

FP7 - Design Study

Deliverable 13: Report on evaluation of existing and feasibility for development of new psychological instruments in the GGS

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Deliverable 13

Report on evaluation of existing and feasibility for development of new psychological instruments in the GGS

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PSYCHOLOGICAL VARIABLES AND DEMOGRAPHIC BEHAVIOUR - A LITERATURE REVIEW

1.1 Introduction

Among the important demographic developments that have far-reaching consequences for contemporary societies are below replacement fertility, considerable childlessness, increasing age at family formation, increasing prevalence of non-marital partnerships and decreasing stability of family units. This has created concern among policymakers and social scientists. Notably, after several decades of low fertility most developed countries are entering a new demographic regime characterised by accelerating ageing of the population, which may entail great social and economic challenges for societies in the years to come.

The background for this WP is to expand explanatory factors for demographic behaviour by adding psychological variables. In search for explanatory factors of demographic behaviour much attention have traditionally been given to economic (e.g., market wages) and social demographic factors (e.g., cultural background, education and occupational status). These factors have been shown to influence choices people make regarding formation and dissolution of marital relationships and childbearing behaviour, but they leave a great deal of individual variation unexplained. Recently, however, several prospective studies have incorporated psychological variables into the analysis of demographic life-course outcomes and demonstrated that certain



intra-individual characteristics can explain a great deal of individual variation in these outcomes. Lunberg (2009), for instance, has shown that personality traits predict an individual's general propensity to marry and divorce, while Tavares (2010) and Jokela et al. (2009) have shown that personality traits affect individual's fertility behaviour. Harker and Keltner (2001) and Lucas et al. (2003) have demonstrated that psychological constructs such as *subjective well-being*, particularly people's moods, emotions and global life satisfaction, can affect their overall capacity to become involved and succeed in marital relationships. Holman et al. (2001) identified yet another psychological construct affecting men's marital success, namely *premarital self-esteem*.

Furthermore, recent studies have put demographic decision-making processes as the main focus of explanation and applied social psychological theories, most notably the 'Theory of Planned Behaviour' (Ajzen, 1988, 1991), to understand these processes. This theory has, for example, been used in efforts to understand decisions regarding leaving the parental home (Billari and Liefbroer, 2007), union formation (cohabitation/marriage) (Liefbroer and Gierveld, 1993) and child-timing (Miller and Pasta, 1994). This research has shown that subjective dimensions such as *attitudes*, *subjective norms* and *perceived behavioural control* matter as explanatory factors of individual demographic behaviour. Intra-individual characteristics, such as *general optimism/self-efficacy* and *subjective well-being* have also been incorporated in the analysis of demographical decision-making and have been shown to contribute to predictions of childbearing decisions during periods of economic uncertainty and social change (von der Lippe and Andersson, 2005; Perelli-Harris, 2006).

Research has begun to pay more attention to psychological factors in the study of demographic behaviour. Furthermore, some of the recent demographic models attempt to bring out the interplay of micro (individuals' life course organisation, psychological traits and conscious conceptions of problems and chances) and macro (social institutions, rules, norms and structure) level factors in the analysis of demographic behaviour (de Bruijn, 1999; von der Lippe et al., 2002). The GGP follows this approach and includes topics covering both micro and macro factors influencing demographic life course choices. However, the GGP comprises few measures of psychological characteristics. The main objective of the present report is therefore to broaden the use of such measures, specifically within the GGP. By reviewing previous empirical research we have identified individual characteristics which can function as explanatory factors of choices related to union for-





mation and dissolution and childbearing. In this report we will focus on the psychological constructs with the strongest explanatory power, namely personality traits, subjective well-being, self-esteem and sense of personal control. Some of these psychological constructs can also contribute to a better understanding of several other behaviours and life outcomes that the GGS seeks to explain (e.g., provision of support to elderly parents, health and health-related behaviour, retirement behaviour). Finally, all these psychological variables are applicable also in the study of the individual level *consequences* of demographic and social transitions.

In the following we first give a theoretical definition of each relevant psychological construct, argue for it's inclusion into the GGS and provide a review of the studies (those published in English and Russian) that demonstrate how each construct can contribute to explaining some of the demographic processes of particular interest to the GGP. We will also introduce the scales most often used to measure these psychological constructs and review literature on the scales' psychometric properties.

1.2 Personality traits

1.2.1 Theoretical definition and relevance to the GGP

Personality reflects individual differences in emotion, cognition and behaviour. Personality has been conceptualised from different theoretical perspectives and at various levels of abstraction and breadth (John et al., 1991b; McAdams, 1992). One frequently studied level is personality traits. Many different classifications of personality traits have been developed, but in recent years the 'Big Five' model has become the one gathering most consensus as a general taxonomy for the personality structure. According to this model, the five main personality dimensions are: Extroversion (vs. Introversion), Agreeableness (vs. Antagonism), Conscientiousness (vs. Lack of direction), Neuroticism (vs. Emotional stability) and Openness (vs. Closeness to experience). These five personality dimensions do not represent a particular theoretical perspective, but were derived from a number of existing personality theories and scales and analyses of natural language terms people use to describe themselves and others (McCrae and John, 1992). Lexical studies have found the five factors to cover personality reasonably well across different cultures (Saucier et al., 2000).





Each personality trait incorporates a large number of distinct, more specific characteristics (John and Srivastava, 1999). *Extroversion* is mainly characterized by sociability. Extroverts tend to be sociable, talkative and assertive as opposed to reserved and quiet. *Agreeableness* relates to the willingness to help others, to be caring, gentle, co-operative, kind and affectionate; it contrasts a pro-social orientation towards others with antagonism. Someone who scores high on *Conscientiousness* tends to follow the rules, to be reliable, well-organized, self-disciplined; the low scorers tend to be undependable, disorganized, lazy and negligent. *Neuroticism* summarizes traits related to emotional stability. High scorers in Neuroticism tend to be anxious, depressed and insecure. *Openness to experience*, also called autonomy, relates to unconventionality and intellect. Someone who scores high on Openness tends to question the conventions, to be imaginative, creative, curious about the world and complex and broad-minded.

The purpose of the five-factor model is not to give a detailed description of an individual's personality, but to provide a taxonomy that can be used to describe major personality differences within the population. The Big Five structure does not imply, however, that personality differences can be reduced to only five traits. Rather, these five dimensions represent personality at the broadest level of abstraction, and, as described, each dimension summarizes a large number of distinct, more specific personality characteristics (John and Srivastava, 1999).

According to the Five Factor Theory, the five factors of personality capture basic tendencies regarded as biologically based dispositions and capabilities. In fact, it has been shown that the genetic contribution to individual differences in personality is quite substantial (Jang et al., 1998; Plomin and Caspi, 1999; Loehlin, 2005). Therefore, personality is rather stable throughout adulthood. That is not to say that that personality stops changing in adulthood, but that the changes that occur are rather small in magnitude (Caspi and Roberts, 2001; Srivastava et al., 2003). These changes are possible because whereas the personality trait genotype is "fixed", there is some room for the phenotype to change in response to the environment. This is one of the main mechanisms thought to produce change in personality (Alea et al., 2004). Furthermore, because individuals tend to respond to the environment in a way that is consistent with their existing personality, person-environment transactions also can be a powerful mechanism promoting continuity (Caspi and Roberts, 2001).

Empirical evidence shows that personality traits can predict the quality of





interactions with partners in long-term relationships. First, personality traits have been shown to affect peoples' behavioural reactions and exposure to relationship events. For example, people high in Neuroticism are more likely to be exposed to daily conflicts in their relationships (Bolger and Zuckerman, 1995; Suls and Martin, 2005). Second, personality traits have been shown to shape people's reactions to the behaviour of their partners. For example, individuals that are low on Agreeableness may escalate negative affect during conflict (Gottman et al., 1998), while agreeable people may be better able to regulate emotions during interpersonal conflict (Jensen-Campbell and Graziano, 2001). Third, personality traits have been shown to evoke behaviour from partners that contribute to relationship quality. For example, people high in Neuroticism and low in Agreeableness are more likely to express behaviours which are harmful for relationships, such as criticism, contempt and defensiveness (Gottman, 1994). Taking into consideration these associations between personality and an individual's relationship quality, it is not surprising that personality traits have been shown to be a powerful predictor of an individual's marital stability (Lunberg, 2009; Kinnunen et al., 2002; McCranie and Kahan, 1986; Lowell and J., 1987).

Personality traits have also been shown to predict an overall desire for children, probability of childbearing and women's fertility timing (Miller, 1992; Tavares, 2010; Jokela et al., 2009). In fact, personality traits may have gained especially strong explanatory power in relation to childbearing decisions in post-industrial societies, where individual choices have largely replaced external influences as determinants of family behaviour. Kohler et al. (1999), for instance, in their study of intergenerational transmission of fertility, found that there were no heritable individual variations in the number of childbearing began to increase in the second half of the century. The authors interpret their finding as suggesting that a decline in social control over time gave room for genetically mediated difference (e.g., in personality) to express themselves (see also Murphy and Wang, 2001).

Thus, including a measure of personality traits in the GGS is important as studying of personality traits can lead to better understanding of two target processes the GGS aims to explain. Furthermore, personality traits have also been shown to predict a number of other behaviours and life outcomes that the GGS seeks to explain, e.g., provision of support for elderly parents, retirement behaviour and health and health-related behaviour. Finally, people may adapt and react differently to social transitions according to personality characteristics. Thus, including a measure of personality traits in the GGS





allows for analyses that can lead to a better understanding of several social processes of key interest to the GGS.

Personality and marital transitions

A number of longitudinal studies have shown that personality traits predict the propensity of men and women to marry or divorce. For instance, Lunberg (2009), using data from the German Socio-Economical Panel Survey, found that for both men and women Consciousness measured in young adulthood increases the probability of being married at age 35. These results indicate that a willingness to commit to a conventional long term arrangement is an important predictor of marriage for both sexes. On the other hand, Openness to experience, which reflects a desire for variety and change as well as imagination and creativity, was found to be strongly related to both long term single-hood and divorce for men and women. McCranie and Kahan (1986), in a sample of 431 male physicians, also found that impulsive, risk-taking and stimulus-seeking men were more likely to have multiple divorces. (Lowell and J., 1987) followed a panel of couples from 1930 to 1980 and showed that marital instability is related to *Neuroticism* and to the husband's poor impulse-control. Kinnunen et al. (2002) found, in a small longitudinal sample, that marital instability at age 36 is predicted by personal characteristics measured at age 27, including low Agreeableness in women and low Extroversion and Conscientiousness in men.

Personality and childbearing

To our knowledge, there are currently three studies which addressed the issue of how personality traits can predict childbearing (Miller, 1992; Tavares, 2010; Jokela et al., 2009).

Miller (1992) argues that a number of different biologically based human traits influence people's motivation-or disposition-to have or to avoid having children. Some traits may facilitate or pre-dispose individuals for care-taking and the formation of close personal relationships, which may contribute to the development of a strong childbearing motivation. Other traits, however, may dispose individuals away from such relationships and towards activities that seem incompatible with such relationships, which may shape low childbearing motivation. Miller's study indeed provides empirical support for such theoretical assumptions. It appears that the personality trait of *Nurtu*-





rance – a trait related to Agreeableness (gives sympathy and comfort; assists others whenever possible; offers a "helping hand" to those in need), and Affiliation – a trait related to Extroversion (enjoys being with friends and people in general; accepts people readily; makes efforts to win friendships and maintain associations with people), foster stronger childbearing motivation. On the other hand, Autonomy – a trait related to Openness to experience (tries to break away from restrains, confinement or restrictions; enjoys being unattached, free, not tied to people, places or obligations)-counters this motivation. With respect to the two personality traits that predicted stronger childbearing motivation, Affiliation was found to be more important for men and Nurturance more important for women.

Furthermore, two more recent studies look at the role of personality traits in the probability and timing of childbearing. Tavares (2010) examined the relationship between the Big Five personality traits and age at birth for women in the British Household Panel Survey. She interpreted personality traits as intrinsic preferences and assumed that individual preferences are key to women's fertility timing. She found that Agreeableness, Extroversion and Neuroticism accelerate childbearing, whereas Conscientiousness and *Openness to experience* delay it. Thus, Tavares' results on Agreeableness and Openness to experience corroborate those of Miller (1992) results on the determinants of childbearing motivation. This correspondence suggests that these personality traits are important for both childbearing motivation and – behaviour. More agreeable women are more motivated to have a child and to do it earlier; women who score high on Openness to experience are less motivated to have a child and delay doing so. Concerning Agreeableness, Tavares (2010) argued that the association between being agreeable and being keen on having children and giving birth early is reasonable since Agreeableness includes traits such as altruism and tender-mindedness. As to Openness to experience, the author assumed that the positive relation between this trait and the timing of motherhood might be explained by the fact that people who score high on Openness to experience have been found to be more independent in terms of their values, i.e. they are likely to question the conventions and tend to act based on their own beliefs and tend to believe that it is good to think for oneself (van der Zee et al., 2002; Langston and Sykes, 1997, both cited in Tavares, 2010). Consequently, these people might be less vulnerable to social pressures toward having children. Furthermore, Tavares (2010) points out that high scorers on the Openness to experience trait tended to have less family-oriented interests than others. As a result, they might value their careers more and therefore experience higher psychological childbearing costs.





Jokela et al. (2009), using longitudinal data on 1,839 young Finns, assessed whether personality traits predicted the probability of having children within a 9-year follow-up period. They revealed that *Emotionality* (a trait related to *Neuroticism*) and *Sociability* (related to *Extroversion*) are associated with the probability of having children for both men and women. *Emotionality* did not predict the birth of the first child, but individuals with high *Emotion*ality were less likely to have a second and third child. The authors supposed that the role of *Emotionality* in decreasing the probability of childbearing beyond the first child may be related to the experience of parenthood with the first-born. Psychosocial stress associated with parenthood becomes apparent with the experiences with the first child because people will have a direct experience of parenthood only when they have a child of their own. Individuals with high emotionality may be more distressed by this experience than those with low emotionality, and highly emotional individuals may therefore be less likely to have a second or third child. High *Sociability* was found to increase the likelihood of having the first and second child but not the third child. Jokela et al. (2009) argue that the association between Sociability and increased probability of having children implies that sociable individuals may view parenthood as more rewarding than non-sociable individuals. They refer to the study by Schoen et al. (1997) that showed that people's intentions of having a child were closely related to perceptions of the social rewards of parenthood, and interpret their finding as giving "support for the hypothesis that social relationships related to parenthood may function as a motivating factor in having children" (Jokela et al., 2009, p. 206).

