

**Quality of life at older ages and marital status:
gender and welfare regime variation**

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Declaration of originality

I (Jessica Grace Abell) declare that the contents of this thesis are my own work. Where the work of others has been used, this has been indicated and appropriately referenced.

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Abstract

Background: Evidence of an association between marital status and well-being has been demonstrated, with married people reporting higher levels of well-being. However, the strength of this relationship in later life may be influenced by both societal context and gender. This thesis will examine the association between marital status and quality of life in older people and consider if this relationship varies by welfare arrangements and if gender moderates these associations. This research will also explore how quality of life is experienced within married couples.

Methods: Quality of life was measured using CASP-12. The relationship with both current and past marital status was examined. Analyses were conducted using data from The Survey of Health, Ageing and Retirement in Europe (SHARE) and the English Longitudinal Study of Ageing (ELSA). A welfare state regime approach was used to examine societal context and due to feminist criticisms of these approaches, two further methods of comparison were used. A dyadic data technique was also used to examine the interdependence of quality of life for married people.

Results: Current marital status was found to be a predictor of quality of life at older ages. However, variation in this association was observed across the welfare state regimes. When health and socio-economic circumstances were taken into account, the advantage of marriage for quality of life was often attenuated. Gender differences in this relationship were also observed; especially when gender focused methods were examined. Spousal interdependence of quality of life was also observed within married couples.

Conclusions: This research expands our understanding of the association between marriage and well-being by suggesting that societal context is important and that marriage may offer men and women different kinds of protection as they age. It also suggests that for older married couples, quality of life is not just an individual experience.

Glossary of Abbreviations

ADL	Activities of Daily Living
AIC	Akaike Information Criterion
ANOVA	Analysis of Variance
APIM	Actor-Partner Interdependence Model
BMI	Body Mass Index
CES-D	Centre for Epidemiologic Studies Depression Scale
ELSA	The English Longitudinal Study of Ageing
ESRC	The Economic and Social Research Council
ESS	The European Social Survey
GALI	Global Activity Limitation Index
GDP	Gross Domestic Product
GEI	Gender Equity Index
IADL	Instrumental Activities of Daily Living
ICC	Intraclass Correlation Coefficient
ICLS	The International Centre for Life course Studies
ISCED	International Standard Classification of Education
MAR	Missing At Random
MCAR	Missing Completely At Random
MI	Multiple Imputation
MLE	Maximum Likelihood Estimation
MLM	Multi-Level Modelling
MNAR	Missing Not At Random
NS-SEC	The National Statistics Socio-Economic Classification
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
OPQOL	Older People's Quality of Life Questionnaire
QOL	Quality of Life
SD	Standard Deviation
SEM	Structural Equation Model
SEM	Standard Error of Measurement
SEP	Socio-Economic Position
SHARE	The Survey of Health, Ageing and Retirement in Europe
SWB	Subjective Well-Being
WHO	World Health Organisation

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Chapter 1

Introduction

1.1 Why examine marriage and well-being at older ages?

Marriage is often promoted as a path to happiness in later life; one which can offer a number of rewards such as emotional support, physical care and financial security. A wealth of evidence from many academic disciplines has found that overall, those who are married have better outcomes, in terms of health and well-being. Those who theorise that marriage is itself the reason for these benefits, argue that if single people could be encouraged to marry, their well-being should improve as a direct consequence (Gallagher and Waite, 2000). However, is it this simple? Do older married couples always report higher well-being, regardless of the social context they live in? Furthermore, do all groups of people who marry experience these benefits? Do older women and men find that marriage has an equally positive influence on their well-being?

Although previous research has explored the association between marriage and well-being, less attention has been paid to these relationships in older cohorts. Traditionally research in this area has relied upon health related measures to capture this well-being in later life. However, as society ages and people live longer, they will have increasingly heterogeneous experiences, it is therefore important to use concepts and measures developed specifically to capture a wider definition of well-being at older ages. There are a number of reasons why marital status could affect how ageing is experienced differently. Although marriage as an event occurs more often when people are younger, the effect of the partnership may have important consequences for later life. If the marriage endures, then the security this provides may protect people emotionally and financially throughout their lifetime. Those who have been married may have access to a larger circle of family and friends or more wealth than those who are single. Alternatively, there could be a lasting negative impact of the dissolution of a marriage, whether through divorce or being widowed. However, these

differences are not always inevitable; there are examples of individuals who are single living a long and happy life. The advantages of marriage for older people may not be distributed universally; they may be experienced more keenly when being married is necessary for well-being. If this is true, then research which seeks to explore the association between marital status and well-being in later life could also examine the societal context of this relationship, which provides the framework for both marriage and well-being.

1.2 A comparative approach

Comparative research has several strengths, one of which is that it allows theories to be examined across different societal contexts. This context might be important when the advantages of marriage, for both society and individuals are examined. Additionally, findings from comparative research may also help the predictors of different experiences of ageing to be understood further. There are many approaches available for undertaking comparative research, however, those techniques which allow a theoretical rationale to be examined are often preferred (Ragin and Zaret, 1983). One such perspective suggests that the welfare arrangements of a country is a mechanism through which the structure of a society will influence individuals (Van Voorhis, 2002). There are a number of reasons why this perspective could be relevant for the relationship between marriage and well-being. Marital status has been suggested as a pathway through which the welfare arrangements of a country might affect well-being in old age (Ryan et al., 1998). Daly and Rake (2003) have suggested two possible reasons why this might happen; firstly because the family unit is a mechanism through which welfare is distributed and secondly because welfare is also provided by families (Daly and Rake, 2003). However, it has also been suggested that the importance of marriage for people's lives has reduced, especially since the state and market have taken over many functions traditionally undertaken by the family (Coontz, 2000). Therefore, although welfare is often delivered by a family, the extent to which this is necessary may depend on the degree to which the state offers welfare provision. Where state intervention is less, marriage might become an important source of protection from the risks of the market for individuals (Bartley et al., 1997a).

Comparative research which seeks to examine the influence of welfare arrangements has often used the work of Esping-Andersen (1990), who classified countries according to what he described as 'worlds' of welfare capitalism. This work examined how the state, the market and the family work together to provide welfare to the participants of a society. He used a set of criteria to empirically group countries together by these underlying characteristics, creating a typology, which can be used as a tool by comparative researchers. Whilst this approach has received criticism (Arts and Gelissen, 2002) several of its merits have also been demonstrated, not least through its widespread application (Ferragina and Seeleib-Kaiser, 2011b). Although other types of societal context have been used to examine cultural variation in the effect of marriage on well-being, welfare state regimes have not, to the best of my knowledge been used for this purpose.

1.3 Gender differences?

Marital status has also been proposed as a possible moderator of how ageing is experienced differently by men and women. Sarah Arber (2004) argues that marital status and gender need to be considered together, as dual aspects of possible inequalities in later life. She suggests that marital status may affect older men and women differently, because of the influence on material circumstances and social roles that it may have (Arber et al., 2003). For example, women might be more likely to undertake carer roles, which could result in a strong family network over their life course, whilst this may not be as easily accessible for men (De Jong Gierveld, 2003). Likewise women might rely on their spouse's pension for economic well-being in later life and therefore older women who are no longer married may have less financial security (Joyce, 2007). Although being married has been found to be linked to better subjective well-being, physical health and mental health (Gallagher and Waite, 2000; Coombs, 1991; Haring-Hidore et al., 1985) the potential for gender differences in these benefits of marriage has also been acknowledged (Bernard, 1972; Williams and Umberson, 2004). Recent research has also used information from both partners in the marriage to consider the effect of spousal characteristics on health and also to examine gender differences in these associations. However, less research has used the information

from both partners in older couples to examine similar differences in well-being (Hoppmann and Gerstorf, 2009).

How men and women are influenced by marriage might also be affected by the societal context. For example, in many 20th Century European societies, traditional gender roles have often been associated with marriage (Sainsbury, 1999a). A comparative approach when examining well-being in later life can, therefore, be useful for exploring the social variation in how marriage influences men and women (Tesch-Römer et al., 2008). This may be especially interesting, since the state's role might have a different impact on older men and women (Arber et al., 2007). For example, a lack of welfare provision by the government may reduce the income security of older unmarried women if employment contributions have been the main way of distributing resources (Joyce, 2007). However, mainstream comparative welfare literature, may not adequately address relationships between women and welfare provision (Sainsbury, 1994; Orloff, 1993). Dianne Sainsbury (1996) has argued that Esping-Andersen's (1990) analysis of welfare provision underrepresented women, since his approach considered the working man as the unit of analysis. Therefore, a mainstream approach to welfare regimes might not adequately reveal gender differences in the relationship between marriage and well-being.

1.4 Project scope and outline

The scope of this thesis is to examine whether the association between marital status and well-being is consistent across societal contexts, for older men and women. Whilst marital status has been shown to be an important predictor of well-being at older ages, there is less evidence which observes how this association varies cross-nationally. I do not intend to compare this association between different age groups; rather my aim is to compare this association using comparative ageing datasets, paying special attention to gender differences. Although subjective well-being can be conceptualised using a number of different measures, it is not my objective to examine them all exhaustively. In this research I will focus on a measure of quality of life developed especially to capture differences in older people beyond health differences. Furthermore this thesis does not aim to compare all types

of partnership, but rather focus on the differences between different types of recognised marital union. Differences in well-being between types of marital status will be examined using both a current and a life course classification of marital status. However, because well-being may also be influenced by factors beyond the individual, spousal interdependence of well-being within married couples will also be examined. There are a number of ways to undertake comparative research but because of the role of the family as a possible mechanism of welfare support, I will use a welfare state regime approach to conceptualise societal context. My aim is not to assess this mainstream welfare regime approach; instead I will be employing this technique as a useful tool of comparative research. However, because of the feminist criticisms of the adequacy of this approach, additional methods will be used, so the context of these relationships can also be viewed as through a 'Gender Lens'.

This thesis will consider this relationship between gender, societal context, marital status and quality in later life. Overall, the main aim of the thesis is to examine whether, at older ages, the association between marital status and quality of life varies by welfare state regime and gender. Quality of life will be evaluated using CASP-12; a scale designed to capture the experience of positive ageing (Higgs et al., 2003). The first objective is to compare quality of life between different categories of marital status using a classification of current marital status. I will then use retrospective data to create a life course classification of marital status and the second objective will be to examine the association between this classification of marital status and quality of life. The third objective will be to examine how gender moderates the relationship between quality of life and marital status; therefore for each of these regimes, the interaction between gender and marital status will also be examined. A range of potential confounders and mediators will be taken into account in the analysis, to examine whether marital status remains independently associated with quality of life.

Research which only considers differences in quality of life *between* different categories of marital status may not allow how societal context affects quality of life for married couples to be observed. Therefore, the fourth objective of this study is to examine, using dyadic data analysis, whether quality of life is concordant for married couples and whether spousal predictors are independently associated with quality of life. This analysis will also allow

gender differences in the association between spousal predictors and quality of life to be examined. The fifth objective is to compare the societal context for these associations, using a welfare state regime approach. Two sources of secondary data; The Study of Health and Retirement in Europe (SHARE) and the English Longitudinal Study of Ageing (ELSA) will be used. These panel studies provide individual level data on a range of health, social and economic issues for older people from fourteen European countries. These fourteen countries will be grouped according to a welfare state regime approach using the work of Ferrera (1996). The associations between both current and life course marital status will be compared across these groups, as will variation in spousal interdependence. An aim of this thesis is to examine gender differences in the association between marital status and quality of life vary by societal context. Therefore, the criticisms of 'mainstream' welfare state regime approaches from a feminist perspective are acknowledged. For this reason, the final objective is to re-examine the variation in the association between marital status and quality of life, using two further methods of comparative research; separate policy indicators and the Gender Equity Index (GEI).

The novelty of this work is that it brings together a range of different perspectives, drawn from a number of disciplines to frame this question. It considers the association between marriage and well-being, for older people using a welfare state regime approach. However, it also considers how gender differences contribute to these relationships both at the individual and macro level. The aim of this thesis is not to reveal marriage to be an unimportant or negative feature of society. Rather asking these questions is felt to be important, because the answers may help us to understand more about the benefits and risks associated with marriage for older people. Firstly, this work might show whether marriage is universally protective for older people's well-being or whether there are differences, depending on where people live. Secondly, it has the potential to reveal who is most at risk from being outside a marriage or alternatively who gains the least from being married in later life. Finally, understanding these aspects of variation could contribute to a greater understanding of how to support people as they grow old. If marriage is protective as suggested, many governments currently respond by encouraging people to get married, through tax breaks or similar social policies. However, perhaps more support should be targeted at those older people who are vulnerable as a result of their marital status.

The thesis will be structured as follows. Relevant previous research will be considered in chapter two and in chapter three the aims of this thesis and the specific research questions to be addressed will be described in detail. Detailed information about the datasets used, the analytic strategy employed and the methods of comparative research can be found in chapter four. Chapters five, six and seven will present the results of analyses undertaken. Firstly, gender and welfare state regime variation in the association between current and life course marital status and quality of life will be examined (chapter five). Secondly, the interdependence of quality of life within older married couples and welfare regime variation in the strength of this interdependence will be addressed (chapter six). Selected analyses will then be reassessed using, instead of the welfare state regime grouping of countries, international comparative approaches which emphasise gender relations (chapter seven). Finally, the findings of the thesis will be interpreted and discussed, within the context of the strengths and limitations of the research, and conclusions drawn from the results presented (chapter eight).

Chapter 2

Background Literature

This thesis will examine the relationship between societal context, gender, marital status and well-being in later life, using a measure of well-being which aims to capture the experience of a different 'culture' of ageing (Higgs et al., 2003). This chapter provides an overview of previous research from a range of social science disciplines, in relation to the concepts which will be used to examine the intersection of these ideas. It was not intended to be a systematic review of literature in this area, as this was considered to be outside the parameters of the study. However, it provides a narrative review of literature, with two aims; 1) to provide a contextual framework for the concepts being examined and 2) to identify potential gaps in this literature. As part of this review, three more structured literature searches were conducted. A search which examined the predictors of the outcome measure used was completed and secondly, the literature which focused on the association between marital status and well-being was reviewed. Finally, any studies which had considered cross-national variation in the association between marital status and well-being were also examined. Since two systematic reviews had recently examined previous research on the association between spousal interdependence and well-being, these reviews were included instead. The search terms used for these reviews are discussed in more detail below and the results are presented in tables in the appendix. The structure of the rest of this chapter is as follows:

2.1. Ageing Research

2.2. Quality of life at older ages

2.3. Marital status and well-being

2.4. Spousal interdependence

2.5. Welfare state regimes

2.6. Gender

2.7. A life course approach

2.8. Summary

2.1 Ageing research

The population of Europe is ageing. A combination of extended life expectancy and falling fertility rates means that the proportion of the population over 65 years is increasing (Giannakouris, 2010). Although the extent of this demographic shift varies between countries, the potential challenges associated with older societies have been accepted by governments across Europe. The topic of ageing has developed therefore, into an important area of interest for policy makers, who want to facilitate improved health and well-being in later life, for the benefit of both individuals and societies (Walker, 2005c). Research around the biology of ageing has examined how medical advances have allowed older people to live longer and healthier. However, examining ageing beyond biology is also important, since as Matilda White Riley (1999) recognised, “People don’t grow up and grow old in laboratories - they grow up and grow old in changing societies”.

Social science research which focuses on the social context of ageing has therefore, grown into an area of academic importance. This area of research stems partly from the awareness of needs of older people during the post-war years, where an ageing population was recognised for the first time, especially in Europe (Harper, 2000). Interest was mainly focused on concerns about the health and welfare of older people and the unmet need for adequate pensions. Research in London by Peter Townsend (1957) had highlighted how some older people living in Britain were experiencing high levels of poverty and disability. These findings and other reports conducted around the same period, led to the development of social services directed at older people. These services were intended to extend provision for older people beyond a medical model of care, accommodating a range of problems associated with growing older. However, slow progress was made towards this goal, by both research and policy throughout the next few years. Although there was an increase in the provision of both residential and community based elderly services, older people were still largely considered to be a dependent group who required care and charity due to the disadvantages which old age had brought them.

Therefore, until recently, ageing research has traditionally focused on the success of health and social care interventions for older people. The potential for older people in European

societies to live a longer, healthy life has however, widened this research agenda. The development of the concept of *active ageing*¹, by the World Health Organisation (WHO, 2002) reflects this shift and also builds on the idea that having added ‘years to life’, it is now important to consider how to add ‘life to years’ (Walker, 2002). Within this wider research context, examining older people’s lives beyond the timing of disability and dependency has become necessary. Narratives of ageing which don’t focus on the plight of the ‘poor disabled elderly’ are described by Gilleard and Higgs (2000) as representing a ‘cultural turn’ in ageing research. This approach offers an alternative way of understanding later life, beyond traditional indicators of ageing such as biology and social policy (Gilleard and Higgs, 2000). They draw on the theory of a Third Age, which recognises that after retirement, older people may have the health and finances to pursue their interests, before failing health restricts their independence (Laslett, 1991).

However, the Third Age has been criticised for being beyond the reach of all members of society (Bury, 1995). Likewise whether the ‘culture of ageing’ approach (Gilleard and Higgs, 2000) can adequately highlight the inequalities experienced by many older people has been questioned (Walker, 2005b). The authors do acknowledge that there will be diverse experiences of ageing, however they argue that these differences such as gender inequalities are not always recognised using traditional approaches (Gilleard and Higgs, 2000). Differences in the experience of old age for men and women might be particularly important, since the preceding life course may be gendered (Arber et al., 2003). The life courses of both men and women may be shaped by the society they are part of and therefore differences in their well-being in later life might reflect structural influences (Daly and Rake, 2003).

Although mainstream ageing research has not regularly examined gender inequalities, this topic has been considered by work which takes a feminist political economy position (Arber and Ginn, 1991). Research from this perspective emphasises that women may face more hardship in older age and that this disadvantage can be heightened by the society they live

¹ Active Ageing is defined by the World Health Organization as ‘the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age’ (WHO, 2002)

in (Walker, 2005a). Joyce (2007) argues that gendered societal structures affect women's decisions and events over their life course and observes that this can affect their economic circumstances when they are older (Joyce, 2007). Whether men and women's' experiences of ageing are shaped differently by the social roles they acquire has also been a topic of interest for social historians. Pat Thane (2001) using resources from the Mass Observation Archive, a collection of record of everyday life in Britain from the 1980s, showed how experiences of old age were described differently by men and women and she argued that studies of ageing need to be sensitive to this context. Sarah Arber and colleagues (2003) extended their position beyond a focus on disadvantage for women to examine how gendered societal structures may affect the social and economic roles occupied by both men and women across the life course. The academic study of ageing has undergone many shifts and changes, often mirroring the changing role of older people within modern society. The theory of a Third Age has certainly advanced the possibility that later life can be a positive time, although whether people reach this stage may remain unequal. Older people often experience inequality throughout their life, which may continue to affect them as they age. However, a healthy, prosperous, later life appears possible and so research must attempt to measure both the prevalence of this experience and what might hinder this being obtained by the whole of a society.

2.2 Quality of life at older ages

2.2.1 Conceptualising quality of life at older ages

Quality of life is an important topic in ageing research, although it is a complex concept to define and measure at any stage of the life course. Measuring quality of life is often understood to be about capturing an individual's opinion of their own life; requiring a subjective assessment of their well-being and happiness. A World Health Organisation (WHO) working group which aimed to define quality of life, emphasised it should be assessed by an "individual's perception of their position in life" (WHO, 1995). However, since objective factors such as health and income are necessary requirements for a good standard of living, perhaps to ignore these and capture subjective evaluations is to minimise their importance (Camfield and Skevington, 2008).

Lawton and colleagues (1999) argued that subjective quality of life should be defined as just one dimension of a wider concept; with an objective assessment of quality of life being the other. However, a review by Netuveli and Blane (2008) criticises this conceptualisation for obscuring the predictors of quality of life with the definition itself. Therefore, whilst both objective and subjective factors can influence how happy an individual is with their life, the concept of quality of life should be subjectively assessed in research. Interestingly in a taxonomy of different measures of outcome in health research, quality of life was classified as a separate category of outcome; one more useful for the social science paradigm, where the interest is in how social context may affect individual's well-being (Wilson and Cleary, 1995).

Despite this, in public health and epidemiology research, older people's quality of life has often been equated with an objective marker of good health and examined as such, using questions reflecting health related quality of life (HRQOL). These broad HRQOL measures may discriminate against other aspects of older people's lives, since questionnaire items tend to concentrate on physical functioning, which will decrease as people age. For example, a qualitative examination of the SF-36 measure of health status for older people, found that whilst changes in health functionality, as assessed by the scale, were often minor, what was of important to respondents was how they felt about their future and themselves (Hill et al., 1996). The correlation between the severity of disease and quality of life is not always as strong as would be expected. This lack of correlation has been attributed to a disjunction between objective and subjective measures of quality of life. For example, those whose health is poor may psychologically adapt to this situation through positive cognition or positive illusions (Camfield and Skevington, 2008). However, the lack of correlation has also been viewed as a reflection of how older people in relatively poor health may still have varied experiences of quality of life (Hickey et al., 2005). It has been argued that equating reduced health in older people with a poor quality of life, ignores the possibility that older people can adapt or overcome illness and still enjoy other areas of their life (Higgs et al., 2003). Furthermore, as a society ages, those at the older end of the life course may become a more heterogeneous group (Lloyd-Sherlock, 2002) and traditional markers of quality of life in old age, such as this absence of poor health may no longer be as

appropriate. Although age is an important predictor of well-being, when other influences are taken into account, ageing itself does not always influence quality of life negatively (Gilleard and Higgs, 2000; Laslett, 1991). There remains a role for evaluating how older people perceive their own well-being, rather than relying on only objective factors to tell this story for them.

Social science disciplines have used many terms to convey and measure this subjective concept in research studies. In social surveys, including questions and measurement scales which ask respondents about happiness, life satisfaction and subjective well-being has become common. Whilst capturing an individual's assessment of their happiness is historically not a new practice, scientifically measuring this is a more recent development. Attempts to quantify positive features of subjective well-being, developed predominantly as a response to the tendency in psychological research to assess negative emotional states (Diener, 2000). Although it is important to examine these, if happiness is only defined as the absence of a negative emotional state, then it may not be possible to understand what influences an individual's positive mood (Seligman and Csikszentmihalyi, 2000).

Two central themes which underscore an understanding of well-being or happiness can be traced back to ancient Greek philosophy. Hedonic well-being is often associated with the pursuit of pleasure and positive emotional states (Henderson and Knight, 2012), whilst eudaimonic well-being, on the other hand, builds on the Aristotelian idea that the pursuit of the good life requires more than immediate gratification (Netuveli and Blane, 2008). Some measures of subjective well-being focus on the hedonic values, such as life satisfaction, the presence of positive emotional responses and the absence of negative ones (Diener and Ryan, 2009). Those measures from the eudaimonic tradition attempt to capture longer term goals, such as those described in Maslow's hierarchy of needs (Maslow, 1943). There exists some debate about how the concepts of quality of life and subjective well-being exist together; whether one is a dimension of the other or whether they overlap conceptually (Camfield and Skevington, 2008). For the purpose of this study, we consider both themes (hedonic and eudaimonic) of well-being to be nested within a subjective assessment of quality of life. Alan Walker (2005c) observed how quality of life research needed to be

multi-dimensional, to allow the range of factors that might affect different domains of life to be captured in detail.

The concept of the Third Age, introduced in section 2.1, has led to different experiences of ageing being imagined (Laslett, 1991). This change in how older people's lives are understood in ageing societies has been described as a 'paradigm shift in outcome measurement' (O'Boyle, 1997). This shift has required new questionnaire scales to be developed to adequately capture subjective well-being in later life such as WHOQOL-OLD (Power et al., 2005) and OPQOL (Bowling, 2009b). It is within this context that CASP-19, a scale for use in social surveys designed to measure quality of life in old age was developed (Netuveli and Blane, 2008).

2.2.2 The development of CASP-19 to measure quality of life at older ages

The potential for later life to be defined by more than access to social care and biology, underpinned the development of CASP -19 (Higgs et al., 2003). This scale was intended to measure the quality of life of older people in the community and to understand the range of their life experience beyond their health status alone (Higgs et al., 2003). The theoretical framework for the scale used the work of Doyal and Gough (1991) and Giddens (1991) to highlight how measuring quality of life at older age must capture not only whether human needs were met, but also if the reflexive pursuit of self-realization was possible (Higgs et al., 2003). Quality of life in older age was therefore conceptualised into four domains: *Control*, *Autonomy*, *Self-realisation* and *Pleasure*. The *Control* and *Autonomy* domains were intended to capture whether needs were met and those of *Self-realisation* and *Pleasure* to measure whether reflexive possibilities of old age were attained (Higgs et al., 2003; Wiggins et al., 2008). Although not specified by the authors these themes also map onto both the *eudaimonic* and *hedonic* aspects of well-being. Further information about the properties of CASP-19 is provided in chapter four (section 4.3). Since initial development and testing, both CASP-19 and CASP-12: a validated shorter version, were included in a number of social surveys of older people, both in England and other countries (Wiggins et al., 2008; Taylor et al., 2001; Marmot et al., 2002; Börsch-Supan et al., 2005). In this thesis I use CASP-12, because of its availability in a cross-national panel study. A number of studies have been carried out to establish the main predictors of quality of life using this scale (Wiggins et al.,

2004; Blane et al., 2008; Netuveli et al., 2006; Webb et al., 2011; Siegrist and Wahrendorf, 2009). The results of these are discussed in section 2.2.4 below.

2.2.3 The main predictors of quality of life in later life

The studies for this literature search were found by searching all studies from Web of Science published from January 2004 (when CASP-19 was developed) to January 2012 (when this chapter was written). Studies were considered for inclusion if they included “CASP-12” or “CASP-19” anywhere in the paper. The abstracts of each paper were reviewed to clarify if CASP-19 or CASP-12 had been used as an outcome in the study. Several filters were also used: studies needed to have been published in the English language and to be reviews or articles, rather than commentary or conference abstracts. From reviewing these articles I wished to establish the main predictors of CASP-19/12 and whether differences by gender or cross-national differences had been observed in this measure of quality of life. The results from these studies are illustrated in the Appendix (Table A.2.1).

2.2.3.1 Health

One of the main predictors of quality of life in old age has consistently been found to be health status (Walker, 2005c; Blane et al., 2008). Poor subjectively rated health, reporting a limiting long term illness and reporting limitations with physical activity have all been found to have strong negative associations with CASP-19 (Netuveli et al., 2006). Although the negative impact of a functional limitation due to long term illness, was found to be more than four times greater than the impact of the illness itself (Netuveli et al., 2005). Using the first two waves of the English Longitudinal Study of Ageing (ELSA) to consider how changing circumstances influence quality of life, one study also observed that developing difficulties with activities of daily living (ADL) contributed to a decrease in mean quality of life (Webb et al., 2011). Objective measures of current health status such as lung function and obesity were also been found to be independently related to poorer quality of life (Blane et al., 2008). Lung function has been found to be negatively associated with CASP-19 when used as both as a current measure (Blane et al., 2004; Blane et al., 2008) and assessed longitudinally using three waves of ELSA (Blane et al., 2008).

In addition to these physical health predictors, several markers of mental health have been identified as important in this area of research. Depressive symptoms have consistently been recognised to have a negative impact on quality of life (Netuveli et al., 2006). Whilst becoming depressed was associated with a decrease in CASP-19 scores between two time points (Webb et al., 2011). Neuropsychological tests e.g. time orientation; verbal memory and prospective memory were all independently associated with CASP-19, suggesting that cognitive function is also of importance in determining quality of life at older ages. Health status was also found to be associated with quality of life measured by WHOQOL-OLD (Low and Molzahn, 2007) and OPQOL (Bowling, 2009a). Low and Molzahn (2007) found that respondent's self-assessed health status was one of the strongest predictors of WHOQOL-OLD, an age specific version of the World Health Organisation's (WHO) quality of life scale. They concluded that a positive view of health would act as an enabling mechanism, allowing older adults to feel able to pursue other goals (Low and Molzahn, 2007).

2.2.3.2 Socio-economic circumstances

Socio-economic circumstances have also been established as an important predictor of quality of life in later life, with current circumstances demonstrating the strongest influence. A study which used prospective cohort data found that current rather than past material circumstances, measured using housing tenure and the receipt of means tested welfare benefits, were the main predictor of CASP-19 (Blane et al., 2004). Objective indicators of current material circumstances, such as not being a home owner (Wiggins et al., 2004) and a lack of household wealth (Zaninotto et al., 2009) were found to be negatively associated with CASP-19. Furthermore, perceived poor financial circumstances were understood to be the strongest predictor quality of life overall (Netuveli et al., 2006). A recent study using two waves of ELSA found that improvements in current material circumstances - improved perceived financial situation and increased income - were also associated with significant improvements in quality of life scores (Webb et al., 2011). Additionally a social gradient has been observed for this measure of quality of life. One study showed CASP-19 to be strongly associated with social position, measured using The National Statistics Socio-Economic Classification (NS-SEC) and that the size of this difference for low social position was similar to the difference observed for having a long term limiting illness (Blane et al., 2007). Social position measured by a low level of education was also found to have a negative impact in

ELSA (Zaninotto et al., 2009). Employment status, especially being unemployed, remained associated with a lower level of quality of life in three separate studies (Howel, 2012; Netuveli et al., 2006; Zaninotto et al., 2009). Financial resources were also direct influences on quality of life measured by WHOQOL-OLD (Low and Molzahn, 2007) and OPQOL (Bowling, 2009a). Ann Bowling (2004) also found that financial circumstances were an important predictor of quality of life at older ages. Comparing theoretically driven models of quality of life with models based on respondents' own definitions, she also observed that perceived financial circumstances were of central importance in the lay models (Bowling and Gabriel, 2004).

2.2.3.3 Social support

Both the quality and quantity of social support available is important for quality of life in later life. Having trusting relationships with both family and friends was positively associated with quality of life in wave one of ELSA (Netuveli et al., 2006). This was also observed in an earlier cohort, where the quality of people's social networks was an important predictor of CASP-19 (Wiggins et al., 2004). A recent study which considered the longitudinal impact of social support found that a small number of friends and low positive support were both associated with reduced quality of life (Zaninotto et al., 2009). Living arrangements and marital status were also found to be important. Living alone was shown to be negatively associated with quality of life in two studies (Howel, 2012; Netuveli et al., 2006) and differences in levels of quality of life by marital status were also observed in ELSA. Research using wave three of ELSA found that those who were divorced or widowed had significantly lower levels of CASP-19. (Banks et al., 2008). Wiggins and colleagues (2008) using data from a prospective cohort, also found that a recent bereavement was negatively associated with quality of life (Wiggins et al., 2004). However, Webb and colleagues (2011) observed when changes in marital status were considered, there was an improvement for the quality of life for those who became widowed. This was interpreted as the consequence of caring for a sick partner, which might have negative consequences for quality of life (Webb et al., 2011).

2.2.3.4 Age

The independent impact of chronological age is an important factor in any study of people in later life, although the linear influence of age on well-being has been questioned

(Blanchflower and Oswald, 2004). A strong effect of age on quality of life was initially found in the prospective Boyd-Orr cohort (Wiggins et al., 2004). However, the first study to consider the predictors of quality of life measure by CASP-19 in ELSA found that whilst the influence of age was significant, this relationship was not linear (Netuveli et al., 2006). Rather a curve was identified for quality of life, which showed an increase from age 50 to a peak at aged 68, followed by a decline; suggesting that quality of life can increase during early old age (Netuveli et al., 2006). A recent study used latent growth curve models to consider the influence of age on an individual's quality of life over three waves of ELSA in more detail (Zaninotto et al., 2009). Zaninotto and colleagues (2009) found that for the oldest respondents quality of life scores were lower at base line and had the steepest decline. However, taking factors such as health and wealth into account reduced the influence of age, reinforcing the idea that if all other conditions are equal a Third Age is possible in later life (Zaninotto et al., 2009).

2.2.3.5 Neighbourhood characteristics

Several studies have also suggested that quality of life is influenced not only by individual factors, but that the type of neighbourhood people live in may also predict their quality of life. The respondents from the Boyd-Orr cohort were asked about four domains of their neighbourhood - misery, sense of community, deprivation and affluence (Wiggins et al., 2004). Although Wiggins and colleagues (2004) found that the only domain to have an influence upon quality of life was whether a neighbourhood was felt to be deprived, which predicted a lower mean CASP-19 score (Wiggins et al., 2004). A fear of crime in the local neighbourhood of was also negatively associated with quality of life in Whitehall II, a study of civil servants based in London (Stafford et al., 2007). Additionally low ratings of a range of neighbourhood resources were found to be negatively associated with the OPQOL scale (Bowling, 2009a) and a perceived poor physical environment indirectly associated with the WHOQOL-OLD scale (Low and Molzahn, 2007).

2.2.4 Gender differences in quality of life in old age

Although not all of the studies above specifically examined their results separately for men and women, several did identify gender differences in CASP-19. Netuveli and colleagues (2006) found women had significantly higher levels of quality of life than men in wave one

of ELSA. However, this difference was small and adjusting for certain health and socio-demographic predictors reversed the association. Stratified analysis also revealed different predictors of CASP-19 for men and women (Netuveli et al., 2006). Whilst men's quality of life was reduced by ill health and improved by retirement from the labour market, women's quality of life was reduced by factors understood to represent domestic labour (Netuveli et al., 2006). Consequently quality of life for older women in ELSA was reduced by providing informal care, being a homemaker instead of not being in paid employment, and frequent contact with children; however it was improved by living alone (Netuveli et al., 2006). This positive association between living alone and quality of life for older women was understood as due to the increased likelihood that older women living in a couple would be caring for a partner (Netuveli et al., 2006). Similarly cohabiting with a partner was found to have a positive relationship with quality of life for men, but not for women in the third wave of ELSA (Zaninotto et al., 2009). Also observed in this wave of ELSA was that women reported higher levels of quality of life than men, for each marital status examined, although further detail was not provided about this variation (Banks et al., 2008). Differences in the relationship between physical health and quality of life were also found by gender. Although baseline obesity predicted lower quality of life for both men and women, an increase in BMI was only a significant predictor of CASP-19 for women (Blane et al., 2008). However, no gender differences were found in the association between cognitive function and quality of life (Llewellyn et al., 2008). Regarding socio-economic predictors, receiving means tested welfare benefits and accumulated disadvantage were predictors of reduced quality of life amongst men but not women (Blane et al., 2007).

2.2.5 Cross-national differences in quality of life in old age

The inclusion of CASP-12, a shortened version of CASP-19, in the Survey of Health, Ageing and Retirement in Europe (SHARE) was the first time this scale had been available in a cross-national survey (Wiggins et al., 2008; Knesebeck et al., 2005). This allowed quality of life to be examined comparatively across European countries from 2004 (Knesebeck et al., 2005). That factors occurring at the country or macro level could influence quality of life in old age had previously been recognised, previously a lack of relevant data limited the extent to which this could be explored empirically (Walker, 2005b). Research which examined CASP-12 in the first 2004 wave of SHARE identified significant differences in quality of life

between countries (Knesebeck et al., 2005). A North - South gradient was revealed, with lower levels of quality in the Southern countries (Greece, Italy, Spain) and comparatively high scores found across Northern Europe (Switzerland, the Netherlands, Sweden and Denmark) (Knesebeck et al., 2005; Knesebeck et al., 2007). This gradient was confirmed by later research which used the CASP-12 scores from two waves of SHARE (Siegrist and Wahrendorf, 2009). Siegrist and Wahrendorf (2009) also found that due to the inclusion of two Eastern European countries in the second wave of SHARE (Czech-Republic & Poland) which had lower CASP-12 scores, a West-East gradient was also observed. The initial analysis of the first wave also suggested that differences in the quality of life scores between the oldest and youngest respondents were particularly pronounced in Southern European countries (Knesebeck et al., 2005).

Furthermore socio-economic differences in quality of life were reported in all countries when socio-economic position (SEP) was evaluated using household income and in all countries except Switzerland, when assessed using a measure of high education (Knesebeck et al., 2005). Knesebeck and Wahrendorf (2007) also used SHARE data to examine the consistency of the association between SEP and quality of life. They examined traditional measures of SEP and also included alternative indicators – car ownership, home ownership and net worth – which were felt to be more appropriate gauges of socio-economic position in later life (Knesebeck et al., 2007). The authors found that CASP-12 was associated with all of these measures of SEP in SHARE, although the association was less consistent for home-ownership (Knesebeck et al., 2007). This study also reported that inequalities in quality of life by SEP were particularly small in Switzerland and comparatively large in Germany (Knesebeck et al., 2007).

A key area of interest for those examining quality of life in SHARE was how involvement in socially productive activities was associated with quality of life in later life. An initial study found that voluntary work and informal help were positively associated with quality of life, although only if these activities were felt to be appreciated by the respondent (Wahrendorf et al., 2006). This analysis was extended to the second wave of SHARE where the positive influence of reciprocity for productive activities was supported and a social gradient for the association also observed (Siegrist and Wahrendorf, 2009). In this study it was also observed

that a significant proportion of the variation in CASP-12 between countries was explained by macro-level variables, such as welfare characteristics, rather than individual-level variables (Siegrist and Wahrendorf, 2009). This interest in societal drivers of variation is reflected in a study which used data from the first wave of SHARE and a welfare state typology to test several hypotheses concerning the association between welfare arrangements and quality of life in later life (Motel-Klingebiel et al., 2009). The study showed that welfare arrangements were associated with both different levels and variation in quality of life, evaluated using four measures including CASP-12 (Motel-Klingebiel et al., 2009). This study only found significant gender effects in the distribution of quality of life indicators for the Mediterranean countries of SHARE (Motel-Klingebiel et al., 2009).

2.3 Marital status and well-being

Theories of marriage

Talcott Parson (1951) argued that there were two main functions of the modern family; socialising children into the norms and values of society and providing emotional security which ‘stabilised’ the personalities of adults. He coined the term ‘nuclear family’ to describe the family unit of a married couple and their children, where he argued that these functions were best achieved. Parsons also argued that the traditional gender division of roles within a marriage were necessary to enable the achievement of these goals. Women were better suited to undertaking childcare, in the private sphere of the family and men’s skills were best developed as wage-earners in the public sphere. This theoretical perspective, developed mostly through the study of American society in the 1950s and 1960s, seems perhaps to describe a historical definition of marriage removed from current understanding. However, authors have recently used the evidence presented in a range of empirical work to underline the core messages of this theory; that there is a positive role in society for both marriage and the ‘traditional’ family unit. Gallagher and Waites (2000) have presented a range of evidence from the social science literature which shows that being married remains linked to higher levels of health, wealth and happiness. They argue that this evidence shows how marriage is an institution that for will improve the circumstances of individuals, and which therefore represents an important public good. (Gallagher and Waite, 2000). They

also argue that marriage should not be treated as a lifestyle choice, chosen from a range of equal relationship options, but be recommended by society through public health campaigns, such as those for smoking (Waite, 1995).

However, structural conflict theories such as Marxism and Feminism have reasoned that a traditional family structure might instead result in inequalities for different groups within society. Engels (1884) first argued that monogamous marriage had developed historically as a means for the upper class to increase their wealth and ensure the protected inheritance of property. He concluded that the original marriage contract, based on a need to protect wealth, also served to confine women's freedom by offering economic rights only to men. This theoretical perspective was extended by feminist writers who also viewed marriage as entrenching gender roles, which restricted women in wider society. Jessie Bernard (1972) argued that there were 'His' and 'Hers' marriages and whilst being married was indeed positive for the emotional well-being of men, the opposite was often true for women. Bernard (1972) theorised that when women married they were socialised into a different role and far from this stabilising their personalities, as Parsons suggested, becoming wives actually worsened their mental health. She described how when women married they often changed their occupational roles and economic independence. Since women in the 1970s were still encouraged to give up work when they married and take on the role of housewife full-time. Although the economic and social benefits of the role of housewife were often recognised, Bernard argued that this was a lower status role, especially when compared to the potential career trajectory of a husband. She suggested that these changes required adjustments to be made to women's sense of self when they married, which may in turn have a negative impact. Overall this work suggests that unequal treatment of women in a society could indicate that marriage was a potential hazard for women, reducing their status and impairing their mental health.

Theoretical perspectives have also reasoned that marriage is a social institution which stigmatises those outside its boundaries and that those who are unmarried, are experiencing a type of social inequality. At the core of this perspective is the view that the nuclear family represents the favoured household in many modern societies and so individuals who do not participate are stigmatised both financially and culturally. Rather

than this occurring because the nuclear family is the most successful family type, Coontz (2000) proposed that families are constructed socially and that privileges bestowed on different types of marital union are a result of this. She also argued that the nuclear family was only really 'typical' during the 1950s, due to rising fertility rates and a lower ages at first marriage and represented only a short temporary stage in the development of the modern family (Coontz, 1992). Therefore changes to the institution of marriage and gender roles within it, represent the continued transformation of the institution according to this view, rather than a decline in its importance.

This next section I will provide an overview of empirical research which has tested the association between marital status and well-being quantitatively. Many studies consistently find a positive association between marriage and well-being (Coombs, 1991; Haring-Hidore et al., 1985; Ross et al., 1990). However, this relationship is complex and often different patterns are found when other factors are taken into account. Two reviews were undertaken to identify relevant the literature for this section. An initial search was conducted to find studies which examined the association between well-being and marital status. The Web of Science was searched using "marital-status" and related terms together with a range of terms to describe well-being ("quality of life", "life satisfaction", "well-being" and happiness). Abstracts were reviewed to determine relevant articles and only English language peer reviewed journal articles were included. A similar search was carried out restricting articles to those which used a cross-national dataset. The results from these searches are presented in Appendix 2.1 (Tables 2.1.2 and Table 2.1.3)

I will first describe the different methods of categorising marital status used in social research, and then discuss the research studies which have used subjective well-being (SWB) outcomes. Since a number of health measures; both physical and mental have been suggested as possible confounders of the association between marital status and well-being, these outcomes are also discussed in relation to marital status. I will then discuss research and describe separately, any observed gender differences and cross-national variation for these outcomes. Finally, I will describe some of the explanations which have been offered for this association.

2.3.1 Categorising Marital status

Research into the relationship between marital status and well-being has often used a binary measure to categorise people as either *single* or *married* (Glenn and Weaver, 1979; Horwitz et al., 1996; Mastekaasa, 1992). However, concern that these categories might not allow differences between unmarried groups to be explored has led researchers to use instead wider definitions of marital status: single, married, divorced and widowed (Glenn, 1975; Huijts and Kraaykamp, 2011; Mookherjee, 1997; Stack and Eshleman, 1998). Several studies have also separated samples according to current living and marital status (Shapiro, 1996) or included a category for those who cohabit (Berney and Blane, 2003; Soons et al., 2009). An issue often explored in younger samples is whether there are higher levels of well-being amongst those who cohabit; living with a partner without being legally married. Several studies have concluded that there is evidence of a clear ‘cohabitation gap’ between the well-being of those who are married and those who aren’t, regardless of living situation (Shapiro and Keyes, 2008; Soons and Kalmijn, 2009). Another important issue for research in this area is measuring both stability and change in relationships. These questions often require longitudinal data to capture the temporal dimension to marital status over people’s lives.

2.3.2. Marital status and subjective well-being

Researchers have examined the relationship between marital status and subjective well-being for a range of outcomes. Studies have usually used these measures separately to consider one aspect of SWB, such as *happiness* (Glenn, 1975; Glenn and Weaver, 1979; Glenn and Weaver, 1988; Lee et al., 1991), *life satisfaction* (Stutzer and Frey, 2006; Mastekaasa, 1992; White, 1992; Lucas and Clark, 2006; Lucas et al., 2003; Soons et al., 2009; Zimmermann and Easterlin, 2006; Ryan et al., 1998) or *social well-being* (Shapiro and Keyes, 2008). However, several have used multiple measures together to capture different aspects of subjective well-being (Marks and Lambert, 1998; Williams, 1988; Williams, 2003; Mookherjee, 1997; Gove and Shin, 1989) or constructed a latent variable to represent the concept (Dush and Amato, 2005). A number of studies using both cross-sectional and longitudinal data have observed that those who were married had higher levels of subjective well-being (White, 1992; Evans and Kelley, 2004; Dush and Amato, 2005; Stutzer

and Frey, 2006; Zimmermann and Easterlin, 2006). One study used panel data from Australia to test the association between marriage and life satisfaction at all ages and found that those who were currently married reported higher life satisfaction than those reporting any other type of marital status (Evans and Kelley, 2004). They concluded therefore, that there is a substantial influence on subjective well-being from the commitment of formal marriage. Another study, from the US used a latent measure of subjective well-being and observed that those who were married had the highest levels of well-being when compared to all other types of relationship, instead of marital status (Dush and Amato, 2005). However, no evidence of higher perceived social well-being; an outcome selected to reflect an individual's integration into society was found for the married, compared with those who were single (Shapiro and Keyes, 2008). In one study different patterns were found according to the outcome examined so for example, when a scale measuring autonomy was used, no difference was found between the married and single respondents (Marks, 1996). Although an advantage for those who were married was regularly confirmed, research often concluded that patterns of well-being for the unmarried varied according to the outcome considered. In one study those who were divorced had the lowest levels of life satisfaction, compared to other single marital states (Evans and Kelley, 2004). Whilst when relationship status was examined those who weren't in any type of relationship had the lowest levels of SWB (Dush and Amato, 2005). An earlier study which examined seven dimensions of well-being found that although those who were divorced or widowed usually had the lowest well-being scores, this again varied by the outcome being assessed (Gove and Shin, 1989). When longitudinal measures of marital status were available, transitions out of marriage were often observed to have a negative effect on well-being (Zimmermann and Easterlin, 2006; Marks and Lambert, 1998; Chipperfield and Havens, 2001; Simon, 2002). Zimmerman and Easterlin (2006) used ten waves of the German Socio-Economic Panel to consider the influence of marriage and found that marital dissolution, whether through divorce or being widowed had a consistently negative effect on life satisfaction (Zimmermann and Easterlin, 2006). A Canadian study which examined the life satisfaction of married men and women over a seven year period also found that those who were divorced or widowed during this time experienced a decline in life satisfaction (Marks and Lambert, 1998).

Several studies also considered whether the positive relationship between marriage and happiness was stable over time. The first to test this used data from the General Social Surveys (USA) from the years 1972-1981 and found a steady decline in a positive relationship between marriage and a measure of global happiness and concluded that structural changes in the role of marriage were possible (Glenn and Weaver, 1988). However, a later attempt to replicate this research using additional data from the years 1972-1989 drew different conclusions (Lee et al., 1991). Lee and colleagues (1991) observed that the decrease in this association over time was weaker than the trend found by Glenn and Weaver (1988) and this declining trend actually reversed in the 1980s.

2.3.3 Marital status and health

When outcomes designed to gauge an absence of well-being by measuring negative emotions were used, again a strong association with marital status was consistently observed (Kessler and Essex, 1982; Kim and McKenry, 2002; Mastekaasa, 1993; Pearlin and Johnson, 1977). Kim and McKenry (2002) observed that compared to those continuously married, those who remained single or became divorced/separated between two time-points of an American national survey, had higher levels of depressive symptoms. However, Ross and colleagues (1995) found that when degrees of social attachment rather than marital status were examined, a gap in psychological well-being was not observed (Ross, 1995). Therefore individuals with higher levels of social attachment in their relationships, regardless of whether they were married or living with a partner had fewer depressive symptoms (Ross, 1995). When the relationship between marriage and physical health was examined, differing patterns were again observed (Joung et al., 1997; Verbrugge, 1979; Williams and Umberson, 2004). Whilst an early study from the USA found the unmarried had higher levels of morbidity than those who were married, the difference was larger for those who had been previously married - divorced, separated or widowed - (Verbrugge, 1979). Although Williams and Umberson (2004) did find differences in self-assessed health by marital status measured across the life course, they concluded that this was due to the negative effect of marital dissolution rather than the benefit of marriage. However, a Canadian study rejected the hypothesis that those who were married were healthier, since for a range of self-reported outcomes, including subjective health status and number of doctor consultations, no difference was found by marital status (White, 1992). Support for

both conclusions was found by Liu and Umberson (2008) using data from the US National Health Interview Survey (NHIS) from 1972-2003 to examine historical trends in the relationship between marital status and health. The authors found that whilst self-rated health had steadily improved for the never married, it declined for the other single groups (Liu and Umberson, 2008). An association between marital transition and body mass index was also revealed in an American longitudinal survey by Umberson and colleagues (2009). They also observed that transitions out of marriage were especially influential for physical health as measured by weight trajectories and although becoming divorced was associated with a temporary effect on weight change, being widowed had an enduring relationship with weight loss, which was potentially more serious.

2.3.4 Gender differences: Do men or women benefit more from marriage?

An important feature of this research area has been from those who have questioned if the association between marriage and well-being is similar for both men and women. The beginning of this debate was perhaps the book by Jessie Bernard (1972) where she proposed that overall, marriage was more beneficial for men's physical and mental health than it was for women. This view was criticised by Glenn and colleagues (1975) who set out to test her ideas, using the USA General Social Surveys and a measure of global happiness. They found the levels of happiness for married men and women to be similar and also higher than the happiness of either unmarried men or women (Glenn, 1975). Several further studies also investigated gender differences in this association and found marriage to be beneficial for both men and women across a range of outcomes. (Mookherjee, 1997; Williams, 1988; Lillard and Panis, 1996) An American study found few gender differences between married men and women when they examined six different measures of psychological well-being (Williams, 1988). However, a later study concluded that although marriage can offer similar psychological benefits to both men and women, remarriage seemed to benefit only men (Williams, 2003). Where differences were found between the well-being of married men and women, the majority of studies found slightly lower levels of well-being for married men when compared to married women (Glenn, 1975; Marks, 1996; Mookherjee, 1997; Shapiro and Keyes, 2008). Although Mookherjee (1997) concluded that this positive difference for women who are married compared to men might be due to women have higher levels of well-being overall.

Several studies also examined differences between the well-being of unmarried men and women, for a range of outcomes. Joung and Stronks (1997) found that divorce had a more negative influence on the self-rated health of women when compared to men. Marks (1996) used longitudinal data from the USA and discovered that transitions to divorce or widowhood had a more negative effect on women's emotional well-being, for a number of measures (Marks, 1996). However, a later longitudinal study found that marital dissolution, through divorce or being widowed affected the self-assessed health of men but not women (Williams and Umberson, 2004). Lower levels of emotional well-being were also found for men by Gove and Shin (1989), who described how widowed women were found to have higher psychological well-being than men. Williams and Umberson (2004) also found that over time, emotional well-being outcomes declined more sharply for single men who did not marry. This idea was also supported by those who observed that never married men were found to have lower levels of social well-being than never married women (Shapiro and Keyes, 2008). Studies have also considered whether gender differences in the association between well-being and marital status differ, depending on the outcome being examined (Marks, 1996; Horwitz and White, 1991; Horwitz et al., 1996; Simon, 2002). Horwitz and White (1996) using longitudinal data observed gender differences in two outcomes, depression and alcohol use. They found that whilst women who married reported fewer alcohol problems, men who married were less likely to report depression (Horwitz et al., 1996). A later study which used a national US dataset also found different effects for women and men, according to the outcome examined (Simon, 2002). The authors observed that the disadvantages of marital separation for well-being were reflected for women in levels of depression and for men in higher levels of alcohol abuse (Simon, 2002).

2.3.5 Cross-national differences

Research which has investigated the connection between marital status and well-being has usually been restricted to a single country, often due to a lack of suitable cross-national data. The influence of wider social and cultural characteristics on how marriage relates to subjective well-being has therefore received less attention (Diener et al., 1999). Studies that have taken a comparative perspective find marital status to be an important predictor cross-

nationally, for a range of outcomes including *happiness* (Stack and Eshleman, 1998), *life satisfaction* (Ryan et al., 1998), SWB (Mastekaasa, 1994a; Singh, 2007; Kalmijn, 2010; Berney and Blane, 2003), *loneliness* (Stack, 1998) and *self-assessed health* (Huijts and Kraaykamp, 2011). Mastekaasa (1994a) examined the association between marital status and four separate well-being outcomes in nineteen countries. She found an association for at least one outcome in the majority of the countries included and noted how this relationship was not only observed in North America or Western Europe (Mastekaasa, 1994a). Huijts and Kraaykamp (2011) considered the influence of the marital status composition of a country on the association between marital status and health, using individual level data from the European Social Surveys (ESS). Although due to a lack of reliable data marital composition was calculated for each country from the ESS rather than official statistics. Their research found a consistent association between being married and better self-assessed health across Europe, however, the strength of this difference varied. Additionally, whilst marital status composition did contribute to these cross-national differences between health and marital status, the pattern of influence was complex (Huijts and Kraaykamp, 2011). For example whilst single people didn't have better health in countries with a high percentage of other singles, living where there was a high proportion of other married people was beneficial for the health of those who were married (Huijts and Kraaykamp, 2011).

In studies which examined the relationship between marital status and well-being outcomes cross-nationally, a consistent association was again found between being married and higher levels of well-being. Happiness, captured using a single item question in one study, was found to be higher for married people in sixteen out of the seventeen countries included (Stack and Eshleman, 1998). This remained consistent, even after economic well-being and health were taken into account (Stack and Eshleman, 1998). A similar pattern was observed for life satisfaction, where being married was a consistent predictor of higher satisfaction in seven out of the eight countries studied (Berney and Blane, 2003; Ryan et al., 1998). Alternatively, being married was associated with a lower level of loneliness, when compared to those who were single, in fifteen of the seventeen countries from the World Values Survey (Stack, 1998). Furthermore this association again remained significant after adjusting for financial circumstances and physical health status (Stack, 1998). Gaymu and Springer (2010) used data from wave one of SHARE to examine the well-being of older

Europeans who were living alone and found that marital status was a significant predictor of life satisfaction (Gaymu and Springer, 2010).

Although as described above being married was again consistently associated with well-being cross-nationally, several differences were also identified. For example, life satisfaction was found to be particularly low for divorced women living in the central region of Europe: Austria, Belgium, Germany (Gaymu and Springer, 2010). In one study which examined marital status and happiness, married men and women who lived in a country with a low rate of divorce, had lower levels of happiness, even when other variables were taken into account (Stack and Eshleman, 1998). Whether there was a 'cohabitation gap'- between married and cohabiting individuals – in terms of happiness was also found to vary between European countries (Soons and Kalmijn, 2009). The authors concluded that there was an inverse relationship between the size of the gap and the 'institutionalization of cohabiting', defined as both attitudes towards and the rate of cohabitation in a country. For example, a smaller gap was apparent in countries, such as Sweden and Norway where cohabiting is both more prevalent and acceptable (Soons and Kalmijn, 2009). A negative association between divorce and well-being, measured using both happiness and life satisfaction was also found to be weaker in countries where divorce was more common (Kalmijn, 2010). Although Mastekaasa and colleagues (1994a) found an association in each country between well-being and marriage for at least one of the well-being outcomes they tested and variation between the countries was also evident. However, they concluded that due to the limitations of the data they couldn't identify a systematic pattern (Mastekaasa, 1994a). A later study which used data from the World Values Survey and grouped countries according to their individualism or collectivism tendencies also found differences in the relationship between marital status and subjective well-being (Diener et al., 2000). Overall countries considered to have individualist values showed a smaller well-being advantage for those who were married, compared to those from countries defined as collectivist (Berney and Blane, 2003).

Cross-national surveys which allow changes in individual level well-being data to be examined are a relatively recent social science tool; therefore historically aggregate data was used to identify the influence of marital status. Using data drawn from census records

and UN demographic data, Hu and Goldman (1990) observed that over the last two decades the relative mortality ratio of the unmarried had been increasing compared to the married. The authors also found that amongst the unmarried, those who were divorced, especially divorced men, had the highest mortality rates overall (Hu and Goldman, 1990). The authors concluded that these results support the idea that those who are divorced have lower levels of well-being in countries where divorce is less common because of a 'divorce' selection effect (Hu and Goldman, 1990). However, it has been determined that it is not possible to test explanations of this kind for the association between marriage and well-being with only aggregate data (Goldman and Hu, 1993).

2.3.6 Selection or social causation?

Explanations for the association between marital status and well-being are usually interpreted as falling into two categories. Those which emphasise the selection into marriage of people who already have higher levels of well-being prior to marriage; and those which suggest that being married itself is responsible for increased well-being. As mentioned above, exploring the *selection* explanation requires longitudinal measures of the well-being outcome which is to be examined (Goldman and Hu, 1993). Support for this theory using appropriate data has been provided to some extent. A Norwegian study which utilised data from public registers, found a stable relationship between a life satisfaction measure, observed before and after marriage, although the time period for this follow up was small (Mastekaasa, 1992). Lucas and colleagues (2003) also examined if selection into marriage explained the association between marital status and life satisfaction, using fifteen waves of the German Socio-Economic Panel Study. The authors concluded that although those who married received a small boost in their level of life satisfaction, their level returned to baseline over time and that it was actually the most satisfied people who reacted least positively to marriage. This supports the prevailing view of recent years that both selection and causation might function together, often simultaneously (Helsing and Szklo, 1981).

A number of reasons have been offered for why marriage is associated with higher levels of well-being. The potential for marriage to offer financial security through a higher household income, economic protection from the risks of unemployment and the economies of scale

which are possible when sharing a household, has been proposed (Rogers, 1995). Several studies have also demonstrated how the association between health and marriage might be mediated by material circumstances (Williams, 1988; Gerstel et al., 1985; Hahn, 1993; Joung et al., 1997). One study used the US National probability sample to show how taking financial support and social attachments into account reduced psychological distress amongst those who were divorced (Ross, 1995).

The social support received by married people has also been explored as a possible mechanism for the well-being benefits of marriage. Several studies suggested that the emotional support provided by a marriage could potentially reduce a range of mental illness symptoms (Gerstel et al., 1985; Ross, 1995). A stronger degree of social integration, determined by the number of social contacts was also found to be associated with marriage (Ross et al., 1990). However, whether the protection provided by social support is a consequence of *being married* or having good social attachments to another person has been questioned (Ross, 1995). Hughes and Gove (1981) found that unmarried people who lived alone were not more distressed than married people who didn't (Hughes and Gove, 1981). Additionally improved health has also been proposed as a reason for the relationship between marriage and higher levels of happiness or emotional well-being (Stack and Eshleman, 1998). Several mechanisms for how marriage can improve health have been suggested, from the control of risky health behaviours (Umberson, 1987) to the early detection of disease symptoms (Ross et al., 1990).

Additionally whether these explanations for how marriage might improve well-being are the same for men and women has been questioned. Sarah Arber (2004) considered whether, in later life there were cross-cutting influences of both marriage and gender for material and social resources. She found that whilst divorced or widowed women had less material resources in later life, never married men had lower levels of health and social resources (Arber, 2004). Lillard and Waite (1995) observed that the association between marriage and reduced mortality was no longer significant for women when financial status was taken into account, they concluded that the financial support marriage could offer might be more beneficial for women. However, other authors have suggested that the financial benefit of marriage operates in different ways for men and women, for example, women might gain a

higher household income and men a partner dedicated to managing household finances (Trovato and Lauris, 1989). Furthermore In a study which examined the association between marital status and depression, a modifying effect of employment on depressive symptoms was suggested for married women, suggesting that financial security might not be the only factor operating here (Kessler and Essex, 1982). The benefit of marriage as a mechanism for controlling risky health behaviours was also presented as especially beneficial for men, since women were more likely to be the spouse who provided the social control (Umberson, 1992). Joung and colleagues (1997) also observed in the Dutch GLOBE survey that never married men reported more unhealthy behaviours, such as smoking and drinking alcohol compared to other men or women.

