

Private Household-Related Determinants of Life Satisfaction  
in Older Germans

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submitted by

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Hamburg, October 2022

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Appendix 2:**Declaration**

I hereby declare that I, Xiangjun Ren, have not received any commercial consultation on my doctoral thesis. This thesis has not been accepted as part of any previous doctoral procedure or graded as insufficient.

Baishan, 24.10.2022  
Place, date

Xiangjun Ren  
Doctoral candidate's signature

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**Affidavit:**

I, Xiangjun Ren, hereby declare under oath that I wrote the dissertation titled

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myself and in case of cooperation with other researchers pursuant to the enclosed statements in accordance with Section 6 subsection 3 of the Doctoral Degree Regulations of the Faculty of Business, Economics and Social Sciences dated 18 January 2017. I have used no aids other than those indicated.

Baishan, 24.10.2022  
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20. July 2022 in Hamburg

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## List of Abbreviations

accom.	accommodation
CI.	Confidence interval
e.g.	exempli gratia
EQLS.	European Quality of Life Survey
EU.	European Union
FTF.	face-to-face
GDP.	Gross Domestic Product
GNP.	Gross National Product
NASA.	National Aeronautics and Space Administration
OECD.	Organization for Economic Co-operation and Development
One-way ANOVA.	One-way analysis of variance

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## Summary

### Starting point and research question

Older retirees are less stressed by their workloads and work-family imbalances than working-age adults on the one hand, but on the other hand, they are more constrained by declining incomes and rising health risks. The extent to which older people lead satisfying lives when they are no longer employed is an important issue, and this is when their private lives become increasingly important. This dissertation focusses on the life satisfaction of older German people based on their household-related life domains. The main research question is as follows: Among the household-related factors in a family, which factors significantly influence the life satisfaction of older people in Germany?

### Theoretical framework

The term *older people* is defined here as those aged 65 and over who have retired from the labour market. The term *household-related life satisfaction* in this dissertation is defined as people's subjective evaluations of their current situation in relation to the material, physical and psychological aspects of their family and household lives. To accommodate the concept of household-related life satisfaction, this dissertation defines *household-related life domain* more broadly than merely one's family life. Based on the main research question, the dissertation introduces several hypotheses regarding the potential determinants of household-related life satisfaction, which is evaluated through empirical quantitative research of older people in Germany. This dissertation proposes that, theoretically, household-related life satisfaction is an accurate and reliable indicator of the satisfaction of older people within their household-related lives. Additionally, it is assumed that marriage, ownership of accommodation and number of rooms within the accommodation, frequency of contact with family members and support from family members in difficult situations are positively

associated with older people's life satisfaction, whereas performing housework and providing informal care for family members is negatively associated with older people's life satisfaction.

### Methodological approach

The focus of this study is older people in Germany; this nation is typical of a highly developed post-industrial society with a well-developed welfare state that offers a relatively high degree of social security for older people. The results of this research may provide general conclusions for highly developed post-industrial European societies with similar cultural backgrounds and situations for their elderly population. The data for this research was collected from three waves of the European Quality of Life Survey (2007, 2012 and 2016) in Germany, which amassed a total of 1,735 older respondents. This empirical research utilises family life satisfaction and accommodation satisfaction as indicators for the main dependent variable, which is household-related life satisfaction; furthermore, it employs correlation analysis, linear regression, one-way analysis of variance (ANOVA) and cross-tabulation analysis to determine the role of household-related factors in older people's household-related life satisfaction.

### Results

Cross-checks via correlation analysis and linear regression testified the validity and reliability of household-related life satisfaction measurement. A linear regression, a one-way ANOVA and a cross-tabulation analysis testified the significance of several household-related factors in older German people's household-related life satisfaction. The household income level, types of accommodation; lack of a balcony, garden or terrace in one's accommodation, a shortage of space in one's accommodation, the possibility of being unable to afford one's accommodation, marital status, contact frequency with family members, support from family members in financial difficulties,

support from family members when seeking a job, performing a fair share of housework are significant factors that influence older Germans' satisfaction with family life. Specifically, a lower household income; the lack of a balcony, garden or terrace in one's accommodation; a shortage of space in one's accommodation; a high possibility of being unable to afford one's accommodation; an unfair share of housework are associated with a lower household-related life satisfaction, whereas being married or living with a partner; possession of the accommodation; as well as support from family members in financial difficulties are associated with a higher household-related life satisfaction among older people.

