age group. As expected, smoking prevalence was associated with socio-economic group, with the lowest smoking rates for groups with higher income (Office of Tobacco Control, 2009)

As to the question why people smoke, even though they are aware of negative consequences, there are multiple theories that focus on different aspects. Theories of addiction can focus on how cigarettes become addictive, on individual susceptibility, or on environmental influences (West, 2001). Many programs that aim at prevention and cessation of smoking are based on knowledge gathered by research. Psychological investigations that look at processes involved in initiation and maintenance of smoking are of significant value in formulating better interventions,

and prevention programs (Leventhal & Cleary, 1980). Therefore, close examination of these constructs is required in order to facilitate further development of interventions aimed at prevention and cessation of tobacco use (Terracciano & Costa, 2003). With this in mind, this particular study will investigate individual differences and will look for possible associations between them and smoking behaviour.

Psychological constructs, such as, personality, individual coping mechanisms, self-esteem, and self-efficacy are believed to be predictive of smoking behaviour. Up to date, there is a vast amount of research that examined these constructs in connection with smoking behaviour. Most of these studies focused on examining particular constructs, and their association with smoking behaviour. Further, a lot of research looked at younger population due to the fact that most smokers start smoking early. The aim of this study is to examine all of these constructs simultaneously in order to see whether previous findings can be confirmed for a sample composed of adult Irish residents. Furthermore, this study will examine effect of age on these associations. As mentioned before, changing social perceptions, and decreasing prevalence rate could be responsible for discrepancies in research findings.

Personality

One of the goals of this study is to re-examine the link between personality and smoking behaviour. Additionally, after controlling for personality characteristics, this study will examine the effect of age on smoking behaviour. To satisfy this aim, personality dimensions will be measured with a Five Factor Model (FFM). This model has become increasingly popular in recent years, and has gathered a wide recognition from researchers (Smith & Williams, 1992). FFM organizes personality traits into five broad dimensions: neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness (Costa & McCrae, 1985; Digman, 1990). This model is strongly based on research. It has found empirical support across different cultures, and among different age groups (Digman, 1990).

There are several reasons to examine link between personality, and smoking behaviour. First, research supports the view that personality traits are enduring dispositions, and are believed to be major determinants of behaviour (Paunonen, 2003). Moreover, personality traits have been found to be heritable (Jang, McCrae, Angleitner, Riemann & Livesley, 1998; Jang, Livesley, Vernon & Jackson, 1996) and universal across cultures (McCrae & Costa, 1997). It is important to notice, that even though personality characteristics are relatively stable, there are known maturational changes (McCrae, 1992). Education was also found to influence personality (Costa & McCrae, 1992). Altogether, further research of this particular construct might be of great benefit in designing future smoking cessation interventions aimed at adult smoking population.

Up to date, there is a considerable amount of research that examined the association between personality and tobacco use. Some of the findings suggest that personality plays an important role in initiation, and maintenance of smoking behaviour. The majority of the differences found between smokers, and non-smokers were relatively small. Yet, these differences are believed to be of significance given the large number of smokers world-wide (World Health Organization, 2002). A review of existing literature by Smith (1970) concluded that smokers are more extraverted. Furthermore, data suggested that smokers are more likely to have poorer mental health. In case of neuroticism trait, Smith (1970) concluded that existing findings are too inconsistent to draw any conclusions. Similarly, a review by Matazarro and Matazarro (1965) concluded that existing evidence, although weak and poorly supported, suggests that smoking behaviour is associated with neuroticism and extraversion.

A more recent review done on this subject, by Gilbert (1995), examined studies conducted after 1970. It has found that smoking was most strongly associated with extraversion, and neuroticism. Interestingly, recent research has found little or no association between tobacco use, and extraversion. This shift in trends is explained in terms of changing social perceptions regarding smoking. With raising awareness about the negative consequences of smoking, prevalence rates have dropped considerably over the decades. Hence, it is possible that extraverts are more likely to be smokers if it is socially approved, as was the case 30 years ago in US and Europe (Gilbert, 1995). For example, in Japan, social perception of smoking differs from that in Europe. It is more acceptable to smoke for men than for women, which is reflected by gender differences in prevalence rates: 36.6% for men and 12.1% for women

(Osawa, 2010). Consequently, such disproportions are likely to influence research results. For example, a study conducted in Japan by Arai et al. (1997) has found strong association between extraversion, and smoking behaviour. Contemporary studies conducted in US, and in Europe are less likely to find this link (Terracciano & Costa, 2003).

Most studies that looked at association between personality and smoking behaviour had cross sectional design. One of the most interesting longitudinal studies of the last decade, is research conducted by Kubicka, Matejcek, Dytrych and Roth (2001). This 24-year follow-up study has found that neither neuroticism, nor extraversion was a predictor of smoking in adulthood. What did predict tobacco use was low conscientiousness in children. Another longitudinal study by Tucker et al. (1995) found that children who scored high on extraversion, and low on conscientiousness were at higher risk for smoking in adulthood. A number of other longitudinal studies have established that more extraverted children were more likely to engage in risk-health behaviour (McCord & McCord, 1962; Valliant, 1983; Maesse & Tremblay, 1997).

Overall findings suggest that smokers report higher scores on neuroticism, and extraversion, than non-smokers (McCrae, Costa & Bosse, 1978; Breslau, Kilbey & Andreski, 1993; Arai et al. 1997; Kassel, Stroud & Paronis, 2003; Wilkinson, and Abraham, 2004). There is very little evidence to support association between traits of openness, and agreeableness (Gilbert, 1995). Further, a number of contemporary studies reported conscientiousness to be negatively associated with smoking

behaviour (Kubicka et al., 2001; Vollrath, & Torgersen, 2002; Terracciano, & Costa, 2003).

As can be seen, even though there are noticeable trends, research findings are quite varied. This can be attributed to several factors. First, studies have varied in their definitions of 'smokers' and 'nonsmokers' (Spielberger & Jacobs, 1982). Secondly, different studies used different instruments to measure personality, with FFM, and Eysenck's PET, being most popular (Gilbert, 1995). Thirdly, studies were conducted across large span of time, and across many countries. Public policy and changing social perceptions could influence the characteristics of smoking population. For example, 50 years ago smoking wasn't seen as detrimental to health. Hence smokers back then represented different type of individuals than at present. Respectively, different countries represent different social perceptions, and this is likely to be reflected in research findings. Finally, different age samples were examined. Older samples are in low risk of initiation, and feel adverse effects of smoking. They also include more ex-smokers (Terracciano & Costa, 2003).