2.4 Spousal Interdependence

Research which seeks to understand well-being at older ages has mostly concentrated on the individual as a unit of analysis. This focus can conceal the possibility for older couples that information from both spouses is of interest (Hoppmann and Gerstorf, 2009). Furthermore research which examines the influence of marriage only for individuals, might ignore the potential for the health and well-being of those who are married to be influenced by their spouse (Walker and Luszcz, 2009). In this section a brief overview of the literature which considers spousal interrelations in well-being and health is provided. Two main themes from the literature are considered here; studies which evaluate similarities of well-being within couples – concordance - and those which examine the influence of partner characteristics on well-being. Several useful reviews of the literature in this area should be noted. Hoppman and Gerstoff, (2009) evaluate literature which considers spousal interrelations in health, well-being and cognition at older ages, whilst Ruth Walker and Mary Luszcz (2009) conducted a systematic review of studies that use data from both spouses to examine dynamics of health within couples. In this latter review, the authors consider the evidence for concordance in terms of physical and emotional health for elderly couples (Walker and Luszcz, 2009). Meyler and colleagues (2007) also review research which investigates similarities in a range of physical and health outcomes; however, they consider studies which examined concordance for couples of all ages. Whilst they found substantial

evidence for the concordance of spousal health and well-being outcomes, several aspects of this debate were felt not to have been addressed and therefore avenues for further research were also discussed (Meyler et al., 2007).

2.4.1 Concordance

A reciprocal relationship between a health or well-being outcome for both members of a couple has become known in the literature as concordance (Bookwala and Schulz, 1996). Four main theories have been proposed to explain the similarity of couple health and well-being responses. These theories have obvious similarities with those proposed for the positive association between marital status and well-being discussed earlier in this chapter (section 2.3.2). Firstly the theory of *assortative mating* suggests that any similarity in the health outcomes of couples is due to people choosing partners with similar characteristics to their own (Lillard and Panis, 1996). However, longitudinal studies have offered evidence to contradict this view, suggesting that changes in the physical or mental health level of one spouse can also influence the well-being of another (Siegel et al., 2004; Tower and Kasl, 1996a). Two further theories propose that any concordance between spousal health or well-being is because of *mutual influence*. For example the health behaviour of an individual, such as their diet might reflect their spouse's health behaviour. Or that their behaviour might be actively controlled or monitored by their spouse (Umberson, 1992). It has also been suggested that concordance of mental health outcomes might be because of *emotional contagion*; for example, individuals living together might result in a convergence of emotions (Goodman and Shippy, 2002). The final theory suggests that a *shared environment* could affect both partners in similar ways (Smith and Zick, 1994). Research by both Townsend and colleagues (2001) and Peek and colleagues (2006) suggest that concordance of health and well-being may occur because of the influence of household level factors such as financial resources on both members of a couple. The majority of this literature on this subject is from couples where one partner has a chronic health condition such as a vision impairment (Goodman and Shippy, 2002), osteoarthritis (Druley et al., 2003), kidney disease (Gee et al., 2005) or urinary incontinence (Fultz et al., 2005). Here the emphasis is on the emotional burden of caring for a partner with a long term health condition; however, there have also been a number of studies which have examined the spousal interdependence when neither member of the couple was identified as a care-giver.

Schimmack and Colleagues (2006) used data from couples in the German Socio Economic Panel (SOEP) to test the theories mentioned above for a life satisfaction scale. They concluded that there was strong evidence of concordance of life satisfaction and that the explanation was partly assortative mating; individuals with similar levels of life satisfaction becoming couples, and partly the influence of shared environments (Schimmack and Lucas, 2006). Apart from this example, few studies have tested the concordance of subjective well-being outcomes such as quality of life in older couples. However, there is growing evidence from the field of psychology of ageing of concordance of depressive symptoms within couples. Hoppman and Gerstoff, (2009) conclude that although there is evidence of spousal similarities for both health and well-being outcomes, negative emotions often appear to be more contagious. Higher levels of depressive symptoms for one spouse were found to be associated with higher levels of depression for the other in both cross-sectional (Bookwala and Schulz, 1996; Eagles et al., 1987; Tower and Kasl, 1995) and longitudinal studies (Tower and Kasl, 1996b; Read and Grundy, 2011; Siegel et al., 2004). Three studies also found evidence of concordance in the depressive symptoms, even when known demographic and health predictors of depressive symptoms were taken into account (Bookwala and Schulz, 1996; Tower and Kasl, 1995; Townsend et al., 2001). Although the majority of this evidence has been observed in studies using data from the USA, concordance in depressive symptoms has also been demonstrated in couples of all ages from Canada (Du Fort Galbaud et al., 1994), Sweden (Hagnell et al., 1974) and Scotland (Eagles et al., 1987).

Since this thesis aims to examine concordance in subjective well-being, this overview of the literature has focused on the evidence from studies which considered concordance of emotional well-being outcomes. However, several studies also found evidence for concordance in physical health outcomes, measured objectively such as blood pressure and heart problems, although this evidence was felt to be less conclusive (Meyler et al., 2007). Peek and Markides (2003) found blood pressure in a sample of older Mexican American couples to be concordant. Wilson and colleagues (2001) also observed a strong and significant association amongst the subjective health status of older couples. They concluded that for those reporting poor health, having a spouse who also had poor health might compound the negative impact of this (Wilson, 2001). Although similar reporting of

negative health behaviours, such as diet, smoking and alcohol intake have also been observed to a certain extent, within couples it has been noted that this evidence was less conclusive than for mental or physical health (Meyler et al., 2007). Similar levels of BMI have also been found for older couples, which the authors suggested resulted from the influence of similar social environments and lifestyles (Stimpson et al., 2006). However, it has been argued that for health behaviour outcomes such as these, assortative mating might play a larger role (Wilson, 2002).

Similar studies, again using US data, also suggested that spousal well-being and physical health affected well-being, although gender differences were evident (Ayotte et al., 2010; Peek et al., 2006). Longitudinal evidence like that provided by Siegel and colleagues (2004) of the relationship between partner characteristics and well-being in married couples supports this hypothesis of mutual influence. Marital quality has been proposed as a moderator of this concordance in couples responses, however the strength and direction of the impact of this is not clear. Tower and Kasl (1996b) found that closeness in couples encouraged a stronger association between their well-being scores, whilst Yorgason and colleagues (2006) found the opposite effect.

2.5 Welfare State Regimes

In recent years, public health research has recognised the importance of considering how factors at the population level might have an impact on both health and health inequalities (Kaplan, 2004; Bambra, 2007b). Examining the effect of social factors on health and well-being in a single country is useful, when seeking to understand how within country differences translate into health differences or inequalities. However, comparative research also allows country level social factors to be examined. Whether there are inequalities for certain groups, through the way a society is structured, can also be uncovered. For example, as previously discussed in this chapter (section 2.3.5) the impact of socio-economic factors in later life, varied by European countries and the effect of this inequality on quality of life was larger in certain countries. However, observing variation between countries and understanding what might cause this variation are two different issues. There are many

ways through which a society could influence differences in health or well-being. Cross-national research can also highlight whether the welfare provision of a country mediates the extent to which these differences in circumstances may determine health status (Bambra, 2007b). For instance the welfare state is often seen as providing a 'safety net' which protects people from the impact of socioeconomic differences in health (Bartley et al., 1997a). Although welfare arrangements are not the only type of country level variation which can be measured, their importance can't be denied (Daatland, 2001). Social policy research has a long history of considering how changes within a welfare system can improve the general well-being of members of a society, often through government intervention. However, comparative social policy has traditionally used the features of these individual interventions to identify the characteristics of a welfare system. Although useful, these methods do not allow an overview of the functions of the welfare system of one country to be compared to another and it is perhaps this overview, which will allow similarities and differences to be identified.

Studies of how institutional welfare arrangements shape individual outcomes often use at least as a starting point Gosta Esping-Andersen's (1990) work on welfare state regimes, where countries are grouped together according to the underlying principles of their welfare provision characteristics. This is not the only method of comparing countries by their welfare decisions. It would also be possible to use welfare state spending as a proportion of GDP to categorise countries. However, Esping-Andersen argued that the welfare state of a country was part of a system, which would reflect a particular political logic. Therefore, the theory of welfare state regimes emerged from the hypothesis that the definition of welfare adopted by a country will be able to inform us about wider socio-political decisions, for example, how far the welfare state seeks to intervene in the system of the market. The following section (2.2.1) provides a summary of the theory of this approach. It does not intend to provide a complete review of the work of welfare state regimes, since this is considered outside the scope of this project. However, it will highlight the key themes and provide the necessary context to understand both the importance of this theoretical perspective and its relevance for this study.

2.2.1 Welfare Regime Theory

Esping-Anderson's work was influenced by both the work of Richard Titmuss (1963) who underlined the importance of when and why governments get involved in other areas and T.H. Marshall's work (1950) on understanding welfare as a social contract for citizens. Titmuss (1963) was interested in what constitutes a social service and proposed that welfare states could be clustered into three models, based on the extent to which the state intervenes in both the behaviour of the market and the private lives of citizens. Comparing countries according to their underlying principles regarding welfare provision, rather than the amount of money spent has been defined as characteristic of a welfare regime approach (Allan and Scruggs, 2004). It is this wider focus on welfare capitalism, where the state and the market converge, which Goodin (1999) feels distinguishes a 'welfare regime' from a 'welfare state', since the latter which is associated with transferring welfare to the public, either through cash or services. The approach can therefore be seen as a way of describing and explaining variation in a country's welfare production; what is actually done with the welfare resources. Adopting a political economy approach, Esping-Andersen attempted to theorise welfare states beyond their level of expenditure alone. He felt that *how* a country provided welfare was also important, often reflecting the ideals of the society which produced it and that this variation would cluster meaningfully (Esping-Andersen, 1990). The interaction between the state - *political power* - and the market - *cash nexus* - was considered by Esping-Andersen (1990) to be the defining feature of welfare provision in developed countries. Furthermore these decisions can be measured by empirical data, although Esping-Andersen did acknowledge certain difficulties with this approach, since the historical depth of policy development could be diminished by conducting empirical analysis and any comparative work is sensitive to the tools of analysis chosen and the data available.

Esping-Andersen conducted empirical analysis of eighteen countries from the Organisation for Economic Co-operation and Development (OECD), to demonstrate how they cluster together in terms of welfare provision using two criteria. Firstly, decommodification; which he used to capture the extent to which the welfare provision allows individuals outside the labour market to 'uphold a socially acceptable standard of living' (Esping-Andersen, 1990). This concept was quantified using information from each country regarding entitlement, coverage and replacement rates for three types of welfare provision; unemployment

benefits, sickness benefits and pensions (Scruggs and Allan, 2006). The second criterion, social stratification; measures whether the provision of welfare services and cash transfers minimise or encourage social division between citizens (Esping-Andersen, 1990). The extent to which the political attributes of a country were present in the style of welfare provision was also captured. Several indicators were used to ascertain whether the welfare state functioned to maintain status differences (conservative), preserve the power of the market (liberal) or encourage equality (socialist) (Scruggs and Allan, 2008). Using these criteria together, three welfare state regimes - Liberal, Corporatist/Conservative and Social-Democratic - were proposed (Esping-Andersen, 1990). In the liberal regime, the market provision of welfare is encouraged, benefits are modest and receiving them often associated with stigma (Esping-Andersen, 1990; Borchorst, 1994; Bamba, 2007b). For the corporatist/conservative regime, the state is considered to be a primary source of welfare, benefits are often generous to allow people to remain independent from the market, but this often creates status divisions and preserves the traditional family (Borchorst, 1994; Esping-Andersen, 1990; Bamba, 2007b). In the social democratic regime, where the state is an extensive provider of welfare, benefits are relatively high and universal which means there is an emphasis on equality (Esping-Andersen, 1990; Borchorst, 1994; Bamba, 2007b). The key features of each are presented in Table 2.1.

Table 2.1: Features of Esping-Andersen's Welfare State Regime typology

WELFARE STATE REGIME	LIBERAL	SOCIAL DEMOCRATIC	CONSERVATIVE/ CORPORATIST
Defining features	Means-tested assistance Private pensions	Universalism Socialization of risks	Status division Familialism
Dominant locus of solidarity	Market	State	State/Family
Scale of social insurance	Modest	Extensive	Adequate
Decommodification	Low	High	Moderate/High
Stratification of welfare provision	Stigmatised	Universal	Stratified
Countries included	Australia Canada Ireland New Zealand UK USA	Austria Belgium France Germany Italy Japan Netherlands Switzerland	Denmark Finland Norway Sweden

Adapted from Esping-Andersen (1999;85)

In later work (1999; 2002) Esping-Andersen acknowledged that his analysis placed too great an emphasis on the state and market contribution and had neglected the family aspect of welfare production. Whilst the contribution of the family to the welfare system was less developed in his original work, Esping-Andersen later argued that the family was a central part of the welfare 'triad' and a welfare regime should be defined by: "the combined, interdependent way in which welfare is produced and allocated between the state, market and family" (Esping-Andersen, 1999: 35). He observed that the family was often the forgotten part of this triangle of welfare despite the central role it may hold in the public management of social risk. He also observed that since both the market and family can 'fail' the role of the state is crucial to determine how a society offers protection when these failures happen. Although he was not explicit about what characterises these failures, marital status is a possible example, since events such as a divorce may contribute to the likelihood of an individual falling into poverty. There is of course a distinction between the family as a provider of welfare, which can occur without a recognised union and the family as a receiver of state welfare where the family unit or partnership often needs to be formalised into a form the state recognises. Other typologies have also recognised that regulations for how households and individual's receive welfare payment are important features of a welfare system. Siaroff (1994) argued that whether family benefits were paid to the mother or to the father was indicative of the role of the family within a society. Ferrera (1996) also considered variation between countries in terms of how people were considered eligible for welfare payments. He argued that whether people received benefits or social assistance based on their own citizenship or as part of their position within employment or a family was important. Features such as this highlight the potential role different welfare states may play in moderating the influence of being part of a marriage or family may have on the well-being of individuals.

The family or household has always been an important source of welfare provision, by acting as a form of security for those members who are not able to participate in the labour market, for example members of a family routinely provides care to younger and older members. However, the role of the family as a welfare provider is not without debate. The level of welfare support provided by families may vary according to both welfare coverage and the system available. Although Esping-Andersen (1999) recognised the family as an

important source of welfare, he argued that the extent to which it needed to be so, was dependent on the role of the state, more so than the market. He also questioned how it was possible to measure the impact of policies on the family other than considering what the state and market didn't provide. He recommended using the concept of 'defamilisation', a term originally coined by Ruth Lister (2003) to frame his discussion of female employment. He used this concept to represent the degree to which social policy allows individuals to function without a family, which he considers equivalent to not being dependent on the market (Esping-Andersen, 1999). He observes that the changing structure of the modern household and women's employment is one of the impending 'revolutions' of social life that the modern welfare state will face (Esping-Andersen, 1999; Esping-Andersen, 2002). He did respond to some of the feminist critiques of his work. However, he remained certain that all the available evidence pointed to the original three regimes types, even when this additional feature; whether individual's welfare is reliant upon their family was included.

The above section briefly mentions the feminist criticisms of mainstream welfare regime approaches, because of the consequences that these could have when examining gender differences, these will be addressed in more detail in the following section (2.6). However, there have been a range of other criticisms of both the work of Esping-Andersen and the welfare state regime approach. Although these are varied it has been suggested that they can be categorised into three main types of critique; methodological, empirical, and theoretical (Bambra, 2007b). Methodological evaluations have questioned both the robustness of the methods used and the capacity of the criteria employed (Kangas, 1994; Ragin, 1994). Whilst these authors levelled many criticisms at his approach, overall it was concluded that his typology had some descriptive value, although the case for extending it to more than three regimes was acknowledged. The rationale for developing any sort of welfare typology at all has also been rejected. Kasza (2000) argued that the approach is not able to adequately represent the different motives for providing welfare in different countries or to capture the potential internal policy variation within countries across different areas of provision. However, despite these criticisms, it is still acknowledged that the welfare state regime approach can offer researchers evaluating cross-national data a useful method to undertake comparative analyses by clustering the countries by welfare state regime (Arts and Gelissen, 2002; Ferragina and Seeleib-Kaiser, 2011a). Arts and

Gelissen, (2002) in their review of welfare state regimes argue that typologies are especially useful to a discipline which is in its infancy and that there are reasons to argue that this is the case with the comparative research of welfare states.

Empirical criticisms have also emerged, especially from work which has replicated Esping-Andersen's original work. This work has questioned the accuracy of his original findings when similar analysis was undertaken with more recent data (Bambra, 2006; Scruggs and Allan, 2006; Scruggs and Allan, 2008). Scruggs and Allan, (2006) repeated the analysis, from the original Esping-Andersen (1991) and found differences in both the ordering of the countries when the original decommodification scores are replicated and when a benefit generosity index is constructed, using different values for the programme characteristics. They found that, with the exception of the Nordic countries, it was difficult to distinguish between the three regimes. However, for this work, they used data they collected themselves and although that Esping-Andersen's original data was not made publically available is a justified criticism of his work; it does perhaps limit this replication.

One important area of theoretical criticism was the criteria used for categorising countries. Questioning these criteria also affected arguments for how countries should be grouped into regimes. Abrahamson (1999) argued that an exclusive focus on social transfers, which he felt Esping-Andersen's work had, ignored variations in the provision of welfare services (Abrahamson, 1999). He suggested that taking service provision into account would alter how certain countries were clustered, for example the UK (Abrahamson, 1999). It was also argued that when the health services supplied by a welfare state are included, Esping-Andersen's original typology needed to include two further subgroups (Bambra, 2005). A typology which allowed Australia and New Zealand to be considered separately as an 'Antipodean' welfare state regime was also suggested (Castles and Mitchell, 1993). Castles and Mitchell (1992) developed a classification which used income related benefits alongside social spending, since they felt that certain welfare states might redistribute income using these measures rather than by direct cash transfers. The need for a 'Post-Communist' cluster, has also been suggested, to allow the countries of Eastern Europe to be considered separately due to the changes the welfare systems had undergone (Fenger, 2007). In later work Esping-Andersen (1999) suggested including these countries within the cluster he

called the Conservative regime, however this strategy has been criticised (Fenger, 2007). These countries are usually characterised by having moved away from the universalism of the communist welfare state towards a combination of private and family provided welfare provision (Fenger, 2007),

One of the main amendments suggested to the original three fold typology was that a fourth regime should be identified, comprised of the Southern European countries, for example Italy, Portugal, Spain and Greece. This regime was argued to be characterised by lacking a basic level of state welfare provision and an increased role of both the church and the family as providers of welfare support (Ferrera, 1996; Bonoli, 1997; Arts and Gelissen, 2002). Leibfried (1992) considered that across Europe, social citizenship has developed in a number of different ways and the result for welfare systems has been how they function to relieve the poverty of those within society. He considers the 'Latin Rim' countries to be distinguished by their lack of rights to welfare provision, which is demonstrated by the lack of a minimum social benefit in these countries. Bonoli (1997) was critical of the decommodification approach, proposed by Esping-Andersen (1991) since he felt that it could not adequately identify the welfare style that a society represented. The two features he included in his typology, were considered to represent the 'how' and the 'how much' of countries welfare spending. Using these indicators, Southern countries were considered to be distinctive because of the high percentage of their welfare expenditure which is financed through employment contributions, compared to their overall low level of social contribution, as a percentage of GDP (Bonoli, 1997). As mentioned above, the typology suggested by Ferrera (1998; 1996) emphasised access to welfare to be an important dimension for comparing a country's welfare provision. Although earlier I described the implications of this perspective for considering the role of the family within a welfare system, this also had implications for the classification of countries. Ferrera (1996) argued that the 'Southern' model of welfare was characterised by a fragmented welfare system, with some quite generous benefits, usually those linked to employment, coupled with a lack of a minimum level of social protection. Unlike other regimes which have a system of organisational integration for providing welfare services and transfers, the role of the state in Southern countries was described as more localised and perhaps less transparent (Ferrera, 1996).

In later work Esping-Andersen (1999) discussed different indicators of welfare provision and how these might alter the countries included in the 'three worlds' typology, however, he remained committed to his three fold typology (Esping-Andersen, 1999). Although he did acknowledge that features such as the values of the Catholic Church and the high level of familialism indicate the possibility of a separate Mediterranean typology he mostly considered these countries to be undeveloped versions of his Conservative regime.

The debate around welfare state regimes is, as demonstrated by the summary above, multi-faceted and complex. However, there must be sufficient justification to use a welfare regime approach as a tool of comparative analysis. Despite the many criticisms of this approach, I feel that it still has merit for this study, especially since the family is considered to be an important feature of a welfare system. It can both offer a 'safety net' against the risks of market capitalism and yet a support mechanism which can fail. This can only be an important feature of a society, when examining how marital status influences well-being in later life. Furthermore, I agree with the argument that typologies remain an important tool, since without them data analyses become an end in themselves, rather than a way of attempting to understand the real world (Ferragina and Seeleib-Kaiser, 2011a). This section has perhaps emphasised the work of Esping-Andersen over other typologies. However, I feel that his work provides the best insight into the history of a welfare regime approach. Furthermore most work has been developed using his work as at least a reference category or starting point and so it is important to provide a historical understanding of this theoretical perspective. In section 2.2.3 a brief overview of some of the characteristics of the mainstream welfare state regimes observed in empirical research is provided.

2.2.3 Characteristics of welfare state regimes

2.2.3.1 Scandinavian/social democratic Regime

This regime is considered an interventionist state, designed to promote equality. It is characterised by a historical commitment both to full employment and to a redistributive social security system (Esping-Andersen, 1990). These aims can be seen in the high level of investment in public services - including pensions - which are less likely to be means tested.

These services are delivered through a high level of both cash services and provision of health care (Bambra, 2005). In the Social –Democratic regime through these services the state can be seen to assume a high level of caring responsibilities and therefore to have a high level of defamilisation (Esping-Andersen, 1990) Overall there is a lower incidence of intergenerational living than in other welfare regimes (Tai and Treas, 2009) although parents do transfer resources to children in terms of time and money (Albertini et al., 2007). The influence of these arrangements on health status has been found in a number of studies to be positive, with inequalities in population level health reduced but still present (Bambra, 2006; Chung and Muntaner, 2007; Navarro et al., 2003). However, a recent study which compared health inequalities found that for prevalence of self-assessed poor health (Eikemo et al., 2008b) and long term limiting illness (Eikemo et al., 2008a) Scandinavian countries were not the lowest in Europe. The authors of these studies suggest reasons to explain these inequalities, for example class related health behaviours e.g. smoking and the effect of social exclusion and immigration (Eikemo et al., 2008a). Gender differences in health status and equality in the Scandinavian regime have also received attention. Theorists have suggested that countries in these regimes are often progressive in terms of the attempts to make their welfare systems gender equal (Bambra, 2004; Bambra, 2007a; Korpi, 2000; Sainsbury, 1999a). However, gender differences have been found, for example one study found that women had lower levels of self-assessed health than men (Bambra et al., 2009) and another observed a stronger negative effect of unemployment for women’s health (Bambra and Eikemo, 2009). It has also been suggested that in this regime policies which have been designed to be ‘women friendly’ can have unseen consequences for gender equality, creating a burden of dual roles or a high number of lone mothers (Sainsbury, 1994).

2.2.3.2 Conservative-Corporatist/ Bismarckian regime

The Conservative-Corporatist or Bismarckian welfare regime is characterised by a generous welfare state which provides a moderate level of decommodification (Esping-Andersen, 1990). The delivery of these welfare benefits is often dependent upon income level; therefore this regime can be less redistributive across a society than the Scandinavian regime. The role of the family is usually emphasised in the arrangements of this welfare system (Bambra, 2007a) and many services are only offered when the family cannot provide

to maintain their traditional role within these societies (Bussemaker and Kersbergen, 1994). Despite the high level of welfare offered in this regime, it has been observed that married women not engaged in the labour market only have access to this provision indirectly, through their husbands. This emphasis on the family as the main provider of care in this regime has often discouraged women's participation in the labour market (Esping-Andersen, 2002) and there is often an emphasis on the provision of cash benefits rather than publicly available services in this regime (Bambra, 2005). Overall the smallest level of health inequalities have been found in the countries of the Bismarckian welfare state regime (Eikemo et al., 2008b) and, perhaps because of the small numbers of either women experiencing dual roles or lone mothers, no gender differences in self-assessed health were found (Bambra et al., 2009). However inequality in terms of health and unemployment (Bambra and Eikemo, 2009) has been observed for men, emphasising perhaps, the importance of social status in this regime.

2.2.3.3 Liberal regime

The countries grouped into the Liberal regime are often the most dedicated to a free market. The provision of state welfare is therefore minimal and where offered welfare provision is usually means-tested and those who receive it are often stigmatised (Esping-Andersen, 1990). Therefore, only minimal levels of decommodification are possible and the redistribution of wealth between members of a society through the welfare system is low (Esping-Andersen, 1999). However, differences between the countries in this regime are evident in terms of health care provision, which is universally provided through the state in the UK compared to market provision in the USA (Castles and Mitchell, 1992). A recent study observed that this regime had the lowest prevalence of two negative health indicators – self-assessed poor health and limiting long term illness - suggesting good general health (Eikemo et al., 2008c). However, large health inequalities, in terms of unemployment have been observed for both women and men, suggesting that in this regime, the means testing of benefits may still be a defining characteristic (Bambra and Eikemo, 2009).

2.2.3.4 Mediterranean/Southern regime

Although not part of the original typology devised by Esping-Andersen (1990), a separate grouping of the southern European countries has been proposed (Ferrera, 1996; Bonoli,

1997). This regime is characterised by a low investment in state welfare, high reliance on other sources of welfare such as charity providers and a central role for the family as provider of welfare (Bonoli, 1997). Furthermore recent socio-demographic and economic changes in the provision of public services have allowed a greater role for the market to emerge, so the low level of state provided welfare in these countries is beginning to diminish further (Ferrera, 1996; Trifiletti, 1999). The family as a provider of welfare can also be seen in the high numbers of older people who currently reside with their adult children (Albertini et al., 2007). These patterns of intergenerational living can be explained both by children delaying the age which they leave home and also the low level of state provision of care for older parents (Pampel and Hardy, 1994). Young people often remain at home until they marry, depending on support from their parents (Tai and Treas, 2009) and due to low levels of welfare support, these patterns of intergenerational living are often a strategy for maintaining adequate living standards (Atchley, 1989) although financial transfers to children from parents are less likely to take place in Mediterranean countries than the rest of Europe, (Albertini et al., 2007). A high prevalence of poor self-reported health has been found in this regime (Bambra and Eikemo, 2009; Eikemo et al., 2008b) and although one study found the Southern regime to have the largest income related health inequalities when compared to others (Eikemo et al., 2008c) another which used employment to measure inequality found smaller effects and suggests that the family model of welfare provides a buffer against the negative effects of unemployment (Bambra and Eikemo, 2009). Women with higher levels of education in this regime reported poorer self-assessed health when compared to both lower educated women and men; suggesting perhaps a tension for women who are employed with the traditional role of women in these societies (Bambra and Eikemo, 2009).

2.2.3.5 Post-Communist/Eastern Europe regime

A group of countries not initially considered in Esping-Andersen's original typology (1990) is those of the former USSR and it has been suggested that these should form a separate cluster of Eastern European or Post-Communist countries. In later work Esping-Andersen (1999) suggested including these countries within the cluster he called the Conservative regime, however this strategy has been criticised (Fenger, 2007). Since joining the European Union these countries have been characterised by their mixed approach to welfare

provision (Golinowska, 2009). They have moved away from the universalism of the communist welfare state towards a combination of private and family provided welfare provision (Fenger, 2007), however with a rapidly ageing population a series of emergency measures concerning pensions and welfare for older people has had to be developed (Orenstein, 2008). This regime also has a high level of poor self-reported health (Eikemo et al., 2008a) although health inequalities in this regime are not especially high compared to the other welfare state regimes mentioned previously (Eikemo et al., 2008c) and only small health inequalities are observed for women, when measured by unemployment (Bambra and Eikemo, 2009). Young people often remain living with their parents until they marry, depending on the level of parental support available, which may be protective against poverty in these households (Tai and Treas, 2009).

2.6 Gender

2.6.1 Examining gender differences

The distinction between “sex” and “gender” has perhaps been one of the core legacies of feminism for the social sciences. This developed from the idea that differences between men and women are not determined by biological variation alone, instead that social and cultural practices also have an effect. Competing theories of feminism may disagree over their view of what a more equal society should be like, however, they all emphasise how the structure of society can influence the lives of both men and women. Simone de Beauvoir was one of the first writers to suggest that you might ‘become’ a gender rather than be born one (Fallaise, 1998). She did not deny that there were differences between men and women; however, she argued that the different social roles they assumed were not dictated only by biology. She argued that “civilisation as a whole” produced these differences and that the characteristics attributed to each gender were often socially produced. Ann Oakley (1972) a feminist sociologist, agreed that whilst sex is a biological term, gender is a cultural one, and that they do not always equal the other. She argued that traits such as dress, gestures and social network are also used to identify men and women; she also used examples from different cultures to show how gender roles have often been defined differently. However, writing in the 1970s, she observed that conventional gender roles were often still associated with biological differences. For example, the traditional roles

ascribed to women and men of homemaker and breadwinner, are often described as demonstrating the corresponding characteristics exhibited by men and women. However, Oakley (1972) argued that the persistence of these separate roles might stem from the importance of the division of labour for the continuation of industrial society.

These ideas and arguments were at the forefront of feminism, which was a driving force of change for the role of women in many contemporary Western Societies during the end of the last century. The demands of first wave feminism have been associated with many changes; from an increase in educational and employment opportunities to a greater role for women in the area of political representation. These changes have had implications for both the public and private domains of modern life, since the shifting role of women has influenced both their own social roles and also national policy. However, these transformations have also led gender as an appropriate dimension of inequality, to be questioned. Since women are free to seek employment after they marry and the majority of welfare states provide some kind of maternity leave and care services. Is this still an important agenda? Isn't gender an 'old debate'? Even those who recognise that gender inequality remains may question whether 'gender' is still an appropriate category of analysis, since it may not represent a homogeneous group, whose experiences cut across all societies. It has been argued that much feminist theory was developed by academic, white, middle and upper class, heterosexual women (Morgan, 2001). Their perspective may therefore ignore the varied experiences of women since other potential sites of inequality, such as race, ethnicity, class, religion, and age may all contribute to the risks faced by individuals. This perspective has also raised questions about the value of conducting gender focused policy research, since it queries whether it is possible to talk about 'women friendly policies' and indeed what such policies would look like.

However, there remain a number of reasons why it continues to be important to examine gender differences at the macro or society level. Sylvia Walby (1997) argued that although by the end of the twentieth century, women in Western countries, such as Britain, were more able to determine their life courses; the wider forces of patriarchy could still affect their lives. Social events, especially during the twentieth century have resulted in a number of changing trends for women's role within society, from the increase in female

employment to the changing service industry. However, despite these changes, it remains necessary to consider the consequences of these changing gender roles. For the most part variation does still exist in how social policies influence women and men and how they experience social events. For example, although family obligations no longer need to restrict women's role in the labour force, they still do and the extent of why and how this happens varies between societies. There have also been secondary effects of certain policies. The low fertility rate, particularly evident in Southern European countries has been theorised to be, at least in part, a consequence of a lack of childcare provision in these societies (Hilgeman and Butts, 2009; Joshi, 1998).

There is, certainly across Europe, improved representation of women in political institutions. It has been suggested that critical mass of women in politics may shift the agenda of welfare development and might have the potential to affect policy decisions (Lewis, 1992). It has also been proposed that female political activism may also influence policy structures and therefore shape national debates (Sainsbury, 1999b). However, although gender relations in the public sphere are changing, often women's role remains unequal. Furthermore women's health and well-being is thought to be especially sensitive to decisions made at policy level (Raphael and Bryant, 2004). Therefore, it continues to be important to empirically examine how social structures influence gender inequality. Although it is also important to understand the intersection of different aspects of diversity in gender relations, a starting point of understanding is still to understand how societal structures might affect how gender affects the experience of individual lives. These differences will not just reveal issues which are relevant to women, but wider concerns which are integral to the understanding of the welfare state and a society's development (O'Connor, 1993).

2.6.2 The 'Gender Blind' criticisms of welfare state regimes

This perspective remains relevant in social science research, not only because it has acknowledged the importance of continuing to examine gender differences at both the individual and society level. It has also demonstrated how these differences might not always be captured accurately through existing methodologies. Although it has been acknowledged that something about Esping-Andersen's analysis of welfare state regime has

brought about greater engagement between feminist and mainstream scholars of welfare states' (Orloff, 2009). However, there has remained much criticism of comparative analyses of welfare provision for ignoring both the role of women in welfare states and gender related variation between countries' welfare provision (Bambra, 2004; Daly and Rake, 2003; Lewis, 1992; Orloff, 1993; Sainsbury, 1994). Welfare state research has to some extent integrated into the mainstream literature an appreciation of feminist concerns and this has led to the development of certain concepts which have also been important to feminist theorists. Yet the deeper implications of feminism have perhaps been resisted and therefore, it has been argued that the agenda remains 'unfinished' (Orloff, 2009).

Feminist theorists have been deeply critical of several assumptions about the mechanisms of welfare provision made by mainstream work (O'Connor, 1996; O'Connor, 1993; Orloff, 1993; Sainsbury, 1999b). Firstly, as Orloff (1993) suggests, the concept of de-commodification assumes that all individuals have the opportunity to be involved equally in the labour market. The authors suggest that this concept does not consider how access to the labour market may be unequal or determined by gender and how this might result in differences between state provision for male and female workers. For example, women may only be entitled to certain types of welfare provision through their entitlement as wives (Sainsbury, 1996). Secondly, a gender perspective highlights how social rights awarded to citizens may have 'different implications for men and women because of structured gender inequalities' (O'Connor, 1993). The concept of social citizenship (Marshall, 1950) has often ignored the unpaid status of women outside the labour force and hasn't fully explored mechanisms of social stratification beyond class (O'Connor, 1996). Thirdly, this literature highlights how there has often been focus on the state and market as providers of welfare, at the exclusion of the family (Orloff, 2009). This work argues that welfare provision by the family is not conceptualised in the same way as welfare provision by the state, because unpaid caring or domestic work is not seen as holding the same significance (Daly and Rake, 2003). Perhaps because of this focus on the family and welfare rather than *women* and welfare, feminist authors in this area have commented that Esping-Andersen doesn't go far enough to 'gender' his concepts of welfare (Orloff, 2009). It has been suggested (Orloff, 1997) that mainstream welfare frameworks often struggle to explain gender differences in empirical work because they have made 'women' rather than 'gender relations' their focus.

However, welfare state research has to some extent integrated into the mainstream literature an appreciation of feminist concerns (Korpi, 2000; O'Connor, 1993) and often traditionally female areas of significance e.g. unpaid care work have been given more prominence (Daly and Rake, 2003).

2.6.3 Alternatives to welfare state regime typologies

Due to these many criticisms of mainstream welfare state regime approaches, alternative techniques have been used to compare macro level gender differences. Here I will focus on three of these approaches, those that are most empirically suited for the use with comparative research; gender focused typologies, macro indicators and gender equality indexes.

2.6.3.1 Gender focused typologies

There have been a range of responses to welfare state regime typologies from those who have those who have 'gendered' the concepts used in existing typologies (Orloff, 1993; O'Connor, 1996) to those who have created alternative systems of classification. Perhaps the best known example of the latter is a model based on the degree to which a country was felt to represent a 'breadwinner' model, where traditional gender roles were encouraged. Lewis (1992) identified three types of society, the strong male breadwinner, of which she felt a good example would be the UK, a modified male breadwinner society (France) and a dual breadwinner society (Sweden). However, this and similar models tended to be limited by a focus on only one indicator or the small number of countries considered (Esping-Andersen, 1999). Furthermore, these systems of classification were often more theoretical than empirical, focused on examining the way gender was missing from the conceptual perspective used by the mainstream models, rather than presenting different systems of classification which can be feasibly used by comparative researchers. However, several typologies were developed which used a number of relevant indicators and a range of countries which were classified into gender focused typologies (Esping-Andersen, 1999; Korpi, 2000; Bamba, 2004).

Initially Clare Bamba (2004) compared a defamilisation index with the original decommodification index (Esping-Andersen, 1990) and concluded that, although there was

variation within individual welfare regime clusters, the original typology of welfare state regimes remains quite stable. However, in later work this author, due to concern around the methodology she initially used, also conducted cluster analysis using a defamilisation index and suggested that there was adequate variation to suggest a five fold typology. She defined defamilisation as 'the extent to which the welfare state enables women to survive as independent workers and decreases the economic importance of the family in women's lives'. She used four indicators: female economic activity rate, maternity leave compensation, maternity leave duration and average female wage to represent this concept (Bambra, 2007a). Whether the differences between this typology and others are enough to justify a move towards separate gender based welfare state classifications is however, a difficult issue. Korpi and colleagues (2000) considered the intersection of gender and class inequality using indicators of the social insurance model of a country and their level of gender equality, measured by public policies. They concluded that because of including two dimensions of inequality, their typology diverged from previous classifications (Korpi, 2000). Whilst Siaroff (1994) used three factors; the degree to which work was desirable for women, family welfare orientation and whether women or men received family benefits, to construct a new typology. Whilst he acknowledged that there were several similarities between his and previous typologies, differences were also found, such as the position of Japan and Switzerland.

2.6.4.2 Individual policy indicators

Another approach is to consider how individual indicators might separately influence how gender at a macro level influences individuals. These are often categorised into three different types of indicator, instrumental, context and outcome (Bericat, 2012). There are a number of reasons why female employment is considered an important indicator for comparative research. Firstly, it often represents a 'trade-off' for women between the labour market and the family (Daly and Rake, 2003). Although this may appear to be a personal choice, there are often wider societal contexts involved as well. Dianne Sainsbury (1996) highlights that in terms of women and the labour force, no welfare state has been able to fully alter the balance between family obligations and women's role in the labour force, although the extent to which this is experienced by working women, does vary

between countries (Sainsbury, 1996). Often the reasons for these differences are related to how the welfare state provides assistance so women can access the labour market, these are often described as 'women friendly' policy packages and usually included such initiatives as affordable day care, paid maternity or parental leave and provisions for work absence when children are ill. The effect of these policies is usually to increase the numbers of women employed in a labour force. There are however, other ways that female employment may vary according to the kind of work which is undertaken. For example women may be more likely to be employed in certain type of jobs or sectors, more likely to be employed part time than full-time and often due to vertical segregation less likely to be found in managerial positions. Indicators which can highlight these differences within employment provide are important, because they can highlight how the female employment rate, may hide further inequalities. However, the level of female employment in a country remains an important outcome indicator of how practicable it is for women to negotiate the balance between work and family (Daly and Rake, 2003).

Often pension contributions are also gendered. Women are more likely to receive benefits, including pensions which are means tested rather than those which are linked to insurance contributions (Daly and Rake, 2003; Bambra, 2004). The poverty levels of certain groups of women are often used as useful indicators of the ethos of a welfare society. The welfare of lone mothers, who are often especially vulnerable to the risks of poverty are often felt to provide a useful 'test' of how the state supports women (Hobson, 1994). Alongside these indicators of how the state provides support for women to work and live without policy, through cash and services, there are also a number of indicators which are useful to highlight the societal context of a country. For example, demographic features, such as the average age of marriage in a country may highlight certain features of a society. Similarly cultural attitudes towards the 'traditional' gender roles of men and women may also be important indicators of how receptive a society may be to gender equality (Diener et al., 2000).

2.6.4.3 Gender related policy indicators

Another analytical framework which provides a method of comparing different countries according to their level of structural gender inequalities is the comparative gender index

(O'Reilly, 2006). These indices use data on a range of indicators relevant to the pursuit of gender equality or equity from a number of countries and calculate an index which can be then used to rank the countries. These can be useful tools for considering the efficiency of government gender focused interventions, in particular for labour market and equal opportunities policies. It has also been argued that these indicators can provide a broader picture of how the interests of women are represented and supported in different societies (Plantenga et al., 2009). However, their usefulness often depends on sufficient access to comparable data. It is important that many of the indicators used to create these indexes are sensitive to changing economic circumstances, and also have a close interrelationship, which may affect the overall score for each country (O'Reilly, 2006).

2.7 A Life course approach

In previous sections, there have been references made to the concept of the life course. I have discussed how the events of a life course might influence later life, how marital status might change across a life course, and the potential for these experiences to be affected both by gender and societal context. In this section I will provide a short overview of the life course perspective; which provides a useful framework for examining both the context and consequences of events which occur during individuals' lives. The life course perspective is a multidisciplinary approach, which is frequently used in social epidemiology, although it is influenced by ideas from a wide range of other disciplines, such as demography, sociology, economics and biology. Theoretically the life course perspective emphasises the importance of context, time and process on the study of human lives. Elder (1994) generally considers context to mean broader social context but this definition can extend to also mean historical or family context. Fundamentally it argues that the study of individuals requires consideration of the circumstance which surrounds them. Timing is used to refer to both the timing of individual events, such as leaving school and the historical timing of social events. Whilst process refers broadly to the social trajectories and sequences that people follow during their life by which outcomes are shaped for example the socio-economic status of families. Practically this perspective uses longitudinal data, either prospective or

retrospective to examine how the experience of an exposure over the course of an individual's life may offer more conceptual depth than the exposure at just one time point.

This approach also offers an important lens through which to view marital status (Elder, 1994; Lillard and Waite, 1995; Wilmoth and Koso, 2002; Williams and Umberson, 2004). It emphasises the importance of understanding the event of marriage as part of a transition, understanding the timing and social context within which it occurs. The life course perspective has also emphasises interdependence of experience, highlighting how in later life the experiences of older people in couples may be intertwined. However, gender differences in both the opportunities and events which take place over a lifetime must also be taken into account. A gendered life course perspective is interested in how different life patterns might be observed for men and women, which could in turn have implications for health and well-being in later life (Williams and Umberson, 2004).

A key feature of a gendered life course may be different work and family roles. For example, in Europe, men have traditionally had a more continuous sequence of employment than women, whose employment has been interrupted by childcare responsibilities (Daly and Rake, 2003). Although these gender defined biographies have begun to change, different patterns are still observed (Arber et al., 2003; Arber and Evandrou, 1993). The life course approach offers a perspective for understanding how the lives of individuals unfold over time (Elder, 1994). However, these different life courses may not always be simply because of personal choice but social and historical context may shape how a life is lived; this in turn can lead to cross-national differences. It is also important to consider the potential for welfare systems to protect people from risk; the extent to which the welfare provision of a society will act as a safety net for a particular life course (Bartley et al., 1997b).

2.8 Summary of literature

This review of relevant literature around the main themes of this study allows a number of conclusions to be drawn. Overall the literature on marital status and well-being suggests a

consistent relationship; with those who are married having higher levels of well-being than those who are not. These findings have been presented as evidence to support the theory that there is a universal benefit of marriage for individual's well-being. However, in the studies which used a wider categorisation of marital status, these relationships were often revealed to be more complex and some single groups didn't always report lower well-being. Few of the studies which explored the effect of marital status on well-being concentrated on older cohorts. However, marital status and partnership were found to be independent predictors of quality of life at older ages. The study of ageing has increasingly attempted to understand older people's quality of life in a wider context, beyond an assessment of their health. A scale designed for this purpose, CASP-19, was found to be influenced by a range of predictors. However, the relationship between marital status and CASP has not yet been directly examined. Whilst a range of individual factors have been found to be associated with quality of life in later life, the effect of spousal predictors on well-being has been examined less often. A number of studies have observed concordance between older couples in terms of both their physical and mental health outcomes; however, this has been not explored as fully with regards to quality of life, measured by CASP. A limitation of the literature which examines the association between marital status and well-being is the lack of cross-national evidence, since the majority of this work uses single country samples. This is also a criticism of work which has investigated spousal interdependence in well-being since there has been a reliance on single country studies. Therefore the potential that both the effect of marriage of well-being and quality of life dynamics within couples to differ cross-nationally has not been fully explored. The research that has considered these relations cross-nationally, observed that whilst those who are married continue to have higher levels of well-being, there are complex patterns around the strength of this effect cross-nationally. Although several studies used SHARE to explore determinants of quality of life across Europe, neither the association between marital status and quality of life or dyadic associations in quality of life has been examined.

A number of different institutional indicators were used to evaluate the context of a country, for example the rate of marriage and divorce have both been used to measure normative trends around marital status.. Examining the distribution of an individual level outcome, such as quality of life, by features of societal context can be also achieved by using

a welfare state regime approach, where comparisons are made between countries based on their underlying welfare arrangements. Although other types of societal context have been used to examine the cultural variation in how marriage affects well-being, welfare state regimes have not been used. This perspective could be important since if the state provides when the market fails, then the lack of a marriage in later life may be less of a risk for quality of life. However, the indicators chosen in mainstream work to reflect a country's welfare arrangements have been critiqued for their lack of relevance for women. Although these findings have made an important contribution to the area, these comparative studies have rarely examined how gender differences in this association might also vary cross-nationally. Those studies that have considered the wider context of these relations have found complex patterns, although they have rarely examined gender differences together with cross-national differences. Gender differences in this association have also been observed, although whether marriage is 'better' for men or women is unclear. What it is possible to conclude is that, generally marriage appears to be of benefit for well-being, although this association is less clear when the relationship is examined in more detail. Therefore this work aims to fill several gaps in the literature. Firstly, by examining the association between quality of life and marital status using a welfare state regime approach, secondly this study will examine how gender moderates cross-national variation in the association between quality of life and marital status. Finally a unique approach of the study is to examine spousal interdependence in quality of life at older ages.

Chapter 3

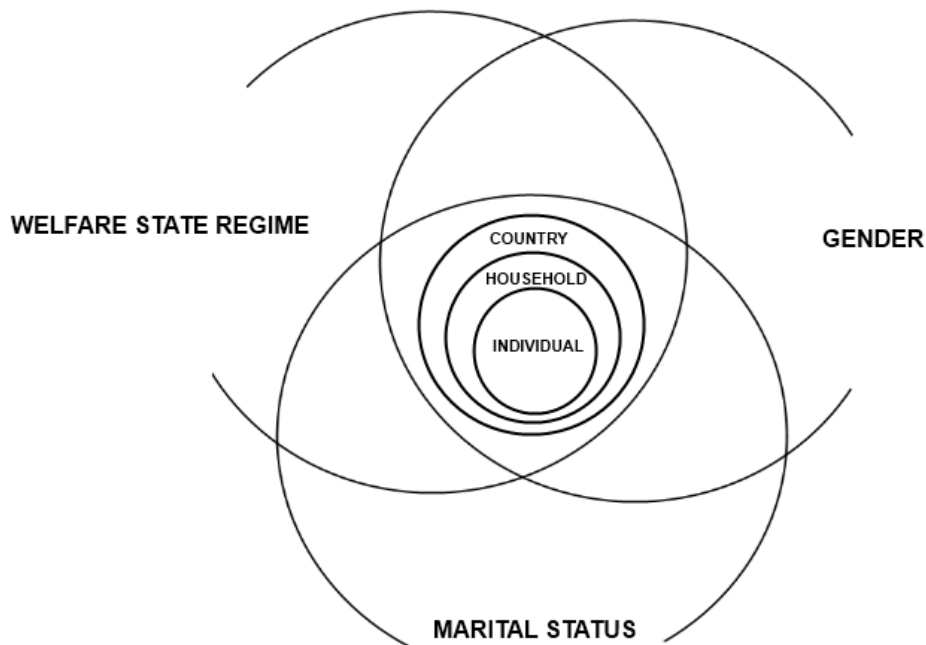
Project aims and conceptual model

3.1 Aims

The overall aim of this thesis is to investigate gender differences in the influence of welfare state regimes on quality of life at older ages, with emphasis on the role of marital status. I intend to use several approaches to examine gender differences in this association between marital status and quality of life; current marital status, marital history and living arrangements. As well as comparing the level of quality of life between different groups according to their marital status, I also propose to test the interdependence of quality of life within married couples. I will use both a welfare state regime typology and several indicators of gender relations to highlight variation in the above associations at the macro level. I will use The Survey of Health and Retirement in Europe (SHARE) and the English Longitudinal study of Ageing (ELSA) which together contain data from fourteen European countries.

Figure 3.1 illustrates the intersecting concepts which are examined in this thesis; marital status, gender and welfare state regime. The open circles represent the fact that these concepts are broad: welfare state regime may be explored in many ways, as might gender and marital status. Embedded within these overarching concepts are the data used in this thesis, where individuals are surveyed within households, which in turn are nested in countries.

Figure 3.1: Model of the overarching ideas which contribute to the project aim



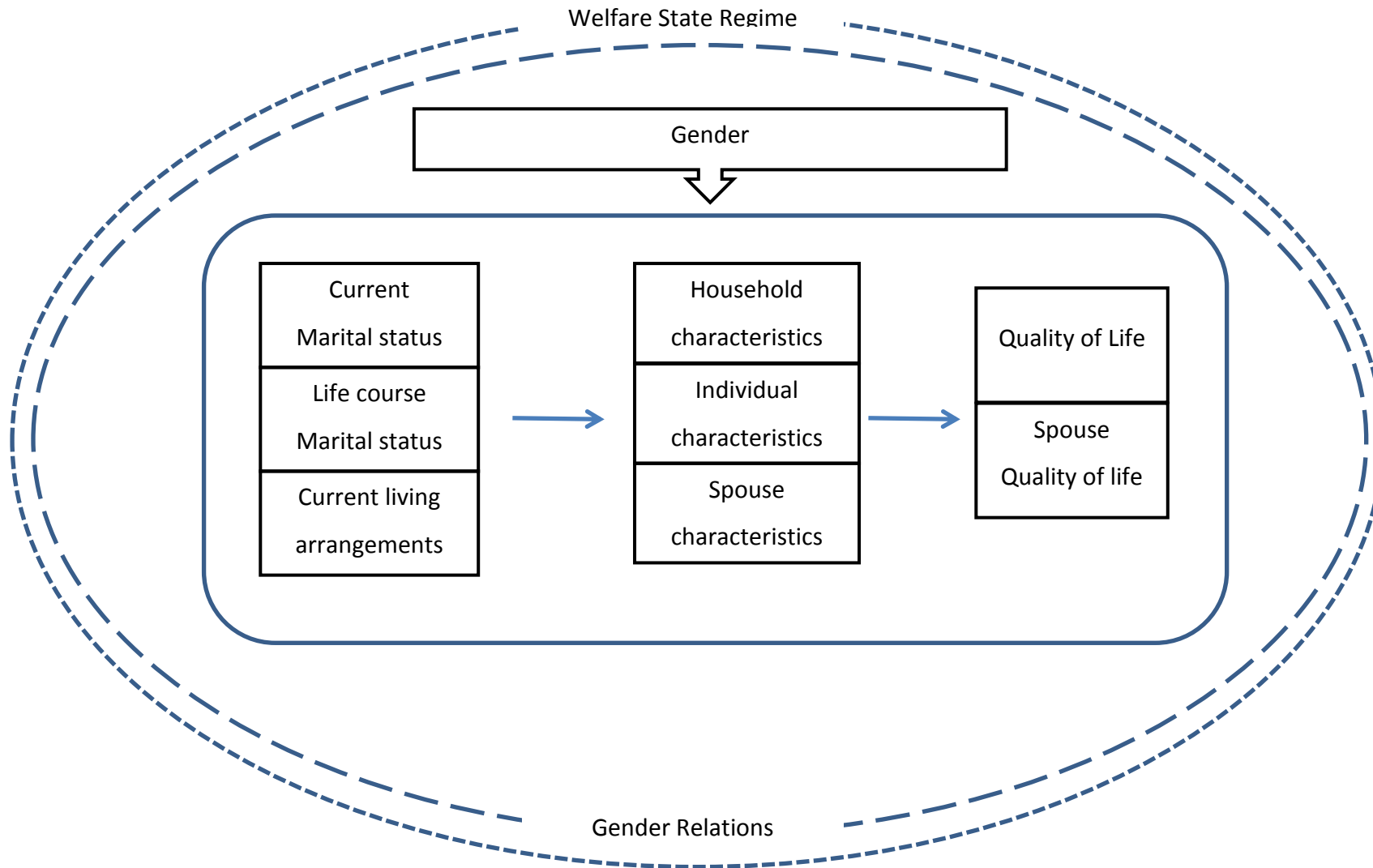
3.2 Conceptual framework for research questions

Figure 3.2 illustrates the conceptual framework from which the research questions have been developed for this thesis. The two circles represent the macro level factors; *Gender Relations* and *Welfare State Regime*, included as sources of contextual variation. This represents these factors jointly exerting influence on the rest of the model. However, in this study they are examined separately with the analysis predominantly being stratified first by welfare regimes and then several indicators of gender relations used as a comparative framework in the final chapter. Although in Figure 3.1 it is recognised that the data used here are gathered cross-nationally, counties are usually included in the analysis as control variables since the comparative feature of interest is at the macro level. The outcome variable used throughout is *quality of life*, measured by CASP-12, and for those identified as married and living with a partner, their *spouse's quality of life* is also analysed. Three

exposure variables are to be included in this study, both a *current and a life course classification of marital status* and a measure of *current living arrangements*.

A key aim of this thesis has been to investigate gender differences in the association between marriage, welfare and quality of life. Therefore, although usually treated as a demographic variable, *gender* is here given further emphasis and the extent to which the association between each exposure and quality of life is examined for men and women. Also represented in Figure 3.2 are several groups of control variables which were taken into account in the analysis, although their direct influence is not the focus of this research. These variables represent the three groups of characteristics examined; individual, partner and household and are discussed in more detail in chapter four (Section 3.3).

Figure 3.2 Model of the conceptual framework for the research questions examined



3.3 Research questions, objectives and hypotheses

3.3.1 Marital status, living arrangements and quality of life (chapter 5)

3.3.1.1 Research questions

- 1.1 To what extent does the association between current marital status and quality of life at older ages vary by both gender and welfare state regime?
- 1.2. To what extent does the association between life course marital status and quality of life at older ages vary by both gender and welfare state regime?
- 1.3. Is there an association between current living arrangements and quality of life at older ages, is it moderated by marital status and does the association vary by welfare state regime?

3.3.1.2 Objectives

1. To investigate associations between current marital status - married, never married, divorced or widowed - and quality of life, comparing these associations across five welfare state regimes.
2. To examine whether this association differs for women and men, highlighting the potential for the relationship between marital status and quality of life to be moderated by gender.
3. To observe whether the associations considered above remain significant when a number of health and socio-economic factors are taken into account.
4. To observe to what extent there is a significant association between living arrangements and quality of life, when marital status is also taken into account.
5. To construct a life course classification of marital status using retrospective data and to repeat the above objectives (1-3) using this life course classification.

3.3.1.3 Hypotheses

1. Being married will, when compared to other marital status groups, be associated with a higher level of quality of life across all the welfare regimes. There is relative consistency in the literature that being married is protective for a range of well-being outcomes (Coombs, 1991; Haring-Hidore et al., 1985; Ross et al., 1990).

2. Those who are continually married will have the highest levels of quality of life compared to all other types of marital status, including those who are remarried.
3. The association between living arrangements and quality of life will be stronger in welfare state regimes where welfare is provided through the family.
4. Adjusting for a range of health and socio-economic factors will attenuate the association between marital status and quality of life.
5. Those who are married will have a higher quality of life when compared to those who are unmarried in welfare state regimes where there is a lower level of state provided welfare (Liberal, Southern, Post-communist).
6. There will be more gender differences in the association between quality of life and marital status in those welfare state regimes where there is an emphasis on the family as a provider of welfare (Bismarckian, Southern and Post-Communist).

3.3.2 Spousal interdependence and quality of life (chapter 6)

3.3.2.1 Research questions

- 2.1. Is the quality of life of older married couples interdependent and do these levels of interdependence vary across welfare state regimes?
- 2.2. Are spouse characteristics independently associated with quality of life for older married couples, and are there gender differences in these associations between spouse characteristics and quality of life?
- 2.3. Does the pattern of gender differences in the association between spouse characteristics and quality of life vary by welfare regime?

3.3.2.2 Objectives

1. To establish whether the quality of life score of married couples is independent using several methods by which to examine concordance.
2. To examine if the strength of this concordance varies across the welfare state regimes used in this study.
3. To examine, for married couples, whether spousal predictors are independently associated with quality of life, even when individual and household predictors are taken into account.

4. To identify, using dyadic data analysis, whether there are gender differences in the association between spousal predictors and quality of life.
5. To examine whether associations between spousal predictors and any gender differences in these associations vary by welfare state regime.

3.3.2.3 Hypotheses

1. Concordance in the level of quality of life will be observed for all married couples and the strength of this concordance will vary by welfare regime.
2. Spousal characteristics will be associated with the quality of life, independently of individual and household predictors.
3. There will be gender differences in the association and more women than men will be affected by the negative health of their spouse.
4. A greater number of these gender differences will be associated with quality of life in welfare regimes where there is an emphasis on the family as a provider of welfare.

3.3.4 A gender relations comparative approach (chapter 7)

3.3.4.1 Research questions

- 3.1. Does the use of a more gender focused comparative method alter the pattern of gender differences observed between marital status and quality of life?
- 3.2. Does the level of spousal interdependence also vary between countries with different levels of macro level gender relations?

3.3.4.2 Objectives

1. To observe the extent to which the countries of the five welfare state regimes are similarly clustered in terms of macro gender relations; measured using separate policy indicators and the Gender Equity Index (GEI).
2. To examine whether the association between marital status and quality of life varies by macro level gender relations. To consider if these associations differ for women and men by including an interaction between gender and life course marital status.

3. To ascertain whether, for older married couples, levels of spousal interdependence and the number of significant gender differences, vary by indicators of macro level gender relations.

3.3.4.3 Hypotheses

1. There will be more gender differences in the association between marital status and quality of life when countries are clustered by gender relations, since a different grouping of countries will allow this source of inequality to be observed.
2. When the countries are grouped according to gender relations, a higher number of gender differences will be observed in the association between marital status and quality of life for the countries with less gender equality.
3. Levels of spousal concordance will vary according to these gender relations groupings and there will be weaker concordance between the quality of life of men and women in the group of countries with higher levels of gender equality.

Chapter 4

Data and methods

In this chapter the data used in this research are discussed. First the two datasets used are described, then the variables included in the models are outlined, the methods of analysis explained and finally the methods of comparative research are described.

4.1 The datasets and ethical issues

Panel studies which focus on older samples and aim to enable an understanding of the health, social and economic determinants of an ageing population have been developed by a number of countries worldwide. These surveys reflect the challenge of ageing populations, the importance of understanding differences in later life and the circumstances that improve well-being. In this thesis I use two of these panel studies to explore gender, marital status and well-being at older ages. This section describes the surveys which generated the secondary data analysed in this thesis. In social science research, 'secondary data analysis' refers to analysis carried out on data which were not collected by the researcher. This expression is used to distinguish secondary data from primary data; which will have been collected specifically for the research project being undertaken. This use of 'secondary data' in social science holds a different meaning to the term used in genetic research, where primary databases contain the 'raw' data such as protein sequences and secondary databases contain the information obtained from these sequences. Although since these data are already collected prior to the research project it is not possible to influence their collection, there are a number of advantages to conducting secondary analysis on large scale social surveys. Not least, a wide range of measures and variables are available for a large sample of respondents, which would be both time consuming and costly to collect for a small project.

4.1.1 Ethical issues

Another advantage of using secondary data was that ethical approval had been already sought for each of the datasets used in the study and so additional clearance was not required. A number of ethical issues are associated with social survey research. It is important to ensure that participants are aware of what is required of them during their involvement and also that they are treated with respect, especially during the home interview. It is well documented that both SHARE and ELSA adhered to both of these points, by obtaining informed consent and using experience, well-trained interviewers. SHARE underwent a thorough review of ethical standards by the University of Mannheim's internal review board (Börsch-Supan et al., 2005), whilst ethical approval for all of the ELSA waves was granted from the UK's National Research and Ethics Committee (Banks et al., 2008). The other issue is around data security and protection. Although both of these datasets are available in an open access arrangement to registered users they are only provided in an anonymised format. Guidelines of use are also provided for researchers, which were followed during the course of this project.

4.1.2. The Survey of Health and Retirement in Europe (SHARE)

The Survey of Health, Ageing and Retirement in Europe (SHARE) is an on-going cross-national panel database of older individuals living in Europe (Börsch-Supan et al., 2005). Funded through a number of sources, SHARE has dedicated teams in each of the countries it surveys and is co-ordinated by a team at the Munich Center for the Economics of Aging (MEA) based at the Max Planck Institute for Social Law and Social Policy.