Moreover, contact frequency with family members and support from family members (when one is ill, needs advice or is depressed) are also connected to household-related life satisfaction to some extent. Frequency of contact (both face-to-face and remote) with family members outside the household affects older people's household-related life satisfaction. However, daily or almost-daily contact may lead to a slight decrease in older people's household-related life satisfaction. Due to well-developed welfare policies in Germany, support from family members is less important for older German's life satisfaction in some difficult situations. Factors including household size, household type, number of children, number of rooms in one's household, caring for a child or grandchild, caring for elderly or disabled relatives and the state of one's housing are insignificant factors in the household-related life satisfaction of older people in Germany.

By controlling for different groups during the statistical analysis, differences regarding household-related life satisfaction are found between social groups based on gender, age and overall health conditions. The results of a one-way ANOVA on average household-related life satisfaction among different older groups in Germany indicate that older women are more dissatisfied than older men, senior citizens aged 85 and over (the oldest age group studied, hereafter referred to as *the oldest-old*) have lower

life satisfaction than younger groups, and poorer health conditions are associated with lower household-related life satisfaction.

### Innovation

This dissertation analyses the role of household-related factors on older people's life satisfaction. To date, there has been little research regarding the effect of the state of one's housing on life satisfaction. This dissertation offers a new contribution to both theory and research, as an integrated approach incorporates the complexity of household factors, such as relationships, income, personal situations and housing, in the household-related life satisfaction of older people in Germany. Furthermore, this dissertation is innovative in its analysis of the effect of age groups, gender and health conditions on the life satisfaction of older people.

**Keywords:** household-related life satisfaction; private household; family life satisfaction; accommodation satisfaction; older people; Germany; correlation analysis; linear regression; group discrepancy

## Zusammenfassung

### Ausgangspunkt und Forschungsfrage

Ältere Rentner sind einerseits durch Arbeitsbelastung und Ungleichgewichte zwischen Beruf und Familie weniger belastet als Erwachsene im erwerbsfähigen Alter, aber andererseits stärker durch sinkende Einkommen und steigende Gesundheitsrisiken eingeschränkt. Inwieweit ältere Menschen ein zufriedenes Leben führen, wenn sie nicht mehr erwerbstätig sind, ist ein wichtiges Thema, und dabei gewinnt ihr Privatleben zunehmend an Bedeutung. Diese Dissertation fokussiert sich mit der Lebenszufriedenheit älterer deutscher Menschen anhand ihrer haushaltsbezogenen Lebensbereiche. Die zentrale Forschungsfrage lautet als: Welche Faktoren beeinflussen unter den haushaltsbezogenen Faktoren in einer Familie maßgeblich die Lebenszufriedenheit älterer Menschen in Deutschland?

### Theoretischer Rahmen

Die definition *ältere Menschen* gelten hier Personen ab 65 Jahren, die von den Arbeitsmarkt ruhestandet sind. Unter dem Begriff der *haushaltsbezogenen Lebenszufriedenheit* wird in dieser Dissertation die subjektive Einschätzung von Personen zu ihrer aktuellen Situation in Bezug auf die materiellen, physischen und psychischen Aspekte ihres Familien- und Haushaltslebens verstanden. Um dem Konzept der haushaltsbezogenen Lebenszufriedenheit koordiniert zu werden, definiert diese Dissertation den *haushaltsbezogenen Lebensbereich breiter* als nur das Familienleben des Einzelnen. Basierend auf der zentralen Forschungsfrage hat die Dissertation mehrere Hypothesen zu möglichen Determinanten der haushaltsbezogenen Lebenszufriedenheit einführt, die durch eine empirisch-quantitative Forschung an älteren Menschen in Deutschland evaluiert werden. Diese Dissertation schlägt vor, dass die haushaltsbezogene Lebenszufriedenheit theoretisch ein genauer und zuverlässiger Indikator für die Zufriedenheit älterer Menschen mit