Given that extraversion was the most often reported difference between smokers and non-smokers, current study will attempt to confirm this association for a sample of Irish residents. Moreover, bearing in mind contemporary findings, it is expected that high neuroticism and low conscientiousness will be predictive of smoking behaviour. Finally, given the statistical data, number of smoked cigarettes a day is expected to increase with age.

Coping strategies

Coping has been defined as number of responses an individual makes in order to deal with perceived problems (Folkman & Lazarus, 1985). Coping strategies can involve both, behavioural and cognitive responses. It is easy to hypothesize that successful use of coping strategies is likely to decrease stress, and bolster self-efficacy (Collins, Baum & Singer, 1983). Therefore, effective coping strategies should help regulate affect. Affect regulation models argue that this regulatory function of coping is predictive of substance abuse. For example, Khantzian's (1997) self-medication hypothesis (SMH) of substance use proposes that strong affect, coupled with lack of effective coping mechanisms, will be associated with substance use. Similarly, Leventhal and Cleary (1980) proposed a theoretical model that explained tobacco use in terms of stress, and affect regulation. In other words, some individuals are likely to smoke in order to lower negative affect, and increase positive affect. These theoretical assumptions are in line with stress-coping model of substance use (Wills, 1986). This model proposes that individuals who cope via substance use do so due to the deficit in their coping skills. Moreover, coping via substance use is likely to lead to unresolved problems, which further increases stress, and negative affect.

The assumption that smoking is used in order to cope with affect is supported by smokers themselves. Self-reports of smokers indicate that smoking is often perceived as an effective way of dealing with stress (Khantzian, 1997). Furthermore, these theoretical assumptions have found considerable amount of support from research. For example, a study by Wills, Sandy, Yaeger, Cleary, and Shinar (2001) found that substance use among adolescents predicted increased likelihood of

engaging in avoidant or helpless coping. Similarly, disengagement coping strategies were found to be predictive of tobacco use among Australian college students (Sun et al., 2010). Further, Wills (1986) have found that smoking is inversely associated with active coping, and social support.

It is generally accepted that a more-active coping style, such as, problem solving, is healthier, and more beneficial to an individual (Ingmar et al., 2001). This is in contrasted with avoidant, and more passive styles, which are believed to have detrimental effects in the long-term (Schreurs et al., 1993). Moreover, ineffective coping was found to be related to personality disorders (Vollrath, & Torgersen, 2002), and suicide (Linehan, 1986). Given the above evidence, it seems that coping plays an important role in mediating stress, and negative affect. An individual, by using effective styles of coping is more likely to solve problems, and thus, diminish potential causes of stress. In turn, effective regulation via coping strategies will not encourage substance use. Those theoretical assumptions are contrasted with a study conducted by Labouvie (1986), which has not found association between inefficient coping, and substance abuse. Mezzich et al. (1995) argued that the association between coping and substance use is far from clear.

The coping-stress-substance use link is further complicated when personality characteristics are taken into account. Researchers noted that the influence of coping strategies on mood might be of little value. McCrae and Costa (1986) in their study argued that personality is causally responsible for some of the association between coping, and well-being. Their research findings led towards two possible interpretations. One possibility is that coping style explains the differences in well-

being between extraverted and neurotic individuals. A second possibility could be that personality predisposes towards certain coping styles, which results in well-being differences. The latter interpretation seems more probable based on existing evidence. Research has found that coping styles have a small effect on well-being. For example, Pearlin and Schooler (1978) did not find any association between coping, and mood changes during difficult life moments. Further, Menaghan (1982) did not confirm the buffering effect of coping. A longitudinal study by Felton and Revenson (1984) found only weak association between coping behaviour, and changes in well-being. Therefore, personality seems to be a better predictor of well-being than coping mechanisms. Given that well-being is strongly correlated with life stress, the association between coping, and substance use might be superficial. In other words, an extraverted individual will be more likely to be happy and report less stress, due to personal characteristics, not because of coping strategies. Similarly, a neurotic might take up smoking because of personality factors, which predispose towards negative affect. Therefore, coping types might be merely reflection of personal predispositions (McCrae & Costa, 1986).

To sum up, theoretical models of substance use propose that coping styles help mediate affect, and stress. Moreover, substance use is hypothesized to be a form of coping strategy. Therefore, coping types should be able to predict, in some degree, personal well-being. As can be seen, this does not seem to be the case. Personality, on the other hand, is a very good predictor of well-being, and affect (Costa & McCrae, 1980; Watson & Clark, 1992). Question arises: is maladaptive coping associated with smoking behaviour, or is it merely an outcome of personality? If the latter is the case, coping would merely moderate smoking behaviour without being directly associated

with it. One of the aims of the current study is answer that question by testing the association between coping styles, and smoking behaviour. Furthermore, by examining personality and smoking behaviour, some inferences regarding coping, and personality, can be made.

Self-Esteem

Self-esteem is one of the most popular constructs studied by researchers, with over 11000 studies conducted on this subject between 1990 and 2002 (Watson, Suls, & Haig, 2002). It is a concept that is widely used in many areas of psychology, such as, psychopathology (e.g. Ralph & Mineka, 1998), health psychology (e.g. Silver, Bauman, & Ireys, 1995), and personality (e.g. Furr & Funder, 1998). But for all its popularity, self-esteem is a very vague construct that has not been clearly defined. Mruk (1999) writes about the “definitional maze of self-esteem” which depicts how complex, and unclear concept of self-esteem still remains. This lack of conceptual precision is followed by conflicting results in research findings. For example, self-esteem was found to be related both, negatively (Skaalvik & Hagtvet, 1990), and positively (Hattie, 1992), to academic achievement. A similar situation can be observed in case of association between smoking behaviour, and self-esteem. Research provides varied results, with some reporting positive association (Byrne & Mazanov, 2001), and others reporting no association at all (Mullan & NicGabhainn, 2002, West & Sweeting, 1997).