Personality traits and health

Various studies have explored the relationship between personality traits and health throughout the human lifespan. Of the five personality traits, *Conscientiousness, Extroversion*, and *Neuroticism* have been shown to predict physical-health outcomes.

Conscientiousness has predicted engagement in various health-related behaviours such as avoidance of smoking (Terracciano and Costa, 2004), moderate drinking (Ruiz et al., 2003), regular exercise (Marks and Fleming, 1999) and adherence to medical recommendations (Friedman et al., 1993), all of which are positively associated with better health outcomes. Therefore, conscientiousness may have a protective effect on health via such health-related behaviours. Furthermore, Roberts et al. (2006), investigating the effect of conscientiousness on health and physical limitations in a sample of older cou-





ples, provide evidence for a compensatory effect of conscientiousness, in that the partner's conscientiousness predicted personal health outcomes above and beyond one's own personality and conscientiousness for both men and women.

Extroversion has been shown to foster social relationships, social support and social integration, which decrease the impact of stress (Swickert et al., 2002) and buffer against challenges of old age such as chronic disease, disabilities, and bereavement (Lyyra et al., 2006). Thus, extroversion may have protected effect on health via social interactions.

Neuroticism may contribute to physical ill-health because people with high neuroticism are prone to experience more negative emotions, such as depression, anxiety, and anger (Bolger and Zuckerman, 1995; Magnus et al., 1993). Experiencing these negative emotions also can lead to hormonal disregulation, and there disruptions are, in turn, linked to problems in lipid metabolism (Orth-Gomér and Schneiderman, 1996). Anxiety has also been shown to lead to behaviours that have a detrimental effect on health, such as smoking and drinking, while depression often has been linked to unhealthy eating patterns. Thus, experiencing these emotions may contribute to illhealth through behavioural mechanisms as well (Friedman, 2002).

Personality traits and care-giving

Koerner et al. (2009), using survey data collected from 63 caregivers for elder relatives, demonstrated that positive outcomes of care-giving, such as feeling useful and needed, learning new skills and adding meaning to one's sense of self, are positively associated with two personality traits – Agreeableness and Extroversion. Furthermore, hierarchical regression analysis revealed that neither family socio-emotional support nor prior relationship quality with relatives significantly predicted care-giving benefits beyond that accounted for by agreeableness and extroversion.

Personality traits and retirement behaviour

To our knowledge, there are no studies investigating how personality may predict retirement patterns among elderly workers. There are, however, several studies addressing how personality relates to intrinsic (job satisfaction) and extrinsic (e.g. salary) career successes (Bretz and Judge, 1994; Holland,





1997; Tharenou, 1997). These successes, in turn, may mediate between personality traits and retirement behaviour, with higher career success leading to later retirement. The most general finding in these studies was that *Conscientiousness* positively predicted intrinsic and extrinsic career success while *Neuroticism* negatively predicted extrinsic career success.

Personality traits and adjustment to retirement

Stephan (2009), using survey data from 235 adults aged 58 to 85, demonstrated the role of personality in predicting satisfaction in retirement. Particularly, the analysis showed that *Openness to experience* added small but incremental variance to the prediction of life satisfaction, beyond the effect of subjective health and financial satisfaction. Stephan (2009) argued that during the retirement years, *Openness* is an important resource for life satisfaction, because open individuals are more likely to benefit from the opportunities of personal growth and to satisfy their needs during this period. This study demonstrated that including personality traits measures in the study of consequences of demographical and social transitions is important, as it allows us to capture important individual differences in the adjustment to these transitions.

1.2.2 Measurements

Many of the widely used personality questionnaires are designed to measure the Big Five traits. The most commonly used Big-Five instruments are: Goldberg's 100-item Trait Descriptive Adjectives (TDA), Costa and McCrae's personality Inventory (the 240-item NEO PI-R and 60-item NEO-FFI) and John, Donahue and Kentle's 44-item Big Five Inventory (BFI-44). The choice of instrument depends on the research questions (e.g., whether one is interested in broadly defined personality traits or in specific traits) and by how much time the study disposes for the personality questionnaire (Jokela et al., 2009). Generally, in surveys where participants' time is at premium, a short instrument like BFI-44 is a superior alternative to the more longer instruments. The BFI-44 was constructed by John et al. (1991a) to represent the prototype definitions developed through expert ratings and subsequent factor analytic verification in observer personality ratings. The BFI-44 uses short phrases based on the trait adjectives known to be prototypical markers of the Big Five (John, 1989, 1990). One or two prototypical trait adjectives





serve as item cores to which elaborative, clarifying or contextual information is added. The BFI-44 items thus retain the advantages of adjectival items (brevity and simplicity) while avoiding some of their drawbacks (ambiguous or multiple meanings and salient desirability). The BMI-44 scales comprising eight to ten items have been shown to have good content coverage and strong psychometric properties (John and Srivastava, 1999). However, to have all the 44 items of the BFI in an already extensive survey like the GGS would make the questionnaire as a whole too burdensome. Therefore, we propose to apply in the GGS a 15-item version of the BFI-44 used both in the German Socio-Economical Panel Survey (GSOEP) and the British Household Panel Survey (BHPS). This version shows good psychometric properties and is, to our knowledge, the only short personality inventory used in a large survey (see Part 2).

1.3 Subjective well-being

1.3.1 Theoretical definition and relevance to the GGP

Subjective well-being is a broad category of phenomena that includes people's moods and emotions, global judgements of life satisfaction and domain satisfactions (Diener et al., 1999). Moods and emotions together represent the affective component of subjective well-being, which is typically measured by how frequently an individual reports experiencing *positive and negative affect*. Evaluations of *life satisfaction* and *domain satisfactions* constitute the cognitive component of subjective well-being. Assessments of life satisfaction refer to individuals' broad comprehensive evaluations of life-as-a-whole, whereas domain satisfaction refers to individuals' satisfaction with specific areas of life, such as marriage or income (Sousa and Lyubomirsky, 2001). The terms 'global life satisfaction' and 'pleasant and unpleasant affect' are often used by researchers interchangeably with the more general term 'happiness'.

Recent research has demonstrated that happiness (measured by reports of pleasant and unpleasant affect or global judgements of life satisfaction) is associated with a variety of positive consequences. Happy people are more likely to be creative, to see opportunities, to be flexible and open-minded, and to be open to relationships with others. In addition, positive emotions enhance resilience and the ability to cope and alleviate stress psychologically, by fostering problem-focused coping, positive reappraisal, and infusing nega-





tive events with positive meaning (Fredrickson, 2001, 2003, 2004; Fredrickson and Levenson, 1998; Fredrickson et al., 2003). Taken into consideration all these consequences of happiness for an individual's inter- and intra-personal functioning, it is not surprising that happiness indicators have been shown to predict demographic behaviour, particularly transitions related to marital and parental status (Billari, 2009; Lucas et al., 2003; Harker and Keltner, 2001; Marks and Fleming, 1999).

One issue often addressed in theoretical discussions is whether happiness is a trait or a variable state. Some theories imply that happiness is a personality trait and that some people will be chronically happy while others are chronically unhappy, irrespective of their life circumstances. Conceptualized this way, happiness hardly has any link with real quality of life or any value as factor to be studied in relation to demographic behaviour. The idea of happiness as a fixed disposition emerged as an answer to several puzzling research results, one of which is the close linkage between happiness and personality. In particular the personality trait of extroversion has been shown to strongly influence positive affect, whereas a close relation has been observed between neuroticism and negative affect (Costa and McCrae, 1988). Another puzzle was that happiness was found to be only dimly related to 'objective' social positional variables. For example, Campell et al. (1976) found that demographic factors (e.g., age, sex, income, race, education and marital status) accounted for less than 20% of the variance in happiness.

An alternative theory conceptualizes happiness as a variable state sensitive to current external conditions. This theory was promoted by Veenhoven (1996) who argued that happiness can change over time and is influenced by change in life conditions. He also pointed out that happiness to a large degree is determined by a quality of society and, at least in poor countries, by the individual's position in society. Veenhoven (1996) claims are supported by empirical research. Kozma et al. (2000), for example, showed that happiness fluctuates over time, and Headey and Wearing (1992) demonstrated the effect of life events on happiness. Further, Diener et al. (1995) revealed a clear relation between wealth of a nation and average happiness, and Veenhoven (1994) found quite substantial correlations between happiness and income in countries such as India, Philippines and S. Korea. Thus, Veenhoven (1996) claim that happiness itself is not a trait appears to be correct. As Veenhoven puts it,

"it is true that evaluations of life are influenced by personal dispositions, such as optimism or downward comparison. However,



these inner alignments modify the impact of environmental effect rather than overshadow them' (p. 29).

Veenhoven (1996) model of happiness allows applying this variable as an indicator of quality of life in different population groups.

Subjective well-being and marital status

A growing body of longitudinal evidence shows that frequent experiences of positive affect and positive appraisals of life relate to a greater likelihood of becoming married. For instance, in Lucas et al. (2003) 15-year panel study of Germans, men and women who were highly satisfied with their lives were more likely to get married 4 or more years later than those who were initially less satisfied. Furthermore, Harker and Keltner (2001) found that American women who expressed sincere positive affect in their college yearbook photos at age 21 were relatively more likely than others to be married at age 27, and less likely to remain single into middle adulthood. Finally, Marks and Fleming (1999) longitudinal 15-year study of Australians, showed that unmarried respondents who were one standard deviation above the mean on happiness, later were 1.5 times more likely to be married than those with mean levels of happiness. Unmarried respondents who were two standard deviations above the mean were twice as likely to be married.

Longitudinal investigations have also shown that individual life satisfaction may bolster marital well-being (Spanier and Furstenberg, 1982; Headey and Veenhoven, 1989; Headey et al., 1991; Ruvolo, 1998). For example, in Headey and Veenhoven (1989) 6-year, four-panel study of Australians, greater life satisfaction in earlier time periods increased the likelihood that they later would have a happy marriage. Another intriguing finding is that people's global happiness at one time can potentially influence the marital well-being of their spouse a year later (Ruvolo, 1998). Finally, individual satisfaction has been shown to positively affect the likelihood that people will remarry after divorce. Spanier and Furstenberg (1982) in their 2.5-year study found that people who were the most happy at the time of the first interview were more likely to be remarried two years later than those who were initially the least happy.

While positive appreciation of life can strengthen marital well-being, low life satisfaction can adversely affect marital stability. Erbes and Hedderson (1982), for instance, found more divorce among those who were initially the



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least happy. The authors concluded that dissatisfaction leads to divorce, stating that

"... people with negative attitudes are more likely to separate/divorce" (p. 939).

Including measures of positive and negative affect and life-as-a-whole satisfaction in the GGS will allow further analysis of whether individual's subjective well-being affects their marriages. This issue is especially interesting in light of the current financial crisis, which may decrease subjective well-being across gender and age groups.

Life satisfaction and parental status

Perelli-Harris (2006), using evidence from over 1000 families who participated in the Russian 10-year longitudinal monitoring survey (1992-2001), showed that positive psychological attributes such as *satisfaction with life* predicted fertility dynamics in Russia, even better than did measures of economic uncertainty. The study also demonstrated that participation in the formal labour marked was not the most important factor in predicting a desire for additional children in women living in a low-fertility society. Instead, psychological characteristics such as satisfaction with life played a more significant role. The study revealed that women who were satisfied with their current lives and their prospects for the future, and to an even larger degree had happy husbands, were more likely than others to have larger families. The author concluded that

"these findings are significant because they reveal mechanisms that operate when economic adversity is beyond the control of the individual" (p. 19).

Marital and parental status as predictors of subjective well-being

The relationship between subjective well-being and marital and parental status is not only going in the direction where subjective well-being of individuals influence their demographic behaviours, but also in the reversal causal direction where transitions or their non-occurrence affect the subjective wellbeing of the individuals involved.





Several panel studies have demonstrated that *marital transitions* may have a long-lasting effect on subjective well-being. Evans and Kelley (2004), using panel evidence from 986 individuals who completed two questionnaires during the 1990s, found that *marriage* enhanced individual subjective well-being. Single and non-cohabitating individuals who got married between time 1 and time 2 reported average life satisfaction levels about 4 points higher at time 2 than did their peers who did not marry (adjusted for life satisfaction at time 1 and other controls). Lucas et al. (2003) in their 16-year longitudinal study of over 24,000 individuals demonstrated that the transition to widowhood is associated with long-lasting changes in life satisfaction. Within-subject analysis revealed that, on average, widows and widowers who did not remarry returned close to their baseline levels of life satisfaction only after 8 years. However, some individuals who had strong initial reactions to widowhood never adapted back to their former level. Marks and Lambert (1998), in their longitudinal 5 year-study using data from 6,945 respondents, found that compared to remaining married, becoming separated/divorced was associated with a decline in reported happiness for both men and women.

The transition to single parenthood has also been shown to entail long-term consequences for well-being. Single parents have repeatedly been found to experience lower life satisfaction compared both to married couples (Tcheng-Laroche and Prince, 1983; Amato and Partridge, 1987) and divorced individuals without children (Schoon et al., 2005). These findings suggest that it is not only the event of divorce itself, but difficulties of single parenting that cause long-term stress. Indeed, single parenthood is associated with multiple losses, increased financial and child-care responsibilities, which, in turn, adversely affect parents' life satisfaction (Kitson and Morgan, 1990; McCullough and Zick, 1992; Lee et al., 1999). Doherty et al. (1989), in their 5-year longitudinal study of 402 middle-aged couples with teenage children, found that women who experienced the transition from a dual-parent family to single motherhood during the study period experienced a decline in psychological well-being.

Studies in western nations have showed that the transition to parenthood does not add to the happiness of married persons (see Hansen, 2011, for a literature review of the effect of parental status on happiness and life satisfaction). Lifelong childlessness, however, have been found to have an effect on life satisfaction in mid-life and older age. For instance, Dykstra and Wagner (2007), using survey data from respondents aged above 70 residing in Amsterdam (N = 661) and Berlin (N = 516), found that in the Netherlands but not in Germany, men's life satisfaction was negatively associated with life time





childlessness, regardless of marital status and occupational history. Among Dutch and German women, no differences were found in life satisfaction between those who never had children and those with all children alive. Hansen et al. (2009), using data from a large population-based sample (N = 4, 169) of Norwegians in mid-life and older age, found that childlessness had a negative effect (not modified by age, marital status or education) on life satisfaction for women but not for men. Zhang and Liu (2007) in their study of 13, 447 Chinese aged above 65, found that childlessness was significantly negatively associated with life satisfaction for both men and women (regardless of age, marital status and education). However, this effect became only marginally significant after controlling for socio-demographic and socio-economic variables, living arrangements and availability of pension and medical services. The researchers concluded that providing social investments in economic security and medical insurance in later life are crucial for improving individual well-being and life satisfaction of childless elderly.