ihrem haushaltsbezogenen Leben ist. Darüber hinaus wird angenommen, dass Eheschließung, Eigentum an einer Wohnung und Anzahl der Zimmer in der Wohnung, Kontakthäufigkeit zu Angehörigen und Unterstützung durch Angehörige in schwierigen Situationen positiv mit der Lebenszufriedenheit älterer Menschen assoziiert sind, während Hausarbeit und Bereitstellung informeller Pflege für Familienmitglieder wird negativ mit der Lebenszufriedenheit älterer Menschen in Verbindung gebracht.

### Methodischer Ansätze

Der Schwerpunkt dieser Studie liegt auf älteren Menschen in Deutschland; Diese Nation ist typisch für eine hoch entwickelte postindustrielle Gesellschaft mit einem gut entwickelten Wohlfahrtsstaat, der ein relativ hohes Maß an sozialer Sicherheit für ältere Menschen bietet. Die Ergebnisse dieser Forschung können allgemeine Schlussfolgerungen für hoch entwickelte postindustrielle europäische Gesellschaften mit ähnlichen kulturellen Hintergründen und Situationen für ihre ältere Bevölkerung liefern. Die Daten für diese Untersuchung wurden aus drei Wellen der European Quality of Life Survey (2007, 2012 and 2016) in Deutschland gesammelt, die insgesamt 1,735 ältere Befragte umfassten. Diese empirische Forschung nutzt die Familienzufriedenheit und die Wohnzufriedenheit als Indikatoren für die wichtigste abhängige Variable, die haushaltsbezogene Lebenszufriedenheit; Darüber hinaus verwendet es Korrelationsanalyse, Lineare Regression, Einfache Varianzanalyse (ANOVA) und Kreuztabellenanalyse, um die Rolle haushaltsbezogener Faktoren für die haushaltsbezogene Lebenszufriedenheit älterer Menschen zu bestimmen.

### Ergebnisse

Gegenkontrollen mittels Korrelationsanalyse und linearer Regression bestätigten die Validität und Reliabilität der haushaltsbezogenen Lebenszufriedenheit. Eine lineare Regression, eine einfache ANOVA und eine Kreuztabellenanalyse verifizierten die Bedeutung haushaltsbezogener Faktoren für die haushaltsbezogene



Lebenszufriedenheit bei älterer Deutscher. Höhe des Haushaltseinkommens, Art der Unterbringung; Mangel an Balkon, Garten oder Terrasse in der eigenen Unterkunft, Platzmangel in der eigenen Unterkunft, die Möglichkeit, sich keine Unterkunft leisten zu können, Familienstand, Kontakthäufigkeit mit Familienmitgliedern, Unterstützung von Familienmitgliedern in finanziellen Schwierigkeiten, Unterstützung von Familienmitgliedern bei der Arbeitssuche, Ein angemessener Anteil der Hausarbeit sind wesentliche Faktoren, die die Zufriedenheit älterer Deutscher mit dem Familienleben beeinflussen. Insbesondere ein niedrigeres Haushaltseinkommen; das Fehlen eines Balkons, Gartens oder einer Terrasse in der eigenen Unterkunft; Mangel an Platz in der eigenen Unterkunft; hohe Wahrscheinlichkeit, sich keine Unterkunft leisten zu können; ein unfairer Anteil der Hausarbeit ist mit einer geringeren Lebenszufriedenheit im Zusammenhang mit dem Haushalt verbunden, während die Ehe oder das Zusammenleben mit einem Partner verbunden sind; Besitz der Unterkunft; sowie die Unterstützung von Familienangehörigen in finanziellen Schwierigkeiten sind mit einer höheren haushaltsbezogenen Lebenszufriedenheit älterer Menschen verbunden.