It is some researchers, and health professional's belief that well developed self-esteem is a factor that protects against health-risk behaviour. This is in line with the 'susceptibility' model that views low self-esteem as being predictive of substance abuse (McGee & Williams, 2000). This model predicts that individuals with low self-esteem are more susceptible to negative social influence. These assumptions are consistent with Social Learning Theory of Bandura (1977). This model proposes that individuals who have problems dealing with the external pressures from peers are more likely to start smoking themselves. It is believed to be especially true of individuals with emotional problems, low self-esteem, and low self-efficacy. This model gained support from studies that found self-esteem to be predictive of depression, drug use, and alcohol abuse (Kaplan, 1980; Rosenberg, Schooler & Schoenbach, 1989). Research also indicated that low self-esteem is predictive of smoking behaviour. This has been confirmed by both, cross-sectional (Bonaguro & Bonaguro, 1987; Abernathy, Massad & Romano-Dwyer, 1995), and longitudinal studies (Carvajal, Wiatrek, Evans, Knee & Nash, 2000).

The above assumptions are challenged by research that did not find association between health smoking behaviour, and self-esteem. For example, a study by Neumark-Sztainer, Story, French & Resnick (1997) found low self-esteem to be predictive of depression, and suicide attempts, but did not find relation between self-esteem, and substance use. Further, cross-sectional study by West and Sweeting (1997) did not find a relationship between smoking, and self-esteem. Similarly, self-esteem was found to be predictive of suicidal ideation, and substance use, but did not predict smoking behaviour (Moore, Laflin, & Weiss, 1996; McGee & Williams, 2000). In contrast, another study found that self-esteem was predictive of smoking

behaviour by young females (aged 11 to 13) but not for males (Abernathy et al., 1995). Further, a study that examined a large sample of Irish school children also did not find association between self-esteem, and smoking (Mullan & NicGabhainn, 2002). Based on the above examples it can be seen that research findings are far from consistent, which suggests that association between smoking behaviour, and self-esteem is not clear. Mullan & NicGabhainn (2002) argue that self-esteem deficit theory cannot account for health risk behaviour as it is too simplistic.

Given the ambiguous results across research studies, unclear conceptual framework's, and the complexity of factors involved in smoking behaviour, this study will predict that levels of self-esteem alone will not predict smoking status. Additionally, given that the majority of smokers begin smoking early on in life (Burns, Major, & Shanks, 2003), most of the studies looked at younger populations. This study will examine mature sample. Moreover, given that social characteristics are likely to change, possible age effect will be examined.

Self-efficacy

Self-efficacy has been defined as the “beliefs in one’s capabilities to organize, and execute the courses of action required to manage prospective situations” (Bandura, 1995, p.2). As mentioned in previous section, according to Social Learning Theory of Bandura (1977) people with low self-efficacy are believed to be more susceptible to social pressures. Bandura’s theory outlines four sources of self-efficacy. These are: mastery experiences, psychological outcomes, social modeling, and social

persuasion. Self-efficacy beliefs are specific to particular behaviours and become more general with time as an individual gradually gains more confidence. These factors continue to influence self-efficacy throughout the lifetime of the individual. Individuals with strong sense of self-efficacy are more likely to commit more energy into the tasks at hand. Further, they are also more likely to refrain from action if it is perceived to be beneficial (Bandura, 1992). This ability to refrain from action is called 'resistance self-efficacy', and it is believed to be predictive of smoking behaviour (Bandura, 1997). The rationale behind this is that individuals with low self-efficacy are believed to be more susceptible to social influence; hence they are more likely to engage in smoking behaviour due to modeling mechanisms (Bandura, 1997). Social modeling effects can be clearly observed among children of parents who smoke. Such children are twice more likely to initiate smoking than their counterparts (Eiser, Morgan, Gammage & Gray, 1989).

In case of smoking behaviour, there is a lot of research that supports predictive power of self-efficacy (e.g., De Vries, Dijkstra, & Kuhlman, 1988; Engels, Knibbe, De Vries & Drop, 1998). Additionally, self-efficacy among college students predicted smoking status, and the amount of smoked cigarettes (Von Ah, Ebert, Ngamvitroj, Park, & Kang, 2005). Similarly, a study by Minnix, Blalock, Marini, Prokhorov & Cinciripini (2011) found that individuals with low self-efficacy were more likely to report depressive symptoms, and were more likely to be smokers. Further, meta-analysis of another 27 studies on this subject has also provided support for association between self-efficacy, and smoking status (Conrad, Flay, & Hill, 1992). These findings are based on the theoretical assumption that behavioural change occurs based on favorable expectations an individual holds about the outcome. That is, being

confident about future success predicts initiation of behaviour. Many theoretical models assume that factors involved in initiation of behavioural change, such as, self-efficacy, are also consistent predictors during the maintenance phase (Prochaska & Velicer, 1997).

The assumption that self-efficacy will be consistent predictor during maintenance phase was challenged by Rothman (2000). He argued that factors underlying initiation of behavioural change are different from those involved in maintenance of achieved behaviour. In Rothman's (2000, p.66) words "the decision to maintain a behavior depends on people's perceived satisfaction with received outcomes". This argument is supported by research. For example, a study by Baldwin et al. (2006), found that self-efficacy was a good predictor of smoking cessation in the initial phase, but not during the maintenance phase. What predicted later success, was perceived satisfaction gained from behavioural change.

As can be seen, perceived satisfaction from behavioural change is very important for future outcome. If the perceived benefits and satisfaction does not outweigh the perceived costs, the behavioural change is unlikely to last. Moreover, some individual might not see benefits in quitting smoking in the first place. In this case, self-esteem on its own will not be a reliable construct in prediction of smoking behaviour. For example, less than 3% of smokers in the US successfully quit using tobacco each year (Centers for Disease Control and Prevention, 1993). This alone, suggests that self-esteem on its own is unlikely to be strongly associated with smoking behaviour, and cessation, from the longitudinal perspective.

This study will test above assumptions, and see if they are true for an adult sample of Irish residents. Moreover, this study will examine age effect, given that the number of smokers decrease past early thirties (Burns, Major, & Shanks, 2003). If self-efficacy is associated with smoking behaviour, this should be reflected when comparing groups from age perspective.

Aims

1. To investigate a relationship between smoking status and levels of self-esteem, self-efficacy, coping strategies and personality characteristics. Also to observe the effect of age on these interactions.
2. To establish if personality characteristics, and age can be predictive of smoking behaviour.