At the time of this thesis three waves of SHARE had been released. The first wave was collected in 2004/5, the second in 2006/7 and the third, known as SHARELIFE, in 2008/9. The first two waves collected prospective information about demographic, health, economic and social support status and the third wave collected retrospective data using a life history approach. SHARE is based on probability samples of the non-institutionalised population aged 50 and older in all countries represented (Börsch-Supan et al., 2005). Different sampling frames were available in the different countries, these ranged from population wide registers to regional telephone directories or regional level registers (Börsch-Supan et al., 2008). Therefore, sampling designs varied between the countries, from a simple random

selection to more complicated multi-stage designs. In most of the countries the unit of selection was the individual, although in the countries where a telephone directory was the main sampling frame, the household was used (Börsch-Supan et al., 2008). Spouses were also included even if they were under 50. In wave two although contacting respondents from wave one was emphasised, a 'refresher sample' was also used to ensure SHARE remained representative of the populations of people aged 50 years and older in the sampled countries. The household response rates in the first wave of SHARE were about 62% on average, although this did vary between countries, from 39% in Switzerland to 79% in France. There was some attrition in the second wave of SHARE, which again varied by country (Schroder, 2008). The overall attrition rate from the original wave one sample was 31.77%, although the refresher sample did minimise this problem. There are several ways the SHARE sample could be affected by sampling bias. Telephone directories were used as sampling frames for a small number of countries, this may have resulted in samples biased towards those who owned a home phone, moved house less or who were listed in telephone directories. Non-response can be another source of sampling bias and since the response rates in SHARE did seem to differ by country, this could mean that certain countries are unrepresented in this sample. There are different methods available which can help minimise the effect of sampling bias on the analysis. The most frequently used methods are applying survey weights or using statistical methods, such as regression to control for potential sources of bias. In this study, the level of comparison is welfare state regimes or macro policy indicators, which analytically represent a level above the country of analysis. Therefore, using the available survey weights was not felt to be necessary, since these were calculated for research, which treats the country as the unit of analysis. Stratified regression analysis, with control variables for individual countries included was used instead, to minimise this potential sampling bias.

The third wave of data collection focuses exclusively on people's life histories and is therefore identified separately as SHARELIFE (Borsch-Supan and Schröder, 2011). The population for SHARELIFE were those who had responded to wave one or wave two and were happy to be contacted again. Although a wide range of methods were used to help retain participants, this restriction led to a smaller sample for SHARELIFE, a common risk

with longitudinal surveys. Despite this attrition, no bias by gender or age was found across the countries included in the SHARELIFE sample (Borsch-Supan and Schröder, 2011).

In total, data from fifteen European countries and Israel was collected over these three waves, although not all countries participated in each wave. The inconsistency of the countries included in the SHARE and SHARELIFE samples is one of the reasons only data from wave two and three was used. Table 4.1 shows the countries sampled in SHARE by wave.

Table 4.1: The countries sampled in SHARE, by wave

COUNTRY/WAVE	WAVE 1	WAVE 2	WAVE 3
Austria	X	X	X
Belgium	X	X	X
Czech Republic		X	X
Denmark	X	X	X
France	X	X	X
Germany	X	X	X
Greece	X	X	X
Ireland		X	
Israel	X		
Italy	X	X	X
Netherlands	X	X	X
Poland		X	X
Spain	X	X	X
Sweden	X	X	X
Switzerland	X	X	X

In wave one and two of SHARE, two methods of data collection were used, following the design of the US Health and Retirement survey. The majority of questions were surveyed by interviewers face-to-face, using a computer assisted personal interviewing (CAPI) program. This interview was supplemented by a self-completion questionnaire, which was left with the respondent and returned by post. In SHARELIFE a face-to-face interview was also conducted, using a life grid method to minimise recall bias in the retrospective data collected (Berney and Blane, 2003). Country specific landmark dates were used in conjunction with events from the respondents' own lives to create a visual grid onto which the timing of other events could be recorded.

4.1.3 English Longitudinal Survey of Ageing (ELSA)

The English Longitudinal Study of Ageing (ELSA) collects longitudinal data from a representative sample of the population aged over 50 years living in England. The data collected relates to a number of health and social domains (Banks et al., 2008). ELSA is funded in part by the National Institute on Aging (NIA) in the US and several UK Government departments; it is managed by a number of different institutions: UCL Research Department of Epidemiology and Public Health, Institute for Fiscal Studies, National Centre of Social Research and The University of Manchester, School of Social Sciences.

This survey was developed prior to SHARE, based on the Health Survey for England (HSE) and at the time of this thesis four waves of ELSA data were available. The ELSA sample was designed to be representative of people from private households in England who were aged 50 years and over (Scholes et al., 2008). The sample was drawn from the HSE, which had a two stage sample design. Firstly postcodes were stratified by health authority and socio-economic groups and then households were sampled from these postcode areas (Scholes et al., 2008). For the purposes of this study we used the third wave of ELSA data which best matched wave two of SHARE since both were collected in 2006. It was also during this wave of ELSA that a life history interview was arranged – for data collection in 2007 – and which allows comparisons with the retrospective life course data collected in SHARELIFE. The ELSA sample was drawn from three separate years Health Survey for England (HSE), an annual cross-sectional household survey, and, as with SHARE, data were collected using face-to-face interviews and self-completion questionnaires.

4.1.4 Samples

This section describes how the samples were derived for the three results chapters in which secondary analysis was used. These secondary data were already collected prior to this research and therefore it was not possible to influence their collection. Analysis of power can be used to calculate the minimum sample size that is needed for a study to detect effects of different sizes. In ELSA and SHARE the sample size was deemed sufficient to have the power (0.80) to detect small (0.02), medium (0.15) and large (0.35) effects in all the regression analysis used in this thesis (Cohen, 1992). For example in the OLS regression analysis, to detect with

80% power, a small effect size (0.02) with 95% confidence intervals requires a sample size of $N=1,297$ (Faul, 2009) which is much smaller than any of the samples used in this study.

4.1.4.1 Samples used in chapter five

The SHARE sample was comprised of all available cases from wave two. Cases were dropped from Ireland and where data were missing for variables of interest. Data from wave one were merged into this sample where it was necessary to derive variables of interest. The ELSA sample was developed in a similar way, although from wave three, with data from waves one and two merged where necessary. A flow chart describing the configuration of the SHARE sample can be found in Figure 4.1. and for the ELSA sample in Figure 4.2.

In chapter five, data from SHARE wave three, SHARELIFE, were also used. First, cases from wave three were merged together with those from wave two, and then cases without information from both waves were dropped. Wave three data were collected after wave two, but refer to events that happened throughout a person's life. Therefore to use wave three data as an exposure with an outcome from wave two it was necessary to only use the relevant years of the exposure variable from wave three. Information from wave three was used to establish marital status up to and including 2006, when wave two data were collected. Then data from both waves were used to identify any recall errors and the sample adjusted accordingly. Recall bias was treated conservatively and so 743 cases were excluded because the marital status reported in SHARELIFE (up to 2006) was not consistent with wave two of SHARE or vice-versa. For example, a common reason for exclusion was because a respondent had reported being married in wave two (2006/7) and then reported they were never married in SHARELIFE (2009/10). Due to the phrasing of the exposure variable in ELSA wave three, additional information from the life grid was not required for the analyses in chapter five. A flow chart for the creation of the SHARELIFE sample can also be found in Figure 4.1.

Figure 4.1. SHARE wave two sample flow chart and SHARELIFE sample flow chart

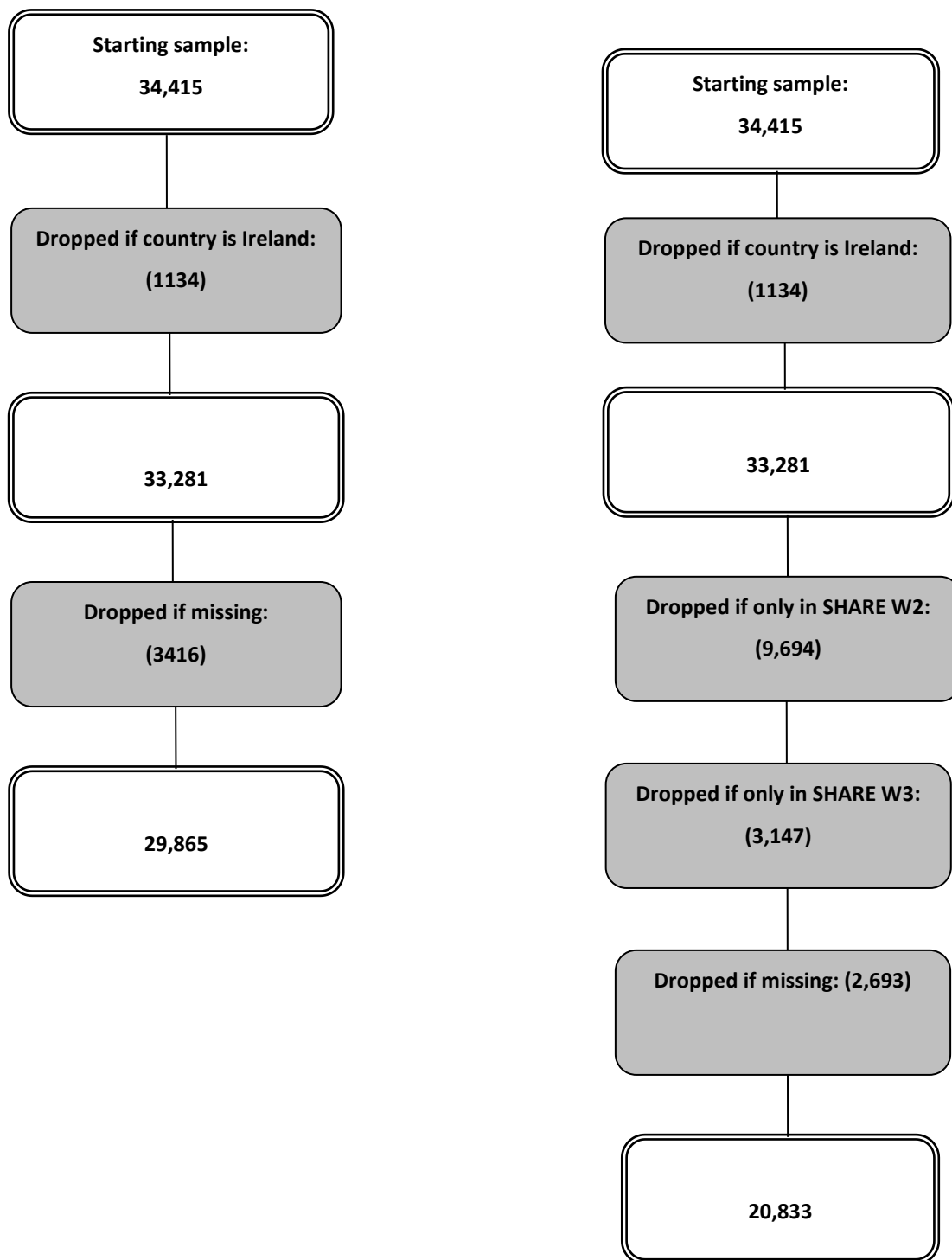
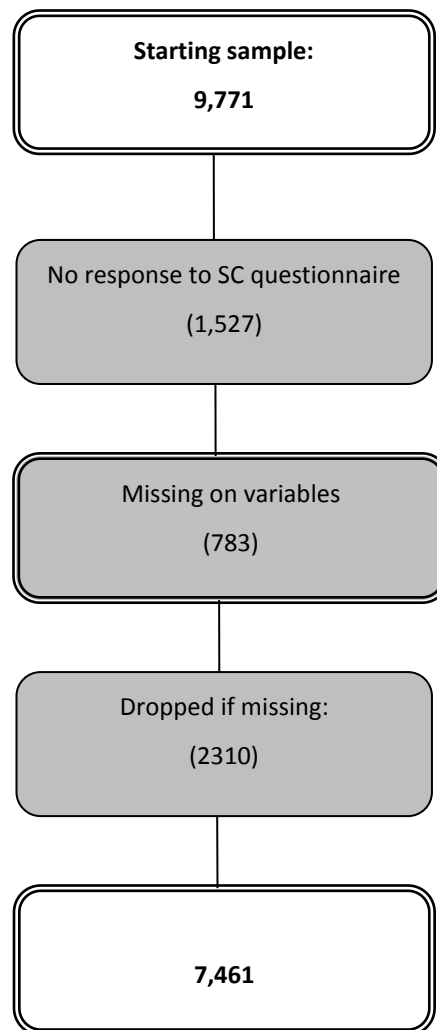


Figure 4.2. ELSA wave three sample flow chart



4.1.4.2 Samples used in chapter six

In chapter five, a sample was derived which comprised only of married couples living together. From SHARE wave two individuals were identified as being from the same household, extracted into separate datasets for male and female, and then merged back together into a matched dataset of individuals. A small number of same sex couples were extracted into a separate dataset. To ensure that only couples, and not another type of adult male/adult female dyad, were used in the analysis only cases where both partners responded that they were 'married and living with their spouse' or in a 'registered partnership' were included in the analysis. Appendices describing these samples can be found for SHARE in Figure 4.3 and ELSA in Figure 4.4.

4.1.4.3 Data cleaning and processing

Both SHARE and ELSA are well respected surveys which release their data, for use by researchers in good condition. Therefore less data cleaning was necessary than if they had been collected for the purpose of this study, although several stages of data processing were required. Firstly since both the ELSA and SHARE survey data are stored in separate files in their online data access centres, the relevant files for the variables to be used in the study were merged together using the unique identifier provided. Secondly using descriptive analysis, the presence of any duplicates and errors, such as impossible values or outliers were investigated; none were discovered for the variables used in this study. Thirdly new variables were created for use in the study analysis, so the raw data would not be modified. Missing information in SHARE variables is coded as 'refusal', 'don't know' and system missing. For the purpose of this study, the first two missing groups were recoded into 'system missing' values, which in Stata are represented using a dot. Often data from wave one and wave two were merged together and the information from both variables used, to ensure that, where possible, any missing information was reduced. For example, as described in more detail in section 4.2.2.1, the marital status variable in wave two of SHARE had a number of missing responses and so the final construct of this variable was also based on the information provided in wave one. Then questionnaire asked whether the respondent's marital status had changed between the two waves, this was used to identify those whose final marital status coding would need to be based on information from both waves of the survey.

The data from SHARELIFE also required additional data cleaning steps to be conducted. As mentioned in section 4.1.3.1, for several respondents their marital history in SHARELIFE was not consistent with the marital status in wave two of SHARE. These cases were treated conservatively, so as to minimise recall bias. Several additional cleaning and processing steps were also required for setting up the couple level dataset, since this was a new sample derived manually from wave two of SHARE. As detailed in section 4.1.3.2 the aim of this sample was to identify married couples who were living together and who had both responded to the second wave of SHARE. Respondent living in the same household were identified using the household identifier to create duplicates. Then a new variable was created to identify all respondents, who were potentially living as part of a couple, based on whether there were household duplicates and whether they indicated they were living with a spouse or partner. Eight cases, which had household duplicate responses from the household and reported that they were married and 'living with a spouse' were identified as 'living as single', and so were not included. A 'coupleid' was then created to identify those who were both in a couple and had responded in SHARE. Men and women who were identified as being in a couple were then exported into separate datasets and merged together. About twenty cases were found to have no partner, when merged together in the couple dataset, and were then checked manually before inclusion.

Figure 4.3: SHARE dyad sample flow chart

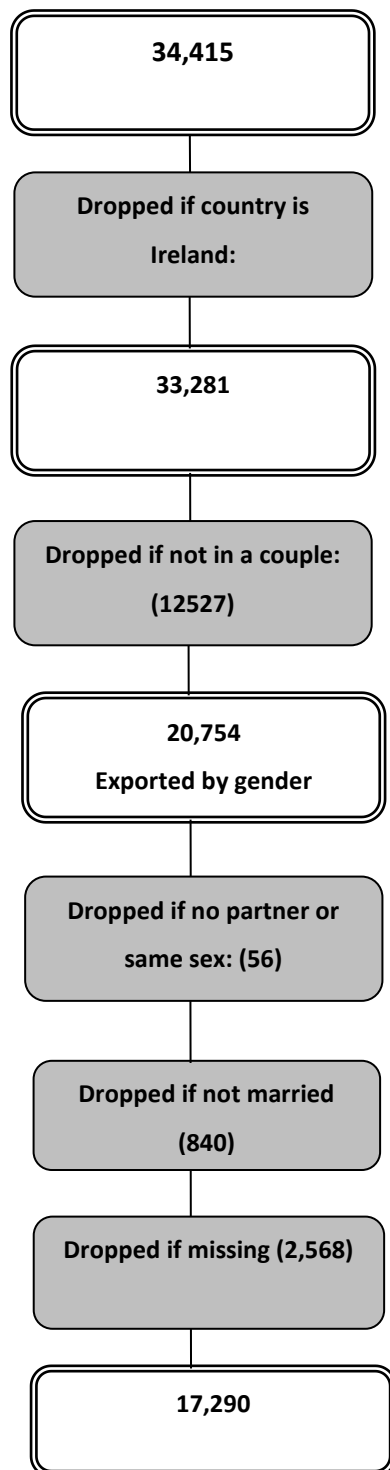
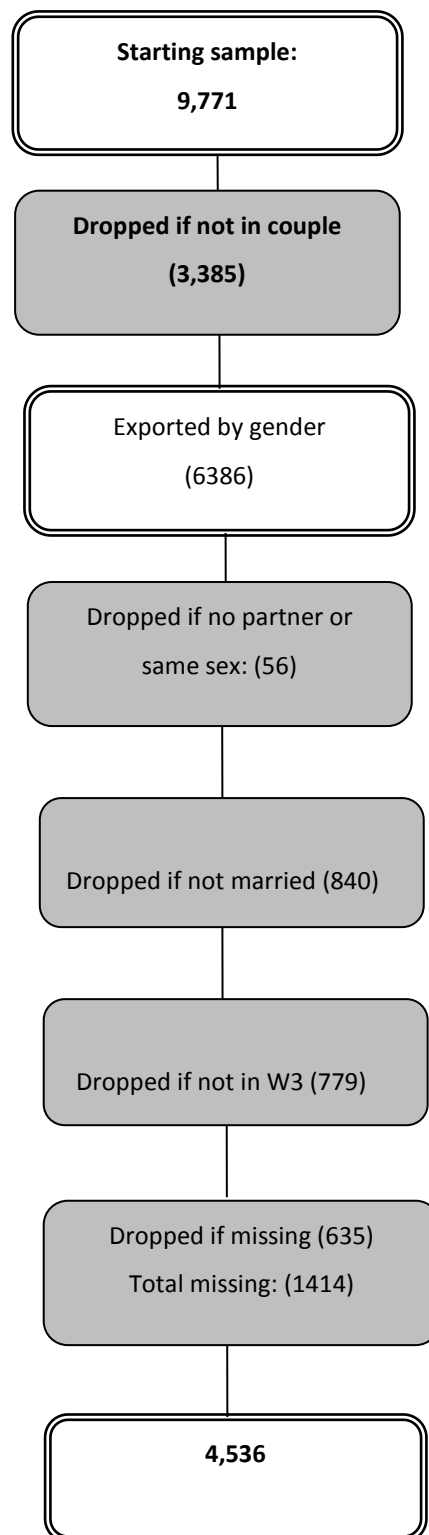


Figure 4.4 ELSA dyad sample flow chart



4.1.5 Missing data

The next section provides additional detail about the pattern of missing data across the variables used in the samples. It is presented in three tables, one for each of the relevant results chapters. In each table the pattern of missing data is shown stepwise (as the cases would be dropped from the sample) and the results are shown separately for the two datasets: SHARE and ELSA. The characteristics of the included and excluded samples are also provided by welfare regime in Appendix 4.3.

Table 4.2Chapter five samples: missing cases for outcome and covariates

	SHARE W2 N (%)	ELSA W3 N (%)
<i>Initial sample N</i>	33,281	9,771
Outcome: CASP-12	2117 (6.36)	1,926 (19.71)
Marital Status	163 (0.49)	7 (0.07)
Age	5 (0.02)	1 (0.01)
Gender	0 (0.00)	0 (0.00)
Education (High)	237 (0.71)	33 (0.34)
Gali limitations	5 (0.02)	4 (0.04)
Chronic diseases (2+)	21 (0.06)	3 (0.03)
Smoker (current)	175 (0.53)	1 (0.01)
Physical activity	11 (0.03)	0 (0.00)
Excessive Drinking	0 (0.00)	286 (2.93)
No social support	16 (0.05)	0 (0.00)
HH difficulty financial	361 (1.08)	14 (0.14)
Home owner	11 (0.03)	34 (0.35)
No pension	0 (0.00)	0 (0.00)
Depression	226 (0.68)	0 (0.00)
Retired	8 (0.02)	0 (0.00)
HH has car	53 (0.16)	0 (0.00)
SR health	5 (0.02)	1 (0.01)
ADL	2 (0.01)	0 (0.00)
IADL	0 (0.00)	0 (0.00)
<i>Total missing</i>	<i>3416 (10.26)</i>	<i>2,310 (23.64)</i>
<i>Total sample</i>	<i>29,865</i>	<i>7,461</i>

In this thesis the analysis was conducted using complete case samples. Table 4.2 shows, for the samples used in chapter five, the distribution of missing cases by the two datasets used in this analysis. For the covariates in both samples, the proportion of respondents who had missing data was quite small. In SHARE the number of people who were missing data on the outcome measure was also relatively small (6.36%). However, the number missing the outcome measure in ELSA was substantially larger. This difference is due to the CASP questionnaire being asked as part of a self-completion questionnaire in ELSA. Therefore the

total missing reported for CASP-12 includes the respondents who did not complete this section of the survey (N=1,527), which had an overall response rate of 85% (Banks, 2005) in wave three. If the proportion of missing on the outcome is calculated separately it is similar to the proportion missing from SHARE, N=399 (4.84%). The characteristics of both of these samples by those included and excluded are reported by welfare state regime in Appendix 4.3. For both ELSA and SHARE, those excluded were more likely to have lower CASP-12 scores, be widowed, lower educated, have financial difficulties and be more likely to have two or more chronic diseases.

Table 4.3: Chapter five SHARELIFE sample: missing cases for outcome and covariates

	SHARELIFE N (%)	SHARE W2 N (%)
Initial sample N	23,526	33,281
Outcome: CASP-12	1176 (5.64)	2117 (7.09)
Marital Status	83 (0.40)	163 (0.55)
Age	1 (0.00)	5 (0.02)
Gender	0 (0.00)	0 (0.00)
Education (High)	161 (0.77)	237 (0.79)
Gali limitations	2 (0.01)	5 (0.02)
Chronic diseases (2+)	15 (0.07)	21 (0.07)
Smoker (current)	101 (0.48)	175 (0.59)
Physical activity	7 (0.03)	11 (0.04)
Excessive Drinking	0 (0.00)	0 (0.00)
No social support	10 (0.05)	16 (0.05)
HH difficulty financial	216 (1.04)	361 (1.21)
Home owner	8 (0.04)	11 (0.04)
No pension	0 (0.00)	0 (0.00)
Depression	144 (0.69)	226 (0.76)
Retired	7 (0.03)	8 (0.03)
HH has car	24 (0.12)	53 (0.18)
SR health	5 (0.02)	5 (0.02)
ADL	2 (0.01)	2 (0.01)
IADL	0 (0.00)	0 (0.00)
Conflict in marital status between waves	743 (3.51)	
<i>Total missing</i>	<i>2,693 (12.93)</i>	<i>3416 (11.44)</i>
<i>Total sample</i>	<i>20,833</i>	<i>29,865</i>

Table 4.3 shows the missing data for the SHARELIFE sample used in chapter six. As discussed previously (section 4.1.3.3) since no additional information was required from the ELSA life grid for the analysis in chapter six, the same sample from chapter five was used for the ELSA analysis. To allow comparisons between the two SHARE samples, the pattern of missing data from chapter five is also presented in Table 4.3. The number of respondents who had missing data on the covariates was, again small for both samples. The proportion

of respondents who had missing data on the outcome measure was slightly larger in SHARE wave two. The characteristics of the SHARELIFE sample by those included and excluded are also presented by welfare regime in Appendix 4.3 (Table A.4.3.2), where similar patterns were observed.

Table 4.4: Chapter six samples: missing cases for outcome and covariates

	SHARE W2 N (%)	ELSA W3 N (%)
Outcome: CASP-12	1804 (9.08)	1360 (21.30)
Marital Status	176 (0.89)	8 (0.13)
Age	4 (0.02)	0 (0.00)
Gender	0 (0.00)	0 (0.00)
Education (High)	184 (0.93)	40 (0.63)
Gali limitations	4 (0.02)	4 (0.06)
Chronic diseases (2+)	28 (0.14)	2 (0.03)
HH social support	8 (0.04)	0 (0.00)
HH difficulty financial	108 (0.54)	4 (0.06)
Home owner	6 (0.03)	4 (0.06)
Depression	212 (1.07)	0 (0.00)
HH has car	24 (0.12)	0 (0.00)
SR health	10 (0.05)	0 (0.00)
ADL	0 (0.00)	0 (0.00)
IADL	0 (0.00)	0 (0.00)
<i>Total missing</i>	<i>2568 (12.93)</i>	<i>1414 (22.15)</i>
<i>Total sample</i>	<i>17,290</i>	<i>4,536</i>

Table 4.4 gives the pattern of missing data for the samples of married couples used in chapter six. The number of respondents with missing data for the covariates is again small for both datasets. Again the proportion of cases excluded because of missing data on the outcome is higher for ELSA because of the part of the survey in which CASP was included. The characteristics for the excluded and included samples can again be found in Appendix 4.3 (Table A.4.3.3) presented by welfare regime. Those excluded in this sample were also more likely to have lower CASP-12 scores, lower educated, have financial difficulties and be more likely to have two or more chronic diseases.

4.1.6 Multiple Imputation

Patterns of missing data in large social surveys are often described using three classifications. A useful overview is provided by Paul Allison (2009) who describes these three categories as follows: *Missing Completely At Random* (MCAR) is when the pattern of missing data doesn't depend on either the observed data in the survey or unobserved, it is often completely random and using complete case analysis will provide unbiased estimates. *Missing At Random* (MAR) is when the pattern of missing data depends on the observed data in the survey but not on unobserved data. If this missing pattern is ignored then estimates based on this data can be biased. However, if a method is used which can take this pattern into account then the estimates will no longer be biased. Finally *Missing Not At Random* (MNAR) is where the pattern of missing data may depend on unobserved data that is not part of the survey; there are few statistical techniques available to deal with this third type of missing data. Although there is no formal test for determining whether the data is MCAR or MAR, (Graham, 2009) the analysis of the missing data patterns carried out in section 4.1.6 suggests that the missing data in the sample used in this analysis may be MAR, which would introduce bias into this work. Model based approaches to missing data are considered to be superior to more traditional techniques (Graham, 2009). One approach would be to use a different estimation procedure which uses information from the observed data to estimate parameters for the incomplete variables when running the statistical model such as Maximum Likelihood Estimation (MLE) (Allison, 2009). However, since it is not possible to include auxiliary variables in a MLE model using the software program Stata 12.0 and this may be important when assessing the stability of models which were not fully adjusted I decided to use multiple imputation (MI). Multiple Imputation is a method by which the distribution of missing data is modelled based on their distribution conditional on the observed data available (Allison, 2009). A number of datasets are then created using this process and the analysis model is estimated using each new dataset and mean parameters computed (Allison, 2009). For this thesis I created an imputation model based on the predictors included in the final model and then conducted sensitivity analysis for the final model for each set of results examined. This model was then imputed by the chained equations approach (in Stata 12.0) which allows both continuous and categorical variables to be used in the imputation process. A rule of thumb for deciding how many imputations to be used has been proposed as the fraction of incomplete cases (Bodner, 2006). Therefore

for this analysis twenty imputations were used which would be greater than the percentage of missing data for any of the samples.

4.2 Variables

In the following section the variables used in the study are outlined and any derivations discussed.

4.2.1 Outcome variable: CASP-12

As discussed in chapter two (section 2.1), the outcome measure used in this study, CASP-12, is a validated, shortened version of the full CASP-19 measure. The inclusion of a measure of quality of life in early old age was considered an innovative feature of SHARE. It was included so cross-national predictors of well-being could be compared and country specific obstacles for active ageing identified (Knesebeck et al., 2005). Due to the practicalities of conducting a cross-national survey, such as questionnaire length, an abridged version of CASP-19 was required. The stages of analysis which had been used to create the original scale were repeated (Hyde et al., 2003) and the internal consistency analysis was used to identify the items with the lowest correlation, within each domain (Knesebeck et al., 2005). In total, seven questionnaire items were removed, two items for each of the four domains, except the Control domain, where only one item was removed. No changes were made to the wording of any of the items and removing these items did not reduce the internal consistency of any of the domains. A confirmatory factor analysis confirmed the validity of CASP-12 as a single latent factor, representing a quality of life index, which can be measured using a summed score, (Knesebeck et al., 2005). It should be noted that this version of CASP-12 is not the same as the shortened version, developed by the original CASP-19 team and recommended for researchers who wish to use the CASP subscales (Wiggins, 2008)

Respondents were asked to indicate how often each statement applied to them - often, sometimes, not often, or never - and these scores were appropriately coded and summed. In the first wave of SHARE the scale was included in the self-completion questionnaire and in the second wave in the face-to-face CAPI. The response rate for CASP-12 in the first wave of SHARE was significantly lower than for the second wave. Although in ELSA the longer

version of this scale (CASP-19) is asked, in the self-completion questionnaire of the third wave, CASP-12 was also used for ELSA respondents to ensure corresponding scales between the two survey samples. The items included in CASP-12 are listed in Appendix 4.4. The range of possible CASP-12 scores is from 0 to 36, with higher scores indicating better quality of life. The measure was found to have a close to normal distribution in both ELSA (skew: -0.61, kurtosis: 3.34) and SHARE (skew: -0.49, kurtosis: 2.83) distribution which accords with findings from the initial exploratory analysis (Wiggins et al., 2004). The large sample size will compensate for this slight deviation from normal distribution.

4.2.1.1 Reliability of CASP-12

The internal consistency of the CASP-12 scale, measured at wave two of SHARE and wave three of ELSA was tested separately for each country used in the study using the reliability statistic Cronbach's alpha (Table 4.5). This statistic provides an indication of how well the items in a scale measure an underlying concept, in this case quality of life. A common definition of acceptable internal consistency is a Cronbach's alpha coefficient of 0.70 (Singh, 2007) and the coefficient is higher than this for each country indicating that CASP-12 has good internal consistency.

Table 4.5: CASP-12: Cronbach's α by country

COUNTRY	α
All (SHARE)	0.82
Austria	0.81
Germany	0.79
Sweden	0.77
Netherlands	0.77
Spain	0.82
Italy	0.82
France	0.77
Denmark	0.77
Greece	0.82
Switzerland	0.75
Belgium	0.79
Czech Republic	0.80
Poland	0.85
UK (ELSA)	0.83

4.2.2 Main exposure variables: Marital status, living arrangements and gender

The main exposure variable used in this study is the legal definition of marital status. A measure of current marital status, from ELSA and SHARE is used in chapter four and a life

course classification in chapter six. Additionally, a variable indicating living arrangements was used in chapter four. The recoding of these variables is described below.

4.2.2.1 Categories of marital status

In SHARE current marital status was based on questionnaire number dn014 from wave one. People were asked “What is your marital status?” and were asked to choose their answer from a card with the following responses listed: 1. Married and living together with spouse, 2. Registered partnership, 3. Married, living separated from spouse, 4. Never married, 5. Divorced and 6. Widowed. The version of this variable from wave two was used if marital status had changed between the waves or was missing in wave one. Marital status was then recoded from six categories into four. The final categories were Married (which included registered partnership), Divorced (which included legally separated), Never married and Widowed. Overall, conceptualising current marital status presented fewer problems than measuring marital status did, although the final categories required several decisions to be made. These decisions were taken based on the conventions of previous work in this area, the numbers of cases in each of the smaller categories and the definitions provided by the SHARE codebook. The first two categories; ‘married and living together’ and ‘registered partnership’ were collapsed together. In most European countries, same-sex couples are now able to enter into registered partnerships. Additionally in several countries, opposite-sex couples are also allowed to register partnerships. For example, in the Netherlands, marriage and registered partnership are similar in terms of both the rights they bestow and how they are recognised by the public authority of the country. Respondents who chose this option could be in either of the type of union mentioned above and a decision was required about whether this should be defined as a married or cohabiting relationship in the study. The option of ‘registered partnership’ was not officially defined by SHARE in the accompanying documentation. However, in previous work this category has been included with those reporting they were ‘married and living together’, suggesting this represents a legal alternative to marriage (Kohli et al., 2005). Respondents who reported that they were separated were also included with those who were divorced. Separation can be a legal process whereby a couple are formally separated and will live apart from each although a formal divorce has not been issued. In most European countries legal separation is regarded within the same context as formal divorce and is often treated

as a necessary condition for the divorced to be granted on certain grounds. For both of these reclassifications, the number of cases reported was too small to justify a separate group and there was sufficient reasoning based on previous research to group them together as described.

In ELSA marital status was based on the question from wave three; respondents were asked “What is your current legal marital status?” and this measure of marital status was then recoded into four groups to correspond with the SHARE variable. *Married* (which included first and only marriage, remarried or in a civil partnership) *Divorced* (which included legally separated from a marriage or civil partnership) *Never married* and *Widowed*. Although same sex couples were excluded from the samples in chapter five due to the constraints of the dyadic data method, those in same sex relationships were included in the remaining analysis.

Variables to represent marital status across the life course were also created for use in chapter six. The theory of the life course perspective and why it is relevant to the study of marital status was outlined in chapter two (section 2.3.1). Although it is important to examine a person’s current marital status, this does not also allow their marital history to be considered. Marital history can provide an interesting level of detail about how marriage has shaped a person’s life, for example whether the marriage they are currently in is their first union or whether they had previously been in another marriage which ended. Retrospective data about respondent’s marital history was available in SHARELIFE and was used to identify whether respondents had ever been married and, if so, whether by 2006 – wave two of SHARE - they were still married. If they were still married, whether this was their first marriage or a remarriage was established. If respondents had been married at some point in their life but were no longer at wave two the reason for this was recorded. Two categories of life course marital status were created: classification A divided respondents into four categories *continually married*, *remarried*, *never married* and *previously married* and classification B included five categories which discriminated between those who were single following marriage because they were *divorced* and because they had been *widowed*. Other indicators, such as the age at which a respondent married or the marriage length could also have been used, to examine how marriage timing or duration

marriages might predict quality of life. However, due to a lack of variation in this sample, less of this information was able to be used. In wave three of ELSA people were asked if the marriage they were in was their ‘first and only marriage’ or if they were ‘remarried, second or later marriage’. Therefore to be compatible with the SHARE life course marital status classifications used in chapter six, this variable was recoded to distinguish between first or further marriages and no additional information from the ELSA life history data was required.

4.2.2.2 Categories of living arrangements

In chapter five, distinctions were also made depending upon people’s living arrangements. Using information about the size of the household and whether people were married and living with a spouse three categories were identified: those who *lived alone*, those who lived only with a spouse or partner *as a couple together* and those who lived with *other people* with or without their spouse. These categories were used in combination with marital status in chapter four to describe the living arrangements of respondents in more detail.

4.2.2.3 Gender

Two measures of gender were used in the analysis. Gender was either binary coded with male as the reference group (1) or effect coded into male (-1) and female (1).

4.2.3 Confounders

A confounding factor is associated with both the outcome and the exposure, but is not on the casual pathway between the two. If the exposure is not thought to cause the confounding factor, then it is not considered to be on the causal pathway (Babyak, 2009). If confounding factors are not taken into account in the analysis, then a significant association may be falsely observed between the exposure and the outcome, which is due instead to the influence of the confounding factor. The following variables: age, education, retirement, physical health and mental health were all significantly associated with CASP-12 and marital status in the study and could potentially explain the association observed between these two factors.

4.2.3.1 Demographics

4.2.3.1. *i* Age

Age was used as a continuous measure calculated in years by subtracting the participant's year of birth from the year of the interview. Age has, in a number of studies, consistently been considered a potential confounder of the association between marital status and subjective well-being (Evans and Kelley, 2004; Glenn and Weaver, 1979; White, 1992). A quadratic term for age was also included in multivariate models because the relationship between CASP-19 and age has been found to be non-linear (Netuveli et al., 2006). Age and age squared were both grand mean centred.

4.2.3.2 Education

An individual's level of education has also been found to be a confounding factor in the relationship between marital status and well-being, although this has often been used to represent socioeconomic status (Marks and Lambert, 1998; Dush and Amato, 2005; Stutzer and Frey, 2006; Zimmermann and Easterlin, 2006). Education was used as a proxy measure of socioeconomic status later in life since this is often easier to measure in older men and women than other measures, e.g. income or social class (Grundy and Holt, 2001). In SHARE, educational status was measured according to the International Standard Classification of Educational Degrees (ISCED-97) (UNESCO, 2004). Respondents were asked to report the highest educational qualification they had received, using a show card presented to them by the interviewer. Responses were then coded into the appropriate ISCED-97 classification. A binary variable was created which divided these qualifications into 'high education' (first and second stage of tertiary education) and 'less than high education' (pre-primary, primary, lower secondary, secondary or post-secondary education) which were given scores of 1 and 0, respectively. In ELSA, respondents were asked to report the highest qualification they had from a list. These qualifications were then matched to the ISCED-97 and those which may be considered to be equivalent to the first and second stage of tertiary education were categorised as 'high education' and all others as 'less than high education', therefore deriving an equivalent measure of education for England. Sensitivity analysis was also carried out using a different measure of educational status. Following the work of Eikemo and colleagues (Eikemo et al., 2008c) where years of education rather than level was used

to create a standardised measure of education for cross-national comparison. The continuous measure years of education was standardised by country so that the national average was equal to 0 and the standard deviation equal to 1 year of education. This variable was then reversed (by multiplying by 1) so that higher values showed lower educational levels (Eikemo et al., 2008c). Details of these sensitivity analyses are provided separately for each chapter of the results.

4.2.3.3 Retirement

Retirement is also conceptualised here as a potential confounder of the relationship between marital status and quality. There is evidence to suggest that employment status is associated with CASP-12 (Zaninotto et al., 2009) and also other measures of subjective well-being (Herzog et al., 1991; Kim and Moen, 2001; Kim and Moen, 2002). Furthermore, there is evidence that retirement status might vary with marital status (Szinovacz, 2005; Szinovacz and DeViney, 2000). Respondents in SHARE and ELSA were asked for their current employment status at each wave. A binary variable was created to indicate respondents who reported their employment status as retired. This variable was included in each model to adjust for any confounding associated with any possible changes in quality of life before and after exit from the labour market.

4.2.3.4 Health status

Physical health has also been acknowledged as a possible confounding factor of the association between well-being and marital status (Mastekaasa, 1993; Zimmermann and Easterlin, 2006). Physical health status is one of the strongest predictors of quality of life in later life (Netuveli et al., 2006; Netuveli et al., 2005) and has also repeatedly been found to be associated with marital status (Liu and Umberson, 2008; Kiecolt-Glaser and Newton, 2001; Verbrugge, 1979). However, since marital status itself has not been suggested as the causal mechanism for this association, it is considered as a confounding rather than mediating factor. Here, physical health status is measured using four different variables to enable capture separate domains of this concept to be taken into account.

4.2.3.4.i Physical functioning

Physical functioning was measured using two subjective scales. Difficulties with activities of daily living (ADL) comprise six items which measure the ability to complete a range of everyday tasks of basic living, and difficulties with instrumental activities of daily living (IADL) comprise seven items which measure the ability of respondents to live independently. These scales are identical in the questionnaires of SHARE wave two and ELSA wave three. Both were used as separate summed scores which were then grand mean centred. The questions asked as part of these scales are given in Table 4.6 below.

Table 4.6: Items included in ADL and IADL questionnaires

	ADL	IADL
1	Dressing, including putting on shoes and socks	Using a map to figure out how to get around in a strange place
2	Walking across a room	Preparing a hot meal
3	Bathing or showering	Shopping for groceries
4	Eating, such as cutting up your food	Making telephone calls
5	Getting in and out of bed	Taking medications
6	Using the toilet, including getting up or down	Doing work around the house or garden
7		Managing money, such as paying bills

4.2.3.4.ii Self-rated health

Two versions of self-assessed health are commonly included in social surveys; these are referred to as the US version and the WHO version. Although similar in their use of a five category scale to capture a person's subjective assessment of their general health, the wordings of the scales differ. In wave one of SHARE both versions of the scale were included. The US version was included in the questionnaire for all respondents and the WHO version to a randomly selected sub section. However, since no significant differences were found between the two versions of the scale (Jurges et al., 2008) for further waves only the US version of the scale was included. In ELSA the WHO version of the self-assessed health scale was used in wave three. In this study self-assessed health was included as a binary variable. For SHARE this was dichotomised as follows (0 = Excellent, Very Good; 1 = Good, Fair, Poor). To allow as accurate a comparison with SHARE, two binary variables were created for ELSA participants, so that the most appropriate one could be used in the models. One dichotomous variable to complement the wording (0 = Very Good; 1 = Good, Fair, Bad, Very Bad) and one to try and match the categories (0 = Very Good, Good; 1 = Fair, Bad, Very Bad).

4.2.3.4.iii The Global Activity Limitation Index (GALI)

An important predictor of CASP-12 has been shown to be the limitations associated with a long term health problem. In SHARE a measure, the Global Activity Limitation Index (GALI), designed to capture these limitations was included in wave two (Jagger et al., 2010). This asked respondents if for the past six months they had been limited in ‘activities people usually do’ because of a health problem. This was dichotomised into not limited because of health problems (0) and limited (1). Although this measure was not included in ELSA, respondents were asked if they had a long term illness which limited their activities in any way, which was also recoded into a binary measure.

4.2.3.4.iv Number of chronic diseases

In SHARE, a variable to indicate the number of chronic diseases a person had was generated by counting the diseases reported from a list of fourteen common long-term conditions. This variable was then recoded into a binary measure of fewer than two chronic diseases (0) and two or more (1). In ELSA wave three individuals reported whether they had equivalent conditions and these were used to create a binary variable to replicate the measure from SHARE.

4.2.3.5 Depression

Previous research has found that depression to be associated with both marital status (REFs) and CASP-19 (Netuveli et al., 2006; Zaninotto et al., 2009; Webb et al., 2011). The increased emotional support associated with marriage is a potential reason why marriage would be associated with improved levels of well-being (Ross, 1995). However, depression was considered a confounder, rather than a mediator in this study, since the emotional support associated with marriage, rather than the marriage itself, is the likely causal pathway. ELSA includes an eight item version of Centre for Epidemiologic Studies Depression Scale (CES-D) which has been validated for use as shortened version of the original 20 item scale (Kohout et al., 1993). The eight items asked as part of this scale are given in Table 3.4 below. Items were coded dichotomously (yes/no) and summed to give a score out of eight. A higher score of CES-D indicates more depressive symptoms but not necessarily depression, and a cut-off point (>3) has been established (Steffick, 2000). In wave two of SHARE (2004) a random sub

sample of respondents were asked the CES-D questions but all respondents were asked the EURO-D depressive symptoms scale; a continuous measure developed by the European Union to capture later life depression cross-nationally, which has a range of 0 to 12 (Prince et al., 1999). The items included as part of this scale are also given in Table 4.4. Again a higher score of EURO-D indicates more depressive symptoms and there is a recognised cut-off point of >4 points. Although many of the items overlap in the subjects they cover the time period they ask about is different, since EURO-D asks respondents to assess their mental health over the past month whilst the CES-D asks about the past week. In chapter four and six both measures are included as binary variables, according to the recognised cut-offs, with depressed coded as 1 and not depressed as 0 (Crimmins et al., 2010). To capture the full range of depressive symptoms in chapter five they were both used as grand mean centred scales.

Table 4.7: Depression measures in ELSA and SHARE

EURO-D		CES-D	
1	In the last month, have you been sad or depressed?	1	I felt depressed.
2	In the last month, have you had too little energy to do the things you wanted to do?	2	I felt that everything I did was an effort.
3	Have you had trouble sleeping recently?	3	My sleep was restless.
4	Do you tend to blame yourself or feel guilty about anything?	4	I was happy.
5	In the last month, what is your interest in things?	5	I felt lonely.
6	What have you enjoyed doing recently?	6	I enjoyed life.
7	Have you been irritable recently?	7	I felt sad.
8	What has your appetite been like?	8	I could not get "going".
9	How is your concentration?		
10	In the last month, have you cried at all?		
11	What are your hopes for the future?		
12	In the last month, have you felt that you would rather be dead?		

4.2.4 Mediators

Mediating factors are also associated with both the exposure and the outcome, however, unlike confounders, they are hypothesised to lie on the causal pathway between the two. Mediating factors are included in the analysis, with the aim of examining to what extent the association between marital status and CASP-12 acts through these factors. Although there is no way to determine the difference between confounders and mediators using statistical tests, previous literature can be used to suggest which factors should be considered as possible mediators. As described in chapter 2 (section 2.3.6), social support and financial

security were both suggested as reasons why marital status might positively influence subjective well-being. These were included in the analysis as potential mediators. The control of risky health behaviors, by a spouse, has also been suggested as a reason why marriage may have a positive effect on well-being. Therefore, alcohol consumption, smoking status and physical activity were also examined (Umberson, 1987).

4.2.4.1 Health behaviour

As discussed in chapter two (section 2.3.6), the social control of poor health behaviour was suggested as an explanation of the association between well-being and marital status. The following health behaviours were used in the analyses for chapters four, five and six.

4.2.4.1.i Smoking

In SHARE, respondents were asked about their smoking behaviour and a variable was generated to establish if they were current smokers; were former smokers or had never smoked daily for at least one year. This was then recoded into a binary variable measuring whether people were current smokers. In ELSA a similar question ascertaining whether people were currently smoking was used and coded into a binary measure.

4.2.4.1.ii Physical activity

In ELSA and SHARE respondents were asked how often they engaged in sports or activities that were vigorous or moderately physically active. The possible answers were more than once a week, once a week, one to three times a month, hardly ever, or never. These were recoded into binary variables to measure physical inactivity, which was defined as never, or hardly ever engaging in either moderate or vigorous physical activity.

4.2.4.1.iii Alcohol use

Alcohol drinking patterns were reported in both SHARE and ELSA. In SHARE respondents were asked about how often they drank, when they have drunk in the last three months and how many drinks they consumed. This information was used to create a binary variable which measured excessive alcohol consumption; having more than more four drinks *almost every day* or *5/6 days a week*. Alcohol consumption was recorded in ELSA wave three in the self-completion questionnaire. People were asked whether they had an alcoholic drink in the last seven days, how many days out of the last seven they had drunk and the quantity of

alcohol they'd had on the day in the last week when they had drunk the most. These questions were then used to create an equivalent variable for the SHARE measure, recording whether people had drunk *over four alcoholic drinks on more than five days a week*. There is always a certain degree of inaccuracy when alcohol consumption is self-reported in social surveys, since adults tend to underestimate their alcohol use, both in terms of quantity and frequency (Dawson, 2003). However, it has been observed that when a shorter time period (less than a year) was used as the reference point, results were more accurate (Dawson, 2003). Even though the time frame of reference was different for the alcohol consumption questions in SHARE (last three months) and ELSA (last week), both would be considered shorter time periods which could minimise recall bias.

4.2.4.2 Social support

It was also important to identify respondents who had no social support when they required it. Respondents in both SHARE and ELSA were asked about difficulties respondents had with physical functioning using three different self-reported scales; ADL, IADL, and mobility related ADLs e.g. walking 100 yards, climbing one flight of stairs without resting. If they reported difficulty with any of the items listed in these scales SHARE participants were asked a separate question about whether anyone ever helped them with these activities. A binary variable was created to indicate whether people had difficulties but received no help with these activities. In ELSA, if respondents reported a problem with the everyday activities included in the ADL, IADL and mobility related ADL scales, they were asked whether anyone ever helped. A similar binary variable for social support was created using this information.

4.2.4.3 Household level: financial security

Financial security was measured at the household level, using two objective measures and one subjective. Home and car ownership were both chosen as objective measures of wealth in later life, these were both found to be associated with both CASP-12 and marital status in this sample. Furthermore, these have been shown to be important predictors of CASP-12 in previous research in SHARE (Knesebeck et al., 2007). A measure of subjective financial position was also included, since previous research found perceived difficulties with money to be as important a predictor of quality of life than objective measures (Netuveli et al., 2006).

4.2.4.3.i Self-rated financial circumstances

A measure of household level self-rated financial circumstances was generated. In SHARE this was based on a question which asked whether the respondent felt the household had ‘trouble making ends meet’. Responses were coded into yes (great difficulty, some difficulty) and no (easily, fairly easily). In ELSA two questions aimed to collect information on participants’ financial circumstances. Table 3.5, below, outlines the two questions and the possible responses. The first question (how often do you have too little money to spend on your needs) was chosen, since it corresponded best to the SHARE question. A binary variable was created to indicate if respondents had any financial difficulties (sometimes, often, most of the time) and didn’t have financial difficulties (never, rarely).

Table 4.8 Self-rated financial circumstances in SHARE and ELSA

SHARE ‘TROUBLE MAKING ENDS MEET’	ELSA 1 ‘TOO LITTLE MONEY TO SPEND ON NEEDS’	ELSA 2 ‘HOW IS RESPONDENT AND PARTNER GETTING ALONG FINANCIALLY THESE DAYS?’
Great difficulty	Never	Manage very well
Some difficulty	Rarely	Manage quite well
Easily	Sometimes	Get by alright
Fairly easily	Often	Don’t manage very well
	Most of the time	Have some financial difficulties
		Have severe financial difficulties

4.2.4.3.ii Home and Car ownership

Measures of home ownership (yes/no) and whether the household owned one or more cars (yes/no) were derived. Table 4.9 shows the categories which were used to create the binary variable for home ownership in both surveys.

Table 4.9: Housing tenure in SHARE and ELSA

	HOME OWNER	NOT HOME OWNER
SHARE	1. Owner 2. Member of a cooperative	3. Tenant 4. Subtenant 5. Rent free
ELSA	1. Own it outright 2. Buying it with the help of a mortgage or loan 3. Pay part rent and part mortgage (shared ownership)	4. Rent it 5. Live here rent free (excluding squatting) 6. Squatting

4.2.4.5 Household level: social support

4.2.4.4.i Household received help from outside

In SHARE a binary indicator of household frailty was derived from the family respondent's answer when asked whether anyone in the household had received help from outside the household with personal care, household tasks or paperwork. In ELSA a similar variable was created if the respondent or their partner had received any help from outside of the household with personal care such as washing and dressing, help with work around the house and garden or help with paying bills and making telephone calls. In ELSA respondents were asked in more detail about who helped with these tasks. For the purpose of this analysis they were classified as having an outside help if they stated that a family member, social services or someone from another care agency provided help with the above tasks.

4.3 Analysis techniques

4.3.1. Descriptive Analysis

For testing bivariate associations, a number of statistical techniques (t-tests,) were used according to the form and distribution of the variables of interest. Where two categorical variables were tested a Pearson's Chi-square test (χ^2) was used to establish whether the null hypothesis of no association should be rejected, by comparing the observed and expected frequencies of both. Where the two variables of interest were a continuous and a binary variable, an unpaired (student's) t-test was used if the continuous variable was normally distributed and a Mann-Whitney U Test if not. A one-way analysis of variance (ANOVA) was used if the dependent variable was continuous and normally distributed and the independent a categorical variable with more than two groups. If the dependent variable wasn't normally distributed then the non-parametric version of this; the Kruskal Wallis test was used instead.

4.3.2 Multiple linear regression (ordinary least squares)

To test the association of more than one independent variable with the outcome, a multiple linear regression modelling technique was used. The underlying assumption of linear regression is that it is possible to predict a (continuous) outcome measure as a product of an independent variable in the model plus the error that is associated with the model (Borchorst, 1994). Additional variables are then included to examine the association between the exposure and outcome when these factors are 'held constant'. The proportion of the variation which is explained by the model can be interpreted from the R^2 . In this thesis an interaction to consider the moderation effect of gender on the association between marital status and gender is used. An interpretation of the coefficients from the regression models will be given at the beginning of each chapter. Figure 4.5 illustrates the equations for these models. In chapter five linear regression is used to explore the association between marital status and quality of life. In this study several models are estimated which are adjusted for a range of predictors, further details of which are included in the relevant chapters. These models are also stratified by certain variables of interest,

such as gender and welfare regime, to compare the levels of significance between these results.

Figure 4.5: Linear regression equations

Linear Regression Model:

$$Y_i = \beta_0 + \beta_1 X_i + \epsilon_i$$

Linear Regression model with interaction term:

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{1i} * X_{2i} + \epsilon_i$$

4.3.3 Dyadic data analysis (chapter six)

A number of large-scale social research surveys interview more than one member of a household, collecting health and demographic information from both partners (and other family members). However, the potential influence of this shared household environment is not always taken into account when data are analysed or conclusions drawn. Much of social science research which uses large-scale surveys uses analytical techniques which assume independence between individuals, even if a natural social grouping occurs in the survey. However, participants are embedded in a social context which may influence their responses and where possible analytic techniques should be chosen to reflect this. It is important to recognise the interdependence between individuals and consider its effects, not just by adjusting for its influence but also by attempting to measure it as a concept in its own right (Kashy and Kenny, 1999). Dyadic data analysis offers useful techniques to study social groupings within household data, rather than treating interdependence merely as a statistical nuisance (Kenny, 1996). Statistical techniques such as multi-level modelling (MLM) and structural equation models (SEM) are both appropriate ways of taking concordance into account whilst also measuring its effect.

4.3.3.1 Concordance/Correlation

To examine the concordance (the agreement in the quality of life between spouses) between quality of life scores for husbands and wives within couples, I initially used the concordance correlation coefficient (Lin, 1989: 264). I then calculated the Intra-Class Correlation (ICC) which for these data gives similar results. An initial random intercept

model was estimated with gender as a predictor and the partitioned variance components between these two levels (individuals nested in couples) were used to estimate the ICC (ρ). The formula for the Intra-Class Correlation (ICC) is shown below. In a linear random effects model the ICC is equivalent to the variance partition coefficient (VPC). The ICC (ρ) is calculated by dividing the proportion of unexplained or residual variance (σ^2) observed at level two (α) of the multi-level model by the sum of the variance (σ^2) at both level two (α) and level one (ϵ). In this model, level two units are couples and so the residual variance at level two ($\sigma^2\alpha$) is the variation in the model not explained by the couple level variables. This value is then divided by the sum of unexplained variance from level 2 (α) and level 1 (ϵ); the total variance in the model. The proportion of the residual variance at the couple level can also be interpreted as the mean association of quality of life between couples. This statistic is also useful for establishing whether the clustering within couples is sufficient to require the continued use of MLM analysis.

$$\rho = \frac{\sigma^2\alpha}{\sigma^2\alpha + \sigma^2\epsilon}$$

The proportion of the unexplained variance at the couple level can also be interpreted as the mean association of quality of life between couples. This statistic is also useful for establishing whether the clustering within couples is sufficient to require the continued use of MLM analysis.

4.3.4 Multi-level modelling

In this thesis multi-level modelling (MLM), a method appropriate for analysing dyadic data from couples (Townsend et al., 2001) is used because of its potential to take the clustering at the household level into account. A multi-level (hierarchical) linear regression is similar in structure to the linear regression described above (section 4.3.2), although there is no assumption that the observations are independent. Additionally the parameters of the model are allowed to vary at more than one level, which allows effects at these different levels to be explored (Rasbash, 2008). In this analysis I used MLM with individuals as the first level and couples as the second level to explore dyadic associations. The structure and interpretation of these models is described below. For the remaining analysis non-hierarchical linear regression was used to allow individuals within households to retain their

own 'level two' household predictors. However, sensitivity analysis using a MLM structure with individual as level one and household as level two was also undertaken and any differences between the results discussed.

For the dyadic analysis in chapter six, initially a random intercept model (null model) was estimated with only gender as a predictor and couple as the second level cluster to test the first hypothesis that quality of life would be correlated within couples. Two further nested models were then estimated, the first (model 2) using gender and individual level predictors as controls and the second (model 3) additionally including couple level covariates. Figure 4.6 presents the equations for these three models. The interpretation for model 1 is as follows; at level 1 Y_{ij} is the outcome (QoL) for individual i in couple j and r_{ij} is the residual effect at the individual level. At level 2 u_{0j} is the residual effect for couples j (random intercept), γ_{00} is the average QoL score for wives and γ_{10} the average difference in QoL between husbands and wives, models two and three then build on this structure.

Figure 4.6: Multi-level model equations

Model 6.1

At Level 1:

$$Y_{ij} = \beta_{0j} + \beta_{1j}(\text{country}) + r_{ij};$$

At Level 2:

$$\beta_{0j} = \gamma_{00} + u_{0j},$$

$$\beta_{1j} = \gamma_{10}.$$

$$Y_{ij} = \gamma_{00} + \gamma_{10} + r_{ij} + u_{0j}$$

Model 6.2:

At Level 1:

$$Y_{ij} = \beta_{0j} + \beta_{1j}(\text{Male}) + \beta_{2j}(\text{age}) + \beta_{3j}(\text{age}^2) + \beta_{4j}(\text{depression}) + \beta_{5j}(\text{education}) + \beta_{6j}(\text{health}) + \beta_{6j}(\text{ADL}) + \beta_{6j}(\text{IADL}) + r_{ij};$$

At Level 2:

$$\beta_{0j} = \gamma_{00} + u_{0j},$$

$$\beta_{1j} = \gamma_{10} \dots \beta_{6j} = \gamma_{i0}$$

$$Y_{ij} = \gamma_{00} + \gamma_{10} \dots \gamma_{i0} + r_{ij} + u_{0j}$$

Model 6.4:

At Level 1:

$$Y_{ij} = \beta_{0j} + \beta_{1j}(\text{Male}) + \beta_{2j}(\text{age}) + \beta_{3j}(\text{age}^2) + \beta_{4j}(\text{depression}) + \beta_{5j}(\text{education}) + \beta_{6j}(\text{health}) + \beta_{6j}(\text{ADL}) + \beta_{6j}(\text{IADL}) + r_{ij};$$

At level 2:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{household difficulty}) + \gamma_{02}(\text{household help}) + u_{0j},$$

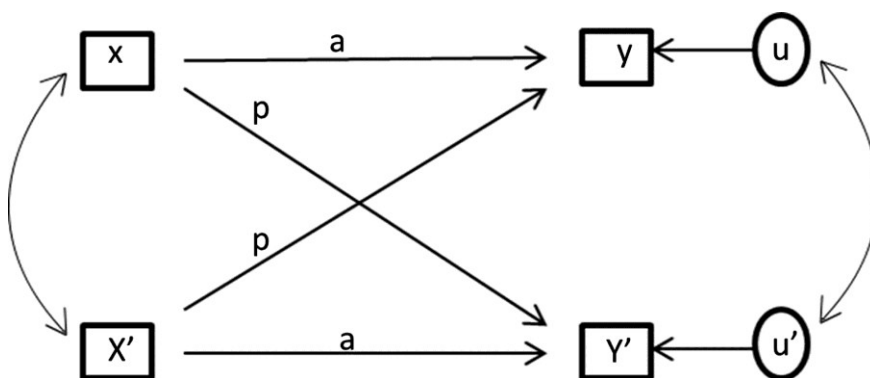
$$\beta_{1j} = \gamma_{10} \dots \beta_{6j} = \gamma_{i0}$$

$$Y_{ij} = \gamma_{00} + \gamma_{10} \dots \gamma_{i0} + \gamma_{01} + \gamma_{02} + r_{ij} + u_{0j}$$

4.3.5 Actor and partner effects

The Actor Partner Independence Model (APIM) model (Kenny et al., 2006) offers a method to estimate the effect of a person's own predictor on their outcome (the actor effect) and simultaneously estimate whether their partner's predictor also affects their outcome (partner effect). Although using a MLM allows the clustering between individuals within couples to be correctly estimated, this method only allows the pooled effect of parameters (actor and partner) to be examined across both members of the dyad. However, this did not allow the effect of a partners' predictor for either member of a couple to be estimated for their own outcome. The model shown in Figure 4.3 estimates actor effect (a) and the partner effect (p) separately so that gender differences can be distinguished. In Figure 4.7 the symbols (X) and (X') signify predictor variables for each individual, whilst (Y) and (Y') represent outcome variables. An actor effect (a) estimates the association between an individual's own predictor and their own outcome. A partner effect (p) estimates the association between an individual's predictor and their partner's outcome, where the lines in the model cross. Also presented in Figure 4.3 are the residuals in the model (u) and (u') which are shown to be correlated. All individuals are therefore treated as both actors and partners in the model. For example the APIM can be used to simultaneously examine the influence of each respondent's health characteristics on their own quality of life; *the actor effect*, and the influence of their spouse's health characteristics; *the partner effect*.