Darüber hinaus hängen Kontakthäufigkeit mit Familienmitgliedern und Unterstützung durch Familienmitglieder (wenn man krank ist, Beratung braucht oder depressiv ist) teilweise auch mit der haushaltsbezogenen Lebenszufriedenheit zusammen. Häufigkeit des Kontakts (sowohl von Angesicht zu Angesicht als auch von Ferne) mit Familienmitgliedern außerhalb des Haushalts beeinflusst die haushaltsbezogene Lebenszufriedenheit älterer Menschen. Der tägliche oder fast tägliche Kontakt kann jedoch zu einer leichten Abnahme der haushaltsbezogenen Lebenszufriedenheit älterer Menschen führen. Aufgrund der gut entwickelten Sozialpolitik in Deutschland ist die Unterstützung durch Familienmitglieder weniger wichtig für die Lebenszufriedenheit älterer Deutscher in schwierigen Situationen. Faktoren wie Haushaltsgröße, Haushaltstyp, Anzahl der Kinder, Anzahl der Zimmer im eigenen Haushalt, Pflege eines Kindes oder Enkels, Pflege älterer oder behinderter

Angehöriger und Wohnungszustand sind unbedeutende Faktoren für die haushaltsbezogene Lebenszufriedenheit älterer Menschen in Deutschland.

Durch das Kontrollieren verschiedener Gruppen während der statistischen Analyse werden Unterschiede bezüglich der haushaltsbezogenen Lebenszufriedenheit zwischen sozialen Gruppen anhand von Geschlecht, Alter und allgemeinen Gesundheitsbedingungen festgestellt. Die Ergebnisse einer Einweg-ANOVA zur durchschnittlichen haushaltsbezogenen Lebenszufriedenheit verschiedener älterer Gruppen in Deutschland zeigen, dass ältere Frauen unzufriedener sind als ältere Männer, Senioren im Alter von 85 und über (die älteste untersuchte Altersgruppe, nachfolgend Älteste genannt) eine geringere Lebenszufriedenheit aufweisen als jüngere Gruppen. und schlechtere Gesundheitszustände sind mit einer geringeren haushaltsbezogenen Lebenszufriedenheit verbunden.

#### Innovation

Diese Dissertation untersucht die Rolle haushaltsbezogener Faktoren auf die Lebenszufriedenheit älterer Menschen. Bisher gibt es wenig Forschung über den Einfluss des Wohnzustandes auf die Lebenszufriedenheit. Diese Dissertation bietet einen neuen Beitrag sowohl in Theorie als auch Forschung, da ein integrierter Ansatz die Komplexität haushaltsbezogener Faktoren wie Beziehungen, Einkommen, persönliche Situationen und Wohnen in die haushaltsbezogene Lebenszufriedenheit älterer Menschen in Deutschland einbezieht. Darüber hinaus ist diese Dissertation innovativ in ihrer Analyse des Einflusses von Altersgruppen, Geschlecht und Gesundheitsbedingungen auf die Lebenszufriedenheit älterer Menschen.

Schlüsselwörter: haushaltsbezogene Lebenszufriedenheit; Privathaushalt; Familienzufriedenheit; Unterkunftszufriedenheit; ältere Menschen; Deutschland; Korrelationsanalyse; lineare Regression; Gruppendiskrepanz

# 1. Introduction

## 1.1. Life Satisfaction of Older People

In mid-20th-century industrial society, the concept of life satisfaction was designed as a benchmark of a great society (Noll, 2000). Because of the ageing societies in European welfare states, research regarding the life satisfaction of older people has substantially increased. Disciplines such as sociology, economics and psychology have contributed to the development of theory and research in the field. To explain differences in various levels of life satisfaction, multidimensional approaches were developed that include physical and psychological determinants at both the institutional and individual levels instead of focussing on a single, subjective dimension at only the individual level (Kroll, 2008).