Hypotheses

1. There will be no statistically significant relationship between levels of self-esteem and smoking status for any of the age groups.
2. There will be no statistically significant relationship between levels of self-efficacy and smoking status for any of the age groups.

3. There will be statistically significant relationship between coping strategies and smoking status for all of the age groups.
4. There will be statistically significant relationship between levels of Extraversion, and smoking status.
5. Low Conscientiousness and high Neuroticism will be predictive of smoking behaviour.
6. After controlling for personality traits, age will be predictive of smoking behaviour.

Method

Design

This was a between subjects design study where scores obtained from questionnaires were compared with smoking status of participants. This study measured possible associations between predictor variable (smoking status) and outcome variables (personality, avoidant and active coping, self-esteem, and self-efficacy, and age).

Participants

The study population consisted of 125 individuals (52 male, 73 female) aged between 19 and 61. See Table 1. and Table 2. Data was collected using paper (N=87), and online version (N=38) of the survey. Participants who filled out the paper survey consisted of full-time and part-time students of Dublin Business School, Ireland. Participants who filled out the online survey were known by the researcher or were known by other participants.

The study population was divided into three groups: non-smokers, ex-smokers, and smokers. Non-smokers were described as individuals who never smoke or smoke only occasionally. Ex-smokers were described as individuals who used to

smoke regularly. Smokers were described as individuals who smoke regularly, irrelevant of number of smoked cigarettes.

Table 1. *Participant demographics: gender and smoking status.*

	Male		Female		Total	
	N	%	N	%	N	%
Non-smoker	27	52%	44	60%	71	57%
Ex-smokers	8	15%	13	18%	21	17%
Smokers	17	33%	16	22%	33	26%

Table 2. *Participant demographics: age and smoking status.*

	Age 19 -29		Age 30 - 61	
	N	%	N	%
Non-smoker	52	68%	19	39%
Ex-smokers	8	11%	13	26%
Smokers	16	21%	17	35%

Materials

This research measured four variables: personality, coping mechanisms, self-esteem, and self-efficacy. Demographic data included gender, and age. Further, smoking status was measured, with three possible options: non-smoker, ex-smoker, and smoker. Additionally, number of smoked cigarettes a day was taken.

NEO Five-Factor Inventory (NEO-FFI), (Costa & McCrae, 2004).

This is a self-report questionnaire consisting of sixty items answered on a five-point Likert scale ranging from 'strongly disagree' to 'strongly agree'. For the purpose of this study, an abbreviated form of NEO-FFI questionnaire was used. Each trait of the Big Five was measured with 5 items extracted from the original questionnaire (for example, "I often feel blue" [item 1]). This questionnaire measured following dimensions: Neuroticism (N); Extraversion (E); Openness (O); Agreeableness (A); Conscientiousness (C). Measured dimensions have reasonable internal consistency with Cronbach Alpha of .67 (N), .67 (E), .63 (O), .65 (A), .64 (C). See Appendix 1 (items 1 to 25).

The Brief COPE (Carver, 1997).

This 28 item scale measures coping responses answered on a four-point frequency scale (1 = 'I haven't been doing this at all', 4 = 'I've been doing this a lot').

This study measured two types of coping: avoidant and active. Each dimension was measured with 4 items extracted from COPE questionnaire (Carver, 1997). An example of a statement within the scale included 'I've been giving up trying to deal with it' (item 47). Measured dimensions have reasonable internal consistency, with

Cronbachs Alpha of .60 for Avoidant Coping, and .76 for Active Coping. See Appendix 1 (items 46 to 53).

The Rosenberg Self-Esteem Questionnaire (Rosenberg, 1965).

This instrument measures levels of self-esteem on a four-point scale (1 = not at all true, 4 = exactly true). It contains 10 items (for example, “I feel that I have a number of good qualities” [item 27]). Reverse coding was used. Lower scores on this scale represented lower level of self-esteem. The appropriate levels of reliability and validity for this scale have been met (Francis, 1997), with Cronbachs Alpha of .86. See Appendix 1 (items 26 to 35).

The General Self-Efficacy (GSES) (Schwarzer, 1992).

This instrument measures levels of self-efficacy on a four point scale (1 = not at all true, 4 = exactly true). This questionnaire has 10 items, for example ‘I am confident that I could deal efficiently with unexpected events’ (item 39). No reverse coding was used. Lower scores on this scale represented lower self-efficacy. The appropriate levels of reliability and validity for this scale have been met (Schwarzer, 1992), with Cronbachs Alpha of .88. See Appendix 1 (items 36 to 45).

A copy of explanatory letter was given to study participants along with questionnaire. See Appendix 1. Data obtained from the questionnaires was analyzed using the SPSS program (version 20.0.1).

Procedure

In case of the paper survey, after obtaining permission from DBS lecturer, students who were present in classroom were informed about the purpose of the study and how long it would take. Students were also informed that participation is voluntary, anonymous, and that they can withdraw at any time. Afterwards, questionnaires were provided to students who agreed to participate. The questionnaire started with introductory letter, followed by the demographic data questions, abbreviated form of the NEO-FFI (Costa & McCrae, 2004), The Rosenberg Self-Esteem Questionnaire (Rosenberg, 1965), The General Self-Efficacy (GSES) (Schwarzer, 1992), and 8 items extracted from COPE (Carver, 1997). When the questionnaires were returned, they were then collected by the experimenter. All participants and lecturers were then thanked for their time.

In case of the online survey, people known by the researcher were sent e-mail messages that asked for their participation in the survey. The purpose of the study and its anonymous character were explained. Furthermore, e-mails included a link that led to the webpage (<http://kwiksurveys.com>) with the online questionnaire. The online questionnaire was structured in the same way as the paper version of it. One week later, after e-mails were sent out, results were exported from the webpage and were pooled together with the results obtained from the paper version of the survey using SPSS (v20.0.1).

Results

Descriptive statistics for Self-Esteem, Self-Efficacy, and coping strategies are reported in Table 3. Descriptive statistics for personality characteristics are reported in Table 4. Results are divided according to smoking status of participants (smoker, non-smoker, and ex-smoker).