Figure 4.7: The Actor Partner Interdependence Model (APIM) (Cook and Kenny, 2005)



All individuals are therefore treated as both actors and partners in the model and shared predictors can also be included in the model. For example the APIM can be used to simultaneously examine the influence of each respondent's health characteristics on their own quality of life; the actor effect, and the influence of their spouse's health

characteristics; the partner effect. Partner characteristics were computed for each individual in the dataset. The following APIM models were fitted using MLM in Stata: (A) an interaction model including both level one (individual characteristics and partner characteristics) and level two variables (household characteristics) alongside gender interactions for both individual and partner characteristics. Then (B) a ‘two-intercept’ model was fitted with gender (which distinguishes the dyad members) as a factor and no intercept in the fixed model. Interactions in Model A indicated whether there were significant gender differences between actor and partner effects for husbands and wives. From model B it was possible to determine if actor and partner effects were significantly different from zero and this model also allowed easier interpretation of the different actor and partner effects by gender. Figure 4.8 reports the equations for both of these models. Details about how to estimate the APIM model have been described for a number of software packages (Kenny et al., 2006) such as SAS and SPSS. However, I was more familiar with the Stata software package and wished to use this for the remaining analysis, since I had full access to this software. Therefore I used SPSS to test the commands used and convert them to Stata. In Appendix 4.6 details of this conversion and the results of the tested output are described.

Figure 4.8: APIM equations

Model A

At Level 1:

$$Y_{ij} = \beta_{0j} + \beta_{1j}(\text{actor predictor})_{ij} + \beta_{2j}(\text{partner predictor})_{ij} + \beta_{3j}(\text{gender})_{ij} + \beta_{4j}(\text{actor predictor})_{ij}(\text{gender})_{ij} + \beta_{5j}(\text{partner predictor})_{ij}(\text{gender})_{ij} + r_{ij}$$

At level 2:

$$\beta_{0j} = \gamma_{00} + u_{0j}$$

$$\beta_{1j} = \gamma_{10}$$

$$Y_{ij} = \gamma_{00} + \gamma_{10} + \dots + \gamma_{10} + r_{ij} + u_{0j}$$

Model B (“two” intercept)

$$Y_{ij} = \beta_{1j}(\text{Male})_{ij} + \beta_{2j}(\text{Female})_{ij} + \beta_{3j}(\text{actor predictor})_{ij}(\text{male})_{ij} + \beta_{4j}(\text{actor predictor})_{ij}(\text{female})_{ij} + \beta_{5j}(\text{partner predictor})_{ij}(\text{male})_{ij} + \beta_{6j}(\text{partner predictor})_{ij}(\text{female})_{ij} + r_{ij}$$

4.3.6 Level of significance

Overall a p value of <0.05 was considered significant, although results at a lower level were also mentioned in the results. For the APIM model, a lower cut-off of statistical significance ($p<0.10$) was used to retain all possible gender interactions in the model. A problem of multiple testing arises, because the greater the number of statistical tests used on a dataset, the greater the possibility that one of these will be significant, due purely to chance (Cook and Dunnett, 2005). This can result in Type I errors, where positive results are found falsely in the analysis and the wrong conclusions drawn. Methods to deal with this problem are available, the Bonferroni correction, for example. However, these methods often increase the risk of a Type II error, where a result is wrongly found not to be significant (Perneger, 1998). Corrections are considered to be very conservative (Perrett et al., 2006) and therefore used primarily when the object of the study is to search for association between many different variables (Perneger, 1998), for example, in a genome-wide association study (GWAS). They are used less frequently when testing the hypothesis that a particular variable is significantly associated with a specific outcome, since the aim of this study was to investigate the association between marital with quality of life, across macro level variables, controlling for other factors, they were not employed in this instance. However, in the discussion those results which were significant at a higher level of significance ($p<0.001$) were given more emphasis.

4.4 Comparative Approach

Comparative research is useful, because it allows the similarities and differences of findings between countries to be observed. This can help us understand whether the association which has been observed, is a universal aspect of human behaviour, or whether there is a cultural context. It is important to examine cultural variation in experiences of ageing, since this allows us to appreciate which aspects are shared, and whether there are obstacles to a positive experience of ageing, that a society could alleviate (Tesch Römer et al., 2006). Although comparative research offers a number of advantages for comparing the experiences of individuals in different social contexts, it is often dependent on access to comparable data for the countries of interest. Surveys like SHARE and ELSA, which include

comparable variables and internationally recognised scales, allow comparative research to be undertaken. However, without a defined tool of comparison, many of the results which are observed remain difficult to interpret, because of their lack of theoretical context (Mabbett and Bolderson, 1999). The welfare state regime approach which was introduced in chapter two (section 2.5.1) offers a theoretical framework to compare countries based on their underlying welfare arrangements.

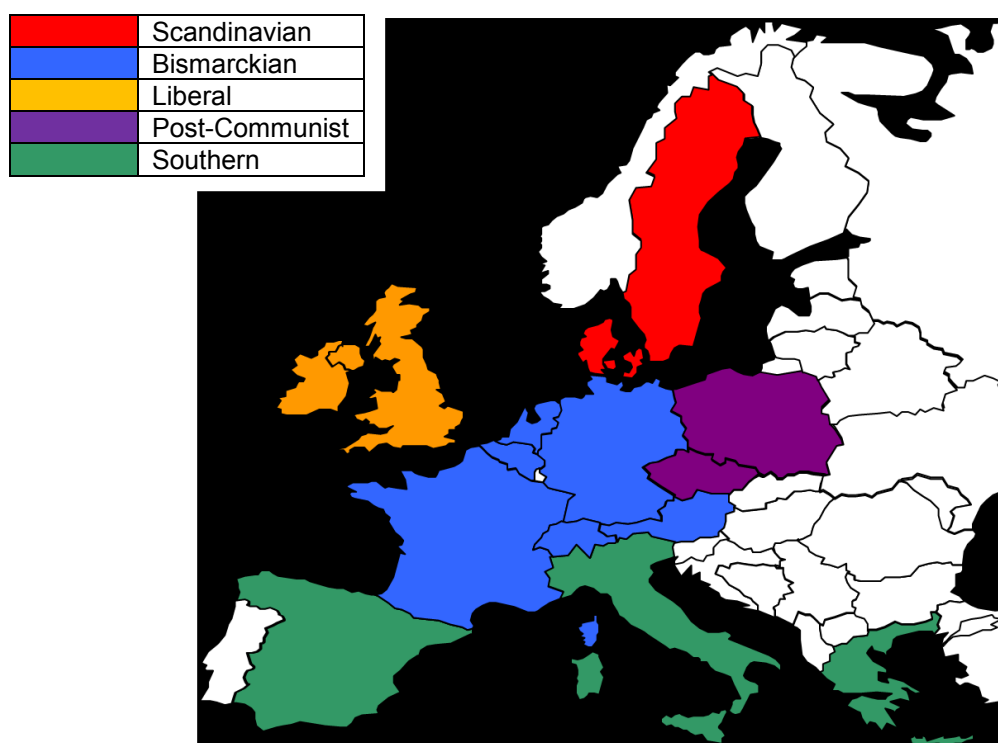
4.4.1 Welfare regime typologies

As discussed in chapter two (section 2.1.1) Esping-Andersen (1990) used empirical analysis of both private and public welfare provision to classify 18 OECD countries' welfare state regimes according to indicators of decommodification and social divisions. He suggests a final typology of three regimes: Liberal, Social-Democratic and Conservative. Wave 2 of SHARE includes data from thirteen European countries. Following the criticisms of Esping-Andersen's original typology it is common when comparing European countries, especially amongst those analysing SHARE data, to use a typology which includes both a Mediterranean/Southern regime and a post-communist grouping (Bambra et al., 2010; Motel-Klingebiel et al., 2009). The thirteen SHARE countries are therefore clustered into four welfare state regimes (Bismarckian, Southern, Scandinavian, Post-Communist) and England is classified as a Liberal welfare state, as illustrated in Table 4.10 and Figure 4.9. This welfare state regime classification is actually closer to the typology proposed by Ferrera (1996). As discussed in chapter 2 (section 2.5.1) this typology also emphasises cross-national differences in the delivery of welfare services, not the quantity of welfare spending. This typology was chosen because empirically, it has been found to be one of the most accurate, (Bambra, 2007c) and also because the classification encompasses nearly all of the countries available in wave two of SHARE. Since I had a number of countries which would fall under the separate Southern classification, this was felt to be an argument to use a typology which included a fourth regime. This was especially important since several of these countries, for example Greece, had been found to be 'pure' examples of this type of regime (Ferragina and Seeleib-Kaiser, 2011a). However, the strength of this typology stems not just from its inclusion of a Southern regime. This work also considered the receipt of welfare provision; both the distribution and entitlement of this is often through the household or perhaps a partner. Therefore, this was felt to provide a better mainstream

examination of some of the risks affected those outside a family unit within a welfare system. Furthermore this classification was recognised as one of the more empirically sound typologies (Bambra, 2007c). All analyses were stratified by welfare regime to allow variation between regimes to be highlighted, and each model was adjusted for between country differences within welfare regime groupings by including countries as effect coded dummy variables.

Table 4.10: Countries included in welfare regime cluster

WELFARE REGIME	COUNTRY	N
Bismarckian (12,444)	Austria	1,268
	Germany	2,314
	France	2,373
	Netherlands	2,369
	Switzerland	1,371
	Belgium	2,749
Southern (7,642)	Spain	1,927
	Italy	2,802
	Greece	2,913
Scandinavian (4,881)	Sweden	2,483
	Denmark	2,398
Post-Communist (4,898)	Czech Republic	2,630
	Poland	2,268
Liberal (7,461)	England	7,461

Figure 4.9 Map of countries included in each Welfare State Regime

4.4.2 A gender focused comparative approach

Several techniques for integrating gender focused concepts into welfare regime research have been suggested. These approaches were described in more detail in Chapter 2 (section 2.6.). These recommendations range from extending the original classifications (Orloff, 1993), using a classification based on the extent to which a country has a ‘male breadwinner’ ideology (Lewis, 1992), or returning to the use of specific macro indicators (Daly and Rake, 2003). Three studies also proposed new typologies based on gender focused criteria, these are reported in Table 4.11. Although I considered using a gender focused typology in this thesis, when the range of countries available in SHARE and ELSA were examined, none of the typologies were felt to be appropriate. Either the number of clusters suggested were too many to ensure comparable interpretations could be drawn (Korpi, 2000) or the countries for inclusion were too similar to the mainstream grouping used (Siaroff, 1994; Bambra, 2007a). Therefore, two alternative methods were used to examine a comparative gender perspective; a gender equality index and macro indicators representing individual welfare policies.

Table 4.11: Gender focused welfare clusters considered

SHARE/ELSA	(BAMBRA, 2007A)	(KORPI, 2000)	(SIAROFF, 1994)
Liberal: UK	Cluster 1: Australia, USA	Targeted/market orientated: Australia	Protestant liberal: Australia, Canada, New Zealand, UK, US
Bismarckian: Austria, Belgium, France, Germany, Netherlands, Switzerland	Cluster 2: Austria, Belgium, France, Germany, Netherlands, New Zealand, Portugal, Switzerland	State corporatist/general family support: Austria, Belgium, France, Germany, Italy	Advanced Christian Democratic: Austria, Belgium, France, Germany, Luxemburg, the Netherlands
Southern: Greece, Italy, Spain,	Cluster 3: Italy, Japan	State corporatists/market orientated: Japan	Late female mobilization: Greece, Ireland, Italy, Japan, Portugal, Spain, Switzerland
Scandinavian: Denmark, Sweden	Cluster 4: Canada, Finland, UK	Basic security/ general family support: Ireland, Netherlands	Protestant social democratic: Denmark, Finland, Norway, Sweden
Post-Communist: Poland, Czech Republic	Cluster 5: Norway, Sweden	Basic security/market orientated: Canada, Switzerland, the UK, USA, New Zealand	
	Unclear: Denmark, Ireland, Greece, Spain	Basic security/dual earner: Denmark	
		Encompassing/dual earner: Norway, Finland, Sweden	

4.4.2.1 Gender indexes

A number of these indices are available; notably the European Gender Equality Index (Bericat, 2012) and the European Union Gender Equality Index (Plantenga et al., 2009) which were developed to focus exclusively on gender inequality at the European level. However, data were not available for each of the fourteen countries used in this research. Attempts were made to contact the authors of these indices to obtain the score for the missing countries, although this was not successful. A third index, the Gender Equity Index was available for all countries and the correlation between the three indices was satisfactory (Bericat, 2012). This index is composed of three dimensions: education, economic and political power and was used to group countries according to their level of

gender equality and compare the results of this thesis. Details of all three of the indices considered are reported in Appendix 4.6.

4.4.2.2 Country level macro indicators

Another method of cross-national comparison used was to explore whether a single macro-level factor was associated with gender differences in the association between marital status and quality of life in later life. A number of macro indicators relevant to a gender focused understanding of the comparative nature of this research topic were chosen. Many of these were drawn from previous research where authors considered gender differences in an outcome between different societies. This research was introduced described in more detail in chapter 2 (sections 2.6.4.3). In total eight indicators were chosen to represent each of these domains. These indicators were chosen to reflect a number of domains which were highlighted as important by existing literature. Seven domains of society were hypothesised to be important for gender differences in the association between marital status and quality of life: expenditure on social protection, pension provision, state support for working mothers, female employment levels, demography, poverty of single mothers and culture/norms. A range of different types of indicator were also chosen, from instrumental to outcome. The final indicators chosen also reflected data that was available for all fourteen countries.

Table 4.12: Macro indicators included by domain

<i>DOMAIN</i>	<i>INDICATOR</i>	<i>TYPE</i>
EXPENDITURE ON SOCIAL PROTECTION	Public spending on family benefits	Instrumental
PENSIONS	Pension advantage for one-earner couples	Outcome
STATE SUPPORT WORKING MOTHERS	State child care provision for the under fives	Instrumental
EMPLOYMENT	Female employment rate of older workers (55-64)	Outcome
DEMOGRAPHY/POVERTY	Poverty rate of lone mothers	Outcome
	Average age of first birth	Outcome/context
	Crude divorce rate	Context
	Average age at first marriage (women)	Outcome/context
CULTURE/NORMS	Traditional attitudes to gender roles	Instrumental/context

The effect of these indicators on the association between marital status and quality of life was compared using regression models, stratified by each of the eight indicators. These analyses were designed to complement the welfare state regime analysis, where the regression models were stratified by the five welfare state regimes. Using this approach also meant that country level variation could be taken into account, by using dummy variables to represent each country. If the indicators had been included in a pooled regression analysis, with the countries analysed together, then the policy level variables would have simply represented country level differences in the analysis. Multi-level modelling can also be used to control for between country differences in cross-national research, however, a minimum number of units are required to adequately represent a separate level using this method, which was below the number of countries available in this dataset.

The analysis for each indicator was stratified using the sample median as a cut-off point. This strategy was used because I wished to present, in a simple yet descriptive way, how the association between marital and status varied between each indicator. The first stage of this process was considered to be, observing differences in the associations, for those who were above and below the sample average. I was also wanted to ensure that the countries were stratified into relatively equally sized groups. If a cut-off point with more policy relevance was used, then most of the countries would have been in the higher group, since there was not always a wide range of scores represented for each indicator. The measurement of each indicator is discussed in more detail below and the values for each of the countries are reported in Table 4.13. The median scores for the thirteen countries and binary variable derived for use in chapter seven are also illustrated.

4.4.2.2.i Demography

Three demographic features of each country were hypothesised to be important. These would highlight both the social context of each country and also suggest how traditional it was in terms of the demographic changes.

4.4.2.2.i.a. Mean age of women at the birth of the first child

The average age of women at the first birth of a child enables comparison of trends in fertility timing and reflects the extent to which women have joined the labour market (Vos,

2009). However, it has also been suggested that this can be an indicator of female friendly employment policies in a country and women's adaption to institutional support for combining work and family. This indicator, taken from 2008 OECD data is defined as the 'average completed year of age of women when their first child is born' (Walker, 2005a) .

4.4.2.2.i.b. Crude divorce rates

As reported in chapter 2 (section 2.3.4) the marital composition of a country may also be an important factor in the association between marital status and well-being. Here, following previous work which also investigated macro level gender inequality, we used the crude divorce rate of each country (Wagner and Weiß, 2006). This is defined as the ratio of the number of marriages which are ended by divorce in a given year to the average population in that year; it is given per 1000 residents. This indicator was also taken from 2008 OECD data.

4.4.2.2.i.c Mean age of women at first marriage

The mean age of marriage for women varies considerably across OECD countries, from 25 years in Poland to just over 32 in Switzerland. Variation in this indicator can suggest a difference in the forms of long term partnerships and also differences in the timing of life course events (Arber and Ginn, 1991). Age at marriage is calculated as the age of women during the year of their first marriage, 2008 data from the OECD was used.

4.4.2.2.ii Lone parent poverty rate

The poverty of solo mothers has often been used as a 'litmus test' to indicate gendered social rights in a country (Hobson, 1994). Additionally it offers an insight into the support available for single parent families and perhaps also attitudes towards traditional structures. This indicator was sourced from OECD 2008 data on poverty rates. Households were defined as being in poverty when they had below half of the median income of the entire population.

4.4.2.2.iii Traditional attitudes to gender roles

Cultural attitudes towards the gender roles of men and women have been offered as an explanation for gender differences in the association between marital status and well-being (Diener et al., 2000). The European Social Survey (ESS) asks several questions about the traditional roles of men and women in its 2004 wave. Respondents were asked how strongly

they agreed with these three statements: 1) *Woman should be prepared to cut down on paid work for sake of family*; 2) *Men should take as much responsibility as women for home and children*; and 3) *Men should have more right to a job than women when jobs are scarce*. 2004 is the most recent year these questions were included in the survey, so this data is older than the other indicators which are from years 2007 to 2009. Because of the sampling patterns of the ESS for these questions, Italy was not included. Despite these limitations, these variables were still used for analysis since no alternative robust questions about gender attitudes could be sourced. The percentage of ESS respondents who strongly agreed with statements one and three and strongly disagreed with statement two was calculated for each country. Three binary indicators were created to indicate if countries had a percentage above the SHARE median for each of the statements and a total indicator which indicated whether countries scored over the average for more than one of the statements.

4.4.2.2.iv Public spending on family benefits in cash, services and tax measures

The level of state spending on benefits for the family, such as child benefit, is thought to be a good indicator of the nature of the social policy regime (Voicu et al., 2009). A higher level of public provision for the private sphere of the family is often considered to be indicative of an acceptance of a role for the welfare system in this area. Cross-nationally, public support offered to the family varies in how it is distributed e.g. the total amount given in cash, services and tax measures. This measure which includes all financial support that is exclusively for families and children, such as child-related cash transfers, public spending on services and financial support provided through the tax system. The total amount of this public spending is calculated as a percentage of the country's GDP by the OECD. Data from the 2007 calculation is used in this analysis.

4.4.2.2.v Pension advantage for one-earner couples

The OECD literature constructs an indicator which identifies countries which offer a pension advantage for one-earner couples, compared to single people who have the same income. A country is considered to have a pension advantage for one-earner couples if the gross pension level for a couple with average earnings is higher than that of single people with the same income. This indicator was highlighted in the OECD gender equality literature and was therefore chosen to capture gender inequality in pension provision (Thane, 2001). The indicator represents the ratio of gross pension level for one-earner couples relative to single

people by earnings level. It is binary coded since there is considered to be a pension advantage if the ratio is larger than 1 and no advantage if the ratio is less than 1.

4.4.2.2.vi Childcare spending for under fives

Public spending on childcare, although often related to the public spending on family benefits mentioned above, is also a gauge of the support for female employment in a country. Low levels of state spending on childcare is typical in countries where informal care is commonly used for younger children and women are less likely to re-enter the labour market when children are born. The indicator used here is the OECD measure of all public expenditure on childcare by cash, services or through the tax system. This data was collected at the national level and so it is important to note that regional or employer provision of childcare services may not be captured by this measure. To ensure an accurate comparison of the support offered, cross-national differences in the age of entry into primary level schooling was taken into account when the measure was calculated.

4.4.2.2.vii Female Employment Rate: Older workers (55-64)

The proportion of women active in the labour force is also considered to be an important gauge of gender equality in society (Tesch-Römer et al., 2008). Although several economic indicators are included in the Gender Equality Index (section 4.4.2.1), e.g. female rate of economic activity and estimated perceived income, a separate indicator was thought to be useful. The employment rate of older female workers has also been suggested as an indicator of the level of elderly care available since, where this is not available, many women leave their jobs prior to retirement to provide this care (Esping-Andersen, 2009). Therefore I have included here the female employment rate for older workers (aged 55-64), calculated by dividing the number of women aged 55-64 in employment by the total population of the same age. Table 4.12 overleaf illustrates the indicators described above for each country. The median of the thirteen countries in the SHARE sample is also reported

Table 4.13: Macro indicator scores by country¹

		A1	A2	A3	A ²	B		C1	C2	C3	C ³	D		E	F ⁴		G	
1	Austria	27.6	29.4	2.4	0	30.8	0	12.0	2.5	7.1	0	2.6	1	0	0.3	1	30.8	0
2	Belgium	27.7	28.4	3.3	0	34.0	0	12.3	1.0	11.0	1	3.1	1	1	0.2	1	26.3	0
3	France	28.6	30.0	2.1	1	22.6	1	20.1	0.4	13.8	1	3.7	1	1	0.4	1	35.9	1
4	Switzerland	29.6	32.1	2.6	1	29.6	1	14.1	0.4	5.8	0	1.4	0	0	0.1	0	60.0	1
5	Netherlands	28.9	29.7	2.0	1	31.9	0	5.9	0.6	3.3	0	2.8	1	1	0.3	1	42.2	1
6	Germany	30.0	29.5	2.3	1	26.5	1	7.8	0.7	4.4	0	2.7	1	0	0.1	0	46.0	1
7	Greece	28.8	28.8	1.2	0	12.3	1	13.2	1.2	14.8	1	1.1	0	0	0.1	0	27.5	0
8	Italy	29.9	29.9	0.9	1	31.5	0					1.4	0	0	0.2	0	24.0	0
9	Spain	29.7	27.9	2.4	1	33.1	0	11.4	3.0	8.6	1	1.5	0	0	0.5	1	31.1	0
10	Sweden	28.4	32.0	2.3	1	17.9	1	1.6	0.3	1.2	0	3.4	1	1	0.6	1	66.7	1
11	Denmark	28.4	31.5	2.7	1	9.9	1	3.9	0.6	2.0	0	3.3	1	1	0.8	1	50.1	1
12	Czech Republic	27.3	27.1	3.0	0	38.6	0	17.4	1.3	13.4	1	2.5	0	1	0.1	0	34.4	0
13	Poland	25.5	25.2	1.7	0	34.8	0	15	0.4	12.9	1	1.6	0	0	0.0	0	20.7	0
	Median	28.6	29.5	2.3		30.8		12.2	1.0	8.2		2.6			0.2		34.4	

¹ Unless otherwise specified final binary indicator is coded 1 if country score is the SHARE median or above

² Each demographic indicator was rated individually and then a final indicator was created in countries scored highly on two or three of the other indicators

³ For each ESS question countries were rated as high or low and then a final indicator was created if countries scored high on more than one question

⁴ Due to low variation this indicator was split by the second decimal point so the median score was (0.24)

A Demography:

A1 Average age at first birth

A2 Average age at first marriage

A3 Divorce rate

B Lone Parent poverty rate [Reverse coded]

C Traditional attitudes to gender roles [Reverse coded]

C1 Strongly agree that "Woman should be prepared to cut down on paid work for sake of family"

C2 Strongly disagree that "Men should take as much responsibility as women for home and children"

C3 Strongly agree that "Men should have more right to job than women when jobs are scarce"

D Public spending on family benefits in cash, services and tax measures as percentage of GDP

E Pension advantage for one-earner couples

F Childcare spending as percentage of GDP

G Female Employment Rate: Older workers (55-64)

Chapter 5

Marital status, living arrangements and quality of life

5.1 Introduction

The aim of this chapter is to examine the associations between marital status, living arrangements and quality of life and to consider how these associations vary by both gender and welfare regime. The chapter addresses the following research questions:

- 1.1 *To what extent does the association between current marital status and quality of life at older ages vary by both gender and welfare state regime?*
- 1.2 *To what extent does the association between life course marital status and quality of life at older ages vary by both gender and welfare state regime?*
- 1.3 *To what extent is there an association between current living arrangements and quality of life, is this association moderated by marital status and does this vary by welfare state regime?*

The chapter is structured as follows, firstly the association between quality of life at older ages and current marital status will be considered. The association was examined using a series of ordinary least squares (OLS) regression. More information about this statistical method can be found in chapter four (section 4.3.2). A series of models were estimated adjusting in a stepwise manner for socio-economic and health characteristics. However, only two of these models will be presented in this chapter; Model 4.1.1; adjusted for age, age², gender and country and Model 4.1.6; fully adjusted. These are presented first for the SHARE sample together and then separately by welfare regime. The stepwise versions of these models are included in Appendix 5.2 and presented stratified by welfare regime. In each of these models a gender interaction for marital status was included to allow any gender differences in the association between marital status and quality of life to be examined. Each model was estimated twice, once with men as the reference group and

once with women, to allow for easier interpretation. Therefore it was possible to interpret the effect of marital status for men and women separately, compared to a reference group and also to compare them to each other. A significant interaction is interpreted as different effects of marital status for men and women, when compared to each other. Several sensitivity analyses are also considered for the results for the association between current marital status and quality of life.

Next the association between a life course classification of marital status and quality of life at older ages was examined. To carry out this analysis I used retrospective data from wave three of SHARE. The dataset and sample used for this section of the analysis are discussed in more detail in chapter four (section 4.1.3). Only a small number of respondents deviated from a traditional marital history - continually married - therefore the life course categories developed were less complex than might have been found in a younger European population. Nevertheless, using this grouping allowed the association between quality of life at older ages and life course marital status to be compared to the association between quality of life and current marital status. Two models using a life course classification of marital status will be presented in the main body of this chapter. Firstly Model 5.7 will show the association between a life course marital status classification which divides respondents into five categories: respondents who have been continually married, those who are remarried, those who have been married but are now widowed, those who are divorced and those who never married. This model is adjusted for age age^2 , gender and country. The second model (Model 5.10) was fully adjusted for health and socio-economic circumstances. These results were stratified by welfare state regime and an interaction between gender and marital status included, allowing any variation by gender to be examined. Again each model was estimated twice, once with each men and women as the reference group, to allow for easier interpretation. In the Appendix 5.3, the results from two further models are reported. The first (Model 5.8) shows the association between a different classification of life course marital status where respondents were divided into four categories: continually married, remarried, previously married and never married. The second (Model 5.9) shows the association between the five category of life course marital status and quality of life, adjusted only for socio-economic circumstances. Again several sensitivity analyses were

carried out and these results are reported for the association between life course marital status and quality of life.

Finally, the association between living arrangements and quality of life was also evaluated in this chapter. This association was again examined using an OLS regression model, which included an interaction between living arrangements (living alone, living as a couple, living with others²) and a binary indicator of marital status (single, married). Here the significant interaction means that the association between living arrangements and quality of life is different, depending on the marital status of a respondent. These models are presented stratified by welfare state regime to examine differences in how living arrangements and marital status are associated with quality of life.

² Living with others includes any individual not living alone but not living in a two person 'couple' household with someone they are in a relationship with.

5.2. Current marital status and quality of life

5.2.1 Current marital status prevalence by welfare state regime

Table 5.1: Prevalence of married, divorced, widowed and never married by welfare state regime

	MARRIED % (CI)	DIVORCED ^a % (CI)	WIDOWED % (CI)	NEVER MARRIED % (CI)
Bismarckian (12,444)	72.4 (71.6, 73.2)	9.0 (8.2, 9.3)	13.7 (13.1, 14.3)	5.0 (4.7, 5.4)
Southern (7,642)	77.7 (76.8, 78.7)	3.5 (3.1, 3.9)	13.7 (13.0, 14.5)	4.9 (4.4, 5.4)
Scandinavian (4,881)	74.6 (73.4, 75.9)	9.6 (8.8, 10.4)	10.6 (9.7, 11.4)	5.0 (4.4, 5.7)
Post-Communist (4,898)	69.9 (68.7, 71.2)	9.4 (8.6, 10.2)	17.5 (16.4, 18.5)	3.2 (2.7, 3.7)
Liberal (7,329)	69.4 (68.3, 70.5)	10.4 (9.7, 11.1)	14.7 (13.9, 15.5)	5.5 (5.0, 6.0)

^a Includes separated

Although variation in marital status was observed between the welfare state regimes, over half of the respondents in each regime were currently married. In the Bismarckian, Southern, Post-Communist and Liberal welfare state regimes being widowed was the most commonly reported 'single' status. However, in the Scandinavian welfare regime, there was no difference between the proportion of respondents who were divorced or separated and those who were widowed. In each regime only a small proportion of respondents had never been married. Variation in marital status prevalence between the countries within the welfare state regimes was also examined and the results are reported in Appendix 5.1. Although there were small differences in marital status between the countries of the welfare state regime; this variation was always small (<10%). Again, being married was the most prevalent status in each country and in the majority of countries being widowed was the most commonly reported single status. Few respondents from any of the countries reported that they had never married, therefore, over ninety per cent of the respondents in each country had at some point in their lives been in a marital union.

5.2.2 SHARE sample: association between current marital status and quality of life

To explore gender differences in the associations between current marital status and quality of life, initially six OLS regression models were estimated for the whole SHARE sample. The main exposure variable, marital status was included in each model as a gender interaction

and the models were estimated twice with different reference groups. Therefore the results for the first row of marital status regression coefficients show the effect of marital status on the quality of life of women compared to the reference group *married women*. The coefficients for the second row show the effect for men compared to the reference group, *married men*. Table 5.2 shows the results for two models. Model 5.1 was adjusted for age, age² and country and Model 5.6 was 'fully adjusted' for all covariates. The rest of these step wise models are reported in Appendix 5.2. Model 5.2 was adjusted for indicators of health status (limitations with long standing illness, more than two chronic diseases and depressive symptoms); Model 5.3 for indicators of health behaviours (being a current smoker, physical inactivity and excessive drinking) and Model 5.4 for mobility problems (having difficulties with mobility but receiving no help). Model 5.5 was adjusted for socio-economic circumstances (being retired, high educational level, home ownership, subjective financial difficulties and car ownership).

Model 5.1 (Table 5.2) shows that married men had on average a higher level of quality of life than married women. A negative association with quality of life was also observed for all single women (divorced, widowed, never married) when compared to married women. Table 5.2 also shows that single men also reported lower levels of quality of life compared to married men in the SHARE sample as a whole. The gender interactions in the association between marital status and quality of life were significant ($p < 0.05$) for those respondents who were never married and widowed. Never married men had on average a lower quality of life than never married women ($\beta = -0.73$), whilst for widowed men this was slightly higher ($\beta = 0.63$) than for widowed women. Although there was also a difference between the level of quality of life between divorced men and women this was only at the lower level of significance ($p < 0.10$).

Table 5.2 Regression of CASP-12 on marital status adjusting for health and socio-economic conditions in the SHARE countries

(N=29,865)	MODEL 5.1 ^a	MODEL 5.1 ^b
	<i>β Coefficient [SE]^c</i>	<i>β Coefficient [SE]^c</i>
Model constant ^d	25.65	26.71
Marital status women		
Married women	REF	REF
Divorced women ^e	-1.80 [0.16]	<i>-0.34 [0.13]</i>
Never married women	-0.73 [0.21]	0.02 [0.17]
Widowed women	-1.20 [0.12]	0.14 [0.10]
Marital status men		
Married men	REF	REF
Divorced men ^e	-1.39 [0.20]	-0.45 [0.16]
Never married men	-1.46[0.22]	-0.61 [0.18]
Widowed men	-0.57 [0.21]	0.11 [0.17]
Marital status x gender^f		
Married x gender	0.59 [0.08]	-0.48 [0.06]
Divorced ^e x gender	<i>0.41 [0.25]</i>	0.11 [0.20]
Never married x gender	-0.73 [0.31]	-0.63 [0.25]
Widowed x gender	0.63 [0.23]	-0.03 [0.19]
R ²	0.20	0.49

^a includes marital status, age age², gender and country (effect coded)

^b includes marital status, age age², gender, country (effect coded), physical health, depression, smoking status, physical activity, alcohol consumption, social support, retirement status, education level, home ownership, car ownership, subjective financial difficulties,

^c Results where p<0.05 in bold; results where p>0.05 and p<0.10 in italics

^d The model constant is also the average CASP-19 score for married women adjusted for age and age² (both grand mean centred)

^e Includes separated

^f Women are the reference category for the interaction

Several of these differences were no longer significant by Model 5.6, which was adjusted for both health and socio-economic circumstances. The results of this model are also reported in Table 5.2. For single women the only negative association between marital status and quality of life was for divorced women, although this effect was only significant at a lower level (p<0.10). Two differences were observed for the quality of life of single and married men; both divorced and never married men had lower levels of quality of life in the final model. The difference in the quality of life between married men and women remained significant; however the direction of this association had changed so that married men had lower quality of life than married women. Only one further gender interaction remained significant; never married men reported lower quality of life when compared to never married women.

The results of the models between those reported in Table 5.2 are shown in Appendix 5.2. When health status was taken into account the direction of association between

married men and women was reversed. This was observed in all the models where health status was taken into account (Models 5.2, 5.3, 5.4 and 5.6). When health status was taken into account (Model 5.2) the negative association of being widowed for women's quality of life was attenuated and was no longer significant for men. No further differences between the results for the models with health behaviour and mobility problems included were observed for the association between marital status and quality of life. The strength of the association between divorce and lower quality of life was reduced further by the addition of socio-economic circumstances rather than health characteristics. Furthermore when socio-economic circumstances were included (Model 5.5) never married or widowed women no longer had lower levels of quality of life compared to married women. The higher levels of quality of life observed for divorced and widowed men when compared with divorced or widowed women were also no longer observed by Model 5.5. Only one gender interaction was significant in Model 5.5, never married men had lower levels of quality of life than never married women.

5.2.3 Sensitivity analyses

Several sensitivity analyses were also estimated for Model 5.6. Depression was included as a discrete variable (chapter four, section 4.2.3.2.iii) and in another model different health indicators included: self-rated health ADL and IADL (chapter four, section 4.2.3.2.i). A different measure of educational status based on years of education was also included in one model (chapter four, 4.2.3.4. i). A version of the model was estimated using a MLM linear regression method instead of OLS regression and finally a model was estimated based on the imputations generated for this sample. For all of these models the only differences observed were that the difference in quality of life between divorced women and married women was significant at a higher level ($p < 0.05$). The size and direction of this effect however, was similar.

5.2.4 SHARE sample: association between CASP-12 with marital status, gender and welfare regime

In this section, associations between quality of life with marital status, gender and welfare regime were examined simultaneously, in the pooled SHARE sample. To examine these differences, a three way interaction between marital status, gender and welfare regime was included in a regression model. The results of this analysis are shown in Table 5.3. Due to the complex results which are produced, as part of a three way interaction, the simple effects of this analysis are presented, separately for men and women. This means that the results can be interpreted as the total beta coefficient associated with the CASP-12 score for a man or woman, reporting each marital status category, for each welfare regime. The reference category for this analysis was married women in the Bismarckian regime. Overall, quality of life was highest in the Scandinavian regime and lowest in the Southern or Post-Communist regimes. Variation by both marital status and gender was also observed. Those who were married reported higher levels of quality of life on average in each of the welfare state regimes, although differences between the quality of life of those who were single were also observed. Men, who had never married, in the Post-Communist welfare state regime, reported the lowest quality of life on average. Whilst for women, lower levels were observed for both widowed and divorced women in the Southern regime. Due to collinearity it was not possible to adjust for country by including dummy variables in this analysis. Therefore, in the next stage of analysis, the results were stratified by welfare regime, to allow the association between quality of life, gender, marital status and welfare state regime to be examined further.

Table 5.3 Regression of CASP-12 on marital status by gender and welfare regime in the SHARE countries^a

Marital status by welfare regime	Women		Men	
	<i>Beta Coefficient</i>	<i>P value</i>	<i>Beta Coefficient</i>	<i>P value</i>
BISMARCKIAN REGIME				
Married	REF	REF	0.38	0.002
Divorced ^b	-2.50	<0.001	-1.36	<0.001
Never married	-0.94	0.003	-1.09	0.002
Widowed	-1.15	<0.001	-0.20	0.544
SOUTHERN REGIME				
Married	-4.53	<0.001	-3.54	<0.001
Divorced ^b	-5.68	<0.001	-3.13	<0.001
Never married	-4.82	<0.001	-3.94	<0.001
Widowed	-6.52	<0.001	-4.11	<0.001
SCANDINAVIAN REGIME				
Married	1.26	<0.001	1.44	<0.001
Divorced ^b	-0.05	0.885	0.38	0.371
Never married	-0.31	0.542	-0.15	0.779
Widowed	1.66	<0.001	0.67	0.181
POST-COMMUNIST REGIME				
Married	-3.95	<0.001	-3.13	<0.001
Divorced ^b	-4.95	<0.001	-4.82	<0.001
Never married	-3.59	<0.001	-5.88	<0.001
Widowed	-5.32	<0.001	-3.55	<0.001

^a includes marital status, age age², gender and welfare regime

^b Includes separated

5.2.5 Current marital status and quality of life, by welfare state regime

The next section presents the association between quality of life and marital status, with the results stratified by welfare state regime. The results from two Models are reported, (5.1 & 5.2) and the intermediary models are included in Appendix 5.2. In Model 5.1 the analysis was adjusted for age, age² and country and in Model 5.6 it was further adjusted for all health and socio-economic covariates. In Table 5.4, the results for Model 5.1 are provided separately for each of the five welfare state regimes. Beta coefficients and standard errors are reported, only for the main exposure variable in the model. The simple effects of marital status are reported separately for men and women and the interaction between marital status and gender is reported, with women as the reference category.

In nearly all welfare state regimes, those who reported that they were divorced had on average lower levels of quality of life, than those who were married. Only in the Southern regime did divorced men not report lower CASP-12 scores than married men. In the

Bismarckian regime, there was a significant interaction between marital status and gender, which suggests that in this regime the negative effect of divorce on quality of life is moderated by gender. Lower levels of quality of life were observed for divorced women, when compared to divorced men. A similar result, with divorced women reporting lower levels of quality of life than divorced men, was observed in the Southern welfare state regime.

In every regime except the Scandinavian, widowed women reported lower levels of quality of life, compared to married women. However, only in the Bismarckian and Southern regimes, did widowed men report lower CASP-12 scores when compared to married men. In both the Southern and Liberal welfare state regimes, significant gender interactions suggested that the association between being widowed and CASP-12 was moderated by gender. Never married women and men had lower levels of quality of life compared to those who were married in three of the welfare state regimes; Bismarckian, Scandinavian and the Liberal regime. However, no significant gender difference was observed, in these three welfare regimes, between the quality of life of never married women compared to men who had never married.

In the Post-Communist regime, whilst for women there seemed to be no negative association between quality of life and not being married, men who had never married reported lower quality of life, than both married men and never married women. In the Southern regime, whilst never married men did report slightly lower CASP-12 scores compared to men who were married, there was no significant gender interaction. Therefore, no difference between the levels of quality of life, for never married men and women, was observed in this regime. In the Scandinavian regime, there was no significant difference observed in the quality of life scores of married men and women, whilst in the Liberal regime, married women reported higher levels of quality of life than men. However, married men reported higher levels of quality of life than married women, in the Bismarckian, Southern and Post-Communist regimes. The size of this difference, however, varied between the regimes. The difference between the CASP-12 scores of married men and women was largest in the Southern regime and smallest in the Bismarckian regime.

Table 5.4: Regression of CASP-12 on current marital status (Model 5.1), by welfare regime ^a

	BISMARCKIAN (12,444)	SOUTHERN (7,642)	SCANDINAVIAN (4,881)	POST-COMMUNIST (4,898)	LIBERAL (7,461)
	<i>β Coefficient [SE]^b</i>	<i>β Coefficient [SE]^b</i>	<i>β Coefficient [SE]^b</i>	<i>β Coefficient [SE]^b</i>	<i>β Coefficient [SE]^b</i>
Model constant ^c	27.27	22.24	28.74	22.83	26.35
Marital status women					
Married women	REF	REF	REF	REF	REF
Divorced women ^d	-2.39 [0.23]	-1.25 [0.48]	-1.47 [0.30]	-1.16 [0.38]	-2.26 [0.28]
Never married women	-0.89 [0.31]	-0.06 [0.42]	-1.54 [0.43]	0.41 [0.80]	-1.82 [0.42]
Widowed women	-1.37 [0.19]	-1.19 [0.24]	-0.29 [0.29]	-1.06 [0.29]	-1.21 [0.25]
Marital status men					
Married men	REF	REF	REF	REF	REF
Divorced men ^d	-1.53 [0.29]	0.02 [0.54]	-1.24 [0.36]	-1.91 [0.48]	-2.13 [0.36]
Never married men	-1.24 [0.34]	-0.93 [0.43]	-1.68 [0.45]	-2.89 [0.63]	-1.22 [0.42]
Widowed men	-0.85 [0.32]	0.14 [0.47]	-1.11 [0.43]	-0.21 [0.51]	-0.14 [0.39]
Marital status x gender ^e					
Married x gender	0.29 [0.12]	1.34 [0.15]	0.02 [0.16]	0.95 [0.21]	-0.44 [0.16]
Divorced ^d x gender	0.86 [0.37]	<i>1.27 [0.71]</i>	0.22 [0.47]	-0.75 [0.62]	0.13 [0.46]
Never married x gender	-0.35 [0.46]	-0.87 [0.61]	-0.14 [0.63]	-3.31 [1.02]	0.60 [0.59]
Widowed x gender	0.52 [0.36]	1.33 [0.51]	<i>-0.82 [0.50]</i>	0.84 [0.57]	1.07 [0.44]
R ²	0.10	0.13	0.08	0.07	0.03

^a includes marital status, age age², gender and country (effect coded)

^b Results where p<0.05 in bold; results where p>0.05 and p<0.10 in italics

^c The model constant is also the average CASP-12 score for married women adjusted for age and age² (both grand mean centred)

^d Includes separated

^e Women are the reference category for the interaction

Table 5.5 shows the results for Model 5.6 by welfare regime. In this model married men had significantly lower levels of quality of life, compared to married women in all the regimes examined, except the Southern welfare state regime. However, for married men in the Bismarckian and Post-Communist regimes, the direction of this effect was reversed, since there had been an initial disadvantage for married women in Model 5.1, (Table 5.4.). In Model 5.6, when health and socio-economic circumstances were taken into account, divorced men and women in both the Bismarckian and Liberal regimes had, on average, lower levels of quality of life than married men or women. Divorced men also reported lower quality of life in the Post-Communist regime, but only when compared to married men. There were no significant gender differences, in levels of quality of life, for divorced respondents, in any of the welfare state regimes. Only never married women in the Liberal regime reported significantly lower levels of quality of life than married women. Never married men had lower levels of quality of life than married men in the Post-Communist regime. Also in the Post-Communist regime, a significant gender interaction showed that never married men also reported lower levels of quality of life than never married women. When health and socio-economic circumstances were taken into account, widowed women no longer had lower levels of quality of life, than married women, in either the Bismarckian or Southern regimes. Furthermore, in the Post-Communist regime widowed women had slightly higher levels of quality of life than married women. In the Liberal regime, widowed men had lower levels of quality of life than married men. There was only a significant difference between widowed men and women's quality of life in the Scandinavian regime.

Table 5.5 Regression of CASP-12 on current marital status (Model 5.6), by welfare regime (fully adjusted)^a

	BISMARCKIAN (12,514)	SOUTHERN (7,646)	SCANDINAVIAN (4881)	POST-COMMUNIST (4,898)	LIBERAL (7,461)
	<i>β Coefficient [SE]^b</i>	<i>β Coefficient [SE]^b</i>	<i>β Coefficient [SE]^b</i>	<i>β Coefficient [SE]^b</i>	<i>β Coefficient [SE]^b</i>
Model constant ^c	27.72	24.27	28.33	26.41	26.47
Marital status women					
Married women	REF	REF	REF	REF	REF
Divorced women ^d	-0.59 [0.19]	-0.13 [0.40]	-0.20 [0.27]	-0.03 [0.30]	-0.79 [0.23]
Never married women	-0.10 [0.25]	-0.02 [0.35]	-0.40 [0.38]	0.64 [0.62]	-0.91 [0.34]
Widowed women	-0.09 [0.16]	-0.16 [0.20]	<i>0.51 [0.26]</i>	0.55 [0.23]	0.21 [0.21]
Marital status men					
Married men	REF	REF	REF	REF	REF
Divorced men ^d	-0.58 [0.24]	0.41 [0.44]	-0.30 [0.31]	-0.94 [0.37]	-0.61 [0.29]
Never married men	-0.40 [0.28]	<i>-0.59 [0.35]</i>	-0.44 [0.39]	-1.75 [0.49]	<i>-0.63 [0.34]</i>
Widowed men	0.09 [0.26]	0.50 [0.39]	-0.55 [0.37]	0.27 [0.40]	0.68 [0.31]
Marital status x gender ^e					
Married x gender	-0.62 [0.10]	-0.17 [0.14]	-0.55 [0.14]	-0.28 [0.17]	-1.08 [0.13]
Divorced ^d x gender	0.01 [0.29]	0.55 [0.58]	0.10 [0.40]	<i>-0.91 [0.48]</i>	0.18 [0.37]
Never married x gender	-0.50 [0.37]	-0.61 [0.50]	0.04 [0.53]	-2.39 [0.79]	0.28 [0.47]
Widowed x gender	0.08 [0.29]	0.66 [0.42]	-1.07 [0.43]	-0.27 [0.44]	0.48 [0.35]
R ²	0.42	0.43	0.34	0.45	0.38

^a includes marital status, age age², gender, country (effect coded), physical health, depression, smoking status, physical activity, alcohol consumption, social support, retirement status, education level, home ownership, car ownership, subjective financial difficulties,

^b Results where p<0.05 in bold; results where p>0.05 and p<0.10 in italics

^c The model constant is also the average CASP-19 score for married women adjusted for age and age² (both grand mean centred)

^d Includes separated

^e Women are the reference category for the interaction

The results from the intermediary models between those presented in Table 5.3 and 5.4 can be found in Appendix 5.2. Further information about the variables included in these models can be found in section 5.1. In the Bismarckian regime the results are presented in table A.5.2.2. In this regime when health status was taken into account - in Models 5.2, 5.3 and 5.4 – and also Model 5.6 from Table 5.5, married men had lower levels of quality of life than married women. When only socio-economic circumstances were included – Model 5.5 – there was no significant difference in the quality of life score of married men and women. Divorced men and women in the Bismarckian regime reported lower levels of quality of life than those who were married across all the models although this association attenuated when socio-economic characteristics were taken into account (Model 5.5). A significant gender interaction suggested a lower level of quality of life for divorced men, compared to women but this was not significant ($p < 0.10$) when only socio-economic circumstances were accounted for (Model 5.5). In the Bismarckian regime never being married was also negatively associated with the quality of life of both men and women, although not when socio-economic circumstances were included in the model (Models 5.5 and 5.6). Widowed men's negative association with quality of life was no longer significant when health status was included in the model, whilst for widowed women this remained significant until socio-economic circumstances were taken into account (Model 5.5 and 5.6). A significant gender interaction between the quality of life of widowed men and women in the Bismarckian regime was observed in Table 5.4 where widowed men had lower levels of quality of life than widowed women. However in Model 5.1 the direction of this association was reversed and it was no longer significant in Model 5.5, when socio-economic circumstances were included.

In the Southern regime the results for the rest of the models are presented in Table A.5.2.3. Whilst there was an initial difference between the quality of life of married men and women with married men having a higher level, this was no longer significant whenever health characteristics were taken into account. There was a significant gender difference between the quality of life of divorced men and women in Model 5.1 which was no longer significant when health behaviour indicators were included (Models 5.4, 5.4 and 5.6). Widowed women had lower levels of quality of life compared to married women in four out of the five models. The initial association attenuated substantially when health characteristics were

taken into account (Model 5.2) and was no longer significant by the final model. There was a significant difference between the quality of life of widowed men and women, with women having lower levels of quality of life until Model 5.5, where socio-economic circumstances are included.

The results for the remaining models for the Scandinavian welfare regime are also reported in Appendix 5.2. Table A.5.2.4 shows that in any of the models where health characteristics were taken into account married men had lower levels of quality of life than married women (Models 5.2, 5.3, 5.4 and 5.6). Both men and women who were divorced have, on average, a lower level of quality of life than married respondents in the first four models, however, when socio-economic circumstances were taken into account this association was no longer significant. The negative association between quality of life and never being married for men or women was also no longer significant when socio-economic circumstances were taken into account (Model 5.5). There was variation in the quality of life of those who were widowed across the models estimated for the Scandinavian welfare state regime. In Model 5.5, where only socio-economic circumstances were taken into account, widowed women had higher levels of quality of life in this regime. Although for widowed men lower levels of quality of life were observed compared to that of married men, across all the models, this difference was only significant in Models 5.3 and 5.4.

In Table A.5.2.5 the results for the Post-Communist welfare regime are reported. When health status was included in the models, married men had lower levels of quality of life than women (Models 5.2, 5.3, 5.4 and 5.6.). However, when this was not taken into account the reverse was true and married women had higher levels than married men. When socio-economic circumstances were taken into account, then divorced women no longer had lower quality of life compared to married women (Model 5.5). Across all the six models never married men and divorced men had consistently lower levels of quality of life, when compared to married men. Never married men also had lower quality of life levels when compared to never married women. Although widowed women initially had lower levels of quality of life than married women, when socio-economic circumstances were included (Model 5.5) the direction of this association had reversed and by the final model (Model 5.6)

when socio-economic and health circumstances were included this was a significant positive effect.

Table A.5.2.6 shows the results for the four additional models for the Liberal welfare state regime. There was an initial gender difference between married respondents; married men had a lower quality of life than married women. Adjusting for health status (Model 5.2), behaviour (Model 5.3) and social support (Model 5.4) all increased this difference. There was a negative association between quality of life and being divorced, for both men and women equally which remained significant across all the models when both health and socio-economic circumstances were controlled for. Never being married was also negatively associated with quality of life, for both men and women when compared to currently being married, and this remained significant across the additional models, although only at a higher level for men ($p < 0.10$). The initial negative association evident for widowed women compared to married women was no longer significant in any of the models where health status was included. For widowed men, adjusting for health status had the opposite effect and in all the models with this included, they had a slightly higher level of quality of life when compared to married men.

5.2.6 Sensitivity analyses

Sensitivity analyses were also conducted on Model 5.6 for each of the welfare state regimes. Five different models were estimated, the detail of which were discussed earlier in this chapter (section 5.2.3). Here I will report any differences in the direction of the effect or the level of significance for marital status. No differences were observed between any of the sensitivity analyses and the results reported in Table 5.4 for the Bismarckian regime. For the Southern regime, when the model was estimated using the imputation dataset, the gender interaction for those who were widowed was significant ($p < 0.05$), although the direction of the effect did not change. In the Scandinavian regime, when depression was included as a binary variable, widowed women had significantly higher levels of quality of life than married women, whilst widowed men had lower quality of life than married men. This effect – quality of life higher than married women- was also significant for widowed women when a multi-level model was used and when the model was estimated using the imputation data. The direction of this effect remained the same. When the sensitivity analyses were carried

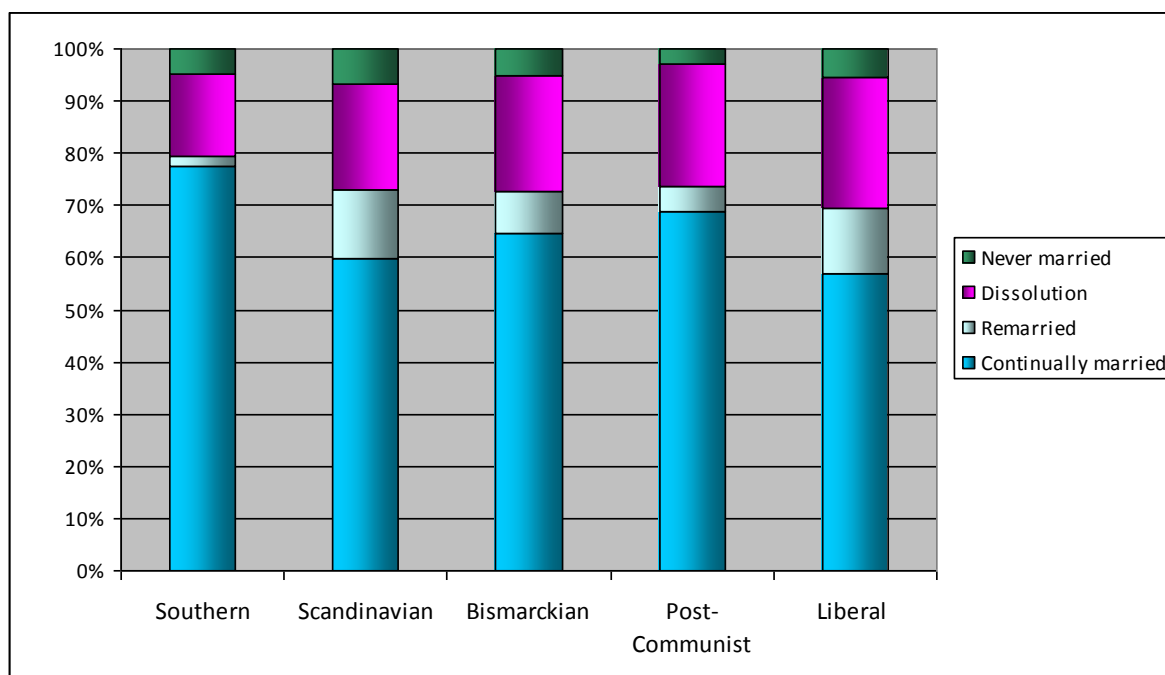
out for the Post-Communist regime, two differences were observed. When depression was included as a binary variable and when a multi-level model was used, there was a significant difference between the quality of life of divorced men and women, at a higher level ($p < 0.05$). Also in the model, where depression was included as a discrete variable, the effect for widowed women, higher quality of life compared to married women, was no longer significant. In the Liberal regime, one difference for Model 5.6 was observed, when tested. When depression was included as a binary variable, the effect for widowed men, compared to married men was no longer significant, although the direction of the association remained the same. However, the association between never married men and married men was now significant ($p < 0.05$), with never married men having lower levels of quality of life.

5.3. Life course marital status and quality of life

5.3.1 Life course marital status prevalence by welfare state regime

The next two figures show the marital composition of the life course classification used in the analysis, Figure 5.1 shows the five category classification of life course marital status by welfare regime. The Liberal and Scandinavian welfare state regimes had more respondents who were remarried, particularly compared with those from the Post-Communist and Southern regimes. The percentage of respondents who had never been married was lower in the Post-communist regime and higher in the Liberal and Scandinavian regimes. The percentage of those who had previously been married was noticeably smaller in the Southern regime, compared to all others.

Figure 5.1: The prevalence of never married, continually married, remarried and previously married by welfare state regime



5.3.2 Life course marital status and quality of life, by welfare state regime

In the next section welfare regime variation in the association between life course marital status and quality of life is reported. Table 5.5 shows the results from Model 5.7 and Model 5.10, which were described in more detail in section 5.1.

Table 5.6: Regression of CASP-12 on life course marital status (Model 5.7), by welfare regime^a

	BISMARCKIAN	SOUTHERN	SCANDINAVIAN	POST-COMMUNIST	LIBERAL
	β Coefficient [SE] ^b	β Coefficient [SE] ^b	β Coefficient [SE] ^b	β Coefficient [SE] ^b	β Coefficient [SE] ^b
Model constant ^c	27.45	22.39	28.92	22.90	26.43
Marital status women					
Continually married women	REF	REF	REF	REF	REF
Never married women	-1.20 (0.37)	0.27 (0.47)	-0.83 (0.45)	-0.14 (1.03)	-1.91 (0.42)
Remarried	-0.76 (0.33)	-0.06 (0.86)	-0.26 (0.34)	-1.02 (0.72)	<i>-0.51 (0.29)</i>
Divorced women ^d	-2.70 (0.27)	-1.55 (0.59)	-1.41 (0.36)	-1.49 (0.51)	-2.36 (0.29)
Widowed women	-1.50 (0.22)	-1.52 (0.27)	-0.35 (0.34)	-1.12 (0.36)	-1.30 (0.25)
Marital status men:					
Continually married men	REF	REF	REF	REF	REF
Never married men	-1.07 (0.41)	<i>-0.85 (0.49)</i>	-1.59 (0.47)	-1.94 (0.81)	-1.27 (0.42)
Remarried	<i>-0.51 (0.30)</i>	-0.01 (0.67)	0.13 (0.34)	-0.44 (0.69)	-0.30 (0.30)
Divorced men ^d	-1.40 (0.35)	0.02 (0.69)	-0.44 (0.44)	-2.22 (0.73)	-2.14 (0.36)
Widowed men	-0.94 (0.38)	0.04 (0.56)	-1.65 (0.53)	0.27 (0.68)	-0.23 (0.39)
Marital status x gender: ^e					
Continually married x gender	0.34 (0.15)	1.40 (0.17)	0.13 (0.21)	1.06 (0.26)	-0.49 (0.18)
Never married x gender	0.13 (0.55)	-1.12 (0.68)	-0.75 (0.65)	-1.80 (1.32)	0.64 (0.60)
Remarried x gender	0.25 (0.44)	0.06 (1.09)	0.39 (0.48)	0.58 (1.00)	0.26 (0.42)
Divorced ^d x gender	1.31 (0.44)	<i>1.57 (0.91)</i>	<i>0.98 (0.56)</i>	-0.73 (0.89)	0.18 (0.47)
Widowed x gender	0.56 (0.43)	1.56 (0.60)	-1.30 (0.61)	<i>1.40 (0.75)</i>	1.11 (0.45)
R ²	0.09	0.12	0.07	0.06	0.03

^a includes marital status, age age², gender and country (effect coded)

^b Results where p<0.05 in bold; results where p>0.05 and p<0.10 in italics

^c The model constant is also the average CASP-19 score for married women adjusted for age and age² (both grand mean centred)

^d Includes separated

^e Women are the reference category for the interaction

Table 5.6 shows the results for Model 5.7, stratified by welfare state regime. In the Bismarckian welfare regime there was a small difference between the quality of life scores of continually married men and women. Women in the Bismarckian regime who had never been married, were remarried or had previously been married, all had lower levels of quality of life compared with women who had been continually married. This was a similar pattern for men, although the difference between the quality of life for remarried men and continually married men, was only significant at a lower level ($p < 0.10$). A significant gender interaction in Model 5.7 was also observed, with divorced women having a lower level of quality of life than divorced men. In the Southern welfare state regime there was also a difference between the quality of life of women and men who had been continually married, with men having a higher level. However in this regime widowed men also report significantly higher levels of quality of life on average, compared to widowed women. A gender interaction for divorced men and women also suggested a lower level of quality for life for divorced women, however, this was only significant at a lower level ($p < 0.10$). When women of other marital groups in the Southern welfare state regime were compared to women who have been continually married, two differences emerged; those who had been previously married, and had either divorced or been widowed had significantly lower quality of life. In contrast, the quality of life of men in this regime showed no significant differences by life course marital status. In Model 5.7 no difference was observed between the quality of life of men and women who had been continually married, although other differences were observed for this regime. When compared to continually married women there was a substantial difference in quality of life for divorced women and never married women, although at a lower level of significance. Never married men and widowed men both had significantly lower mean quality of life than continually married men. There was also a significant difference between the quality of widowed men and women.