Additionally, scientists have researched the life satisfaction of older people. This focus has been strengthened with the development toward an ageing society, and research on this issue has been widespread since the early 1990s (Ardelt, 1997; Fisher, 1995; Levenson et al., 1993). Over the decades, modern life satisfaction studies of older people have become well developed, and the majority of life areas are covered. However, the main focus of previous life satisfaction studies of older people have been mainly related to health (Aldwin & Park, 2007; Bader & Rogers, 2002; Kutubaeva, 2019; Lewinsohn et al., 1988; Liu & Upenieks, 2020; Walsh, 2016), marriage (Borg et al., 2006; Bowling et al., 1996; Buber & Engelhardt, 2008; Fukukawa et al., 2000; Kutubaeva, 2019; Litwin, 1996; Thomas et al., 2017; Walsh, 2016) and income (Cid et al., 2007; Fernández-Ballesteros et al., 2001; Lukaschek et al., 2017; Wallace, 2008). Although many studies concentrate on different life areas of older people, there remains a lack of integrated research regarding older people and their life satisfaction based on household-related factors.

Some researchers have argued that other factors that may influence older people's life satisfaction have not been sufficiently considered; for example, family life, the condition of one's accommodation and happiness should also be included to determine life satisfaction in older people (Diener, 1984; Diener, Oishi & Lucas, 2009; Veenhoven, 2012).

It is common to analyse life satisfaction in older people based on overall life satisfaction, which includes social policies and public services as well as one's health, economic situation, social life, household factors and standard of living. According to data from the European Quality of Life Surveys (EQLSs), average overall life satisfaction in 2016 decreased to the same level as 2007, although it rose between 2008 and 2012 in older German people (European Quality of Life Survey, 2016).

## **1.2. Research Questions**

To determine which factor(s) affect the life satisfaction of older people, this dissertation analyses the findings of the author's empirical study, which focusses on life satisfaction of those aged 65 and over in Germany based on their perspectives of family life. The main research question is as follows: Among the household-related factors in a family, which factors significantly influence the life satisfaction of older people in Germany? The focus of the study is older German people, who are typical in a highly developed post-industrial society that has a well-developed welfare state and offers a relatively high degree of social security for older people. The study is based on a pooled database with over 1,700 older people (aged 65 and over) from the EQLSs over 10 years and measures the impact of household-related factors on older people's life satisfaction towards dimensions of family life and accommodation. To answer the main research question and examine its main hypotheses, the author evaluates the role of household-related variables utilising correlation analysis, linear regression and cross-tabulation analysis to ascertain the interaction between the independent variables and

older people's household-related life satisfaction.

### **1.3. Problems Connected with Ageing**

Since the 1970s, lasting improvements in socioeconomic status and GDP per capita, daily nutrition ingestion, and medical technology (data sources: OECE, 2018) in the majority of European countries have extended Europeans' life expectancy (OECD, 2018b). However, changes in attitudes toward reproduction mean that birth rates are relatively low in the majority of European countries (European Commission, 2014). Additionally, the first wave of baby boomers from the 1950s have entered old age since 2010, which significantly impacts population structures. Consequently, throughout Europe, the share of older people has substantially increased in affluent post-industrial societies (Kinsella & He, 2009; Kutubaeva, 2019). This trend, which began in the mid-20th century in many developed countries, is connected with a wide range of economic, social and political problems (OECE, 2018). Furthermore, the impact of ageing retroactively affects the life quality of the elderly cohort. In recent years, the percentage of older people in Germany increased more quickly than the European average, and the German population has become one of the oldest among European countries (Nowossadeck et al., 2014). Debates in German society pertain to the potential for substantial future problems regarding the sustainability of the German welfare state's pension and long-term care systems (Hamm et al., 2008; Parskawetz & Lindh, 2007; Börsch-Supan, 2008; Maier & Afentakis, 2013).

Old-age vulnerability is different from that of working-age groups because of financial restrictions after retirement, increased care needs and more medical requirements (Callan et al., 2008; Walsh, 2016; Xu, 2019). The increased risk of health deterioration that accompanies ageing further impacts older people's daily lives, reduces independence and may lead to a lower well-being (Baltes & Smith, 2003). Especially in times of public crisis, such as COVID-19, older people have higher social risks than

those in other age groups (Bidzan-Bluma et al., 2020; Daly et al., 2021). In addition to their material and physical downturns, older people are vulnerable to the loss of loved ones as well as changes in relationships and social networks (Walsh, 2016).