The first hypothesis states that there will be no statistically significant difference between levels of self-esteem and the smoking status for any of the age groups. A two-way between-groups analysis of variance was conducted to explore the impact of age and smoking status on self-esteem. Subjects were divided into two groups according to their age (group 1: 19 - 29 years; group 2: 30 – 62 years), and three groups according to their age smoking status (smokers, ex-smokers, and non-smokers). There was no statistically significant main effect for age $F(1, 119) = .11, p > 0.5$, or for smoking status $F(2, 119) = .5, p > 0.5$. The interaction effect between age and smoking status was also not statistically significant, $F(2, 119) = .45, p > 0.5$. Obtained results support first hypothesis.

The second hypothesis states that there will be no statistically significant difference between levels of self-efficacy and the smoking status for any of the age groups. A two-way between-groups analysis of variance was conducted to explore the impact of age and smoking status on self-efficacy. Subjects were divided into two groups according to their age (group 1: 19 - 29 years; group 2: 30 – 62 years), and three groups according to their smoking status (smokers, ex-smokers, and non-smokers). There was no statistically significant main effect for age $F(1, 119) = 1.9, p$

> 0.5, or for smoking status $F(2, 119) = 1.2, p > 0.5$. . The interaction effect between age and smoking status was also not statistically significant, $F(2, 119) = .67, p > 0.5$. Obtained results support second hypothesis.

The third hypothesis states that there will be statistically significant positive relationship between coping strategies and smoking behaviour for all of the age groups. A series of two-way ANOVA's were conducted in order to examine this relationship. Since multiple tests were done on the same data, a Bonferonni adjustment has been used ($0.05 / 2$). Therefore, for the results to be regarded as statistically significant, 'p' value of .025, or lower, will have to be observed.

A two-way between-groups analysis of variance was conducted to explore the impact of age and smoking status on avoidant coping strategy. Subjects were divided into two groups according to their age (group 1: 19 - 29 years; group 2: 30 - 62 years), and three groups according to their smoking status (smokers, ex-smokers, and non-smokers). There was no statistically significant main effect for age $F(1, 119) = .34, p > 0.25$, or for smoking status $F(2, 119) = .15, p > 0.25$. . The interaction effect between age and smoking status was also not statistically significant, $F(2, 119) = .59, p > .025$.

The second two-way between-groups analysis of variance was conducted to explore the impact of age and smoking status on active coping strategy. Again, there was no statistically significant main effect for age $F(1, 119) = .27, p > .025$, or for smoking status $F(2, 119) = .1.69, p > 0.25$. . The interaction effect between age and smoking status was also not statistically significant, $F(2, 119) = 1.78, p > .025$.

These results show that there is no statistically significant difference between smokers, ex-smokers, and non-smokers, for any of the age groups, in their coping strategies. Therefore, the third hypothesis has to be rejected.

Table 3. *Descriptive statistics for Self-Esteem, Self-Efficacy, and coping strategies.*

Variables	Group	N	M	SD	F	p
Self-Esteem	Non-smokers	71	31.3	5.2	.48	.62
	Ex-Smokers	21	31.3	3.5		
	Smokers	33	32.3	4.7		
Self-Efficacy	Non-smokers	71	31	4.3	1.2	.3
	Ex-Smokers	21	29.7	3.4		
	Smokers	33	29.8	4.3		
Avoidant Coping	Non-smokers	71	8.8	2.4	.15	.86
	Ex-Smokers	21	8.4	1.9		
	Smokers	33	8.6	2.6		
Active Coping	Non-smokers	71	12.2	2.7	1.7	.2
	Ex-Smokers	21	12.6	2.4		
	Smokers	33	11.5	2.5		

Note: *p* significant at .025 level.

The fourth hypothesis states that there will be statistically significant positive relationship between levels of Extraversion, and smoking behaviour. Again, to avoid Type 1 error, Bonferroni adjustment was used ($.05 / 5$).

A one-way between-groups multivariate analysis of variance was performed to investigate smoking status differences in personality characteristics. Five dependent variables were used: neuroticism, extraversion, openness, agreeableness, and conscientiousness. The independent variable was smoking status. Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity, with no serious violations noted. There was a statistically significant difference on the combined dependent variables, $F(5,119) = 4.44$, $p = .001$; Roy's Largest Root = .186; partial eta squared = .16. When the results for the dependent variables were considered separately, the only difference to reach statistical significance, using a Bonferroni adjusted alpha level of .01, was extraversion, $F(2, 122) = 5.1$, $p = .008$, partial eta square = .08. An inspection of the mean scores indicated that smokers reported slightly higher levels of extraversion ($M = 20.55$, $SD = 3.2$) than non-smokers ($M = 18.3$, $SD = 3.6$).

In order to further explore results obtained from MANOVA, a follow-up analysis of a one-way between-groups analysis of variance was conducted to explore impact of extraversion on smoking status. Subjects were divided into three groups according to their smoking status (smokers, ex-smokers, and non-smokers). There was a statistically significant difference at the $p < .05$ level in extraversion scores for the three groups $F(2, 122) = 5.1$, $p = .008$. Despite reaching statistical significance,

the actual difference in mean scores between the groups was quite small. The effect size, calculated using eta squared, was .07. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for smokers ($M = 20.55$, $SD = 3.2$) was significantly different from non-smokers ($M = 18.3$, $SD = 3.6$). Ex-smokers did not differ significantly from either smokers or non-smokers. Obtained results show that Extraversion is positively associated with smoking behaviour. Therefore, fourth hypothesis can be accepted.

Table 4. Means (SD) of personality traits for non-smokers, ex-smokers, and smokers.

Variables	Non-smokers (n=71)	Ex-smokers (n=21)	Smokers (n=33)	F	η^2
Extraversion	18.3 (3.6)	18.7 (3.1)	20.5 (3.2)	5.1**	.08
Neuroticism	12.2 (4)	12.7 (3.9)	13.6 (4)	1.4	.02
Openness	18.8 (3.6)	18.9 (3.4)	18.6 (3.2)	.06	.01
Agreeableness	17.8 (3.9)	17.9 (2)	16.8 (4.3)	.89	.01
Conscientiousness	16.5 (3.9)	16.6 (3)	16.3 (3.7)	.83	.01

Note. Statistical significance: * $p < .05$; ** $p < .01$; *** $p < .001$

The second aim of this research is to establish whether personality characteristics and age can be predictive of smoking behaviour. Before moving on with the regression, it is important to note that only 3 out of 5 traits will be included in the model. The rationale for doing so is that the previous research has found little or no relationship between smoking behaviour and traits of agreeableness, and openness. On the other

hand, even though previous analysis (MANOVA) did not observe statistically significant differences between smokers and non-smokers on traits of neuroticism and conscientiousness, these traits will be included in the model due to strong theoretical assumptions and empirical findings. According to these findings, individuals who report low conscientiousness and high neuroticism are more likely to be smokers (Vollrath & Torgersen, 2002; Terracciano & Costa, 2003).