No differences for remarried men or women were observed in the Scandinavian regime, when compared either to each other or to those who were continually married. In the Post-Communist regime, women who had been continually married had a lower level of quality of life than men who had. Model 5.7 also shows that divorced and widowed women had significantly lower levels of quality of life on average compared to continually married women, although no such differences were observed for those who were remarried or had never been

married. Divorced men also had lower levels of quality of life compared to continually married men, as did men who had never been married, however, no differences were observed for widowed or remarried men. A gender interaction suggested that widowed men had higher quality of life than widowed women, although this difference was only significant at a lower level ($p < 0.10$). In the Liberal welfare state regime there was an initial difference between the quality of life of continually married men and women, with men on average having a lower level than women. Both never married men and women had lower quality of life compared to continually married people of the same gender, as did both divorced men and women. Whilst widowed women had a lower quality of life compared to women who have been continually married, widowed men's quality of life did not initially differ from that of men who were continually married. A significant gender interaction was also observed between widowed men and widowed women. However, no such difference was observed for remarried women or men, when compared to either men or women who were continually married or each other.

Table 5.7: Regression of CASP-12 on life course marital status (Model 5.10), by welfare regime (fully adjusted)^a

	BISMARCKIAN	SOUTHERN	SCANDINAVIAN	POST-COMMUNIST	LIBERAL
	<i>β Coefficient [SE]^b</i>	<i>β Coefficient [SE]^b</i>	<i>β Coefficient [SE]^b</i>	<i>β Coefficient [SE]^b</i>	<i>β Coefficient [SE]^b</i>
Model constant ^c	27.88	24.32	27.51	26.13	26.55
Marital status, women:					
Continually married women	REF	REF	REF	REF	REF
Never married women	-0.06 (0.30)	-0.29 (0.39)	-0.14 (0.40)	-0.36 (0.80)	-0.90 (0.34)
Remarried	0.11 (0.26)	0.60 (0.70)	0.29 (0.29)	0.05 (0.56)	0.04 (0.23)
Divorced women ^d	-0.61 (0.23)	-0.67 (0.49)	-0.12 (0.32)	-0.24 (0.41)	-0.78 (0.24)
Widowed women	-0.03 (0.19)	-0.19 (0.23)	<i>0.60 (0.30)</i>	0.65 (0.29)	0.21 (0.21)
Marital status, men:					
Continually married men	REF	REF	REF	REF	REF
Never married men	-0.25 (0.33)	-0.41 (0.40)	-0.94 (0.41)	-1.42 (0.63)	<i>-0.61 (0.34)</i>
Remarried	-0.30 (0.24)	0.78 (0.55)	0.24 (0.29)	-0.39 (0.54)	0.12 (0.24)
Divorced men ^d	-0.62 (0.29)	0.43 (0.56)	0.29 (0.38)	-1.42 (0.57)	-0.58 (0.30)
Widowed men	-0.01 (0.31)	0.48 (0.45)	-0.98 (0.46)	0.29 (0.53)	0.70 (0.32)
Marital status x gender:^e					
Continually married x gender	-0.58 (0.12)	-0.21 (0.15)	-0.41 (0.18)	-0.26 (0.21)	-1.10 (0.15)
Never married x gender	-0.19 (0.45)	-0.36 (0.56)	<i>-0.96 (0.56)</i>	-1.06 (1.02)	0.29 (0.48)
Remarried x gender	-0.41 (0.36)	0.14 (0.88)	-0.02 (0.41)	-0.44 (0.77)	-0.08 (0.33)
Divorced ^d x gender	0.01 (0.36)	1.42 (0.74)	0.51 (0.49)	<i>-1.18 (0.69)</i>	0.19 (0.37)
Widowed x gender	0.02 (0.35)	1.04 (0.49)	-1.57 (0.53)	-0.36 (0.58)	0.49 (0.36)
R ²	0.41	0.41	0.32	0.44	0.38

^a includes marital status, age age², gender, country (effect coded), physical health, depression, smoking status, physical activity, alcohol consumption, social support, retirement status, education level, home ownership, car ownership, subjective financial difficulties,

^b Results where p<0.05 in bold; results where p>0.05 and p<0.10 in italics

^c The model constant is also the average CASP-19 score for married women adjusted for age and age² (both grand mean centred)

^d Includes separated

^e Women are the reference category for the interaction

Table 5.7 shows the results for Model 5.10 stratified by welfare state regime. In the Southern and Post-Communist regimes, there were now no significant gender differences between the quality of life of men and women who had been continually married. In the other three regimes – Bismarckian, Scandinavian and Liberal - when health and financial circumstances were taken into account, continually married men had lower levels of quality of life than women who had been continually married. In Model 5.10 it was observed that when other factors had been taken into account, only never married women in the Liberal regime, compared to continually married women, had a lower level of quality of life. This association was also significant ($p < 0.05$) for never married men in both the Scandinavian and Post-Communist regimes and at a lower level of significance ($p < 0.10$) for men in the Liberal regime. No gender interactions were significant for older people who had never been married, in any of the regimes. Being remarried was also not responsible for significant differences in quality of life in any of the welfare regimes. When compared to those who were continually married, divorced women had slightly lower levels of quality of life in both the Bismarckian and Liberal regimes. Divorced men also had significantly lower levels of quality of life than men who had been continually married, in the Bismarckian, Liberal and Post-communist regimes. A significant gender interaction, suggesting that quality of life on average may be lower for divorced women when compared to divorced men, was almost significant in the Post-Communist regime ($p < 0.10$). Widowed men also had lower levels of quality of life when compared to widowed women in the Scandinavian regime.

5.3.3 Additional analysis reported in Appendix 5.3

5.3.3.1 A different classification of life course marital status

In Appendix 5.3 two additional models are reported. The first (Model 5.8) examined the association between quality of life and a different classification of life course marital status. These were only four categories, with those who were divorced and widowed grouped together into *previously married*. Initially this analysis was compared with the results from Model 5.7 to determine if there were differences between those who were previously married. For each welfare state regime Model 5.8 showed that those who had been previously married and were not remarried – by 2006 – usually had the lowest level of quality of life. However Model 5.7 suggested that this association was different depending on

whether these respondents were divorced or widowed. Therefore the classification which allowed these differences to be examined separately was used for the rest of the analysis.

5.3.3.2 Model 5.9 adjusting only for socio-economic circumstances

Also reported in Appendix 5.3 are the results from Model 5.9, where only socio-economic circumstances were taken into account in the analyses. The main differences observed between Model 5.7 (reported in Table 5.5) and Model 5.9 are discussed here. In Model 5.9 for the Bismarckian regime there was no longer a significant difference between the level of quality of life for never married men or women, when compared to those who were continually married. The difference in the level of quality of life for remarried women, when compared to continually married women, was also no longer significant. A significant gender interaction observed in Model 5.7 which suggested that divorced women had lower levels of quality of life than divorced men, was no longer significant when only socio-economic circumstances were taken into account. In the Southern regime several differences were observed between Model 5.7 and Model 5.9. For women the difference between the quality of life between those who were divorced and those who were continually married was no longer significant. Whilst the gender interaction between widowed men and women was no longer significant in Model 5.9, the difference between the quality of life of never married men and never married women became significant with the inclusion of socio-economic predictors. In the Scandinavian regime women who were divorced, no longer had lower levels of quality of life than continually married women, when only socio-economic circumstances were included. However, in Model 5.9 widowed women had higher levels of quality of life. In the Post-Communist regime, differences in quality of life for divorced and widowed women, when compared to those who were continually married, were no longer significant by Model 5.9. In Model 5.9 for the Post-Communist regime, gender differences between the quality of life of divorced men and women or never married men and women were also no longer significant. Whilst in the Liberal regime a gender interaction between widowed men and widowed women was no longer significant by Model 5.9.

5.3.4 Sensitivity

Sensitivity analyses were again conducted on the final model for this section of the results. Model 5.10 was estimated using different variables and types of analysis, the details of which were described previously in this chapter (section 5.2.3). For the Bismarckian or Southern welfare state regimes no differences were observed for any of the sensitivity analyses. For the Scandinavian regime when depression was included as a binary variable or when a MLM model was used widowed women had significantly higher level of quality of life than continually married women, although the direction and size of this effect did not change. In the Post-Communist regime, several differences were observed for the sensitivity analysis. When different indicators of health or education were used both widowed women and men had higher levels of quality of life compared with those continually married and there was a significant gender difference between their levels of quality of life. When a MLM was used widowed women again had a higher level of quality of life compared to those who were continually married and there was a significant gender interaction between the widowed men and widowed women. In the Liberal welfare state regime, when a binary measure of depression was included, the difference in quality of life for widowed men, which had been higher than for men who had been continually married, was no longer significant

5.4 Living arrangements, marital status and quality of life

The next section of the chapter explores the association between living arrangements, marital status and quality of life. Marital status is considered in the statistical models as an interaction term with living arrangements to allow significant associations to be revealed between current marital status reported and household composition. To ensure robust models, marital status was used here as a binary variable (married/single) and three categories of living arrangements (living as a couple, living alone and living with others) were identified.

5.4.1 Marital status and living arrangement prevalence, by welfare regime

5.8: The prevalence of married and single by living arrangements (living as a couple, living with others and living alone), by welfare state regime

	MARRIED (LIVING AS COUPLE)	MARRIED (LIVING WITH OTHERS)	MARRIED (LIVING ALONE)	SINGLE (LIVING AS COUPLE)	SINGLE (LIVING ALONE)	SINGLE (LIVING WITH OTHERS)
Bismarckian	55.49 (54.61, 56.36)	16.59 (15.94, 17.25)	0.03 (0.02, 0.04)	3.57 (3.24, 3.89)	20.61 (19.90, 21.32)	3.40 (3.08, 3.71)
Southern	39.19 (38.08, 40.27)	38.35 (37.26, 39.44)	0.02 (0.01, 0.03)	0.92 (0.71, 1.14)	14.11 (13.33, 14.89)	7.22 (6.64, 7.80)
Scandinavian	63.27 (61.80, 64.50)	11.15 (10.26, 12.03)	0.04 (0.02, 0.06)	3.26 (2.76, 3.76)	20.49 (19.35, 21.62)	1.43 (1.10, 1.77)
Post - Communist	41.89 (40.51, 43.28)	27.95 (26.69, 29.21)	0.01 (0.01, 0.02)	4.20 (3.64, 4.77)	17.01 (15.95, 18.06)	8.84 (8.04, 9.64)
Liberal	48.68 (47.54, 49.83)	20.19 (19.27, 21.11)	0.05 (0.02, 0.07)	2.97 (2.59, 3.36)	21.49 (20.55, 22.43)	6.13 (5.58, 6.68)

Table 5.8 shows the variation in living arrangements and marital status by welfare state regime. In each regime the majority of respondents were married and living with their partner as a couple, but there was some variation between the regimes in the other categories. For the Southern and Post-Communist regimes living in a shared household was more common both for older couples and single people. In both of these regimes, nearly a third of older married people lived with others. In the Liberal regime similar proportions of respondents were either married and living with others or single and living alone, whilst in the Scandinavian and Bismarckian regimes there were clearly more single people living alone. There was a small proportion of cohabiting couples in each regime, with this proportion being smallest in the Southern regime.

5.4.2 Living arrangements, marital status and quality of life, by welfare state regime

Table 5.9: Regression of CASP-12 on marital status and living arrangements (Models 5.11 & 5.12), by welfare regime

	BISMARCKIAN (12,514)		SOUTHERN (7,642)		SCANDINAVIAN (4,898)		POST-COMMUNIST (4,931)		LIBERAL (7,461)	
	Model 5.11 ^a	Model 5.12 ^b	Model 5.11 ^a	Model 5.12 ^b	Model 5.11 ^a	Model 5.12 ^b	Model 5.11 ^a	Model 5.12 ^b	Model 5.11 ^a	Model 5.12 ^b
	<i>β</i> Coefficient [SE] ^c		<i>β</i> Coefficient [SE] ^c		<i>β</i> Coefficient [SE] ^c		<i>β</i> Coefficient [SE] ^c		<i>β</i> Coefficient [SE] ^c	
Model constant ^d	29.26	28.84	22.22	24.55	29.53	29.37	23.10	26.63	25.78	25.78
Married & living as a couple	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
Married & living alone	-0.17 [0.87]	0.64 [0.69]	<i>-2.43[1.49]</i>	-0.84 [1.20]	-2.41[1.06]	-0.61 [0.39]	1.94 [2.10]	<i>3.57 [2.07]</i>	0.69 [0.92]	0.69 [0.92]
Married & living with others	-0.43 [0.15]	<i>-0.23 [0.12]</i>	-0.12 [0.16]	0.10 [0.13]	-0.57[0.24]	-1.59 [0.54]	-0.58 [0.23]	-0.36 [0.17]	-0.13 [0.93]	-0.13 [0.93]
Single & living as a couple	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
Single & living alone	-1.27 [0.32]	0.10 [0.26]	-0.60 [0.86]	0.30 [0.70]	-1.31[0.45]	-0.46 [0.21]	-1.26 [0.56]	-1.03 [0.44]	2.46 [0.41]	2.46 [0.41]
Single & living with others	-2.22[0.39]	-0.38 [0.31]	-1.39 [0.88]	-0.14 [0.71]	-1.91[0.63]	<i>-1.07 [0.57]</i>	-2.05 [0.59]	-1.67 [0.45]	-1.00 [0.31]	-1.00 [0.31]
Living arrangement x marital status^e										
Living as a couple x marital status	0.36 [0.10]	0.68 [0.09]	1.48 [0.14]	-0.20 [0.12]	0.09 [0.14]	0.66 [0.12]	0.78 [0.18]	0.67 [0.08]	-0.36 [0.07]	-0.36 [0.07]
Living alone x marital status	-1.09 [0.92]	-0.54 [0.74]	1.83 [1.67]	1.14 [1.39]	1.10[1.15]	0.27 [0.98]	-3.20 [0.76]	-4.59 [2.12]	<i>1.77 [1.01]</i>	<i>1.77 [1.01]</i>
Living with others x marital status	-1.78 [0.41]	-0.16 [0.33]	-1.27[0.89]	-0.24[0.73]	<i>-1.33[0.67]</i>	<i>-1.14 [0.57]</i>	-1.47 [0.63]	-1.32 [0.48]	-0.87 [0.98]	-0.87 [0.98]
R ²	0.10	0.43	0.12	0.43	0.08	0.34	0.07	0.45	0.04	0.04

^a includes marital status, age age², gender and country (effect coded)

^b includes marital status, age age², gender, country (effect coded), physical health, depression, smoking status, physical activity, alcohol consumption, social support, retirement status, education level, home ownership, car ownership, subjective financial difficulties,

^c Results where p<0.05 in bold; results where p>0.05 and p<0.10 in italics

^d The model constant is also the average CASP-19 score for married women adjusted for age and age² (both grand mean centred)

^e Single the reference category for the interaction

Table 5.9 compares the results for Model 5.11 and Model 5.12 by welfare regime. There was only a difference between the quality of life of those living as a couple in the Post-Communist regime, in the adjusted Model 5.12; those who were cohabiting had a higher quality of life. Differences in quality of life between those who were married according to their living arrangements were observed in two regimes – Post-Communist and Scandinavian – after health and socio-economic circumstances were taken into account. Those who were married but lived with others had significantly lower levels of quality of life when compared to those who were married and living as a couple in both of these regimes. However, no other significant differences were observed for the other regimes.

When the quality of life of those who were single was compared by their living arrangements, significant differences were observed in Model 5.12 in the Scandinavian, Post-Communist and Liberal regimes. Living alone was associated with lower levels of quality of life for those who were single in both the Scandinavian and the Post-Communist regime. Whilst lower levels of quality of life were observed for those living with others in both the Post-Communist regime and the Liberal welfare state regime. Finally when the association between living arrangements and quality of life was compared between those who were single and those who were married, it was only in the Post-Communist regime where significant differences were observed. In this regime those who were single and lived alone and those who were single and lived with others, had lower quality of life compared to those who were married and had similar living arrangements. However, the small sizes of these sub groups mean the results in this section do need to be treated with caution.

5.5 Summary

This chapter has examined the association between marital status – both a current and a life course classification - and quality of life. It has also considered the variation by both welfare regime and gender. For both classifications of marital status in the Southern and Liberal regime widowed women had lower levels of quality of life than widowed men, although when health and socio-economic circumstances were taken into account these differences were no longer significant. Whilst in the Bismarckian regime divorced women had lower

quality of life when compared to divorced men initially, although this difference was no longer significant when socio-economic circumstances were included in the model. In the Post-Communist regime when current marital status was examined, never married men had lower quality of life compared to never married women, a difference which remained significant even in the fully adjusted model. However, when a life course classification of marital status was used, this difference was not observed. In the Scandinavian regime widowed men were found to have lower levels of quality of life, although when a current classification of marital status was examined this difference was only significant when socio-economic circumstances were taken into account. The association between living arrangements and quality of life was observed to be particularly important for those in the Post-Communist regime, regardless of marital status.

Chapter 6

Spousal interdependence and quality of life

6.1 Introduction

The overall aim of this chapter is to explore the interdependence of quality of life in older married couples. I will also investigate gender differences in this interdependence and consider cross-national variation using a welfare state regime typology. In this chapter the second set of research questions will be considered:

- 2.1. *Is the quality of life of older married couples interdependent and do these levels of interdependence vary across welfare state regimes?*
- 2.2. *Are spouse characteristics independently associated with quality of life for older married couples, and are there gender differences in these associations between spouse characteristics and quality of life?*
- 2.3. *Does the pattern of gender differences in the association between spouse characteristics and quality of life, vary by welfare regime?*

This chapter is structured as follows; to begin with the concept of concordance as a way to measure non-independence in quality of life is described and reported by welfare state regime. Next the association between spousal characteristics and quality of life is investigated using four multi-level models and gender differences in these associations explored using the APIM, first in the SHARE sample as a whole and then by welfare state regime. Sensitivity analyses which were carried out using the final MLM are also described. Finally a section which summarises the main gender differences observed in the chapter is provided and finally a brief overview of the key welfare state regime differences is given

6.2 Establishing non-independence in quality of life (CASP-12)

Table 6.1: Intra-Class Correlation Coefficient (ICC) of CASP-12 by welfare state regime

CASP-12	INTRA-CLASS CORRELATION COEFFICIENT (ICC)	STANDARD ERROR OF MEASUREMENT (SEM)
Bismarckian	0.54 (0.53, 0.54)	3.64
Southern	0.57 (0.57, 0.58)	3.86
Scandinavian	0.43 (0.43, 0.44)	3.43
Post-Communist	0.53 (0.52, 0.54)	4.12
Liberal (ELSA)	0.39 (0.37, 0.40)	4.30

Concordance, a measure of the agreement in an outcome variable, is used here as an indicator of non-independence between the quality of life of married couples. Non-independence needs to be established before carrying out dyadic analysis and it can be tested using a range of methods. Table 6.1 above shows the concordance scores, as measured using the Intra-Class Correlation Coefficient (ICC), for each Welfare Regime. Also reported is the Standard Error of Measurement (SEM), the square root of the mean within couple variance. The SEM provides a measure of the absolute variance occurring within each couple to compare with the ICC, which measures the relative proportion of the variance between individuals which occurs within couples. ICC and SEM are closely related but require different interpretations. ICC is 'unit-less' and just reports the proportion of variance between couples and as it does not indicate the magnitude of variance it is not strictly comparable across welfare regime. On the other hand, SEM is in CASP units and meaningful comparisons can be made. I use ICC to show how strong the concordance is within each regime type and SEM to show by how much the quality of life is dispersed within couples in different welfare regimes.

In the Liberal regime there was a large degree of variation in CASP-12 scores within couples, although this is only a small proportion of the total variation between individuals. In the Scandinavian regime, again, a small proportion of the variation between individuals is within couples, however here the absolute amount of variation within couples is small (SEM=3.43). The Bismarckian and Post-Communist regimes, similar in terms of ICC scores, differ in the size of the SEM by about one CASP-12 point. Measured using ICC, the Southern regime had the highest level of concordance, with 57% of the total variance occurring between couples;

however in terms of SEM it ranked only third. Although ICC was low for the Scandinavian countries, it performs best in terms of SEM. This paradoxical result should be understood in the context of overall quality of life in the Scandinavian regime, which was high with relatively small variations in the population. So even though the spouses may not agree in terms of their reported levels of quality of life, the difference between them would not be great. The ICC and the SEM show, therefore, that the welfare regimes differ both in the level of concordance, lower for the Scandinavian and Liberal regimes, and the mean absolute level of variation within couples, lower in Scandinavian and Bismarckian.

Figure 6.1: Concordance correlation coefficient of CASP-12 by welfare state regime

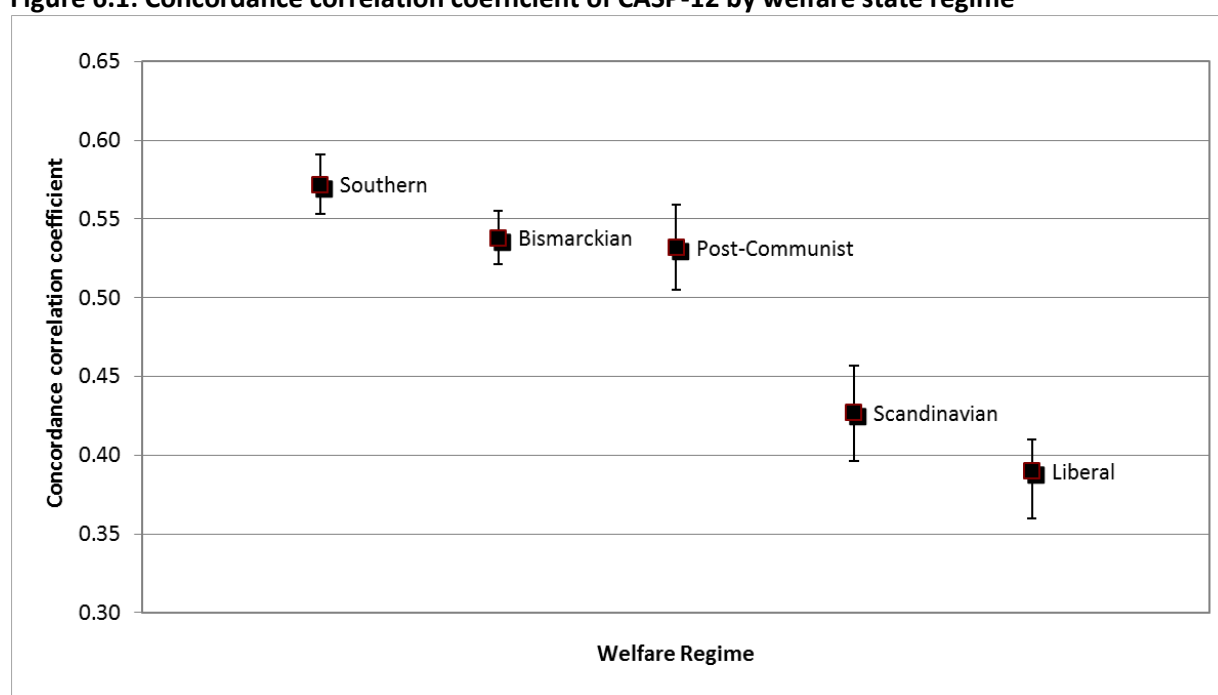


Figure 6.1 reports the concordance correlation coefficient (CCC) scores with confidence intervals for each welfare state regime. The CCC scores are illustrated in a graph here since they have the largest confidence intervals of the three concordance measures calculated. All of the regimes have concordance scores which suggest clustering of quality of life scores within couples (>0.30). The Southern regime has the highest level of concordance and the Liberal regime the lowest. Two distinct groups seem to emerge with the Bismarckian, Post-Communist and Southern regimes all having CCC scores above 0.50 and the Scandinavian and Liberal regimes being significantly below this.

6.3 Partner characteristics and quality of life: SHARE sample

The following section reports the results of the models estimated to explore the interdependence of quality of life in older married couples for the SHARE sample. These are results for the four welfare state regimes, Bismarckian, Southern, Scandinavian and Post-Communist, displayed together. The regimes of the SHARE sample have been estimated together to establish whether partner characteristics make a contribution to the analysis.

6.3.1 Descriptive results

The table below (6.2) illustrates the individual predictors, by gender, for the whole SHARE sample; bivariate tests of significance by gender are also shown, where possible.

Table 6.2: Individual predictors (by gender) and household predictors from SHARE sample ^a

(N=17,290)	MALE	FEMALE
	<i>Mean (SD)</i>	<i>Mean (SD)</i>
CASP-12 ^b	25.7 (5.97)	25.4 (6.08)
Age ^b	64.7 (9.15)	61.3 (9.29)
Depression ^c	1.7 (1.91)	2.4 (2.23)
	<i>N (%)</i>	<i>N (%)</i>
Depression ^d (three or more symptoms)	1,307 (15.12)	2,261 (26.15)
ADL ^d (one or more)	615 (7.11)	588 (6.80)
IADL ^d (one or more)	898 (10.39)	1,163 (13.45)
Self-rated health ^d (less than very good)	6,021 (69.65)	5,946 (68.78)
Education ^d (high)	1,800 (20.82)	1,391 (16.09)
	<i>N (%)</i>	
Household has financial difficulty	6,539 (37.82)	
Has 1+ car	14,400 (83.29)	
Home owner	14,202 (82.14)	
Received help from outside the home	2,636 (15.25)	

^a Results significantly different at the 95% level in bold

Tests of significance: ^b *t*-test ^c Wilcoxon rank-sum test, ^d Pearson's chi square test

The level of quality of life (CASP-12) is significantly ($t = -2.80$, $p = 0.01$) higher for men than women, although the difference between the mean scores is small (0.3). Men in the sample are, on average, older than women by about three years, which is also statistically significant ($t = -23.60$, $p = 0.001$). On average depression (EURO-D) is significantly higher for women, both as a count of depressive symptoms ($z = 21.13$, $p = 0.001$) and a higher prevalence of case-ness ($\chi^2 = 321.40$, $p = 0.001$). Whilst there are no significant differences ($\chi^2 = 0.65$) between men and women in terms of having one or more limitations with ADL, a

significantly higher percentage of women (13.48) compared to men (10.39) have a limitation with one or more IADL ($\chi^2= 38.68$, $p=0.001$). No significant differences between self-reported health for men and women were found ($\chi^2= 1.5268$) and for both, less than very good health was more common. A significantly ($\chi^2= 64.2875$, $p=0.001$) higher percentage of men (20.82) than women (16.09) have educational attainment at a tertiary level or beyond.

Table 6.2 shows the level two predictors, which measure characteristics at the household level³. Just over a third of the sample (37.8%) considered themselves to have 'difficulty making ends meet'. The two indicators of wealth included show that the majority of this sample owns their home (82.1%) and at least one car (83.3%). An indicator of social support measured at the household level revealed that this married subsample does not regularly receive this kind of help (15.2%).

6.3.2 Predictors of CASP-12 (individual, partner and household)

To illustrate the contribution of each set of variables to the final fully adjusted model, individual, partner and household predictors are presented in the table below. All models have been adjusted for country effects but the results are not shown. As the countries were effect coded, so the result is not for any particular country but for the whole sample. The models fitted were random intercept models, with *individual* as level one and *couple* as level two. The couple level variance is the amount of the unexplained variance between couple units and the individual level variance is the amount of the unexplained variance within couple units. As discussed in section 6.1, the ICC provides an indicator of the proportion of this variation at the couple level or the concordance of the outcome between individuals. I also include the Akaike Information Criterion (AIC) as an indicator of the goodness of model fit: as a guideline a reduction in the AIC of >10 is considered to indicate a better fitting model.

³ Although to some extent '*couple*' and '*household*' are interchangeable in this analysis, since only one couple from any household is included in the analysis. *Couple* is used to discuss the dyad level 2 variance and *household* to discuss the level 2 predictors.

Table 6.3: Multi-level linear regression of CASP-12 on individual, partner and household predictors for the SHARE sample

(N=17,290)	MODEL 6.1 ^a	MODEL 6.2 ^b	MODEL 6.3 ^c	MODEL 6.4 ^d
	Coeff. [SE] ^e	Coeff. [SE] ^e	Coeff. [SE] ^e	Coeff. [SE] ^e
Intercept	25.82	26.81	27.15	26.88
Gender ^f		-0.18 [0.03]	-0.09 [0.03]	-0.09 [0.03]
Age ^g		-0.03 [0.01]	-0.02 [0.01]	-0.02 [0.01]
Age ^{2g}		-0.02 [0.00]	-0.01 [0.00]	-0.01 [0.00]
Depression ^g		-0.99 [0.02]	-1.01 [0.02]	-0.96 [0.02]
Education (high)		0.47 [0.09]	0.43 [0.09]	0.18 [0.09]
Self-rated health		-1.54 [0.08]	-1.64 [0.08]	-1.49 [0.08]
ADL (count) ^g		-0.40 [0.07]	-0.43 [0.06]	-0.41 [0.07]
IADL (count) ^g		-0.81 [0.06]	-0.91 [0.01]	-0.82 [0.06]
Partner Age ^g			0.02 [0.01]	0.01 [0.01]
Partner Age ^{2g}			-0.01 [0.00]	-0.00 [0.00]
Partner Depression ^g			-0.21 [0.02]	-0.16 [0.02]
Partner Education (high)			0.41 [0.09]	<i>0.16 [0.09]</i>
Partner Self-rated health			-0.49 [0.08]	-0.34 [0.08]
Partner ADL (count) ^g			-0.02 [0.08]	-0.00 [0.06]
Partner IADL (count) ^g			-0.38 [0.06]	-0.29 [0.06]
Household (Hh) Received help				-0.28 [0.11]
Hh Owns home				0.24 [0.11]
Hh Has car				0.97 [0.12]
Hh Financial difficulties				-2.45 [0.10]
Couple level variance	15.76	9.42	9.13	7.89
Individual level variance	14.51	11.81	11.57	11.57
ICC	0.52	0.44	0.44	0.41
AIC	105320.2	100045.1	99644.06	98904.5
Difference in AIC		5281.5	400.67	739.32

^a Model 6.1=Intercept (country); ^b Model 6.1 +Individual predictors; ^c Model 6.2+ Partner predictors; ^d Model 6.3+ Household predictors. ^e Significant (P <0.05) results are emboldened; results where 0.05>p<0.10 in italics ^f Effect coded

^g Grand mean centred

Table 6.3 demonstrates how, when considered together, all the individual level predictors selected are significantly associated with CASP-12 at the 95% level of significance. These individual predictors remain significant in the fully adjusted model (Model 6.4) when partner and household characteristics are included. The largest negative associations in Model 6.2 are self-rated health (-1.54) and depression (-0.81). Education is the only individual predictor where the coefficient seems to substantially reduce when household level variables are included. Model 6.3 shows how with the exception of *difficulties with ADL*, most partner characteristics are also significantly associated with quality of life.

Partner's depression (-0.16) self-rated health (-0.34) and *difficulties with IADL* (-0.29) continue to have a significant, negative association with quality of life in the fully adjusted model when household characteristics are also entered. In Model 6.4 all household

predictors appear to be influential, particularly reporting financial difficulties which remain the largest effect in Model 6.4 (-2.45). In Model 6.2 gender is significantly associated with quality of life, suggesting that the mean level of CASP-12 is lower for men than women. When partner characteristics are added to the model this effect is reduced substantially, although it is still significant. Adding predictors to the model explains variation in CASP-12 at both the couple and individual level and erodes the ICC, suggesting that there may be correlation in covariates within couples. Adding each set of these predictors to the model significantly improves the model fit. The changes in AIC when partner predictors are added and when adding the individual characteristics are large enough to conclude that these characteristics improve the model fit and to justify their inclusion in a full model.

6.3.2.1 Sensitivity analysis

Several versions of Model 6.4 were estimated with different variables to consider its stability. No differences in the direction of the effect or the level of significance were found for any of the coefficients in the model when depression was included as a discrete variable (chapter four, section 4.2.3.2.iii). When ADL and IADL were also included as binary measures (chapter four, section 4.2.3.2.i), the only difference observed was that educational status was no longer significant with quality of life. Different measures of health were also tested – limitations with long term health problems and number of chronic diseases (chapter four, sections 4.2.3.2.iv & 4.2.3.2.v) were included instead of self-rated health and ADL and IADL. In this model both individual health indicators were significant although only a partner having more than two chronic diseases was significantly associated with quality of life. In the model partner's educational status was now significant ($p=0.05$). Another measure of educational status based on years of education was also included (chapter four, 4.2.3.4.i), using this measure partner's education was again significant at a higher level (0.05), however the rest of the model remained the same. When the model was estimated using the imputations, individual level educational status was only significant at a lower level ($p=0.10$) and partner's educational status was significant at a higher level ($p=0.05$), although again, the rest of the model remained the same.

6.3.3 Spousal differences: Actor Partner Interdependence Model (APIM)

Estimating Actor Partner Independence Models (APIM) using Multi-Level Modelling (MLM) will allow me to consider simultaneously how individual and partner characteristics are associated with quality of life for both members of a couple and examine gender differences between these effects. As discussed in more detail in chapter four (section 4.3.3.5), the APIM is estimated by fitting two multi-level models with different forms of the same parameters. The first APIM model (Model A) is used to estimate how gender modifies the association of the actor and partner characteristics with quality of life, by including gender interaction terms for each individual and partner characteristic. The second model (Model B) then shows which of these interactions were significantly different from zero for men and for women. Table 6.4 and Table 6.5 show the results of these models for the whole SHARE sample. Table 6.4 shows the raw coefficients and standard errors for Model A which has been estimated separately for each predictor and Table 6.5 shows the results for Model A mutually adjusted, for all other predictors, coefficients are shown separately for men and women, only if the appropriate gender interaction was significant in Model A when mutually adjusted. A lower cut-off of statistical significance ($p < 0.10$) was used to retain all possible gender interactions in the model.

Table 6.4 Actor partner interdependence models (APIM) for associations of individual (actor) predictors, partner predictors and gender interactions estimated independently for the SHARE sample

(N=17,290)	EDUCATION	SELF-RATED HEALTH	ADL	IADL	DEPRESSION
	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>
Model A (estimated independently)^b					
Gender	0.29 [0.04]	0.07 [0.06]	0.24 [0.04]	0.20 [0.04]	-0.10 [0.03]
Age	-0.06 [0.01]	-0.04 [0.01]	-0.05 [0.01]	-0.04 [0.01]	-0.05 [0.01]
Age ²	-0.02 [0.00]	-0.03 [0.00]	-0.01 [0.00]	<i>-0.01 [0.00]</i>	-0.01 [0.00]
Actor Effect (AE)	0.52 [0.10]	-2.62 [0.09]	-1.86 [0.07]	-1.87 [0.05]	-1.15 [0.02]
Partner Effect (PE)	0.31 [0.10]	-0.72 [0.09]	-0.56 [0.07]	-0.58 [0.05]	-0.21 [0.02]
Gender*AE	0.10 [0.12]	0.15 [0.09]	0.07 [0.07]	0.07 [0.05]	-0.05 [0.02]
Gender*PE	-0.36 [0.12]	0.05 [0.09]	<i>-0.12 [0.07]</i>	-0.11 [0.05]	0.02 [0.02]

^a Results where $p < 0.05$ in bold; results where $p > 0.05$ and $p < 0.10$ in italics;

^b All models adjusted for partner age and partner age²

When estimated separately, gender interactions were significant for partner's educational status, partner's IADL and actor's depressive symptoms. For the other models, although both actor and partner associations were significantly associated with quality of life, there

were no gender differences for these associations. When estimated separately, there was a significant gender difference in average CASP-12 score for all predictors except self-rated health.

Table 6.5 Actor partner interdependence models (APIM) for 1) associations of individual (actor) predictors, partner predictors and gender interactions (mutually adjusted) 2) actor and partner predictors by gender where significant for the SHARE sample

(N=17,290)	GENDER	EDUCATION	SELF-RATED HEALTH	ADL	IADL	DEPRESSION
	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>
Model A (mutually adjusted)^b						
	-0.09 [0.07]					
Actor Effect (AE)		0.18 [0.09]	-1.48 [0.08]	-0.41 [0.07]	-0.82 [0.06]	
Partner Effect (PE)			-0.33 [0.08]	-0.01 [0.07]		-0.16 [0.02]
Model B, reported if mutually adjusted Model A gender interaction significant (p<0.10)^b						
Male*AE						-1.01 [0.03]
Female*AE						-0.93 [0.02]
Male*PE		-0.11 [0.15]			-0.46 [0.09]	
Female*PE		0.39 [0.13]			-0.13 [0.09]	

^a Results where p<0.05 in bold; results where p>0.05 and p<0.10 in italics;

^b All models adjusted for partner age and partner age²

When mutually adjusted, Model A shows significant gender interactions for the same predictors as seen in Table 6.4; actor depression, partner's education and partner's limitations with IADL. Depressive symptoms were negatively associated with quality of life for both men and women, whilst men seemed to experience a slightly greater impact (-1.01) of experiencing depression (Table 6.5). When estimated separately in Model B, partner's educational status had a significant positive influence (0.39) on quality of life only for women and the negative association of a partner having more than one IADL was significantly different from zero only for men (-0.46).

6.4 Partner characteristics and quality of life: by welfare state regime

To consider cross-national variation the models were estimated separately for the welfare state regimes categorised from SHARE and ELSA.

6.4.1 Descriptive results: by Welfare Regime

Table 6.6 below shows differences in the individual predictors between the welfare regimes. Where the variable of interest was continuous, the statistical test used was the Kruskal-Wallis⁴ and where categorical, a chi-square test of association was used.

Table 6.6: Individual predictors by welfare state regime

WELFARE REGIME	BISMARCK (N= 6872)	SOUTHERN (N=4,912)	SCANDINAVIAN (N=2,822)	POST-COMMUNIST (N=2,684)	LIBERAL (N=4,536)
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Age ^a	63.1 (9.28)	63.2 (9.60)	63.2 (9.28)	62.2 (9.20)	62.2 (9.48)
CASP-12 ^b	27.1 (5.53)	22.8 (5.93)	28.4 (4.60)	23.5 (6.01)	26.1 (5.50)
Depression ^c	1.9 (1.96)	2.1 (2.31)	1.7 (1.74)	2.5 (2.33)	1.1 (1.66)
	N (%)	N (%)	N (%)	N (%)	N (%)
Depression ^d (case)	1,280 (18.6)	1,132 (23.0)	402 (14.2)	760 (28.3)	407 (9.0)
ADL (1+) ^d	452 (6.6)	305 (6.2)	148 (5.2)	299 (11.1)	621 (13.7)
IADL (1+) ^d	726 (10.6)	648 (13.2)	246 (8.7)	445 (16.6)	586 (12.9)
Self-rated health ^d	4,853 (70.6)	3,481 (70.7)	1,389 (49.2)	2,255 (84.0)	3,221 (71.0)
Education (High) ^d	1,540 (22.4)	495 (10.1)	918 (32.5)	239 (8.9)	1,508 (33.3)

Kruskal-Wallis test: ^a No significant differences between Bismarckian/Southern, Bismarckian/Scandinavian & Southern /Scandinavian; ^b All comparisons between all regimes significantly different; ^c All comparisons significantly different apart from Bismarckian & Southern ^d **Pearson's chi-square test:** significant differences by welfare regime ($p < 0.01$).

Age significantly differed by welfare regime ($t = 27.71$, $p < 0.001$), however only participants from the Post-Communist regime, who had a mean age one year younger than other welfare state regimes, showed a statistically significant difference for the mean age of the respondents ($p < 0.001$). Between all regimes, significant differences ($t = 2517.06$, $p < 0.001$)

⁴ The equality of variance assumption did not hold, so one way ANOVA could not be used

were found for the outcome measure, CASP-12. Respondents from the Scandinavian regime had, on average, a higher level of quality of life and those from the Southern regime had the lowest. When depression was measured as a continuous outcome, significant differences were found between all regimes ($z=144.71$, $p<0.001$) except between the Bismarckian and the Southern ($p=0.08$). Both mean depression score and case-ness measures showed significant differences between regimes ($\chi^2=201.11$, $p<0.001$), and suggested respondents in the Post-Communist regime had the highest incidence of depression while those in the Scandinavian had the lowest.

There was also variation between the regimes in terms of health and educational status; significant differences were found in the number of respondents *having difficulties with one or more ADL* ($\chi^2=91.36$, $p<0.001$), *having difficulties with one or more IADL* ($\chi^2=102.52$, $p<0.001$), having poor self-rated health ($\chi^2=818.88$, $p<0.001$) and being of higher educational status ($\chi^2=835.24$, $p<0.001$). In the SHARE sample, the Post-Communist regime appears to have the highest proportion of respondents with one or more ADL (11.1%) and more than one IADL (16.6%). A higher percentage of respondents in the Liberal regime had more than one ADL (13.7%) than any of the SHARE sample, although this was not the same for IADL (12.9%). However, this subsample of married couples was still independent with less than a quarter of respondents reporting poor physical functioning in any regime. About half (49.2%) of the respondents in the Scandinavian regime rated their health as below *very good or excellent*, compared with more than three quarters (84.0%) of those in the Post-Communist regime. About a third (32.5%) of respondents from the Scandinavian welfare regime had attained a higher level of education, a similar proportion to respondents in the Liberal regime (33.3%); whilst for those in Post-Communist regime this proportion was substantially lower (8.9%).

Table 6.7: Household predictors by welfare state regime

WELFARE REGIME	BISMARCK (N=3,436) ^b	SOUTHERN (N=2,456) ^b	SCANDINAVIAN (N=1,411) ^b	POST-COMMUNIST (N=1,342) ^b	LIBERAL (N=2,268) ^b
Household has financial difficulty ^a	1,507 (21.92)	3,072 (62.41)	292 (10.34)	1,678 (62.52)	1,736 (38.27)
Has (1+) car ^a	6,326 (92.00)	3,888 (78.99)	2,644 (93.63)	1,558 (58.05)	4,124 (90.92)
Home owner ^a	5,288 (76.97)	4,390 (89.19)	2,386 (84.49)	2,154 (80.25)	4,132 (91.09)
Received help from outside the home ^a	985 (14.33)	529 (10.75)	494 (17.49)	628 (23.40)	334 (7.36)

^a **Pearson's chi-square test:** significant differences by welfare regime ($p < 0.01$)

^b N= number of couples in sample

Table 6.7 shows the variation in household predictors between the welfare regimes. In both the Southern and Post-Communist regimes over half of the household reported having financial difficulties, substantially higher than the proportion of respondents from any of the other regimes. More than nine in ten of the households in the Bismarckian, Scandinavian and Liberal regimes owned at least one car, while this was much lower in both the Post-Communist (58.1%) and the Southern regime (79.0%). In all Welfare Regimes the majority of couples were homeowners and there was less variation between the regimes in terms of housing tenure. Since this is a sample of married couples and therefore younger than the whole survey sample, only a small proportion from any regime received help from outside the home.

6.4.2 Association between partner characteristics and quality of life: Bismarckian

6.4.2.1 Predictors of CASP-12 (individual, partner and household)

Table 6.8 shows standardised coefficients and standard errors for the association between each set of predictors and quality of life for the respondents in the Bismarckian regime.

Table 6.8: Multi-level linear regression of CASP-12 on individual, partner and household predictors for the Bismarckian welfare state regime

(N= 6872)	MODEL 6.1 ^a	MODEL 6.2 ^b	MODEL 6.3 ^c	MODEL 6.4 ^d
	<i>Coeff. [SE]^e</i>	<i>Coeff. [SE]^e</i>	<i>Coeff. [SE]^e</i>	<i>Coeff. [SE]^e</i>
Intercept	27.18	29.99	28.34	27.98
Gender ^f		-0.25 [0.04]	-0.12 [0.05]	-0.12 [0.05]
Age ^g		-0.01[0.01]	-0.01[0.01]	-0.01 [0.01]
Age ^{2g}		-0.02 [0.01]	-0.01 [0.01]	<i>-0.01[0.01]</i>
Depression ^g		-0.96 [0.03]	-1.00 [0.03]	-0.95 [0.03]
Education (high)		0.40 [0.13]	0.38 [0.13]	0.10 [0.13]
Self-rated health		-1.48 [0.12]	-1.59 [0.12]	-1.42 [0.12]
ADL (count) ^g		-0.40 [0.12]	-0.35 [0.13]	-0.30 [0.12]
IADL (count) ^g		-0.97 [0.10]	-1.11 [0.11]	-1.04 [0.10]
Partner Age ^g			0.03 [0.01]	0.02 [0.01]
Partner Age ^{2g}			-0.02 [0.01]	-0.01 [0.01]
Partner Depression ^g			-0.22 [0.03]	-0.17 [0.03]
Partner Education (high)			0.52 [0.13]	<i>0.24 [0.13]</i>
Partner Self-rated health			-0.52 [0.12]	-0.36 [0.12]
Partner ADL (count) ^g			0.13 [0.13]	0.18 [0.12]
Partner IADL (count) ^g			-0.46 [0.11]	-0.40 [0.10]
Household (Hh) Received help				<i>-0.30 [0.18]</i>
Hh Owns home				0.41 [0.16]
Hh Has car				0.56 [0.24]
Hh Financial difficulties				-2.74 [0.16]
Couple level variance	14.68	9.26	8.92	7.60
Individual level variance	14.14	11.56	11.29	11.30
ICC	0.51	0.44	0.44	0.40
AIC	41583.37	39640.87	39463.72	39146.44
Difference in AIC		1942.50	177.15	317.28

^a Model 6.1=Intercept (country); ^b Model 6.1 +Individual predictors; ^c Model 6.2+ Partner predictors; ^d Model 6.3+ Household predictors. ^e Significant (P <0.05) results are emboldened; results where 0.05>p<0.10 in italics ^f Effect coded

^g Grand mean centred

The mean level of quality of life for this regime was higher than the average for the SHARE sample estimated together (Table 6.4). There was a consistent significant association between gender and quality of life across the models, with men having a slightly higher CASP-12 score. All individual predictors are significantly associated with quality of life both in the initial model and after adjustment for partner's characteristics, self-rated health (-1.48) and depression (-0.96) show particularly large effect sizes. However, in Model 4 when

household level characteristics are included the positive association of higher education with quality of life was no longer significant.

All partner characteristics except for ADL were significant predictors in Model 6.3. In the fully adjusted model many partner characteristics remained significant, although the coefficients were small for all but partner's IADL and partner's self-rated health. Adding partner characteristics reduced both the couple level (3.67%) and individual level (2.34%) variation, justifying their inclusion in the final model. Whilst the inclusion of household level indicators did not substantially influence the couple or individual level variation, adding each set of indicators substantially improves the model fit.

6.4.2.2 Sensitivity analysis

As for the results of the SHARE sample (section 6.2.2.1), different versions of Model 6.4 were estimated for sensitivity analyses. Whether the household received help was significant at a higher level ($p < 0.05$) for both the imputation model and when depression was included as a discrete category. However, when ADL and IADL were included as binary measures this household predictor was no longer significant. In the model where depression was included as a discrete variable, gender was no longer a significant predictor of quality of life. Individual educational status was a significant predictor when ADL and IADL were included as binary measures and when a different measure of educational status was included. Partner's educational status was also significant when this measure of educational status was included, although the size of these effects remained small. When different measures of health were used – limiting long term illness and number of chronic diseases - all but partner's number of chronic diseases were significant predictors of quality of life and no other difference in the overall model were observed.

6.4.2.3 Spousal differences: Actor Partner Interdependence Model (APIM)

Table 6.9 and Table 6.10 show the results for Model A and Model B of the Actor Partner Interdependence Model (APIM). Table 6.9 shows un-standardised coefficients and standard errors for the interaction model (Model 1) estimated independently for each predictor. Table 6.10 shows un-standardised coefficients and standard errors for both the mutually

adjusted interaction model (Model 1) and mutually adjusted predictors (Model 2) for men and women separately where the appropriate gender interaction was significant.

Table 6.9: Actor partner interdependence models (APIM) for associations of individual (actor) predictors, partner predictors and gender interactions estimated independently for the Bismarckian welfare state regime

(N= 6872)	EDUCATION	SELF-RATED HEALTH	ADL	IADL	DEPRESSION
	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>
Model A (estimated independently)^b					
Gender	0.21 [0.06]	0.15 [0.10]	0.19 [0.05]	0.12 [0.05]	-0.16 [0.05]
Age	-0.04 [0.01]	-0.02 [0.01]	-0.04 [0.01]	-0.02 [0.01]	-0.03 [0.01]
Age ²	-0.02 [0.01]	-0.02 [0.01]	-0.02 [0.01]	-0.00 [0.01]	-0.01 [0.01]
Actor Effect (AE)	0.35 [0.15]	-2.53 [0.13]	-1.93 [0.11]	-2.13 [0.09]	-1.16 [0.03]
Partner Effect (PE)	0.32 [0.15]	-0.69 [0.13]	-0.47 [0.11]	-0.63 [0.09]	-0.22 [0.03]
Gender*AE	0.06 [0.17]	0.13 [0.14]	-0.10 [0.11]	-0.19 [0.09]	-0.07 [0.03]
Gender*PE	-0.14 [0.17]	-0.11 [0.14]	-0.11 [0.11]	-0.08 [0.09]	0.01 [0.03]

^a Results where $p < 0.05$ in bold; results where $p > 0.05$ and $p < 0.10$ in italics;

^b All models adjusted for partner age and partner age²

When estimated separately, two gender interactions are significant in Model A. The association between quality of life and both an individual's own (actor) depressive symptoms and having difficulty with one or more IADL was different for men and women. All actor and partner effects were independently associated with quality of life scores.

Table 6.10: Actor partner interdependence models (APIM) for 1) associations of individual (actor) predictors, partner predictors and gender interactions (mutually adjusted) 2) actor and partner predictors by gender where significant for the Bismarckian welfare state regime

(N= 6872)	GENDER	EDUCATION	SELF-RATED HEALTH	ADL	IADL	DEPRESSION
Model A (mutually adjusted)^a						
	-0.09 [0.11]					
Actor Effect (AE)		0.09 [0.13]	-1.43 [0.12]	-0.30 [0.12]	-1.05 [0.10]	-0.96 [0.03]
Partner Effect (PE)		<i>0.25 [0.13]</i>	-0.35 [0.12]	0.18 [0.12]	-0.38 [10]	-0.18 [0.03]
Model B, reported if mutually adjusted Model A gender interaction significant ($p < 0.10$)^b						
Male*AE						
Female*AE						
Male*PE						
Female*PE						

^a Results where $p < 0.05$ in bold; results where $p > 0.05$ and $p < 0.10$ in italics;

^b All models adjusted for partner age and partner age²

When mutually adjusted, none of the gender interactions tested in Model A were significant and so Table 6.10 only shows the pooled actor and partner effects for each predictor, which are very close to the equivalent coefficients in Model 6.4 of Table 6.8. Therefore, although

there are significant associations between partner characteristics and quality of life, these do not differ for men and women.

6.4.3 Association between partner characteristics and quality of life: Southern

6.4.3.1 Predictors of CASP-12 (individual, partner and household)

Table 6.11 shows the un-standardised coefficients and standard errors for the series of models for the Southern welfare state regime.

Table 6.11: Multi-level linear regression of CASP-12 on individual, partner and household predictors for the Southern welfare state regime

(N=4912)	MODEL 6.1 ^a	MODEL 6.2 ^b	MODEL 6.3 ^c	MODEL 6.4 ^d
	<i>Coeff. [SE]^e</i>	<i>Coeff. [SE]^e</i>	<i>Coeff. [SE]^e</i>	<i>Coeff. [SE]^e</i>
Intercept	22.96	26.18	24.22	24.49
Gender ^f		0.01 [0.06]	0.03 [0.07]	0.03 [0.07]
Age ^g		-0.08 [0.01]	-0.06 [0.01]	-0.05 [0.01]
Age ^{2g}		-0.01 [0.01]	-0.01 [0.01]	0.00 [0.01]
Depression ^g		-0.95 [0.03]	-0.96 [0.03]	-0.91 [0.03]
Education (high)		1.20 [0.23]	1.20 [0.23]	0.67 [0.22]
Self-rated health		-1.60 [0.15]	-1.63 [0.16]	-1.50 [0.16]
ADL (count) ^g		-0.32 [0.14]	-0.42 [0.15]	-0.44 [0.15]
IADL (count) ^g		-0.69 [0.11]	-0.86 [0.12]	-0.73 [0.12]
Partner Age ^g			0.00 [0.01]	0.00 [0.01]
Partner Age ^{2g}			0.00 [0.01]	0.01 [0.01]
Partner Depression ^g			-0.14 [0.03]	-0.09 [0.03]
Partner Education (high)			0.99 [0.23]	0.46 [0.22]
Partner Self-rated health			-0.24 [0.16]	-0.11 [0.16]
Partner ADL (count) ^g			-0.10 [0.15]	-0.12 [0.15]
Partner IADL (count) ^g			-0.49 [0.12]	-0.36 [0.12]
Household (Hh) Received help				-0.34 [0.26]
Hh Owns home				0.24 [0.26]
Hh Has car				1.12 [0.23]
Hh Financial difficulties				-2.50 [0.17]
Couple level variance	19.58	11.59	11.25	9.63
Individual level variance	15.06	11.85	11.64	11.64
ICC	0.56	0.49	0.49	0.45
AIC	30416.54	28773.78	28679.27	28441.8
Difference in AIC		1642.67	94.51	237.47

^a Model 6.1=Intercept (country); ^b Model 6.1 +Individual predictors; ^c Model 6.2+ Partner predictors; ^d Model 6.3+ Household predictors. ^e Significant (P <0.05) results are emboldened; results where 0.05>p<0.10 in italics ^f Effect coded

^g Grand mean centred

The mean level of quality life in this regime was lower than the average for the SHARE sample overall (Table 6.4) and adjusting for all predictors (Model 6.4) did not change this level substantially. All the individual predictors examined in Model 6.2 were significantly associated with quality of life. In the Southern Regime, having a high education had a strong

positive association with quality of life ($\beta=1.20$) and having poor self-rated health a strong negative association ($\beta=-1.60$). Only three partner characteristics - depressive symptoms having a high education and having one or more IADL - were significant predictors in Model 6.3. In the fully adjusted Model 6.4, all individual characteristics remained significant, although the size of the education coefficient was reduced when household characteristics were included.

Home ownership was not a significant predictor of quality of life in Model 6.4 suggesting that in the Southern regime this is not a strong indicator of wealth. Having financial difficulties (-2.50) and car ownership (1.12) were strong predictors of quality of life. Gender was not significant in any of the models estimated above; suggesting that after controlling for the covariates, there was no difference in the mean level of quality of life between men and women. Adding partner characteristics to the model again reduces both the individual (1.77%) and couple level (2.85%) variation and the size of the ICC for this regime. In addition the model fit, evaluated by the AIC was significantly improved when partner and household characteristics were included.

6.4.3.2 Sensitivity analysis

Different versions of Model 6.4 were also estimated for the Southern welfare regime following the sensitivity approach outlined above (section 6.2.2.1). In the model where depression was included as a discrete variable, partner's educational status was a significant predictor of quality of life, although at a low level ($p<0.10$), and gender was also significant, although the size of this effect remained small. When different health variables were included, there were no significant association for either of the measures of partner's health status although whether the household received care was almost significant ($p<0.10$) as a predictor of quality of life. No other differences in the models were observed for the sensitivity analysis.

6.4.3.3 Spousal differences: Actor Partner Interdependence Model (APIM)

Tables 6.12 and 6.13 show the results for Model A, estimated independently and Models A and B mutually adjusted.

Table 6.12: Actor partner interdependence models (APIM) for associations of individual (actor) predictors, partner predictors and gender interactions estimated independently for the Southern welfare state regime

(N=4912)	EDUCATION	SELF-RATED HEALTH	ADL	IADL	DEPRESSION
	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>
Model A (estimated independently)^b					
Gender	0.52 [0.08]	0.06 [0.14]	0.46 [0.08]	0.44 [0.08]	0.03 [0.07]
Age	-0.10 [0.01]	-0.08 [0.01]	-0.09 [0.01]	-0.08 [0.01]	-0.08 [0.01]
Age ²	-0.01[0.01]	-0.02 [0.01]	0.00 [0.01]	0.00 [0.01]	-0.01 [0.01]
Actor Effect (AE)	0.95 [0.26]	-2.64 [0.17]	-1.94 [0.13]	-1.83 [0.10]	-1.07 [0.03]
Partner Effect (PE)	0.58 [0.26]	-0.47 [0.17]	-0.68 [0.13]	-0.70 [0.10]	-0.14 [0.03]
Gender*AE	0.01 [0.31]	0.25 [0.19]	0.16 [0.13]	0.33 [0.10]	0.00 [0.04]
Gender*PE	-0.51[0.31]	0.25 [0.19]	-0.11 [0.13]	-0.25 [0.10]	-0.03 [0.04]

^a Results where $p < 0.05$ in bold; results where $p > 0.05$ and $p < 0.10$ in italics;

^b All models adjusted for partner age and partner age²

In the Southern Regime, when the models were estimated independently three of the gender interactions were significant. There were gender differences in the association between quality of life and partner's IADL. Partner's depressive symptoms also affected men and women's quality of life differently. The independent association between gender and quality of life was significant for the independent model of each predictor except self-rated health, with women's quality of life being consistently lower than men's.

Table 6.13: Actor partner interdependence models (APIM) for 1) associations of individual (actor) predictors, partner predictors and gender interactions (mutually adjusted) 2) actor and partner predictors by gender where significant for the Southern welfare state regime

(N=4912)	GENDER	EDUCATION	SELF-RATED HEALTH	ADL	IADL	DEPRESSION
	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>
Model A (mutually adjusted)^b						
	-0.13 [0.13]					
Actor Effect		0.71 [0.23]	-1.49 [0.16]	-0.49 [0.15]		-0.90 [0.03]
Partner Effect		<i>0.38 [0.23]</i>	-0.10 [0.16]	-0.16 [0.15]		-0.08 [0.03]
Model B, reported if mutually adjusted Model A gender interaction significant ($p < 0.10$)^b						
Male*AE					-0.40 [0.17]	
Female*AE					-1.10 [0.17]	
Male*PE					-0.75 [0.17]	
Female*PE					-0.01 [0.16]	

^a Results where $p < 0.05$ in bold; results where $p > 0.05$ and $p < 0.10$ in italics;

^b All models adjusted for partner age and partner age²

In the mutually adjusted model for the Southern Regime only two gender interactions remained significant; associations between actor IADL, partner IADL and quality of life were significantly different for men and women. When these associations were considered separately for men and women in Model B, only men's level of quality of life was significantly reduced (-0.75) if their partner had one or more limitations with IADL. Having at least one limitation with IADL had a significant negative association with quality of life for both men and women.

6.4.4 Association between partner characteristics and quality of life: Scandinavian

Table 6.14 reports the results for the Scandinavian welfare state regime.