1.3.2 Measurements

The research area of subjective well-being is already addressed in the GGS. However, the GGS instruments comprise items assessing only one component of SWB, namely satisfaction with different life domains (dwelling, job, marriage or partnership and parent-child relationships). These items, on the one hand, function as predictors of demographic choices (e.g., family formation and childbearing decisions). One the other hand, these items are also expected to serve as characteristics describing subjective well-being at different life stages, and as outcomes in the analysis of consequences of important demographic and social transitions.

In our opinion, current survey instruments assessing subjective well-being should be supplemented with measures of affect and life-as-a-whole satisfaction. The application of these measures will enhance our understanding of psychological *predictors* as well as the potential *consequences* of demographic behaviours. These measures also will improve our ability to assess quality of life in different population groups, including the elderly. Using satisfaction with different life domains as variables describing subjective well-being make it difficult to obtain accurate results that can be subjected for further comparisons within and across different countries. For some people several domains of life satisfaction presented in the GGS questionnaire may simply not be relevant. Some would be retired and therefore no longer able to derive





life satisfaction from their job, while others may be widowed or childless and thus unable to derive satisfaction from these family relations. Moreover, even when all domains are present in the life of individuals, the weight assigned to each life domain may vary across individuals, population groups and cultures (Diener et al., 1985, 1995; Oishi et al., 1999; Sam, 2001). Yet another complication is that satisfaction with such specific aspects of life as marriage or relationship with children says little about the general liveability of societies for different population groups. For instance, aged individuals may be satisfied with these aspects of their lives but still be unhappy because society does not offer them something essential, for instance, social security and meaningful engagements. These issues can be resolved by applying a measure of life-as-a-whole satisfaction. Life-as-a-whole satisfaction refers to a judgemental process, in which individuals assess the quality of their lives on the basis of their own unique set of criteria (Shin and Johnson, 1978). Respondents may use whatever sources they choose for assessing how satisfied they are with their lives overall. Researchers then can operate with items that are presumably free from individuals' varying criteria of life satisfaction as well as from culturally specific definitions (Pavot and Diener, 1993). This would allow researchers to make comparisons of SWB across different population groups and societies.

Life satisfaction

Since life satisfaction is assumed to be a judgement, researchers believe that self-report is the most direct and accurate way to measure it (Sousa and Lyubomirsky, 2001). Many single- and multiple-item measures of life satisfaction exist. Empirical research has demonstrated that multiple-item scales have greater reliability and validity than single-item scales (Diener, 1984). Furthermore, a meta-analysis conducted by Pinquart and Sörensen (2000) found that correlations between life satisfaction and variables such as income, education, gender and age are significantly reduced when single-items rather than multiple-item scales are used. For these reasons, we propose to apply in the GGS a multiple-item measure of the life satisfaction. The most widely used and the most validated multiple-item measure of life satisfaction is the Satisfaction With Life Scale (SWLS). developed by Diener et al. (1985). The SWLS asks respondents to rate on a 7-point likert scale (from 1 'strongly disagree to 7 'strongly agree') their agreement with the following five statements:



- 1. in most ways my life is close to my ideal
- 2. the conditions of my life are excellent
- 3. I am satisfied with my life

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- 4. so far I have gotten the important things I want in life
- 5. if I could live my life over, I would change almost nothing

The SWLS has been found to form a single factor in a variety of U.S. samples (Pavot et al., 1991; Pavot and Diener, 1993) and to demonstrate adequate internal consistency (Cronbach's α around 0.90) (Diener et al., 1985; Larsen et al., 1985; Pavot et al., 1991) and stability across time (e.g., r's of 0.84 for a 1 month interval in Pavot and Diener (1993), and r's of 0.83 for two months interval in Larsen et al. (1985)). The SWLS also has shown high convergence with other measures of subjective well-being, and predicable correlations with several personality dimensions (extroversion, neuroticism, self-esteem) (Larsen et al., 1985).

When the SWLS was administrated to participants from different cultural backgrounds, e.g., Russians (Balatsky and Diener, 1993) and Dutch (Arrindell et al., 1991, 1999), the same factorial structure as in American samples was revealed. Furthermore, this measure has shown high reliability across ethnicity. For instance, the Russian version of the SWLS have been found to have Cronbach's α ranging from 0.75 to 0.82 (Chirkov and Ryan, 2001; Osin and Leontiev, 2008) and test-retest correlations of 0.70 for a two month interval (Osin and Leontiev, 2008).

Positive and Negative affect

The Positive and Negative Affect Scale (PANAS), developed by Watson et al. (1988), is currently the most popular instrument measuring positive and negative affect (McDowell, 2006). The PANAS is a superior alternative to other measures of positive and negative affect, such as the Bradburn's Affect Balance Scale (Bradburn, 1969), which has demonstrated reliability problems, particularly low test-retest reliability and low internal consistency (McNeil et al., 1986). The PANAS consists of 20 items, 10 describing positive affect (PA): *interested, alert, excited, inspired, strong, determined, attentive, active, enthusiastic, proud,* and 10 describing negative affect (NA): *irritable, distressed, ashamed, upset, nervous, guilty, scared, jittery, hostile, afraid.*





Participants are asked to rate on a 5 point Likert-scale (from 1 'slightly or not at all" to 5 'extremely') how often during the last two weeks they have felt each emotion (other time-intervals can be used, such as in the present moment, today, the past few weeks, the past year or in general).

The PANAS has been shown to have high internal consistency. For six samples of undergraduate American students, using different time frames for the responses, Watson et al. (1988) find Cronbach's α ranging from 0.83 to 0.90 for PA and 0.84 to 0.93 for NA. Furthermore, the PANAS has demonstrated moderate temporal stability, as theoretically predicted. For an 8-week period,Watson et al. (1988) reported test-retest correlations ranging from 0.47 to 0.68 for PA and 0.39 to 0.71 for NA.

Watson et al. (1988) also provided some evidence for the validity of the PANAS. Measures of general distress and dysfunction, depression, and state anxiety were positively correlated with NA and negatively correlated with PA. Furthermore, NA correlated significantly with self-reports of stress and somatic symptoms (including pain), while PA did not. Watson et al. (1988) also showed that PA and NA emerged as independent factors in both the U.S. and Japan. The factor structure of the PANAS and the independence of PA and NA has also been found in more recent studies (Melvin and Molloy, 2000; Crawford and Henry, 2004).

The PANAS seems to demonstrate favourable psychometric properties also cross-culturally. For example, Zvolensky et al. (2008) found that the Russian version of the PANAS is highly reliable ($\alpha = 0.89$), whereas Balatsky and Diener (1993) demonstrated that the Russian mood terms formed two factors as found in America and Japan by (Watson et al., 1988).

1.4 Self-esteem

1.4.1 Theoretical definition and relevance to the GGP

Self-esteem is a hypothetical construct that reflects overall evaluation of self-worth, self-acceptance, self-respect and self-satisfaction (Bowling, 2005). Self-esteem is usually thought to be the evaluative component of a broader representation of self, the self-concept. Self-concept represents a more inclusive construct than self-esteem, containing cognitive and behavioural components as well as affective ones. Thus, cognitions about the self contained





in the self-concept may or may not influence self-esteem (Robinson et al., 1991). According to models of affect and attitudes (Frijda, 1986; Lazarus, 1991), cognitive self-evaluations (e.g. "I am competent/incompetent", "attractive/unattractive", "intelligent/unintelligent") underlie positive or negative feelings about one self. When such evaluations cover a relatively broad spectrum of personal attributes, self-esteem is an appropriate term. Self-esteem is then a more global evaluation than the evaluation of a specific attribute such as height or academic ability or set of related attributes such as one's body or intelligence (Robinson et al., 1991).

Empirical evidence suggests that high self-esteem is beneficial for interpersonal relations. For example, self-esteem is negatively associated with loneliness, social anxiety, relationship conflict, marital infidelity, and positively associated with convictions regarding partners' positive regard, inclinations to evaluate relationships positively and success at sustaining healthy involvement (e.g. Marangoni and Ickes, 1989; Leary and Kowalski, 1995; Sheppard et al., 1995; Murray et al., 2000). It is thus reasonable to assume that selfesteem can be employed as a predictor variable in the study of marital quality and marital stability. Currently, there are two studies which have tested the role of spouses' self-esteem (self-respect) for marital quality (Holman et al., 2001; Kumashiro et al., 2002). Although the dependent variable in these studies is marital quality rather than union stability, it is still relevant for our research review to include these studies, since there is a link between marital quality and divorce (Gottman, 1994; Karney and Bradbury, 1995).

Self-esteem has also been found to predict changes in functional health of older individuals (Reitzes and Mutran, 2004). Thus, studying self-esteem within the frames of the GGS can contribute to better understanding of the demographic processes happening during the second half of the life-course.

Although self-esteem has been conceptualized as a rather stable and traitlike characteristic, like personality or intelligence, and is to a large extent established during childhood and adolescence, self-esteem is an ongoing developmental process open to change in certain situations even in adulthood (Bednar and Peterson, 1995; Greenier et al., 1995; Hakim-Larson and Mruk, 1997; Mruk, 2006). Self-esteem may thus be as an indicator of general mental health (Jahoda et al., 1958; Rosenberg, 1965; Wylie, 1974; Rosenberg, 1979), also in the study of individual level consequences of transitions occurring during different periods of the life course.





Self-esteem and marital satisfaction

Holman et al. (2001) longitudinal study examines how premarital individual characteristics, such as emotional health, temperament, feelings about self and values and attitudes, relate to later marital satisfaction.

"These things are conceptualized as part and parcel of the individual and how he or she sees him- or herself as individuals. These conceptual areas are seen as primarily "belonging" to the individual, rather than to the relationship" (p. 106).

The sample used in the study included 376 couples who were either seriously dating or engaged to be married, and who took the PRE-M (Preparation to marriage) Questionnaire between 1989 and 1993, and who subsequently completed a follow-up questionnaire in early 1997. The PRE-M includes scales measuring different personality traits and individual characteristics (Holman et al., 1989).Holman et al. (2001) found that although many of these characteristics were not associated with later marital satisfaction, *premarital self-esteem* appeared to be a powerful predictor of later marital satisfaction among males. Premarital self-esteem of both sexes in turn appeared to be strongly influenced by family-of-origin characteristics (parent-child relationship). Holman et al. (2001) argue that their results have important implication for clinicians and educators. As poor self-esteem predisposes an individual to distort relationship events or to overreact to negative relationship events and make him/her difficult to live with,

"it may be a key trait to assess and enhance before marriage" (p. 115).

Kumashiro et al. (2002) longitudinal study, of 79 married couples interviewed twice over eight months, showed that self-esteem predicted both individual and partner pro-relation behaviour (accommodation, forgiveness, conciliation), and that both individual and partner pro-relation behaviour affect couple well-being.

Self-esteem and health

Reitzes and Mutran (2004) 2-year longitudinal study of 738 individuals aged 58 to 64 found a bidirectional relationship between functional health and self-





esteem. Their analysis revealed that better functional health, which enables individuals to engage in different activities and avoid the pain and discomfort of poor health, is associated with greater self-esteem over two years. In addition, greater self-esteem predicted positive changes in functional health. The authors discussed their findings in relation to symbolic interaction theory and suggested that the effect of self-esteem on health can be seen as the ongoing process of affirming one's self, whereby individuals initiate lines of action to maintain and enhance a positive sense of self.

Demographic behaviour and self-esteem

A growing body of empirical evidence shows that self-esteem and related concepts can be utilized as indicators of general adjustment to stressful life events (e.g., personal or parental divorce) or non-occurrence of socially expected events (e.g., remaining single or childless). For instance, Marks and Lambert (1998) in their longitudinal 5-year study of 6,945 individuals found that divorce is associated with a decline in reported self-esteem, especially for women. They also found that never married and divorced individuals had less self-acceptance (a construct closely related to self-esteem) than their married counterparts. Furthermore, a significant gender interaction effect indicated that never married women reported even less self-acceptance than never-married men. Palosaari et al. (1996) follow-up study of a Finnish urban sample from the age of 16 to 22 (N = 1,656) found that their self-esteem was negatively affected by their parents' divorce. The study also revealed that, among girls, low self-esteem at age 16 was a powerful predictor of depression at age 22. Hansen et al. (2009), using data from a large population-based sample (N = 4, 169) of Norwegians in mid-life and older age, found that childlessness had a negative effect on self-esteem for women (irrespective of age, marital status and education), as childless women reported significantly lower life satisfaction and self-esteem than both mothers with residential children and empty nest mothers.

1.4.2 Measurements

A number of self-esteem scales exist, among which the Rosenberg (1965) Self-Esteem Scale (RSES) is the most widely used in social research. The scale asks respondents to rate on a 4-point Likert scale (from 1 'strongly disagree to 4 'strongly agree') their agreement with the following ten statements:



- 1. On the whole, I am satisfied with myself.
- 2. At times, I think I am no good at all.

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- 3. I feel that I have a number of good qualities.
- 4. I am able to do things as well as most other people.
- 5. I feel I do not have much to be proud of.
- 6. I certainly feel useless at times.
- 7. I feel that I'm a person of worth, at least on an equal plane with others.
- 8. I wish I could have more respect for myself.
- 9. All in all, I am inclined to feel that I am a failure.
- 10. I take a positive attitude toward myself.

These items were designed to optimize easy administration, economy of time, uni-dimensionality, and face validity (Blascovich and Tomaka, 1991). Several studies have demonstrated that a one-dimensional factor structure underlies the RSES (e.g. Simpson and Boyal, 1975; Hensley, 1977), while other have identified two highly correlated factors, with the additional factor reflecting negatively worded questions (Dobson et al., 1979). The RSES has demonstrated good internal consistency (e.g., Cronbach's α of 0.88) (Fleming and Courtney, 1984) and high temporal stability (e.g., test-retest correlations of 0.82 for a 1 week interval in Fleming and Courtney (1984), and 0.85 for a 2-week interval in Silber and Tippett (1965)).

The RSES has demonstrated convergence with other measures of subjective well-being. For example, Lorr and Wunderlich (1986) reported correlations of 0.65 and 0.39 between the RSES and measures of Confidence and Popularity, respectively. Savin-Williams and Jaquish (1981) reported a correlation of 0.72 between the RSES and the Lerner Self-Esteem Scale. Furthermore, the RSES has shown negative correlations with several concepts associated with low self-regard, such as anxiety (-0.64), depression (-0.54) and anomie (-0.43) (Fleming and Courtney, 1984).

The RSES has been translated to many different languages and has been found to have favourable psychometric properties across cultures. For instance, Chirkov and Ryan (2001) provided evidence for the one-dimensional factor structure of the of Russian version of the RSES, whereas Ryan et al.





