The power of personality and health in shaping subjective social status

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ABSTRACT

The power of personality and health in shaping subjective social status

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Subjective social status is an individual's self-perceived rank in society in terms of education, occupation, and income. Lower subjective status has been linked to a variety of negative physical, psychological, and social outcomes. It has been argued that subjective status is largely an unbiased assessment of one's actual socioeconomic standing. However, the hypothesis of the present research is that subjective status may also be influenced by personality (i.e., neuroticism, extraversion, and perceived control) as well as by previous illness. Four studies were conducted. The study reported in Chapter 2 was a 2-year longitudinal study of older adults that examined how neuroticism may be linked to subjective status. The findings were that more neurotic individuals had poorer occupational attainment, poorer salaries, and worse illness, all of which was associated with lower subjective status. More neurotic individuals reported greater acute negative affect but negative affect was unrelated to subjective status. The study reported in Chapter 3 examined how subjective status and recent medical interventions may be related. As expected, those individuals who had undergone more medical interventions in the preceding year went on to report lower subjective status. However, initial subjective status was unrelated to subsequent number of medical interventions. In Chapter 4, the relation between subjective status and perceived control was examined in samples of young and old adults. For young adults, perceived control and subjective status were unrelated in a model that included personality and socioeconomic status. In addition, higher extraversion was linked to higher subjective status, whereas neuroticism was

unrelated to subjective status for young adults. For older adults, perceived control positively predicted subjective status, though the strength of association was relatively weak after accounting for personality and socioeconomic status. An alternative account in which subjective status predicted perceived control was not supported by the data. Across four studies, subjective status was influenced by a variety of factors including neuroticism, extraversion, perceived control, and preceding health problems. Doubts are raised concerning the impact of subjective status, particularly since so few studies of subjective status have adequately controlled for personality and previous illness.

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Contribution of Authors

The present doctoral thesis consists of three manuscripts.

Chapter 2

Alfonsi, G., Conway, M., & Pushkar, D. (2011). The lower subjective social status of neurotic individuals: Multiple pathways through occupational prestige, income, and illness. *Journal of Personality, 79,* 619-642.

Chapter 3

Alfonsi, G., Conway, M., & Pushkar, D. Undergoing more medical interventions predicts subsequent lower subjective status.

Chapter 4

Alfonsi, G., Conway, M., Tabri, N. & Pushkar, D. Is subjective social status consequential? On the relation between perceived control and subjective status.

Relative Contribution

I generated the conceptual framework and hypotheses for all four studies in collaboration with my supervisor, Dr. Conway. I participated in data collection for all studies alongside other graduate students and volunteers. I conducted almost all statistical analyses and was responsible in writing the drafts for all manuscripts. Note that I received substantial aid from my co-authors, and in particular, Dr. Conway, in editing the papers for both style and content.

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Chapter 1

General Introduction

Human beings engage in numerous types of social relations which are often characterized by differences in power and influence. Indeed, it can be argued that a principal form of social relation is that of authority ranking in which individuals may recognize each other as superior or subordinate (Fiske, 1992). These relations of authority ranking can extend over networks of individuals (Mazur, 2005), in which a particular individual may be subordinate to some individuals and superior to others. An individual's location within such a wider hierarchy can be conceptualized as that individual's *social status*.

Social status is an influential construct in social psychology that has been operationalized in a variety of different ways. Three principal forms of social status can be identified. First, individuals differ in their rank within proximal social environments. For example, individuals differ in how much respect and influence they may have within their immediate peer group. These are differences in *face to face status*. Second, individuals differ in terms of their absolute levels of education, occupation, and income, which collectively have been identified as indicators of *socioeconomic status* (SES; Rogers & Onge, 2007). Third, individuals differ in how they perceive their relative level of education, occupation, and income in society, and these perceptions together constitute *subjective social status* (Adler, Epel, Castellazzo, & Ickovics, 2000). Note that subjective social status consists of perceptions of one's relative SES and these perceptions are not necessarily accurate. It is important to distinguish individuals' face to face status, their

SES, and their subjective social status because these three types of status may differ in their determinants and consequences.

Differences in face to face status are ubiquitous in human social interactions, and the human capacity to function within such hierarchies may have an evolutionary origin. Indeed, there are several physiological, cognitive, and affective systems that make human beings acutely sensitive to any changes in status (their own or of others) within their peer groups (Cummins, 2005), and such systems are likely inherited from our hunter-gatherer ancestors. Given this evolutionary argument, one would expect to see face to face status differences in other species. In fact, relations of dominance and submission can be found throughout the animal kingdom (Mazur, 2005). Face to face status differences have important consequences on the competition for resources among conspecifics. In many animal species, there are higher status individuals that have first access to food and mates, and there are lower status conspecifics who defer to these high status individuals. This relation of dominance and submission represents an adaptive response to the high costs of outright aggression and competition, and provides an effective compromise which benefits both the superior and subordinate.

Evidence for the importance of face to face status for social living can be found in how early such status concerns emerge in human development. It has been argued that very young children engage in various strategies aimed at increasing their social dominance and resources (Hawley, 1999). Those children who rise to the top of their peer group receive disproportionate attention from their peers, which mimics the increased attention paid to high status animals such as is found within the higher primates. These effects may seem based on inherited tendencies but are also open to socialisation, as the

strategies by which children receive status from their peers change with time in the direction of greater pro-sociality (Hawley, 1999). There may be a variety of environmental inputs which may influence which behavioural strategies children select to manage their position within face to face status hierarchies. These inputs may include the availability of resources in early childhood, parental style, and cultural influences (Bugental, 2000).

Not only do children seem to seek status in the eyes of their peers, but at a young age they begin to explicitly understand their own ranking. For instance, children begin to demonstrate accuracy in assessing their own standing in peer groups as early as the third grade (Krantz & Burton, 1986). These changes suggest that children quickly gain the ability to understand that there are hierarchies present in life and such hierarchies are important. Indeed, research has shown that teenagers' rank in the social hierarchies present in sports teams, academic settings, and peer groups have a variety of effects on physiological functioning (West, Sweeting, Young, & Kelly, 2010), and such effects seem more pronounced for these immediate face to face hierarchies than for the SES of these teenagers. The ability to effectively know one's place in a status hierarchy is important, as there are negative social consequences for those individuals who see themselves as having higher status than is afforded to them by their peers (Anderson, Srivastava, Beer, Spataro, & Chatman, 2006).

The capacity to manage status hierarchies involves not only assessing one's own status but also the status of others. Individuals are able to form assessments of each other in terms of status-related characteristics, such as age, gender, and physical attractiveness (Brewer & Lui, 1989; Willis & Todorov, 2006), and such judgments occur relatively

quickly. Many status-related cues are detected nonconsciously and automatically (Smith & Galinsky, 2010). The cues by which humans detect and respond to differences in power include patterns of gaze, body posture, height, spatial location (i.e., individuals who are higher up relative to the observer are seen as having greater power), and general size. Given that many of these cues are processed rapidly and in a non-conscious manner, the implication is that while individuals can accurately assess another individual's status, they may not be able to explicitly access the cues by which they make such a judgment (Smith & Galinsky, 2010).

In contrast to the local nature of face to face hierarchies, the SES hierarchy is immense (encompassing whole societies), and one of the broadest status networks to which humans belong (Mazur, 2005). In the present thesis, SES is conceptualized as an individual's objective level of influence, prestige, and access to resources in society at large. Education, occupation, and income are three principal indicators of SES (Rogers & Onge, 2007). Note, however that there has been substantial debate as to how to best operationalize socioeconomic status (Oakes & Rossi, 2003; Shavers, 2007). Whereas almost all measures of SES make reference to at least one of the three previously mentioned indicators (i.e., education, occupation, and income), there remains substantial diversity in how these indicators are conceptualized to contribute to SES, in how they are concretely measured, and in how they are individually weighted as facets of SES (Oakes & Rossi, 2003). Nevertheless, education, occupation, and income remain moderately to strongly positively intercorrelated (e.g., Singh-Manoux, Adler, & Marmot, 2003), and can be argued to cohere together in a meaningful way. In addition to these indicators, other indicators of SES have been identified such as personal wealth, family income,

neighbourhood per capita income, neighbourhood property value, and so on (Shavers, 2007). Given the variety of indicators available with which to measure SES, researchers may be guided by the particularities of their research question, and by pragmatic considerations in which measures they ultimately choose.

Differences in SES have been identified as predicting important physical and psychological outcomes. For example, a recent American Psychological Association taskforce on SES (2006) identified several areas in which SES may be influential. Individuals with higher SES attain better social support, greater perceived control, better access to health care, have less negative health behaviors, and work in jobs with better quality of work life. In short, there are numerous benefits to having higher SES.

Many of the health effects of SES have not just been found with the very rich or very poor but extend across the entirety of the SES gradient (Adler et al., 1994). These findings highlight the depth of the influence of SES on health. Adler and colleagues (1994) reviewed a variety of explanations for the health effects of SES. First, higher SES individuals may act in ways to promote their health, including smoking less and engaging in greater physical activity. Second, higher SES individuals may have better mental health such as less depression and lower hostility, both of which are potential risk factors for future physical illness. Third, higher SES individuals may experience less stress both because they encounter less negative events in their environments and because they have greater resources available to deal with stressors as they arise. Fourth, lower SES may be detrimental for one's health because of social comparison. Individuals who are lower in SES may compare themselves to the rest of society and such a comparison could lead to chronic stress (independent of any environmental stressors) and eventually illness. The

implication is that relative standing may be consequential above and beyond one's absolute SES standing.

The possibility that it is one's relative SES that influences health led researchers to shift their attention towards subjective social status. Subjective social status is an individual's perception of his or her ranking in society in terms of education, occupation, and income. Note that SES and subjective status are related but distinct, and as a consequence each may have unique influence on the individual. For example, consider two office clerks who have the same schooling and earn the same salary. Yet individual A appraises his or her SES as being relatively worse off than individual B. It can be hypothesized that individual A is at greater risk for illness, even though both individuals have access to the same material resources. In order to address this hypothesis, a measure of subjective social status was developed. The MacArthur Scale of Subjective Social Status (SSS; Adler et al., 2000) is a measure for which participants indicate on a visual representation of a ladder on which rung they see themselves relative to others in terms of their SES. The hypothesis underlying the development of the SSS was that perceptions of being worse off may result in greater psychological stress for individuals, and that such psychological stress would negatively impact their health.

The SSS is a single-item measure in the form of a line drawing of a ladder. The ladder has ten rungs and participants are asked to consider this ladder as representing where individuals stand in society. Similar ladder measures have been used previously to assess self-perceptions of success in major life domains (Cantril, 1965) as well as the status of one's social group (Abeles, 1976). The SSS is unique in that it measures people's sense of their social standing exclusively in terms of their individual SES.

Instructions for the measure indicate that those individuals at the top of the ladder are those with the best education, occupation, and income, whereas those individuals at the bottom are the worst off with respect to education, occupation, and income. Individuals respond to the ladder by placing an X on the rung that best represents their own position in society.

The measure was initially developed with a sample of 157 healthy white women (Adler et al., 2000). These women completed the subjective status scale, and reported on their SES and on a variety of health and psychosocial measures. Participants also completed the negative affect subscale of the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988), which was included as a control variable in the analyses. The sample was relatively well off, with a majority of participants having at least a college degree. On average, most participants saw themselves as having above average status. A series of hierarchical regressions was conducted to determine if subjective status predicted health outcomes above and beyond negative mood and SES. In Adler and colleagues' sample, SES was largely unrelated to most health outcomes, but was still entered first into the regression with negative affect entered second and subjective status entered third. Even after controlling for SES and negative affect, lower subjective status was associated with a variety of negative outcomes such as greater sleep latency, higher resting heart rate, greater chronic stress, greater pessimism, poorer control over life, less active coping, and more passive coping.

The authors theorized as to how negative affect may relate to subjective status. They argued that subjective status may not only increase negative affect, but may in turn be influenced by negative mood. However, they concluded that, given the many

outcomes that are still linked to subjective status even after controlling for negative affect, subjective status has many of its effects independent of any shared variance with negative mood.

In a follow-up study (Singh-Manoux et al., 2003), an attempt was made to replicate earlier findings with a larger more representative sample, and to establish the principal determinants of subjective social status. The sample consisted of approximately 7 000 office workers from English civil service departments. Participants responded to the subjective status scale, as well as reporting on several indicators of SES. Health outcomes for the study were the presence of diagnoses for several illnesses, including angina, diabetes, respiratory illness, depression, as well as a global measure of perceived health. Participants also responded to a life satisfaction questionnaire as well as measures of feelings of financial security, satisfaction with one's standard of living, and sense of material deprivation. Several psychosocial indicators were included as well, such as hopelessness, control at work, general life control, mental health, vigilance, hostility, and optimism.

A series of logistic regressions was conducted separately for men and women. The results were that lower subjective status was generally linked to worse health outcomes for both genders. The links between subjective status and illness were somewhat attenuated after controlling for SES, but lower subjective status was linked to more illness nonetheless. In order to address the question of determinants of subjective status, 16 measures of both objective SES and psychosocial functioning were included in a series of multiple regressions predicting subjective status. Only 5 variables were retained on account of their significant contribution to the model. These variables in order

of strongest to weakest were: employment grade, satisfaction with standard of living, household income, feeling of financial security, and education. Note that three of five identified determinants are also basic indicators of SES (i.e., education, occupation, and income). The authors concluded that SES was primary in determining subjective status, and that subjective status is derived from a relatively unbiased cognitive averaging of indicators of one's SES.

Further research on the psychometric properties of the SSS demonstrated relatively strong test-retest reliability (Operario, Adler, & Williams, 2004). The same study replicated the finding that lower subjective status predicts poor health above and beyond the contribution of SES. In addition, they found that controlling for negative affect diminished the link between subjective status and health. This is consistent with an interpretation that negative affect partially mediates the link between subjective status and health.

Since the initial development of the SSS, some research purports to demonstrate that individuals with lower subjective status experience changes in their physiology and neuroanatomy. Such physiological changes might further explain some of the poorer health and health behaviors observed amongst lower subjective status individuals. One study demonstrated that lower subjective status was linked to greater cortisol at waking after controlling for SES and health factors (Wright & Steptoe, 2005). In addition, lower subjective status has also been associated with less grey matter volume in certain brain regions associated with emotional regulation, after controlling for negative affect (Gianaros et al., 2007). Given these studies, one can argue that if lower subjective status individuals experience chronically higher levels of stress hormones and neurological

deficits, then it would be of no surprise that lower subjective status individuals are at higher risk for negative health outcomes.

Further research has attempted to extend the findings relating subjective status to health with samples from across the lifespan. For example, adolescents' perceived SES in society was inversely related to health (Page et al., 2009). For older adults, lower subjective status appears to be a robust predictor of a variety of health problems (Demakakos, Nazroo, Breeze, & Marmot, 2008), though perhaps these effects are particularly stronger for women (Hyde & Jones, 2007). The influence for older adults of subjective status on poor health has been observed cross-culturally, as it has been observed in a sample of older Taiwanese individuals (Hu, Adler, Goldman, Weinstein, & Seeman, 2005).

Subjective status not only influences health outcomes but may be related to a range of health behaviors. For a sample of older adults, lower subjective status was a stronger predictor of greater smoking and drinking than was lower education (Shankar, McMunn, & Steptoe, 2010). Two studies have specifically examined how subjective status relates to smoking. For women who had quit smoking because of pregnancy, lower subjective status was associated with greater relapse (Reitzel et al., 2007). In another study, lower subjective status was related to relapse in smoking for individuals trying to quit and this effect of lower subjective status on relapse was partially mediated by negative mood (Reitzel, Mazas, Cofta-Woerpel, Li, et al., 2010).

Not only is an individual's health associated with his or her subjective status, but one's health may even be influenced by the subjective status of others. In a large epidemiological study conducted in Hungary (Kopp, Skrabski, Kawach, & Adler, 2005;

Kopp, Skrabski, Réthelyi, Kawachi, & Adler, 2004), the average level of subjective status in a region was associated with the health of individuals in that region. In particular, those men who live in areas where women generally have lower subjective status went on to have worse health.

Subjective status has also been linked to a variety of outcomes beyond traditional health measures. For example, higher subjective status is linked to less burn-out for long-term care providers (Ayalon, 2008), better body image (Leedy, 2007), better adjustment amongst the homeless (Cox, 2005), better responses to a psychotherapy intervention amongst HIV patients (Peake, 2006), and greater perceived control (Kraus, Piff, & Keltner, 2009). These findings point to the great variety of outcomes that researchers have linked to subjective status.

Subjective status was initially validated in a sample of white American women (Adler et al., 2000), and so the question can be raised whether subjective status plays an important role in other social groups. Amongst Taiwanese individuals, there was consistency with previous research in how SES was linked to subjective status (Goldman, Cornman, & Chang, 2006). Other research has linked subjective status to important outcomes with samples from Macau (Leung, 2009), and Japan (Sakurai, Kawakami, Yamaoka, Ishikawa, & Hashimoto, 2010). For pregnant women from different ethnic groups in the United States, lower subjective status was related to worse self-reported health (Stewart, Dean, Gregorich, Brawarsky, & Haas, 2007). In a sample of various ethnic groups in the United States, subjective status was linked to health in roughly similar ways, though some minor differences were found in how strongly various facets of SES were linked to subjective status (Yip, 2003).

In contrast to the findings reviewed above, other research supports a moderating role for ethnicity on subjective status. For example, SES and subjective status showed different strengths of association across different ethnic communities in the United States (Adler et al., 2008; Wolff, Acevedo-Garcia, Subramanian, Weber, & Kawachi, 2010). One explanation for this variability is that for visible minorities, there may be greater complexity in how one's rank is assessed. Among youths from First Nations, those who have greater social and emotional resources report higher subjective status (Brown et al., 2008). For low-income Mexican-Americans, lower subjective status was related to worse mental and subjective health, but this relation appeared to be mediated by perceptions of victimization (Franzini & Fernandez-Esquer, 2006). Other work has shown the limits of subjective status with this sample of Mexican-Americans, as subjective status was unrelated to a measure of obesity (Fernald, 2007). With Asian-Americans, lower subjective status was also unrelated to body mass index and smoking after controlling for SES, although it did predict worse subjective health (Castro, Gee, & Takeuchi, 2010).

Further work on subjective status among visible minorities has examined subjective status in the context of immigration. In a sample of Hispanic-American immigrants, acculturation plays a role in shaping subjective status above and beyond SES (Reitzel, Mazas, Cofta-Woerpel, Vidrine, et al., 2010). Those immigrants who could only speak Spanish had lower subjective status independent of their socioeconomic circumstances. For Asian-American immigrants, the reasons for immigrating and the age of immigration may play a role in how subjective status operates in these individuals' lives (Chen, Gee, Spencer, Danziger, & Takeuchi, 2009; Leu et al., 2008).

Finally, some work has examined how subjective status ranking in terms of society at large may differ from ranking status in one's immediate community. One study found that relative to other possible referent groups, ranking oneself relative to society at large – which is the usual subjective status measure – was the most important predictor of health (Wolff, Subramanian, Acevedo-Garcia, Weber, & Kawachi, 2010). However, other work with cardiovascular health has shown subjective status relative to society at large correlates with some health outcomes, whereas subjective status vis-à-vis one's community relates to other health outcomes (Ghaed & Gallo, 2007).

The relative contributions of SES and subjective status to health have been a source of some controversy. Initial work demonstrated that subjective status was a better predictor of health than was a facet of SES, which was occupational level (Singh-Manoux, Marmot, & Adler, 2005). However, in a study of employed Scottish men from diverse work settings, subjective status was argued to be a relatively less important predictor of health than more objective measures of status (Macleod, Smith, Metcalfe, & Hart, 2005). In the latter study, a different approach was taken to measure subjective social status. Individuals were asked to identify their rank in their workplace as either an employee, foreman, or manager. In the sample, managers had higher objective status (e.g., lived in better neighbourhoods and had obtained more education) than employees and foremen, whereas foremen's higher status relative to employees was largely only in terms of their job title. As such, one's perception of oneself as a foreman came with little material advantage when compared to the employees, and yet foremen had a higher sense of rank within their organization. This sense of higher rank conferred only a weak advantage to health, whereas more objective measures of status such as parental SES and

access to a car were both more closely linked to health. The authors concluded that seeing oneself as being higher in social rank is simply less important than one's material circumstances.