6.4.4.1 Predictors of CASP-12 (individual, partner and household)

Table 6.14: Multi-level linear regression of CASP-12 on individual, partner and household predictors for the Scandinavian welfare state regime

(N= 2822)	MODEL 6.1 ^a	MODEL 6.2 ^b	MODEL 6.3 ^c	MODEL 6.4 ^d
	<i>Coeff. [SE]^e</i>	<i>Coeff. [SE]^e</i>	<i>Coeff. [SE]^e</i>	<i>Coeff. [SE]^e</i>
Intercept	28.39	30.72	29.29	29.31
Gender ^f		-0.35 [0.06]	-0.25[0.07]	-0.25 [0.07]
Age ^g		0.00 [0.01]	-0.01[0.01]	-0.01 [0.01]
Age ^{2g}		-0.03 [0.01]	-0.02 [0.01]	-0.02 [0.01]
Depression ^g		-0.86 [0.05]	-0.87 [0.04]	-0.83 [0.04]
Education (high)		-0.18 [0.17]	-0.26 [0.16]	<i>-0.27 [0.16]</i>
Self-rated health		-1.40 [0.16]	-1.51 [0.16]	-1.43 [16]
ADL (count) ^g		-0.43 [0.21]	-0.45 [0.21]	<i>-0.42 [0.21]</i>
IADL (count) ^g		-0.80 [0.16]	-0.76 [0.17]	-0.77 [0.17]
Partner Age ^g			<i>0.02 [0.01]</i>	0.02 [0.01]
Partner Age ^{2g}			-0.01 [0.01]	<i>-0.01 [0.01]</i>
Partner Depression ^g			-0.27 [0.04]	-0.23 [0.04]
Partner Education (high)			<i>-0.30 [0.16]</i>	<i>-0.32 [0.16]</i>
Partner Self-rated health			-0.59 [0.16]	-0.51 [0.16]
Partner ADL (count) ^g			-0.60 [0.21]	-0.57 [0.21]
Partner IADL (count) ^g			0.20 [0.17]	0.20 [0.17]
Household (Hh) Received help				-0.08 [0.22]
Hh Owns home				0.32 [0.23]
Hh Has car				-0.14 [0.35]
Hh Financial difficulties				-1.91 [0.28]
Couple level variance	8.47	4.63	4.47	4.13
Individual level variance	12.14	10.74	10.42	10.42
ICC	0.41	0.30	0.30	0.28
AIC	16294.59	15610.1	15536.33	15492.9
Difference in AIC		684.49	73.77	43.43

^aModel 6.1=Intercept (country); ^b Model 6.1 +Individual predictors; ^c Model 6.2+ Partner predictors; ^d Model 6.3+ Household predictors. ^e Significant (P <0.05) results are emboldened; results where 0.05>p<0.10 in italics ^f Effect coded

^g Grand mean centred

The Scandinavian regime, shown in the table above (Table 6.14) had the highest mean quality of life score of all the regimes, around three points above the SHARE sample average (Table 6.4). Adjusting for all predictors increased this mean score by about one CASP-12 unit. All individual characteristics except educational status were significantly associated with quality of life and the strongest of these predictors was self-rated health (-1.40). All these predictors remained significant in the fully adjusted Model 4, with little reduction in the size of the coefficients. In Model 6.3 several partner characteristics were significantly associated with quality of life; depressive symptoms, self-rated health, and ADL. The Scandinavian regime was the only welfare regime where a partner having difficulties with ADL was significantly associated with quality of life and yet having one or problems with IADL was not.

In Model 6.4 only one household characteristic, having financial difficulties, was a significant predictor of quality of life in the Scandinavian regime. In each model, gender was a significant predictor of quality of life and even in Model 6.4, adjusting for all the characteristics, men still had a lower level of quality of life than women. However, since respondents in the Scandinavian regime reported a higher mean quality of life level than the other regimes, this gender difference still allows both men and women in the sample to report a high quality of life. Adding each set of predictors to the model explained more variation and improved the model fit. Although less variation was explained by adding partner rather than individual predictors, the partner characteristics explained a significant amount of variation in the model at both the household (3.46%) and the individual level (2.98%) and also improved the model fit ($\Delta AIC -73.92$).

6.4.4.2 Sensitivity

Different versions of Model 6.4 were also estimated for the Scandinavian welfare state regime (section 6.2.2.1). Individual level ADL remained significant in Model 6.4 when depression was included as a discrete category, when ADL and IADL were included as binary variables and when the imputation model was examined. However, since this predictor was reported as significant at a lower level in Table 6.14, this was not felt to be a substantial difference to the models presented. In the model where ADL and IADL were included as binary variables, partner ADL was also significant. When a different measure of education was included partner's educational

status was no longer significant at the lower level ($p < 0.10$) and individual level education was significant at a higher level ($p < 0.05$). When different health measures were included, at the individual level only limitations with long term illness was a predictor of quality of life and neither measure of partner's health status were significant.

6.4.4.3 Spousal differences: Actor Partner Interdependence Model (APIM)

Table 6.15: Actor partner interdependence models (APIM) for associations of individual (actor) predictors, partner predictors and gender interactions estimated independently Scandinavian welfare state regime

(N= 2822)	EDUCATION	SELF-RATED HEALTH	ADL	IADL	DEPRESSION
	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>
Model A (estimated independently)^b					
Gender	-0.08 [0.10]	0.04 [0.11]	-0.12 [0.08]	-0.14 [0.08]	-0.28 [0.08]
Age	-0.02 [0.02]	0.00 [0.02]	-0.02 [0.02]	-0.01 [0.02]	-0.03 [0.01]
Age ²	-0.04 [0.01]	-0.04 [0.01]	-0.03 [0.01]	-0.03 [0.01]	-0.03 [0.01]
Actor Effect (AE)	0.23 [0.18]	-2.37 [0.16]	-1.80 [0.21]	-1.86 [0.15]	-1.03 [0.04]
Partner Effect (PE)	0.04 [0.18]	-0.86 [0.16]	-1.09 [0.21]	-0.47 [0.15]	-0.29 [0.04]
Gender*AE	0.26 [0.21]	-0.18 [0.16]	-0.18 [0.21]	-0.22 [0.15]	-0.11 [0.05]
Gender*PE	-0.30 [0.21]	-0.17 [0.16]	-0.22 [0.22]	0.07 [0.15]	0.03 [0.05]

^a Results where $p < 0.05$ in bold; results where $p > 0.05$ and $p < 0.10$ in italics;

^b All models adjusted for partner age and partner age²

Table 6.15 shows the results from Model A independently estimated for each predictor. Only one gender interaction was significant, the actor effect of depressive symptoms, suggesting that the association between a respondent's own depression and quality of life is different for men and women

Table 6.16: Actor partner interdependence models (APIM) for 1) associations of individual (actor) predictors, partner predictors and gender interactions (mutually adjusted) 2) actor and partner predictors by gender where significant for the Scandinavian welfare state regime

(N= 2822)	GENDER	EDUCATION	SELF-RATED HEALTH	ADL	IADL	DEPRESSION
	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>
Model A (mutually adjusted)^b						
	-0.10 [0.14]					
Actor Effect (AE)			-1.43 [0.16]	-0.42 [0.21]	-0.77 [0.17]	-0.84 [0.05]
Partner Effect (PE)			-0.51 [0.16]	-0.57 [0.21]	0.20 [0.17]	-0.23 [0.05]
Model B, reported if mutually adjusted Model A gender interaction significant (p<0.10)						
Male*AE						
Female*AE						
Male*PE		-0.62 [0.24]				
Female*PE		-0.01 [0.24]				

^a Significant (P <0.05) results are emboldened; results where 0.05>p<0.10 in italics; ^b All models adjusted for partner age, partner age²

When a mutually adjusted model was estimated, a gender interaction was found to be significant. Partner's educational status was the only spousal predictor of quality of life where there was a significant gender difference. A negative association of partner's high educational status was found, but only for men. All other actor and partner effects were significant, although no further gender differences evident.

6.4.5 Association between partner characteristics and quality of life: Post-Communist

6.4.5.1 Predictors of CASP-12 (individual, partner and household)

Table 6.17: Multi-level linear regression of CASP-12 on individual, partner and household predictors for the Post-Communist welfare state regime

(N=2684)	MODEL 6.1 ^a	MODEL 6.2 ^b	MODEL 6.3 ^c	MODEL 6.4 ^d
	<i>Coeff. [SE]^e</i>	<i>Coeff. [SE]^e</i>	<i>Coeff. [SE]^e</i>	<i>Coeff. [SE]^e</i>
Intercept	23.44	25.91	26.47	26.81
Gender ^f		<i>-0.14 [0.08]</i>	-0.01 [0.01]	0.00 [0.09]
Age ^g		-0.03 [0.01]	-0.03 [0.02]	-0.02 [0.02]
Age ^{2g}		-0.01 [0.01]	-0.01 [0.01]	-0.01 [0.01]
Depression ^g		-1.18 [0.04]	-1.18 [0.04]	-1.14 [0.04]
Education (high)		1.16 [0.32]	1.15 [0.32]	0.79 [0.32]
Self-rated health		-2.25 [0.26]	-2.27 [0.26]	-2.10 [0.26]
ADL (count) ^g		-0.49 [0.14]	-0.52 [0.15]	-0.50 [0.15]
IADL (count) ^g		-0.65 [0.13]	-0.72 [0.13]	-0.65 [0.13]
Partner Age ^g			0.02 [0.02]	0.03 [0.02]
Partner Age ^{2g}			0.01 [0.01]	0.00 [0.01]
Partner Depression ^g			-0.26 [0.04]	-0.21 [0.04]
Partner Education (high)			0.93 [0.32]	<i>0.58 [0.32]</i>
Partner Self-rated health			-0.61 [0.26]	<i>-0.45 [0.26]</i>
Partner ADL (count) ^g			0.03 [0.15]	0.05 [0.15]
Partner IADL (count) ^g			-0.32 [0.03]	-0.25 [0.13]
Household (Hh) Received help				-0.30 [0.26]
Hh Owns home				0.01 [0.27]
Hh Has car				1.01 [0.24]
Hh Financial difficulties				-1.69 [0.23]
Couple level variance	19.19	9.51	9.20	8.31
Individual level variance	16.91	13.23	12.86	12.86
ICC	0.53	0.42	0.42	0.39
AIC	16804.67	15767.43	15702.2	15631.33
Difference in AIC		1037.24	65.23	70.87

^a Model 6.1=Intercept (country); ^b Model 6.1 +Individual predictors; ^c Model 6.2+ Partner predictors; ^d Model 6.3+ Household predictors. ^e Significant (P <0.05) results are emboldened; results where 0.05>p<0.10 in italics ^f Effect coded

^g Grand mean centred

Table 6.17 shows the association of individual, partner and household predictors with quality of life for respondents from the Post-Communist welfare state regime. The average level of quality of life was lower for this regime than for the SHARE sample overall initially, however when adjusted this level increased and in Model 6.4, the average level of quality of life for this regime was closer to the level of respondents from the Scandinavian regime (see Table 6.11). All individual characteristics were significant predictors, as were most partner characteristics, although educational status and self-rated health were only so at the higher level of statistical significance ($p < 0.10$). The association between self-rated health and depression with quality of life was particularly strong in this regime and is perhaps responsible for the increase in the level of quality of life in the adjusted models. Only two of

the household predictors, having financial difficulties and car ownership, were significantly associated with quality of life. Model 6.3 shows that gender was no longer significant when partner characteristics were added to the model. Again adding partner characteristics to this model explained a certain amount of both couple level (3.26%) and individual level (2.80%) variance and improved the model fit (0.41%).

6.4.5.2 Sensitivity analysis

A number of sensitivity analyses for the Post-Communist regime were also carried out using different versions of Model 6.4 (section 6.2.2.1). Below the differences between these and the results from Table 6.17 are highlighted. When depression was included as a discrete category, both partner's self-rated health and partner's IADL were significant predictors of quality of life. When the results were estimated using the imputation model or when IADL and ADL were included as binary variables, partner's IADL were also significant, but at the lower level ($p < 0.10$). Additionally when a different measure of education was included, partner's educational status was a significant predictor at a higher level ($p < 0.05$). If different measures of health were included then a partner having limitations with long term problems was a significant predictor of quality of life but partner's number of chronic diseases was not.

6.4.5.3 Spousal differences: Actor Partner Interdependence Model (APIM)

Table 6.18: Actor partner interdependence models (APIM) for associations of individual (actor) predictors, partner predictors and gender interactions estimated independently for the Post-Communist welfare state regime

(N=2684)	EDUCATION	SELF-RATED HEALTH	ADL	IADL	DEPRESSION
	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>
Model A (estimated independently)^b					
Gender		0.32 [0.25]	0.40 [0.10]	0.37 [0.10]	0.02 [0.09]
Age	-0.11 [0.02]	-0.07 [0.02]	-0.08 [0.02]	-0.07 [0.02]	-0.06 [0.02]
Age ²	<i>-0.02 [0.01]</i>	-0.04 [0.01]	<i>-0.01 [0.01]</i>	<i>-0.00 [0.01]</i>	<i>-0.01 [0.01]</i>
Actor Effect (AE)	1.53 [0.40]	-3.41 [0.30]	-1.61 [0.14]	-1.65 [0.12]	-1.31 [0.04]
Partner Effect (PE)	0.95 [0.39]	-1.11 [0.30]	-0.35 [0.14]	-0.41 [0.12]	-0.26 [0.04]
Gender * AE	<i>-0.06 [0.46]</i>	0.05 [0.32]	0.23 [0.14]	0.10 [0.12]	<i>-0.08 [0.05]</i>
Gender * PE	<i>-0.03 [0.45]</i>	0.06 [0.32]	<i>-0.23 [0.14]</i>	<i>-0.09 [0.12]</i>	0.06 [0.05]

^a Results where $p < 0.05$ in bold; results where $p > 0.05$ and $p < 0.10$ in italics;

^b All models adjusted for partner age and partner age²

When estimated separately, by predictor, no gender interactions were significant for Model A in the Post-Communist regime.

Table 6.19: Actor partner interdependence models (APIM) for 1) associations of individual (actor) predictors, partner predictors and gender interactions (mutually adjusted) 2) actor and partner predictors by gender where significant for the Post-Communist welfare state regime

(N=2684)	GENDER	EDUCATION	SELF-RATED HEALTH	ADL	IADL	DEPRESSION
	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>
Model A (mutually adjusted)^b						
	-0.03 [0.24]					
Actor Effect (AE)		0.74 [0.34]	-2.10 [0.26]	-0.50 [0.15]	-0.66 [0.13]	-1.15 [0.04]
Partner Effect (PE)		<i>0.62 [0.33]</i>	<i>-0.43 [0.26]</i>	0.06 [0.15]	-0.26 [0.13]	-0.22 [0.04]
Model B, reported if mutually adjusted Model A gender interaction significant (p<0.10)						
Male*AE				-0.20 [0.21]		-1.26 [0.07]
Female*AE				-0.80 [0.21]		-1.04 [0.06]
Male*PE				-0.21 [0.22]		-0.10 [0.07]
Female*PE				0.33 [0.20]		-0.34 [0.06]

^a Results where p<0.05 in bold; results where p>0.05 and p<0.10 in italics;

^b All models adjusted for partner age and partner age²

Several of the gender interactions were significant in the Post-Communist regime in the mutually adjusted model. Depression was associated with quality of life for both men and women, although the impact of men's depression on their own quality of life was slightly larger (-1.26). The negative association between partner's depression and quality of life was only significant for women (-0.80). For women, having one or more limitations with ADL had a significant effect on their quality of life, which was not the case for men. However, the association between a partner having one or more limitations with ADL, although showing a possible gender interaction, was not consistently significant for either men or women in Model B.

6.4.6 Association between partner characteristics and quality of life: Liberal

6.4.6.1 Predictors of CASP-12 (individual, partner and household)

Table 6.20 shows the results for the four models estimated for the Liberal regime.

Table 6.20: Multi-level linear regression of CASP-12 on individual, partner and household predictors for the Liberal welfare state regime

	MODEL 6.1 ^a	MODEL 6.2 ^b	MODEL 6.3 ^c	MODEL 6.4 ^d
	<i>Coeff. [SE]^e</i>	<i>Coeff. [SE]^e</i>	<i>Coeff. [SE]^e</i>	<i>Coeff. [SE]^e</i>
Intercept	26.05	27.39	27.55	28.15
Gender ^f		-0.56 [0.06]	-0.43 [0.07]	-0.43 [0.07]
Age ^g		0.01 [0.01]	0.01 [0.01]	-0.00 [0.01]
Age ^{2g}		-0.03 [0.01]	-0.02 [0.01]	-0.02 [0.01]
Depression ^g		-1.26 [0.04]	-1.25 [0.04]	-1.18 [0.04]
Education (high)		0.47 [0.15]	0.25 [0.15]	0.12 [0.15]
Self-rated health		-2.04 [0.16]	-1.90 [0.15]	-1.78 [0.15]
ADL (count) ^g		-0.45 [0.11]	-0.48 [0.11]	-0.47 [0.11]
IADL (count) ^g		-0.76 [0.12]	-0.70 [0.12]	-0.71 [0.13]
Partner Age ^g			0.01 [0.01]	0.00 [0.01]
Partner Age ^{2g}			<i>-0.01 [0.01]</i>	-0.01 [0.01]
Partner Depression ^g			-0.35 [0.04]	-0.28 [0.04]
Partner Education (high)			0.45 [0.15]	0.32 [0.15]
Partner Self-rated health			-0.45 [0.15]	-0.33 [0.15]
Partner ADL (count) ^g			<i>-0.18 [0.11]</i>	-0.17 [0.11]
Partner IADL (count) ^g			-0.13 [0.12]	-0.13 [0.13]
Household (Hh) Received help				0.19 [0.32]
Hh Owns home				-0.07 [0.27]
Hh Has car				0.13 [0.13]
Hh Financial difficulties				-2.00 [0.16]
Couple level variance	11.75	4.81	4.73	3.88
Individual level variance	18.53	16.01	15.47	15.47
ICC	0.39	0.23	0.23	0.20
AIC	27978.47	26542.54	26415.56	26262.41
Difference in AIC		1435.93	126.98	153.15

^a Model 6.1=Intercept (country); ^b Model 6.1 +Individual predictors; ^c Model 6.2+ Partner predictors; ^d Model 6.3+ Household predictors. ^e Significant (P <0.05) results are emboldened; results where 0.05>p<0.10 in italics ^f Effect coded

^g Grand mean centred

The mean unadjusted level of quality of life in the Liberal regime was higher than the equivalent level in both the Southern and Post-Communist regimes. When fully adjusted however, this is also higher than the Bismarckian regime, indicating that quality of life for this regime was particularly sensitive to poor mental and physical health. The ICC, whilst not as high as seen previously in the models for other regimes, was still significant enough to suggest a clustering of quality of life scores within couples. All individual predictors were significant in Model 6.1, the coefficients for self-rated health (-2.04) and depression (-1.26)

being particularly strong. In the final model all of these initial associations remained significant apart from educational status.

Model 6.4 shows how three partner characteristics are significant predictors of quality of life and these remain so in the fully adjusted model. There was a significant negative association between quality of life and both depression and self-rated health, whilst partner's high education was positively associated with quality of life. In the fully adjusted model (Model 6.4) the only household predictor to be significantly associated with quality of life was the household having difficult financial circumstances (-2.00). Adding partner predictors to the model explained a proportion of the variance at both the couple (1.66%) and individual level (3.37%) and also improved the model fit (0.48%).

6.4.6.2 Sensitivity

This section details the differences observed when sensitivity analyses were estimated for Model 6.4 for the Liberal regime. Only the differences between these models and the results in Table 6.20 are described. Partner's ADL was a significant predictor of quality of life, but only at the higher level ($p < 0.10$) when depression, ADL and IADL were included as binary variables, the imputation model was used or a different measure of education was included. However, the size of this effect remained the same. Partner's education was no longer significant when a different measure of education status was included or the imputation model was used. When a different measure of educational status was included, partner's self-rated health was also a significant predictor of quality of life, at the higher level ($p < 0.10$). Additionally when different measures of health were included, partners having limitations due to a long term health condition was a significant predictor, whereas having more than two chronic conditions was not.

6.4.6.3 Spousal differences: Actor Partner Interdependence Model (APIM)

Table 6.21 and Table 6.22 show the results for the Actor Partner Interdependence Model (APIM) estimated for the Liberal regime. Table 6.21 shows unstandardised coefficients and standard errors for the interaction model (Model A) estimated independently for each predictor. Table 6.22 shows unstandardised coefficients and standard errors for both the mutually adjusted interaction model (Model A) and mutually adjusted predictors (Model B)

for men and women separately where the appropriate gender interaction was significant. Again, I have considered a gender interaction to be significant at a lower level of statistical significance than used in the rest of the analysis ($p < 0.10$)

Table 6.21: Actor partner interdependence models (APIM) for associations of individual (actor) predictors, partner predictors and gender interactions estimated independently for the Liberal welfare state regime

	EDUCATION	SELF-RATED HEALTH	ADL	IADL	DEPRESSION
	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>
Model A (estimated independently)^b					
Gender	-0.15 [0.09]	-0.31 [0.14]	-0.24 [0.07]	-0.31 [0.06]	-0.46 [0.07]
Age	-0.02 [0.01]	0.00 [0.01]	-0.01 [0.01]	-0.01 [0.01]	-0.03 [0.01]
Age ²	-0.02 [0.01]	-0.03 [0.01]	-0.03 [0.01]	-0.02 [0.01]	-0.02 [0.01]
Actor Effect (AE)	0.52 [0.17]	-2.64 [0.17]	-1.62 [0.10]	-1.93 [0.11]	-1.41 [0.04]
Partner Effect (PE)	0.72 [0.17]	-0.56 [0.17]	-0.55 [0.10]	-0.60 [0.11]	-0.35 [0.04]
Gender*AE	0.21 [0.18]	-0.04 [0.18]	-0.01 [0.09]	0.00 [0.11]	-0.14 [0.04]
Gender*PE	-0.42 [0.18]	0.14 [0.18]	0.02 [0.09]	-0.09 [0.11]	0.06 [0.04]

^a Results where $p < 0.05$ in bold; results where $p > 0.05$ and $p < 0.10$ in italics;

^b All models adjusted for partner age and partner age²

When estimated independently, actor and partner predictors are all significantly associated with quality of life, suggesting that in the mutually adjusted model (Table 6.20), where partner IADL and ADL are not significant, the effect of these two predictors are affected by the other individual covariates included. In these separate models only the associations of quality of life with partner's education status and actor's depressive symptoms are significantly different for men and women.

Table 6.22: Actor partner interdependence models (APIM) for 1) associations of individual (actor) predictors, partner predictors and gender interactions (mutually adjusted) 2) actor and partner predictors by gender where significant for the Liberal welfare state regime

	GENDER	EDUCATION	SELF-RATED HEALTH	ADL	IADL	DEPRESSION
	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>	<i>Coeff. [SE]^a</i>
Model A (mutually adjusted)^b						
	-0.39 [0.17]					
Actor Effect (AE)		0.10 [0.15]	-1.78 [0.15]	-0.45 [0.11]	-0.72 [0.13]	
Partner Effect (PE)			-0.33 [0.15]	-0.18 [0.11]	-0.13 [0.13]	
Model B, reported if mutually adjusted Model 1 gender interaction significant ($p < 0.10$)^b						
Male*AE						-1.33 [0.07]
Female*AE						-1.08 [0.06]
Male*PE		0.03 [0.22]				-0.37 [0.06]
Female*PE		0.57 [0.21]				-0.20 [0.07]

^a Results where $p < 0.05$ in bold; results where $p > 0.05$ and $p < 0.10$ in italics;

^b All models adjusted for partner age and partner age²

In the mutually adjusted Model A, three predictors showed significant gender interactions. The effect of actor depressive symptoms was significantly different for men and women and when estimated in Model B showed a slightly stronger association of men's depressive symptoms with their quality of life. In addition there was a stronger association between men's quality of life and their partner's depressive symptoms, although these differences were small. There was also a significant difference between how a partner's educational level was associated with men and women's quality of life. When estimated separately this effect only remained significantly different from zero for women, therefore only husband's high education had a positive association with wife's quality of life.

6.5 Summary of gender differences within couples

In this section I summarise the main gender differences found in this chapter. Table 6.23 illustrates gender differences in the individual predictors for each sample. In all the welfare regimes men are older than women. In the Southern and Liberal regimes there are small but significant ($p < 0.10$) gender differences in quality of life, in the Southern regime men had a higher quality of life than women, and in the Liberal regime the direction of this effect is reversed. These two regimes are also the only ones to have significant gender differences in self-rated health, with smaller proportions of women having *very good or excellent health* in both cases. Although no differences can be observed in limitations with ADL between any of the regimes drawn from the SHARE sample, men are more likely to have one or more limitations with ADL in the Liberal. Significant differences for the risk of having one or more difficulties with IADL were observed in all but the Scandinavian regime, with females being more likely to have these difficulties. In addition to these differences in physical health, significant differences in depression scores are evident across all regimes; with women being more at risk on average of having depressive symptoms. Therefore, although on average younger, women are more likely to have poor physical and mental health than men in the majority of these regimes. In all but the Scandinavian regime, men are more likely to have higher educational attainment than women.

Table 6.23: Individual predictors by gender and welfare regime

	BISMARCKIAN			SOUTHERN			SCANDINAVIAN			POST-COMMUNIST			LIBERAL		
	<i>M</i>	<i>F</i>	<i>Sig</i>	<i>M</i>	<i>F</i>	<i>Sig</i>	<i>M</i>	<i>F</i>	<i>Sig</i>	<i>M</i>	<i>F</i>	<i>Sig</i>	<i>M</i>	<i>F</i>	<i>Sig</i>
<i>Mean (SD)^a</i>															
Age	64.49 (9.06)	61.71 (9.30)	***	65.34 (9.15)	60.98 (9.54)	***	64.69 (9.24)	61.78 (9.09)	***	63.80 (9.19)	60.61 (8.94)	***	63.61 (9.37)	60.75 (9.38)	***
QoL	27.2 (5.55)	27.0 (5.51)	+	23.1 (5.88)	22.6 (5.98)	**	28.2 (4.69)	28.6 (4.51)	+	23.7 (6.06)	23.2 (6.06)	+	25.77 (5.47)	26.32 (5.53)	**
<i>N (%)^b</i>															
Depression (cat)	448 (13.03)	832 (24.20)	***	398 (16.17)	734 (29.83)	***	150 (10.62)	252 (17.85)	***	312 (23.25)	448 (33.38)	***	152 (6.70)	255 (11.24)	***
ADL	242 (7.04)	210 (6.11)	ns	159 (6.46)	146 (5.93)	ns	79 (5.59)	69 (4.89)	ns	148 (11.03)	151 (11.25)	ns	343 (15.12)	278 (12.26)	**
IADL	316 (9.19)	410 (11.93)	***	277 (11.26)	371 (15.08)	***	134 (9.49)	112 (7.93)	ns	194 (14.46)	251 (18.70)	**	265 (11.68)	321 (14.15)	**
SR Health	2,411 (70.13)	2,442 (71.03)	ns	1,709 (69.44)	1,772 (72.00)	*	689 (48.80)	700 (49.58)	ns	1,142 (85.10)	1,113 (82.94)	ns	612 (69.93)	540 (72.09)	**
Education	908 (26.41)	632 (18.38)	***	298 (12.11)	197 (8.00)	***	436 (30.88)	482 (34.14)	+	159 (11.85)	80 (5.96)	***	907 (39.99)	601 (26.50)	***

Tests of significance: ^a *t*-test ^b Pearson's chi square test

These gender differences in individual characteristics do not lead to a substantial gender difference in level of quality of life in the regression models. Figure 6.2 shows gender differences for average quality of life within regimes adjusted only for country and Figure 6.3 shows these differences fully adjusted for all predictors. Although small gender differences can be observed in the Southern and Post-Communist regimes in Figure 6.2, they are no longer significantly different in the fully adjusted model (Figure 6.3). These initial gender differences in characteristics do not translate, therefore, into differences in level of quality of life. However, the gender interactions observable in the APIM models (see section 6.2.3 and 6.3.3), show that instead, gender differences in the association of both individual and partner characteristics with quality of life, can be observed for married older couples in all of the welfare state regimes, with the exception of the Bismarckian regime.

Figure 6.2: Gender differences between mean CASP-12 score (adjusted for country)

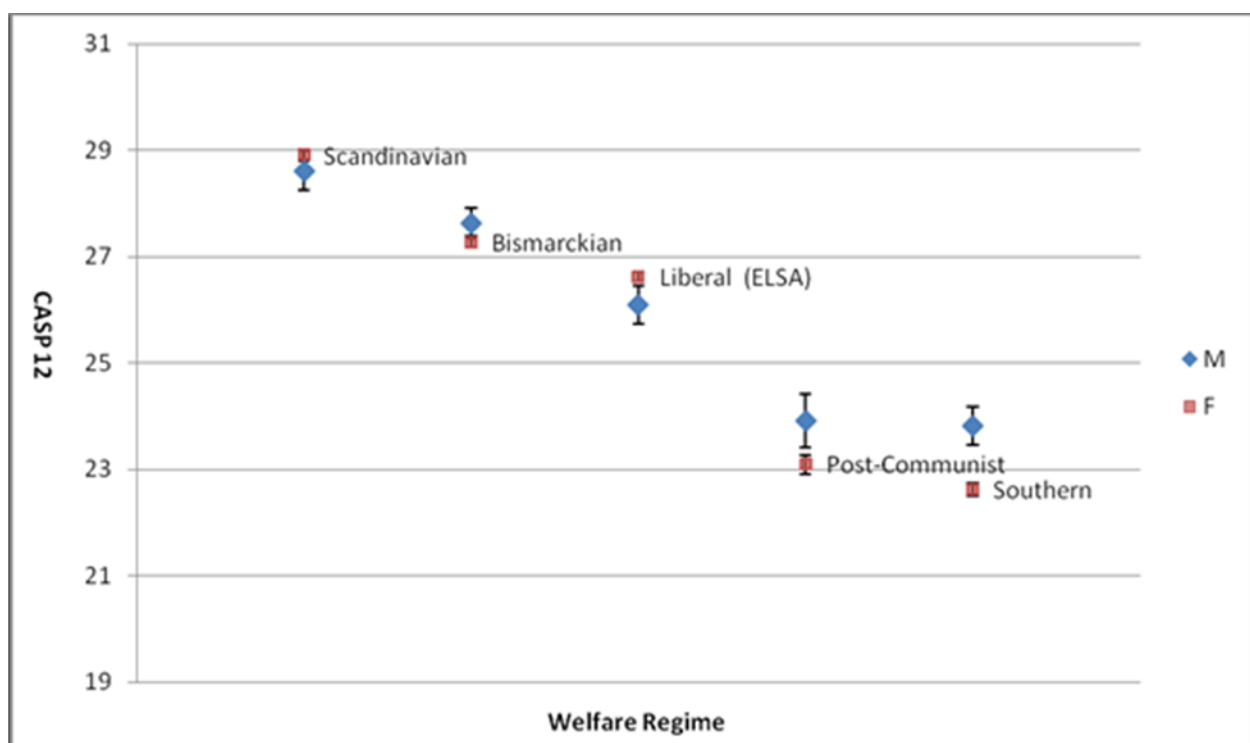
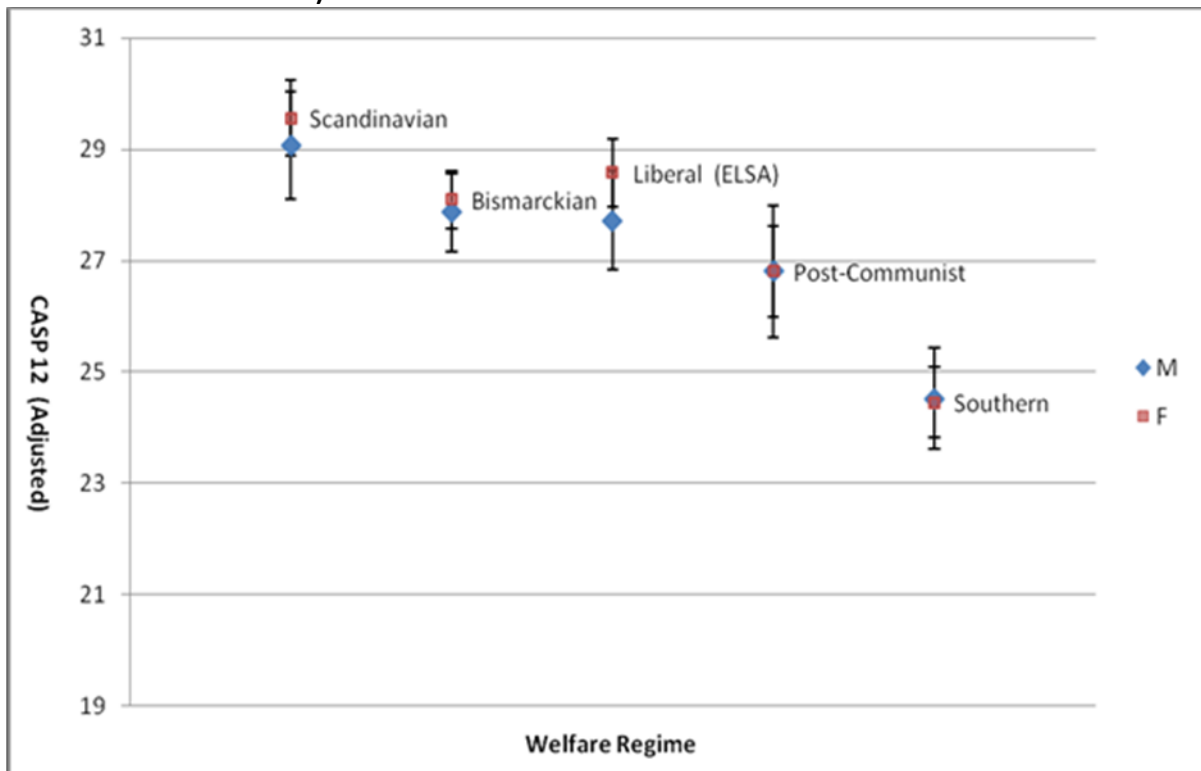


Figure 6.3: Gender differences between mean CASP-12 score (adjusted for individual, partner and household characteristics)



6.6 Summary of welfare state regime differences

Table 6.24 compares the Welfare Regimes discussed in this chapter using a number of key indicators drawn from the previous analysis.

Table 6.24: Comparing indicators of interdependence across the welfare state regimes

	BISMARCKIAN	SOUTHERN	SCANDINAVIAN	POST-COMMUNIST	LIBERAL
Unadjusted CASP-12 level ^a	27.18	22.96	28.39	23.44	26.05
Adjusted level CASP-12 level ^a	27.98	24.49	29.31	26.81	28.15
Unadjusted concordance (ICC) ^b	0.51	0.56	0.41	0.53	0.39
Adjusted concordance (ICC) ^b	0.40	0.45	0.28	0.39	0.20
Significant partner characteristics ^c	Depression Education SR health IADL (count)	Depression Education IADL	Depression Education SR Health ADL	Depression Education SR health	Depression Education SR health
Number of significant gender interactions (partner) ^d	0	2	2	5	3
Number of significant gender interactions (actor) ^d	0	1	0	2	1
Gender difference in intercept (unadjusted) ^e	0.16*	0.61***	-0.15 ⁺	0.41***	-0.27**
Gender difference in intercept (adjusted) ^f	-0.12*	0.03	-0.25***	0.00	-0.43
Reduction in individual level variance (Model 3) ^g	3.67%	2.85%	3.46%	3.26%	1.66%
Reduction in couple level variance (Model 3) ^g	2.34%	1.77%	2.97%	2.80%	3.37%
Improvement in model fit (Model 3) ^h	0.45%	0.33%	0.47%	0.41%	0.48%
Improvement in model fit (Model 4) ^h	0.80%	0.83%	0.28%	0.45%	0.58%

^a Intercept from MLM model 6.1 (unadjusted) and Model 6.4 (adjusted);

^b ICC from MLM model 6.1 (unadjusted) and Model 6.4 (adjusted);

^c Number of partner characteristics significant in MLM Model 3;

^d Significant gender interactions are taken from the mutually adjusted APIM Model A;

^e Unadjusted gender differences are not reported elsewhere in the chapter but is Model 1 +gender, age, age²;

^f Adjusted gender difference in Model 4;

^g Reduction in variance between Model 6.3/Model 6.2

^h Improvement in AIC between Model 6.4 / Model 6.3 & Model 6.3/ Model 6.2

In the Post-Communist regime, adjusting for health status raised the level of quality of life to nearly the highest level of all the welfare state regimes. This regime also had a greater gender difference in mean level of quality of life before adjustment, a modest level of concordance and the highest number of significant gender interactions in the association between partner characteristics and quality of life. The Southern regime had a relatively low level of quality of life and the highest level of concordance within couples. Model 6.4 was improved to a smaller degree by the addition of partner characteristics, suggesting that there was less interdependence of quality of life within couples. The Bismarckian regime had a high level of concordance but adding partner characteristics both improved the model fit and explained a substantial amount of variation, suggesting a high degree of interdependence of quality of life within couples. However, this interdependence appeared to be quite gender neutral, since the partner characteristics had no significant gender interactions.

The Scandinavian regime had the highest level of quality of life overall and although gender differences were observed this did not reduce the high level of quality of life for both men and women in this regime. Adding partner characteristics to the model both improved the model fit and reduced the level of concordance further. This level of concordance remained low in the Scandinavian regime, suggesting that whilst there was interdependence in this regime, it was weaker than in the other regimes from the SHARE sample. In the Liberal regime low concordance for quality of life scores was also observed; however this regime also showed that partner characteristics made a significant contribution to the final model, suggesting some interdependence. Different features of spousal interdependence of quality of life have been observed in each of the welfare state regimes and this section has highlighted how variation between the regimes has also been observed. This variation has been established using a range of methods; concordance in quality of life, how partner's characteristics are associated with quality of life and also gender interactions for these associations.

Chapter 7

A gender relations comparative approach

7.1 Introduction

This chapter aims to revisit the key results from previous chapters and make comparisons, not between welfare state regimes, but instead between countries in terms of their macro level gender relations. Due to criticisms that the welfare regime literature and typologies are ‘gender blind’, I felt it was necessary to examine the cross-national difference between marital status and quality of life using a more ‘gender focused’ approach. The theoretical rationale for making these gender focused comparisons was expanded in chapter two (section 2.3.3). Two methods were used to compare gender relations; separate policy indicators and a gender equity index (GEI). Further information about the choice and operationalization of these indicators can be found in chapter four (section 4.4.2). The final research questions are considered in this chapter:

3.1. Does the use of a more gender focused comparative method alter the pattern of gender differences observed between marital status and quality of life?

3.2. Does the level of spousal interdependence also vary between countries with different levels of macro level gender relations?

The chapter is organised as follows: Firstly two regression models, similar to those from chapter four which show the association of quality of life with marital status, are reported by the GEI and then the macro indicators. These models are estimated as in chapter four and therefore adjusted for age, age², country and gender (Model 5.1) and health and financial circumstances (Model 5.6). The SHARE sample was stratified into two groups by both the GEI and the macro indicators; split above and below the sample median. Next the results from chapter five were considered. The association between the concordance scores and the GEI was examined by country and the concordance scores considered by both the GEI and macro indicators.

7.2 Current marital status and quality of life: the Gender Equality Index (GEI)

As discussed in chapter two (section 4.4.2.1) the 2009 Gender Equity Index (GEI) is a measure of the gender equity of a country. Table 7.1. shows the SHARE countries by both welfare regime and GEI, where high GEI indicates a country which is more gender equal than the sample median.

Table 7.1: Distribution of SHARE countries by welfare regime and GEI

WELFARE REGIME	LOW GEI	HIGH GEI
Bismarckian	Austria (71) Switzerland (62)	Belgium (72) France (72) Germany (78) Netherlands (77)
Southern	Greece (65) Italy (64)	Spain (77)
Scandinavian		Denmark (79) Sweden (88)
Post-Communist	Czech Republic (68) Poland (70)	
<i>Total countries</i>	6	7

The countries with a score of the sample median GEI score (72) or above were perceived to have a high GEI score. Scores ranged from 62 (Switzerland) to 88 (Sweden). In general the Southern and Post-communist countries had low GEI scores and the Bismarckian and Scandinavian high GEI scores. However Spain, Austria and Switzerland were all, in terms of their GEI scores, clustered differently to their welfare state regime.

Table 7.2: Regression CASP-12 on marital status Model 5.1 & Model 5.6 by GEI

	LOW GEI (N=13,311)		HIGH GEI (N=16,678)	
	MODEL 5.1 ^a	MODEL 5.6 ^b	MODEL 5.1 ^a	MODEL 5.6 ^f
	<i>β Coefficient</i> [SE] ^c	<i>β Coefficient</i> [SE] ^c	<i>β Coefficient</i> [SE] ^c	<i>β Coefficient</i> [SE] ^c
Model constant	24.10	27.06	27.20	29.69
Marital status women:				
Married women	REF	REF	REF	REF
Divorced women ^e	-1.32 [0.25]	-0.54 [0.20]	-2.17 [0.20]	-0.65 [0.17]
Never married women	-0.08 [0.34]	-0.13 [0.27]	-1.13 [0.28]	<i>-0.42 [0.22]</i>
Widowed women	-1.14 [0.17]	<i>-0.27 [0.14]</i>	-1.11 [0.17]	-0.04 [0.14]
Marital status men:				
Married men	REF	REF	REF	REF
Divorced men ^e	-1.16 [0.30]	-0.50 [0.25]	-1.55 [0.25]	-0.58 [0.20]
Never married men	-1.42 [0.36]	-1.19 [0.29]	-1.42 [0.28]	-0.56 [0.23]
Widowed men	0.15 [0.32]	0.31 [0.25]	-1.19 [0.28]	-0.32 [0.23]
Marital status x gender^f				
Married x gender	0.91 [0.12]	-0.39 [0.10]	0.37 [0.10]	-0.65 [0.08]
Divorced ^e	0.16 [0.39]	0.04 [0.31]	<i>0.62 [0.32]</i>	0.08 [0.26]
Never married	-1.34 [0.49]	-1.07 [0.39]	-0.29 [0.39]	-0.14 [0.32]
Widowed	1.29 [0.35]	0.59 [0.28]	-0.08 [0.32]	-0.28 [0.26]
R ²	0.18	0.48	0.13	0.44

^a includes marital status, age age², gender and country (effect coded)

^b includes marital status, age age², gender, country (effect coded), physical health, depression, smoking status, physical activity, alcohol consumption, social support, retirement status, education level, home ownership, car ownership, subjective financial difficulties,

^c Results where p<0.05 in bold; results where p>0.05 and p<0.10 in italics

^d The model constant is also the average CASP-19 score for married women adjusted for age and age² (both grand mean centred)

^e Includes separated

^f Women are the reference category for the interaction

Table 7.2 reports the results of two models (Model 5.1 and Model 5.6) estimated in chapter four by *High GEI* and *Low GEI* rather than welfare state regime. In both groups married women had lower levels of quality of life on average than married men in Model 5.1, but the direction of this association changed in Model 5.6. For the low GEI sample, two significant gender interactions were apparent in both Model 5.1 and Model 5.6. Never married men had a lower mean quality of life than never married women. Widowed women reported lower quality of life than widowed men, although this was only significant at a lower level of probability in Model 5.6. Divorced men and women had lower levels of quality of life when compared to their married counterparts, and there were no gender differences in this association. In the high GEI sample divorced women had slightly higher levels of quality of life than divorced men, however, this association was only significant at a lower level of probability ($p=0.10$). Never married men and women in high GEI countries have similar levels of quality of life to each other, which were lower than those who were married. For

never married women this association attenuated further with the inclusion of health and financial characteristics than the association did for never married men.

7.3. Current marital status and quality of life: macro indicators

In the next section, the same models will be shown for seven separate macro indicators: demographic factors, lone parent poverty, traditional attitude to gender roles, public expenditure on family benefits, pension advantage for one earner couples, public expenditure on childcare and the female employment rate for older workers. The development of each of these indicators is discussed in chapter four (section 4.4.2.1). For each of the indicators the distribution of the countries compared to their original welfare regime cluster is also reported to show any key differences.

7.3.1 Average demography: age at first marriage, age at first birth and divorce rate

Table 7.3 Distribution of SHARE countries by welfare regime and demography^a

WELFARE REGIME	BELOW MEDIAN	ABOVE MEDIAN
Bismarckian	Austria Belgium	France Switzerland Netherlands Germany
Southern	Greece	Italy Spain
Scandinavian		Sweden Denmark
Post-Communist	Czech Republic Poland	
<i>Total countries</i>	5	8

^a Country ranked as *above average* if at least two of the following indicator were sample median or above: average age at first marriage, average age at first birth and divorce rate

Table 7.3 shows the welfare state regime grouping used in the previous results chapters by the high and low average demography of the SHARE countries. The development of this indicator is discussed in chapter four (section 4.4.3.1.a). Countries were considered to have *high demography* if they were higher than the SHARE median on at least two of the three indicators (average age for women at first marriage, average age at first birth and the divorce rate). The countries from the Scandinavian and Post-Communist welfare state regimes cluster together in similar ways according to these demographic indicators, higher

than the median and lower respectively. For the other regimes differences were observed. Greece was the only Southern regime country and Austria and Belgium the only Bismarckian regime countries to be below the median sample on these indicators.

Table 7.4 shows the association of marital status and quality of life for the high and low demography groups. In both groups, married women had a lower mean quality of life than married men in Model 5.1, although the direction of this association changed by Model 5.6. In the group of countries below the median for demographic indicators there were significant gender interactions for each marital status. Divorced women had lower quality of life than divorced men in the first model, although this difference was no longer significant when socio-economic circumstances were taken into account (Model 5.5 not shown). A similar pattern; lower quality of life for women until socio-economic circumstances were taken into account, was evident for widowed women compared to widowed men. Although the gender interaction for those in this group who had never married was still significant, the association was in the opposite direction. Never married men had on average a lower quality of life than never married women and this association remained significant by Model 5.6. For the countries above the median level of the demographic indicators, a slightly different picture emerged. Although being married was positively associated with quality of life for both men and women, no significant gender interactions were observed. When both financial and health circumstances were taken into account – in Model 5.6 – the negative association for widowed men and women compared to those who were married was no longer significant.

Table 7.4: Regression CASP-12 on marital status Model 5.1 & Model 5.6 by demography

	BELOW MEDIAN (11,888)		ABOVE MEDIAN (18,101)	
	MODEL 5.1 ^a	MODEL 5.6 ^b	MODEL 5.1 ^a	MODEL 5.6 ^b
	<i>β Coefficient</i> <i>[SE]^c</i>	<i>β Coefficient</i> <i>[SE]^c</i>	<i>β Coefficient</i> <i>[SE]^c</i>	<i>β Coefficient</i> <i>[SE]^c</i>
Model constant ^d	24.11	27.33	29.13	29.47
Marital status women				
Married women	REF	REF	REF	REF
Divorced women ^e	-1.96 (0.25)	-0.78 (0.21)	-1.71 [0.20]	-0.52 [0.16]
Never married women	-0.24 (0.39)	0.15 (0.32)	-0.93 [0.25]	-0.57 [0.21]
Widowed women	-1.24 (0.18)	-0.18 (0.15)	-1.09 [0.16]	-0.18 [0.13]
Marital status men				
Married men	REF	REF	REF	REF
Divorced men ^e	-0.97 (0.32)	-0.39 (0.25)	-1.69 [0.24]	-0.71 [0.20]
Never married men	-1.48 (0.39)	-1.32 (0.32)	-1.40 [0.27]	-0.59 [0.21]
Widowed men	-0.37 (0.33)	0.11 (0.27)	-0.75 [0.27]	-0.17 [0.22]
Marital status x gender^f				
Married x gender	0.76 (0.13)	-0.35 (0.11)	0.49 [0.09]	-0.67 [0.08]
Divorced ^e x gender	0.99 (0.40)	0.39 (0.33)	0.02 [0.31]	-0.20 [0.25]
Never married x gender	-1.24 (0.56)	-1.47 (0.45)	-0.46 [0.37]	-0.02 [0.30]
Widowed x gender	0.87 (0.37)	0.29 (0.30)	0.35 [0.31]	0.01 [0.25]
R ²	0.11	0.43	0.22	0.50

^a includes marital status, age age², gender and country (effect coded)

^b includes marital status, age age², gender, country (effect coded), physical health, depression, smoking status, physical activity, alcohol consumption, social support, retirement status, education level, home ownership, car ownership, subjective financial difficulties,

^c Results where p<0.05 in bold; results where p>0.05 and p<0.10 in italics

^d The model constant is also the average CASP-19 score for married women adjusted for age and age² (both grand mean centred)

^e Includes separated

^f Women are the reference category for the interaction

7.3.2 Lone parent poverty rate

The next section reports the results for the SHARE countries by high and low levels of lone parent poverty. This indicator is described in chapter four (4.4.3.1.b). Table 7.5 below, shows the countries where the poverty rate for single parent families was above the SHARE sample median, by the welfare state regime clusters. Again, similarities in their scoring on this indicator were demonstrated for the countries in the Scandinavian and Post-Communist regimes. However, from the countries of the Bismarckian regime, Austria, Belgium and the Netherlands all had a higher rate of lone parent poverty than the other countries of this regime. Greece was again separate from the other countries of the Southern Regime, although for this indicator it was in the grouping which represented lower lone parent poverty.

Table 7.5 Distribution of SHARE countries by welfare regime and lone parent poverty^a

WELFARE REGIME	HIGH LONE PARENT POVERTY ^b	LOW LONE PARENT POVERTY ^b
Bismarckian	Austria Belgium Netherlands	France Switzerland Germany
Southern	Italy Spain	Greece
Scandinavian		Sweden Denmark
Post-Communist	Czech Republic Poland	
<i>Total countries</i>	7	6

^a Poverty rate for single parent households ^b reverse coded so that a higher score is an indicator of lower lone parent poverty

Table 7.6 shows the results for the regression models for the lone parent poverty indicator. Only one gender interaction was significant for the countries which were higher than the SHARE sample median, for lone parent poverty. Never married men had lower levels of quality of life, although this was only significant in Model 5.1 and at a lower level of probability ($p < 0.10$). After health and financial circumstances were taken into account – in Model 5.6 – this association was no longer significant. For the group of countries with lone parent poverty rates above the SHARE median, again only one gender interaction was significant. Widowed women had a lower mean quality of life than widowed men, although again this was only significant in Model 5.1 and at the lower level of statistical significance.

Table 7.6: Regression CASP-12 on marital status Model 5.1 & Model 5.6 by lone parent poverty

	HIGHER LONE PARENT POVERTY		LOWER LONE PARENT POVERTY	
	MODEL 5.1 ^a	MODEL 5.6 ^b	MODEL 5.1 ^a	MODEL 5.6 ^b
	<i>Coeff. [SE]^c</i>	<i>Coeff. [SE]^c</i>	<i>Coeff. [SE]^c</i>	<i>Coeff. [SE]^c</i>
Model constant ^d	24.54	27.61	29.25	29.50
Marital status women:				
Married women	REF	REF	REF	REF
Divorced women ^e	-2.00 [0.24]	-0.80 [0.19]	-1.69 [0.21]	-0.48 [0.18]
Never married women	-0.68 [0.33]	<i>-0.45 [0.26]</i>	-0.79 [0.27]	<i>-0.29 [0.23]</i>
Widowed women	-1.10 [0.17]	<i>-0.15 [0.13]</i>	-1.37 [0.17]	-0.32 [0.14]
Marital status men:				
Married men	REF	REF	REF	REF
Divorced men ^e	-1.39 [0.29]	-0.57 [0.23]	-1.36 [0.25]	-0.53 [0.21]
Never married men	-1.49 [0.32]	-1.03 [0.25]	-1.40 [0.30]	-0.61 [0.25]
Widowed men	<i>-0.57 [0.30]</i>	<i>0.02 [0.23]</i>	-0.63 [0.29]	<i>-0.13 [0.24]</i>
Marital status x gender:^f				
Married x gender	0.80 [0.11]	-0.58 [0.09]	0.32 [0.11]	-0.50 [0.09]
Divorced ^e x gender	0.61 [0.37]	0.23 [0.29]	0.34 [0.33]	-0.06 [0.27]
Never married x gender	<i>-0.81 [0.46]</i>	<i>-0.58 [0.36]</i>	<i>-0.61 [0.41]</i>	<i>-0.33 [0.34]</i>
Widowed x gender	0.53 [0.33]	0.17 [0.26]	<i>0.74 [0.33]</i>	0.19 [0.27]
R ²	0.17	0.49	0.21	0.45

^a includes marital status, age age², gender and country (effect coded)

^b includes marital status, age age², gender, country (effect coded), physical health, depression, smoking status, physical activity, alcohol consumption, social support, retirement status, education level, home ownership, car ownership, subjective financial difficulties,

^c Results where p<0.05 in bold; results where p>0.05 and p<0.10 in italics

^d The model constant is also the average CASP-19 score for married women adjusted for age and age² (both grand mean centred)

^e Includes separated

^f Women are the reference category for the interaction

7.3.3 Traditional attitudes to gender roles (European Social Survey)

The next section shows the results stratified by responses to three questions in the European Social Survey (ESS) concerning attitudes to gender roles. In chapter four (section 4.4.3.1.c) the development of this measure is discussed in more detail. The countries that scored above the median for more than one question were considered to have more traditional attitudes to gender roles. The only deviation from the welfare regime groupings was that Belgium and France reported more traditional attitudes than the rest of the countries in the Bismarckian welfare state regime.

Table 7.7 Distribution of SHARE countries by welfare regime and traditional attitudes ^a

WELFARE REGIME	TRADITIONAL ATTITUDES (ESS)	LESS TRADITIONAL ATTITUDES (ESS)
Bismarckian	Belgium France	Austria Switzerland Netherlands Germany
Southern^b	Spain Greece	
Scandinavian		Sweden Denmark
Post-Communist	Czech Republic Poland	
<i>Total countries</i>	6	6

^a Above median percentage of country ESS respondents who 'strongly agree' on one question or more regarding female and male roles ^b Doesn't include Italy

In Table 7.8 the group reporting more traditional attitudes showed several significant gender interactions in the association between marital status and quality of life. Firstly, married men had a higher quality of life than married women, although the direction of this association changed by Model 5.6. Both divorced men and women had lower mean quality of life than their counterparts who were married, and there were no significant differences between the quality of life of divorced men and women. Never married men, on the other hand, reported lower quality of life than never married women. This association was still significant when financial and health circumstances were taken into account in Model 5.6. Model 5.1 suggested that widowed women had lower levels of quality of life than widowed men on average, although this was no longer significant in the fully adjusted model. In the countries with less traditional attitudes, there were no initial differences between the average quality of life of married men or married women. Although after adjusting for health characteristics, a significantly lower quality of life for married men was suggested. No other gender interactions were significant for either model in this group.

Table 7.8: Regression CASP-12 on marital status Model 5.1 & Model 5.6 by traditional attitudes

	MORE TRADITIONAL (N=14,918)		LESS TRADITIONAL (N=12,267)	
	MODEL 5.1 ^a	MODEL 5.6 ^b	MODEL 5.1 ^a	MODEL 5.6 ^b
	<i>β Coefficient</i> <i>[SE]^c</i>	<i>β Coefficient</i> <i>[SE]^c</i>	<i>β Coefficient</i> <i>[SE]^c</i>	<i>β Coefficient</i> <i>[SE]^c</i>
Model constant ^d	22.65	28.55	28.31	28.81
Marital status women:				
Married women	REF	REF	REF	REF
Divorced women ^e	-1.89 [0.24]	-0.72 [0.19]	-1.72 [0.21]	-0.40 [0.18]
Never married women	-0.15 [0.34]	-0.17 [0.27]	-1.26 [0.29]	-0.32 [0.24]
Widowed women	-1.28 [0.17]	-0.22 [0.14]	-0.94 [0.18]	0.02 [0.15]
Marital status men:				
Married men	REF	REF	REF	REF
Divorced men ^e	-1.29 [0.29]	-0.57 [0.23]	-1.46 [0.26]	-0.57 [0.22]
Never married men	-1.39 [0.33]	-1.08 [0.26]	-1.74 [0.31]	-0.60 [0.26]
Widowed men	<i>-0.55 [0.31]</i>	0.13 [0.25]	-0.79 [0.29]	-0.23 [0.24]
Marital status x gender^f				
Married x gender	0.90 [0.12]	-0.43 [0.10]	0.08 [0.11]	-0.63 [0.09]
Divorced ^e x gender	0.60 [0.37]	0.15 [0.30]	0.26 [0.33]	-0.16 [0.27]
Never married x gender	-1.23 [0.47]	-0.92 [0.38]	-0.48 [0.42]	-0.28 [0.35]
Widowed x gender	0.73 [0.34]	0.35 [0.28]	0.15 [0.33]	-0.25 [0.28]
R ²	0.10	0.43	0.08	0.38

^a includes marital status, age age², gender and country (effect coded)

^b includes marital status, age age², gender, country (effect coded), physical health, depression, smoking status, physical activity, alcohol consumption, social support, retirement status, education level, home ownership, car ownership, subjective financial difficulties,

^c Results where p<0.05 in bold; results where p>0.05 and p<0.10 in italics

^d The model constant is also the average CASP-19 score for married women adjusted for age and age² (both grand mean centred)

^e Includes separated

^f women are the reference category for the interaction

7.3.4 Public spending on family benefits in cash, benefits and tax measures

The next section presents the results for the countries grouped according to their level of public spending on family benefits. Additional information about this measure is provided in chapter four (section 4.4.3.1.d). Only one country - Switzerland – was clustered differently from the original welfare regime grouping.

Table 7.9: Distribution of SHARE countries by welfare regime and spending on family benefits^a

WELFARE REGIME	LOW SPENDING	HIGH SPENDING
Bismarckian	Switzerland	Austria Belgium France Netherlands Germany
Southern	Spain Greece Italy	
Scandinavian		Sweden Denmark
Post-Communist	Czech Republic Poland	
<i>Total countries</i>	6	7

^a Public spending (as % of GDP) on family benefits in cash, services and tax measures

The results for the regression models grouped according to their spending on family benefits are reported in Table 7.10. In the countries with lower public spending, married women had lower levels of quality of life than married men, although this was only significant at the lower level ($p < 0.10$). The direction of this association was reversed when health and financial circumstances were taken into account. Never married men reported lower levels of quality of life than women and this gender difference was still significant in Model 5.6. Alternatively widowed women had lower quality of life than widowed men, an association which again remained significant in the final model.

In the group where public spending on family benefits was higher, two significant gender differences were observed. Again, married women initially had lower levels of quality of life than married men, although when the model was adjusted for health, the direction of this association was reversed. Divorced women had lower levels of quality of life than divorced

men in Model 5.1; however, when financial circumstances were taken into account this difference was no longer significant.

Table 7.10: Regression CASP-12 on marital status Model 5.1 & Model 5.6 by spending on family benefits

	LOW SPENDING (13,959)		HIGH SPENDING (16,030)	
	MODEL 5.1 ^a	MODEL 5.6 ^b	MODEL 5.1 ^a	MODEL 5.6 ^b
	β Coefficient [SE] ^c	β Coefficient [SE] ^c	β Coefficient [SE] ^c	β Coefficient [SE] ^c
Model constant ^d	23.64	27.10	27.45	28.57
Marital status women				
Married women	REF	REF	REF	REF
Divorced women ^e	-1.18 [0.26]	<i>-0.39 [0.21]</i>	-2.27 [0.20]	-0.75 [0.16]
Never married women	-0.09 [0.34]	-0.30 [0.27]	-1.16 [0.27]	-0.34 [0.22]
Widowed women	-1.16 [0.17]	<i>-0.26 [0.14]</i>	-1.16 [0.17]	-0.12 [0.14]
Marital status men				
Married men	REF	REF	REF	REF
Divorced men ^e	-1.19 [0.31]	<i>-0.42 [0.25]</i>	-1.52 [0.25]	-0.60 [0.20]
Never married men	-1.50 [0.34]	-1.18 [0.27]	-1.40 [0.29]	-0.54 [0.24]
Widowed men	<i>0.13[0.32]</i>	0.40 [0.26]	-1.16 [0.27]	-0.36 [0.22]
Marital status x gender^f				
Married x gender	1.08 [0.12]	-0.39 [0.10]	<i>0.19[0.10]</i>	-0.67 [0.08]
Divorced ^e x gender	-0.00 [0.40]	-0.04 [0.32]	0.75 [0.31]	0.14 [0.25]
Never married x gender	-1.41 [0.48]	-0.89 [0.38]	-0.25 [0.40]	-0.19 [0.32]
Widowed x gender	1.29 [0.36]	0.67 [0.28]	0.00 [0.31]	-0.25 [0.25]
R ²	0.17	0.47	0.10	0.41

^a includes marital status, age age², gender and country (effect coded)

^b includes marital status, age age², gender, country (effect coded), physical health, depression, smoking status, physical activity, alcohol consumption, social support, retirement status, education level, home ownership, car ownership, subjective financial difficulties,

^c Results where p<0.05 in bold; results where p>0.05 and p<0.10 in italics

^d The model constant is also the average CASP-19 score for married women adjusted for age and age² (both grand mean centred)

^e Includes separated

^f women are the reference category for the interaction

7.3.5 Pension advantage for one-earner couples

The next section presents the countries of SHARE stratified according to whether there is a pension advantage for one-earner couples, when compared to single people on the same level of earnings. This measure is discussed further in chapter four (4.4.3.1.e). The grouping for this indicator for countries in the Southern and Scandinavian welfare state regime was very similar, showing high spending for the Scandinavian regime and low spending for the Southern. However, the countries of the Bismarckian regime were split between the two groupings, with Belgium, France and the Netherlands having a pension advantage and the

other countries not. For the countries of the Post-Communist regime, the Czech Republic was categorised as having a pension advantage, whilst Poland was not.