(1999) found this version to be highly reliable (Cronbach's α of 0.80). Furthermore, in Schmitt and Allik's study (Schmitt and Allik, 2005), where the RSES was translated into 28 languages (Spanish, German, Bangla, Dutch, Spanish, Portuguese, French, Spanish, Croatian, Greek, Czech, Estonian, Finish, Hindi, Indonesian, Hebrew, Italian, Japanese, Latvian, Lithuanian, Malay, Polish, Romanian, Serbian, Slovak, Slovenian, Korean, Mandarin, Turkish) and administered to 16,998 participants from 53 nations, the onedimensional factor structure of the scale was found to be largely invariant across all nations. The mean internal reliability across all nations was also found to be substantial in this study (Cronbach's $\alpha = 0.81$).

1.5 Sense of control

1.5.1 Theoretical definition and relevance to the GGP

Sense of personal control has been defined, described, and measured in different ways. Examples of related concepts are mastery (Pearlin et al., 1981), personal autonomy (Seeman, 1983), locus of control (Rotter, 1966), selfefficacy (Bandura, 1986) and learned helplessness (Seligman, 1975). The different concepts have been developed within different theoretical models, studying a variety of different events and experiences. They therefore vary somewhat in connotations and focus. When studying the effect of control beliefs on the same type of individual behaviour, the nuances between the concepts make little difference, however; the different terms cover much of the same phenomenon (Mirowsky and Ross, 2003). Sense of control refers to persons' sense or belief regarding the extent to which they can control or influence outcomes. Individuals with a strong sense of control believe and expect that their actions can affect their world (Mirowsky and Ross, 2003).

The literature generally finds that a high sense of control has clear benefits. Sense of control is for example associated with lower risk of coronary heart disease (Marmot et al., 1998), good immunological functioning (Rodin and Timko, 1992) and psychological well-being (Jang et al., 2002). Furthermore, low levels of mastery are linked to mental and general ill-health, while high levels of mastery are associated with positive health (Marmot et al., 1998; Rosenfield, 1999; Jang et al., 2006).

Control beliefs have been found to moderate the effect of a diversity of stressful life situations on negative outcomes. For instance, high sense of





control moderates the negative effects of economic hardships and low income on health and psychological well-being (Krause, 1987; Lachman and Weaver, 1998; Pudrovska et al., 2005). Furthermore control beliefs have also been found to lead to success at work and to high quality social interactions (George, 2003). Given these relationships, it is not surprising that personal mastery has been shown to be a valuable variable in the analysis of childbearing decisions in difficult times of social change, when people cannot rely on formerly provided institutional social security or formally stable social bonds (von der Lippe and Andersson, 2005). Taking into consideration that among the GGS members there are several Eastern and Central Europe countries which are currently undergoing considerable social change, we consider including a measure of personal mastery in the GGS questionnaire is especially important.

Psychological construct of sense of personal control has also been shown to predict healthy life style which contributes to psychological well-being throughout the human lifespan (Mirowsky and Ross, 1998). Consequently this psychological construct represents an important variable in the study of successful ageing.

Empirical evidence suggests that sense of control is a psychological resource which can be adversely affected by negative life course events (Marks and Lambert, 1998). Consequently, this construct may also function well as a dependent variable in the study of individual level consequences of transitions such as divorce/separation and widowhood in different population groups.

Sense of control and childbearing

Von der Lippe and Andersson (2005), using longitudinal data (n = 212) from Rostock, demonstrated that a *general personal optimism*, which refers

"to what extent respondents are convinced that they can achieve their goals in life and how much self-efficacy they experience in life" (p. 22),

clearly matters in explaining childbearing behaviour in East Germany in the 1990s. This study found a significant positive effect of personal optimism on first-birth risk for men. This confirmed the authors' hypothesis that a large amount of perceived action control was required in order to start a family in





East Germany during the 1990s, when shortcomings and hassles of an unfavourable societal situation had to be overcome by people's own initiative. Furthermore, general personal optimism has been shown to correlate moderately with self-centred resources (own knowledge and skills), which also had a positive significant impact on first-birth risk. These results indicate that self-reliance and general personal strength make men more prone to family formation. The more their motivation in life is self-centred, and the more internal action-control and self-efficacy they perceive, the earlier they tend to experience a transition to parenthood.

Sense of control, physical health and health behaviour

A range of longitudinal studies show that sense of control predict health and health-protective behaviours. For example, Mirowsky and Ross (1998), using data form a sample of households with 2,592 respondents aged 18 to 95, showed that sense of control improved health largely due to more healthy lifestyles, including preventive and health-producing behaviours (e.g., avoiding being overweight, not smoking, drinking moderately, exercising and walking). Furthermore, in a follow-up study of more than 20,000 persons aged 41-80, a stronger sense of control was associated with lower rates of mortality from all causes, especially cardiovascular disease (Surtees et al., 2006, 2010). Similar results are reported also by others (Dalgard and Haheim, 1998; Seeman and Lewis, 1995).

Demographic behaviour and sense of control

Marks and Lambert (1998) documented in a longitudinal 5 year-study of 6,945 individuals an adverse affect of transitions such as widowhood and separation/divorce on sense of control for both genders. Transitions to separation/divorce was also associated with lower ratings of personal mastery for both genders, but women who experienced marital dissolution reported significantly less sense of control then men experiencing marital dissolution. Furthermore, the continuously separated/divorced individuals showed a stronger decline in sense of control than the continuously married, a pattern that was similar for men and women.

Bould (1977), using data from a national longitudinal sample of 5,000 single mothers, identified a number of factors affecting the sense of control of both divorced and never-married mothers. Particularly, the amount and source





of income these women received affected their sense of personal control. It appeared that poor women had less sense of personal control than higher earning women. Further, women depending on public assistant programs, child support or other stigmatizing or unstable sources of income had less sense of personal control than women who were self provided.

Jackson and Schemes (2005), in their 2-year longitudinal study of 178 single black mothers and their young children, found that employment was directly related to high self-efficacy. Furthermore, sense of personal control was associated with decreased depressive symptomatology in mothers. Depressive symptoms were negatively related to mothers' parenting which in turn was associated directly with children's subsequent behavioural and cognitive functioning.

Jang et al. (2009) demonstrated how processes occurring in the second half of life affect elderly persons' sense of mastery. Their sample included 141 community dwelling Korean-Americans aged 60 and older, who provided data both in 2003 and 2005. Baseline functional disability, decline in financial status and increased functional disability were identified as major conditions leading to decreases in sense of control. Additionally, individuals who experienced an increase in both chronic conditions and functional disability were found to be at particular risk of a diminished sense of mastery.

1.5.2 Measurements

A range of control instruments exists, of which the Personal Mastery Scale (PMS), developed by Pearlin and Schooler (1978), has become the most widely used cross-nationally (The Canadian National Population Health Survey 1994/95; The US National Longitudinal Survey of Youth 1992, and The US Children of the National Longitudinal Survey of Youth 1994, 1996, 1998, 2000, 2002). The PMS asks respondents to rate their agreement with the following seven statements on a 5-point Likert scale (from 1 'strongly disagree' to 5 'strongly agree').

- 1. There is really no way I can solve some of the problems I have.
- 2. Sometimes I feel that I'm being pushed around in life.
- 3. I have little control over the things that happen to me.
- 4. I can do just about anything I really set my mind to.



- 5. I often feel helpless in dealing with the problems of life.
- 6. What happens to me in the future mostly depends on me.
- 7. There is little I can do to change many of the important things in my life.

The PMS has demonstrated satisfactory internal reliability (Cronbach's $\alpha = 0.76$ in the Canadian National Population Health Survey 1994/95) and moderate temporal stability (test-retest correlation of 0.44 in Pearlin et al. (1981)). The scale also exhibits good construct validity: low level of mastery correlates predictably with mental and general ill-health (Pearlin et al., 1981; Wilkins and Beaudet, 1998; Pudrovska et al., 2005; Surtees et al., 2006) and social support and coping (Pearlin et al., 1981). Furthermore, Stephens et al. (1999) found a high negative correlation between perceived mastery and current stress, low level of social support and perceived childhood adversities.

The scale has already been translated to several European languages and there is evidence of good reliability of different versions of this scale. For instance, Adams et al. (2002) Russian version of the scale demonstrated good internal reliability (Cronbach's α of 0.77).

This part of the report has reviewed theoretical and empirical literature on psychological constructs and measurements of great relevance to the GGP. It has established a rationale for the inclusion of a wide range of psychological measurements in the GGP. Part 2 evaluates the psychological measures in the wave-I of the GGS and makes recommendations as to which items should be excluded and which should be retained, as well as suggesting additional psychological measures in future waves of the GGS.



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AN EVALUATION OF THE EXISTING PSYCHOLOGICAL INSTRUMENTS IN THE GGS AND PROPOSITIONS FOR A NEW MODULE

Summary

Aims: This work evaluates the psychological measures in the wave-I of the GGS and makes recommendations as to which items should be excluded (about 20%) and which should be retained, as well as suggesting additional psychological measures in future waves of the GGS.

Wave I measures: We evaluate the items that tap the following psychological concepts: subjective health, self-reported morbidity, locus of control, depression, loneliness, and satisfaction with various life domains.

Our evaluation and recommendation: Because the health, morbidity, and satisfaction measures seem highly useful to study topics of key interest in the GGS, and are widely used in the literature, we recommend that these be retained.

The 7-item CES-D scale is one (depressed affect) out of 4 sub-scales (other scales are positive affect, somatic symptoms, and interpersonal problems) of the original 20-item CES-D. Other short versions of the CES-D typically comprise items from all sub-scales, thus capturing all relevant aspects of depression. However, to maintain comparability with wave-I and because



some research shows a high correlation between the depressed affect and the full CES-D scale, we recommend that the current 7-item scale be retained. The domain-specific locus of controls items, however, seem more remote from research questions and have been excluded by many of the GGS national partners in wave I. We therefore recommend that these items-developed by the GGS-are dropped and replaced with a scale measuring a global sense of control. A global sense of control may be a better predictor than domain-specific locus of control of some of the transitions of key interest in the GGS.

We also recommend that the 6-item loneliness scale, although reliable and valid, be dropped in future waves of the GGS. Because the total list of items must be reduced substantially, either this scale or the depression scale may have to go. Of the two constructs and scales, depression and the CES-D are much more used in the psychological literature and they seem more relevant as predictors of various demographic behaviours. Importantly also, loneliness can be measured satisfactorily by one of the 7 CES-D items.

Recommended additions: A measure of life satisfaction-the most widely used indicator of global well-being-is absent in wave I. We thus recommend it be included in future waves, measured by the 5-item Satisfaction With Life Scale, or, alternatively, by a single item. We also suggest that a measure of personality traits be included, and we particularly recommend a 15-item version of the BFI-44. Research shows that personality traits can be key causes and moderating factors in the understanding of demographic behaviour. Similar evidence exists also regarding global sense of control, and we thus argue that the GGS may benefit from including such a measure, and we specifically recommend a 5-item version of the Personal Mastery Scale.

2.1 Wave I measures

This paper addresses the following psychological variables in Wave I (see Appendix A for a more detailed description of each item, including response categories).





Measure	Item no.	Item wording	Origin/ developer	Recommendation: keep (k) or drop (d)
Health	701	How is your health in general?	SF-12, SF-36	k
	702a	Do you have any long-standing illness or chronic condition?	GGS	k
	702b	How long have you had this long-standing illness or chronic condition?	GGS	k
	703a	Are you limited in your ability to carry out normal everyday activities, because of a physical or mental health problem or a disability?	GGS	k
	703b	Since how long?	GGS	k
Locus of control	719	How much control do you feel you will have over the following areas of your life in the next three years?		
	719a	Financial situation	GGS	d
	719b	Work	GGS	d
	719c	Housing condition	GGS	d
	719d	Health	GGS	d
	719e	Family life	GGS	d
Loneliness	720a	There are plenty of people that I can lean on in case of trouble	Loneliness scale	d
	720b	I experience a general sense of emptiness	Loneliness scale	d
	720c	I miss having people around	Loneliness scale	d
	720d	There are many people that I can count on completely	Loneliness scale	d
	720e	Often, I feel rejected	Loneliness scale	d
	720f	There are enough people that I feel close to	Loneliness scale	d
Depression	721a	I felt that I could not shake off the blues even with help from my family or friends	CES-D	k
	721b	I felt depressed	CES-D	k
	721c	I thought my life had been a failure	CES-D	k
	721d	l felt fearful	CES-D	k
	721e	I felt lonely	CES-D	k
	721f	I had crying spells	CES-D	k
	721g	I felt sad	CES-D	k
Satisfaction	117	How satisfied are you with your dwelling?		k
	202	How satisfied are you with the way childcare tasks are divided between you and your partner/spouse?	GGS	k
	224, 237	How satisfied are you with your relationship with [child]?	GGS	k
	402	How satisfied are you with the division of household tasks between you and your partner/spouse?	GGS	k
	407	How satisfied are you with your relationship with your partner/spouse?	GGS	k
	517, 553, 562	How satisfied are you with the relationship with your mother?	GGS	k
	531, 547, 561	How satisfied are you with the relationship with your father?	GGS	k
	804	How satisfied are you with being on maternity/parental/childcare leave?	GGS	k
	809	How satisfied are you with being unemployed?	GGS	k
	813	How satisfied are you with being student, studying at school or in vocational training?	GGS	k
	817	How satisfied are you with being retired?	GGS	k
	823	How satisfied are you with being homemaker?	GGS	k
	839	How satisfied are you with your current job?	GGS	k
	847	How satisfied are you with job security?	GGS	k
	850	How satisfied are you with your self-employment?	GGS	k

GGP



2.2 Evaluation of wave I measures and suggestions for wave II

The following evaluates each psychological measure and item in Table 2.1 for further inclusion in the GGS. Because the wave II interview should contain about 20% fewer items than the wave I interview, part of our assignment was to mark candidates for exclusion in future rounds of the GGS. The above list includes 38 items, but each respondent, depending on their social situation, will only be posed about 25-30 of these questions. Hence, reducing this list by 20% means that about 5-6 items should be excluded. Below follows also some background information about the items and scales (e.g., who developed them, to what extent they have used in the literature, and their psychometric qualities) insofar as this information is available. The GGS conceptual paper (Vikat et al., 2007) contains little such information, and we thus gathered most of this information by reviewing literature, Google Scholar searches, and checking the instruments used in other major surveys.