Given this critique on subjective status, Adler (2006), one of the originators of the SSS, issued a response shortly after. She offered several criticisms of the preceding study. In one criticism, she noted that the purported measure of subjective status was perhaps no different than a measure of occupational status, which is an indicator of SES. Another criticism was that the work settings from which the participants were recruited were quite heterogeneous, ranging from chemical factories to banks. The meaning of job rank could be different across settings, making the results difficult to interpret. In sum, the research by Macleod and colleagues (2005) may have less contrasted subjective status with SES than pitted different facets of SES against each other.

Macleod, Smith, Metcalfe, and Hart (2006) responded to Adler's critiques. They argued that their use of job rank as a marker of subjective status was based on prior research, and they presented data to show consistency across the worksites. Finally, they noted that research on subjective status has political ramifications which make this domain of research vulnerable to bias. For example, individuals who are generally hostile to wealth redistribution may read into the general body of subjective status research support for their political position. After all, if it is less important for public health to improve working class individuals' actual material conditions than it is to simply improve their perception of those conditions, then many social service programs may be up for questioning. Returning to empirical considerations, Macleod and colleagues also pointed out that causal direction in this area of research is going unquestioned. In particular, they

noted how psychosocial variables such as self-esteem – which are often construed as being causal of health outcomes – could just as easily be outcomes of health changes. Such arguments can be extended to subjective status itself.

The assumption has been since the work of Singh-Manoux and colleagues (2003) that subjective status is essentially an unbiased averaging of one's SES. However, there may be good reason to hypothesize the role of other constructs in shaping subjective social status. First, as mentioned above, psychosocial factors have been identified as important in shaping subjective status at least in certain visible minority groups (Brown et al., 2008; Franzini & Fernandez-Esquer, 2006). Second, in line with the arguments of Macleod and colleagues (2006), cross-sectional research (which is the methodology adopted in most of the reviewed studies on subjective status) is poorly equipped to establish directionality between related constructs. As a consequence, many of documented psychosocial outcomes of subjective status could in actuality be determinants of subjective status.

One study investigated how subjective status may be related to a variety of psychosocial factors, in order to better understand whether subjective status may be influenced by such constructs. Lundberg and Kristensen (2008) examined how subjective status was related to a comprehensive list of psychosocial factors including cynicism, depression, hopelessness, life satisfaction, mastery, optimism, perceived control, self-esteem, sense of coherence, shame, and vital exhaustion. The authors found that, in general, psychosocial factors were more closely linked to subjective status than to SES. In addition, they found that subjective status was still linked to health after controlling for most of the psychosocial factors. However, including life satisfaction resulted in a

nonsignificant association between subjective status and health. The authors were generally hesitant to draw strong conclusions from this finding as life satisfaction itself is a multidetermined construct that may be measuring elements of the individuals' objective circumstances as well as their subjective state. Finally, the authors found that in a cross-sectional analysis, the strongest psychosocial predictors of subjective status were life satisfaction, self-esteem, trust, and perceived control. Overall, the authors argued that some of the psychosocial variables may very well act as determinants of subjective status, although longitudinal and experimental research is needed to establish this point.

The Present Research

The focus in the present studies was on how personality and previous illness may influence individuals' subjective status above and beyond the contribution of SES. In contrast to the account provided by Singh-Manoux and colleagues (2003), it will be argued in the present studies that individuals derive their subjective status through a variety of means beyond a simple cognitive averaging of indicators of their social class. Instead, it is hypothesized that subjective status judgments will be influenced by the individual's level of neuroticism, extraversion, perceived control, and recent illness. Several mechanisms for how these factors may influence subjective status will be proposed.

In the present research, neuroticism, extraversion, and perceived control will be considered as possible predictors of subjective status. Neuroticism is a core feature of personality which is defined by the tendency to experience negative moods and emotions (Watson, 2000; Watson & Clark, 1992; Widiger, 2009). Neuroticism has a strong genetic basis (Jang, Livesley, & Vernon, 1996), and is generally stable across the life span,

though individuals on average become slightly less neurotic with age (Roberts, Walton, & Viechtbauer, 2006). The poorer psychological outcomes associated with neuroticism include lower self-esteem and lower perceived control (Hankin, Lakdawalla, Carter, Abela, & Adams, 2007; Judge, Erez, Bono, & Thoresen, 2002; Watson, Suls, & Haig, 2002). Furthermore, neurotic individuals experience more frequent intrusive thoughts (Flehmig, Steinborn, Langner, & Westhoff, 2007). Given the association of neuroticism with negative psychological outcomes, it is not surprising that individuals who are more neurotic are at greater risk of developing a mental disorder (Beard, Heathcote, Brooks, Earnest, & Kelly, 2007; Kendler, Gatz, Gardner, & Pederse, 2006).

Beyond psychological outcomes, neuroticism is associated with a variety of health-related outcomes. For example, individuals higher in neuroticism evidence worse self-reported health (Jorm, Christensen, Henderson, & Korten, 1993) and poorer health behaviors (Williams, O'Brien, & Colder, 2004). One mechanism by which neuroticism may have its influence on health is through physiological overactivation of the stress response. Indeed, neurotic individuals have chronically higher levels of cortisol, a major stress hormone (Nater, Hoppmann, & Klumb, 2010). The consequences of neuroticism extend beyond individuals' health, as economic analyses place the annual health-related costs of high neuroticism to society in the billions (Cuijpers et al., 2010). Neuroticism has also been directly linked to status-related outcomes. For example, more neurotic individuals see themselves as more submissive (Gilbert & Allan, 1994), and are seen by peers as having lower status in their immediate peer groups (Anderson, John, Keltner, & Kring, 2001), though the latter finding held only for men. In addition, more neurotic individuals experience worse life outcomes, such as poorer educational and occupational

attainment, higher risk of divorce, and earlier mortality (Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007). Given the wide ranging effects of neuroticism, it is plausible to argue that the psychosocial consequences of subjective status that have been identified in prior research are in fact due to individual differences in neuroticism that were not taken into account or controlled for. Given the wide ranging effects of neuroticism, it is not sufficient to measure and control for acute negative affect in research on subjective social status.

In Chapter 2, neuroticism is examined as a possible determinant of subjective status. It was hypothesized that individuals with higher neuroticism attain lower socioeconomic status (as measured by education, occupational prestige, and salary), report more severe illnesses, and have greater acute negative affect, all of which are associated with lower subjective status. In addition, it was hypothesized that there will be a direct link between higher neuroticism and lower subjective status. These hypotheses were considered in a sample of recent retirees who were followed over a two-year period. In Chapter 3, neuroticism is treated as a control variable for analyses examining the association between objective health and subjective status. In both studies of Chapter 4, neuroticism is considered as a common determinant for both subjective status and perceived control, and it was expected that neuroticism partially explains the observed association between the latter two constructs.

Extraversion is characterized by a tendency to experience positive affect, as well as a tendency to be more sociable and dominant (Costa & McCrae, 1992; Gilbert & Allan, 1994; Lucas, Le, & Dyrenforth, 2008; Watson & Clark, 1992). Extraversion, like neuroticism, is a highly heritable (Jang et al., 1996) and stable (Roberts et al., 2006) core

dimension of personality. Environmental factors may also influence extraversion. First, birth order may play a role at least in shaping the dominance aspect of extraversion. One study found that later born individuals were generally more dominant (and by implication more extraverted) than their older siblings (Pollet, Dijkstra, Barelds, & Buunk, 2010). In addition to birth order, it has been argued that individuals who possess socially valued traits such as physical strength and attractiveness will go on to develop greater extraversion (Lukaszewski & Roney, 2011). Converging evidence for this argument can be found with one study that showed that photos of more extraverted individuals were rated as more physically attractive by unacquainted judges (Meier, Robinson, Carter, & Hinsz, 2010). In sum, individuals may develop higher extraversion due to a variety of factors including genetics, birth order, and physical traits.

Individuals higher in extraversion experience a variety of positive outcomes. More extraverted individuals have higher self-efficacy (Lent et al., 2005), higher self-esteem (Watson et al., 2002), and greater subjective well-being (Weiss, Bates, & Luciano, 2008). Finally, more extraverted individuals report better health behaviors as well as more positive health-related cognitions (Williams et al., 2004). As with neuroticism, extraversion is related to individual differences in face to face status. For example, more extraverted individuals are seen as having higher status by their peers in their immediate social environment (Anderson et al., 2001). Given the wide ranging impact of extraversion, it seems likely that individual differences in extraversion may account for what have been identified as psychosocial consequences of subjective status.

Extraversion was considered in all four studies of the present research. In ancillary analyses in Chapter 2, it was expected that extraversion is a positive predictor of

subjective status. This same expectation was formulated for young adults in Study 1 of Chapter 4. In addition, extraversion was treated as a control variable in Chapter 3 and in Study 2 of Chapter 4.

Perceived control is a core dimension of personality that is conceptualized to be tightly negatively linked to neuroticism (Judge et al., 2002). Perceived control is often argued to be an important mediator in status and health research. Supportive of this argument are the findings that individuals with higher SES have higher perceived control, which in turn is associated with better health (Lachman & Weaver, 1998; Moore et al., 2010). In addition to acting as a mediator, perceived control may moderate the relationship between SES and health, as the negative effects of low income on health are muted for individuals with higher perceived control (Lachman & Weaver, 1998). One explanation for why perceived control may promote better health may be that higher perceived control individuals have less physiological activation when stressed (Abelson, Khan, Liberzon, Erickson, & Young, 2008). In addition to perceived control leading to better health, some longitudinal research supports a bi-directional model in which better health leads individuals to experience themselves as having more control (Gerstorf, Röcke, & Lachman, 2011). The link between perceived control and health is relatively robust, but some evidence suggests the association between perceived control and health is more likely to be observed with older adults than with younger adults (Infurna, Gerstorf, & Zarit, 2011). In addition to the contribution perceived control may make on health, individuals with higher perceived control also experience a variety of positive psychological outcomes. For example, individuals higher in perceived control show

greater optimism (Klein & Helweg-Larsen, 2002), less depression, and higher life satisfaction (Lachman & Weaver, 1998).

There is a positive association between perceived control and subjective status (e.g., Lundberg & Kristenson, 2008; Singh-Manoux et al., 2003). A more recent study has shown that individuals with lower subjective status tend to appraise life events as being due to environmental forces, and this relation was explained by the lower perceived control associated with lower subjective status (Kraus et al., 2009). Implicit in this conceptualization is the argument that lower subjective status is a determinant of perceived control. However, the research by Kraus and colleagues was mostly cross-sectional, as is other research on subjective status and perceived control.

Neuroticism and extraversion may act as common determinants for both subjective status and perceived control. As such, it is unclear how strong the relation may be between the latter constructs, given that prior research did not control for personality. In the present research, the focus was on better understanding the strength of association between perceived control and subjective status as well as the direction of influence between the two. In Study 1 of Chapter 4, it was hypothesized that perceived control is only weakly related to subjective status in a model that includes neuroticism and extraversion, as well as SES. In Study 2 of Chapter 4, it was hypothesized that whatever modest relation remains between perceived control and subjective status is best understood as higher perceived control leading to higher subjective status. In addition, it was argued that satisfaction with one's finances mediates this relation.

In addition to the effects of neuroticism, extraversion, and perceived control on subjective status, one also can expect that illness may play a role in influencing

subjective status. The position that one's health may influence one's subjective status is converse to the nearly unanimously held view that subjective status is a risk factor for future illness. The latter view is evident in the research literature reviewed above. Yet chronic illness is often associated with a drop in SES (Stenbeck & Hjern, 2007), and such a decrease would likely lead to lower subjective status. In addition, greater illness could result in lower perceived control, which as hypothesized above could result in a drop in subjective status. That illness might lead to less control has some support in research conducted with patients undergoing prolonged hospitalization (Halfens, 1995). Finally, people who are ill may act in a more submissive manner, which in turn may influence how they appraise their subjective status. Consider that individuals who are chronically ill may experience a variety of social and personal losses (Kelley, 1998), which may be reflected in a sense of lowered social worth. Further support for the more passive interpersonal style of recently ill individuals can be drawn from Schaller's (2006) evolutionary theory of the behavioural immune system, in which individuals who perceive the threat of illness are particularly likely to act in a more introverted manner.

Illness is addressed in both Chapters 2 and 3. In Chapter 2, severity of reported illnesses was measured and it was hypothesized that more neurotic individuals report more severe illness, which in turn is associated with lower subjective status. In addition, the study also allowed for a test of the view that subjective status is a risk factor for illness. According to this view, individuals who have lower subjective status can be expected to go on to report worse illnesses in the following year. In Chapter 3, a more objective measure of health was used, namely the number of medical interventions each participant received in a public health-care system. It was hypothesized that individuals

who received more medical interventions in one year would go on to report lower subjective status in the subsequent year.

The present research consists of four studies which are focused on examining whether personality traits such as neuroticism, extraversion, and perceived control as well as recent health may be understood as determinants of subjective status. In Chapter 2, neuroticism was examined as a possible determinant of subjective status through a variety of pathways. In Chapter 3, the focus is on how individuals who have poorer health (as measured by number of medical interventions received in a year) may go on to report lower subjective status relative to their peers. Finally, Study 1 of Chapter 4 was a cross-sectional study with young adults and examined the relative strength of association between different facets of personality (i.e., neuroticism, extraversion, and perceived control) and subjective status. Study 2 of Chapter 4 examined whether perceived control can be understood as a determinant of subjective status, as opposed to a consequence of subjective status. Across all studies, the overarching argument made is that subjective status is in fact influenced by personality and previous health and is not simply a bias free estimate of SES, as has been previously argued (i.e., Singh-Manoux et al., 2003).

Chapter 2

The Lower Subjective Social Status of Neurotic Individuals: Multiple Pathways through Occupational Prestige, Income, and Illness

Abstract

Subjective social status seems to predict health outcomes, above and beyond the contribution of objective status. The present hypothesis was that neuroticism predicts subjective status, and does so via the influence of neuroticism on objective status (i.e., education, occupation, and income), self-perceived illness, and greater negative affect. In turn, lower subjective status would be associated with more severe self-perceived illness. Older adults (N = 341) shortly after retirement completed measures of neuroticism, and of attainment in education, occupation, and salary, and over 2 subsequent years completed measures of current subjective status, self-reported illness, and current negative affect. As hypothesized, greater neuroticism was associated with lower subjective status via lower objective status and more severe self-reported illness. However, current negative affect was not associated with subjective status and subjective status did not predict future poorer subjective health.

Introduction

Neuroticism is a major dimension of personality, and has been shown to have a wide ranging set of influences on human experience and behaviour (Roberts et al., 2007). One of the consequences of neuroticism is that it may influence a person's social standing. More neurotic individuals are lower on objective dimensions of social status, such as educational and occupational attainment (Roberts et al., 2007). Not only may neuroticism influence objective status, but neuroticism may also influence subjective status, which is a person's own evaluation of their social standing. The present research was concerned with how neuroticism may influence subjective status, and how the documented influence of subjective status on health can be understood once the effects of neuroticism are taken into account in a more extensive manner than in prior research. Subjective status is linked to objective markers of status, but there is increasing evidence that subjective status influences health outcomes, above and beyond the contribution of objective status differences (Adler et al., 2000; Demakakos et al., 2008; Ghaed & Gallo, 2007; Hu et al., 2005; Operario et al., 2004).

Social status hierarchies are one of the basic forms of social relations (Fiske, 1992), and are defined in terms of differences in status and power. It has been argued that there is an evolutionary basis for such hierarchies (Cummins, 2005; Mazur, 2005). People evaluate others' status based on many cues, including their education, occupation, income, ethnicity, and language (Fişek, Berger, & Norman, 2005). Many of these factors are interrelated, and social scientists often use education, occupation, and income as key indicators of the broad objective status differences in society – these are differences in what is labeled *socioeconomic status* (SES; Rogers & Onge, 2007*). Subjective social*

status can be defined as a person's felt sense of their own social rank in terms of education, occupation, and income. Subjective social status appears to reflect objective status differences. For a sample of 7,000 British civil servants (Singh-Manoux et al., 2003), individuals with higher education, occupational rank, and income perceived themselves as having higher social status (beta weights were .13, .34, and .17, respectively). Subjective status is distinct from constructs such as perceived control, mastery, life satisfaction, and self esteem although the latter are positively related to subjective status (Kraus et al., 2009; Lundberg & Kristenson, 2008; Yip, 2003).

Both objective and subjective status have important consequences for the individual. Differences in SES have wide ranging implications in people's lives (American Psychological Association, 2006), not the least of which is the well established finding that lower SES predicts more negative health outcomes (World Health Organization, 2002). Above and beyond measures of SES, subjective status is a predictor of health outcomes (Adler et al., 2000; Demakakos et al., 2008; Ghaed & Gallo, 2007; Hu et al., 2005; Operario et al., 2004). Findings indicate that those individuals who perceive themselves as having higher status tend to have better health, independent of their objective status. Note that differences have been observed between various ethnic groups in how subjective status predicts health outcomes. For instance, the relation between low subjective status and illness has been more consistently observed for European-Americans than for some visible minority groups (Adler et al., 2008; Ostrove, Adler, Kuppermann, & Washington, 2000).

The present research is focused on how individual differences in neuroticism may predict subjective status. Prior research suggests a link, in that negative affect has been

shown to be negatively correlated with subjective status (Adler et al., 2000; Operario et al., 2004), and neuroticism is a strong predictor of negative affect (Watson & Clark, 1992). Neuroticism is a core dimension of personality that encompasses the tendency to experience negative moods and emotions (Watson, 2000), and is associated with lower levels of well-being (Weiss et al., 2008). Neuroticism is highly heritable (e.g., Jang et al., 1996; Weiss et al., 2008) and is generally stable — showing only a slight decline across the lifespan (Roberts et al., 2006). Neuroticism predicts many negative outcomes, including lower educational and occupational attainment, increased chance of divorce, and increased risk of mortality (Roberts et al., 2007).

In the present study, we addressed the following 3 mechanisms by which neuroticism may predict subjective status: more neurotic individuals may experience lower subjective status via lower SES, increased self-perceived illness, and increased negative affect. First, individuals who are higher in neuroticism have lower occupational and educational attainment (Roberts et al., 2007), which are two components of SES. Given that people with lower SES have lower levels of subjective status (e.g., Adler et al., 2000; Singh-Manoux et al., 2003), it follows that more neurotic individuals will have lower subjective status. Second, more neurotic individuals may have lower subjective status because they may perceive themselves as more ill. Individuals who are more neurotic report poorer global health, as well as poorer health behavior self-efficacy (Williams et al., 2004). These types of findings may reflect bias, in that neuroticism was found in a sample of older adults to be more strongly related to subjective health than to objective health measures (Jorm et al., 1993). More neurotic individuals reported greater numbers of symptoms but did not differ from less neurotic individuals on physical

measures of health such as blood pressure. The negative bias of neurotic individuals may be due to their greater negative affect, which can foster a negative affect congruence bias when assessing one's health and health behaviors. Indeed, individuals who are currently in a more negative mood show negativity biases for a wide range of judgments (Mayer, Gaschke, Braverman, & Evans, 1992). The potential for negative psychological bias on the part of more neurotic individuals points to the importance of distinguishing between subjective and objective aspects of health status. The present research is focused on subjective, self-perceived illness, given that self-perceptions may have ramifications on neurotic individuals' subjective status.

If neurotic individuals see themselves as more ill, they may in turn perceive themselves as lower in subjective status – for two reasons. The first concerns the perceived economic threat and actual economic consequences of illness. Many chronic illnesses lead to a drop in disposable income (Stenbeck & Hjern, 2007). As such, individuals who perceive themselves as more ill may perceive their economic position as more vulnerable, and may reassess their subjective status downward. A second means by which self-perceived illness may lead people to have lower subjective status is that they may feel less in control. As mentioned above, perceived control is positively related to subjective status (Lundberg & Kristenson, 2008), and it may be argued that diminished control may lead to a decrease in one's subjective status. Illness does seem to lead to a diminished sense of control; for example, individuals who had to be hospitalized felt that their health was controlled by external forces (Halfens, 1995). In sum, self-perceived illness may diminish subjective status via perceived economic consequences and a perceived loss of control.