The fifth hypothesis stated that low conscientiousness and high neuroticism is predictive of smoking behaviour. Moreover, the sixth hypothesis stated that after controlling for personality traits (conscientiousness, neuroticism, and extraversion), age and will be predictive of smoking behaviour.

Hierarchical multiple regression was performed to investigate the ability of age variable to predict levels of smoking behaviour, after controlling for personality factors such as neuroticism, extraversion, and conscientiousness. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. The correlations between the predictor variables (age, neuroticism, extraversions, and conscientiousness) are examined in Table 5. All correlations were weak, ranging between $r = .19$, $p < 0.5$ and $.28$, $p < .001$. This indicates that multicollinearity was unlikely to be a problem (Tabachnick & Fidell, 2007). Predictor variables, extraversion and age were statistically correlated with a number of cigarettes smoked a day which indicates that the data was suitable correlated with the dependent variable for examination through multiple linear regression to be reliably undertaken. The correlations between the predictor variables and the dependent variable (cigarettes smoked a day) were all weak, $r = .22$ (Extraversion), and $r = .28$

(Age). In case of neuroticism and conscientiousness, even though there were no correlations between them and the dependent variable, they were included in the model due to strong theoretical considerations (Vollrath & Torgersen, 2002; Terraciano & Costa, 2003).

Table 5. *Descriptive statistics, reliability, and correlations for all continuous variables (N = 125)*

Variables	CD	Ag	N	E	C
Number of smoked cigarettes a day (CD)	1				
Age (Ag)	.28***	1			
Neuroticism (N)	.1	-.1	1		
Extraversion (E)	.22**	-.1	-.2**	1	
Conscientiousness (C)	-.1	.1	-.05	.19*	1
Means	3.2	29.1	12.7	19	16.3
Standard Deviations	6.1	6.8	4	3.5	3.7
Range	0 - 20	19- 61	5 - 24	11-25	7 - 25
Possible Range	n/a	n/a	5 - 25	5 - 25	5 - 25
Cronbach's Alpha	n/a	n/a	.68	.67	.64

Note. *Statistical significance: *p < .05; **p < .01; p*** p < .001*

In the first step of hierarchical multiple regression, three predictors were entered: extraversion, neuroticism, and conscientiousness. This model was statistically significant $F(3, 121) = 4.57, p < 0.05$ and explained 10.2 % of variance in smoked cigarettes a day. After entry of age variable at Step 2 the total variance explained by the model as a whole was 21.4 % ($F(4, 120) = 8.2, p < .001$). The introduction of age variable explained additional 11.2 % variance in smoked cigarettes a day, after controlling for neuroticism, extraversion, and conscientiousness ($R^2 \text{ Change} = .10; F(4, 120) = 8.2, p < .001$). In the final model all four predictor variables were statistically significant, with extraversion and age recording equal Beta value ($\beta = .34, p < .001$), and neuroticism recording lower Beta value ($\beta = .2, p < .05$). Conscientiousness, as expected (Vollrath & Torgersen, 2002; Terracciano & Costa, 2003), had a negative value ($\beta = -.18, p < .05$). All results are displayed in Table 6.

As can be seen, the predictive model works well, although it has to be noted, the predictive effect is rather weak. Obtained Beta values suggest that extraversion is a modest predictor of a number of smoked cigarettes a day. In case of neuroticism and conscientiousness, their predictive effect is weak, but still statistically significant. As noted before, Beta values for conscientiousness are negative, which means that this trait has negative association with smoking behaviour. This is in line with previous research, and supports fifth hypothesis. After controlling for personality variables, which accounted for 10% of variance in smoking behaviour, age demographic was also found to be predictive of number of smoked cigarettes a day. It accounted for

further 11% of variance of smoking behaviour. These results support the last hypothesis.

Table 6. *Hierarchical Regression Model of Smoking Behaviour.*

Variables	R	R ²	R ² Change	B	SE	β	t
Step 1	.32	.1**					
Conscientiousness				-.3	.15	-.2*	-2.1
Neuroticism				.24	.14	.16	1.8
Extraversion				.5	.16	.28***	3.2
Step 2	.46	.2***	.1***				
Conscientiousness				-.3	.14	-.18*	-2.2
Neuroticism				.31	.13	.2*	2.4
Extraversion				.6	.15	.34***	4
Age				.31	.07	.34***	4.1

Note. *Statistical significance: *p < .05; **p < .01; p*** p < .001*

Discussion

This study had two aims, first to establish whether there are differences between groups of smokers, non-smokers, and ex-smokers in personality characteristics, self-esteem, self-efficacy, and coping strategies. At the same time, these associations were examined from the perspective of age differences. That is, study population was divided into two groups, according to age: 19 – 29 and 30 -61. The rationale behind this was to examine age effect on possible associations between smoking status, and outcome variables. The second aim of this study was to establish whether the specific personality characteristics (neuroticism, conscientiousness, and extraversion), and age demographic were predictive of smoking behaviour (number of smoked cigarettes a day).

The first hypothesis of this study predicted that there would be no association between levels of self-esteem and smoking status. Obtained results from two-way ANOVA support this assumption, as there were no statistically significant differences between the groups, even after accounting for the age effect. Similarly, results confirmed the second hypothesis, as no association was found between groups in levels of self-efficacy. Further, no age effect was observed. The third hypothesis stated that there will be statistically significant relationship between coping strategies, and smoking status. Results from analysis of variance did not support this hypothesis. There were no differences between any of the groups. Further, no age affect was observed. The fourth hypothesis stated that extraversion would be associated smoking status. Results obtained from MANOVA supported this hypothesis, with smokers

having higher mean scores on extraversion than non-smokers. Ex-smokers reported intermediate scores; yet, these were not significantly different from other groups.

To test the last two hypotheses hierarchical multiple regression model was used. After controlling for personality traits (neuroticism, extraversion, and conscientiousness), age was found predictive of smoking behaviour (number of smoked cigarettes a day), accounting for 11% of total variance. Personality traits were found to be predictive of smoking behaviour, explaining further 10% of overall variance. Conscientiousness was inversely associated with smoking behaviour, thus, both hypotheses were supported.