In the evaluation of some constructs and instruments, we rely on analyses of Norwegian GGS data, collected in 2007-2008 (age 18-79), because they contain a wide range of psychological measurement not included by other GGS partners. The Norwegian data was collected by telephone interviews $(n \sim 15,500)$ and a postal questionnaire $(n \sim 10,500)$. Most of the sensitive questions (e.g., about depression, loneliness, life satisfaction) were posed in the questionnaire.

2.2.1 Health

The justification for including a small set of health questions in the GGS questionnaire is twofold (Vikat et al., 2007). First, health status is highly predictive of the need for care and, as a consequence, for intergenerational transfers. Second, health may interfere with life events that are under the scope of the GGS and in particular with union formation and fertility. It is widely recognized that health is multidimensional and, as such, difficult to measure. Surveys usually are restricted to the three following health dimensions: self-reported health, self-reported morbidity (presence of a disease), and restrictions in daily activities. Although there is a strong correlation between these dimensions, they do not fully overlap. Disabled people, for example, may rate their health as very good despite having no chronic illness.





Self-reported health is captured by the question "How is your health in general?", which is a widely used measure of subjective health that is also part of the Short-Form health survey with 12 or 36 questions (SF-12 or SF-36). Because of its usefulness as an indicator of overall health status, we recommend that this item be kept unchanged in future rounds of the GGS.

The four questions regarding *self-reported morbidity* and *restrictions in daily activities* seem to have been constructed by and for the GGS. These items were implemented in wave I by all 9 GGS partners that have so far provided data to the harmonized dataset. These items appear to capture important aspects of health and we thus recommend they be retained in subsequent data collections.

A note of caution is in order regarding these health measures, however. A problem is that they may not reliably capture generic health status. The latter two measures do not intend to capture general health status, but disability and health restrictions. The subjective health question, however, intends to proxy for generic health in a single item. Responses to this question may correlate moderately with health as assessed more "objectively" in symptom check-lists or by health workers, especially among the elderly (Pinquart, 2001; Schneider et al., 2004). This indicates that *perceived* or reported health may not be a good indicator of actual health, which may reduce the validity of health as a predictor of fertility, union formation, employment, retirement, provision and reception of support, etc. On the other hand, subjective health is an independent predictor of survival and an important parameter for determining prognoses (Idler and Benyamini, 1997). Ideally, the GGS should have a more reliable measure of "objective" health. However, available short versions (e.g., SF-8 and GHQ-12) of longer health instruments have a number of limitations. First, they take a long time to answer. The shortest instrument, the 8-item SF-8, takes three minutes to complete in an interview. Of course, this time would be greatly reduced if using a postal questionnaire. Second, they intend to cover all aspects of health (including mental and emotional health), and not just the physical factor. Because mental or emotional health is captured by other instruments (e.g., the depression scale), it may be preferable to have a measure only of physical health. Third, many respondents may perceive some of the health items as redundant or irrelevant, such as questions about problems with walking the stairs, limitations at work due to physical health problems, and experience of pain (from the SF-8). Because of these limitations, and the time constraints of the GGS, we do not recommend that the GGS include additional health measures.





Before moving on, we would also strongly suggest that the self-reported health item in the harmonized GGS data file retain the original five response categories. In the current merged file, for some reason, the self-reported health variable has only three response categories. The solution to collapse "very good" with "good" and "very bad" with "bad" obviously leads to a serious loss of valuable information and variation.

2.2.2 Satisfactions

It has long been established that when predicting various behaviours or global well-being (i.e., life satisfaction), the effect of *perceived conditions* tend to be much larger than that of the *objectively measured conditions*. Research also shows that domain satisfactions can be both predictors and consequences of various life events and demographic behaviours, and can act as intervening variables (e.g., between certain factors and demographic behaviour or between behaviours and global well-being) (e.g. see Part I Sirgy, 2002). For example, job satisfaction predicts absenteeism and the likelihood of changing jobs (cf. Lucas and Diener, 2008). Furthermore, marital satisfaction predicts subsequent divorce (Hirschberger et al., 2009), job success (Cron, 2001), and health (Ruiz et al., 2006) and depression (Beach and Oleary, 1993). Subjective evaluations of living conditions may thus be valuable to the GGS and similar surveys that aim at a better understanding of demographic choices (Vikat et al., 2007). The GGS satisfaction questions are similar or identical to those included in other surveys, e.g., the German Socio-Economic Panel survey (GSOEP, 2010) or the U.S. General Social Survey (GSS, 2010). We assume that some of these items and their wordings are developed by the GGS and others are obtained from other surveys. Because of the documented use and applicability of domain satisfaction questions, we advocate that all these items be retained in the core questionnaire.

This suggestion notwithstanding, some of the national partners of the GGS may want to "pick and choose" items from the list. A look at the available wave I GGS data from 9 countries reveals that some partners have chosen to exclude several of the satisfaction items. The *French* partner, for example, excluded item 813 (satisfaction with being a student) and item 809 (satisfaction with being unemployed), the latter was excluded because it was judged inappropriate for some groups (especially job-seekers) (Sebille and Régnier-Loilier, 2007, p. 16). For the same reason, item 809 was excluded also in the *Norwegian* GGS survey. The *Dutch* partner did not include item 202 (satis-





faction with division of childcare tasks), 402 (division of household labour), 804 (being on child care leave), 813 (being a student), 817 (being retired), 823 (being a homemaker), 839 (job), 847 (job security), and 850 (being self-employed). The *Hungarian* partner excluded almost all items, except 117, 202, 402, 407, 839, and 850. *Bulgaria, Georgia, Germany, Romania, and Russian Federation* included all satisfaction questions.

2.2.3 Locus of control

Wave I contains five questions that ask whether the respondent feels he/she will have control over various areas of their life (financial situation, work, housing condition, health, and family life) over the next three years. These items do not appear to have been used in other surveys and we thus assume they are developed by the GGS. The GGS conceptual paper (Vikat et al., 2007) does not explain the intended analytical use of the items. We assume the purpose may have been one or both of the following; (i) to construct an aggregate index of global sense of control and/or (ii) to use each item individually as predictors of specific intentions (and behaviours) as modelled in Ajzen's (1985) Theory of Planned Behaviour. We believe these items are not well suited for either of these purposes and thus recommend that they be excluded in future rounds of the GGS. In our view, the GGS would benefit more from including an established scale on global sense of control. Below follows a more detailed explanation of the two assumed analytical purposes and why we believe a control scale is better suited for both.

Global sense of control

One intention behind these items may have been to capture control over key life domains and to add together the scores on these items to produce an index of global sense of control. This index can be conceptualized in two ways, either as a formative or a reflective index. First, if intended as a *formative index*, the observed control items are assumed to cause or form the latent construct (global sense of control). As such, although high correlations between control items may occur, they are not generally expected. Factor analysis and Cronbach's alpha are thus inappropriate methods of evaluating a formative index. In fact, the composite index score is biased if a critical degree of multicollinearity exists between the formative indicators (Bollen and Lennox, 1991). Scale validity is also reduced if missing any relevant





formative indicators (i.e., aspects of the latent construct). Second, the sum of the five control items may be conceptualized as a reflective index or scale. If so, the latent construct (global sense of control) is theorized to cause the observed item scores, and the items should be highly correlated (Dillon, 2001). A one-factor structure and high internal consistency are necessary conditions for a high-quality reflective scale.

We argue that the five items are not well suited for constructing a formative scale, since some of the items may be of little relevance for some individuals (e.g., control over work for retired individuals) and the items may not cover all key domains (e.g., friends and social relationships). Also, the strong correlation between the items suggests that these items reflect a common higher-order construct. The Bulgarian GGS data, for example, shows that these items correlate between 0.42 and 0.78, with a high alpha reliability of 0.84. The items thus seem to fit the characteristics of a reflective scale.

Yet a global sense of control is better measured with an established scale constructed for that purpose. Global sense of control refers to the extent to which individuals perceive that they have personal power and control over their life and environment (Lachman and Weaver, 1998; Pearlin and Schooler, 1978). This construct seems better captured by global items about control than a sample of narrower control items conceptually distinct from global control and focusing on areas that may vary greatly in relevance and salience across individuals.

Theory of Planned Behaviour

A second possible intention behind the current control items may be to capture one of three broad determinants of behavioural intentions as posited by the Theory of Planned Behaviour (Ajzen, 1985, 2002; Ajzen and Fishbein, 2005). This theory posits that three sets of factors explain a specific behaviour (cf. Vikat et al., 2007). The first set comprises *attitudes* towards the behaviour. The second set comprises *subjective norms*, i.e. perceptions about the approval, or disapproval, of a certain behaviour by relevant others. The third set-the one supposedly captured by the control items-comprises *perceived behavioural control*.

Ajzen (2002) defines perceived behavioural control as an individual's "perceived control over a behaviour", "perceived ability to perform a behaviour", or "perceived ease of difficulty of performing a behaviour". Hence, this con-





struct focuses on control over a behaviour and not over an outcome. Like others (Bandura, 1986; Rotter, 1966), Ajzen emphasizes that perceived control has two separable components: (i) people's beliefs about their capabilities to exercise control (self-efficacy) and (ii) their beliefs about the controllability of events or the extent to which performing the behaviour is up to them (controllability). Unlike most others, however, Ajzen regards perceived control as a unitary latent variable, because both self-efficacy and controllability reflect internal and external factors and the two components are thus highly correlated¹. He argues therefore that measures of perceived behavioural control need to incorporate self-efficacy as well as controllability items that are carefully selected to ensure high internal consistency.

Perceived behavioural control is usually measured by multi-items scales with items asking direct questions about capability to perform a specific behaviour, or indirectly on the basis of beliefs about ability to deal with specific inhibiting or facilitating factors (which are assumed to cause perceived behavioural control) (Ajzen, 2002). Examples of such direct questions are "For me to... would be very easy-very difficult" and "If I want to I will easily be able to...", which are posed regarding specific behaviours, such as exercise, voting, use of contraception, etc. (Ajzen, 2002, p. 5-6).

The important question is whether the five GGS control items tap self-efficacy and controllability beliefs regarding the above behaviours. This evaluation has to consider the kind of intentions or behaviours these items are expected to predict. According to the GSS conceptual paper,

One of the principal aims of the GGS is to explain how and why individuals and couples take such important decisions as those related to household and partnership formation and dissolution, childbearing and retirement. Explanatory approaches should aim at disentangling decision-making processes leading to such choices (Vikat et al., 2007, p. 419).

It seems, therefore, that control over family life is meant to predict intentions regarding fertility and union formation/dissolution, and control over work may predict retirement motivation. It seems less obvious what control over health and housing condition should predict.

On face value, the items do seem to tap both internal and external control

 $^{^1\}mathrm{However},$ Ajzen also notes that for some purposes, separate measures of self-efficacy and controllability may be required.





issues. However, the ambiguous and multiple meanings of these items make us question whether these items can and will be used to predict behavioural intentions regarding fertility, union formation, retirement, and other transitions of key interest to the GGS. The family control question, for example, may be too vaguely referenced to be a good indicator of perceived ease, ability or capability to form a union or to have a baby. Similar arguments can be made for the other control items, e.g., control over work as an indicator of constraints or opportunities regarding retirement.

The concerns regarding practical use and relevance for central research questions, coupled with that they take a long time to answer, lead us to suggest that these control items be excluded from the core questionnaire. Indeed, these concerns may explain why these items have been excluded by four (Norway, France, Hungary, and the Netherlands) of the nine countries that have provided wave I data to the GGS. As the French partner explains for their excluding these items, they were poorly understood, the formulations were not clear enough to offer relevant answers, seemed remote from research problems, and unduly lengthened the interview (Sebille and Régnier-Loilier, 2007, p. 16).

A distinction can be made between specific and global control (Thompson and Schlehofer, 2007), and the current control items seem to fall between two stools. The current control items aim to be specific, yet they may not be specific enough to capture control regarding specific events such as childbearing or retirement. In our view, perceived behavioural control should be measured with either more or less specificity than the current items. If going for more specificity, it may be more useful to ask about control (or constraints, opportunities, abilities) regarding fertility, retirement, etc. Regarding retirement, for example, it could be useful to ask about perceived work ability (self-efficacy) and the employer's retirement policies (controllability). With respect to fertility, both internal and external control issues may be adequately captured by *existing* measures in the GGS, such as questions about personal fertility (self-efficacy) and partner's fertility and fertility motivation (controllability).

We would argue, however, that the GGS may benefit more from including a measure of *global* sense of control. Global sense of control refers to the extent to which individuals perceive that they have personal power and control over their life and environment and how they would react to stresses, difficulties and adversities of life (Lachman and Weaver, 1998; Pearlin and Schooler, 1978). Conceptually, a high sense of control should predict intentions and





behaviour because individuals may need to feel efficacious in order to decide to make behavioural changes. If people do not feel they have the skills to initiate change or influence, they are unlikely to exert the effort (Ajzen, 1985, 2002). Similarly, feelings of helplessness generally decrease attempts to change one's situation even when effective action is available Seligman (1975). It comes as no surprise, therefore, that a high sense of control is associated with a host of positive outcomes-emotional well-being, successful coping with stress, good health, desired behaviour changes, and improved performance (cf. Thompson and Schlehofer, 2007). Of particular relevance to the GGS, controls beliefs also have predicted subsequent motivation for family formation and childbearing, success at work, satisfaction with social relationships, and a healthy lifestyle (see Part 1). The GGS thus may benefit from including a measure of global sense of control, because it may predict a wider range of behaviours than what can be predicted by narrower control beliefs. More about sense of control follows in Section 2.3.3.

2.2.4 Loneliness

Loneliness is defined as a feeling of lack or loss of companionship (de Jong-Gierveld, 1998), and is measured in the GGS by 6 items that are all part of the originally 11-item Loneliness Scale (de Jong-Gierveld and van Tilburg, 1999). This scale has shown good psychometric qualities and is extensively used by Dutch researchers (e.g., Stevens et al., 2006). Factor analysis shows that the scale captures two distinct dimensions of loneliness, termed social and emotional loneliness (de Jong-Gierveld and van Tilburg, 2006). Our evaluation of whether to recommend keeping or retaining this scale had to take into account that, because the total number of items should be reduced by 20%, either this scale or the CES-D probably needs to be removed.

We recommend that the Loneliness Scale be dropped in future rounds of the GGS, for two reasons. First, because this construct is much less applied in the psychological literature and seems less relevant as a predictor of various demographic behaviours than does depression². Second, loneliness is measured by one of the 7 CES-D items ("I felt lonely"). This item has been used as a sole indicator of loneliness in several previous papers (e.g. Beeson, 2003; Cacioppo et al., 2009). As van Tilburg (2008) warns, however, a single, direct question about loneliness likely lead to under-reporting due to the

 $^{^2{\}rm For}$ example, a Pubmed search yields almost 250,000 hits for "depression" and 2,900 for "loneliness" (52,000 and 760 if searching only in titles).





stigma attached to being lonely. Loneliness is better captured with several indirect questions. He also warns that the CES-D single loneliness question has poor psychometric qualities because it does not capture the full theoretical concept (i.e., poor content validity) and, due to the limited number of response alternatives, only enables a rough division of loneliness intensity.