A third mechanism by which more neurotic individuals may see themselves as being of lower social rank is by increased negative affect. At any time, more neurotic individuals are more likely to be in a negative mood (Watson, 2000), and in turn these individuals may judge themselves as having lower status because such judgments are mood-congruent. This argument is supported by previous research that demonstrates a negative association between current negative affect and subjective status (Adler et al., 2000; Operario et al., 2004). Note that in the latter studies, Adler, Operario and their respective colleagues both argued that increased negative affect is better understood as a consequence of low subjective status rather than as a determinant. However, these arguments were based on cross-sectional data, and it is difficult to conclude the direction of the relation between negative affect and subjective status using this research design (we return to these issues below).

There are other possible mechanisms by which neuroticism may lead to lower subjective status, which will not be directly addressed in the present study. These include a generally negative sense of self, and a status-decreasing proximal social environment. First, neuroticism is linked to a generally negative outlook on the self (Hankin et al., 2007; Watson et al., 2002), which may lead more neurotic individuals to report lower subjective status. In particular, the greater depression (Kendler et al., 2006), and lower self-esteem of more neurotic individuals may lead them to see themselves as having lower social rank. Second, individuals who are higher in neuroticism are likely to experience lower status in their proximal social environment, even with peers of equal educational and occupational attainment. Men and women higher in neuroticism seem to act as if they are of lower status, as they generally report engaging in more submissive

behavior (Gilbert & Allan, 1994). Furthermore, in one study of American college students, men who were higher in neuroticism were rated as having less status by their peers in their fraternity (Anderson et al., 2001) – note that this effect was not found for women in college sororities. Consequently, more neurotic individuals – or at least more neurotic men – may in turn perceive themselves as lower in status, given that self-perceptions of status have been shown to correspond well to ratings provided by peers in groups created in laboratory studies (Anderson et al., 2006). In sum, if people use their status in their proximal social environment as an indicator of their status in society at large, it follows that more neurotic individuals will have lower subjective social status.

The present study examined the contributions neuroticism may have on subjective status in the context of a 2-year longitudinal study conducted with middle-aged and older adults. These individuals were followed during early retirement. At time 1, participants completed a measure of personality, and reported on their educational and occupational attainment and salary just before retirement. Over the next two years, they completed measures of current subjective social status, illness, and current affect once a year. We examined the determinants of subjective social status in early retirement, as it is an opportune setting to examine how neuroticism may influence self-perceived health and subjective status. Generally, health declines in older age and retirement is a time in which individuals are likely to be reevaluating their social rank. Furthermore, the use of a longitudinal design to examine how neuroticism may predict lower subjective status allows for better support of causal models than does a cross-sectional design (Bergman, Eklund, & Magnusson, 1994).

The main hypothesis in the current study was that more neurotic individuals have lower subjective status on account of lower SES, increased self-perceived illness, and increased negative affect. In particular, the SES hypothesis was that individuals higher in neuroticism have lower SES, which in turn leads to lower subjective status. SES was operationalized in terms of an individual's educational and occupational attainment, as well as salary just prior to retirement. We expected that these indicators of SES would continue to influence individuals' current subjective social status, even as they progressed through retirement. Indeed, prior occupation and achieved level of education would likely continue to influence the social status of retirees. For example, a retired judge likely has higher social status in others' eyes than a retired bricklayer. As well, salary just before retirement was taken as an index of continuing financial status in retirement. It was expected that educational and occupational attainment as well as salary – the individual components of SES – will be related, in that more education will predict greater occupational attainment, which in turn will predict greater salary, as well as more education directly predicting greater salary. The illness hypothesis was that individuals higher in neuroticism perceive themselves as more ill, which leads to lower subjective status. The negative affect hypothesis was that more neurotic individuals have higher negative affect, which in turn leads to lower subjective status. In addition to these 3 hypotheses, given that there are other plausible mechanisms unaccounted for in the present study by which neuroticism may influence subjective status, the additional effects hypothesis was that individuals who are higher in neuroticism have lower subjective status, even after taking into account SES, illness, and current negative affect. These additional effects, which are not being directly assessed in the present study, may be due

to neurotic individuals' lower status in their proximal social environment and negative sense of self – these possibilities are described above.

In addition to the set of hypotheses formulated in terms of neuroticism, the subjective status-illness hypothesis was that individuals who have lower subjective status will consequently perceive themselves as more ill in the future. As noted above, lower subjective status has been identified as a predictor of poorer health (Adler et al., 2000; Operario et al., 2004). Note that, when combined, the neuroticism hypothesis for illness and the subjective status-illness hypothesis suggest a recurring cycle of self-perceived illness and diminished subjective status: perceiving oneself as more ill leads to lower subjective status, and such a drop leads to actual health decline. In turn, such a health decline would be reflected in lower self-perceived health. Finally, SES is likely to influence self-perceived health. In addition to subjective status leading to greater self-perceived illness, it can also be expected that lower objective status will do the same, given the evidence noted above linking lower SES to poorer health.

There was an additional hypothesis with regard to the impact of subjective social status on negative affect. Given the longitudinal design of the present study, it will be possible to better identify how subjective status and negative affect are related. In line with the interpretation of the findings in previous cross-sectional research (Adler et al., 2000; Operario et al., 2004), the subjective status-negative affect hypothesis was that lower subjective status leads individuals to concurrently experience more negative affect. Note this hypothesis of lower subjective status leading to more negative affect is distinct from the negative affect hypothesis stated above with regard to the impact of neuroticism, which is (in part) that increased negative affect leads to lower subjective status. At a

theoretical level, both of these hypotheses may be valid. In the present study, we considered both in the context of a longitudinal design.

Method

Participants

A sample of 433 participants was recruited via associations for retirees as well as via advertisements targeted at retirees in local newspapers (see Appendix A for the consent form used in the present study). The criteria for inclusion were that participants had worked full-time for at least 20 years and were currently working for no more than 10 hours a week. In total, there were 341 participants (180 women and 161 men) who completed all two years of the study and did not have missing data (78.8% of the original sample). There were no significant differences between individuals who completed the study and those who did not, save that participants who completed the study had higher occupational prestige (M = 53.90, SD = .43) than non-completers (M = 50.82, SD = .99; $t(431) = 3.16$, $p < .01$). Mean age of participants who completed the study was 58.98 years, with participant ages ranging from 44 to 77 years. The percentage of the sample 50 years or younger was 1.5%, 51 to 55 years was 23.7%, 56 to 60 years was 41.4%, 60 to 65 years was 23.1%, 65 to 70 years was 7.1%, and over 70 years was 3.2%. Ethnicity data was not collected, but it was apparent to us that participants were overwhelmingly of European ancestry.

Materials

The NEO Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992). Neuroticism was assessed with the NEO-FFI, which is a 60-item questionnaire designed to measure major dimensions of personality. The other scales on the NEO-FFI measure

agreeableness, conscientiousness, extraversion, and openness to experience, which were not of primary concern in the present study. Each NEO-FFI item is a self-descriptive statement (e.g., "I am not a worrier"). For each item, participants circle the response that best matches their opinion on a 5-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (5).

Overall, the NEO-FFI has satisfactory psychometric properties. All scales of the NEO-FFI have strong test-retest reliability across a 30 month period (Murray, Rawlings, Allen, & Trinder, 2003), and show convergent and divergent validity in a large sample (>35,000) of United States Air Force trainees (Zeiger, 1996). Furthermore, the NEO-FFI has been validated in a sample of Canadian female undergraduates, demonstrating adequate internal consistency (α = .73 to .87) for all 5 subscales (Holden & Fekken, 1994).

The MacArthur Scale of Subjective Social Status (SSS; Adler et al., 2000). The SSS is a single-item measure of a person's current self-perceived social rank. The SSS consists of a set of instructions and a vertical line drawing of a ladder. There are 10 rungs on the ladder. Respondents are asked to think of the ladder as representing people's present ranking in society in terms of their education, occupation, and income. Those at the top of the ladder are better off than those at the bottom of the ladder. Respondents are asked to place an X on the rung of the ladder that they think best represents their own current position. Responses higher on the ladder are assigned higher scores; scores ranged from 1 to 10. Given that the participants in the present study were retirees, the measure was modified to address the fact that these individuals were no longer employed (see Appendix B). As such, they were instructed to consider the job they held prior to

retirement to help assess their current status. This modification makes explicit what can be considered a common practice: the present self-perceived status of retirees is likely to be strongly influenced by their former occupations, and such perceptions would correspond to consensual views that others hold regarding how the status of retired individuals is defined. The psychometric properties of the SSS are relatively satisfactory (Operario et al., 2004). For example, participants' scores on the SSS showed a test-retest correlation of .62 after 6 months. Furthermore, the SSS has also shown convergent validity, correlating with measures of SES (e.g., Adler et al., 2000).

The Positive and Negative Affect Scale (PANAS; Watson et al., 1988). Current negative affect was assessed with the PANAS, which is a 20-item measure of negative and positive affect. Negative affect is assessed in terms of negative items such as *upset*, and positive affect is assessed with items such as *proud.* Individuals indicate the degree to which they have experienced each state during the last 2 weeks. Responses are on 5-point Likert scales with endpoints *not at all* (1) and *extremely* (5). The negative affect subscale was of primary concern in the present study. The PANAS has been found to have strong internal consistency for both the negative and positive scales (Crawford & Henry, 2004; Watson et al., 1988). Furthermore, the PANAS has good construct validity, as the PANAS subscales correlate appropriately with measures of adjustment (Crawford & Henry, 2004).

Illness Checklist. Participants reported the total number of illnesses and symptoms they experienced in the previous year by selecting items from an illness checklist, which was a 106-item list of symptoms and illnesses (see Appendix C) that was based mostly on the list found in the Seriousness of Illness Rating Scale (SIRS; Wyler, Masuda, &

Holmes, 1968; Wyler, Masuda, & Holmes, 1970). In the present study, we focused on a severity score for reported illness, according to the scheme proposed by the scale originators. For example, a mild condition such as a headache is assigned a weight of 92, whereas a serious illness such as leukemia is assigned a weight of 1160. These weights were derived from physician ratings. The weighted score is the square root of the sum of the weighted items. The square root transformation normalizes the data, which is necessary given the large weights. Items on the checklist which were not found in the original SIRS and therefore could not be weighted were excluded. Furthermore, to avoid spurious correlations between neuroticism and illness severity, the 6 items on the SIRS checklist that could be construed as primarily psychological in nature (i.e., alcoholism, anxiety reaction, depression, drug addiction, manic depression, and nervous breakdown) were excluded. In total, 69 illnesses on the checklist were included in the derivation of the severity score for reported illness.

Demographics Questionnaire. Participants completed a demographics questionnaire concerning their age, gender, family, as well as their educational and occupational attainment, and their income just prior to retirement (see Appendix D). The assumption was that people who earned more prior to retirement will have higher income in the years following retirement. Education was scored as total number of years of formal study. Occupation was assigned a score using the Standard International Occupational Prestige Scale (SIOPS; Ganzeboom & Treiman, 1996; Treiman, 1977). With the SIOPS, occupations are each assigned a numerical value that reflects the level of approval and respect given each occupation within society at large. Scores can range from 13 for a garbage collector to 78 for a university professor. In sum, participants' pre-

retirement salary, years of formal education, and occupational prestige for the jobs from which they retired were taken together as indicators of SES.

Procedure

The present study was part of a larger longitudinal study on retirement conducted at Concordia University. Individuals who were interested in participating contacted the laboratory. There were no more than 6 participants completing materials at any one session. At the first session (Time 1), the experimenter distributed a packet of questionnaires, which included the demographics questions and the NEO-FFI. Participants were asked to return for two more sessions, which were scheduled one year (Time 2) and two years (Time 3) later. During both of these latter sessions, participants completed the illness checklist, the PANAS, and the SSS. Participants completed other measures at these sessions, but they are not relevant to the current study. Participants were paid $50 per session.

Results

Means and standard deviations as well as all correlations between scales are shown in Table I. Participants reported an average salary at the time of their retirement of $62,169 CAD (range: $10,000 to $344,500). Note that the participants in the present sample were relatively well-off when compared to national averages for this age group (Statistics Canada, 2006). Participants also had an average of 15.0 years (range: 7 to 21 years, *SD* = 2.41) of formal education and obtained an average SIOPS score of 53.90 (*SD* = 7.95). Participants' neuroticism scores (*M* = 15.41, *SD* = 7.60) were somewhat lower than those found in previous research with middle-aged and older adults (Allemand, Zimprich, & Hertzog, 2007), with the present sample being approximately half a standard

Table I

Descriptive statistics and correlations between all measures in the model

Measure	1	2	3	4	5
1. Neuroticism	—				
2. Education	-.06	—			
3. Occupational Prestige	-.14**	.55***	—		
4. Salary	-.27***	.34***	.41***	—	
5. T2 Subjective Status	-.27***	.23***	.17**	.39***	—
6. T3 Subjective Status	-.28***	.18**	.25***	.38***	.59***
7. T2 Reported Illness	.16**	-.02	-.03	-.21***	-.22***
8. T3 Reported Illness	.23***	-.05	-.03	-.20***	-.21***
9. T2 Negative Affect	.39***	-.06	-.03	-.10	-.10
10. T3 Negative Affect	.48***	-.09	-.10	-.14*	-.11*
M	15.41	14.95	53.90	62,169	7.05
SD	7.60	2.41	7.95	31,110	1.34
α	.86	—	—	—	—

Table I (continued)

Descriptive statistics and correlations between all measures in the model

Measure	6	7	8	9	10
1. Neuroticism					
2. Education					
3. Occupational Prestige					
4. Salary					
5. T2 Subjective Status					
6. T3 Subjective Status	—				
7. T2 Reported Illness	-.25***	—			
8. T3 Reported Illness	-.27***	.67***	—		
9. T2 Negative Affect	-.11*	.20**	.22***	—	
10. T3 Negative Affect	-.17**	.12*	.14*	.57***	—
M	7.10	24.10	25.17	1.58	1.61
SD	1.36	15.07	16.06	.56	.55
α	—	—	—	.87	.86

Note. **p* < .05; ***p* < .01; ****p* < .001. *N* = 341. Salary reported in Canadian dollars. For all measures, higher scores mean more of the construct.

deviation lower in neuroticism. However, the norms of Allemand and colleagues were taken from a study conducted with European older adults with generally lower SES and as such, any comparison with these norms needs to be made with caution.

As indicated in Table I, there were significant zero-order correlations between subjective status and most of its proposed correlates (neuroticism, objective SES, illness, and negative affect). These correlations were in line with expectations. Both neuroticism and severity of reported illness were negatively associated with subjective status, as was concurrent negative affect (but the latter was a weak correlation, only observed at Time 3). The three measures of objective status (i.e., education, occupation, and salary) were positively correlated with subjective status, with salary having the largest correlations with subjective status at different time points.

Comparisons of mean scores across Time 2 and Time 3

A series of paired t-tests was conducted to compare the time 2 (T2) and time 3 (T3) measurements of subjective status, negative affect, and self-reported illness. Overall, participants' scores on subjective status did not differ between T2 (M = 7.05, SD = 1.34) and T3 (M = 7.10, SD = 1.36; $t < 1$). Similarly, individuals' reported negative affect did not differ between T2 (M = 1.58, SD = .56) and T3 (M = 1.61, SD = .55; $t(340) = 1.22$, *ns*). Finally, self-reported illness did not differ between T2 (M = 24.10, SD = 15.07) and T3 (M = 25.17, SD = 16.06; $t(340) = 1.56$, *ns*).

Neuroticism, Subjective Status and Illness

Structural equation modeling (SEM; Kline, 2005) was used to test the hypotheses of the present study as paths in a model. Preliminary analyses revealed that there was a high level of multivariate kurtosis in the data (Normalized Mardia's coefficient was

8.96). An examination of the kurtosis of the individual variables revealed that salary, as well as negative affect and subjective status at both T2 and T3 demonstrated large kurtosis (> 1.5). To resolve the problem of multivariate kurtosis, the maximum likelihood robust estimator was used to evaluate the path coefficients and to test their standard errors. The following values were used to assess model fit: Sattora-Bentler chi square (S-Bχ^2), comparative fit index (CFI), root mean square error of approximation (RMSEA), and its 90% confidence interval (CI). A good fitting model has a nonsignificant S-Bχ^2, a CFI close to 1, RMSEA less than or equal to .05, a CI that is within the 0 to .08 range, and residuals less than .10.

The models described below are able to differentiate between baseline scores and change scores for subjective status, negative affect, and self-reported illness. In the models below, T2 scores can be conceptualized as representing the initial level for the respective constructs. After taking into account the variance accounted for by T2 scores, the remaining variance in T3 subjective status, negative affect, and self-reported illness can be conceptualized as change in these scores over 1 year. In sum, paths in the models to T2 scores are to initial levels of the measures whereas paths to T3 scores are for change in these scores over 1 year.

The SEM analysis indicated that the proposed model provided a poor fit to the data (S-Bχ^2 (20) = 72.59, $p < .001$, CFI = .94, RMSEA = .09, CI = .07 – .11). Furthermore, there were four residuals above .10: between neuroticism and T3 negative affect, neuroticism and T3 self-reported illness, occupational prestige and T3 subjective status, and pre-retirement salary and T3 subjective status. Furthermore, seven of the proposed paths were non-significant (i.e., neuroticism to education, occupational prestige

to T2 subjective status, occupational prestige to T2 self-reported illness, education to T2 self-reported illness, T2 negative affect to T2 subjective status, T2 subjective status to T3 self-reported illness, and T3 self-reported illness to T3 negative affect). To improve the proposed model, four pathways were added to resolve the residuals and the seven non-significant pathways were deleted. The second model provided a good fit to the data (S-Bχ^2 (23) = 15.79, p = .86, CFI = 1, RMSEA < .01, CI = .00 – .02). However, the path from T3 negative affect to T3 subjective status was non-significant and a final model was tested with this pathway deleted. The final model provided an excellent fit to the data (S-Bχ^2 (24) = 18.60, p = .77, CFI = 1, RMSEA < .01, CI = .00 – .03). All residuals were below .10 and all the proposed paths in the model were significant. See Figure 1 for the model. The model's goodness of fit remained unchanged even when controlling for the effects of age and gender.[1] Furthermore, the paths in the model in Figure 1 remained essentially unchanged when we included extraversion and current positive affect in the

[1] Age and gender were added to the model presented in Figure 1. Individual paths from both age and gender to each of the other variables were included. The resulting model provided an excellent fit to the data (S-Bχ^2 (25) = 19.40, p = .78, CFI = 1, RMSEA < .01, CI = .00 – .03), with no residuals above .10. Higher age was significantly associated with lower pre-retirement salaries, higher levels of education, and greater T2 and T3 reported illness. With regard to gender, women were significantly more likely to have higher levels of neuroticism and lower levels of pre-retirement salaries than men. Most importantly, including age and gender in the model left the beta weights of the paths in Figure 1 virtually unchanged. As such, the results concerning age and gender are not presented in more detail.