Table 7.11: Distribution of SHARE countries by welfare regime and pension advantage ^a

WELFARE REGIME	NO ADVANTAGE	ADVANTAGE
Bismarckian	Switzerland Austria Germany	Belgium France Netherlands
Southern	Spain Greece Italy	
Scandinavian		Sweden Denmark
Post-Communist	Poland	Czech Republic
<i>Total countries</i>	7	6

^a Pension advantage for one-earner couples compared with single people on the same level of earnings

The results from the models grouped according to pension advantage were in terms of observed gender differences, similar to those from the previous indicator, public spending on family benefits (Table 7.10). For both groups, those who did and didn't have a pension advantage, an initial difference between the quality of life of married women and men was observed. Married women reported lower levels of quality of life initially, although the direction of this association was reversed when both health and socio-economic circumstances were taken into account (Model 5.6). For the group where no pension advantage was observed, never married men had on average a lower level of quality of life than never married women, and widowed men a higher quality of life compared to widowed women. Both of these gender differences were still significant by Model 5.6. In the group of countries with a pension advantage, divorced women reported a lower level of quality of life than divorced men. However, this gender difference was no longer significant by Model 5.6, when socio-economic circumstances were included.

Table 7.12: Regression CASP-12 on marital status Model 5.1 & Model 5.6 by pension advantage

	NO ADVANTAGE (14,912)		ADVANTAGE (15,077)	
	MODEL 5.1 ^a	MODEL 5.6 ^b	MODEL 5.1 ^a	MODEL 5.6 ^b
	<i>β Coefficient</i> <i>[SE]^c</i>	<i>β Coefficient</i> <i>[SE]^c</i>	<i>β Coefficient</i> <i>[SE]^c</i>	<i>β Coefficient</i> <i>[SE]^c</i>
Model constant ^d	24.51	27.37	28.98	29.91
Marital status men				
Married men	REF	REF	REF	REF
Divorced men ^e	-1.15 [0.27]	<i>-0.40 [0.21]</i>	-2.21 [0.19]	-0.76 [0.16]
Never married men	-0.20 [0.30]	-0.26 [0.24]	-1.20 [0.30]	-0.40 [0.25]
Widowed men	-1.22 [0.17]	-0.44 [0.14]	-1.14 [0.17]	0.02 [0.14]
Marital status women				
Married women	REF	REF	REF	REF
Divorced women ^e	-1.41 [0.32]	-0.60 [0.25]	-1.31 [0.24]	-0.54 [0.20]
Never married women	-1.60 [0.32]	-1.12 [0.25]	-1.32 [0.31]	-0.61 [0.25]
Widowed women	0.18 [0.31]	0.32 [0.25]	-1.31 [0.28]	<i>-0.38 [0.23]</i>
Marital status x gender^f				
Married x gender	0.98 [0.11]	-0.44 [0.09]	0.24 [0.11]	-0.64 [0.09]
Divorced ^e x gender	-0.26 [0.41]	-0.20 [0.33]	0.90 [0.31]	0.22 [0.25]
Never married x gender	-1.40 [0.44]	-0.86 [0.35]	-0.12 [0.43]	-0.21 [0.35]
Widowed x gender	1.40 [0.35]	0.76 [0.28]	-0.17 [0.32]	-0.40 [0.26]
R ²	0.21	0.50	0.15	0.44

^a includes marital status, age age², gender and country (effect coded)

^b includes marital status, age age², gender, country (effect coded), physical health, depression, smoking status, physical activity, alcohol consumption, social support, retirement status, education level, home ownership, car ownership, subjective financial difficulties,

^c Results where p<0.05 in bold; results where p>0.05 and p<0.10 in italics

^d The model constant is also the average CASP-19 score for married women adjusted for age and age² (both grand mean centred)

^e Includes separated

^f women are the reference category for the interaction

7.3.6 Public spending on childcare for under fives

The following tables show the results by the indicator which gauges the level of public spending on childcare. More information is again provided about the development of this indicator in chapter four (4.4.3.1.f). The countries were grouped according to whether they reported above or below the SHARE sample median for levels of public spending on childcare. Table 7.13 reports the grouping for this measure by the original welfare state regime clusters. Two departures from the welfare state regime clusters were observed. Spain reported a higher level of public spending on childcare compared to the rest of the Southern welfare state regime countries. Switzerland and Germany appeared to have lower levels compared to the other countries from the Bismarckian regime.

Table 7.13: Distribution of SHARE countries by welfare regime and childcare spending ^a

WELFARE REGIME	LOWER	HIGHER
Bismarckian	Switzerland Germany	Austria Belgium France Netherlands
Southern	Greece Italy	Spain
Scandinavian		Sweden Denmark
Post-Communist	Poland Czech Republic	
<i>Total countries</i>	7	6

^a Childcare spending as a % of GDP

In Table 7.14 the results of the regression models for this indicator are presented. There was a significant difference between the levels of mean quality of life for married men and women in both groups. For both levels of public spending on childcare married women had a slightly lower quality of life in Model 5.1 but in Model 5.6 this association was reversed and men had on average a lower level of quality of life. In the group of countries with lower levels of childcare spending, never married men had lower quality of life than never married women and widowed men reported higher levels of quality of life than widowed women. Both of these gender differences were still significant in Model 5.6 when health and socio-economic circumstances were taken into account, although the difference between widowed men and women was significant at a lower level of ($p < 0.10$). In the group with higher public spending on childcare, divorced women have slightly higher quality of life compared to divorced men, however, when financial circumstances are taken into account this difference is no longer significant (not shown).

Table 7.14: Regression CASP-12 on marital status Model 5.1 & Model 5.6 by childcare spending

	LOWER SPENDING (14,370)		HIGHER SPENDING (17,001)	
	MODEL 5.1 ^a	MODEL 5.6 ^b	MODEL 5.1 ^a	MODEL 5.6 ^b
	<i>Coeff. [SE]^c</i>	<i>Coeff. [SE]^c</i>	<i>Coeff. [SE]^c</i>	<i>Coeff. [SE]^c</i>
Model constant ^d	22.70	28.27	26.82	28.29
Marital status women				
Married women	REF	REF	REF	REF
Divorced women ^e	-1.42 [0.24]	-0.50 [0.20]	-2.12 [0.21]	-0.74 [0.17]
Never married women	-0.28 [0.34]	-0.16 [0.27]	-1.04 [0.28]	<i>-0.44 [0.23]</i>
Widowed women	-1.35 [0.17]	-0.34 [0.14]	-0.99 [0.17]	-0.04 [0.14]
Marital status men				
Married men	REF	REF	REF	REF
Divorced men ^e	-1.32 [0.29]	-0.47 [0.23]	-1.44 [0.26]	-0.63 [0.21]
Never married men	-1.68 [0.34]	-1.38 [0.28]	-1.23 [0.29]	<i>-0.44 [0.23]</i>
Widowed men	0.05 [0.31]	0.20 [0.25]	-1.14 [0.29]	-0.26 [0.23]
Marital status x gender^f				
Married x gender	0.80[0.11]	-0.43 [0.09]	0.42 [0.10]	-0.64 [0.09]
Divorced ^e x gender	0.10 [0.38]	0.03 [0.30]	0.69 [0.33]	0.11 [0.26]
Never married x gender	-1.40 [0.48]	-1.22 [0.39]	-0.19 [0.40]	0.00 [0.32]
Widowed x gender	1.40 [0.34]	<i>0.53 [0.28]</i>	-0.15 [0.32]	-0.22 [0.26]
R ²	0.20	0.49	0.13	0.44

^a includes marital status, age age², gender and country (effect coded)

^b includes marital status, age age², gender, country (effect coded), physical health, depression, smoking status, physical activity, alcohol consumption, social support, retirement status, education level, home ownership, car ownership, subjective financial difficulties,

^c Results where p<0.05 in bold; results where p>0.05 and p<0.10 in italics

^d The model constant is also the average CASP-19 score for married women adjusted for age and age² (both grand mean centred)

^e Includes separated

^f women are the reference category for the interaction

7.3.7 Female Employment Rate: Older workers (55-64)

The final indicator considered was the female employment rate for older workers. Further information about this indicator can be found in chapter four (section 4.4.3.1.g). The only countries which differed from the original welfare regime groupings were Austria and Belgium. Both of these countries reported lower rates of female employment in older workers than the others from the Bismarckian regime.

Table 7.15: Distribution of SHARE countries by welfare regime and female employment

WELFARE REGIME	LOW	HIGH
Bismarckian	Austria Belgium	Switzerland Germany Netherlands France
Southern	Spain Greece Italy	
Scandinavian		Sweden Denmark
Post-Communist	Poland Czech Republic	
<i>Total countries</i>	7	6

The results from the regression models for this indicator are shown Table 7.16. For the countries with lower rates of female employment initial gender differences were evident for every category of marital status. In Model 5.1 an initial difference between mean quality of life of married men and married women was observed. However, the direction of this association was reversed by Model 5.6, so that the quality of life of married men was lower than that of married women. Never married men also had lower levels of quality of life than never married women and this difference was consistently significant when health and socio-economic circumstances were taken into account. Both divorced and widowed women had lower levels of quality of life than men of the same marital status, although this difference was no longer significant for divorced women by Model 5.6. There was only one significant gender difference for the group of countries where the female employment rate was higher. Initially no difference was observed between the average quality of life levels for married men and women; however when health circumstances were taken into account a significant difference was apparent in Model 5.6, with married men having lower levels of quality of life than married women.

Table 7.16: Regression CASP-12 on marital status Model 5.1 & Model 5.6 by female employment

	LOW FEMALE EMPLOYMENT (N= 16,613)		HIGH FEMALE EMPLOYMENT (N=13,376)	
	MODEL 5.1 ^a	MODEL 5.6 ^b	MODEL 5.1 ^a	MODEL 5.6 ^b
	<i>Coeff. [SE]^c</i>	<i>Coeff. [SE]^c</i>	<i>Coeff. [SE]^c</i>	<i>Coeff. [SE]^c</i>
Model constant ^d	23.57	26.89	29.39	27.38
Marital status women				
Married women	REF	REF	REF	REF
Divorced women ^e	-1.80 [0.24]	-0.75 [0.19]	-1.89 [0.20]	-0.53 [0.17]
Never married women	-0.26 [0.32]	-0.27 [0.26]	-1.10 [0.28]	-0.37 [0.23]
Widowed women	-1.13 [0.16]	-0.26 [0.13]	-1.14 [0.18]	-0.09 [0.15]
Marital status men				
Married men	REF	REF	REF	REF
Divorced men ^e	-0.99 [0.29]	-0.34 [0.23]	-1.72 [0.25]	-0.74 [0.21]
Never married men	-1.28 [0.32]	-1.08 [0.25]	-1.61 [0.30]	-0.57 [0.25]
Widowed men	-0.26 [0.30]	0.19 [0.23]	-1.01 [0.29]	-0.33 [0.24]
Marital status x gender^f				
Married x gender	0.97 [0.11]	-0.42 [0.09]	0.15 [0.10]	-0.68 [0.09]
Divorced ^e x gender	0.81 [0.38]	0.41 [0.30]	0.17 [0.32]	-0.22 [0.26]
Never married x gender	-1.02 [0.45]	-0.80 [0.36]	-0.51 [0.41]	-0.20 [0.34]
Widowed x gender	0.87 [0.33]	<i>0.45 (0.26)</i>	0.12 [0.33]	-0.25 [0.27]
R ²	0.12	0.45	0.11	0.40

^a includes marital status, age age², gender and country (effect coded)

^b includes marital status, age age², gender, country (effect coded), physical health, depression, smoking status, physical activity, alcohol consumption, social support, retirement status, education level, home ownership, car ownership, subjective financial difficulties,

^c Results where p<0.05 in bold; results where p>0.05 and p<0.10 in italics

^d The model constant is also the average CASP-19 score for married women adjusted for age and age² (both grand mean centred)

^e Includes separated

^f women are the reference category for the interaction

7.4 Quality of life concordance by gender relations

In the following section the association between the concordance of quality of life scores and the gender equality index is examined for the countries of SHARE. Concordance – the measure of similarity of quality of life scores – was introduced in chapter six (section 6.1) and the intra-class coefficient (ICC) was introduced as a way of measuring it. In this section the ICC for each country in the SHARE sample was calculated from Model 6.3 in chapter six (section 6.2). This was a MLM linear regression model of CASP-12 adjusted for individual, partner and household characteristics. Figure 7.1 shows this ICC plotted against the GEI score for each country. The within sample median line for each scale is also displayed on the graph. A weak linear relationship between high GEI and low concordance was suggested. However, some variation within the welfare regime clusters was also apparent. Although all the countries in the Southern welfare regime – Italy (IT), Spain (ES) and Greece (GR) – were

above the median ICC score, only Spain had a higher than average GEI. Both countries – Sweden (SW) and Denmark (DK) – from the Scandinavian regime showed low concordance and high gender equality (GEI). In the Post-Communist countries – Poland (PL) and the Czech Republic (CZ) – both countries showed a similar pattern of low gender equality although they had different ICC scores. The Bismarckian regime seemed to split into two clusters of countries; those who had lower levels of concordance and higher GEI scores– Germany (DE), the Netherlands (NL) and France (FR) – and those who had higher concordance and lower GEI scores – Austria (AT), Belgium (BE) and Switzerland (CH).

Figure 7.1 Country level ICC by GEI score

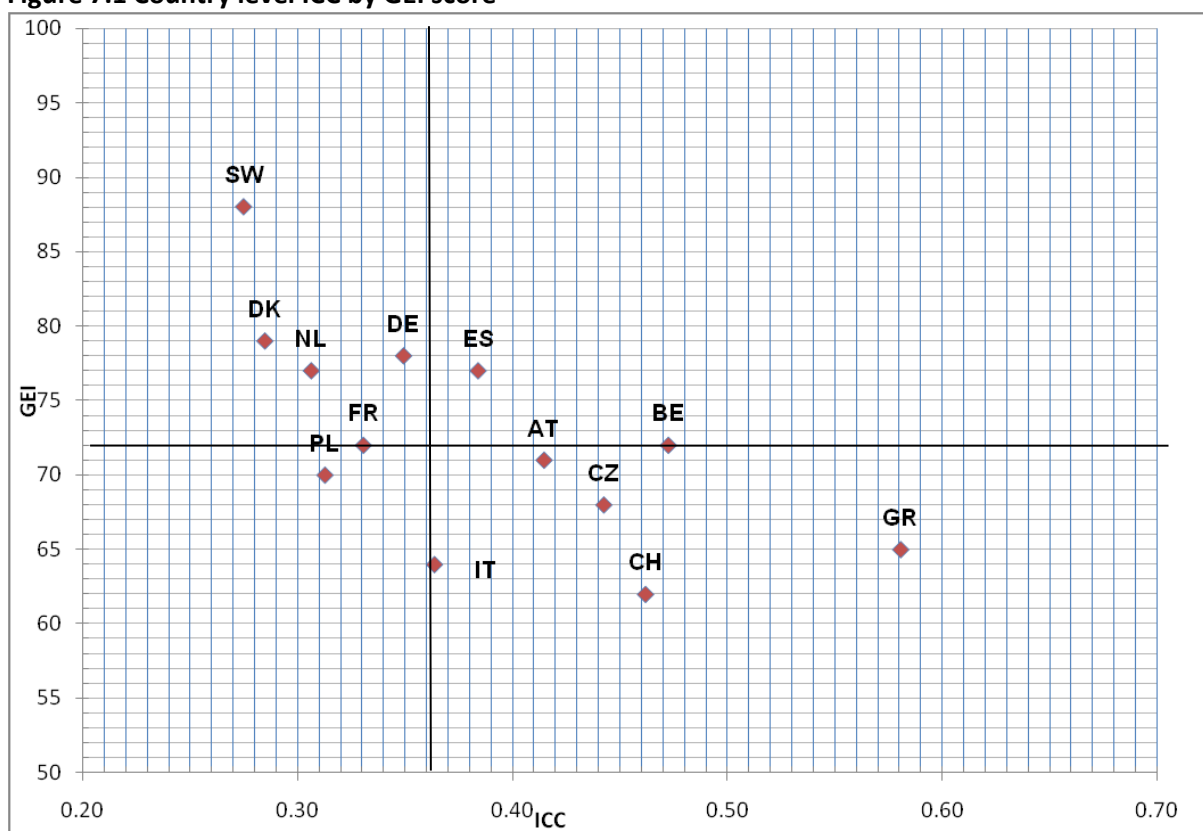
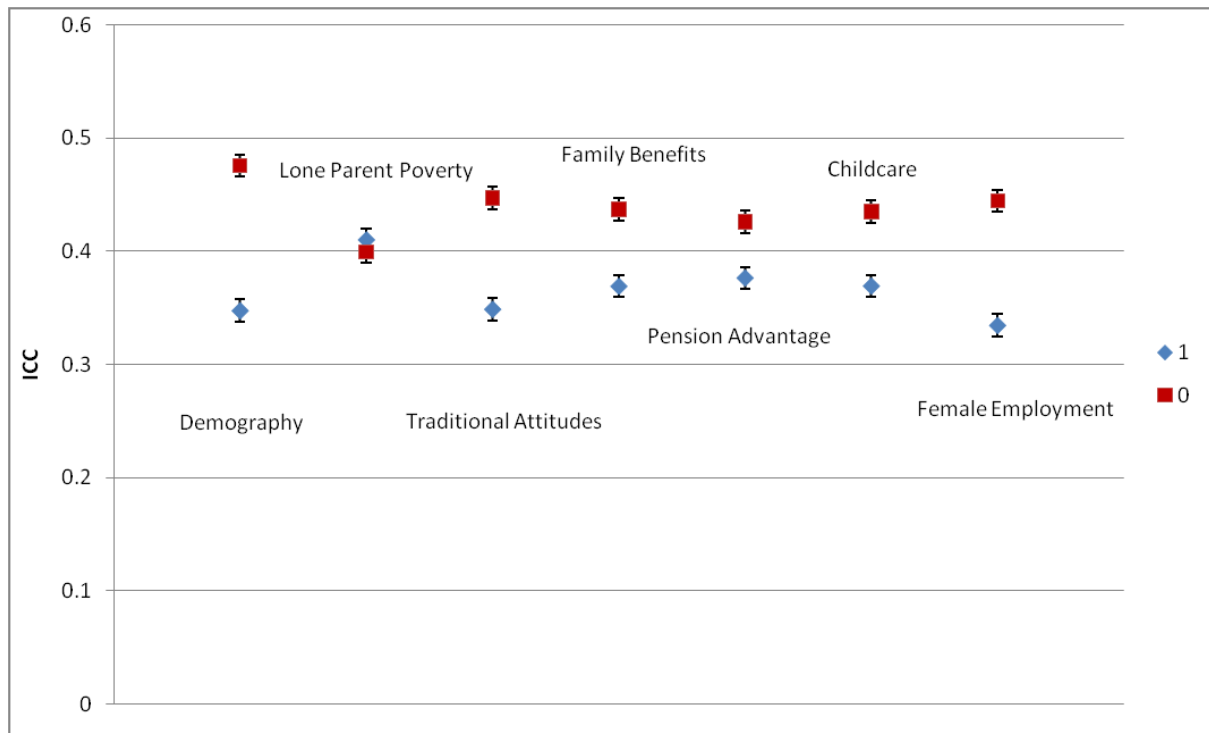


Figure 7.2 also reports ICC scores from multi-level models adjusted for individual, partner and household characteristics; however, these scores are from models stratified by the seven macro indicators presented earlier in this chapter (section 7.2). The ICC is plotted on the graph for both the high (1) and low (0) grouping for each indicator and confidence intervals for these ICC scores are also displayed. The lone parent poverty was the only indicator for which no difference was seen between the ICC scores for both groups. For all

of the other indicators a significant difference was observed and the above median grouping, which usually indicates a more 'gender equal' society, had the lowest level of concordance. The three indicators where the largest difference between the two scores was reported were average demography (section 7.2.1), traditional attitudes (ESS) (section 7.2.3.) and the female employment rate for older workers (7.2.7).

Figure 7.2 Quality of life concordance (ICC) by macro indicators



7.5 Summary

This chapter has attempted to explore whether a more gender focused approach to cross-national comparisons showed more gender differences to the results using welfare state regime clusters from chapters five and six. Several similarities were observed between the groupings of the countries using welfare state regimes and gender relations. However certain departures were also evident. The countries in the less gender equal group appear to have more significant gender differences for the association between marital status and quality of life, although this was not a consistent pattern. A higher level of concordance was also observed for the countries in the less gender equal group.

Chapter 8

8.1 The main findings of this study

This section reviews the research questions this thesis aims to answer, provides a summary of the findings from the previous three chapters, and considers how the findings address each of the research questions.

8.1.1 Marital status and quality of life

1.2 To what extent does the association between current marital status and quality of life at older ages vary by both gender and welfare state regime?

Marital status was consistently found to be associated with quality of life at older ages in each of the welfare state regimes. Those who were married often had higher levels of quality of life compared to those who were not currently married – divorced, widowed or never married- in the unadjusted analysis, however these differences were not always consistently observed other than in the Bismarckian regime. In a number of specific groups, significant differences were not observed between the quality of life of those who were married and those in certain single groups, for example women who had never married in the Southern or Post-Communist regime compared to married women. Those who were divorced initially had lower levels of quality of life in the unadjusted analysis, compared to those who were married. In each regime the variation in quality of life was mostly between which unmarried groups had *lower* levels of quality of life in each welfare state regime, compared with those who were married. The exceptions to this are that in the Liberal regime where, once health was taken into account, men who were widowed had slightly higher levels of quality of life than married men. Only in the Bismarckian regime was it observed that all of those who were unmarried – divorced, widowed or never married - had significantly lower levels of quality of life than those who were married. Therefore the hypothesis (H1.5) for these research questions that being married will be associated with higher levels of quality of life in the countries where there is a lower level of state provided welfare was not supported by these results.

In unadjusted analyses several gender and welfare regime differences were observed in the association between current marital status and quality of life. Widowed women in the Southern and Liberal regime had lower levels of quality of life than widowed men, and divorced women in the Bismarckian regime had a lower level of quality of life when compared to divorced men. However, in the Post-Communist regime the only significant gender difference was that never married men had lower levels of quality of life compared to never married women. In the Scandinavian regime no gender differences were observed for the association between current marital status and quality of life in unadjusted analysis.

When health and socio-economic circumstances were taken into account, gender differences in the Liberal, Southern and Bismarckian welfare state regimes were no longer statistically significant. This supports the hypothesis (H1.4) related to these research questions, that adjusting for a range of health and socio-economic factors would attenuate the association between marital status and quality of life. The gender difference between the quality of life of divorced men and women in the Bismarckian regime was observed to be especially sensitive to socio-economic covariates. In the final fully adjusted model two associations remained statistically significant: never married men in the Post-Communist regime had lower quality of life than never married women, and in the Scandinavian regime, taking socio-economic circumstances into account revealed a gender difference between those who were widowed, with widowed men having, on average, a lower quality of life.

Although gender differences in the association between quality of life and marital status were observed in each of the regimes, the pattern does not support the hypothesis (H1.6) that these differences would be greater in the welfare regimes with an emphasis on the family as a provider of welfare (Bismarckian, Southern and Post-Communist).

1.2. To what extent does the association between life course marital status and quality of life at older ages vary by both gender and welfare state regime?

When a life course classification of marital status was examined, those who were continually married had the highest levels of quality of life in each welfare state regime. Differences

between those who had remarried with those who were in their first marriage were only observed, however, for women in the Bismarckian regime. This supports to some extent the hypothesis (H1.2) that those who were continually married would have higher levels of quality of life, even when compared to those who were remarried. The pattern of gender differences in the findings of those analyses which used the cross-sectional classification of marital status and those which used the life course classification showed several similarities. In the Southern and Liberal regimes when a life course classification was used, widowed women also had lower levels of quality of life than widowed men and again these differences were no longer significant in a fully adjusted model. However, in the models for life course marital status, no gender differences were observed in the Post-Communist regime.

1.3. Is there an association between current living arrangements and quality of life at older ages, is it moderated by marital status and does the association vary by welfare state regime?

An association between living arrangements and quality of life was observed in the unadjusted analysis in all the welfare state regimes, except the Southern regime. When living arrangements were included in the fully adjusted model, few differences were observed between married and unmarried people who lived together as a couple. In the final model, when health and socio-economic circumstances were taken into account, no differences were observed by living arrangements in the Bismarckian regime. In the Scandinavian and Liberal welfare state regimes the living arrangements of those who were single remained significant predictors of quality of life. However, the association between living arrangements and quality of life was particularly important for those in the Post-Communist regime, especially for those who were single. Therefore mixed support was found for the hypothesis (H1.3) that the association between living arrangements and quality of life would be stronger for those in the welfare state regimes where welfare is provided through the family.

8.1.2 Spousal interdependence

- 2.1. *Is the quality of life of older married couples interdependent and do these levels of interdependence vary across welfare state regimes?*

- 2.2. *Are spouse characteristics independently associated with quality of life for older married couples, and are there gender differences in these associations between spouse characteristics and quality of life?*

Concordance between the quality of life of older married couples was evident in all the welfare regimes considered, although the strength of this concordance varied. In terms of the levels of concordance observed across the regimes, two distinct groups appeared to emerge; the Bismarckian, Post-Communist and Southern regimes had significantly higher levels of concordance than the Liberal and Scandinavian regimes. This supports the first hypothesis for these research questions, that concordance will be observed and that the strength of it will vary by welfare regime. However, the variation was smaller than expected, since significant differences were not found between all regimes.

Spouse characteristics were significantly associated with quality of life, and including partner characteristics contributed to model fit, in all the welfare states regimes. Spouse's depression was significantly associated with quality of life in all the regimes, whilst the spousal physical health characteristics which were associated with quality of life varied. These results support the second hypothesis that spousal characteristics would be independently associated with quality of life in each welfare state regime. Several gender differences in the association between partner characteristics and quality of life were also observed. In the Bismarckian regime, several spousal predictors of quality of life were significant, and no gender differences were observed. In the Southern regime, spouse's IADL predicted quality of life only for men. In the Scandinavian regime, a high educational status of a spouse resulted in lower quality of life only for men. Two gender differences were observed in the Liberal regime; spouse's depression had a stronger negative association for men and spouse's educational status was associated with higher quality of life for women only. In the Post-Communist regime spouse's depression only had a negative effect

women's quality of life. The presence of these gender differences supports part of the third hypothesis that the association of spousal characteristics will differ between men and women. The number of spousal characteristics that were associated with quality of life varied by welfare regime, as did which characteristics these were. However, the relationships between spousal characteristics and quality of life did not appear to be stronger in those welfare regimes with an emphasis on the family as a provider of welfare, so the fourth hypothesis in this section was not supported.

8.1.3 A gender relations approach

4.1. Does the use of a more gender focused comparative method alter the pattern of gender differences observed between marital status and quality of life?

4.2. Does the level of spousal interdependence also vary between countries with different levels of macro level gender relations?

When a comparative method was used which focused on differences between the countries' gender focused policies, the groupings that the countries fell into was often similar to those for the welfare state regimes. However, certain differences did emerge. For example, when female employment and average demography were considered, Spain was in the more gender equal cluster, unlike the other countries from the Southern welfare regime. Switzerland was less likely to spend higher than the median on childcare or family benefits. Spain, Austria and Switzerland were all, in terms of their GEI scores, clustered differently to their welfare state regime.

Overall, countries which were grouped together due to scoring higher on certain gender indicators had fewer gender differences in the association between marital status and quality of life. These results support both the first hypotheses for this set of research questions. The association between marital status and quality of life was not different for women or men for the GEI grouping and also for three of the macro indicators; average demography, traditional attitudes and pension advantage. When countries were grouped according to public spending either on childcare or family benefits, differences by gender were observed for both groups. To some extent these findings support the second

hypothesis that there will be more gender differences in the association between marital status and quality of life when there is less gender equality, although this was not the case when gender equality was gauged using public spending or lone parent poverty. The level of spousal concordance in quality of life also varied by macro level gender relations; a weak negative association was observed between the country level ICC and GEI score and significant differences were found between groupings according to each measure of gender relations, except for the indicator of lone parent poverty, with a higher level of concordance being observed for the less gender equal group of countries. These results suggest that the third hypothesis for these research questions is supported, spousal concordance varied according to gender relations groupings, and although weak, there was an association between low concordance and higher gender equality.

8.2 What is already known on this topic?

Overall the literature on marital status and well-being suggested a consistent relationship; those who were married having higher levels of well-being than those who were not. Being divorced has been shown to have a particularly negative effect on well-being in previous research (Evans and Kelley, 2004; Zimmermann and Easterlin, 2006; Gove and Shin, 1989). However, gender differences were often observed, with both men and women of the same marital status reporting lower levels of health and well-being. Less work has considered these relations cross-nationally. Research that did, often observed that whilst those who are married continue to have higher levels of well-being (Stack, 1998; Stack and Eshleman, 1998; Ryan et al., 1998), there were different patterns observed in the strength of this effect, especially when gender differences were explored cross-nationally. For example life satisfaction was found to be particularly low for divorced women living in the central region of Europe (Gaymu and Springer, 2010).

A scale developed with the purpose of examining well-being in later life, CASP, was found to be influenced by a range of predictors. This is a quality of life measure designed to capture dimensions of subjective well-being in later life beyond health status (Gilleard and Higgs, 2000). However, the relationship between marital status and this scale have not been

directly examined. Furthermore, although marital status was found to predict CASP-19 in ELSA, this association has never previously been examined using data from SHARE, and gender variation in quality of life by marital status was not explored in either dataset. Inconsistent evidence about gender differences in quality of life in old age, measured using CASP, has been found (Blane et al., 2004; Blane et al., 2008; Netuveli et al., 2006; Zaninotto et al., 2009).

Evidence of concordance between the mental and physical health of married couples has been previously observed (Wilson, 2001; Tower and Kasl, 1996a; Townsend et al., 2001; Wilson and Waddoups, 2002). This has also been observed in older couples, although negative emotions, such as depression have been observed to be more 'contagious' (Hoppmann and Gerstorf, 2009). Although the majority of this research has been undertaken in America, concordance in depressive symptoms has also been demonstrated in couples of all ages from Canada (Du Fort Galbaud et al., 1994), Sweden (Hagnell et al., 1974) and Scotland (Eagles et al., 1987). Previous research which investigated predictors of quality of life in later life highlighted the strong influence of several health factors. Having a limiting health condition was found to be consistently associated with a lower CASP-19 score (Netuveli et al., 2005) as was depression; both directly being negatively associated (Netuveli et al., 2006) and indirectly associated through physical health (Blane et al., 2008). However, the potential influence of a partner's physical or mental health on quality of life in later life has received less attention.

8.3 What this study adds

Adopting a cross-national approach in this thesis has also allowed us to observe the influence of societal context on the association between quality of life in later life and marital status. The thesis used data drawn from two well-respected panel studies to examine this relationship. Conclusions about the benefit of marriage for people's lives may be difficult to generalise to different populations (Huijts and Kraaykamp, 2011). However, this study can contribute to the debate by demonstrating whether there are universal advantages to being married for quality of life, or whether there is variation. Overall marital

status was a significant predictor of quality of life in all the welfare state regimes, at least initially, which corresponds with the findings of previous work that has examined marriage and well-being. Overall an advantage of being married for quality of life was found both across all the welfare state regimes and also by the macro indicators considered in this thesis. By this I mean that no significant *advantage* for quality of life was observed for any of the single states, when compared to the reference category of married. However, since differences were not observed between those who widowed or never married across all of the regimes, this may suggest that for some single people, their quality of life is not significantly lower because they aren't married. When a life course classification of marital status was used, associations with quality of life similar to those in the analyses which focused on current marital status were observed. However, those who were remarried, compared to being continuously married did not show a particular disadvantage. These findings suggest that current marital status is a more important determinant of quality of life in later life than marital history. This would seem to support findings from previous research which examined health and socio-economic factors, that current circumstances are more important predictors of quality of life at older ages than those from earlier life (Blane et al., 2004; Blane et al., 2012).

The differences observed by welfare regimes may suggest that the potential benefit of marriage for well-being is specific to the societal context in which people live. This is a divergence from other studies, which observed a consistent cross-national benefit of being married for well-being (Stack, 1998; Stack and Eshleman, 1998). Only in the Bismarckian regime was being unmarried consistently associated with lower quality of life, regardless of the type of single status reported. Although it is difficult to draw conclusions about the influence of macro characteristics on individual level associations, this finding suggests that marriage is especially important for individuals within this welfare state regime. There are several reasons why this might be the case. Firstly in the Bismarckian regime, as defined by Ferrera (1996) a strong link is found between access to welfare benefits and position within either the labour market or a family, therefore those who are married may have less access to welfare when they require it. Secondly in the countries included in this regime, the role of the family is often emphasised and services only provided by the state when the family is unable to do so (Bussemaker and Kersbergen, 1994). Therefore, those who are not married

may find themselves on the 'outside' of a welfare system, both through a lack of entitlement and limited availability of services. A strong link with the family is also found in the Southern and Post-communist welfare state regimes. However, these are also characterised by quite a low level of welfare provision overall, therefore differences between marital status may be observed when those who are married have access to unusually good welfare provision within a society.

This study also found that being divorced was associated with a lower quality of life compared to being married, for both men and women, across nearly all of the welfare state regimes. This suggests that divorce has quite a consistent negative effect on well-being, which concurs with the findings of previous research in this area (Evans and Kelley, 2004; Zimmermann and Easterlin, 2006; Gove and Shin, 1989). However, when health and socio-economic circumstances were taken into account, the quality of life disadvantage associated with being divorced was often no longer significant. Health problems might be more prevalent amongst those who are not married. Research has shown that marital status is associated with both mental and physical health, therefore this may confound the relationship between marriage and quality of life, so that those who are divorced are more likely to also be less healthy, which also predicts their quality of life. For many of the health advantages observed it is unlikely that it is the marriage itself which mediates this. However, it has been suggested that a spouse may restrict unhealthy behaviours, so that being married could encourage good health (Umberson, 1992).

However, this lack of an association may also be due to the negative economic circumstances associated with divorce rather than the benefit of marriage itself (Williams and Umberson, 2004). This supports the findings that there are negative effects of divorce on material resources in later life (Lillard and Waite, 1995; Kessler and Essex, 1982). Current material circumstances are especially predictive of high levels of well-being in later life, since they can offer independence and security. There are a number of ways economic security could be influenced by marriage, for example home ownership and economies of scale are all ways in which a couple might benefit from being married. Although these benefits are possible without a marriage, undergoing a divorce will certainly affect the degree of financial security which has been accumulated throughout this partnership. This

attenuation of the negative association between divorce and quality of life was especially evident for women in the Bismarckian regime. In this welfare state regime, women's participation in the labour market has traditionally been discouraged (Esping-Andersen, 2002) and yet welfare often accessed through either employment or the family. These factors together could mean that financial security is especially scarce for divorced women, who have not had access to the labour market on their own terms. This finding was also partly supported by the gender differences observed in the association between marital status and quality of life, when countries were grouped according to their level of female employment. In the countries where levels of female employment were higher, no gender differences were observed in the relationship between divorce and quality of life. However, this difference was again attenuated when financial characteristics were included. Therefore, this study has indicated that in societies which limit female employment or provide welfare provision through the labour market or the family, there may be a negative effect on the well-being of divorced women.

Although a relatively consistent association between marital status and quality of life was found here for men and women, several differences were observed in the quality of life of men and women of the same marital status. It is therefore possible that being married offers men and women different kinds of protection in later life. However, several gender differences were no longer significant when the results were adjusted for individual and household predictors. For example, divorced women may be more likely to have financial difficulties as suggested previously (Joyce, 2007; Lillard and Waite, 1995; Wilmoth and Koso, 2002), whereas never married men may not have the advantage of a spouse restricting their unhealthy behaviours that being marriage could provide (Umberson, 1992).

The findings of this thesis do not, therefore, suggest that those who are married at older ages will always have higher quality of life compared to all other single people, which to some extent contrasts with findings of other research in this area. (Dush and Amato, 2005; Evans and Kelley, 2004; Coombs, 1991). The positive benefit that marriage may have for quality of life at older ages may be due to differences between those who are married and those who are not in terms of health and socio-economic circumstances. Gallaher and Waite (2000) have argued that evidence of health and well-being advantages for those who are

married compared to those who are not signifies a universal benefit of the potential for marriage to ensure people's future happiness and health (Gallagher and Waite, 2000).

A unique feature of this thesis has been the use of dyadic analysis to delve deeper into the experience of married older people in Europe. Research which examines whether there are differences in well-being by marital status often treat those who are married as the reference group (Ross et al., 1990). This focus may lead to the dynamics of well-being *within* couples being ignored, however this has been suggested as an interesting topic for ageing research (Eagles et al., 1987). In this work a relatively high degree of concordance was found for the quality of life scores of married couples in each welfare state regime, even when individual and household factors were taken into account. This concordance might be due to a number of reasons, firstly individuals living together may result in a convergence of emotions (Goodman and Shippy, 2002), which means they report similar levels of quality of life. However, this concordance might also occur because of a shared environment, so that the influence of factors which they share, such as owning a home or living in a good neighbourhood may affect them both in a similar way. It is not possible to determine from these results which of these mechanisms is driving this concordance of quality of life.

A novel aspect of this research was that it compared the levels of couple concordance in CASP-12 across the welfare regimes. The level of concordance observed in the quality of life scores of married couples was significantly higher in the Bismarckian, Southern and Post-Communist welfare state regimes. This may be due to the emphasis on the provision of welfare through the family in these regimes (Esping-Andersen, 1990). In all three of the welfare regimes where concordance was found to be higher, there is an emphasis on the family as a provider of welfare services, therefore the influence of the shared environment might be stronger for the households in these regimes. However, it is possible that this association is due to other factors, since there was also a weak association between low concordance and higher levels of gender equality. Overall this variation suggests that a shared environment may influence the strength of this concordance. It is possible that a high correlation of a couple's outcomes may be due to those in poor mental or physical health being more likely to have a spouse who also has poor health and therefore lacking

the support of a healthy spouse whilst they are ill. However, this research has considered these associations in the general population, rather than in the quality of life in couples where one partner has a specific chronic condition (Gee et al., 2005; Konstam et al., 1998; Berg and Upchurch, 2007). This is the first time that this correlation in outcomes has been shown for a measure of quality of life, specifically designed to capture positive well-being at older ages. These findings suggest that it is not just negative emotional states, such as depressive symptoms, which are 'contagious' (Hoppmann and Gerstorf, 2009) and that work which aims to capture what predicts the quality of life of older people needs to consider well-being beyond the individual as a unit of analysis.

I have also found that in married couples, the characteristics of one spouse were independently associated with the quality of life of another in later life. Therefore, for married older couples the quality of life of one spouse could be predicted by risk factors affecting their spouse. Whilst the quality of life of older married individuals may therefore be reduced if their partner has poor health, improving the mental or physical health of individuals might consequently have a positive effect on a partner. Previous work using ELSA suggested that women living as part of a couple might be more likely to provide care to a sick spouse, which seemed to reduce their quality of life (Webb et al., 2011; Netuveli et al., 2006). However, in this work I find that in the Southern regime, men, not women were negatively affected by the functional limitations of their spouse. Since the Southern welfare state regime is often characterised by traditional gender roles and the family providing welfare, perhaps this suggests when women are unable to undertake these roles due to functional limitations, their husband's quality of life is also reduced. However, since the strongest household predictor of quality of life remained financial difficulties, those who struggle financially may have lower quality of life and also have a spouse with poor quality of life, suggesting a greater burden than previously thought.

8.4 Limitations of this study

Several limitations to this thesis should be noted. Firstly, although both of the surveys – SHARE and ELSA - which have been used in this thesis are from established sources where every effort was been made to ensure reliable data, some specific issues should be noted.

Sampling frames differed across countries, as did achieved response rates (Börsch-Supan et al., 2008). For each country a household response to the survey of over 30% was achieved and the robustness of the data has been found to be acceptable for many researchers (Börsch-Supan et al., 2008). Although a wide range of methods designed to limit item non response were used, for example face-to face interviews with CAPI technology, item non response was apparent for many of the variables used in the analysis. Uncertainty about the pattern of missing data is a concern, as in any panel survey.

Sensitivity analysis was undertaken using a model based missing data technique – multiple imputation – to evaluate the extent to which analyses carried out using a complete case sample could be relied upon. The multiple imputation technique used here assumes that the missing values were missing at random (MAR). Therefore, if they were missing not at random (MNAR), that is the pattern of the missing data was related to the outcome e.g. respondents were more likely to have data if they had a high CASP-12 score, then the results could still be biased. Collins and colleagues (2001) suggest that two factors need to be considered when evaluating bias from data which are MNAR; the amount of missingness and the correlation between the cause of missingness (level of CASP-12) and the missingness pattern (missing on CASP-12). They conclude that when the percentage of missing data is lower than 25%, the amount of bias is tolerable regardless of the size of this correlation. However, caution should still be exercised when making generalisations from either of these samples to the population of the countries they represent.

A second limitation with this thesis relates to lack of variation in the main exposure variable; life course marital status. In both ELSA and SHARE, the majority of respondents married before they were thirty years old and remained married to the same person. Therefore, where a life course classification was undertaken to analyse the association between marital status and quality of life in later life (section 5.3), the variation in marital history was not sufficient to allow different categories to be included. This lack of variation was also a problem for the analysis which considered living arrangements; in many of the regimes very small numbers of respondents were either legally married and living alone or legally single and living as a couple (cohabiting). Since the number of cohabiting couples was very small in both datasets, it was not possible to examine whether there were differences in the

interdependence of quality of life between married and cohabiting couples. Furthermore the samples used for the dyadic analyses were restricted to heterosexual couples. This was due to the small number of same sex couples in either SHARE or ELSA and also because of the aim of this thesis was to explore whether there were gender differences in the association of spousal characteristics with quality of life in older couples. To examine these differences using dyadic analysis it would have been less straightforward to estimate these models without a distinguishing variable such as gender (Gonzalez and Griffin, 1999). The gender differences examined in this thesis therefore are only those traditionally associated with inequalities between heterosexual men and women, and it was not possible to explore these ideas beyond the 'gender binary' (Linstead and Brewis, 2004). However, with changing marital and relationship practices in European societies it is anticipated that future research will have the resources available to allow these different issues to be explored.

The third limitation of this thesis is due to the outcome CASP-12 only being considered at one time point and therefore analyses were restricted to being cross-sectional. These analyses have, therefore, not been able to address the question as to whether there is any evidence for selection into remarriage in later life. Those who have previously been married and who have higher levels of quality of life may be more likely to remarry than others. To answer this question would require longitudinal data on quality of life at older ages (Mastekaasa, 1994b). Although CASP-12 was available in two waves of SHARE and all waves of ELSA in this thesis I focused on one measurement for two reasons. Firstly, as described in chapter four (section 4.1.1.) the countries included in SHARE altered between waves one and two. Poland and the Czech-Republic were only included in wave two, so by restricting my analyses to this wave I was able to have the Post-Communist regime represented in this study. Secondly, the CASP-12 scale was included in different sections of the SHARE survey for each of the two waves. In wave one it was included as part of the self-completion questionnaire and in wave two as part of the interviewer-led interview. Therefore CASP-12 in wave one had a higher level of item non-response, compared to those in wave two.

A further limitation to this thesis could be the range of potential confounders and mediators taken into account. In analyses undertaken for this thesis, a number of variables were controlled for which were chosen for their acknowledged potential to confound the

relationship between marital status and quality of life. However, these variables did not explain all of the variation in quality of life in each model and so it is possible that there may be residual confounding. There could be several reasons for this residual confounding; there might be unmeasured factors which were not included in the model or some of those confounders included could have been misclassified resulting in measurement error. It is also possible that there was an 'over-adjustment' of confounders with some variables included unnecessarily. For example, including financial circumstances in the analysis could be an example of an 'over-adjustment', because an individual's financial security may represent *how* a welfare state regime supports particular groups. However, this was still included in the analysis for two reasons. Firstly, so that the extent to which associations examined in the thesis were attenuated by including financial circumstances in the analysis, could be observed. Secondly, I was interested in examining whether an association between marital status and well-being remained in all groups, independently of these possible mediators, such as financial or health status. Including these variables in the analysis allows this association to be explored by welfare state regime. Although financial security could be a potential explanation for differences between regimes, it also represents a possible confounder of the association between marriage, welfare and well-being which can't be ignored.

8.5 Future work

Several recommendations can be made for further research in this area. An interesting extension of this analysis would be to consider each domain of CASP-12 separately, to consider if there is more concordance for questions of this scale designed to capture the 'needs related' aspects of subjective well-being or those designed to capture the reflexive ones (Higgs et al., 2003). The consistency of this finding could also be examined with SHARE and ELSA using different measures of emotional well-being or physical health. It may also be of interest for future research to consider whether gender differences are observed in the way marital transitions are associated with change in quality of life in SHARE, especially since research undertaken in ELSA observed small differences for men and women (Webb et al., 2011). There was not enough data related to early life events in either dataset to

consider the influence of this on the association between marital status and well-being at older ages. However, further research in this area could use datasets which do hold this information, such as the range of birth cohorts available in the UK. Information from earlier in an individual's life could be used to observe what might predict both the timing of marriage and marital transitions. For example, the influence of parent's relationship status on the association between marital status and life satisfaction has previously been hypothesised (Evans and Kelley, 2004).

This work has suggested that health and material resources may be the pathways through which marital status influences well-being at older ages. Therefore future work could use different analysis techniques, such as path analysis or structural equation modelling (SEM) to examine how these factors might mediate the association between marital status and quality of life. Whether these pathways between marriage and well-being are different for men and women could also be considered. In several studies measures which aimed to capture marital quality or satisfaction with a relationship were found to be important predictors of well-being, sometimes more so than marital status itself (Ross, 1995; Kalmijn and Monden, 2006; Ren, 1997). Although these were not available in either dataset, further research could examine these factors using different surveys. Appropriate indicators of social support experienced outside of the marital relationship were not available in SHARE and therefore were not included in analyses here. However, the degree of social support provided from people such as friends, family, and neighbours has been found to be both an important predictor of quality of life (Netuveli et al., 2006; Wiggins et al., 2004) and a potential benefit of marriage (Gerstel et al., 1985; Ross, 1995), therefore this will be an important aspect to consider in future research. Although there was insufficient data on neighbourhood deprivation in either of the surveys used for this study, this would provide an interesting avenue for further work. Several studies in the UK include an indication of the deprivation status of neighbourhood where respondents live; this could be used together with socio-economic status to define neighbourhood disparity, for example, where an individual from a higher social class lives in a more socially deprived area. This information could possibly explain some of the cross-national variation in the association between well-being and marital status. For example, divorced older people, especially those in urban

areas may have to leave their neighbourhood and move to an area with lower housing costs that may be more socially deprived.

8.6 Policy Implications

The results presented in this thesis suggest that marriage does not have to disadvantage quality of life in later life. However, those who are unmarried may be at risk, especially where there is a welfare system which offers more extensive provision to those who are within a family or one which relies of the family for providing welfare. Divorced women, who have not been in a labour market, may be particularly at risk, especially when welfare entitlement is provided through a labour market. Marital status may represent certain inequalities. However, ensuring that financial support and adequate access to health services are available to all, regardless of whether they are married or not, could be one way that the state could reduce these risks. Therefore, rather than penalising people who are unmarried, through tax breaks for married couples, perhaps a fairer approach would be to ensure those who are not married have sufficient financial security in later life. Another finding from this study with implications for policy is how for older married couples, well-being might be affected by both individual risk factors *and* those from a partner. So the quality of life of older married individuals might, for example, be reduced if their partner has poor health or experiences depression. Therefore, interventions which seek to improve older people's physical or mental health might also have a secondary effect on the person's partner, by improving their quality of life.

8.7 Conclusions

This research expands our understanding of the association between that the societal context within which a marriage occurs is also important for quality of life at older ages and being married may offer men and women different kinds of protection as they age. Overall current marital status was consistently a significant predictor of quality of life at older ages. Those who were married were more likely to have higher levels of quality of life, than those who were single. However, several differences in the strength of this association were

observed across the welfare state regimes and by the macro indicators used, suggesting that the societal context within which a marriage occurs is also important for quality of life at older ages. Furthermore, differences were also observed for the association between marital status and quality of life for men and women. This suggests that being married may offer men and women different kinds of protection as they age. This advances the literature, by suggesting that marital status does not have to be negative for quality of life. However, when health and socio-economic circumstances were taken into account then the disadvantage of not being married for quality of life was often, no longer significant. Spousal interdependence for the measure of quality of life was also observed, suggesting that for older married couples, quality of life is not just an individual experience. Therefore, although the quality of life of those who are married may be reduced if their partner experiences poor health, improving mental or physical health in later life may have a broader positive effect beyond the individual.

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Appendices

Appendix 2.1: Literature search results

Table A.2.1.1 Literature search one: results

Reference	Outcome	Sample	Main exposures examined (significant)	Gender Differences	Cross-national differences	Result
(Blane et al., 2004)	CASP-19	Boyd-Orr Study	Current material circumstances: <ul style="list-style-type: none"> Housing tenure Receiving means tested welfare benefits Current health: <ul style="list-style-type: none"> Limiting long term illness Serious disease Require prescribed medication Lung function Accumulated exposure to hazards Years out of the labour force 	<i>Not predictive for women:</i> Accumulated disadvantage Receiving means tested welfare benefits	Not examined	<ul style="list-style-type: none"> Current circumstances are the main influence on quality of life in early old age Disadvantage over the life course might not prevent a good quality of life in early old age 'Structured dependency' pathway: measured by years out of the labour force might be relevant to quality of life
(Wiggins et al., 2004)	CASP-19	Boyd-Orr Study	<ul style="list-style-type: none"> Age Subjective assessment of pension inadequacy Deprived Neighbourhood Not owning home Poor health (when other factors controlled) Quality of social networks Recent stressful life event e.g. bereavement 	<i>No consistent effect:</i> lower quality of life for women (only when other factors controlled)	Not examined	<ul style="list-style-type: none"> Impact of the past on quality of life captured best by adequate pensions Quality of contact with friends and family not just frequency important Strong effect of age on quality of life
(Netuveli et al., 2005)	CASP-19	ELSA (Wave 1)	<ul style="list-style-type: none"> Long term illness Functional limitation due to long term illness 	Not examined	Not examined	<ul style="list-style-type: none"> Impact of functional limitation due to long term illness more than four times greater than long term illness itself Result confirmed when analyses repeated after excluding clinically depressed

(Netuveli et al., 2006) ₁	CASP-19	ELSA (Wave 1)	<ul style="list-style-type: none"> Perceived financial situation poor Depression Limited physical activities (ADL) Limiting long term illness Good neighbourhood Trusting family and friend relationships Trusting friend relationships Car ownership 	<p>Women Only: Higher quality of life overall. <i>QoL reduced by:</i> Being a carer/homemaker <i>QoL reduced by:</i> Frequent contact with family. Living alone</p> <p>Men Only: <i>QoL reduced by:</i> Long term illness <i>QoL increased by:</i> Retirement</p>	Not examined	<ul style="list-style-type: none"> Different effects on quality of life by age group Influence of ageing on quality of life increases from aged 50 and then starts to decline from age 68. Quality of life can increase during early old age Perception of financial situation more important for quality of life than objective measures
(Wahrendorf et al., 2006)	CASP-12	SHARE (Wave 1)	<ul style="list-style-type: none"> Social productive activities Activity reciprocity 	<p><i>Women</i> More provide care for people</p> <p><i>Men</i> More do voluntary work</p>		<ul style="list-style-type: none"> Being socially productive in old age is associated with QoL Association varies according to the quality of exchange (reciprocity)
(Blane et al., 2007)	CASP-19	ELSA (Wave 1)	<ul style="list-style-type: none"> Social position (NS-SEC) 	Not examined	Not examined	<ul style="list-style-type: none"> Quality of life is graded by social position Quality of life social gradient resembles the mortality gradient Difference between high and low social position similar to difference of having a Long term limiting illness
(Gilleard, 2007)	CASP-19	ELSA (Wave 1)	<ul style="list-style-type: none"> Age Year moved into area Socioeconomic status of the area Self-reported attachment to the area 	Not examined	Not examined	<ul style="list-style-type: none"> Age, aging in place, place, and attachment to place interact in complex ways to affect QoL Attachment to area associated with QoL independent of how long lived in area

Wiggins (2007)	CASP-19	Boyd-Orr Study	<ul style="list-style-type: none"> • Ideal types across life course • Work • Partnership • Housing 	Structural disadvantage (work) lower risk for women Being an early widower worse for men No difference for housing history	Not examined	<ul style="list-style-type: none"> • Those with structural advantage across the life course higher QoL in later life • Ideal types are not powerful predictors of QoL in later life, current circumstances important
(Kneesebeck et al., 2007)	CASP-12	SHARE (Wave 1)	<ul style="list-style-type: none"> • Income • Education • Home ownership • Net worth • Car ownership • Country 	Not examined	<p>Small SE differences in observed in CH but larger in DE</p> <p>North/South/ Central gradient in QoL</p> <p>Education gradient particularly strong AUS & ITA</p>	<ul style="list-style-type: none"> • Quality of life varied by country. • SE differences don't diminish from 65+ • Age group differences in QoL varied by country. • Conventional and alternative measures of SEP valid for older age groups • Association of home-ownership less consistent predictor of QoL cross-nationally
(Lang et al., 2007)	CASP-19	ELSA (Wave 1)	<ul style="list-style-type: none"> • Alcohol consumption 	<p><i>Men</i> QoL higher if drinking more than two drinks per day</p> <p><i>Women</i> QoL higher if drinking more than one, but less than two drinks per day</p>	Not examined	<ul style="list-style-type: none"> • Moderate consumption of alcohol better subjective well-being than those who do not drink alcohol.