The Norwegian GGS data contains both the CES-D loneliness item and the six Loneliness Scale items currently in the GGS, thus enabling analysis of empirical overlap to indicate construct and content validity. Among 10,625 individuals aged 18-79, we found a moderately strong correlation of 0.41 between the two measures. The single item correlates stronger with the items comprising emotional loneliness (0.46) than social loneliness (0.29). Although the single item arguably does not capture the full theoretical concept and seems an imperfect measure of loneliness, we would still consider it an acceptable measure of loneliness, at least of the emotional manifestation of loneliness. This conclusion is based not only on the reasonable empirical overlap but also by the face-valid nature of the "How often I felt lonely" item to gauge loneliness (Cacioppo et al., 2009).

2.2.5 Depression

Depression is a mental health construct that refers to lowered mood, loss of interest, self-deprecation, and hopelessness, and is probably the single most studied aspect of mental health (Beck and Alford, 2009; Turner et al., 1995). This fact, and because depression has been shown to both cause and follow from life outcomes of particular interest to the GGS (e.g., marital transitions) (see Part 1), the GGS may greatly benefit from containing a valid and reliable measure of depression. The GGS currently uses a 7-item short version of the original 20-item Center for Epidemiologic Studies Depression (CES-D) scale (Radloff, 1977). For longitudinal comparability purposes, it is pertinent that depression is measured identically across waves of data collection. As such, there must be strong reasons for altering the wave I depression items.

Before discussing the quality of the GGS' 7-item version, first a word about the original CES-D scale. It was designed to identify depression among the general population and is currently the most widely used instrument to measure depressive symptoms and to estimate prevalence rates in population surveys (Shafer, 2006). The CES-D has been consistently shown reliable and valid in different populations, with adequate internal consistency and construct validity (cf. McDowell, 2006). Radloff Radloff (1977) identified four





factors that are readily interpreted as (a) depressed affect (7 items, e.g., I felt depressed, I felt lonely), (b) positive affect (4 items, e.g., I felt happy, I enjoyed life), (c) somatic complaints (7 items, e.g., I had poor appetite, I slept restlessly), and (d) interpersonal problems (2 items; people disliked me, people are unfriendly). This four-factor solution has been replicated relatively consistently across a number of studies and different populations and patient groups (see McDowell, 2006, for a review), for example in a meta-analysis of 28 studies (n = 22, 340) (Shafer, 2006). Yet despite the four-factor structure, because of high internal consistency reliability (Cronbach's alphas ≥ 0.80), it is advisable to use a single, total CES-D score for most applications (Kohout et al., 1993; Radloff, 1977). As Shafer Shafer (2006) explains, the CES-D can be conceptualized as measuring a single, higher-order, general depression factor and at a lower level as measuring a number of specific depression symptom factors.

Because completing the CES-D is time-consuming, short versions are highly recommended (Carpenter et al., 1998; Kohout et al., 1993). Shrout and Yager Shrout and Yager (1989) argue that, owing to the high internal consistency of the CES-D, it could be shortened without substantial loss of reliability. Indeed, numerous abbreviated versions have been proposed, which typically comprise about 10 items collected from all sub-scales, thus capturing the multifactorial structure of depression (see McDowell, 2006, for a review). Factor analysis of the most popular shorter versions demonstrate that the short versions correlate strongly (>0.90) with and tap the same symptom dimensions as does the original CES-D, and reliability statistics indicate that they sacrifice little precision (e.g. Kohout et al., 1993).

The 7-item CES-D scale used in the GGS is the complete list of items comprising the Depressed Affect subscale of the original CES-D (Radloff, 1977). Why these particular items were selected is not described in the GGS conceptual paper (Vikat et al., 2007). This paper simply says

"... a shortened version of the loneliness-scale [...] and a shortened version of the depression-scale, both used in several studies (e.g. de Jong-Gierveld and Havens, 2004; van Tilburg et al., 2004), were included in the GGS" (p. 417-418).

The cited papers, however, only use the loneliness and not the depression scale. We searched the literature for information on the validity and use of these 7 items as a measure of depression. We could not find examples of other surveys using only these particular 7 items.





Although the 7-item version arguably does not capture the full theoretical concept of depression (i.e., it lacks content validity), there are several reasons why this subscale may be a good indicator of depressive symptomatology. Most importantly, the Depressed Affect scale has particularly good psychometric properties. For example, it has the highest Cronbach's alpha (0.85–0.90) of the four CES-D subscales (Devins et al., 1988; Fisher et al., 2004; Gatz and Hurwicz, 1990; Gilbert and Christopher, 2010; Krause and Markides, 1985; Thombs et al., 2008; Wong, 2000). Also, as Radloff (1977) found, the Depressed Affect scale correlates particularly well (0.88) with the total CES-D score in the Norwegian GGS data (see Table 2.2), which indicates that the variation of the original CES-D scale can be adequately covered by the Depressed Affect scale. This is also indicated by that the Depressed Affect items, as Table 2.2 shows, correlate more strongly than other items with the total CES-D score (correlations ranging from 0.49 to 0.71), which corroborates earlier research (range 0.66 to 0.88) (Thombs et al., 2008). Thus, to maintain comparability with wave-I and because the Depressed Affect factor shares the largest proportion of variance with the full CES-D scale, we recommend that the current 7-item scale be retained. There is some precedence of using this version as a measure of depression (despite having collected data on the full 20-item version) (Gilbert and Christopher, 2010). The authors note that they used the depressed affect factor because they believed it best assessed the experience of feeling depressed (thus ignoring lack of positive affect, and presence of somatic symptoms and interpersonal problems).

2.3 Recommended Additions

2.3.1 Life satisfaction

The GGS seems to have initially planned to include a general life satisfaction measure, since the GGS conceptual paper reads

"For measuring subjective well-being we employed well-established measures. Satisfaction with life in general is measured by the 11-grade scale (Veenhoven, 1996)" (Vikat et al., 2007, p. 417)

Yet no life satisfaction measure is included in the core GGS questionnaire.





Table 2.2: Correlations between single items and total CES-D scale score in the Norwegian GGS data $(n \sim 10, 500)$

CES-D item	Correlation with total CES-D score
1. I was bothered by things that usually dont bother me	0.48
2. I did not feel like eating, my appetite was poor	0.43
3. I felt that I could not shake of the blues even with help from my family or friends	0.68
4. I felt that I was just as good as other people	0.38
5. I had trouble keeping my mind on what I was doing	0.53
6. I felt depressed	0.69
7. I felt that everything I did was an effort	0.57
8. I felt hopeful about the future	0.62
9. I thought my life had been a failure	0.57
10. I felt fearful	0.63
11. My sleep was restless	0.50
12. I was happy	0.62
13. I talked less than usual	0.54
14. I felt lonely	0.61
15. People were unfriendly	0.31
16. I enjoyed life	0.57
17. I had crying spells	0.49
18. I felt sad	0.71
19. I felt that people dislike me	0.45
20. I could not get going	0.59
DA subscale (7 items) ($lpha=$ 0.84)	0.88

Note: Depressed Affect items in bald

We suggest that a life satisfaction measure be included in upcoming waves of the GGS, for at least three reasons. First, because a growing body of longitudinal evidence shows that life satisfaction can predict various demographic behaviours, particularly transitions related to marital and parental status (see Part 1). Second, because life satisfaction is a valuable single indicator of global well-being or quality of life, and can thus be used to compare quality of life across subgroups and populations. Third, because life satisfaction is a highly useful outcome variable to assess the quality of life consequences of various life events and demographic transitions. Also, because of the enormous scholarly interest in life satisfaction-e.g., as a target for social policy or as a key indicator of well-being or adaptation in old age-including life satisfaction may expand the use of the GGS data also to researchers not studying demographic processes.

In the literature, especially *one* multi-item scale-the Satisfaction With Life Scale (SWLS) (Pavot et al., 1991)–and a variety of virtually identical single item scales are widely in use, both of which show favourable psychometric properties. First, the SWLS is the most established and popular multi-item scale, and has shown favourable psychometric properties, including high internal consistency (0.87), high temporal stability (0.54 over 4 years and about





0.80 over 2–8 weeks), and appropriate sensitivity to changing life circumstances (see Diener et al., 1999; Hansen, 2010, for reviews). The SWLS comprises the 5 following items measured on a 7-point scale:

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

(1=Strongly agree, 2= Agree, 3= Slightly agree, 4= Neither agree nor disagree, 5= Slightly disagree, 6= Disagree, 7= Strongly disagree)

Second, a set of highly similar single life satisfaction questions are used in various large-scale surveys. One should be aware, however, that single-item scales, compared with multi-item scales, demonstrate markedly less reliability and validity, may be more susceptible to social desirability biases, and show weaker correlations with sociodemographic variables (cf. Hansen, 2010). Nevertheless, several authors advocate the use of single item life satisfaction measures because of their simplicity and, after all, satisfactory reliability (e.g., test-retest stability) and validity (e.g., high correlations with corresponding multi-item scales) (Abdel-Khalek, 2006; Robinson et al., 1991; Sousa and Lyubomirsky, 2001).

Below follows examples of single items currently in use:

World Values Survey:

"All things considered, how satisfied are you with your life as a whole these days? On this scale, 1 means you are completely dissatisfied and 10 means you are completely satisfied."

The Eurobarometer:

"On the whole, how satisfied are you with your life in general? Would you say you are(Very satisfied, fairly satisfied, not very satisfied, not at all satisfied?)."





"All things considered, how satisfied would you say you are with your life these days?, measured on a 10-point scale, in which 1 means very dissatisfied and 10 means very satisfied."

European Social Survey:

GGP

"All things considered, how satisfied are you with your life as a whole nowadays? This question is answered on a scale from 0 to 10, where 0 means extremely dissatisfied and 10 means extremely satisfied."

We recommend that the GGS include Pavot et al. (1991) 5-item Satisfaction With Life Scale. The advantages of this scale over a single item is improved psychometric qualities and that averaging scores across several items create more variation in the index than obtained in a single item (people tend to cluster at high scores on single life satisfaction items) (e.g. Larsen et al., 1985). The greater variation and precision in measurement usually leads to more sensitivity (i.e., stronger associations or effects) to changes in life conditions and demographic behaviours. As an illustration, Table 2.3 shows two multiple regression analyses of one single life satisfaction item and the SWLS (a 5-point scale version) using the same independent variables in Norwegian GGS data ($n \sim 15,500$). As shown here and by others (Pinquart and Sörensen, 2000, 2001), life satisfaction is more sensitive to objective circumstances when using a multi-item rather than a single item scale. The correlation between the two scales is 0.63.

If the SWLS is judged too extensive for the GGS, the second best option is to include one of the above single items. Owing to their similarity, the choice among them is less important. Yet, we recommend the European Social Survey's scale "All things considered, how satisfied are you with your life as a whole nowadays? This question is answered on a scale from 0 to 10, where 0 means extremely dissatisfied and 10 means extremely satisfied." We recommend this item mainly because it has the same response set as other (domain) satisfaction items in the GGP (measured from 0-10), but also because of its extensive use and thus comparability with other datasets.



Table 2.3: Regressing life satisfaction, as measured by the SWLS and a
single item, on socio-demographic variables. Standardized coef-
ficients.

	SWLS (5-25)	Single item (0-10)
Male	0.04 **	0.03 **
Age	-0.06 **	0.02 *
Education	0.03 **	0.04 **
Employed $(0/1)$	0.03 **	0.07 **
Income	0.03 *	0.01
Partner $(0/1)$	0.24 **	0.19 **
Children $(0/1)$	0.04 **	0.02 *
R ²	0.073	0.040
Note: * n<0.05: ** n<	< 0.01	

2.3.2 Personality

GGP

Personality traits are generally defined as stable patterns of thought, feelings and behaviour (John et al., 2008). Personality is frequently studied as personality traits, and many different classifications of such traits have been developed. Yet in recent years, the "Big Five" model has become the one gathering the most consensus as a general taxonomy for the personality structure. According to this model, the five main personality dimensions are: Extroversion, Agreeableness, Conscientiousness, Neuroticism, and Openness.

Five-Factor theory posits that the five factors of personality capture basic tendencies regarded as biologically based dispositions and capabilities (John et al., 2008). In fact, it has been shown that the genetic contribution to individual differences in personality is quite substantial (e.g. Loehlin, 2005). Yet although the Big Five personality dimensions were typically considered to be stable after age 30 (McCrae and Costa, 2003), a recent meta analysis of 92 studies find significant mean level changes for most personality dimensions after the age of 30 (Roberts et al., 2006). As others explain, personality is quite stable but not invariable throughout adulthood; small changes can occur because whereas the personality trait genotype is "fixed", there is some room for the phenotype to change in response to the environment (Caspi and Roberts, 2001; Srivastava et al., 2003).

A large theoretical and empirical literature exists on the implications of personality for intentions, behaviours, and values and preferences. Theoretically, as John et al. (2008) explain, traits are believed to influence how individuals construe and interpret particular situations or environments, and to which aspects of the environment they attend. In addition to this cognitive influence,





traits also influence people's motivation and the way they select social and non-social environments. Personality traits thus affect people's behavioural choices and the rewards they derive from and how they adapt and react to these changes. As indicated, however, personality does not affect people's thoughts and behaviours in a vacuum, but, rather, in interaction with particular environments. Hence, personality traits (e.g., extroversion) may interact with environmental factors (e.g., work or partner characteristics) to jointly produce behavioural and life outcomes (e.g., work success or marital happiness) (John et al., 2008). Such interactions are believed to be the basis for the widely documented findings that the Big Five dimensions can predict life outcomes in such fundamental domains as physical and mental health, work, and relationships (cf. John et al., 2008). Research also shows that personality traits can predict a number of specific outcomes that the GGS seeks to explain, such as subsequent marital quality, fertility timing and motivation, provision of support for elderly parents, retirement behaviour, and health and health-related behaviour (see Part 1). Thus, including a measure of personality traits in the GGS allows for analyses of several social processes of key interest to the GGS.