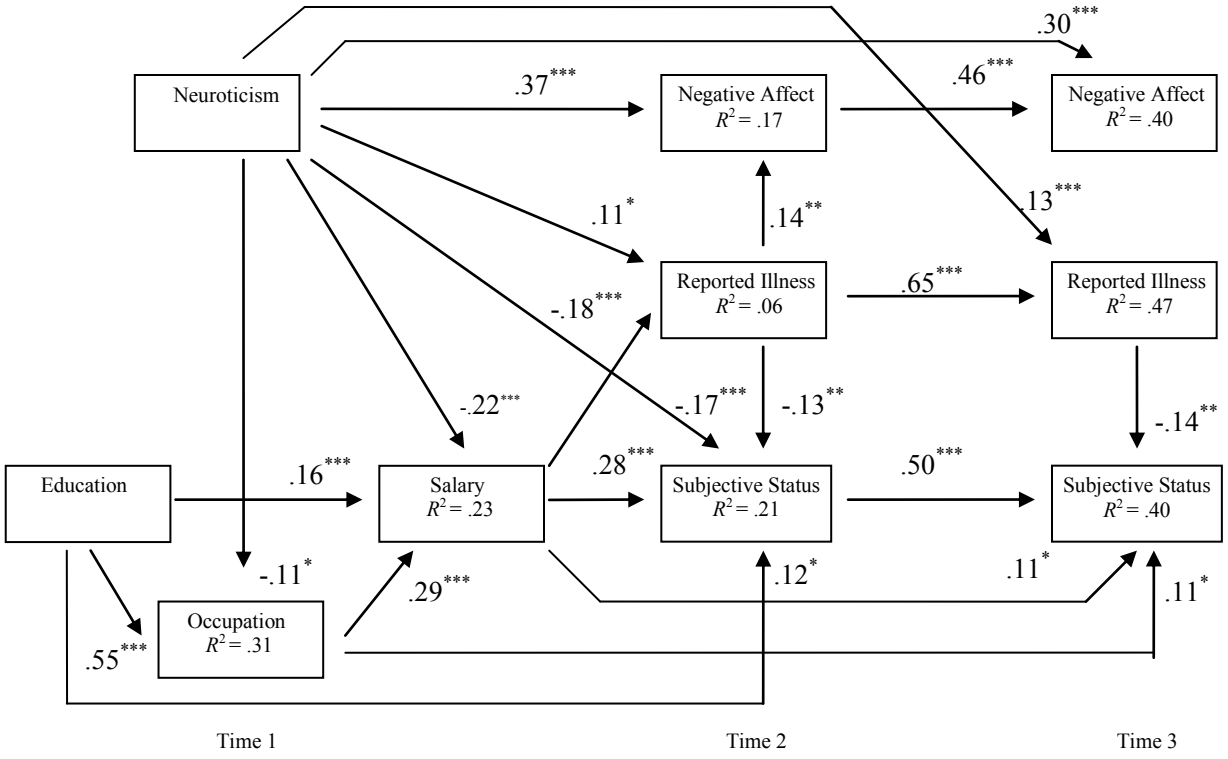

Figure 1. Final model of the multiple pathways that link neuroticism to subjective status.

*$p < .05$; **$p < .01$; ***$p < .001$.

analyses.[2]

The measures of SES, which included education, occupational prestige, and pre-retirement salary, were related: individuals with more education attained greater levels of occupational prestige ($\beta = .55$, $z = 12.51$, $p < .001$), which in turn was associated with higher pre-retirement salaries ($\beta = .29$, $z = 4.72$, $p < .001$). As well, individuals with more education reported higher levels of pre-retirement salaries, above and beyond the contribution of occupational prestige ($\beta = .16$, $z = 3.15$, $p < .001$). In line with the SES hypothesis, individuals who were more neurotic held jobs lower in prestige ($\beta = -.11$, $z = -2.29$, $p < .05$) and earned lower salaries ($\beta = -.22$, $z = -5.02$, $p < .001$) prior to retirement.

[2] In an alternative approach, we included extraversion measured at T1 and current positive affect (an important correlate of extraversion, which was measured with the PANAS, as was current negative affect) measured at T2 and T3 in the structural equation model that served to test the hypotheses (the model is reported in its final form in Figure 1). Higher extraversion was negatively correlated with neuroticism and education, and associated with higher positive affect at T2 and T3. With regard to subjective status, the only effects that emerged were that higher extraversion was associated with greater subjective status at T2, and greater positive affect at T2 was associated with higher subjective status at T3. Furthermore, the inclusion in the model of these measures and the paths just described led to only very slight changes relative to the results reported in Figure 1. As such, the results for extraversion and positive affect are not presented in more detail. Finally, note that the other facets of personality assessed with the NEO-FFI (i.e., agreeableness, conscientiousness, and openness to experience) were not significantly related to subjective status when neuroticism was taken into account.

In turn, individuals with lower pre-retirement salaries had lower levels of T2 subjective status (β = .28, z = 5.95, p < .001). Whereas neuroticism was not significantly associated with education, those individuals with higher levels of education did report greater T2 subjective status (β = .12, z = 2.31, p < .05). In addition, lower salary was not only associated with lower T2 subjective status, but also with lower T3 subjective status (β = .11, z = 2.24, p < .05). Whereas occupational prestige was not linked to T2 subjective status, it was linked to T3 subjective status (β = .11, z = 2.30, p < .05). Overall, there was evidence that the effects of neuroticism on subjective status could be accounted for in part by objective indicators of SES, particularly salary at time of retirement, which predicted both initial subjective status and change in subjective status over 1 year.

In line with the illness hypothesis, more neurotic individuals reported greater T2 illness (β = .11 z = 2.12, p < .05), which in turn was associated with lower T2 subjective status (β = -.13, z = -2.55, p < .01). Similarly, individuals who were more neurotic also reported greater T3 illness (β = .13, z = 3.35, p < .001), which was linked to lower T3 subjective status (β = -.14, z = -2.97, p < .01). In sum, higher neuroticism was associated with greater initial self-reported illness, which in turn was associated with lower initial subjective status. Furthermore, higher neuroticism was associated with increases in self-reported illness one year later, and such increases were associated with concurrent decreases in subjective status.

The negative affect hypothesis was not supported: individuals higher in neuroticism had greater T2 negative affect (β = .37, z = 7.21, p < .001) and greater T3 negative affect (β = .30, z = 5.59, p < .001), but T2 and T3 negative affect were not linked to lower T2 or T3 subjective status, respectively. Furthermore, these results are

inconsistent with the subjective status-negative affect hypothesis, which leads to the expectation of a path from subjective status to concurrent negative affect. In sum, whereas greater neuroticism was associated with more initial negative affect and increased negative affect one year later, there was no path in the model between negative affect and subjective status.

The last of the four neuroticism hypotheses was the additional effects hypothesis, which was supported: individuals who were more neurotic had lower T2 subjective status (β = -.17, z = -3.28, p < .001), above and beyond the contributions of SES and reported illness to subjective status. As such, higher neuroticism was directly associated with greater initial subjective status whereas there was no direct relation of neuroticism to change in subjective status one year later.

The present model was also consistent with previous research linking SES to negative health outcomes. Individuals with higher pre-retirement salaries reported less T2 illness (β = -.18, z = -3.51, p < .001). However, education and occupational prestige were not associated with reported illness. Furthermore, the model failed to support the subjective status-illness hypothesis. There was no relation between individuals' T2 subjective status and their T3 reported illness. In other words, initial subjective status did not predict changes in reported illness. The other finding that emerged for self-reported illness is that individuals who reported more T2 illness experienced greater T2 negative affect (β = .14, z = 2.57, p < .01); no such relation was found at T3. This finding indicates that individuals with higher initial self-reported illness experienced more initial negative affect whereas change in both of these constructs over one year was unrelated. Finally, reflecting the relative stability of participants' subjective experience and health, negative

affect (β = .46, z = 7.06, p < .001), severity of reported illness (β = .65, z = 14.67, p < .001), and subjective status (β = .50, z = 10.65, p < .001) remained relatively stable from T2 to T3.

Discussion

In the present study, neuroticism was shown to have a negative influence on individuals' subjective social status, and did so in different ways. A large group of retirees initially reported on their personality and their standing on demographic variables, and was followed over a period of 2 years, during which time they completed yearly self-report measures of illness, subjective status, and negative affect. The findings were that more neurotic individuals reported at the outset (Time 1) having retired from occupations that were of lower prestige and of lower salary. In turn, lower standing on SES indicators was associated with lower initial subjective status at Time 2 (1 year later), and lower occupational prestige and salary were also associated with decreased subjective status at Time 3 (2 years later). In addition, individuals who were more neurotic, as reported at the outset (Time 1) of the study, went on to report poorer initial health (Time 2) and decreased health one year later (Time 3). Poorer initial health was associated with lower initial subjective status (both at Time 2), and decreased health at Time 3 was associated with decreased subjective status at Time 3. Finally, more neurotic individuals had lower initial subjective status above and beyond the contributions of SES and self-perceived illness. The latter effect may – as argued above – be due to the lower status in the proximal social environment and the negative self-concept of more neurotic individuals. These two factors were not explicitly addressed in the present study.

The present findings highlight the negative influence of neuroticism on human functioning. In the present study, a broad heritable trait such as neuroticism was associated with major life outcomes such as attainment in occupation and salary, which in turn were associated with lower subjective status in early retirement, as well as decreases in subjective status one year later. The model in Figure 1 suggests a life-long pattern for neurotic individuals of somewhat greater difficulties in achievement which leave these individuals by later life feeling somewhat diminished in their social rank relative to society at large. These effects of neuroticism may be apparent not only later in life, but earlier in adulthood as well. The present results suggest that it is important for researchers to take into account individual differences in neuroticism when attempting to define the causes and consequences of subjective social status.

Neuroticism was also linked to subjective status via self-reported illness. More neurotic individuals experienced poorer self-reported health initially and experienced decreased self-reported health one year later, which were associated with poorer initial subjective status and decreases in subjective status one year later, respectively. The greater self-perceived illness of neurotic individuals may be due to biases whereby more neurotic individuals perceive themselves as having worse illnesses. Perhaps the self-perceived illness of neurotic individuals reflects differences in objective health due to the effects of chronic stress linked to neuroticism (see Watson, 2000 for a review of these arguments). The present study does not speak to which explanation is best. Regardless of the bases of self-perceived illness, initials levels of self-reported illness and subjective status were negatively related in the present study, with increased levels of self-reported illness over one year linked to decreases in subjective status in the same time span. These

results may be attributed to both a sense of loss of control and economic vulnerability which may be associated with self-perceptions of poorer health.

Contrary to one of the hypotheses, neuroticism did not contribute to lowered subjective status via increased negative affect. That is, participants' self-reports of subjective status were not influenced by current affect. Affective biases are more likely to occur during elaborative thinking (Forgas, 1995), in which negative affect might lead individuals to make more negative judgments. Perhaps judgments of one's status are made relatively quickly, rendering such judgments immune from the influence of current affect. Contrary to another of the hypotheses, lower subjective status did not lead to more negative affect. In the model seen in Figure 1, there is no direct relation between subjective status and negative affect at either time 2 or time 3. What all these findings point to is that more neurotic individuals have lower subjective status and greater negative affect, but subjective status and negative affect are not directly related. The implication is that previous research on subjective status that has controlled for the impact of current negative affect (Adler et al., 2000; Operario et al., 2004) has not adequately controlled for the effects of neuroticism.

Contrary to the subjective status-illness hypothesis, individuals lower in initial subjective status did not report increases in illness severity scores one year later. One way to understand the discrepancy between the findings for the illness severity measure and previous research linking subjective status to poorer health is that subjective status does influence health, but does so by increasing the frequency of only minor ailments (e.g., headaches). An effect on minor ailments would be plausible, as low SES has been shown to predict such conditions (Huurre, Rahkonen, Komulainen, & Aro, 2005). However, the

significance of minor ailments is downplayed with the use of a weighted illness severity measure of the type used in the present study, which may explain why severity of reported illness was not predicted by subjective status.

The present findings have implications for research on subjective status and health. One key finding in the present study is that self-perceived illness for the preceding year was linked to current subjective status. Given this link, it becomes necessary to take into account prior illness history when examining how subjective status may predict subsequent illness. Previous research supporting a link between low subjective status and poor health was done without controlling for prior health problems (Adler et al., 2000; Adler et al., 2008; Demakakos et al., 2008; Ghaed & Gallo, 2007; Hu et al., 2005; Hyde & Jones, 2007; Page et al., 2009; Singh-Manoux et al., 2005; Yip, 2003), with the only exception being one study that controlled for cardiovascular risk factors (Operario et al., 2004).

There are four principal limitations in the present study. The first limitation is that the sample of retirees who participated was above average in SES, and it can be argued that a wealthier sample may not be representative. This argument highlights the magnitude of influence of neuroticism in the present study. Higher SES individuals show a greater relative contribution of heritable factors – such as neuroticism – to their overall life satisfaction (W. Johnson & Krueger, 2006), and the relations between neuroticism and a variety of outcomes related to well-being (i.e., health, and affect) may have been particularly evident with the wealthier sample of the present study. This is advantageous and perhaps even necessary in a short term longitudinal study of the type reported here. A second limitation of the present study was that the demonstrated relations between

neuroticism, status, and reported health were found in an older sample and that conclusions drawn from this research may not extend to younger populations. However, neuroticism is a relatively stable trait (Roberts et al., 2006), and its negative influence is likely to occur across the entire lifespan. Third, the use of a longitudinal design prevents us from drawing causal conclusions concerning the role of neuroticism in influencing subjective status. We can claim that these findings are consistent with a causal model, but the design does not preclude the possibility of hidden variables driving observed associations between the predictor and outcome variables. Fourth, the illness measure was based on self-report. Even though self-perceived health was influenced by neuroticism and in turn affected subjective social status, it would be advantageous to also have measures of objective health. The latter measures would, in particular, make clearer the impact of subjective status on health.

Neuroticism is a heritable and relatively stable dimension of personality which influences lower subjective status through a variety of mechanisms. That neuroticism may influence subjective status through both social and self-perceived health outcomes speaks to the pervasive negative influence of neuroticism as a core dimension of personality. The present study demonstrates how the negative consequences of neuroticism unfold across time in a series of cascades. Individuals who are more neurotic go on to earn less money in occupations of lower prestige, to report poorer health, and ultimately, to feel lower in social rank. Neuroticism is associated with a series of negative outcomes, all of which feed into individuals' perceptions of their lower social status. What remains unclear is the psychological significance for more neurotic individuals of having lower subjective status. Indeed, the present study did not find a link between

subjective status and negative affect, or between subjective status and subsequent self-perceived health. One should not assume that all individuals seek and are more satisfied with higher status (Josephs, Sellers, Newman, & Mehta, 2006). Future research could be directed at better delineating the consequences of lower subjective status. The focus in the present study was on retired, older adults, and one possibility to be explored in future research is that younger adults may make life choices, in terms of occupation and career, that are based in part on their own subjective social status.

Chapter 3

Undergoing More Medical Interventions predicts Subsequent Lower Subjective Status

Abstract

Objective: To test the hypothesis that worse health leads to a decline in subjective status. *Methods:* Recent retirees were followed for 2 years. At the outset, participants completed measures of personality and reported on their demographics. Both types of measures were used as control variables. At years 1 and 2, individuals reported their subjective status. To assess health, the number of medical interventions each participant received in each year was obtained from the public health care system. *Results:* Individuals who had received more medical interventions in year 1 went on to report significantly lower subjective status in year 2. Subjective status in year 1 was unrelated to medical interventions in year 2. *Outcome:* Results suggest that poorer health may lead individuals to negatively reappraise their standing in society. Future research on the impact of subjective status on health needs to control for previous health problems.

Introduction

Subjective social status is a person's sense of his or her relative rank in society in terms of education, occupation, and income (Adler et al., 2000). Based on largely cross-sectional research, it has been argued that lower subjective status is a risk factor for illness, above and beyond actual differences in education, occupation, and income (e.g., Adler et al., 2000; Demakakos et al., 2008; Singh-Manoux et al., 2003). This impact of subjective status seems evident, even though subjective status has been argued to be a cognitive average of these same objective conditions of education, occupation, and income (Singh-Manoux et al., 2003). However, Alfonsi, Conway, and Pushkar (2011) called this cognitive averaging view into account, in demonstrating that the core personality traits of neuroticism and extraversion influence subjective status via multiple pathways. Although prior research has taken acute negative affect into account (Adler et al., 2000), negative affect is not a means by which neuroticism influences subjective status (Alfonsi et al., 2011). One mean by which neuroticism influenced subjective status was via self-reported health: more neurotic individuals reported more severe illnesses, which in turn predicted lower subjective status. As such, subjective health seems to determine subjective status.

The objective of the present research was to further examine health as a possible determinant of subjective status. The *broken wing hypothesis* was that poorer health leads to lower subjective status. A bird with a broken wing may withdraw and avoid outright social competition. Similarly, when humans are ill, their appraisal of their own social rank may drop. Several lines of argumentation support this hypothesis. Individuals who are ill or who have recently been sick may adopt a more passive social style, which may

result in a generally diminished sense of social rank. Individuals who are ill may socialize less frequently, need greater care and are unable to reciprocate, may feel victimized, powerless, more dependent, and may need to passively be the object of others' interventions (Kelley, 1998). These issues may arise with more severe illness, and particularly with chronic conditions – which are more common in older adults (National Center for Health Statistics, 1994). Further support for this position can be found in research demonstrating that people have less of a sense of control when hospitalized for long periods of time (Halfens, 1995). From another perspective, given that people who are or who have recently been ill are more vulnerable to further infection, it can be argued on the basis of Schaller's (2006) evolutionary theory of the behavioural immune system that these individuals are particularly likely to act in a more introverted manner. Another means by which illness may influence subjective status is that someone who is ill may feel financially threatened. Indeed, chronic illness is associated with drops in socioeconomic status (Stenbeck & Hjern, 2007). In sum, illness may lead to a drop in subjective status through a variety of means.

In the present study, the usage for two years of the public health care system of a moderately large sample of older adults was considered in order to examine how the number of medical interventions they received was related to their subjective status. The study was conducted in the province of Quebec, Canada, in which the vast majority of medical interventions are conducted within the public health care system (Régie de l'assurance maladie du Québec, 2011) – records of interventions were obtained from this public agency. The present study builds on prior research in which self-reported illness was associated with lower subjective status (Alfonsi et al., 2011). The present study was

based on the same large scale longitudinal project as the research by Alfonsi and colleagues, with the addition of new data regarding medical interventions. The broken wing hypothesis was that greater number of medical interventions predicts less subjective status in the subsequent year. In addition, the alternative model based on the original conceptualization of subjective status (Adler et al., 2000) was also tested, whereby subjective status predicts more medical interventions in the subsequent year.

Method

Participants

The original sample consisted of 433 recent retirees recruited from the community and was the same sample as in Alfonsi and colleagues (2011). Of these, 84% consented to have their health records released. Data from participants who did not complete all measures (i.e., non-completers) was excluded. The significant differences between completers and non-completers were that completers retired from more prestigious occupations (M = 53.86, SD = 8.03) than non-completers (M = 51.28, SD = 9.22), $t(431) = 2.75$, $p < .01$, and received less medical interventions in the second year (M = 12.29, SD = 12.47) than non-completers (M = 17.68, SD = 20.80), $t(361) = 2.22$, $p < .05$. The final sample consisted of 170 women and 159 men (M_{age} = 59.0 years; range 44 – 77). Ethnicity data was not collected. Most participants appeared of European origin.

Materials

The NEO Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992). Neuroticism and extraversion were assessed with the 60-item NEO-FFI which measures the five core dimensions of personality.

The MacArthur Scale of Subjective Social Status (SSS; Adler et al., 2000). The SSS is a line drawing of a ladder with 10 rungs. The ladder is described as representing people's relative position in society in terms of education, occupation, and income. Respondents make a mark on the rung that represents their perception of where they stand. Higher on the ladder represents having more education, a better job, and more income than others in society. Instructions were modified for the present sample of recent retirees as the participants were asked to consider the job from which they had retired when responding to the SSS.

Medical Interventions. The number of medical interventions each participant received in the year was obtained from the public health insurance agency in the province of Quebec. The public health care system is universal and offered to all residents. Medical interventions include visits to physicians' offices, clinics and hospitals, and include medical acts, such as general examinations, minor surgery, providing prescriptions, and specialized exams or tests. For each participant, the total number of interventions was derived for each 1 year period.

Demographics Questionnaire. Participants reported their age, gender, education, and income just prior to retirement. In addition, participants reported the occupation from which they had retired, which was coded using the Standard International Occupational Prestige Scale (SIOPS; Ganzeboom & Treiman, 1996; Treiman, 1977).

Procedure

The study was conducted in accord with the ethical guidelines in place at the university. Participant consent for self-report measures was obtained at the outset of the study. Participants completed a packet of measures in small groups on three testing

sessions each scheduled a year apart. At the outset of the study, participants completed the NEO-FFI as well as providing demographic information. Personality (neuroticism and extraversion) and demographics (age, gender, education, occupation, and salary) were controlled for in the analyses. One (Time 1) and two years later (Time 2), participants completed the SSS. Participants' consent for access to their medical records was obtained at Time 2 (see Appendix E).

Results

Participants had relatively high education (M =14.92 years, SD = 2.41) and salary at retirement (M = 61,500 CAD, range from 10,000 to 344,500). Participants' health and status were relatively stable. Mean subjective status did not change from Time 1 (M = 7.05, SD = 1.38) to Time 2 (M = 7.07, SD = 1.42), $t < 1$. However, there tended to be fewer medical interventions in the second (M = 12.29, SD = 12.47) than in the first year (M = 13.53, SD = 14.27), $t(328) = 1.95$, $p = .053$.