The first hypothesis stated that there would be no association between self-esteem and smoking status. It is not a regular practice in research to formulate hypotheses that no association will occur. The rationale for doing so is that the aim of this study was to re-examine previous findings that were often contradictory. As mentioned in the introduction, the construct of self-esteem suffers from lack of a clear conceptual framework. This lack of universal and clearly defined concept can lead to inconsistency in research results (Mruk, 1999). Further, there is a considerable amount of contemporary studies that did not find association between smoking and self-esteem (McGee & Williams, 2000; Mullan & NicGabhainn, 2002; West & Sweeting, 1997; Neumark-Sztainer et al., 1997). With this in mind, the author of this study felt that the overall findings are not consistent enough to support the predictive effect of self-esteem on smoking behaviour. At the same time, it is not being suggested that previous findings, that confirmed such association, are without merit. Yet, looking at the overall evidence, it seems that the link between self-esteem and

risk-health behaviour is far from clear. Providing more conceptual clarity would help improve prospective use of this construct. For example, a study by Ramsdal (2008) found support for two-dimensional concept of self-esteem proposed by Tafariodi & Swann (2001). Further exploration of the concept itself will help explain the link between self-esteem and smoking behaviour in the future.

The second hypothesis of this study stated that there would be no association between reported self-efficacy and smoking status. Again, this is not a standard practice in research. This assumption was dictated by argument reported by Rothman (2000), and supported by research findings (Baldwin et al., 2006). Overall evidence indicates that self-efficacy is a good predictor of initiation of smoking cessation. Nevertheless, as Rothman (2000) argues, it is unlikely that self-efficacy can account for success during the maintenance phase. For example, perceived satisfaction from occurred behavioural change was found to be strongly associated with maintenance of behaviour.

Based on these assumptions, this study did not expect to find association between self-esteem and current smoking status. Results from two-way ANOVA supported this hypothesis. Moreover, no age effect was observed either, which further supports the hypothesis. As age increases past middle twenties, which represents highest prevalence rates (French et al, 2010), the number of smokers decreases, and ex-smokers rises. Therefore, it seems reasonable to assume that association between smoking status and self-esteem would get stronger with age. This discrepancy was not observed in the present study.

To sum up, the first two hypotheses in this study aimed at testing the proposed association between smoking behaviour and self-esteem, and self-efficacy. As said before, it is not standard practice in research to hypothesize that no association will occur. It is the author's belief that an insufficient amount of attention is given to studies that fail to find significant results. This can lead to a situation where a theoretical framework is built on partial evidence. Such a situation does not foster further understanding of human condition. That being said, given the amount of evidence, self-esteem and self-efficacy, contribute to our understanding of smoking behaviour. At the same time, considering the overall evidence, these variables on their own, do not seem to play as strong role as is often credited to them.

The third hypothesis stated that there would be statistically significant relationship between coping strategies and smoking status for all of the age groups. Results did not support this assumption. There was no association between coping styles, and any of the groups. Given the previous research, and current findings in respect of personality, lack of association between coping and smoking status is not entirely surprising. There is a considerable amount of evidence that suggests that coping is associated with substance use (Labouvie, 1986; Sun et al., 2010, Wills, 1986). At the same time, arguments in these studies are based on the premises that coping is associated with affect, and overall well-being. As stated in the introduction section, this might not necessarily be the case. Research has shown that this link is not as strong as some would believe (Pearlin, Lieberman, Menaghan & Mullan, 1981; Menaghan, 1982). If the coping strategies cannot consistently account for perceived well-being, this suggests that observed association between coping and affect might not be causal. Obtained results, that failed to support this study's hypothesis, seem to

support the argument proposed by McCrae and Costa (1986). That is, it is likely that personality underlies coping mechanisms. If that is the case, given the predictive effect extraversion had in this study, there would be no distinction between active and avoidant types of coping in terms of smoking behaviour. All being said, association between personality, coping strategies, and substance use, is far from clear. It is important to note that this study measured only 2 dimensions of coping styles (avoidant and active). Further, items measuring avoidant coping were somewhat lacking in internal reliability, with Cronbach's alphas of .60.

The fourth hypothesis of the current study assumed differences between smokers and non-smokers in extraversion trait. As indicated in the introduction, this association was consistently found in literature reviews (Matazarro & Matazarro, 1965; Smith, 1970), cross-sectional studies (Arai et al., 1997), as well as, longitudinal one's (McCord & McCord, 1962; Valliant, 1983; Maesse & Tremblay, 1997). At the same time, Gilbert's (1995) analysis showed that contemporary studies are less likely to find this association. This shift is explained in terms of changing social perceptions (Terracciano & Costa, 2003). If that is the case, obtained results suggest that smoking perception in Ireland is not as negative as one might assume, given the strict smoking policy.

The last goal of this study was to investigate whether personality and age variables could predict smoking behaviour. In order to test these hypotheses hierarchical multiple regression model was used. While deciding what variables to include in the model, previous research was taken into account. All three reviews of existing literature have found little or no consistent evidence to support association

between smoking behaviour, and traits of openness, and agreeableness (Matazarro & Matazarro, 1965; Smith, 1970; Gilbert, 1995). Based on these findings, a decision was made not to include openness, and agreeableness in the model. Parsimony was the second reason to do so. Further, lower number of variables translated into lower number of tests done on the same data. This decreased chances of Type 1 error.

Results from the regression model indicate that all three traits were predictive of smoking behaviour, accounting for 10% of variance. These results correspond well with majority of research findings. Both neuroticism and extraversion are positively associated with smoking behaviour. In case of conscientiousness, the inverse relationship can be observed, which is in line with contemporary findings (Terracciano & Costa, 2003). After controlling for personality, age was also found to be predictive of smoking behaviour, accounting for further 11% of variance. These results are in line with the majority of previous findings. Although this model seems to be working well, it has to be noted that Beta values are quite small. This indicates that even though personality characteristics are predictive of smoking behaviour, they do not account for a lot of variance.