Many of the widely used personality questionnaires are designed to measure the Big Five traits, but are extensive, such as the popular 44-item Big-Five Inventory (BFI; see John and Srivastava, 1999), the 60-item NEO Five-Factor Inventory (NEO-FFI; Costa and McCrae, 1992), and Goldberg's instrument comprised of 100 traits descriptive adjectives (TDA; Goldberg, 1992). Fortunately, several relatively short personality inventories are available, although few of them have been applied in large surveys. One notable exception is a 15-item version of the BFI-44 (John and Srivastava, 1999), used both in the German Socio-Economical Panel Survey (GSOEP) and the British Household Panel Survey (BHPS). The 15 items are:

I see myself as someone who:

- Is sometimes rude to others
- Does a thorough job
- Is talkative
- Worries a lot
- Is original, comes up with new ideas
- Has a forgiving nature



- GGP
 - Tends to be lazy
 - Is outgoing, sociable
 - Gets nervously easily
 - Values artistic, aesthetic experiences
 - Is considerate and kind to almost everyone
 - Does things efficiently
 - Is reserved
 - Is relaxed, handles stress well
 - Has an active imagination

Each question is answered on a one to seven scale, where one refers to "Does not apply" and seven to "Applies perfectly". Each personality trait is measured by the average score of three items. Alpha reliabilities for the five factors are satisfactory, ranging from about 0.55 to 0.70 in the BHPS and GSOEP (Donnellan and Lucas, 2008; Heineck, 2007; Heineck and Anger, 2010; Nandi and Nicoletti, 2009). Average inter-item correlation within each personality factor is 0.28 to 0.41 (Donnellan and Lucas, 2008). The 3-item scales also correlate strongly with their respective BFI-44 scales (Extraversion: 0.90; Agreeableness: 0.88; Conscientiousness: 0.88; Neuroticism: 0.89; Openness: 0.86) (Donnellan and Lucas, 2008). On the basis of these results, these brief measures seem to be reasonable substitutes for the longer scales (Donnellan and Lucas, 2008).

The Norwegian GGS data contains a 20-item version of the BFI-44-the BFI-20-developed and tested by Norwegian researchers (Engvik and Clausen, 2010). The authors, to improve reliability, replaced the ordinal 5-point scale with a 7-point scale ranging from 1 ('Does not apply to me at all') to 7 ('Applies to me perfectly'). Based on data from 630 university students, they selected the 20 items of the BFI-44 that possessed that strongest evidence of structural validity (high correlation with respective personality factor and other items belonging to that factor), representativeness (convergence with the traits as measured by the BFI-44), convergent validity (associations with other Big Five instruments), and temporal stability over two months. The BFI-20 factor scales display satisfactory psychometric properties, e.g., reliability (alphas ranging from 0.57 - 0.78), representativeness (0.85 - 0.91), and test-retest correlations (0.67 - 0.79).





A 10-item version of the BFI, the BFI-10, also has been developed and evaluated with positive results (Rammstedt, 2007; Rammstedt and John, 2007). This scale reads, with response options ranging from 1 = Disagree strongly to 5 = Agree strongly):

I see myself as someone who

- is reserved
- is generally trusting
- tends to be lazy
- is relaxed, handles stress well
- has few artistic interests
- is outgoing, sociable
- tends to find fault with others
- does a thorough job
- gets nervous easily
- has an active imagination

Gosling et al. (2003) developed and evaluated 5- and 10-item personality inventories, based on items from several existing Big-Five instruments. The short measures reached adequate levels of reliability (test-retest stability) and validity (e.g., convergence with the traits as measured by the BFI-44). For the 10-item versions, the authors selected items that maximized breath of coverage (i.e., content validity) at the cost of internal consistency (Cronbach's α s were relatively low, ranging from 0.40 to 0.73).

Gosling et al. (2003) 10-item version (TIPI):

Here are a number of personality traits that may or may not apply to you. Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement. You should rate the extent to which the pair of traits applies to you, even if one characteristic applies more strongly than the other. 1 = D is agree strongly, 7 = A gree strongly.

I see myself as:



• Extroverted, enthusiastic

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- Critical, quarrelsome
- Dependable, self-disciplined
- Anxious, easily upset
- Open to new experiences, complex
- Reserved, quiet
- Sympathetic, warm
- Disorganized, careless
- Calm, emotionally stable
- Conventional, uncreative

This instrument measures each trait with two items. Several articles have tested its psychometric properties with positive results (Ehrhart et al., 2009; Hofmans et al., 2008; Muck et al., 2007). Yet some critique and caution has also been raised (Herzberg and Brahler, 2006).

Gosling et al. (2003) 5-item version (FIPI):

Here are a number of personality traits that may or may not apply to you. Please tell me to what extent do you agree or disagree with that statement. 1 = Disagree strongly, 7 = Agree strongly.

- Extroverted, enthusiastic (that is, sociable, assertive, talkative, active, NOT reserved, or shy)
- Agreeable, kind (that is, trusting, generous, sympathetic, cooperative, NOT aggressive, or cold)
- Dependable, organized (that is, hard working, responsible, self-disciplined, thorough, NOT careless, or impulsive)
- Emotionally stable, calm (that is, relaxed, self-confident, NOT anxious, moody, easily upset, or easily stressed)
- Open to experience, imaginative (that is, curious, reflective, creative, deep, open-minded, NOT conventional).





Except for the 15-item version used in the BHPS and GSOEP, short personality scales do not seem to have been applied in large surveys. Most surveys that include a measure of personality, tend to use longer scales. The National Survey of Midlife Development in the United States (MIDUS), for example, uses a 31-item instrument.

Because of its good psychometric properties and application in prior surveys, we recommend that the GGS copies the personality instrument used in the BHPS and GSOEP, the 15-item version of the BFI-44. We realize that a 15-item instrument is still quite lengthy for an already extensive survey like the GGS. However, because personality is highly stable-to a great extent fixed over time-personality traits need not be measured in every round of data collection, possibly only once. The BHPS, for example, only includes personality in wave 15 (out of 18 waves), and the GSOEP only in the 2005 wave.

2.3.3 Sense of control

Because controls beliefs can predict subsequent motivation for family formation and childbearing, work success, quality of social relations, and a healthy lifestyle (see Part 1), the GGS may benefit from including a measure of global sense of control. Pearlin and Schooler (1978) Personal Mastery Scale (PMS) is the most widely used instrument to capture a global sense of control (see Part 1). The PMS asks respondents to rate their agreement with the following seven statements on a 5-point scale (from 1 'strongly disagree' to 5 'strongly agree').

- 1. There is really no way I can solve some of the problems I have.
- 2. Sometimes I feel that I'm being pushed around in life.
- 3. I have little control over the things that happen to me.
- 4. I can do just about anything I really set my mind to.
- 5. I often feel helpless in dealing with the problems of life.
- 6. What happens to me in the future mostly depends on me.
- 7. There is little I can do to change many of the important things in my life.





The PMS has demonstrated satisfactory internal reliability ($\alpha = 0.75 - 0.80$) and moderate temporal stability (test-retest correlation of 0.44), across different languages and populations (see Part 1). The scale also exhibits good construct validity, as control correlates predictably with coping and mental health (Pearlin et al., 1981; Pudrovska et al., 2005; Surtees et al., 2006; Wilkins and Beaudet, 1998).

We could find two uses of abbreviated versions of the PMS. First, the Longitudinal Aging Study Amsterdam (LASA) uses (at least in some waves) a 5-item version that excludes item 4 and 6 in the above list (LASA, 2010). Second, the U.S. National Survey of Families and Households (NSFH) (in wave II and III) uses a 4-item version of the PMS that includes items 1-4 in the above list. We tested the psychometric qualities of these versions using data from the Norwegian GGS, which has all the original 7 items. First of all, both the LASA (0.91) and NSFH version (0.89) correlate strongly with the full scale. However, as Table 2.4 shows, the LASA version has markedly higher internal consistency than the NSFH version.

Table 2.4: Psychometric properties of the PMS items. Norwegian GGSdata ($n \sim 10,000$)

	Corr with	a if itom	0
	PMS score	deleted	u
1. There is really no way I can solve some of the problems I have ^{ab}	0.73	0.75	
2. Sometimes I feel that I'm being pushed around in life ^{ab}	0.66	0.76	
3. I have little control over the things that happen to me ^{ab}	0.53	0.76	
4. I can do just about anything I really set my mind to ^b	0.54	0.78	
5. I often feel helpless in dealing with the problems of life ^a	0.76	0.73	
6. What happens to me in the future mostly depends on me	0.37	0.79	
7. There is little I can do to change many of the important things in my life $\ensuremath{^{\text{a}}}$	0.71	0.75	
7-item version (PMS)			0.79
5-item version (LASÁ)			0.80
4-item version (NSFH)			0.65
Note: ^a In LASA, ^b In NSEH			

As a validity check, we explore the convergence of the original and short (LASA) PMS with other theoretically related constructs. As Table 2.5 shows, the two PMS scales correlate almost identically with these other instruments. Furthermore, as Table 2.6 shows, the LASA version correlate almost identically as the full PMS version to various socio-demographic variables. The latter analysis indicates that the short version has similar sensitivity to changing life conditions as the full version.

There is also some other findings that support the use of the 5-item LASA version of the PMS. Although the full PMS shows high internal consistency


Table 2.5: Correlations between sense of control, as measured by the PMS-
7 (the original scale) and PMS-5 (LASA version), and theoreti-
cally related constructs

	PMS-7	PMS-5
CES-D	-0.52	-0.55
SWLS	0.49	0.48
Neuroticism (BFI-20)	-0.46	-0.48
Self-Esteem	-0.46	-0.47
Mental health	0.60	0.60

Note: Self-esteem is measured using the 10-items Rosenberg (1965) Self Esteem Scale ($\alpha=$ 0.80); mental health with SF-12 (Ware et al., 1996).

Table 2.6: Regressing the PMS-7 (the original scale) and PMS-5 (LASA version) on sociodemographic variables. Standardized coefficients.

	PMS-7 (7-35)	PMS-5 (5-25)
Male	-0.01	-0.01
Age	-0.19 **	-0.12 **
Education	0.06 **	0.09 **
Employed (0/1)	0.08 **	0.08 **
Income	0.13 **	0.11 **
Partner $(0/1)$	0.04 **	0.06 **
Children $(0/1)$	0.01	0.01
R ²	0.083	0.068
Note: * p < 0.05; ** p	0 < 0.01	

(e.g. Jang et al., 2002) and some findings indicate a one-dimensional factor structure of this scale (Pearlin and Schooler, 1978), others report that adequate levels of reliability and a one-factor structure can only be achieved by eliminating the positively phrased items on the scale (Dalgard et al., 2007; Deeg and Huisman, 2010; Gadalla, 2009; Green and Rodgers, 2001). The two positively phrased items are the ones excluded in the LASA version. The benefits of using only negatively phrased items is not unequivocal, however. On the one hand, the validity of a scale generally is improved by applying a mixture of both positively and negatively phrased items, to prevent the influence of response sets (e.g., "yeah-saying"). At the same time, this application makes responding more cognitively demanding and time-consuming, and, evidently, may compromise the factor structure of the scale.

All in all, we recommend that LASA's 5-item version of the PMS be added to the GGS. Using a short version saves time in the interview vis-à-vis the original 7-item version. The reasons for choosing this among other possible short versions is comparability with other surveys (LASA) and evidence of





good psychometric qualities.

2.4 Mode of Administration: Post Versus Interview

Finally, we want to briefly address some advantages of posing sensitive questions, such as the above psychological instruments, in a postal questionnaire rather than in a telephone or face-to-face interview. Generally, the more anonymous the setting, the more people self-disclose and the less they tend to present themselves in a socially favourable manner. Specifically, identical questions tend to elicit more positive responses in face-to-face interviews than in telephone interviews, which, in turn, elicit more positive responses than postal questionnaires (de Leeuw et al., 1996; Hox and de Leeuw, 1994; Moum, 1988). Veenhoven (1991) notes that the choice of method can yield differences in the realm of as much as one point on a 11-step scale. Similarly, Hellevik (2008, p. 25) notes that about 4% of Norwegians are not happy and 29% are very happy as reported in face-to-face interviews; in questionnaires these percentages are about 10% and 20%, respectively. Hence, the use of anonymous questionnaires (instead of interviews) enhances quality of data about well-being (Veenhoven, 1984).

To illustrate the mode of administration effect, the tables below show the frequency distributions in the Norwegian GGS data for six questions that are posed identically in the telephone interview and in a postal questionnaire. As shown, responses are less skewed and more dispersed and normally distributed in the postal questionnaire. In general, therefore, sensitive questions should, as far as possible, be posed in a postal questionnaire. However, as this affects comparability with wave I interview data, we recommend that only the new additions (personality, life satisfaction, and sense of control) be placed in a postal questionnaire.

Yet an obvious disadvantage of using postal questionnaires, is lowered response rate. The Norwegian GGS combined a telephone interview with a postal questionnaire. The response rate of the telephone interview was about 60%, of which about 75% subsequently completed and returned the postal questionnaire, which gives a response rate on the postal questionnaire of about 45% of the total gross sample.







Figure 2.1: I have little control over the things that happen to me (Mastery scale) – post vs. phone (GGS_{Norway} $n_{phone} = 15,000$ $n_{post} = 10,000$)



Figure 2.2: What happens to me in the future mostly depends on me (Mastery scale) – post vs. phone (GGS_{Norway} $n_{phone} = 15,000$ $n_{post} = 10,000$)







Figure 2.3: My appetite was poor (CES-D) - post vs. phone $(GGS_{Norway} \ n_{phone} = 15,000 \ n_{post} = 10,000)$



Figure 2.4: I felt depressed – post vs. phone $(GGS_{Norway} \ n_{phone} = 15,000 \ n_{post} = 10,000)$







Figure 2.5: My sleep was restless – post vs. phone (GGS_{Norway} $n_{phone} = 15,000$ $n_{post} = 10,000$)



Figure 2.6: Do you often feel lonely (single-item loneliness scale) – post vs. phone (GGS_{Norway} $n_{phone} = 15,000$ $n_{post} = 10,000$)





2.5 Item text and position in the module

We have also considered the text of the questions, their response categories and interviewer instructions, as well as their position in the questionnaire. For the wave I items to be retained in the new GGP module, we suggest using the original (wave I) text, response categories, interviewer instructions, and position in the questionnaire (see Appendix A). For the suggested additional items, totalling 25 items (21 if using a single item life satisfaction measure), we recommend the following (also described in Appendix B).

2.5.1 Life satisfaction

Recommended measure: The SWLS

Items:

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

Response categories: 1=Strongly disagree, 2= Disagree, 3= Slightly disagree, 4= Neither agree nor disagree, 5= Slightly agree, 6= Agree, 7= Strongly agree.

Interviewer instructions: I am going to read out five statements about your current experiences. Please indicate the extent to which you agree or disagree with each of the statements using the following scale where. 1- Strongly disagree...

(This instruction is similar to the one currently used for the loneliness items, 720a-f).