Structural equation modeling (SEM; Kline, 2005) was used with a latent change score approach (McArdle, 2009). Indices of model fit were those used in earlier work with this sample (Alfonsi et al., 2011), which included the maximum likelihood robust estimator to adjust for multivariate kurtosis (Normalized Mardia's coefficient was 32.43). Medical interventions and subjective status were residualized to control for neuroticism, extraversion, age, gender, education, occupational prestige, and salary. As such, the analyses controlled for core personality characteristics as well as socioeconomic status.

The proposed model included the following paths. In line with the broken wing hypothesis, initial number of medical interventions was expected to predict lower subjective status. Given the hypothesis, it was also expected that there would be, both

initially and for change scores, a negative correlation between medical interventions and subjective status. The proposed model had good fit, S-Bχ^2 (1) = .02, p = .88, CFI = 1, RMSEA < .001, CI = .00 – .07, with no residuals greater than .10 (see Figure 2). As hypothesized, individuals who received more medical interventions in the year prior to Time 1 had lower subjective status at Time 2 relative to their peers (β = -.14, z = -2.79, p < .01). There was no significant correlation between initial levels (β = -.07, z = -.96, p = .34), or change scores (β = -.04, z = -.75, p = .45) for medical interventions and subjective status. An alternative model was tested in which initial subjective status predicted change in medical interventions, with no path from initial medical interventions to change in subjective status. The alternative model had poor fit, S-Bχ^2 (1) = 5.79, p = .016, CFI = .95, RMSEA = .12, CI = .04 – .22, with a large residual (-.15) between Time 1 medical interventions and Time 2 subjective status. The path between initial subjective status and change in medical interventions was non-significant (β = .01, z = .14, p = .89). In sum, the alternative model was not viable.

Discussion

In the present study, those individuals who received more medical interventions in one year had lower subjective status relative to their peers a year later. There was no correlation for either initial levels or amount of change observed a year later between number of medical interventions and subjective status. There was a lag effect, whereby the consequences of medical interventions were apparent a full year later. Whatever influence medical interventions has on subjective status seems likely to unfold gradually over time. In an alternative model – based on the view that subjective status impacts health – subjective status did not predict the number of medical interventions received in

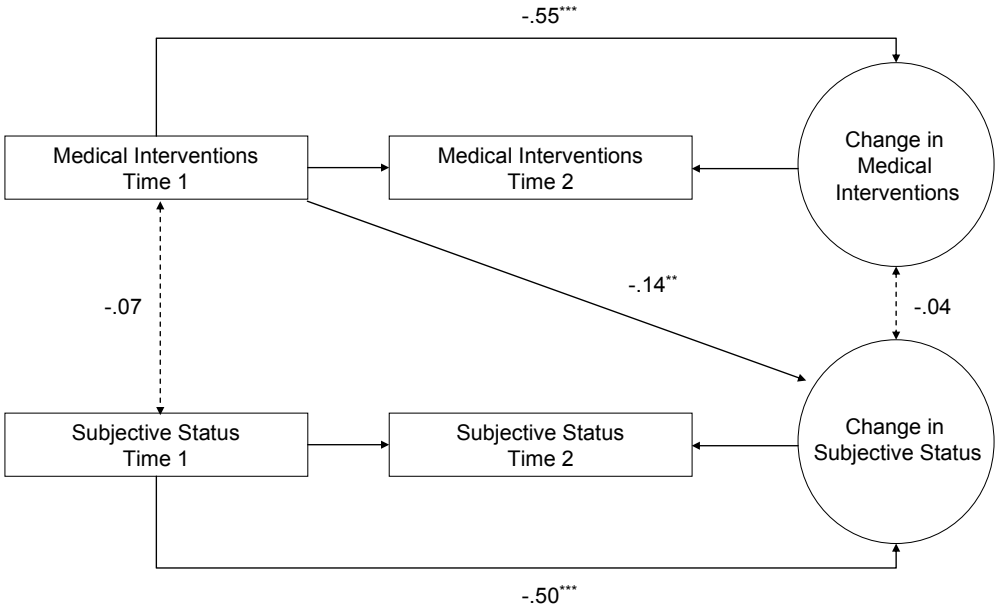

Figure 2. The final model of medical interventions and subjective status. *$p < .05$; **$p < .01$; ***$p < .001$. Neuroticism, extraversion, age, gender, education, occupational prestige, and salary were controlled for in the present model. The medical interventions construct represents the total number of medical interventions received in the preceding year. Dashed paths are nonsignificant. Paths without coefficients are set to 1, which are the paths that lead to Time 2 measures. Time 2 measures are fully predicted by the corresponding Time 1 measures and the corresponding latent variables, which capture change. The negative beta coefficients from Time 1 variables to the corresponding change latent variables reflect regression toward the mean.

the following year. In sum, the findings support the broken wing hypothesis, whereby worse health leads to decreased subjective status.

In the present study, number of medical interventions was the objective measure of worse health. This measure was independent of reporting bias on the part of participants. The measure was based on physicians' report on the number of billable acts performed on each participant –physicians are motivated to reliably report these acts to the public health agency. More medical interventions can be taken to reflect worse health, but other factors may influence number of treatments received, such as participants' health behaviours. When ill, some participants might seek out treatment more than others, which would result in more medical interventions. As well, physicians' diagnoses will in part determine subsequent medical interventions, and such diagnoses are often based on judgments that involve uncertainty in terms of patients' actual health condition. Despite these reservations, number of medical interventions seems a good measure of worse health. In correlations not reported here (Alfonsi, 2011), participants in the present sample with more medical interventions reported more severe illness (the latter measure is reported in Alfonsi et al., 2011).

There was no support in the present study or in previous research with this sample (Alfonsi et al., 2011) for the commonly held view in most scientific research on subjective status that subjective status determines health, which is the converse of the broken wing hypothesis. The present study did not find a link between subjective status and subsequent number of medical interventions received. The current findings are at odds with a large body of prior research. However, this prior research is largely cross-sectional, did not control for medical history, and did not control for core personality

characteristics. Given these limitations and the present findings, it is an outstanding question as to whether an individual having lower subjective status is consequently at greater risk for illness.

The broken wing hypothesis that worse health leads to lower subjective status was supported in the present study. Subjective status may be influenced by many factors including individual differences in neuroticism and extraversion, reported illnesses (Alfonsi et al., 2011), and as demonstrated here, the number of medical interventions received. Support for the broken wing hypothesis suggests that people spontaneously assess their social rank, in part, on their physical health. A more general conclusion is that people's physical health has a significant impact on how they see themselves in the social world.

Chapter 4

Is Subjective Social Status Consequential?

On the Relation between Perceived Control and Subjective Status

Abstract

People have a subjective sense of their standing in society, in terms of education, occupation, and income. Much research implies that this subjective social status has major implications in people's lives, including their perceived control. However, prior research took socioeconomic status into account but did not consider neuroticism and extraversion. Study 1 was a cross-sectional study with young adults (N = 399) and Study 2 was a 3-year longitudinal study with recent retirees (N = 340). In Study 1, subjective status and perceived control were not significantly related after accounting for neuroticism, extraversion, and socioeconomic status. In Study 2, controlling for personality and socioeconomic status, greater perceived control predicted higher subjective status, both directly and via satisfaction with finances. Subjective status was not a determinant of perceived control. The present findings contribute to the ongoing debate regarding the psychosocial sequalae of subjective social status.

Introduction

Social rank is a basic feature in many social settings, and individuals differ in their social rank in society at large. People have been shown to have their own evaluation of their social rank in society (Adler et al., 2000), and much research seems to indicate that such subjective social status influences many aspects of people's lives, including their physical health (e.g., Adler et al., 2000), their psychological adjustment (e.g., Demakakos et al., 2008), and their social cognition (e.g., Kraus et al., 2009). With regard to social cognition, people with lower subjective status have been shown to perceive less control in their lives, and this lack of control is associated with seeing others' life events as more due to external, situational factors (Kraus et al., 2009). In the latter research, which was largely cross-sectional, a causal model was proposed whereby subjective social status influences people's sense of control which, in turn, affects perceptions of the causes of life events (for other cross-sectional research linking subjective status and perceived control, see Lundberg & Kristenson, 2008 and Singh-Manoux et al., 2003).

Doubts can be raised regarding the causal effect of subjective status on perceived control. A major concern is that other personality characteristics underlie both subjective status and perceived control. Higher neuroticism (N) and lower extraversion (E) are associated with lower subjective social status (Alfonsi et al., 2011) and lower perceived control (Judge et al., 2002; Prenda & Lachman, 2001). As such, neuroticism and extraversion may be similar to socioeconomic status (SES) in determining both subjective status and perceived control. Individuals higher in SES have greater subjective status (Singh-Manoux et al., 2003) and greater perceived control (Lachman & Weaver, 1998). Given the influence of these core aspects of personality and of SES, the *NE-SES*

hypothesis in the present studies is that most of the association observed in prior research between subjective status and perceived control is largely due to individual differences in neuroticism and extraversion, as well as to SES. More importantly, we also propose the *perceived control hypothesis* that it is individuals' level of perceived control that influences their subjective social status. That is, the causality argument here is opposite to that of Kraus and colleagues (2009), and is grounded in the strong association of perceived control to neuroticism, and in the great impact of both these variables that has been observed in a wide range of research. The *financial satisfaction hypothesis* is that the influence of perceived control on subjective status is due in part to the increased satisfaction individuals with higher perceived control have with their financial situation.

If one considers the broad significance of neuroticism and extraversion in individual functioning and adjustment, it is not surprising that these core aspects of personality may also influence individuals' subjective social status. Neuroticism and extraversion have been extensively studied (e.g., Costa & McCrae, 1992; Eysenck, 1967). Neuroticism has a large genetic component (Jang et al., 1996; Weiss et al., 2008), and is relatively stable. Individuals who are higher in neuroticism experience more negative moods and emotions (Watson, 2000). Neuroticism is related to negative outcomes including poorer well-being (Weiss et al., 2008), greater depression (Kendler et al., 2006), higher rates of divorce, poorer occupational attainment, and greater mortality (Roberts et al., 2007). Indeed, greater neuroticism leads to lower subjective status via multiple mechanisms, including lower occupational attainment, lower salary, and illness (Alfonsi et al., 2011).

Just as individuals higher in neuroticism have lower subjective status, individuals who are more extraverted have higher subjective status (Alfonsi et al., 2011). Similar to neuroticism, extraversion is highly heritable (Weiss et al., 2008). Extraversion includes a greater tendency to experience positive affect and greater sociability (e.g., Lucas et al., 2008). More extraverted individuals generally experience better socioemotional outcomes, which include having greater well-being (Weiss et al., 2008), being attributed higher status in peer groups (Anderson et al., 2001), and being perceived as more physically attractive by judges presented their photographs (Meier et al., 2010). Prior research indicates that physical attractiveness is a status cue (Kalick, 1988). These might be some of the mechanisms by which extraversion leads to higher subjective status.

Just as neuroticism and extraversion are linked to significant life outcomes, perceived control has important ramifications for individuals' physical and psychological health. Perceived control predicts major psychosocial outcomes, with individuals who perceive more control in their lives being less depressed, and having better self-reported health (Lachman & Weaver, 1998; Lent et al., 2005). In fact, perceived control may play a role in explaining how SES is linked to health, with individuals of higher SES experiencing higher perceived control which, in part, explains their better health (Moore et al., 2010). Part of this health effect may be due to the protective influence higher perceived control confers against the physiological effects of stress. For example, individuals who are given a sense of control show less physiological activation when injected with a chemical stressor (Abelson et al., 2008). Perceived control is not only a predictor of positive outcomes such as social support and health, but also appears to be predicted in turn by these latter variables, suggesting a dynamic relation of mutual

influence (Gerstorf et al., 2011). The strongest evidence for the effects of perceived control on health has been found with older adults, perhaps because the effects of perceived control on health accumulate over the life-span (Infurna et al., 2011).

Both perceived control and neuroticism are strongly linked dimensions of personality (Judge et al., 2002), and both may act to influence a wide range of outcomes, including individuals' subjective social status. Mechanisms by which neuroticism can influence subjective status were identified above, and include lower SES and greater illness. Perceived control may influence subjective status as well. Perceived control is a predictor of both global life satisfaction as well as satisfaction with a variety of specific life domains, such as for one's social life (Lachman & Weaver, 1998; Lent et al., 2005).

People higher in perceived control may be more satisfied with their finances, their education, and occupation, and such feelings of satisfaction may in turn lead them to have higher subjective status. Individuals with greater perceived control are more satisfied with their finances independent of their financial situation (Zurlo, 2010). With regard to education, students with higher self-efficacy, which is analogous to the personal mastery component of perceived control (Lachman & Weaver, 1998), are more satisfied with their academic pursuits (Lent et al., 2005). One implication of the latter finding is that people who are higher in perceived control may generally be more satisfied with their educational attainment. In addition, greater perceived control is associated with greater satisfaction with one's occupation. In a study of nurses (McGilton & Pringle, 1999), higher perceived control in their work was linked to higher job satisfaction. In sum, individuals with higher perceived control are more likely to be satisfied with their financial situation, their education, and their occupation, which implies greater subjective

status. Indeed, the subjective status rating is in terms of finances, education, and occupation (Adler et al., 2000). Satisfaction with one's current standard of living has been identified as an important determinant of subjective status (Singh-Manoux et al., 2003).

In addition to the influence of neuroticism and extraversion, one can doubt on conceptual grounds that subjective status influences perceived control, which is the causal model currently favored in this domain of research. First, having low subjective status from a society-large perspective may not necessarily have a negative impact on an individual, in terms of adjustment. Consider the well demonstrated high self-esteem of individuals who are members of disadvantaged groups, or members of groups that suffer discrimination (Crocker & Blanton, 1999). Second, people may be more sensitive to the degree of congruence between characteristics that normally define their objective social status than to their level of overall objective social status: people with lower status occupations were distressed if they were overqualified, in terms of education, for their positions (Lundberg, Kristenson, & Starrin, 2009).

The importance of subjective status is also undermined by other findings that downplay the importance of status in even face to face encounters. Not all people strive for higher status in group settings; some are more at ease with lower status. For instance, individuals with lower testosterone, a hormone associated with social rank, display worse cognitive functioning, greater attention to status-related stimuli, and greater emotional arousal when placed into a position of dominance whereas individuals with higher testosterone show these effects when placed in a subordinate position (Josephs et al., 2006). These findings imply that lower status does not represent a lack of control for all

individuals as some individuals actually do better with lower social rank. In sum, the argued ill effects of lower subjective status may be overstated.

There were three hypotheses in the present studies. In Study 1 conducted with young adults, the NE-SES hypothesis was that individual differences in neuroticism and extraversion as well as SES account for most of the association observed in prior research between subjective status and perceived control (Kraus et al., 2009; Lundberg & Kristenson, 2008; Singh-Manoux et al., 2003). Study 2 was a 3-year longitudinal study conducted with recent retirees. All three hypotheses were considered in Study 2. In addition to the NE-SES hypothesis, the perceived control hypothesis was that greater perceived control predicts greater subjective status. The financial satisfaction hypothesis was that greater perceived control leads to more satisfaction with one's financial situation, which in turn leads to greater subjective status. The present studies did not address the possibilities raised above that perceived control may also lead to greater satisfaction with one's education and occupation, which could in turn lead to higher subjective status.

The present studies were conducted to address the view that subjective status influences perceived control. From the perspective of this earlier research (Kraus et al., 2009; Lundberg & Kristenson, 2008; Singh-Manoux et al., 2003), perceived control is considered a unitary construct, and there is no reference to neuroticism. It is for this reason that the hypotheses distinguish between the impact of neuroticism and of perceived control, amongst other things.

Study 1

In line with the NE-SES hypothesis, the expectation in Study 1 was that for young adults, the positive association between perceived control and subjective status is modest in a model that accounts for the contribution of neuroticism, extraversion, and SES. The methodology of Study 1 was close to that adopted in Study 3 of Kraus and colleagues (2009), as one goal of Study 1 was to speak directly to their findings. In particular, a measure of contextual explanations for life events was included, as in their Study 3. In the present study, less perceived control was expected to predict more contextual explanations, which would replicate the effect observed in Study 3 of Kraus and colleagues (2009). We did not expect this perceived control-explanations link to be attenuated by the inclusion of other personality traits in the model.

Neuroticism, extraversion, and SES were all expected to be related to both subjective status and perceived control. It was expected that individuals higher in extraversion, lower in neuroticism, and with parents of higher education would be higher in both subjective status and perceived control. In line with Kraus and colleagues (2009), parental education was used as a marker of SES for the participants, who were undergraduate university students.

Method

Participants and Procedure

Participants were individuals who approached a booth at which the sign read *Psychology Project Volunteers Needed*, which was located on a university campus. Participants completed the measures at the booth (see Appendix F for the consent form used in the present study). They were given $2.50 CAD vouchers for a local coffee shop,

and became eligible for cash prizes. Of 425 completed questionnaire packets, 26 had excessive missing data. The final sample included 172 men and 227 women. Mean age was 22.76 years (range 18-34). Participants self-identified according to Census Canada categories, in decreasing order, as being White (57.7%), South Asian (8.6%), Chinese (7.3%), Latin American (6.6%), Black (4.3%), Arab (3.5%), Southeast Asian (1.3%), West Asian (1.3%), and Other (7.8%). Other categories were below 1%.

Materials

Perceived Control Scale (PCS; Lachman & Weaver, 1998). The PCS is a 12-item measure of perceptions of control and consists of two subscales: personal mastery (e.g., "Whether or not I am able to get what I want is in my own hands") and perceived constraints (e.g., "There are many things that interfere with what I want to do"). Responses are on 7-point scales with endpoints *strongly disagree* (1) and *strongly agree* (7). A single control score was derived by summing the standardized scores on both subscales (cf., Kraus et al., 2009). Higher scores represent more perceived control. The PCS possesses good psychometric properties (Lachman & Weaver, 1998).

The MacArthur Scale of Subjective Social Status (SSS; Adler et al., 2000). The SSS is a line drawing of a 10 rung ladder on which individuals represent their relative ranking in society in terms of education, occupation, and income (see Appendix G). Participants make a mark on the rung that best represents their own position, with a higher rung indicating higher rank. Rungs are scored from 1 to 10, with higher numbers for higher status. The SSS has adequate test-retest reliability and correlates positively with measures of SES (Adler et al., 2000; Operario et al., 2004; Singh-Manoux et al., 2003).

The NEO Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992). Neuroticism and extraversion were measured using the NEO-FFI, which is a 60-item measure of the Big Five personality dimensions. Participants respond on 5-point scales with endpoints *strongly disagree* (1) and *strongly agree* (5). The NEO-FFI has strong test-retest reliability (Murray et al., 2003), and adequate internal consistency for its subscales (Holden & Fekken, 1994).

Contextual Explanations Scale. This scale was based on the 8-item measure of appraisals of responsibility for life events developed and used by Kraus and colleagues (2009). Their measure was of perceptions of responsibility (which can be distinct from perceptions of causality; see Shaver & Drown, 1986). Each item was a description of a life event that might be experienced by young adults. For the present study, items were slightly modified (see Appendix H) and were "Getting into a good university professional program (e.g., MBA)," "Having low income," "Getting good medical care," "Contracting a sexually transmitted disease," "Getting a full-time job at a prestigious company," "Failing a class at school," "Being overweight," and "Having to put in extra hours at work." For each item, participants responded on a 7-point scale with endpoints *individual is 100% responsible* (1) and *outside forces are 100% responsible* (7). An overall mean score was derived.

Socioeconomic Status. SES was assessed by having participants report their mother's and father's highest levels of education (see Appendix I for demographics questionnaire). Options were primary school (1), secondary school (2), technical degree (3), university undergraduate degree (4), and university graduate degree (5). A mean parental education score was derived for each participant.

Results

Approximately half of participants reported having fathers (51.6%) or mothers (50.4%) with university degrees. Most participants viewed themselves as being towards the middle of the subjective status ladder ($M = 5.45$, $SD = 1.64$), and tended to attribute responsibility for life outcomes ($M = 3.07$, $SD = .74$) somewhat more to the individual than to the environment. Subjective status and perceived control were positively correlated ($r = .17$) with individuals higher on both also less likely to attribute events to contextual factors (See Table II for correlations). Finally, internal reliability for the Contextual Explanations Scale was adequate ($\alpha = .68$).