Siegrist, (2007)	CASP-12	SHARE (Wave 1, 2)	<ul style="list-style-type: none"> • Socially productive activities • Age • Gender • Marital status • Functional limitations • Income • Education • Country 	Not examined	Higher QoL in Northern/Western countries than Southern/Eastern countries	<ul style="list-style-type: none"> • Socio-economic position and participation in a socially productive activity associated with QoL • Between country differences can only be partly explained by individual level factors
(Stafford et al., 2007)	CASP-19	Whitehall II	<ul style="list-style-type: none"> • Fear of crime scale (high) 	Not examined	Not examined	<ul style="list-style-type: none"> • Difference in quality of life between respondents with high fear of crime in their neighbourhood comparable to from illness
(Blane et al., 2008)	CASP-19	ELSA (Waves 0, 1, 2)	<p>Cross sectional:</p> <ul style="list-style-type: none"> • Lung function • Obesity <p>Longitudinal:</p> <ul style="list-style-type: none"> • Decreased Lung function • Increased BMI 	BMI a longitudinal predictor for women only	Not examined	<ul style="list-style-type: none"> • Current objective health measures show largest effect on QoL • Is a long-term influence of lung function • Functional limitation is possible pathway • Depression might be an important mediator
(Llewellyn et al., 2008)	CASP-19	ELSA (Wave 1)	<ul style="list-style-type: none"> • Neuropsychological tests: Time orientation • Verbal memory • Prospective memory 	No differences observed	Not examined	<ul style="list-style-type: none"> • Cognitive function associated with quality of life in middle aged and older adults. • Independently associated with all tests except numerical ability
(Motel-Klingebiel et al., 2009)	CASP-12	SHARE (Wave 1) ELSA (Wave 2)	<ul style="list-style-type: none"> • Gender • Education • Occupational Prestige • Welfare regimes: Relative levels, The distribution hypothesis • The social structure hypothesis: 	In Mediterranean regime women report lower values of QoL	<p><i>Levels of QoL</i></p> <p>Higher in social-democratic and conservative- regimes, lower under liberal regimes</p> <p><i>Distribution:</i></p> <p>Mediterranean highest variation QoL quality of life</p>	<ul style="list-style-type: none"> • Levels of Quality of life was affected by welfare regime type • Distribution of quality of life also shaped by welfare regime • Social structure influences on QoL also vary by welfare regime.: • Gender not associated with QoL in all regimes • Educational levels and occupational prestige associated in all regimes

(Zaninotto et al., 2009)	CASP-19	ELSA (Waves 1, 2, 3)	<ul style="list-style-type: none"> • Gender • Education • Depression • Limiting long standing illness • Limited ADLs • Lack of wealth • Not being in employment • Decreased number of friends • Low positive support • Living with a partner (+) 	Living with a partner positive for men only.	Not examined	<ul style="list-style-type: none"> • Quality of life at baseline lower for older respondents and declined more rapidly. • Decline in age trajectory affected most by psychosocial factors and health • Quality of life at older ages could potentially be high if living in good conditions
(Webb et al., 2011)	CASP-19	ELSA (Waves 1, 3)	<ul style="list-style-type: none"> • Initial quality of life • Age • Becoming depressed • Developing ADL • Improvements in family relationships • Neighbourhood improvements • Improved subjective financial circumstances • Frequency contact with family (-) • Recently widowed (+) 	No gender differences found	Not examined	<ul style="list-style-type: none"> • Quality of life declines over time • Improved financial, neighbourhood and family circumstances can decelerate this decline • Becoming depressed and physical functioning difficulties accelerate decline • Decline from increased family contact suggested because of receiving care • Improvement from being widowed because of providing care
(Zaninotto , 2010)	CASP-19	ELSA (Waves 2,3)	<ul style="list-style-type: none"> • BMI • Waist circumference (WC) 	<i>Women only</i> for a given level of WC, increased BMI associated with better QoL	Not examined	<ul style="list-style-type: none"> • For a given BMI, WC negatively associated with QoL among older people
(Read, 2011)	CASP-19	BHPS	<ul style="list-style-type: none"> • Number of children born • parents' ages at birth of first child • parents' ages at birth of last child. 	<i>Men</i> Low parity has no or negative associations with QoL domains <i>Women</i> Low parity can enhance some QoL domains	Not examined	<ul style="list-style-type: none"> • early child birth and high parity, compared to medium parity, related to lower quality of life • mostly explained by socio-economic, social support and health factors • low parity associated with both positive and negative QoL (gender differences)

(Wikman et al., 2011)	CASP-19	ELSA (Waves 1)	<ul style="list-style-type: none"> • Presence of chronic illness 	Not examined	Not examined	<ul style="list-style-type: none"> • Having a chronic illness associated with reduced QOL • The impact of different illnesses varied • Relationship between number of illnesses and QOL; multiple chronic conditions reduced QOL
(Howel, 2012)	CASP-12	ELSA (Waves 1, 2)	<ul style="list-style-type: none"> • Limiting chronic illness • Depression • Often troubled by pain • Difficulty walking ¼ mile • Lives alone • Access to car • In employment • Position on social ladder 	Not examined	Not examined	<ul style="list-style-type: none"> • CASP-19 has discriminatory power and is responsive to changes in most anchor variables

Table A.2.1.2 Literature search two: results

Reference	Country/Data	Outcome	Marital status measure	Current/ Life course	Confounders/Mediators	Conclusions
(Glenn and Weaver, 1979)	General Social Surveys (USA) (Ages 18-60)	Global Happiness	<ul style="list-style-type: none"> • Married • Not married 	Current	<ul style="list-style-type: none"> • Having children. • Age • Religion • Family Income • Occupational Prestige • Employment • Education 	<ul style="list-style-type: none"> • Positive effect of being married significant and stronger than other predictors e.g. having children • Other factors e.g. income, offset negative effects of having children.
(Glenn and Weaver, 1988)	General Social Surveys (USA) (Aged 18+/Adults)	Global Happiness	<ul style="list-style-type: none"> • Married • Not married 	Current	<ul style="list-style-type: none"> • Age • Gender • Time (year of survey) 	<ul style="list-style-type: none"> • Steady decline in positive relationship between marriage and happiness. • Increase in happiness of never-married males and decrease in happiness of married females.
(Lee et al., 1991)	General Social Surveys (USA) (Aged 18+/Adults)	Global Happiness	<ul style="list-style-type: none"> • Currently married • Never married 	Current	<ul style="list-style-type: none"> • Age • Gender • Time (year of survey) 	<ul style="list-style-type: none"> • Decreases over time weaker than found by previous work. Trends reversed in 1980s. • Younger never married females happier in late 1980s. • Younger married women less happy.
(Mastekaasa, 1992)	Norway (medical screening) (Aged 20+)	Life satisfaction	<ul style="list-style-type: none"> • Married • Not married 	Current	<ul style="list-style-type: none"> • Gender • Age • Urban area • Education/military service • Disease • Subjective health 	<ul style="list-style-type: none"> • Stable relationship between life satisfaction and marriage rate. • Possible selection explanation but little information on mechanisms • Might be gender differences (indicated by this study)

(White, 1992)	The General Social Survey (Canada) (Aged 15+)	Life satisfaction	<ul style="list-style-type: none"> • Married/common law • Never Married • Widowed • Divorced/ Separated 	Current	<ul style="list-style-type: none"> • Age groups 	<ul style="list-style-type: none"> • Well-being only related to marital status for women but not men. • Married women better life satisfaction • Selection not rejected explanation for life satisfaction results.
(Marks and Lambert, 1998)	National Survey of Families and Households (USA) (Aged 19+)	Global Happiness Self-esteem Personal mastery	<p>10 categories:</p> <p>Continuous:</p> <ul style="list-style-type: none"> • Married • Never Married • Divorced/ Separated • Widowed • Transitions between all categories 	Life course	<ul style="list-style-type: none"> • Age groups : (19-34/ 40-60) • Race/ethnicity • Education • Household income • Having child • Employment 	<ul style="list-style-type: none"> • Complex patterns between marital history and happiness. • Continuity in single status no big gender differences. • Transition to divorce/widowhood negative effects for women. • Remaining single has less negative impact for midlife adults.
(Lucas et al., 2003)	German Socio-Economic Panel Study (GSOEP) (Aged 18+/Adults)	Life Satisfaction	<ul style="list-style-type: none"> • Getting married • Becoming widowed 	Current	<ul style="list-style-type: none"> • Age • Sex 	<ul style="list-style-type: none"> • Marital status can influence Life satisfaction long term and marriage can have a positive or negative effect. • Married people small boost from marriage but return to baseline over time • Widowhood has longer lasting effects, not back to baseline LS 8 years later • Most satisfied people reacted least positively to marriage.
(Evans and Kelley, 2004)	International Social Science Surveys Australia (Isssa) and The Household Income and Labour Dynamics (HILDA) (Aged 18+/Adults)	Life satisfaction	<ul style="list-style-type: none"> • Never Married • First Marriage • Divorced/Separated • Widowed 	Current	<ul style="list-style-type: none"> • Cohabitation • Age/Age² • Gender • Foreign Born • Fathers Occupational Status • Parents Divorced • Quality of marriage • Prior life satisfaction 	<ul style="list-style-type: none"> • Married higher levels of life satisfaction satisfied • No selection effect suggested • Divorced worse LS level of the single status groups • Cohabiting LS more similar to singles • Few gender differences found, except single women happier than men

(Dush and Amato, 2005)	Marital Instability over the Life Course Study database (Aged 19+)	Subjective well-being (SWB)	<ul style="list-style-type: none"> • Married • Cohabiting relationships, • Dating relationships • Not dating at all. 	Current	<ul style="list-style-type: none"> • Relationship happiness • Age • Race • Gender • Education. 	<ul style="list-style-type: none"> • Married respondents highest level of SWB • Followed by cohabiting , dating and not dating • Individuals in happy relationships, higher level of subjective well-being irrespective of relationship status. • Little support selection hypothesis
(Lucas and Clark, 2006)	German Socio-Economic Panel Study (GSOEP) (Aged 18+/Adults)	Life Satisfaction	<ul style="list-style-type: none"> • Getting married • Cohabitation • Divorced • Widowed 	Current	<ul style="list-style-type: none"> • Cohabitation • Gender • Age 	<ul style="list-style-type: none"> • Adaption effect of well-being found • Cohabitation is significant but doesn't alter adaption effect • Age of marriage a significant predictor although small effect • Pre-marriage levels of satisfaction may be high because marriage occurs at younger ages
(Stutzer and Frey, 2006) Economist	German Socio-Economic Panel Study (GSOEP) (Aged 18+/Adults)	Life Satisfaction	<ul style="list-style-type: none"> • Single • Married 	Current	<ul style="list-style-type: none"> • Gender • Age categories • Employment status • Place of residence • Nationality • Years of education • Children • Head of household • Married during survey waves 	<ul style="list-style-type: none"> • Singles who get married are happier than those stay single • Age pattern in selection effect – stronger at young ages • Spouses with small differences in their level of education are more satisfied after marriage
(Zimmermann and Easterlin, 2006)	German Socio-Economic Panel Study (GSOEP) (Aged 18+/Adults)	Life Satisfaction	<ul style="list-style-type: none"> • Married • Married (Separated) • Single • Divorced • Widowed 	Current	<ul style="list-style-type: none"> • Cohabitation • Employment status • Religion • Health • Education • Children • Income • Spouse in different country 	<ul style="list-style-type: none"> • Marriage has an enduring positive effect on life -satisfaction. 'Honeymoon' effect first two years but still remains high. • Dissolution has a negative effect. • Cohabitation also positive. For LS. • Selection into marriage and divorce observed on socioeconomic characteristics but not personality traits

(Shapiro and Keyes, 2008)	Midlife in the US study (MIDUS) (Aged 25-74)	Social well-being Psychological well-being	<ul style="list-style-type: none"> • Stably married • Currently remarried • Never married cohabiters • Previously married cohabiters • Never married • Currently divorced • Widowed 	Life course	<ul style="list-style-type: none"> • Age (years) • Gender • Race • Socio-economic status (SES) • Spouses SES • Mental health at age 16 • Parental status 	<ul style="list-style-type: none"> • No great advantage for perceived social wellbeing of being married. • Never married men lower social well-being. • Cohabitation lower reports of social-wellbeing than most other groups. • No evidence of cumulative advantage of marriage • Psychological well-being different results to social well-being
(Soons et al., 2009)	Panel Study on Social Integration in the Netherlands (PSIN) (Aged 18+/Adults)	Subjective well-being (SWB)	<ul style="list-style-type: none"> • Having a partner • Married (union) • Past union dissolution 	Life course	<ul style="list-style-type: none"> • Parenthood • Employment • Age • Gender (interaction) • Duration in union • Duration outside a union 	<ul style="list-style-type: none"> • Well-being decreased after marriage • Large SWB decrease after dissolution, but increased with adaptation/ re-partner • For men after a dissolution well-being increased more quickly

Table A.2.1.3 Literature search three: results

Reference	Sample & age range	Macro Indicators	Measure (Marital status)	Outcome measure	Gender differences	Result
(Mastekaasa, 1994a)	19 developed countries (Ages 18-79)	Country	<ul style="list-style-type: none"> • Currently married • Never married • Previously married 	Psychological well-being	Relationship stronger for men	<ul style="list-style-type: none"> • Currently married better well-being than previously married and never married • Variation amongst countries • Variation between measures
(Stack, 1998)	Word Values Survey 17 countries (Aged 18+/Adults)	Country Divorce Marriage rate GDP Income inequality Age at first marriage	<ul style="list-style-type: none"> • Married • Not married • Cohabiting • Divorced • Widowed 	Happiness	No differences found	<ul style="list-style-type: none"> • Happiness higher for married people in nearly all countries (exception Northern Ireland) • Association consistent in 14 countries • Cohabitates happier than single people but less happy than married • Married people happier in nations with higher rates of both marriage and divorce
(Ryan et al., 1998)	An Eight-Nation study 1973-1976 (Aged 16+)	Country Level of welfare support (<i>Pierson, 1991</i>) Index of women's rights (<i>Estes, 1998</i>)	<ul style="list-style-type: none"> • Married • Divorced/ Separated • Widowed • Never Married 	Life satisfaction	Not examined	<ul style="list-style-type: none"> • Marital status significant predictor in all countries (Finland exception) • Married are most satisfied, those who experienced marital dissolution the least • Inverse correlation between welfare support and whether life satisfaction depends on being married. • Correlation between women's rights and strength of the relationship between life satisfaction and marriage

(Diener et al., 2000)	The World Values Survey 42 countries (Aged 18+/Adults)	Individualism-collectivism (IC) ratings Tolerance for divorce.	<ul style="list-style-type: none"> • Married • Cohabiting • Divorced/ Separated 	Subjective well-being (SWB): <ul style="list-style-type: none"> ▪ Life satisfaction ▪ Positive emotions ▪ Negative emotions 	No differences found	<ul style="list-style-type: none"> • Overall relations similar across sample, married people higher SWB than non-married • Benefit of marriage over cohabitation in slightly larger collectivist countries • Slightly smaller difference between positive emotions for married people over divorced in collectivist countries
(Kalmijn, 2010)	The European Values Study and the World Values Survey (Aged 18+/Adults)	Country Divorce rate Marriage rate Divorce attitudes Church attendance Familialism (% unmarried adults who live with their parents)	<ul style="list-style-type: none"> • Divorced/ Separated • Married 	Well-being Life satisfaction Happiness	Not examined	<ul style="list-style-type: none"> • Divorce has a negative effect on well-being in all countries but strength of effect varies significantly across countries • Effect of divorce is weaker where family strong • Effect is weaker when divorce rate high • Stronger effect of divorce for religious persons in countries with strong religious norms
(Huijts, et al., 2011)	The European Social Survey (Aged 25-75)	<i>National marital status composition</i>	<ul style="list-style-type: none"> • Married • Cohabiting • Never married • Widowed • Divorced/ Separated 	Self-reported health	Not examined	<ul style="list-style-type: none"> • Married people consistently higher rates of health than other groups • Strength of the relationship varies between countries • Single people not better off if high rate of other single people (same marital status). • Never married worse health with higher proportions of cohabiters • High marriage rate beneficial to health of never married people, but bad for widowed people.

Appendix 4.3: Characteristics of missing data

A.4.3.1: Chapter five sample one: characteristics of missing/not missing by welfare state regime

WELFARE STATE REGIME	BISMARCKIAN		SOUTHERN		SCANDINAVIAN		POST-COMMUNIST		LIBERAL	
Not Missing (NM) Missing (M)	NM	M	NM	M	NM	M	NM	M	NM	M
	<i>Mean (SD)</i>									
Outcome: CASP-12	26.48 (5.89)	25.53 (6.53)	22.28 (6.11)	20.39 (6.22)	27.86 (4.93)	24.84 (6.00)	22.82 (6.24)	21.81 (7.17)	25.93 (5.83)	25.35 (5.84)
	<i>N (%)</i>									
Marital status:	9,012 (72.42)	982 (56.93)	5,941 (77.74)	520 (64.04)	3,652 (74.82)	229 (57.71)	3,426 (69.95)	211 (52.88)	5,191 (69.58)	1,347 (58.31)
Married										
Divorced	1,095 (8.80)	145 (8.41)	266 (3.48)	24 (2.96)	469 (9.61)	67 (13.96)	460 (9.39)	56 (14.04)	776 (10.40)	310 (13.42)
Never Married	634 (5.09)	111 (6.43)	380 (4.97)	40 (4.93)	245 (5.02)	32 (6.67)	156 (3.18)	17 (4.26)	411 (5.51)	163 (7.06)
Widowed	1,703 (13.69)	335 (19.42)	1,055 (13.81)	181 (22.29)	515 (10.55)	123 (25.62)	856 (17.48)	110 (27.57)	1,083 (14.52)	489 (21.17)
High Education	2,769 (22.25)	302 (17.51)	765 (10.01)	40 (4.93)	1,501 (30.75)	71 (14.79)	413 (8.43)	24 (6.02)	2,218 (29.73)	543 (23.51)
Chronic diseases (2+)	4,750 (38.17)	733 (42.49)	3,382 (44.26)	419 (51.60)	2,124 (43.54)	291 (60.62)	2,554 (52.14)	244 (61.15)	2,465 (33.04)	848 (36.71)
Smoker (current)	2,168 (17.42)	265 (15.36)	1,658 (21.70)	118 (14.53)	992 (20.32)	81 (16.88)	1,168 (23.85)	56 (14.04)	1,087 (14.57)	423 (18.31)
HH difficulty financial	3,171 (25.48)	443 (25.68)	4,817 (63.03)	447 (55.05)	661 (13.54)	60 (12.50)	3,167 (64.66)	227 (56.89)	2,210 (29.62)	697 (30.17)
Depression	2,690 (21.62)	431 (24.99)	2,006 (26.25)	219 (26.97)	764 (15.65)	96 (20.00)	1,662 (33.93)	109 (27.32)	996 (13.35)	431 (18.66)
HH has car	10,116 (81.29)	1,056 (61.22)	5,205 (68.11)	318 (39.16)	4,124 (84.49)	251 (52.29)	2,324 (47.45)	114 (28.57)	6,043 (80.99)	1,566 (67.79)
<i>Total sample</i>	<i>12,444</i>	<i>1,725</i>	<i>7,642</i>	<i>812</i>	<i>4,881</i>	<i>480</i>	<i>4,898</i>	<i>399</i>	<i>7,461</i>	<i>2,310</i>

A.4.3.2: Chapter five sample two: characteristics of missing/not missing by welfare state regime

WELFARE STATE REGIME	BISMARCKIAN		SOUTHERN		SCANDINAVIAN		POST-COMMUNIST		LIBERAL	
Not Missing (NM) Missing (M)	NM	M	NM	M	NM	M	NM	M	NM	M
	<i>Mean (SD)</i>									
Outcome: CASP-12	26.72 (5.73)	26.34 (5.97)	22.52 (5.98)	20.40 (6.04)	28.30 (4.67)	25.52 (6.05)	23.01 (6.09)	22.77 (6.01)	25.93 (5.83)	25.35 (5.84)
	<i>N (%)</i>									
Marital status:	6,273 (72.79)	796 (59.05)	4,643 (79.25)	428 (63.03)	2,394 (74.21)	172 (52.76)	2,305 (73.64)	164 (48.24)	5,191 (69.58)	1,347 (58.31)
Married										
Divorced	758 (8.80)	156 (11.57)	165 (2.82)	51 (7.51)	311 (9.64)	57 (17.48)	225 (7.19)	90 (26.47)	776 (10.40)	310 (13.42)
Never Married	410 (4.76)	114 (8.46)	288 (4.92)	46 (6.77)	173 (5.36)	25 (7.67)	90 (2.88)	11 (3.24)	411 (5.51)	163 (7.06)
Widowed	1,177 (13.66)	221 (16.39)	763 (13.02)	129 (19.00)	348 (10.79)	71 (21.78)	510 (16.29)	75 (22.06)	1,083 (14.52)	489 (21.17)
High Education	2,028 (23.55)	269 (19.96)	593 (10.12)	40 (5.89)	1,104 (34.22)	56 (17.18)	282 (9.01)	22 (6.47)	2,218 (29.73)	543 (23.51)
Chronic diseases (2+)	3,329 (38.63)	552 (40.95)	2,614 (44.62)	356 (52.43)	1,383 (42.87)	191 (58.59)	1,645 (52.56)	203 (59.71)	2,465 (33.04)	848 (36.71)
Smoker (current)	1,461 (16.95)	246 (18.25)	1,311 (22.38)	116 (17.08)	619 (19.19)	77 (23.62)	743 (23.74)	68 (20.00)	1,087 (14.57)	423 (18.31)
HH difficulty financial	2,120 (24.60)	356 (26.41)	3,688 (62.95)	412 (60.68)	390 (12.09)	59 (18.10)	2,028 (64.79)	211 (62.06)	2,210 (29.62)	697 (30.17)
Depression	1,796 (20.84)	356 (26.41)	1,483 (25.31)	196 (28.87)	471 (14.60)	74 (22.70)	1,045 (33.39)	115 (33.82)	996 (13.35)	431 (18.66)
HH has car	7,105 (82.44)	943 (69.96)	4,083 (69.69)	305 (44.92)	2,754 (85.37)	208 (63.80)	1,542 (49.27)	146 (42.94)	6,043 (80.99)	1,566 (67.79)
<i>Total sample</i>	<i>8,618</i>	<i>1,348</i>	<i>5,859</i>	<i>679</i>	<i>3,226</i>	<i>326</i>	<i>3,130</i>	<i>340</i>	<i>7,461</i>	<i>2,310</i>

A.4.3.3: Chapter six sample two: characteristics of missing/not missing by welfare state regime

WELFARE STATE REGIME	BISMARCKIAN		SOUTHERN		SCANDINAVIAN		POST-COMMUNIST		LIBERAL	
Not Missing (NM) Missing (M)	NM	M	NM	M	NM	M	NM	M	NM	M
Mean (SD)										
Outcome: CASP-12	27.12 (5.53)	25.96 (5.94)	22.84 (5.94)	21.02 (6.32)	28.41 (4.60)	26.43 (4.90)	23.46 (6.01)	21.49 (6.42)	26.04 (5.95)	24.70 (5.95)
N (%)										
High Education	1540 (22.41)	261 (19.80)	494 (10.06)	40 (5.70)	918 (32.53)	74 (25.52)	239 (8.90)	15 (5.81)	1,508 (33.25)	350 (24.75)
Chronic diseases (2+)	2,477 (36.04)	493 (37.41)	2,018 (41.08)	332 (47.29)	1,167 (41.35)	153 (52.76)	1,316 (49.03)	160 (62.02)	1,308 (28.84)	508 (35.93)
HH difficulty financial	1,507 (21.93)	364 (27.62)	3,062 (62.34)	452 (64.39)	292 (10.35)	34 (11.72)	1,678 (62.52)	160 (62.02)	1,736 (38.27)	602 (42.57)
Depression	1,279 (18.61)	288 (21.85)	1,127 (22.94)	194 (27.64)	402 (14.25)	60 (20.69)	760 (28.32)	71 (27.52)	407 (8.97)	187 (13.22)
HH has car	6,322 (92.00)	1,116 (84.67)	3,878 (78.95)	416 (59.26)	2,642 (93.62)	252 (86.90)	1,558 (58.05)	108 (41.86)	4,124 (90.92)	1,172 (82.89)
<i>Total sample</i>	<i>6,872</i>	<i>1,318</i>	<i>4,912</i>	<i>702</i>	<i>2,822</i>	<i>290</i>	<i>2,684</i>	<i>258</i>	<i>4,536</i>	<i>1414</i>

Appendix 4.4: Items included in CASP-12 questionnaire

Table A.4.4: Domains and wording of questions for CASP-12 scale

		QUESTION ¹
<i>Control</i>	1	<i>How often do you think your age prevents you from doing the things you would like to do?</i> ²
	2	<i>How often do you feel that what happens to you is out of your control?</i> ²
	3	<i>How often do you feel left out of things?</i> ²
	4	<i>How often do you think that you can do the things that you want to do?</i>
<i>Autonomy</i>	5	<i>How often do you think that family responsibilities prevent you from doing what you want to do?</i> ²
	6	<i>How often do you think that shortage of money stops you from doing the things you want to do?</i> ²
	7	<i>How often do you look forward to each day?</i>
	8	<i>How often do you feel that your life has meaning?</i>
<i>Pleasure</i>	9	<i>How often, on balance, do you look back on your life with a sense of happiness?</i>
	10	<i>How often do you feel full of energy these days?</i>
<i>Self-realization</i>	11	<i>How often do you feel that life is full of opportunities?</i>
	12	<i>How often do you feel that the future looks good for you?</i>

Adapted from (Hyde et al., 2003)

¹Responses were coded *Often 3, Not Often 2, Sometimes 1, and Never 0.*

²Reverse coded.

Appendix 4.5: The APIM Model in SPSS and Stata

Model A (The Interaction Approach)

Using SPSS (Kenny et al., 2006)⁵

```
MIXED CASP WITH gender depression depression_part
/FIXED= gender depression depression_part gender*depression
gender*depression_part
/PRINT=SOLUTION TESTCOV
/REPEATED=Gender | SUBJECT (coupleid) COVTYPE(CSH).
```

- CSH command allows ‘separate variances for each random effect and correlations between them are assumed to be equivalent for each pair of random effects’. CSH has removed homogeneity of variance assumption and allows the error variances to differ for the two types of dyad members.
- Apart from this syntax mirrors the MLM function in Stata estimated fixed effect of predictors but random intercept.
- Table A shows the SPSS output: Interactions show whether the partner effects are (statistically significant) different for men or women.

SPSS output: Model A

	Estimate	Std. Error	Sig.	
Intercept	28.761995	.078354	.000	
Gender	-.113260	.042794	.008	
Depression (P)	-.400544	.018886	.000	
Depression (A)	-1.240542	.018873	.000	
Gender*Depression (P)	.038978	.022890	.089	
Gender*Depression (A)	-.050315	.022879	.028	
	Estimate	Std. Error	Wald Z	Sig.
Var: Gender (F)	27.710877	.427817	64.773	.000
Var: Gender (M)	27.506313	.424659	64.773	.000
CSH rho	.540497	.007728	69.944	.000

Intercept: Average outcome (pooled across dyad)

Gender (main effect): mean level differences in outcome for men and women.

Effect of depression (own) on outcome: -1.240542

Effect of partner’s depression on outcome: -.400544

Var: Gender (f) total error variance for women

Var: Gender (m) total error variance for men

⁵ Notes from a dyadic course run by David Kenny at the University of Basel also used to estimate the SPSS models

- CSH rho is the partial correlation (adjusting for depression) between the outcome scores which is also equal to the ICC. It is also described as the proportion of the total variance that's at level two.

Using Stata

```
xtmixed w2casp12sc gender eurodP eurod genxeurod genxeurodP || coupleid:, var ///
residuals(independent, by(gender))
```

Stata output: Model A

	Estimate	Std. Error	Sig.	
Intercept	28.76199	.078354	.000	
Gender	-.113260	.042794	.008	
Depression (P)	-.400544	.018886	.000	
Depression (A)	-1.24054	.018873	.000	
Gender*Depression (P)	.038978	.022890	.089	
Gender*Depression (A)	-.050315	.022879	.028	
	Estimate	Std. Error		
Var (level 2)	14.92226	.3426009		
Var level 1 (F)	12.78863	.3213761		
Total var (F)	27.71089			
Var level 1 (M)	12.58404	.3194458		
Total var (M)	27.5063			

- This produces the same estimate of male and female error variance as the SPSS model.

Model B (Two –Intercept Approach)

Using SPSS (Kenny et al., 2006)⁶

- Output is difficult to interpret from the interaction model, although it does test directly whether the effects are different for both members. The two-intercept approach provides the two actor and partner effects separately.
- Needs to include the distinguishing variable as a factor but no intercept in the fixed model.
- Using SPSS specify 'no intercept' and including gender as a factor estimates two separate intercepts (one for men and one for women).

⁶ Notes from a dyadic course run by David Kenny at the University of Basel also used to estimate the SPSS models

```
MIXED w2casp12sc BY gender WITH eurodP eurod
/FIXED= gender gender*eurodP gender*eurod | NOINT
/PRINT= SOLUTION TESTCOV
/REPEATED=gender | SUBJECT(coupleid) COVTYPE(CSH).
```

SPSS output: Model B

	Estimate	Std. Error	Sig.
Female intercept	28.875255	.089444	.000
Male intercept	28.648734	.089113	.000
Female*eurodP (F partner effect)	-.439522	.031902	.000
Male * eurodP (M partner effect)	-.361566	.027268	.000
Female*eurod (F actor effect)	-1.190227	.027369	.000
Male*eurod (M actor effect)	-1.290857	.031784	.000

Using Stata

```
xtmixed w2casp12sc i.gender gender#c.eurod gender#c.eurodP || coupleid:, var noc
///residuals(independent, by(gender))
```

- This includes factor variables to separate the actor/partner effects and the residual option to allow for different variances.
- The results are comparable with the SPSS output.

Stata output: Model B

	Estimate	Std. Error	Sig.
Female intercept	28.875255	.089444	.000
Male intercept	28.6487346	.089113	.000
Female*eurodP (F partner effect)	-.4395217	.031902	.000
Male * eurodP (M partner effect)	-.3615664	.027268	.000
Female*eurod (F actor effect)	-1.190227	.027369	.000
Male*eurod (M actor effect)	-1.290857	.031784	.000

Appendix 4.6: Alternative gender equality indices

Table A.4.6.1: Alternative gender equality indices considered: SHARE countries

	COUNTRIES	EGEI 2009			EUGEI 2009			GEI 2009		
		Score	Rank (27)	Rank (13)	Score	Rank (27)	Rank (13)	Score	Rank (28)	Rank (14)
1	Austria	53.1	18	8	0.52	17	8	71	15	9
2	Belgium	59.3	13	4	0.61	5	4	72	13	7
3	Czech Republic	53.0	19	9	0.51	18	9	68	21	11
4	Denmark	61.0	10	2	0.69	3	2	79	3	2
5	France	54.5	15	6	0.56	9	6	72	14	8
6	Germany	51.4	21	11	0.59	7	5	78	4	3
7	Greece	49.2	22	12	0.26	25	13	65	23	12
8	Italy	47.7	23	13	0.41	21	11	64	25	13
9	Netherlands	53.7	17	7	0.65	4	3	77	5	4
10	Poland	60.0	12	3	0.53	16	7	70	18	10
11	Spain	58.6	14	5	0.37	22	12	77	6	5
12	Sweden	62.1	7	1	0.72	2	1	88	1	1
13	Switzerland							62	26	14
	Average (27 countries)	56.8			0.528					
	Median							72		

Table adapted from (Bericat, 2012)

Table A.4.6.2: Items included in alternative gender equality indices

	EUGI	EGEI		GEI
Education		Education level	Pop(25–74) At least upper secondary Pop (25–74) Tertiary education. Pop (25–39). At least upper secondary. Pop (25–39) Tertiary education.	Literacy rate Enrolment rate in primary education Enrolment rate in secondary education Enrolment rate in tertiary education
		Life-long learning	Pop (25–64). Adult participation in education Pop (25–54). Internet use	
		Education segregation	Tertiary students enrolled in Education, Humanities Tertiary students enrolled in Science, Eng.	
Economic activity	Labour force participation: employment gap	Participation	Population, aged 15–64. Employment rates Population, aged 25–49. Employment rates	Rate of economic activity Estimated perceived income
	Unemployment: unemployment gap	Contract conditions	Total employment, (15–64). PT employment Total employees (15–64). Temporary employees	
		Occupational and Pay segregation	Unadjusted Gender Pay Gap Total employment, aged, 15–39. Occupational segregation	
Power	Political power: gap in parliament	Political	Total population. Political representation: National, Regional and Local	Women in parliament (%)
	Socio-economic power: gap in ISCO1		Total population. Political administration: Judges and Senior Level Civil Servants	Women in ministerial level positions (%)
		Managerial	Total population, aged 15–64. Self -employed/Employers	Women in management and government positions (%)
			Total population. Leaders of business/Members of highest decision-making body	Women in technical positions (%)
Money	Pay: pay gap			
	Income: poverty gap among single headed households			
Time	Caring time: gap in caring time for children			
	Leisure: gap in leisure time			

Appendix 5.1: Additional prevalence tables by country

Table A.5.1.1: The prevalence of married, divorced, widowed and never married by country

		MARRIED % (CI)	DIVORCED^a % (CI)	WIDOWED % (CI)	NEVER MARRIED % (CI)
Bismarckian	Austria	61.4 (58.7, 64.0)	9.3 (7.7, 10.9)	22.4 (20.1, 24.7)	7.00 (6.00, 8.4)
	Germany	77.6 (75.9, 79.3)	7.1 (6.0, 8.1)	11.0 (9.7, 12.3)	4.3 (3.5, 5.2)
	France	67.7 (65.8, 69.6)	10.4 (9.1, 11.6)	15.3 (13.9, 16.8)	6.6 (5.6, 7.6)
	Netherlands	79.5 (77.9, 81.1)	6.8 (5.8, 7.8)	10.0 (8.8, 11.2)	3.7 (3.0, 4.5)
	Switzerland	67.7 (65.2, 70.1)	13.1 (11.3, 14.9)	12.7 (11.0, 14.5)	6.5 (5.2, 7.8)
	Belgium	72.8 (71.1, 74.4)	9.3 (8.2, 10.4)	14.1 (12.8, 15.4)	3.8 (3.1, 4.5)
	Total	72.3 (71.5, 73.1)	9.0 (8.5, 9.5)	13.7 (13.1, 14.3)	5.0 (4.7, 5.4)
Southern	Spain	78.1 (76.2, 79.9)	3.2 (2.4, 4.0)	12.2 (10.7, 13.6)	6.5 (5.4, 7.6)
	Italy	81.9 (80.4, 83.3)	2.4 (1.8, 2.9)	11.5 (10.3, 12.7)	4.3 (3.6, 5.1)
	Greece	73.9 (72.3, 75.5)	4.9 (4.1, 5.6)	16.9 (15.5, 18.3)	4.3 (3.6, 5.1)
Scandinavian	Sweden	78.8 (77.2, 80.4)	8.2 (7.1, 9.3)	8.9 (7.8, 10.0)	4.1 (3.3, 4.9)
	Denmark	70.3 (68.5, 72.1)	11.4 (10.1, 12.6)	12.3 (11.0, 13.6)	6.0 (5.1, 7.0)
Post-Communist	Czech Republic	65.3 (63.5, 67.1)	13.2 (12.0, 14.5)	18.4 (17.0, 19.9)	3.0 (2.4, 3.7)
	Poland	74.5 (72.7, 76.3)	5.9 (4.9, 6.8)	16.3 (14.8, 17.8)	3.3 (2.6, 4.1)
Liberal	England	69.41 (68.3, 70.5)	10.4 (9.7, 11.1)	14.7 (13.9, 15.5)	5.5 (5.0, 6.0)

^a Includes separated

Appendix 5.2: Additional current marital status analysis

SHARE sample

Table A.5.2.1 Regression of CASP-12 on marital status adjusting for health and socio-economic circumstances in the SHARE countries

(N= 29,865)	MODEL 5.2 ^B	MODEL 5.3 ^C	MODEL 5.4 ^D	MODEL 5.5 ^E
	<i>Coeff. [SE]^g</i>	<i>Coeff. [SE]^g</i>	<i>Coeff. [SE]^g</i>	<i>Coeff. [SE]^g</i>
Cons	26.93	27.07	27.23	25.26
Age ^h	-0.04 [0.00]	-0.03 [0.00]	-0.03 [0.00]	-0.08 [0.00]
Age ^{2h}	-0.02 [0.00]	-0.02 [0.00]	-0.02 [0.00]	-0.02 [0.00]
Men (1)	-0.44 [0.07]	-0.42 [0.07]	-0.45 [0.07]	0.43 [0.07]
Women:				
Divorced ⁱ	-1.26 [0.13]	-1.23 [0.13]	-1.18 [0.13]	-0.38 [0.15]
Never married	-0.53 [0.18]	-0.44 [0.18]	-0.41 [0.18]	-0.04 [0.21]
Widowed	-0.60 [0.10]	-0.53 [0.10]	-0.51 [0.10]	-0.06 [0.12]
Men:				
Divorced ⁱ	-0.91 [0.17]	-0.83 [0.16]	-0.82 [0.16]	-0.68 [0.19]
Never married	-1.07 [0.19]	-1.01 [0.18]	-0.98 [0.18]	-0.74 [0.21]
Widowed	0.03 [0.18]	0.01 [0.18]	0.03 [0.18]	-0.33 [0.20]
Gender interaction:				
Divorced ⁱ	<i>0.36 [0.21]</i>	<i>0.40 [0.21]</i>	<i>0.37 [0.21]</i>	-0.31 [0.24]
Never married	-0.54 [0.26]	-0.56 [0.26]	-0.57 [0.26]	-0.79 [0.29]
Widowed	0.63 [0.20]	0.54 [0.20]	0.54 [0.20]	0.27 [0.22]
Gali (limitations)	-2.08 [0.06]	-1.92 [0.06]	-1.84 [0.06]	
Chronic disease (+2)	-0.62 [0.06]	-0.63 [0.06]	-0.57 [0.06]	
Depression ^h	-1.17 [0.14]	-1.12 [0.01]	-1.12 [0.01]	
Current smoker		-0.35 [0.07]	-0.35 [0.07]	
Physical inactivity		-2.09 [0.10]	-2.17 [0.10]	
Excessive drinking		-0.07 [0.18]	-0.07 [0.18]	
Difficulties/no help			-0.68 [0.06]	
Retired				0.46 [0.08]
High education				0.65 [0.08]
Home owner				0.40 [0.07]
Financial difficulties				-3.60 [0.07]
Has car				1.73 [0.09]
R ²	0.44	0.44	0.45	0.29

^a marital status, age age2, gender and country. ^b Model 4.1 + health status, ^c Model 4.2+ health behaviour, ^d Model 4.3+ mobility problems, ^e Model 4.1 + Financial, ^f Results where p<0.05 in bold; results where 0.05>p<0.10 in italics ^h Grand mean centred, ⁱ Includes separated

Bismarckian welfare state regime

Table A.5.2.2 Bismarckian: Regression CASP-12 on marital status adjusting for health and socio-economic circumstances^a

(N= 12,444)	MODEL 5.2 ^b	MODEL 5.3 ^c	MODEL 5.4 ^d	MODEL5.5 ^e
	<i>Coeff. [SE]^g</i>	<i>Coeff. [SE]^g</i>	<i>Coeff. [SE]^g</i>	<i>Coeff. [SE]^g</i>
Cons	28.17	28.28	28.42	26.07
Age ^h	-0.02 [0.00]	-0.01 [0.00]	0.00 [0.00]	-0.05 [0.01]
Age ^{2h}	-0.02 [0.00]	-0.02 [0.00]	-0.02 [0.00]	-0.03 [0.00]
Men (1)	-0.64 [0.10]	-0.61 [0.10]	-0.62 [0.10]	<i>0.19 [0.11]</i>
Women:				
Divorced ⁱ	-1.74 [0.19]	-1.67 [0.19]	-1.63 [0.19]	-0.73 [0.22]
Never married	-0.59 [0.26]	-0.50 [0.26]	<i>-0.44 [0.26]</i>	-0.03 [0.30]
Widowed	-0.76 [0.16]	-0.66 [0.16]	-0.63 [0.16]	-0.25 [0.18]
Men:				
Divorced ⁱ	-1.18 [0.25]	-1.05 [0.25]	-1.05 [0.24]	-0.68 [0.28]
Never married	-0.97 [0.29]	-0.90 [0.29]	-0.85 [0.29]	-0.41 [0.32]
Widowed	-0.02 [0.27]	-0.04 [0.27]	-0.04 [0.27]	<i>-0.52 [0.30]</i>
Gender interaction:				
Divorced ⁱ	<i>0.55 [0.31]</i>	0.61 [0.31]	<i>0.57 [0.30]</i>	0.05 [0.35]
Never married	-0.38 [0.39]	-0.40 [0.39]	-0.42 [0.39]	-0.44 [0.44]
Widowed	0.74 [0.30]	0.62 [0.30]	<i>0.60 [0.30]</i>	-0.28 [0.34]
Gali (limitations)	-1.94 [0.10]	-1.74 [0.10]	-1.65 [0.10]	
Chronic disease (+2)	-0.58 [0.10]	-0.56 [0.10]	-0.51 [0.10]	
Depression ^h	-1.22 [0.02]	-1.17 [0.02]	-1.16 [0.02]	
Current smoker		-0.50 [0.11]	-0.49 [0.11]	
Physical inactivity		-2.49 [0.16]	-2.58 [0.16]	
Excessive drinking		-0.17 [0.27]	-0.12 [0.27]	
Difficulties/no help			-0.82 [0.10]	
Retired				0.23 [0.13]
High education				0.56 [0.12]
Home owner				0.70 [0.11]
Financial difficulties				-3.97 [0.11]
Has care				1.35 [0.14]
R ²	0.35	0.37	0.37	0.21

^a marital status, age age2, gender and country. ^b Model 4.1 + health status, ^c Model 4.2+ health behaviour, ^d Model 4.3+ mobility problems, ^e Model 4.1 + Financial, ^f Model 4.3 + Financial ^g Results where p<0.05 in bold; results where 0.05>p<0.10 in italics ^h Grand mean centred, ⁱ Includes separated

Southern welfare state regime

Table A.5.2.3 Southern: Regression CASP-12 on marital status adjusting for health and socio-economic circumstances ^a

(N= 7,642)	MODEL 5.2 ^b	MODEL 5.3 ^c	MODEL 5.4 ^d	MODEL 5.5 ^e
	<i>Coeff. [SE]^g</i>	<i>Coeff. [SE]^g</i>	<i>Coeff. [SE]^g</i>	<i>Coeff. [SE]^g</i>
Cons	23.86	23.99	24.17	22.58
Age ^h	-0.08 [0.01]	-0.08 [0.01]	-0.08 [0.01]	-0.13 [0.01]
Age ^{2h}	-0.01 [0.00]	-0.01 [0.00]	-0.01 [0.00]	-0.01 [0.00]
Men (1)	0.01 [0.13]	0.01 [0.13]	-0.04 [0.13]	1.01 [0.15]
Women:				
Divorced ⁱ	<i>-0.79 [0.41]</i>	<i>-0.73 [0.41]</i>	<i>-0.69 [0.41]</i>	-0.31 [0.46]
Never married	-0.20 [0.36]	-0.11 [0.36]	-0.12 [0.36]	0.18 [0.41]
Widowed	-0.68 [0.20]	-0.65 [0.20]	-0.65 [0.20]	<i>-0.40 [0.22]</i>
Men:				
Divorced ⁱ	0.47 [0.46]	0.47 [0.45]	0.45 [0.45]	0.08 [0.51]
Never married	<i>-0.67 [0.37]</i>	<i>-0.63 [0.36]</i>	<i>-0.65 [0.36]</i>	<i>-0.75 [0.41]</i>
Widowed	0.62 [0.40]	0.61 [0.40]	0.64 [0.40]	0.02 [0.45]
Gender interaction:				
Divorced ⁱ	1.25 [0.61]	<i>1.20 [0.61]</i>	<i>1.15 [0.61]</i>	0.39 [0.68]
Never married	-0.47 [0.52]	-0.53 [0.51]	-0.53 [0.51]	-0.92 [0.57]
Widowed	1.29 [0.44]	1.26 [0.43]	1.30 [0.43]	0.42 [0.48]
Gali (limitations)	-2.17 [0.14]	-1.99 [0.14]	-1.95 [0.14]	
Chronic disease (+2)	-0.78 [0.13]	-0.82 [0.13]	-0.76 [0.13]	
Depression ^h	-1.06 [0.03]	-1.01 [0.03]	-1.01 [0.03]	
Current smoker		<i>-0.25 [0.14]</i>	<i>-0.25 [0.14]</i>	
Physical inactivity		-1.72 [0.19]	-1.77 [0.19]	
Excessive drinking		<i>0.49 [0.28]</i>	<i>0.47 [0.28]</i>	
Difficulties/no help			-0.48 [0.12]	
Retired				0.29 [0.16]
High education				1.36 [0.21]
Home owner				0.38 [0.18]
Financial difficulties				-3.30 [0.13]
				1.61 [0.17]
R ²	0.37	0.38	0.38	0.23

^a marital status, age age2, gender and country. ^b Model 4.1 + health status, ^c Model 4.2+ health behaviour, ^d Model 4.3+ mobility problems, ^e Model 4.1 + Financial, ^f Model 4.3 + Financial ^g Results where p<0.05 in bold; results where 0.05>p<0.10 in italics ^h Grand mean centred, ⁱ Includes separated

Scandinavian welfare state regime

Table A.5.2.4 Scandinavian: Regression CASP-12 on marital status adjusting for health and socio-economic circumstances ^a

(N= 4,881)	MODEL 5.2 ^b	MODEL 5.3 ^c	MODEL 5.4 ^d	MODEL 5.5 ^e
	<i>Coeff. [SE]^g</i>	<i>Coeff. [SE]^g</i>	<i>Coeff. [SE]^g</i>	<i>Coeff. [SE]^g</i>
Cons	28.97	29.07	29.14	27.33
Age ^h	-0.02 [0.01]	-0.02 [0.01]	-0.01 [0.01]	-0.04 [0.01]
Age ^{2h}	-0.05 [0.00]	-0.04 [0.00]	-0.04 [0.00]	-0.06 [0.01]
Men (1)	-0.58 [0.14]	-0.57 [0.14]	-0.58 [0.14]	0.01 [0.15]
Women:				
Divorced ⁱ	-1.03 [0.26]	-0.98 [0.26]	-0.94 [0.26]	-0.14 [0.31]
Never married	-0.99 [0.38]	-0.87 [0.38]	-0.83 [0.38]	<i>-0.70 [0.43]</i>
Widowed	-0.23 [0.25]	-0.15 [0.25]	-0.12 [0.25]	0.86 [0.29]
Men:				
Divorced ⁱ	-0.88 [0.32]	-0.69 [0.32]	-0.69 [0.32]	-0.44 [0.35]
Never married	-0.96 [0.40]	-0.91 [0.39]	-0.88 [0.39]	<i>-0.72 [0.44]</i>
Widowed	<i>-0.74 [0.38]</i>	-0.78 [0.38]	-0.78 [0.38]	-0.66 [0.42]
Gender interaction:				
Divorced ⁱ	0.16 [0.41]	0.29 [0.41]	0.25 [0.41]	-0.30 [0.46]
Never married	0.03 [0.55]	-0.04 [0.54]	-0.05 [0.54]	-0.02 [0.60]
Widowed	-0.51 [0.44]	-0.64 [0.44]	-0.66 [0.44]	-1.52 [0.49]
Gali (limitations)	-1.51 [0.14]	-1.37 [0.14]	-1.31 [0.14]	
Chronic disease (+2)	-0.37 [0.13]	-0.36 [0.13]	-0.32 [0.13]	
Depression ^h	-1.09 [0.04]	-1.06 [0.04]	-1.05 [0.04]	
Current smoker		-0.51 [0.15]	-0.51 [0.15]	
Physical inactivity		-1.92 [0.29]	-1.94 [0.29]	
Excessive drinking		-0.20 [0.60]	-0.23 [0.60]	
Difficulties/no help			-0.43 [0.14]	
Retired				0.31 [0.20]
High education				0.19 [0.15]
Home owner				0.50 [0.15]
Financial difficulties				-3.44 [0.20]
Has car				1.18 [0.22]
R ²	0.30	0.31	0.31	0.15

^a marital status, age age2, gender and country. ^b Model 4.1 + health status, ^c Model 4.2+ health behaviour, ^d Model 4.3+ mobility problems, ^e Model 4.1 + Financial, ^f Model 4.3 + Financial ^g Results where p<0.05 in bold; results where 0.05>p<0.10 in italics ^h Grand mean centred, ⁱ Includes separated

Post-communist welfare state regime

Table A.5.2.5 Post-Communist: Regression CASP-12 on marital status adjusting for health and socio-economic circumstances^a

(N=4,898)	MODEL 5.2 ^B	MODEL 5.3 ^C	MODEL 5.4 ^D	MODEL 5.5 ^E
	<i>Coeff. [SE]^g</i>	<i>Coeff. [SE]^g</i>	<i>Coeff. [SE]^g</i>	<i>Coeff. [SE]^g</i>
Cons	25.88	26.19	27.71	24.34
Age ^h	-0.03 [0.01]	-0.02 [0.01]	-0.02 [0.01]	-0.13 [0.01]
Age ^{2h}	-0.01 [0.01]	<i>-0.01 [0.01]</i>	-0.01 [0.01]	-0.02 [0.01]
Men (1)	-0.26 [0.17]	-0.24 [0.17]	<i>-0.27 [0.17]</i>	0.81 [0.20]
Women:				
Divorced ⁱ	-0.71 [0.31]	-0.71 [0.31]	-0.64 [0.31]	0.04 [0.37]
Never married	-0.01 [0.64]	-0.08 [0.64]	0.11 [0.63]	<i>1.30 [0.77]</i>
Widowed	-0.21 [0.23]	-0.14 [0.23]	-0.11 [0.23]	0.17 [0.28]
Men:				
Divorced ⁱ	-1.19 [0.39]	-1.16 [0.38]	-1.10 [0.38]	-1.49 [0.46]
Never married	-2.44 [0.51]	-2.22 [0.50]	-2.13 [0.50]	-2.05 [0.60]
Widowed	0.18 [0.41]	0.16 [0.41]	0.23 [0.41]	0.04 [0.49]
Gender interaction (M):				
Divorced ⁱ	-0.47 [0.50]	-0.45 [0.49]	-0.46 [0.49]	-1.53 [0.57]
Never married	-2.43 [0.82]	-2.30 [0.81]	-2.23 [0.81]	-3.64 [0.98]
Widowed	0.39 [0.46]	0.30 [0.45]	0.34 [0.45]	-0.13 [0.55]
Gali (limitations)	-2.89 [0.16]	-2.78 [0.16]	-2.64 [0.17]	
Chronic disease (+2)	-0.57 [0.16]	-0.60 [0.16]	-0.53 [0.16]	
Depression ^h	-1.24 [0.03]	-1.18 [0.03]	-1.18 [0.03]	
Current smoker		-0.41 [0.17]	-0.42 [0.17]	
Physical inactivity		-2.08 [0.20]	-2.20 [0.20]	
Excessive drinking		-0.91 [0.70]	-0.94 [0.69]	
Difficulties/no help			-0.75 [0.16]	
Retired				0.55 [0.24]
High education				1.54 [0.28]
Home owner				0.19 [0.18]
Financial difficulties				-3.16 [0.18]
Has car				1.94 [0.19]
R ²	0.39	0.41	0.41	0.16

^a marital status, age age2, gender and country. ^b Model 4.1 + health status, ^c Model 4.2+ health behaviour, ^d Model 4.3+ mobility problems, ^e Model 4.1 + Financial, ^f Model 4.3 + Financial

^g Results where p<0.05 in bold; results where 0.05>p<0.10 in italics

^h Grand mean centred, ⁱ Includes separated

Liberal welfare state regime

Table A.5.2.6 Liberal: Regression CASP-12 on marital status adjusting for health and socio-economic circumstances^a

(7,461)	MODEL 5.2 ^B	MODEL 5.3 ^C	MODEL 5.4 ^D	MODEL 4.1.5 ^E
	<i>Coeff. [SE]^g</i>	<i>Coeff. [SE]^g</i>	<i>Coeff. [SE]^g</i>	<i>Coeff. [SE]^g</i>
Cons	26.94	27.00	26.21	24.45
Age ^h	-0.00 [0.01]	0.00 [0.01]	0.00 [0.01]	-0.06 [0.01]
Age ^{2h}	-0.02 [0.00]	-0.02 [0.00]	-0.02 [0.00]	-0.02 [0.00]
Men (1)	-0.98 [0.13]	-1.06 [0.14]	-1.12 [0.14]	-0.54 [0.15]
Women:				
Divorced ⁱ	-1.13 [0.23]	-1.09 [0.24]	-1.16 [0.23]	-1.08 [0.27]
Never married	-0.86 [0.35]	-0.84 [0.35]	-0.94 [0.35]	-1.32 [0.40]
Widowed	0.18 [0.21]	0.23 [0.21]	0.19 [0.21]	-0.57 [0.24]
Men:				
Divorced ⁱ	-0.70 [0.29]	-0.62 [0.29]	-0.70 [0.30]	-1.32 [0.27]
Never married	<i>-0.64 [0.34]</i>	<i>-0.59 [0.34]</i>	<i>-0.64 [0.34]</i>	<i>-0.70 [0.40]</i>
Widowed	0.90 [0.32]	0.90 [0.32]	0.84 [0.32]	-0.05 [0.24]
Gender interaction:				
Divorced ⁱ	0.42 [0.38]	0.47 [0.38]	0.47 [0.38]	-0.23 [0.43]
Never married	0.22 [0.49]	0.25 [0.49]	0.30 [0.49]	0.61 [0.55]
Widowed	0.72 [0.37]	<i>0.67 [0.36]</i>	<i>0.65 [0.36]</i>	0.71 [0.42]
Gali (limitations)	-2.13 [0.13]	-1.94 [0.14]	-1.71 [0.14]	
Chronic disease (+2)	-0.77 [0.13]	-0.71 [0.13]	-0.63 [0.13]	
Depression ^h	-1.46 [0.03]	-1.42 [0.03]	-1.41 [0.03]	
Current smoker		-0.38 [0.16]	-0.36 [0.16]	
Physical inactivity		-0.99 [0.18]	-0.80 [0.18]	
Excessive drinking		0.66 [0.21]	0.66 [0.21]	
Difficulties/no help			0.88 [0.16]	
Retired				0.41 [0.17]
High education				0.69 [0.14]
Home owner				1.33 [0.19]
Financial difficulties				-3.93 [0.14]
Has car				0.90 [0.18]
R ²	0.34	0.34	0.35	0.15

^a marital status, age age2, gender and country. ^b Model 4.1 + health status, ^c Model 4.2+ health behaviour, ^d Model 4.3+ mobility problems, ^e Model 4.1 + Financial, ^f Model 4.3 + Financial ^g Results where p<0.05 in bold; results where 0.05>p<0.10 in italics ^h Grand mean centred, ⁱ Includes separated

Appendix 5.3: Additional life course marital status analysis

Bismarckian Welfare Regime

Table A.5.3.1: Bismarckian: Regression CASP-12 on life course marital status adjusting for health and socio-economic circumstances^a

N=8,618	Model 5.8	Model 5.9
	<i>Coeff. [SE]^d</i>	<i>Coeff. [SE]^d</i>
Intercept	27.45	26.36
Age ^b	-0.03 (0.01)	-0.03 (0.00)
Age ^{2b}	-0.02 (0.01)	-0.02 (0.01)
Male	0.33 (0.15)	<i>0.24 (0.14)</i>
<i>Women:</i>		
Never married	-1.22 (0.37)	<i>-0.38 (0.35)</i>
Remarried	-0.75 (0.33)	<i>-0.44 (0.31)</i>
Dissolution	-1.97 (0.19)	
<i>Divorced</i>		-0.90 (0.26)
<i>Widowed</i>		<i>-0.40 (0.22)</i>
<i>Men:</i>		
Never married	-1.05 (0.41)	<i>-0.25 (0.39)</i>
Remarried	<i>-0.50 (0.30)</i>	<i>-0.34 (0.28)</i>
Dissolution	-1.21 (0.27)	
<i>Divorced^c</i>		-0.69 (0.34)
<i>Widowed</i>		-0.75 (0.36)
Gender interactions:		
Never married	<i>0.17 (0.55)</i>	<i>0.13 (0.52)</i>
Remarried	<i>0.25 (0.44)</i>	<i>0.10 (0.42)</i>
Dissolution	0.76 (0.32)	
<i>Divorced^c</i>		<i>0.21 (0.42)</i>
<i>Widowed</i>		<i>-0.35 (0.41)</i>
Gali (limitations)		
Chronic disease (+2)		
Depression ^b		
Current smoker		
Physical inactivity		
Excessive drinking		
Difficulties/no help		
Retired		<i>0.16 (0.15)</i>
High education		0.58 (0.14)
Home owner		0.71 (0.13)
Financial difficulties		-3.84 (0.14)
Has car		1.18 [0.17]
R2	0.09	0.19

^aModel 1 = life course marital status (A) , age age2, gender and country, Model 2= life course marital status (B), age age2, gender and country, Model 3= Model 2+ financial, Model 4 = Model 2+ health+ financial,

^b Grand mean centered, ^c Includes separated,

^d Results where $p < 0.05$ in bold; results where $0.05 > p < 0.10$ in italics

Southern Welfare Regime

Table A.5.3.2: Southern: Regression CASP-12 on life course marital status adjusting for health and socio-economic circumstances^a

N= 5,859	Model 5.8	Model 5.9
	<i>Coeff.[SE]^d</i>	<i>Coeff.[SE]^d</i>
Intercept	22.39	22.63
Age ^b	-0.15 (0.01)	-0.12 (0.01)
Age ^{2b}	-0.02 (0.01)	-0.01(0.01)
Male	1.39 (0.17)	1.10 (0.17)
Women:		
Never married	0.27 (0.47)	0.55 (0.45)
Remarried	-0.06 (0.86)	0.13 (0.81)
Dissolution	-1.52 (0.25)	
<i>Divorced^c</i>		<i>-0.76 (0.56)</i>
<i>Widowed</i>		-0.66 (0.26)
Men:		
Never married	<i>-0.85 (0.49)</i>	<i>-0.74 (0.47)</i>
Remarried	<i>-0.01 (0.67)</i>	0.05 (0.64)
Dissolution	0.03 (0.44)	
<i>Divorced^c</i>		<i>-0.17 (0.66)</i>
<i>Widowed</i>		<i>-0.07 (0.53)</i>
Gender interactions:		
Never married	<i>-1.12 (0.68)</i>	-1.29 (0.64)
Remarried	0.06 (1.09)	<i>-0.17 (1.03)</i>
Dissolution	1.56 (0.50)	
<i>Divorced^c</i>		0.59 (0.86)
<i>Widowed</i>		0.59 (0.57)
Gali (limitations)		
Chronic disease (+2)		
Depression ^b		
Current smoker		
Physical inactivity		
Excessive drinking		
Difficulties/no help		
Retired		0.22 (0.18)
High education		1.28 (0.24)
Home owner		0.44 (0.21)
Financial difficulties		-3.21 (0.15)
Has car		1.59 [0.19]
R2	0.12	0.21

^a Model 1 = life course marital status (A) , age age2, gender and country, Model 2= life course marital status (B), age age2, gender and country, Model 3= Model 2+ financial, Model 4 = Model 2+ health+ financial,

^b Grand mean centered, ^c Includes separated,

^d Results where $p < 0.05$ in bold; results where $0.05 > p > 0.10$ in italics

Scandinavian Welfare Regime

Table A 5.3.3: Scandinavian: Regression CASP-12 on life course marital status adjusting for health and socio-economic circumstances ^a

N=3,226	Model 5.8	Model 5.9
	<i>Coeff.[SE]^d</i>	<i>Coeff.[SE]^d</i>
Intercept	28.92	27.42
Age ^b	-0.02 (0.01)	-0.03 (0.01)
Age ^{2b}	-0.06 (0.01)	-0.05 (0.01)
Male	0.12 (0.21)	0.09 (0.20)
<i>Women:</i>		
Never married	<i>-0.83 (0.45)</i>	<i>-0.11 (0.45)</i>
Remarried	<i>-0.26 (0.34)</i>	<i>-0.16 (0.33)</i>
Dissolution	-0.82 (0.27)	
<i>Divorced^c</i>		<i>-0.17 (0.36)</i>
<i>Widowed</i>		0.74 (0.33)
<i>Men:</i>		
Never married	-1.58 (0.47)	-0.98 (0.46)
Remarried	0.13 (0.34)	0.26 (0.33)
Dissolution	-0.93 (0.35)	
<i>Divorced^c</i>		0.38 (0.43)
<i>Widowed</i>		-1.18 (0.52)
<i>Gender interactions:</i>		
Never married	<i>-0.75 (0.21)</i>	<i>-0.87 (0.63)</i>
Remarried	<i>0.38 (0.48)</i>	<i>0.43 (0.47)</i>
Dissolution	<i>-0.11 (0.44)</i>	
<i>Divorced^c</i>		0.55 (0.54)
<i>Widowed</i>		-1.91 (0.59)
Gali (limitations)		
Chronic disease (+2)		
Depression ^b		
Current smoker		
Physical inactivity		
Excessive drinking		
Difficulties/no help		
Retired		0.32 (0.24)
High education		0.22 (0.18)
Home owner		0.39 (0.18)
Financial difficulties		-3.41 (0.24)
Has car		1.27 (0.26)
R2	0.07	0.13

^a Model 1 = life course marital status (A) , age age2, gender and country, Model 2= life course marital status (B), age age2, gender and country, Model 3= Model 2+ financial, Model 4 = Model 2+ health+ financial,

^b Grand mean centered, ^c Includes separated,

^d Results where $p < 0.05$ in bold; results where $0.05 > p > 0.10$ in italics

Post-Communist Welfare Regime

Table A.5.3.4: Post-Communist: Regression CASP-12 on life course marital status adjusting for health and socio-economic circumstances ^a

N=3,130	Model 5.8	Model 5.9
	Coeff.[SE] ^d	Coeff.[SE] ^d
Intercept	22.91	22.95
Age	-0.11 (0.01)	-0.13 (0.02)
Age ^{2b}	<i>-0.02 (0.01)</i>	-0.02 (0.01)
Male	1.04 (0.26)	0.94 (0.25)
Women:		
Never married	-0.17 (1.03)	0.66 (0.99)
Remarried	-1.00 (0.72)	-0.69 (0.69)
Dissolution	-1.27 (0.31)	
<i>Divorced^c</i>		-0.14 (0.50)
<i>Widowed</i>		-0.09 (0.35)
Men:		
Never married	-1.92 (0.81)	-1.20 (0.78)
Remarried	-0.43 (0.69)	-0.59 (0.66)
Dissolution	<i>-0.87 (0.51)</i>	
<i>Divorced^c</i>		-1.94 (0.70)
<i>Widowed</i>		0.25 (0.64)
Gender interactions:		
Never married	-1.75 (1.32)	-1.86 (1.26)
Remarried	0.58 (1.00)	0.10 (0.96)
Dissolution	0.40 (0.59)	
<i>Divorced^c</i>		-1.80 (0.86)
<i>Widowed</i>		0.16 (0.72)
Gali (limitations)		
Chronic disease (+2)		
Depression ^b		
Current smoker		
Physical inactivity		
Excessive drinking		
Difficulties/no help		
Retired		0.76 (0.30)
High education		1.94 (0.36)
Home owner		0.12 (0.22)
Financial difficulties		-2.92 (0.23)
Has car		1.80 (0.23)
R2	0.06	0.15

^a Model 1 = life course marital status (A) , age age2, gender and country, Model 2= life course marital status (B), age age2, gender and country, Model 3= Model 2+ financial, Model 4 = Model 2+ health+ financial,

^b Grand mean centered, ^c Includes separated, ^d Results where p<0.05 in bold; results where 0.05>p<0.10 in italics

Liberal Welfare Regime (ELSA)

Table A.5.3.5: Liberal: Regression CASP-12 on life course marital status adjusting for health and socio-economic circumstances^a

N=7,461	Model 5.8	Model 5.9
	<i>Coeff.[SE]^d</i>	<i>Coeff.[SE]^d</i>
Intercept	26.43	25.03
Age ^b	-0.02 (0.01)	-0.05 (0.01)
Age ^{2b}	-0.03 (0.00)	-0.02 (0.00)
Male	-0.51 (0.18)	-0.59 (0.17)
Women:		
Never married	-0.02 (0.01)	-1.35 (0.40)
Remarried	-0.03 (0.00)	-0.16 (0.27)
Dissolution		
<i>Divorced^c</i>		-1.11 (0.27)
<i>Widowed</i>		-0.59 (0.24)
Men:		
Never married	-1.23 (0.43)	-0.69 (0.40)
Remarried	-0.24 (0.30)	0.08 (0.28)
Dissolution		
<i>Divorced^c</i>	-1.30 (0.28)	-1.30 (0.34)
<i>Widowed</i>		-0.06 (0.37)
Gender interactions:		
Never married	0.73 (0.60)	0.66 (0.56)
Remarried	0.26 (0.41)	0.24 (0.39)
Dissolution	0.49 (0.34)	
<i>Divorced^c</i>		-0.20 (0.44)
<i>Widowed</i>		0.66 (0.42)
Gali (limitations)		
Chronic disease (+2)		
Depression ^b		
Current smoker		
Physical inactivity		
Excessive drinking		
Difficulties/no help		
Retired		0.41 (0.17)
High education		0.69 (0.14)
Home owner		1.32 (0.19)
Financial difficulties		-3.92 (0.14)
Has car		0.90 [0.18]
R ²	0.03	0.15

^a Model 1 = life course marital status (A) , age age2, gender and country, Model 2= life course marital status (B), age age2, gender and country, Model 3= Model 2+ financial, Model 4 = Model 2+ health+ financial,

^b Grand mean centered, ^c Includes separated, ^d Results where p<0.05 in bold; results where 0.05>p<0.10 in italics