Position in the questionnaire: There may be a spillover effect on single item life satisfaction assessments of preceding questions, because preceding questions may make specific information more salient to the respondent (Diener,





1994; Schwarz and Strack, 1999). One should thus avoid placing questions triggering positive or negative emotions (e.g., questions about loneliness or marital satisfaction) immediately before life satisfaction questions. It is not easy, however, finding a position in the GGP questionnaire that is not preceded by questions that draw attention to specific life circumstances. Additionally, the items should preferably be placed under the heading of "Health and well-being" (Section 7). We recommend that the personality inventory should precede the life satisfaction scale (see below). We thus recommend that the life satisfaction items be placed as items 720p-720t (replacing the loneliness items), immediately after the personality inventory.

2.5.2 Life satisfaction single item (if the SWLS is judged to extensive)

Recommended measure: The European Social Survey item.

Item: All things considered, how satisfied are you with your life as a whole nowadays? This question is answered on a scale from 0 to 10, where 0 means extremely dissatisfied and 10 means extremely satisfied.

Response categories: See above. And/or apply the card ("Show card 117: Satisfaction Scale") used for the satisfaction questions in GGP wave I.

Interviewer instructions: Not required.

Position in the questionnaire: Item 720p (see above).

2.5.3 Personality

Recommended measure: A 15-item version of the BFI-44.

Items:

I see myself as someone who:

- 1. Is sometimes rule to others
- 2. Does a thorough job
- 3. Is talkative





- 4. Worries a lot
- 5. Is original, comes up with new ideas
- 6. Has a forgiving nature
- 7. Tends to be lazy
- 8. Is outgoing, sociable
- 9. Gets nervously easily
- 10. Values artistic, aesthetic experiences
- 11. Is considerate and kind to almost everyone
- 12. Does things efficiently
- 13. Is reserved
- 14. Is relaxed, handles stress well
- 15. Has an active imagination

Response categories: Each question is answered on a one to seven scale, where one refers to "Does not apply" and seven to "Applies perfectly".

Interviewer instructions: Below follows 15 statements about characteristics that may or may not apply to you. Please indicate the extent to which you think each characteristic applies to you, on a one to seven scale, where one refers to "Does not apply" and seven to "Applies perfectly". Do not spent too much time on each statement, but indicate the category that you immediately feels fit you the best.

Position in the questionnaire: Item 720a-720o (see above).

2.5.4 Sense of control

Recommended measure: The PMS.

Items:

1. There is really no way I can solve some of the problems I have.



- 2. Sometimes I feel that I'm being pushed around in life.
- 3. I have little control over the things that happen to me.
- 4. I often feel helpless in dealing with the problems of life.
- 5. There is little I can do to change many of the important things in my life.

Response categories: 1=Strongly disagree, 2= Disagree, 3= Neither disagree nor agree, 4= Agree, 5= Strongly agree.

Interviewer instructions: See SWLS above. (These two scales should be combined in the interview, to save time, or in the postal questionnaire, to save space).

Position in the questionnaire: Items 720u-720y.



Health 701 How is your health in general? 702a Doyou have any long-standing illness or chronic condition? 702b How long have any long-standing illness or chronic condition? 703a How long have you initied in your ability to carry out normal everyday activities, because of a physical or mental health problem 703b Flow long have you had this long-standing illness or chronic condition? 703b 703a Are you initied in your ability to carry out normal everyday activities, because of a physical or mental health problem 703b Flow nuch control do you feel you will have over the following areas of your life in the next three years? T19a/720u 719a/720u T19a/720u How much control do you feel you will have over the following areas of your life in the next three years? There is really no wa or a disability? 719b/720v T19a/720u How much control do you feel you will have out life in the next three years? There is really no wa or the following areas of your life in the next three years? 719b/720v T19b/720v How much control do you feel you will have out life problems of life in the next three years? There is really no wa or the following areas of your life in the next three years? 719b/720v T19b/720v How much control do you feel you will have or the following areas of your life in the next three yeares? There is really no wa or the following are	Measure	Current or recommended position	Retain from wave I	Exclude	Addition or replacement
702b How long have you had this long- standing illness or chronic condition? 703a How long have you had this long- standing illness or chronic condition? 703a Are you imitted in your shifty to carry out normal everyday achiety to carry out normal everyday achiety. How much control do you feel you will have over the following areas of your life in the next three years? How much control do you feel you will have over the following areas of your life in the next three years? 719a/720u 719a/720u How much control do you feel you will have over the following areas of your life in the next three years? There is really no wa Sometimes I feel that work 719b/720w 719b/720w How much control do you feel you will have over the following areas of your life in the next three years? There is really no wa Sometimes I feel that around in life francial situation 719b/720w 719b/720w How much control do you feel will not have over the following areas of your life in the next three years? There is really no wa boolenses I feel that around in life francial situation 719b/720w 719b/720w How much control do you feel willow in the next three years? There is fitte I can can on in case of trouble 719b/720w 720e 720e There are penty of people that I can count on completely 720e 720e There are many people tran t	Health	701 702a	How is your health in general? Do you have any long-standing illness or		
703a Total Are you limited in your standing limes or conductor. 703b Standing limes or connection. 703b 703b Tota you limited in your sitis, because of a pissical or mental health problem out normal everyday activities, because 703b 703b Since how long? How much control do you feel you will he next three years? 719a/720u 719b/720u How much control do you feel you will he next three years? 719b/720v Tota disability? How much control do you feel you will he next three years? 719b/720v Tota disability? How much control do you feel you will he next three years? 719b/720v Tota disability? How much control do you feel you will he next three years? 719b/720v Tota disability? How much control do you feel you will he next three years? 719b/720v Tota disability? How much control do you feel you will he next three years? 719b/720v Tota disability? How much control do you feel you will he next three years? 719b/720v Tota disability? Housing condition 719b/720v Tota disability? Housing condition 10 Tota disability? Health 10 Tota disability? Provide disability? 700d Tota disability? There are plenty of people that I can tean 720b Tota disability? Pr		702b	How long have you had this long-		
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719d/720x Tube 719e/720y Health 719e/720y Family life 719e/720y Family life 720a There are plenty of people that I can lean on in case of trouble 720b Texperince a general sense of emptiness 720c There are many people around 720c There are many people that I can count 720c There are many people that I can count 720c There are many people that I can count 720c There are many people that I can count 720c There are many people that I can count 720c There are many people that I can count 720c There are many people that I can count		719c/720w		Housing condition	around in life I have little control over the things that
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720b Texperience a general sense of emptiness 720c Texperience a general sense of emptiness 720c This having people around 720d There are many people that I can count 720e Offen, I feel rejected	Loneliness	720a		There are plenty of people that I can lean	or the important things in my life
720c I miss having people around 720d There are many people that I can count on completely 720e Often, I feel rejected		720b		l experience a general sense of emptiness	
720e Offen, I feel rejected		720c 720d		I miss having people around There are many people that I can count	
		720e		on completely Often, I feel rejected	





Table 2.7: Table of old and new iter

Measure	Current or recommended position	Retain from wave I	Exclude	Addition or replacement	GGP
	720f		There are enough people that I feel close to		
Depression	721a	I felt that I could not shake off the blues even with help from mv familv or friends	1		
	721b	I felt depressed			
	721c	I thought my life had been a failure			
	721d	l felt fearful			
	721f	l telt lonely I had crving spells			
	721g	I felt sad			
Satisfaction	117	How satisfied are you with your dwelling?			L
	202	How satisfied are you with the way child-			D1
		care tasks are divided between you and			3 -
		your partner/spouse?			- V
	224, 231	row sausiled are you with your relation-			VP
	402	How satisfied are vou with the division			P10
		of household tasks between you and your			
		partner/spouse?			$D\epsilon$
	407	How satisfied are you with your relation-			eve
		ship with your partner/spouse?			loj
	517, 553, 562	How satisfied are you with the relation-			pn
		ship with your mother?			nen
	531, 547, 501	How satisfied are you with the relation-			et o
	804	How satisfied are you with being on ma-			$f p_i$
		ternity/parental/childcare leave?			syc
	809	How satisfied are you with being unem-			che
		ployed?			olo
	813	How satisfied are you with being student,			gi
		studying at school or in vocational train-			G cal
	817	How sofisfied are with heing retired?			G F in
	823	How satisfied are vou with being home-			ר str
		maker?			2 12 um
				Continued on next page	74 en





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839	mmended tion		Exclude	Addition or replacement
		How satisfied are you with your current		
847		How satisfied are you with job security?		
850		How satisfied are you with your self-		
		employment?		
Life satisfaction 720p	0			In most ways my life is close to my ideal
7200				The conditions of my life are excellent
1.20r				So far I have gotten the important things
720s				l want in ine I am satisfied with my life
720t				If I could live my life over, I would change
				almost nothing
Life satisfaction 720F	0			All things considered, how satisfied are
(alternative measure)				you with your life as a whole nowadays?
Personality 720a				ls sometimes rude to others
7205	0			Does a thorough job
7200	0			Is talkative
720c				Worries a lot
720€	4)			Is original, comes up with new ideas
720f				Has a forgiving nature
720	b0			Tends to be lazy
720				ls outgoing, sociable
720				Gets nervously easily
720				Values artistic, aesthetic experiences
7204	~			Is considerate and kind to almost every-
				one
720				Does things efficiently
720r	٤			ls reserved
720r	_			Is relaxed, handles stress well
7200				Has an active imagination



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Appendices

List of current measures

Health

701. How is your health in general?

- 1 very good
- 2 good
- 3 fair
- 4 bad
- 5 very bad

702. a. Do you have any long-standing illness or chronic condition?

- 1 yes
- 2 no (go to 703)

b. How long have you had this long-standing illness or chronic condition?

- 1 less than 6 months
- 2-6 months to one year
- 3-1 year to 5 years
- 4-5 years to 10 years
- 5 10 years or more

703. a. Are you limited in your ability to carry out normal everyday activities, because of a physical or mental health problem or a disability?

1 - yes



2 - no

- b. Since how long?
- 1 less than 6 months
- 2-6 months to one year
- 3-1 year to 5 years
- 4-5 years to 10 years
- 5 10 years or more

Locus of control

719. How much control do you feel you will have over the following areas of your life in the next three years?

- a. your financial situation
- b. your work
- c. your housing condition
- d. your health
- e. your family life
- 1 not at all
- 2 a little
- 3 quite a lot
- 4 a great deal

Depression 720. I am going to read out six statements about your current experiences. Please indicate for each of them to what extent they have applied to you recently.

- a. There are plenty of people that I can lean on in case of trouble
- b. I experience a general sense of emptiness
- c. I miss having people around
- d. There are many people that I can count on completely
- e. Often, I feel rejected
- f. There are enough people that I feel close to
- 1-yes
- 2 more or less
- 3 no





721. Please tell me how frequently did you experience the next items during the previous week.

During the past week...

- a. I felt that I could not shake off the blues even with help from my family or friends
- b. I felt depressed
- c. I thought my life had been a failure
- d. I felt fearful
- e. I felt lonely
- f. I had crying spells
- g. I felt sad

GGP

- 1 seldom or never
- 2 -sometimes
- 3 often
- 4 most or all of the time

Satisfactions

117. How satisfied are you with your dwelling? On a scale from 0 to 10 where 0 means 'not at all satisfied' and 10 means 'completely satisfied' and 5 means 'about average', what number best represents your satisfaction with your dwelling? Please use this card and tell me the value on the scale.

202. How satisfied are you with the way childcare tasks are divided between you and your partner/spouse?

224. How satisfied are you with your relationship with [name]? (non-resident children $_{\rm i}14{\rm y})$

237. How satisfied are you with your relationship with $[{\rm name}]?$ (stepchildren)

402. How satisfied are you with the division of household tasks between you and your partner/spouse?

407. How satisfied are you with your relationship with your partner/spouse?

517. How satisfied are you with the relationship with your mother?





- 531. How satisfied are you with the relationship with your father?
- 547. How satisfied are you with the relationship with your father?
- 553. How satisfied are you with the relationship with your mother?
- 561. How satisfied are you with the relationship with your father?
- 562. How satisfied are you with the relationship with your mother?
- 804. How satisfied are you with being on maternity/parental/childcare leave?
- 809. How satisfied are you with being unemployed?

813. How satisfied are you with being student, studying at school or in vocational training?

- 817. How satisfied are you with being retired?
- 823. How satisfied are you with being homemaker?
- 839. How satisfied are you with your current job?
- 847. And how satisfied are you with job security?
- 850. How satisfied are you with your self-employment?

List of suggested additions

Life satisfaction

I am going to read out five statements about your current experiences. Please indicate the extent to which you agree or disagree with each of the statements using the following scale where. 1- Strongly disagree...

- a. In most ways my life is close to my ideal
- b. The conditions of my life are excellent
- c. So far I have gotten the important things I want in life
- d. I am satisfied with my life
- e. If I could live all over again, I would change almost nothing

Response categories: 1=Strongly disagree, 2= Disagree, 3= Slightly disagree, 4= Neither agree nor disagree, 5= Slightly agree, 6= Agree, 7= Strongly agree

Alternative single-item life satisfaction measure

720p. All things considered, how satisfied are you with your life as a whole nowadays? This question is answered on a scale from 0 to 10, where 0 means extremely dissatisfied and 10 means extremely satisfied.

"Show card 117: Satisfaction Scale"





Personality

Below follows 15 statements about characteristics that may or may not apply to you. Please indicate the extent to which you think each characteristic applies to you, on a one to seven scale, where one refers to "Does not apply" and seven to "Applies perfectly". Do not spent too much time on each statement, but indicate the category that you immediately feels fit you the best. I see myself as someone who:

- a. Is sometimes rule to others
- b. Does a thorough job
- c. Is talkative
- d. Worries a lot
- e. Is original, comes up with new ideas
- f. Has a forgiving nature
- g. Tends to be lazy
- h. Is outgoing, sociable
- i. Gets nervously easily
- j. Values artistic, aesthetic experiences
- k. Is considerate and kind to almost everyone
- l. Does things efficiently
- m. Is reserved
- n. Is relaxed, handles stress well
- o. Has an active imagination

Sense of control

(These items follow immediately after the SWLS life satisfaction items, and do not need a new interviewer instruction, except:) For the next five statements, please indicate the extent to which you agree or disagree by using a scale from 1 to 5, where 1=Strongly disagree, 2= Disagree, 3= Neither disagree nor agree, 4= Agree, 5= Strongly agree.

- a. There is really no way I can solve some of the problems I have.
- b. Sometimes I feel that I'm being pushed around in life.
- c. I have little control over the things that happen to me.
- d. I often feel helpless in dealing with the problems of life.
- e. There is little I can do to change many of the important things in my life.