Personality, Status, and Contextual Explanations

The NE-SES hypothesis was tested using path analysis conducted with structural equation modeling (SEM; Kline, 2005). Model goodness of fit was evaluated using the following criteria: a nonsignificant chi-square (χ^2), a comparative fit index (CFI) close to 1, a root mean square error of approximation (RMSEA) less than or equal to .05, and a 90% confidence interval (CI) within the range of 0 to .08. Given that there was a high level of multivariate kurtosis (normalized Mardia's coefficient equal to 3.24), SEM was conducted using the maximum likelihood robust estimator for evaluating path coefficients and standard errors, and the Satorra-Bentler scaled chi-square (S-Bχ^2) was used as a fit index.

Scores for all measures were residualized to control for age and gender (as in Study 2; results remain virtually the same in Study 1 if one does not control for age and gender). The proposed model included the expected relations outlined above, as well as an expected negative correlation between neuroticism and extraversion. The proposed

Table II

Zero-order correlations between measures in Study 1

Measure	1	2	3	4	5	6	7
1. Subjective Status	—						
2. Perceived Control	.17**	—					
3. Contextual Explanations	-.13*	-.33***	—				
4. Neuroticism	-.12*	-.53***	.19***	—			
5. Extraversion	.21***	.34***	-.10	-.33***	—		
6. Parental Education	.17**	.12*	-.07	-.05	.05	—	
7. Age	-.07	-.03	.02	-.01	-.03	-.13**	—
8. Gender	-.05	.09	-.03	.05	.17**	-.02	-.07

Note. *$p < .05$; **$p < .01$; ***$p < .001$. N = 399. Gender was scored 1 for men and 2 for women. For all other measures, higher numbers mean more of the construct.

model provided a good fit to the data, S-Bχ^2 (6) = 4.30, p = .64, CFI = 1, RMSEA < .001, CI = .00 – .05, with no residuals above .10. However, three paths were nonsignificant: subjective status to perceived control, neuroticism to subjective status, and parental education to perceived control. Satorra-Bentler scaled chi-square difference tests (Satorra & Bentler, 2001) were computed using a specialized computer program (Sbdiff.exe; Crawford & Henry, 2003), for models in which each of the three nonsignificant paths were fixed to zero. Fixing the path from parental education to perceived control to zero significantly worsened model fit, S-Bχ^2_{diff} (1) = 8.75, p < .01. However, fixing the paths to zero for either subjective status to perceived control, S-Bχ^2_{diff} (1) = 2.90, p = .09, or for neuroticism to subjective status, S-Bχ^2_{diff} (1) = .48, p = .49, did not worsen model fit. The resultant second model in which the latter two paths were omitted had good fit, S-Bχ^2 (8) = 7.52, p = .48, CFI = 1, RMSEA < .001, CI = .00 – .06, with all paths significant (see Figure 3).

The NE-SES hypothesis was supported in that taking neuroticism, extraversion, and SES into account, the association between subjective status and perceived control was weakened. As shown in Figure 3, there was no statistically significant relation remaining between subjective status and perceived control. The model indicates that extraversion and neuroticism underlies both subjective status and perceived control, generally as predicted. More extroverted individuals had higher subjective status (β = .21, z = 3.93, p < .001), and higher perceived control (β = .17, z = 3.50, p < .001). Lower neuroticism was associated with higher perceived control (β = -.48, z = -10.78, p < .001), but contrary to expectations was not significantly related to subjective status. As well, higher SES individuals had greater subjective status (β = .15, z = 3.01, p < .01) and

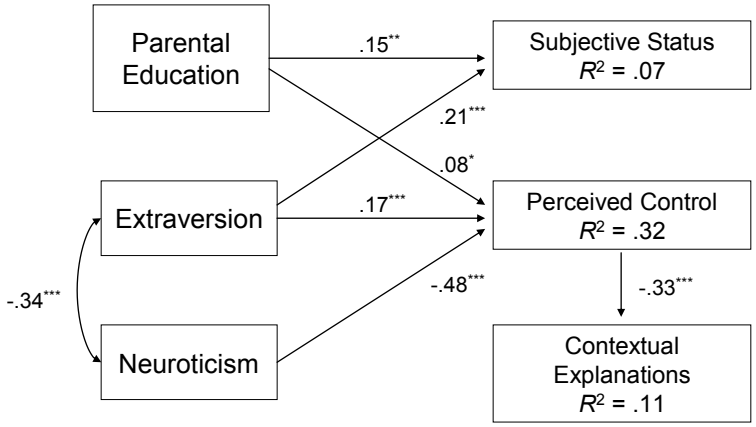

Figure 3. The final model in Study 1. *$p < .05$; **$p < .01$; ***$p < .001$.

perceived control (β = .08, z = 1.96, $p < .05$). Additional paths in the model were between neuroticism and extraversion (β = -.34, z = -5.79, $p < .001$), and greater perceived control was associated with less attributions for life events to contextual factors (β = -.33, z = -6.82, $p < .001$). Finally, there were significant indirect effects from neuroticism (β = .16, z = 5.62, $p < .001$) and extraversion (β = -.05, z = -3.14, $p < .01$) to contextual explanations. These significant indirect effects represent the influence of neuroticism and extraversion on contextual explanations via perceived control.

Discussion

In Study 1, young adults who perceived themselves as lower in status in society at large, in terms of education, occupation, and income, did not see themselves as being less in control of their lives, if one took into account their neuroticism, extraversion, and SES. The NE-SES hypothesis was thereby supported. If one ignores the impact of these 3 variables, there is a positive association between perceived control and subjective status, just as in prior research (Kraus et al., 2009; Lundberg & Kristenson, 2008; Singh-Manoux et al., 2003). As well, in Study 1, higher perceived control was linked to a lesser tendency to attribute responsibility for life events to environmental forces. The latter finding is consistent with the results of Study 3 of Kraus and colleagues, which is the study we emulated in the design of the present Study 1. This relation between perceived control and contextual explanations remained even after accounting for neuroticism, extraversion, and SES.

Whereas both neuroticism and extraversion predicted subjective status in previous research with older adults (Alfonsi et al., 2011), neuroticism and subjective status were unrelated in Study 1. Why the difference across the lifespan? Perhaps the negative effects

of neuroticism need to accumulate over the years in order to influence subjective social rank. More neurotic individuals experience greater negative life outcomes (Roberts et al., 2007), and an accumulation of such negative events may lead more neurotic individuals to appraise their social rank more negatively. In contrast to neuroticism, higher extraversion was linked to higher subjective status in Study 1 and in prior research (Alfonsi et al., 2011). Extraversion is a trait associated with positive affect and greater sociability. Extraverted individuals may perceive themselves as higher in social rank because of a positive affect bias in self-perception, or because of their actually having higher status in their proximal social environments (Anderson et al., 2001; Kalick, 1988), and both these influences may be active across the adult lifespan.

A limitation in Study 1 was the weaker zero-order correlation between subjective status and perceived control relative to that observed in Kraus and colleagues (2009). The zero-order correlation in Study 1 between subjective status and perceived control (r = .17) was lower than the corresponding correlations in Kraus and colleagues (2009), which ranged from .28 to .40. Perhaps starting with a larger zero-order correlation, one could account for neuroticism, extraversion, and SES, and there would remain a link between subjective status and perceived control. Given this type of argument, Study 2 was conducted to further address the relation between subjective status and perceived control. The expectation was that the observed zero-order correlation between subjective status and perceived control will be in line with Kraus and colleagues (2009). Contrary to Kraus and colleagues (2009), the predicted causal model in Study 2 was that perceived control predicts subjective status. Furthermore, the financial satisfaction hypothesis in Study 2 was that the effect of perceived control on subjective status is due in part to greater

perceived control leading to more satisfaction with one's finances, which in turn leads to greater subjective status.

Study 2

A sample of recent retirees was recruited as part of a larger longitudinal study on the transition to retirement; this is the sample on which the research of Alfonsi and colleagues (2011) was based. In comparison to Alfonsi and colleagues (2011), we are focusing in the present Study 2 on data that is for a longer time period, and for a somewhat different range of variables. In Study 2, a model was proposed in which perceived control, financial satisfaction, and subjective status were related over three years. In addition to the NE-SES hypothesis, Study 2 addressed the perceived control and the financial satisfaction hypotheses. An alternative account was also considered in which subjective status directly predicts perceived control, and via financial satisfaction (consistent with the arguments made in Kraus et al., 2009). At the outset of the study, measures of individuals' socioeconomic standing, neuroticism, and extraversion were collected. One, two, and three years later, measures of participants' perceived control, financial satisfaction, and subjective status were collected.

Method

Participants and Procedure

A sample of 433 recent retirees was recruited through local community groups and through advertisements targeting retirees in local newspapers. All participants had worked full-time for at least 20 years prior to retirement and were not currently working more than 10 hours per week. Participants attended 4 sessions in a laboratory setting, each scheduled one year apart. During each session, participants completed a packet of

measures for a comprehensive longitudinal study on retirement of which the current research is a part. No more than 6 participants were present at any one session and participants were paid 50$ CAD per session. At the first session, participants completed the NEO-FFI and reported on their SES. At sessions two (Time 1), three (Time 2), and four (Time 3), participants completed the PCS, the SSS, and reported on their financial satisfaction.

Data from 93 participants was excluded due to excessive missing data, or because they dropped out of the study. There were significant mean differences between participants who completed all measures and those that did not. Completers were younger, $t(431) = 2.30$, $p < .05$, retired from higher prestige occupations, $t(431) = 4.11$, $p < .001$, had higher satisfaction with their finances at Time 1, $t(391) = 2.79$, $p < .01$, Time 2, $t(371) = 3.63$, $p < .001$, and Time 3, $t(351) = 1.98$, $p < .05$, and had greater perceived control but only at Time 3, $t(351) = 2.11$, $p < .05$. No other significant differences were found between completers and non-completers. The final sample was composed of 164 men and 176 women. Mean age was 58.90 years (range: 44 - 77). Participants did not report their ethnic or cultural background. The vast majority seemed of European ancestry.

Materials

PCS, SSS, and NEO-FFI. The measures of perceived control, subjective status, and of neuroticism and extraversion were the same as in Study 1, save that the SSS instructions were modified. Participants were asked to consider their ranking in terms of the occupation from which they had retired. Note that for Study 2, an unstandardized mean score for the PCS was used to permit testing of mean differences across years.

Financial Satisfaction. Participants responded to the item "How satisfied are you with your financial situation?" on a 5-point scale with endpoints *not at all* (1) and *very much* (5). Participants were instructed to answer this item in terms of how they feel in the present moment.

SES. Participants reported years of education they had received, their salary just prior to their retirement, and the occupation from which they retired. Occupations were scored on the Standard International Occupational Prestige Scale (SIOPS; Ganzeboom & Treiman, 1996; Treiman, 1977), which assesses the level of respect and prestige with which occupations are viewed within society. Education, salary, and occupational prestige were the SES indicators controlled for in the model.

Results

Participants had on average 15.0 years of schooling (range: 7 - 21), and retired with salaries that were on average $62,500 CAD per year (range: $10,000 -$345,000), which was above the national average (Statistics Canada, 2006). Zero-order correlations were in line with expectations and are in Table III. Concurrent subjective status and perceived control were significantly positively correlated in each of the three years (*r*s of .26, .31, and 30 at Time 1, 2, and 3, respectively).

Score Stability

Mean scores on subjective status, financial satisfaction, and perceived control were generally stable. There was no difference for subjective status between Time 1 (M = 7.05, SD = 1.35) and Time 2 (M = 7.11, SD = 1.38), $t < 1$, or between Time 2 and Time 3 (M = 7.13, SD = 1.28), $t < 1$. Nor was there any difference for satisfaction with finances between Time 1 (M = 3.80, SD = .82) and Time 2 (M = 3.83, SD = .82), $t < 1$, or between

Table III

Zero-order correlations between measures in Study 2

Measure	1	2	3	4	5
1. T1 Subjective Status	—				
2. T2 Subjective Status	.59***	—			
3. T3 Subjective Status	.64***	.62***	—		
4. T1 Perceived Control	.26***	.25***	.30***	—	
5. T2 Perceived Control	.25***	.31***	.34***	.73***	—
6. T3 Perceived Control	.22***	.23***	.30***	.72***	.75***
7. T1 Financial Satisfaction	.37***	.34***	.35***	.28***	.24***
8. T2 Financial Satisfaction	.32***	.42***	.35***	.30***	.30***
9. T3 Financial Satisfaction	.32***	.37***	.40***	.33***	.31***
10. Neuroticism	-.27***	-.29***	-.24***	-.41***	-.33***
11. Extraversion	.17**	.19***	.19***	.31***	.31***
12. Education	.25***	.19***	.18**	.03	.01
13. Occupation	.20***	.25***	.15**	.02	.03
14. Salary	.37***	.33***	.36***	.19***	.24***
15. Age	-.13*	-.11	-.19**	-.24***	-.28***
16. Gender	-.20***	-.16**	-.16**	-.03	-.01

Table III (continued)

Zero-order correlations between measures in Study 2

Measure	6	7	8	9	10
1. T1 Subjective Status					
2. T2 Subjective Status					
3. T3 Subjective Status					
4. T1 Perceived Control					
5. T2 Perceived Control					
6. T3 Perceived Control	—				
7. T1 Financial Satisfaction	.17**	—			
8. T2 Financial Satisfaction	.26***	.70***	—		
9. T3 Financial Satisfaction	.33***	.57***	.66***	—	
10. Neuroticism	-.30***	-.22***	-.26***	-.24***	—
11. Extraversion	.22***	.18**	.20**	.14*	-.40***
12. Education	-.06	.08	-.02	-.04	-.06
13. Occupation	-.01	.08	.02	-.02	-.15**
14. Salary	.18**	.25***	.20***	.17**	-.25***
15. Age	-.29***	-.16**	-.17**	-.20***	.01
16. Gender	-.03	-.09	-.07	-.14*	.18**

Table III (continued)

Zero-order correlations between measures in Study 2

Measure	11	12	13	14	15
1. T1 Subjective Status					
2. T2 Subjective Status					
3. T3 Subjective Status					
4. T1 Perceived Control					
5. T2 Perceived Control					
6. T3 Perceived Control					
7. T1 Financial Satisfaction					
8. T2 Financial Satisfaction					
9. T3 Financial Satisfaction					
10. Neuroticism					
11. Extraversion	—				
12. Education	-.09	—			
13. Occupation	.01	.57***	—		
14. Salary	.10	.30***	.38***	—	
15. Age	-10	.12*	.06	-.17**	—
16. Gender	.02	-.08	-.08	-.36***	-.06

Note. *$p < .05$; **$p < .01$; ***$p < .001$. N = 340. Gender was scored 1 for men and 2 for women. T1, T2, and T3 measurements occurred each 1 year apart. For all measures save gender, higher numbers mean more of the construct.

Time 2 and Time 3 (M = 3.79, SD = .86), $t < 1$. Perceived control did change over time, though slightly, with a drop from Time 1 (M = 5.72, SD = .85) to Time 2 (M = 5.64, SD = .89), $t(339) = 2.47$, $p < .05$. Perceived control did not change from Time 2 to Time 3 (M = 5.67, SD = .84), $t < 1$.

Perceived Control, Financial Satisfaction, and Subjective Status

The same criteria were used to evaluate model fit as in Study 1. Given that there was a high level of multivariate kurtosis (normalized Mardia's coefficient equal to 14.61), SEM was conducted as in Study 1. Age, gender, extraversion, and socioeconomic status were controlled for by residualizing the scores of neuroticism, subjective status, perceived control, and financial satisfaction. Neuroticism was included in the path model because of its strong ties to perceived control (Judge et al., 2002), and because of its importance in predicting subjective status (Alfonsi et al., 2011). The paths in the model were as follows. First, higher neuroticism predicted lower perceived control and lower subjective status at Time 1. At Times 1, 2, and 3, greater perceived control predicted higher financial satisfaction, which in turn predicted higher subjective status. As well, there was a direct path from greater perceived control to higher subjective status. Paths across time for the respective constructs were included to reflect temporal stability.

The proposed model provided a good fit to the data, S-Bχ^2 (25) = 18.56, p = .82, CFI = 1, RMSEA < .001, CI = .00 – .03, with no large residuals (all below .10, except for one at .105). However, three paths were nonsignificant: neuroticism to Time 1 subjective status, Time 1 perceived control to Time 1 subjective status, and Time 3 perceived control to Time 3 subjective status (this latter path was a trend, p = .06). A series of S-Bχ^2 difference tests was conducted. Fixing the path to zero did not significantly worsen model

fit for either the path from neuroticism to Time 1 subjective status, S-B$\chi^2_{diff}(1) = 2.06$, $p = .15$, or for the path from Time 1 perceived control to Time 1 subjective status, S-B$\chi^2_{diff}(1) = 2.01$, $p = .16$. However, fixing both paths to zero in the same model did significantly worsen model fit, S-B$\chi^2_{diff}(2) = 6.35$, $p < .05$, the implication being that at least one path should be retained. In sum, the models were largely equivalent whether neuroticism directly predicted subjective status or whether perceived control directly predicted subjective status. This may reflect the strong association between neuroticism and perceived control (Judge et al., 2002).

Given the statistical equivalence between models, we opted for the model in which Time 1 perceived control predicted Time 1 subjective status on grounds of conceptual coherence as paths were observed from perceived control to subjective status in the two subsequent years. Below we note that the nearly equivalent results for the model in which the path from neuroticism to Time 1 subjective status was retained. This final model (with the path from Time 1 perceived control to Time 1 subjective status) had good fit, S-Bχ^2 (26) = 20.53, $p = .77$, CFI = 1, RMSEA < .001, CI = .00 – .03, with no large residuals, and with all paths significant save the path between Time 3 perceived control to Time 3 subjective status, which remained a trend (see Figure 4).

The perceived control hypothesis was supported. There was a direct influence of perceived control on subjective status in all three years, though this association was marginally significant ($p = .06$) at Time 3. The financial satisfaction hypothesis was also supported in that in all three years, participants with higher perceived control were more satisfied with their finances, and in turn saw themselves as having higher status (see Figure 4 for path coefficients). The indirect effect of perceived control on subjective

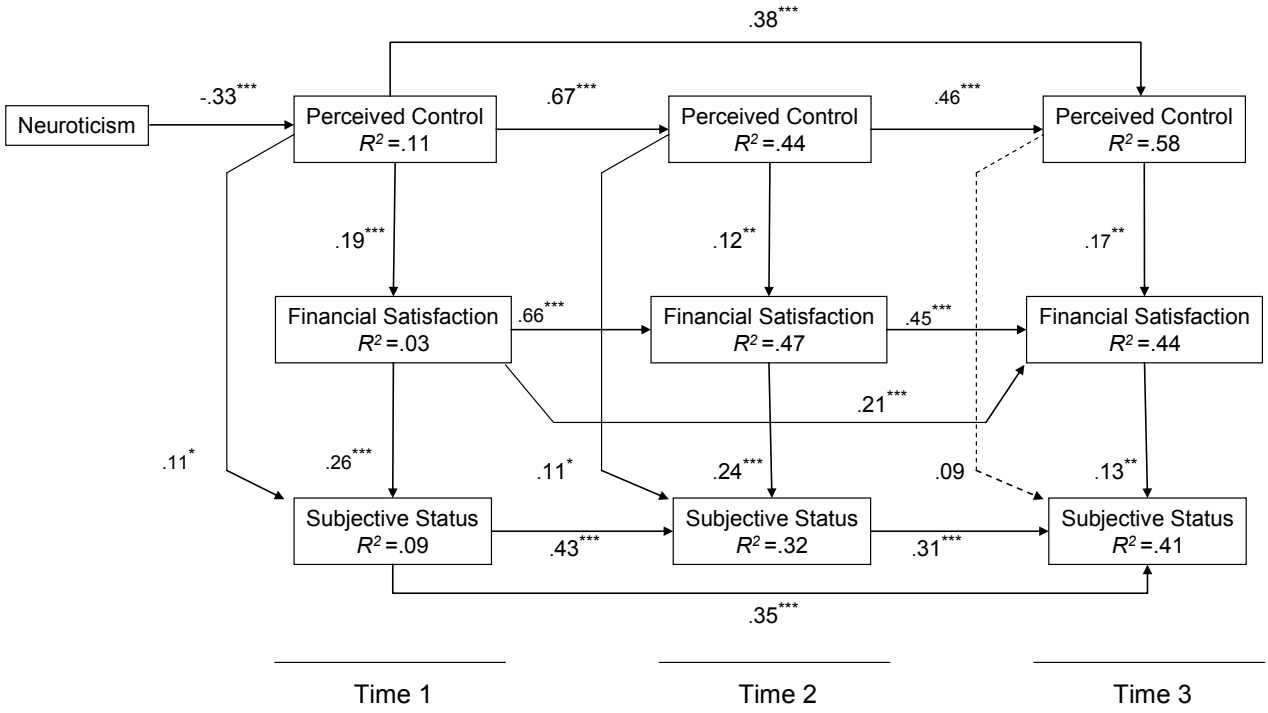

Figure 4. The final model of subjective status, financial satisfaction, and perceived control in Study 2. *$p < .05$; **$p < .01$; ***$p < .001$.Times 1, 2, and 3 each occurred a year apart. Note that extraversion, SES, age, and gender were controlled for in the model. The dashed line indicates a non-significant path that nonetheless remained a trend.

status, via financial satisfaction, was significant at Time 1 (β = .05, z = 2.56, $p < .05$), Time 2 (β = .03, z = 2.22, $p < .05$), and Time 3 (β = .02, z = 2.16, $p < .05$).