Regarding age effect, although this variable was found to be predictive of number of smoked cigarettes, the Beta value (.34) was quite small. Results indicate that on the average, every 6.8 years ($SD = 6.8$ for age), on average, number of smoked cigarettes a day increases by 2.3 ($6.8 \times .34$). These findings are in line with previous research, which has found number of smoked cigarettes to increase over time, up to the age of 50 (Burns, Major, and Shanks, 2003). Data for Ireland indicates that 46% of smokers reported attempting to quit smoking within previous 12 months. This

number gradually declines with age (from 54% for smokers at age 18-29, to 30% of smokers at 65 years) (Brugha et al., 2009). Increasing number of smoked cigarettes is most likely to reflect increasing nicotine dependence. This in turn, can account for diminishing attempts to quit.

This study has a number of limitations that should be considered before attempting to replicate those findings. First, the sample size was relatively low ($N = 125$). Although sample size met minimum requirements suggested by the Tabachnick and Fidell (2007), a bigger sample would provide more reliable results. Second, the study participants were predominantly college students.

Given that education was found to influence personality (Costa & McCrae, 1992), this sample is not representative of the Irish general population, hence caution must be taken before generalizing those finding. Third, due to the time constraints, this study used very short version (25 items) of NEO-FFI questionnaire (Costa & McCrae, 2004). This did not allow for more in-depth analysis at the '*facet*' level. Finally, Cronbach's alpha of avoidant coping measurement had rather low internal consistency, with Cronbach's alpha of .60.

Conclusion

The overall results indicate that more stable variables (personality) are better predictors of smoking behaviour than more transient variables, such as, self-esteem, and self-efficacy. Although, personality did not account for a lot of variance, it provides stable basis for future research. An interesting observation was noted while examining the regression model used in the current study. During the first step of

regression, neuroticism was not a statistically significant predictor of smoking behaviour ($p > .05$). However, in the second block, after introducing age variable, neuroticism became a statistically significant ($p < .05$). This indicates that age moderates the relationship between neuroticism and smoking behaviour. Future research could investigate this using moderated regression analysis to discover whether this is the case.

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Appendix 1

Participant information sheet.

Study title: Smoking behaviour and its correlates: personality, self-esteem, self-efficacy, and coping strategies. Age-effect perspective.

Hi,

My name is Witold Zolnowski. I am a psychology student at Dublin Business School, and I am conducting research as a part of my final year project.

The aim of this study is to examine if there is an association between psychological constructs and smoking behaviour. This study will look at several interrelated measures: personality, self-esteem, coping mechanisms and self-efficacy.

Your participation is entirely voluntary and all your responses are anonymous. You are free to stop at any stage.

This study has been reviewed and approved by the Ethics Committee for Dublin Business School. Finally, if there is anything that is not clear or if you require any additional information, please do not hesitate to ask.

Male
 Female

Age: _____

You would describe yourself as:

- Non-smoker (You never smoked or smoke on rare occasions)
- Ex-smoker
- Smoker (You smoke regularly, at least once a week. Includes: packed cigarettes, roll your own cigarettes, cigars, e-cigarette, pipe.)

If you smoke, how many cigarettes do you smoke a day (approximately)? _____

Here are a number of characteristics that may or may not apply to you. Please mark next to each statement to indicate the extent to which you agree or disagree with that statement.

	Disagree Strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree Strongly
1. I often feel blue.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I dislike myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I am often down in the dumps.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I rarely get irritated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I am not easily bothered by things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 6. I feel comfortable around people. | <input type="radio"/> |
| 7. I make friends easily. | <input type="radio"/> |
| 8. I have little to say. | <input type="radio"/> |
| 9. I keep in the background. | <input type="radio"/> |
| 10. I would describe my experiences as somewhat dull. | <input type="radio"/> |
| 11. I believe in the importance of art. | <input type="radio"/> |
| 12. I have a vivid imagination. | <input type="radio"/> |
| 13. I tend to vote for liberal political candidates. | <input type="radio"/> |
| 14. I am not interested in abstract ideas. | <input type="radio"/> |
| 15. I do not like art. | <input type="radio"/> |
| 16. I have a good word for everyone. | <input type="radio"/> |
| 17. I believe that others have good intentions. | <input type="radio"/> |
| 18. I have a sharp tongue. | <input type="radio"/> |

19. I cut others to pieces.
20. I suspect hidden motives in others.
21. I am always prepared.
22. I pay attention to details.
23. I get chores done right away.
24. I waste my time.
25. I do just enough work to get by.

- | STATEMENT | Strongly Disagree | Disagree | Agree | Strongly Agree |
|---|--------------------------|-----------------------|-----------------------|-----------------------|
| 26. I feel that I am a person of worth, at least on an equal plane with others. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 27. I feel that I have a number of good qualities. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 28. All in all, I am inclined to feel that I am a failure. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 29. I am able to do things as well as most other people. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

30. I feel I do not have much to be proud of.
31. I take a positive attitude toward myself.
32. On the whole, I am satisfied with myself.
33. I wish I could have more respect for myself.
34. I certainly feel useless at times.
35. At times I think I am no good at all.
36. I can always manage to solve difficult problems if I try hard enough.
37. If someone opposes me, I can find the means and ways to get what I want.
38. It is easy for me to stick to my aims and accomplish my goals.
39. I am confident that I could deal efficiently with unexpected events.
40. Thanks to my resourcefulness, I know how to handle unforeseen situations.

- | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|
| 41. I can solve most problems if I invest the necessary effort. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 42. I can remain calm when facing difficulties because I can rely on my coping abilities. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 43. When I am confronted with a problem, I can usually find several solutions. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 44. If I am in trouble, I can usually think of a solution. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 45. I can usually handle whatever comes my way. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

These items deal with ways you've been coping with the stress in your life. Each item says something about a particular way of coping. Please answer how frequently you have used particular way to deal with problems. Don't answer on the basis of whether it seems to be working or not—just whether or not you're doing it. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can.

- | STATEMENT | I haven't been
doing this at all | I've been
doing this a
little bit | I've been
doing this a
medium
amount | I've been
doing this a
lot |
|---|---|--|---|---|
| 46. I've been concentrating my efforts on doing something about the situation I'm in. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

47. I've been giving up trying to deal with it.
48. I've been taking action to try to make the situation better.
49. I've been daydreaming about things other than this.
50. I've been trying to come up with a strategy about what to do.
51. I've been doing something to think about it less, such as going to movies.
52. I've been thinking hard about what steps to take.
53. I've reduced the amount of effort I'm putting into solving the problem.