The NE-SES hypothesis was also supported. The zero-order correlation between perceived control and subjective status was in the .26 -.31 range at each time point, yet one can observe in the model in Figure 4 that the direct path from perceived control to subjective status was in the .09 - .11 range, and the indirect paths were in the .02 - .05 range. In other words, the shared variance implied by the zero-order correlation was in the 6.76% - 9.61% range, whereas the results of the model indicate shared variance in the .85% - 1.46% range. As such, the drop in shared variance is 78% for Time 1, and is even greater in subsequent years. Finally, subjective status, perceived control, and financial satisfaction showed stability across all three years.

An alternative model was tested in which subjective status determines perceived control directly, and via financial satisfaction. The model was the same as the model in Figure 4 except all concurrent paths between subjective status, perceived control, and financial satisfaction were reversed. In this alternative model, people with higher subjective status are more satisfied with their finances, which in part explains their higher perceived control. The alternative model (with the same degrees of freedom) had poor fit to the data, Bχ^2 (26) = 44.10, $p = .01$, CFI = 98, RMSEA = .05, CI = .02 – .07, with 12 residuals over .10, and several non-significant paths. On these grounds, the alternative model was rejected in favor of the model in Figure 4. Note as well that some of the residuals for the alternative model were for paths that seem contrary to the theoretical account advanced by which subjective status determines perceived control (Kraus et al.,

2009). Notably, there were residuals for the path from Time 1 perceived control to Time 3 subjective status, and from Time 2 perceived control to Time 3 subjective status.

Finally, the same results emerged whether the alternative model was based on the model from Figure 4 or it was based on the statistically equivalent model in which neuroticism predicted Time 1 subjective status, without a path from perceived control to subjective status at Time 1. Starting from the equivalent model and reversing the paths between subjective status, perceived control, and financial situation still resulted in a poorly fitting model.

General Discussion

The findings of Study 2 indicate that individuals with higher perceived control have higher subjective status, and this relation is partly explained by higher perceived control individuals being more satisfied with their finances. Furthermore, the opposite relation in which higher subjective status leads to higher perceived control was unsupported. In addition, a direct (small) path remained from perceived control to subjective status. As mentioned above, perceived control may relate to subjective status not just through financial satisfaction, but through academic and job satisfaction as well. However, as the latter two constructs were not examined in the present research, it remains unclear how satisfaction with these other facets of SES might explain the link between perceived control and subjective status.

Perceived control seems to be a core feature of personality, as perceived control has been strongly linked to the heritable, highly stable trait of neuroticism (Judge et al., 2002). Even as perceived control may be a core facet of personality, control beliefs do appear to be influenced by cultural context. For instance, there are subtle differences in

how control beliefs are structured for Chinese versus American school children (Liu & Yussen, 2005). However, the consequences of perceived control appear to be universal. For instance, greater perceptions of control were linked to higher well-being in a study of 97 countries (Minkov, 2009). In sum, perceived control is likely a core facet of the self which even as it is partly shaped by culture, appears to be universally linked to psychological adjustment.

From our perspective, perceived control is a core component of the self, which influences many aspects of subjective experience, including subjective social status. The position we are taking here is one that contrasts with the conceptual framework advanced by Kraus and colleagues (2009), which is the most definitive theoretical statement to date on the relation between subjective status and perceived control. In their account, subjective status was construed as a part of individuals' core identity and perceived control was seen as a cultural trait which is influenced by that identity. Implicit in their conceptualization is that subjective status is psychologically primary and of greater importance than perceived control. However, the influence of subjective status may have been overstated, especially in contrast to the powerful influence of perceived control in people's lives.

Perceived control was linked to neuroticism in the present studies and no direct path remained between neuroticism and subjective status in Figure 4. However, the model was largely equivalent to one in which neuroticism directly predicted Time 1 subjective status. One interpretation of this equivalence is that neuroticism and perceived control are strongly linked constructs which both act in unison to shape subjective status. In prior research (Alfonsi et al., 2011), the pathways linking greater neuroticism to lower

subjective status were via lower occupational attainment, lower income, and greater illness. In addition, neuroticism had a direct impact on subjective status and the present findings suggest that this influence may be due in part to perceived control. Interestingly, Alfonsi and colleagues (2011) found that the effects of neuroticism on subjective status were not mediated by negative affect, which is ironic given that most prior research on subjective status and various health outcomes has controlled for negative affect (Adler et al., 2000; Operario et al., 2004). The broader question is how personality influences different types of affective experience, how personality influences subjective status, and how affective states may influence subjective status. Extraversion was shown in Alfonsi and colleagues (2011) and in the present research to be linked to subjective status, and as noted above, more extraverted individuals reliably experience more positive affect and well-being. As well, more positive affect has been linked to greater subjective status (Alfonsi et al., 2011). Positive affect may partly mediate the impact of extraversion on subjective status.

The present finding in which higher perceived control predicts higher subjective status seems at odds with the one experimental study reported by Kraus and colleagues (2009) in their research on subjective status and perceived control – their other studies were cross-sectional. In their experimental study, a manipulation of perceived control did not result in a change in subjective status, even as it influenced the dependent measure, which was degree of influence by contextual factors in participants' judgments of facial displays of emotion. However, this null finding may be due to inadequate power. The influence of perceived control on subjective status is small, as documented here and in prior cross-sectional research (Kraus et al., 2009; Lundberg & Kristenson, 2008; Singh-

Manoux et al., 2003), and a test for such an experimental effect requires a very large sample size to have adequate power. As such, definitive conclusions cannot readily be drawn from the experimental study reported by Kraus and colleagues.

The present studies have two principal limitations. First, the studies are correlational. Nevertheless, Study 2 was longitudinal, and such designs are better suited to identify causal relations (Bergman et al., 1994). Second, both studies had samples with somewhat higher SES than the community at large. Personality factors have been shown to have more influence with individuals of higher SES (W. Johnson & Krueger, 2006). As such, a lower SES sample may have shown even smaller effects between neuroticism, extraversion, perceived control, and subjective status.

There was no association between subjective status and perceived control in Study 1, and subjective status did not determine perceived control in Study 2. In previous work, when controlling for personality, subjective status did not predict illness or negative affect (Alfonsi et al., 2011). Taken with the present research, the conclusion seems to be that the impact of lower subjective status may have been overstated in previous cross-sectional research that did not control for personality. Note that nearly all prior research on subjective status has been cross-sectional in nature, which raises further questions about the commonly adopted view that lower subjective status causes various deleterious health outcomes. Furthermore, doubts have been raised about the importance of subjective status independent of its determinants such as SES. For instance, there appears to be little benefit to health for employees with higher titles in their workplace if those titles do not offer greater objective economic rewards (Macleod et al., 2005). Presumably, those individuals with higher titles would in turn see themselves as having

higher social rank, and yet it was actual material resources such as access to a car that most strongly predicted better health. In sum, the present research highlights once again the wide ranging influence of core aspects of personality. In particular, neuroticism and perceived control loom large.

When is having higher status important? As noted above, having higher status in one's proximal social environment is not everyone's priority (Josephs et al., 2006), but it likely remains that if a certain type of status is more important to people, it is likely to be such proximal status, as opposed to one's status in society at large. Research with adolescents' levels of cortisol (which is a major physiological measure of stress) supports the distinction between more global status from status in proximal social environments. With adolescents, SES was largely unrelated to cortisol levels whereas the adolescents' rankings in more immediate social hierarchies (i.e., academics, sports, peer rankings) was related to cortisol levels in different ways for each hierarchy (West et al., 2010). The evidence of the physiological impact of lower subjective status is less clear. Wright and Steptoe (2005) did find a link between lower subjective status and higher cortisol on awakening in the elderly, but did not control for neuroticism – even though higher neuroticism has been linked to greater cortisol levels (Nater et al., 2010). As such, it remains an open question whether subjective status itself is as psychologically salient and important as individuals' status in their immediate social groups. One possibility is that subjective status may matter most when it becomes salient that one's position in society is directly linked to important and desirable outcomes. In everyday circumstances, people may have system-justifying beliefs (Jost & Banaji, 1994), which could lead them to downplay the significance of status differences. It may be that it is when individuals

perceive their lower status as an expression of injustice that subjective status may have it most pronounced effects on the individual. Although some research of this type has been conducted (Franzini & Fernandez-Esquer, 2006), it remains important to take personality into account in this type of research.

Chapter 5

General Discussion

General Discussion

In the present studies, subjective status did not negatively impact individuals' subsequent physical health or adjustment after taking into account personality and previous health. These findings are in sharp contrast with the extensive literature reviewed above. However, none of the previous research reviewed above which found a link between subjective status and health outcomes controlled for personality, and few studies controlled for initial health (for an exception, see Operario et al., 2004). In contrast to subjective status, which appeared relatively inconsequential in the present research, personality appeared to have a wide range of effects. For example, older adults who were higher in neuroticism had lower occupational attainment, lower salaries, greater negative affect, lower perceived control, and lower subjective status. In addition, both extraversion (with both young and older adults) and perceived control (with older adults alone) were positively associated with subjective status, and perceived control with financial satisfaction as well. That neuroticism, and the closely linked perceived control (Judge et al., 2002), as well as extraversion would have such a range of effects is broadly consistent with previous research reviewed above that highlights the influence of these core dimensions of personality.

Note that one very recent study, which was published after the present studies were completed, did consider neuroticism alongside subjective status. In this study (Cundiff, Smith, Uchino, & Berg, 2011), neuroticism was controlled for in a model of subjective status and marital adjustment for husbands and wives. The study examined whether subjective status was linked to how individuals viewed their spouses and how these perceptions might predict depression and marital satisfaction. The findings were

that spouses with higher subjective status perceived their mates as less dominant and warmer, and in turn, were seen by their mates as being more dominant and warmer (though being perceived as warmer was found only for the men). These interpersonal perceptions had consequences on how depressed each member of the couple was. The researchers included neuroticism as a control and reported that the associations between subjective status and interpersonal perceptions remained significant.

However, there were two principal limitations with this study. First, the authors did not compare their model to an alternative account in which interpersonal perceptions of warmth and dominance determine subjective status. As was argued above, individuals may be influenced by their face to face status (presumably related to interpersonal perceptions of dominance) in how they assess their subjective status. Given that this alternative account was not tested, and the cross-sectional nature of the data, questions can be raised as to whether subjective status is a determinant or an outcome of interpersonal perception. The second limitation was that the authors did not report any quantitative data when controlling for neuroticism. As a result, it remains unclear how much variance was accounted for by neuroticism, even if significant relations remained between subjective status and interpersonal behaviors. Nonetheless, the study represents an improvement in subjective status research, in that personality was considered.

The present research suggests that subjective status may not be as influential as previously argued. One principal reason why subjective status may not be as consequential as thought is that individuals differ in how much they value status. For example, it has been argued that there are 10 major value domains that are relatively consistent across cultures (Schwartz, 1992, 1994). Only one of these value domains is

directly related to the pursuit of status and prestige, and is labeled the power domain. Given that there are individual differences in what people value, the implication is that for some people, status concerns may simply be less important. Research on values within work settings supports this conclusion. For some individuals, the primary motive to work is the pursuit of prestige and extrinsic rewards (i.e., higher income), but for others, the opportunity to socialize, or to be competent or creative may be their primary motive to work (Ros, Schwartz, & Surkiss, 1999). In addition, it appears that higher status may be particularly consequential only for individuals who value status. In a study of older adults, it was only those individuals who valued self-enhancement (a construct that encompasses valuing prestige, power, success and admiration) who showed a positive relation between financial status and positive affect (Burr, Santo, & Pushkar, 2011). Individuals who did not particularly value prestige and power did not show a relation between mood and financial status.

In addition, there may be negative consequences to the pursuit of status, especially as it may interfere with the fulfillment of core psychological needs. Self-determination theory (Ryan & Deci, 2000) posits three basic human needs which are required for human flourishing: competence, relatedness, and autonomy. Together, these three needs are satisfied through the formation of what are labeled intrinsic life goals. These are differentiated from extrinsic life goals (i.e., money, prestige, and other status concerns), the pursuit of which may actually be linked to worse adjustment (Kasser & Ryan, 1996). Research conducted with college students show that those individuals who placed more importance on extrinsic attainments did in fact achieve greater success in these domains after graduation but actually fared worse psychologically, whereas those

who placed greater emphasis on intrinsic goals went on to have higher well-being (Niemiec, Ryan, & Deci, 2009). The findings linking higher intrinsic satisfaction with well-being appear to be robust, and hold cross-culturally (Lekes, Gingras, Philippe, Koestner, & Fang, 2010). As such, not only do individuals differ in how much they pursue status, but it may be those individuals who pursue status the most who are at risk for poor adjustment.

There may be circumstances in which subjective status could have important consequences. Perhaps perceptions of one's own social rank will be more consequential under circumstances in which class differences are salient. For example, students of lower SES background at an elite American university may struggle with maintaining desired self-presentation (S. E. Johnson, Richeson, & Finkel, 2011). Environments such as that of a prestigious university may keep one's subjective status present in mind for lower SES individuals, and it can be hypothesized that it is when individuals with lower subjective status are constantly reminded of their lower rank, that they are at most risk for poorer health. Note that status-salient environments may have their effects because subjective status becomes linked to valued social outcomes within these environments. Consider what socializing might be like for students attending a prestigious university. In interpersonal exchanges, one may be judged based on one's accent, one's family background, one's taste and style, and so on. The ultimate consequences of failing to live up to class-linked social norms may be interpersonal exclusion and loss of respect. As a result, subjective status still is not particularly consequential in its own right, but only when it becomes linked to face to face status.

Another possibility is that subjective status will be more consequential in countries which possess greater income inequality. One reason this might be the case is that perhaps individuals who live in countries with greater class differences may appraise their relative SES ranking more in terms of fairness. Individuals with lower subjective status in countries with large class differences may perceive their situation as unfair. This perceived unfairness may lead to chronic stress and in turn, poorer health (Jackson, Kubzansky, & Wright, 2006). The current research was conducted in Canada, which has generally lower income inequality when compared to the United States (United Nations Development Programme, 2009), and it was in the United States in which much of the research reviewed above on subjective status was conducted. Perhaps in a Canadian sample, individuals are relatively less likely to perceive their social ranking in terms of fairness and as such, subjective status has less influence on health outcomes. In contrast, societies with very large class differences might experience even greater health effects related to subjective status than has been observed with American samples.

Note that a variety of other variables besides personality and health may play a role in shaping subjective status. For example, it may be the case that social support is important, with those individuals who have larger social networks seeing themselves as having higher social rank. Another important variable may be neighborhood SES. Individuals may assess their rank by contrasting their own SES against the SES of their neighbours. Indeed, Adler and colleagues (2000) argue along these lines. Future research could consider contrasting the role of neighbourhood SES as well as social support, with that of personality and previous health in shaping how individuals assess their status.

In the present studies, personality traits such as neuroticism and extraversion were highly influential. In particular, individuals who are higher in neuroticism and lower in extraversion seem to fare badly. Yet the broader picture for these personality differences is more nuanced. Research on personality disorders indicates that high neuroticism and low extraversion are not always risk factors. Consider the results of a meta-analysis on the relation between core aspects of personality and psychopathology (Samuel & Widiger, 2008). Individuals with histrionic personality disorder, which includes excessive emotionality and chronic attention seeking (American Psychiatric Association [*DSM-IV-TR*], 2000), tend to have higher extraversion. As well, lower neuroticism offers little protection for either anti-social or obsessive compulsive personality disorders. Nevertheless, the big picture does remain that there is a great deal of evidence for the negative consequences of neuroticism (Roberts et al., 2007), and for the positive consequences of extraversion.

Why then do human beings demonstrate such a range of individual differences on neuroticism and extraversion? One approach to answering this question is to consider human personality differences from the perspective of evolutionary psychology. The affective and behavioral tendencies present in neuroticism and extraversion can be seen as adaptations which lead the individual to maximize reproductive success. For example, extraversion has been conceptualized as an adaption designed to orient individuals to potential social rewards (Campbell, Simpson, Stewart, & Manning, 2003), and neuroticism's principal adaptive function may be to provide hypervigilance to threats, particularly of social exclusion (Denissen & Penke, 2008). However, if neuroticism and extraversion are adaptive, then it has been argued that the genes underlying these traits

should be highly homogenous across individuals (Hiraishi, Yamagata, Shikishima, & Ando, 2008). Given this argument, it appears paradoxical that there is substantial variability in our species for both these traits (Hiraishi et al., 2008). A variety of responses have been provided to address this apparent paradox. First, natural selection may tolerate a substantial degree of variation for a particular psychological trait, as long as the individual possesses the trait at some level (Kanazawa, 2010). For example, possessing some degree of the psychological mechanisms underlying extraversion and neuroticism may be adaptive, even if these mechanisms may differ in their sensitivity across individuals. Second, perhaps the optimal level for a characteristic is dependent on the immediate physical and social environment of the individual (Nettle, 2006). For example, it may be the case that for individuals born into particularly dangerous environments, there may be a benefit to the increased vigilance and caution of higher neuroticism. Given that the optimal fitness level for either extraversion or neuroticism may change given environmental factors, then it would be expected that significant diversity of profiles would be preserved for these personality traits.

The evolutionary account for individual differences in personality nevertheless leaves unresolved the fate of individuals who have a genetic make up predisposing them to high neuroticism and low extraversion. There is nevertheless the possibility of change in personality for an individual. A variety of treatments that have been developed to address psychopathology could also lead to change in core personality. For example, cognitive-behavioral therapy may have an impact on extraversion and neuroticism. In a study of individuals with social anxiety, a brief course of cognitive-behavioral therapy resulted in significant decreases in neuroticism and increases in extraversion (Glinski &

Page, 2010). In addition, newer psychotherapeutic approaches such as mindfulness-based approaches may also influence personality. A recent study suggests that behavioral manifestations of neuroticism such as impulsivity and poor self-control are mediated by lower mindfulness (Fetterman, Robinson, Ode, & Gordon, 2010). Perhaps interventions designed to boost mindfulness would in turn decrease the negative behaviors associated with high neuroticism. As with psychotherapeutic approaches, psychopharmacological treatments may also influence personality. For example, depressed patients given selective serotonin reuptake inhibitors (SSRIs) showed increased extraversion and decreased neuroticism when compared to a placebo control group (Tang et al., 2009). In fact, the anti-depressant effects of SSRIs may be explained by the reduced neuroticism of the treated individuals (Quilty, Meusel, & Bagby, 2008). In sum, there a variety of treatment options for individuals with very high neuroticism and very low extraversion, which may be warranted if extreme levels on these traits result in significant impairment.

The importance of personality for adjustment and well-being may be a function of social, cultural, and historical factors. For example, the influence of personality on well-being will appear larger if one considers the wealthier strata of those living in wealthier countries (W. Johnson & Krueger, 2006). This greater influence of personality may reflect the curvilinear relation between socioeconomic conditions and well-being which has been identified in cross-cultural and historical analyses (Inglehart, Foa, Peterson, & Welzel, 2008). Beyond a threshold of wealth, further economic gains appear to offer little gain in terms of well-being, and as such whatever variance in well-being that remains will be determined by genetic factors underlying personality (Weiss et al., 2008).

However, below that threshold, such as for those individuals living in poverty, material deprivation may negatively determine well-being.

As Macleod and colleagues have argued (2005), social status research is inevitably political as it touches upon key issues in public policy. As such, a variety of public policies may find support in some of the research discussed above. First, there are good grounds to attempt to improve the material conditions of individuals of lower SES. There are a variety of negative consequences for individuals living with limited income (see American Psychological Association, 2006). Second, public policy should be directly concerned with those individuals with a mental illness that may reflect extremely high neuroticism or extremely low extraversion. One solution is to provide readily available and affordable mental health services. Such services have the capacity to modulate personality to some extent. Third, given the importance of intrinsic needs (i.e., relatedness, competence, and autonomy) to well-being, public policy should aim towards maximizing a wider range of human goods than the typical economic indicators currently used to assess policy (see Diener & Seligman, 2004 for a more complete discussion of these arguments). In sum, public policy is best off recognizing that a flourishing life requires material security and not necessarily material wealth, and that above and beyond a certain level, well-being is a consequence of what kind of personality one has and the quality of one's goals and activities.

Given the relatively influential role that personality played in the present studies compared to the weaker role of subjective status, one can question the predictive utility of subjective status. In fact, if one includes previous health and SES alongside personality as control variables, subjective status appears to have little predictive power for future

physical health and adjustment. Note that there may be several possible conditions discussed above in which subjective status might offer some unique predictive power, such as in status-salient environments or in countries with high income inequality. However, the enhanced effects of subjective status under these conditions have yet to be empirically demonstrated. It can be argued that the importance of subjective status remains undetermined. Indeed, as it stands now, subjective status can be argued to be an epiphenomenal manifestation of the individual's SES, personality, and health. As an epiphenomenon, subjective status does not influence other constructs in its own right and the inclusion of subjective status in theories of adjustment may not be parsimonious. In sum, the view that subjective status is important needs further support to surmount these challenges.

In the present thesis, SES was operationalized in terms of education, occupational prestige, and salary just prior to retirement for a sample of recent retirees, and in terms of parental education for a sample of young adults. As mentioned in the general introduction, there is some controversy as to how to best operationalize SES. For the recent retirees, education, occupation, and income just prior to retirement were chosen as indicators of SES on account of these indicators likely having lasting effects on individuals' SES as they progress through retirement, and on their principal role in defining SES more generally (Rogers & Onge, 2007). For young adults, parental education is likely to be an important component of a young adult's SES, and was used in prior research on subjective status and perceived control (Kraus et al., 2009). Note that a variety of alternative measures of SES are available (see Oakes & Rossi, 2003). However, it is unclear whether alternative measures of SES would have led to

significantly different results. In the present thesis, there remained little association between subjective status and a host of outcome variables after accounting for personality, health, and the current operationalizations of SES.

The present studies have three principal limitations. First, the studies in Chapter 2 and 3 as well as Study 2 of Chapter 4 were based on the same sample of recent retirees. Each study examined a different set of variables from within the longitudinal project, but the participants were the same. As such, this places a limit on the generalizability of the results. Study 3 did examine a very different sample, one composed of undergraduates, to provide greater external validity. However, more studies are needed with a diversity of samples. A second limitation is that much of the present research examines directionality between constructs but does not use an experimental design. The use of longitudinal data in three studies and comparisons with alternative models do provide some support for the directional accounts argued above. However, these methods do not definitively establish directionality. The main difficulty in using an experimental approach is that the constructs under question (i.e., personality and previous health) are not easily amenable to experimental intervention. Longitudinal methods may therefore be the best available option. Finally, a third limitation is that the longitudinal measures used in the present thesis were taken over a few years, and it can be argued that if the studies had followed the participants for longer periods of time, then perhaps subjective status would have been more consequential. Replication of the present findings with longitudinal studies over 5 or 10 year periods would strengthen the conclusions being drawn in the present thesis.

In the present studies, subjective status was influenced by personality and previous health, and subjective status did not predict subsequent negative affect, poor health, perceived control, or financial satisfaction after accounting for these background factors. Several lines of future research have been suggested above in which subjective status may still be influential in the right context. Other topics remain to be addressed by future research. For instance, it has been shown that neuroticism and extraversion are predictive of face to face status. If so, then one could predict that neuroticism and extraversion may predict a variety of status-related behaviors such as assertive and submissive behavior. In the present research, neuroticism had a relatively complex relation with subjective status, occurring through multiple pathways, and neuroticism may also be linked in complex ways to assertiveness and submissiveness. Neuroticism may extend its influence over how individuals relate face to face through one's SES, illness, mood, and other possible routes. As with subjective status, face to face status may prove to be powerfully under the grip of personality.

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Appendix A

Consent Form for Retirement Study

This is to state that I, _____, agree to participate in the study on retirement being conducted by Drs. Pushkar, Conway, Li, and Wrosch from the Centre for Research in Human Development and the Department of Psychology at Concordia University.

I have been informed that:

1. My participation in this study entails my completing a battery of questionnaires, including questionnaires about the activities I do, my physical health, as well as about various life domains including my well-being, memory, cognition, and my attitudes.
2. All information about me or any other person will remain completely confidential. Results from this study will be accessible only to the researchers involved in this study. They will be able to use the information for scientific purposes, such as for publications in scientific journals or presentations at scientific conferences, as long as I cannot be identified as a participant in this study.
3. I am free to withdraw my consent and discontinue my participation at anytime without negative consequences.
4. This interview should last approximately four hours. I will receive a monetary compensation of $50 for the four hours.
5. Because this study is a longitudinal study, I may be contacted again for an annual interview in 2006, 2007, and 2008. Each annual interview will last approximately four hours. I will receive $50 for each annual interview in which I will take part.
6. I will receive a copy of the general results as they become available if I have indicated my name and address on the previous page.
7. I understand the purpose of this study; I know that there is no deception involved.
8. The person in charge of this study is Dr. Dolores Pushkar. She can be reached at (514) 848-2424, extension 7540, email: retraite@alcor.concordia.ca

I HAVE CAREFULLY STUDIED THE ABOVE AND UNDERSTAND THIS AGREEEMENT. I FREELY CONSENT AND VOLUNTARILY AGREE TO PARTICIPATE.

Name (please print):_____
Signature:_____
Date: _____
Witness:_____

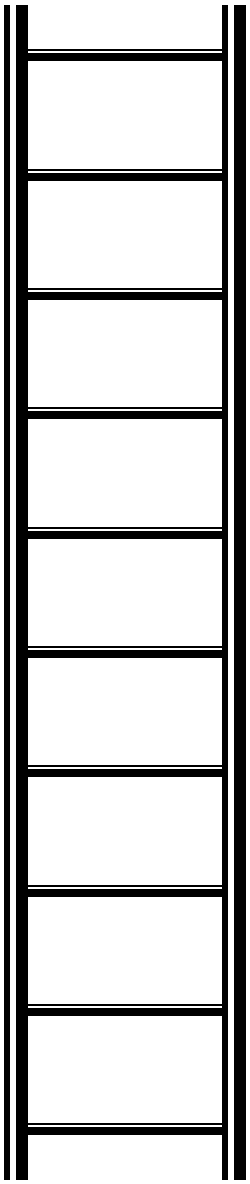
If at any time you have questions about your rights as a research participant, please contact Adela Reid, Research Ethics and Compliance Officer, Concordia University, at (514) 848-2424, extension 7481 or by email at areid@alcor.concordia.ca

Appendix B

Subjective Status Scale (Modified for Recent Retirees)

Think of this ladder as representing where people stand in our society. At the top of the ladder are the people who are the best off: those who have the most money, who are the most educated, and who have/had the best jobs. At the bottom of the ladder are the people who are the worst off: those who have the least money, who are the least educated, and who have/had the worst jobs. Note that for this question, we are referring to the job from which you retired. Please place an X on the step that best represents where you think you now stand on the ladder.

THE TOP OF THE LADDER



THE BOTTOM OF THE LADDER

Appendix C

Illness Checklist

The following questions deal with specific illnesses or conditions that people may have.

Please check those symptoms or illnesses you have experienced in the **last year**.

- □ 1. Headache
- □ 2. Dizziness
- □ 3. Varicose veins
- □ 4. Hemorrhoids
- □ 5. Low blood pressure
- □ 6. Drug allergy
- □ 7. Bronchitis
- □ 8. Hyperventilation
- □ 9. Bursitis
- □ 10. Lumbago
- □ 11. Migraine
- □ 12. Hernia
- □ 13. Irregular heart beats
- □ 14. Overweight/Obesity
- □ 15. Anemia
- □ 16. Anxiety reaction
- □ 17. Gout
- □ 18. Pneumonia
- □ 19. Depression
- □ 20. Kidney/Urinary infection
- □ 21. Sexual intercourse difficulties
- □ 22. Thyroid problems
- □ 23. Asthma
- □ 24. Glaucoma
- □ 25. Gallstones
- □ 26. Arthritis/Osteoarthritis
- □ 27. Slipped disk
- □ 28. Hepatitis
- □ 29. Kidney stones
- □ 30. Peptic ulcer
- □ 31. Pancreatitis
- □ 32. High blood pressure
- □ 33. Deafness
- □ 34. Collapsed lung
- □ 35. Epilepsy
- □ 36. Chest pain
- □ 37. Nervous breakdown
- □ 38. Diabetes
- □ 39. Blood clots
- □ 40. Hardening arteries
- □ 41. Emphysema
- □ 42. Tuberculosis
- □ 43. Alcoholism
- □ 44. Drug addiction
- □ 45. Cirrhosis of the liver
- □ 46. Parkinson's
- □ 47. Blindness
- □ 48. Stroke
- □ 49. Muscular dystrophy
- □ 50. Cerebral palsy
- □ 51. Heart failure
- □ 52. Heart attack
- □ 53. Brain infection
- □ 54. Multiple sclerosis
- □ 55. Bleeding brain
- □ 56. Uremia
- □ 57. Cancer
- □ 58. Leukemia
- □ 59. Cataracts
- □ 60. Difficulty with vision
- □ 61. Rheumatism
- □ 62. Uterine/Breast fibroids
- □ 63. Breast inflammation
- □ 64. Pelvic inflammation
- □ 65. Vaginal Infection
- □ 66. Cyst
- □ 67. Other
- □ 68. Color Blindness
- □ 69. Tendonitis
- □ 70. Cardiomyopathy
- □ 71. Prostate problems
- □ 72. Shingles
- □ 73. Degeneration of the eye
- □ 74. Chicken Pox
- □ 75. Cholesterol Problems
- □ 76. Internal Bleeding
- □ 77. Allergies/hives
- □ 78. Osteoporosis
- □ 79. Gastric Reflux/ Gastroenteritis
- □ 80. Psoriasis/Eczema
- □ 81. Sleep Apnea
- □ 82. Carpal Tunnel Syndrome
- □ 83. Muscle/Ligament/Tendon tear
- □ 84. Angina
- □ 85. Lung problems
- □ 86. Balance problems
- □ 87. Dental problems
- □ 88. Incontinence
- □ 89. Colon problems
- □ 90. Skin infections
- □ 91. Neurological problems
- □ 92. Sciatica
- □ 93. Sinusitis/Sinus infection
- □ 94. Manic depression
- □ 95. Vitiligo
- □ 96. Hearing problems
- □ 97. Persistent backache
- □ 98. Insomnia
- □ 99. Addison's disease
- □ 100. Fibromyalgia
- □ 101. Raynaud's Disease
- □ 102. Blood disorder
- □ 103. Hypoglycemia
- □ 104. Spinal Disc Degeneration
- □ 105. Rosacea
- □ 106. Burnout

→ Please list any OTHER symptoms or illnesses that you have experienced in the last year:

Appendix D

Demographics Questionnaire for Recent Retirees

1. What is your sex? Male_____ Female_____
2. What is the date of your birth?

   Year_____ Month _____ Date____
3. What is your age? _____
4. What is the highest level of education you have completed?

   (Please circle that which corresponds best)

   Primary School: 1 2 3 4 5 6

   Secondary School: 7 8 9 10 11 12

   CEGEP/College: Diploma

   University: Bachelor's Master's Doctorate

   Other (please indicate what, how many years) _____
5. What is your occupation?

   _____
6. When did you retire?

   Year_____ Month _____ Date_____
7. How many years were you employed? _____
8. Do you receive a pension from your employer?

   Yes_____ No_____
9. At the time of your retirement, what was your annual salary?

   _____
10. What is your present annual income (include all sources, e.g. RRSP's, etc.)

    _____
11. What is your total family income from all sources?

    _____

12. Compared to other people of your age that you know, how would you rate your financial situation?

    (Please circle the corresponding number)

    1) A lot worse than most
    2) Worse than most
    3) A little worse than most
    4) About the same as most
    5) A little better than most
    6) Better than most
    7) A lot better than most

13. What languages do you speak?

    French_____

    English_____

    Other (please specify): _____

14. What language do you read and write?

    French_____

    English_____

    Other (please specify): _____

15. What is your civil status?

    Married _____

    Single _____

    Divorced _____

    Widowed _____

    Common-law _____

16. How many times have you been married? _____

17. Do you have children? Yes_____ No_____

18. If yes, how many girls? _____

    How many boys? _____

19. Who do you live with?

    Alone _____

    Spouse _____

    Brother/Sister _____

    Friend _____

    Children _____

    Other (please specify) _____

20. How did you find out about this study?

    _____

Appendix E

Consent to Access Information Form

This is to state that I, _____, agree to allow the researchers from the Centre for Research in Human Development and the Department of Psychology at Concordia University to obtain the following data, where applicable, from the Régie de l'Assurance Maladie de Québec and the Ministère de la Santé et des Services Sociaux.

For the period of January 01 2000 to December 31 2009 inclusively:

Régie de l'Assurance Maladie de Québec
(Medical and pharmaceutical information)

1. identification number
2. sex
3. age at the time of the act
4. act code
5. act date
6. institution code
7. speciality code
8. diagnosis
9. plan code (prescription drug insurance)
10. plan eligibility period
11. medication type (code DIN, code de dénomination commune, code de classe)

Ministère de la Santé et des Services Sociaux
(Information about hospital stays)

1. identification number
2. admission and release dates
3. admission diagnosis
4. primary diagnosis
5. secondary diagnosis
6. treatment code
7. type of destination
8. type of death

I have been informed that all information about me or any other person will remain confidential. Results from this study will be accessible only to the researchers involved in this study. They will be able to use the information for scientific purposes, such as for publications in scientific journals, or presentations at scientific conferences, as long as I cannot be identified as a participant.

I HAVE CAREFULLY STUDIED THE ABOVE AND UNDERSTAND THIS AGREEEMENT. I FREELY CONSENT AND VOLUNTARILY AGREE TO PARTICIPATE.

Name (please print):_____

Medicare Number: _____

Signature:_____

Date: _____

Witness:_____

Appendix F

Consent Form for Study 1 of Chapter 4

Dr. Michael Conway and his research associates from the Psychology Department at Concordia University are conducting a project involving a series of questionnaires. The information is to be used to develop research measures and to identify individuals who might be eligible to participate in paid, future research studies. In exchange for completing the packet of questionnaires, you will become eligible for a drawing that will award one $150 prize, one $100 prize and two $50 prizes. Furthermore, you will receive one gift card worth 2.50$ redeemable at participating Tim Hortons.

The main requirement is that you complete all the questionnaires in the packet.

Please note that this project involves the following:

(1) Eligibility for the drawing and gift card is established when the fully completed packet is returned to the project personnel.

(2) All questionnaires must be completed at this table. For most people, this will require approximately 15 minutes.

(3) All information from this project is confidential. Your identity is protected by a numerical coding system.

(4) You are free to examine the packet of questionnaires before signing this form. You are also free to withdraw from the study at any time. However, eligibility for prizes and gift cards is based on full completion of all questionnaires.

(5) Project staff members will be able to answer questions you may have about completing the questionnaires. However, no specific explanation for the purpose of a particular questionnaire will be provided.

(6) Any questions or concerns about the project can be directed to Dr. Michael Conway (514-848-2424 ext. 7541; Michael.Conway@concordia.ca) at the Psychology Department. In addition, he may contact you about your responses or about participation in a future study if you provide information which will allow telephone contact.

(7) It is important that you respond honestly to all questionnaire items.

"I have read the above and agree to participate in the Fall 2010 Assessment Project conducted by Dr. Michael Conway."

_____ _____

Participant's Signature Date

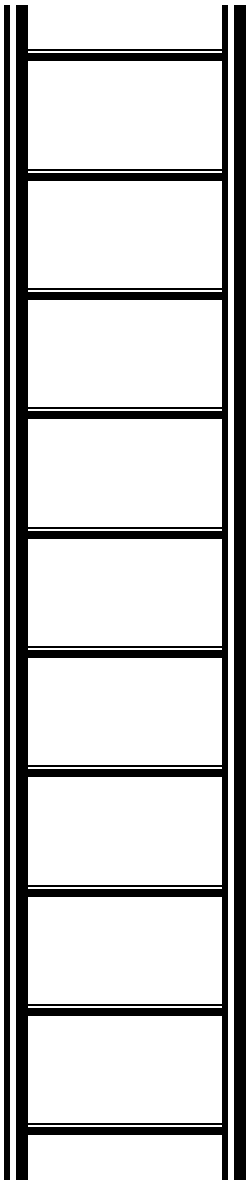
Any questions about ethics and this research? Contact Dr. Brigitte Des Rosiers, Acting Research Ethics & Compliance Advisor, at 514-848-2424 ex. 2425, bdesrosi@alcor.concordia.ca

Appendix G

Subjective Status Scale for Study 1 of Chapter 4

Think of this 10-step ladder as representing where people stand in Canadian society. At the top of the ladder are the people who are the best off: those who have the most money, who are the most educated, and who have the most respected jobs. At the bottom of the ladder are the people who are the worst off: those who have the least money, who are the least educated, and who have the least respected jobs. Please place an X on the step that best represents where you think you stand on the ladder **currently**.

THE TOP OF THE LADDER



THE BOTTOM OF THE LADDER

Appendix H

Contextual Explanations Scale

Below is a series of positive and negative events. Please consider whether the people affected by each of these events are responsible for the events, or whether the events are caused by external forces outside of the individual's control. For each event, please indicate where you think the responsibility generally lies.

1	2	3	4	5	6	7
Individual is 100% responsible	Individual is 85% responsible	Individual is 70% responsible	Individual and outside forces are both 50% responsible	Outside forces are 70% responsible	Outside forces are 85% responsible	Outside forces are 100% responsible

A. Getting into a good university professional program (e.g., MBA)

1 2 3 4 5 6 7

B. Having low income

1 2 3 4 5 6 7

C. Getting good medical care

1 2 3 4 5 6 7

D. Contracting a sexually transmitted disease

1 2 3 4 5 6 7

E. Getting a full-time job at a prestigious company

1 2 3 4 5 6 7

F. Failing a class at school

1 2 3 4 5 6 7

G. Being overweight

1 2 3 4 5 6 7

H. Having to put in extra hours at work

1 2 3 4 5 6 7

Appendix I

Demographics Questionnaire for Young Adults

1. Your age:_____

2. Gender: __Male __Female

3. To which ethnic or cultural group do you belong, according to these Census Canada categories? (Check one)

__Arab __Black __Chinese

__South Asian (e.g., East Indian, Pakistani, Sri Lankan)

__White __Filipino __Korean

__Southeast Asian (e.g., Cambodian, Indonesian, Laotian, Vietnamese)

__Japanese __Latin American __West Asian (e.g., Afghan, Iranian)

__Other (please specify):_____

4. How many years have you resided in Canada?

___ years or ___my whole life

5. What languages do you speak most often:

At home? _____

Outside the home? _____

6. What language did you speak most often in elementary school? _____

7. Program of study (e.g., Sociology, Engineering, Film Studies): _____

8. Year of university study (e.g., 1st, 2nd, 3rd…):_____

9. What is your father's level of education? Check one.

__Primary __Secondary __Technical degree/CEGEP

__University (specify): __undergraduate or __graduate (e.g., MA)

10. What is your mother's level of education? Check one.

__Primary __Secondary __Technical degree/CEGEP

__University (specify): __undergraduate or __graduate (e.g., MA)

11. How many siblings do you have? _____

12. Relative to your siblings, when were you born? Check one.

____ Only child ____ First-born ____ Second-born ____ Third-born or later