#### **1.4. Social Changes in the Conditions of Later Life**

The later lives of older people have changed considerably in recent decades in many areas. As a consequence of well-developed nutrition, living standards and medical care, health conditions and life expectancy in the majority of post-industrial countries have been rising for decades (OECD, 2018b). Additionally, the later life competency of the elderly has improved along with the improvement in health conditions. Welfare policies, especially in pensions and long-term care, play important roles in framing these changes as potentially negative. The support from the pension system allows older people to improve their autonomy and to be relatively independent from their families. However, there have also been some reductions in pensions as well as privatisation and marketisation of the pension system (Ebbinghaus, 2015). It should also be noted that the pension amount in many developed post-industrial societies differs between older men and older women: the pensions of older men are often far higher than those of older women, which is the case in Germany (Meyer & Pfau-Effinger, 2013).

Work and family are regarded as the most significant dimensions of people's lives; both domains satisfy people's material and emotional demands. As the basic unit of a society, family satisfies the majority of individuals regarding their basic needs in living, security and emotional demands, whereas participation in paid work fulfils the need for income and public connection. In retirement, parenting stress, which produces feelings of exhaustion and conflict, has typically ceased its negative impact on family relationships and life satisfaction (Avison et al., 2007; Craig & Churchill, 2019; Crnic et al., 2005). Furthermore, adult children may provide support for their older parents due

to changes in the relationship between generations and in living arrangements (Brzozowski, 2013; Chen & Short, 2008; Clark & Oswald, 2002; de Jong Gierveld et al., 2012; Haller & Hadler, 2006; Qualls & Zarit, 2009). As opposed to their working-age life stage, older people witness their social networks become narrower and more simplified. Family elements construct the majority of individuals' lives across all life domains and become the primary and most important determinants for the older cohorts' life satisfaction as they retire from the labour market (Milkie et al., 2008; Thomas et al., 2017). Household-related factors, such as accommodation, marital status, quality of relationships and household structure may have a significant impact on the lives of older people (Argyle, 1996; Diener et al., 1999; Easterlin, 2004; Frey & Stutzer, 2002; Hettlage, 2002; Layard, 2005; Myers, 2000).

Ultimately, there is a decrease in household size in European countries. This is seen as the result of a general trend toward individualisation during modernisation (Beck, 1986). In Germany, the household size decreased from three persons per household, on average, in the 1950s to two persons per household, on average, by 2014 (Statistisches Bundesamt, 2014), which is one of the lowest among European countries (data source: OECD Family Database, 2016). Of the 40.2 million households in Germany, 34.4% are two-person households and 40.8% are one-person households (Statistisches Bundesamt, 2014). The average number of generations in a household has decreased; consequently, the percentage of older people living alone or only with their spouse has increased, as seen in the sharp rise in recent decades in the number of one-person households and households without children (Statistisches Bundesamt, 2015).

Furthermore, the transformation of culture and values between generations in recent decades have changed the living arrangements of the elderly (Brody, 2004; Lee & Mjelde-Mossey, 2004). The share of older people who choose to live alone, rather than with their children or other relatives, has strongly increased; others live alone

involuntarily or as a couple, since they do not have children or their children live in a separate household. In these circumstances, older people must manage the majority of issues by themselves, endure mental loneliness and overcome physical problems on their own. Changes also occur in household relationships. Deteriorating marital, intergenerational and sibling relationships decrease contact frequency with family members, which eliminates some psychological and physical support for older people, increases their loneliness and stress and impacts their later lives negatively (Fokkema & Naderi, 2013; Hartwell & Benson, 2007; Kawachi & Berkman, 2001; Thomas et al., 2017; Umberson & Montez, 2010). These changes as well as the loss of a spouse and deteriorating health increase older people's feelings of isolation and psychological loneliness, and thus, they express a lower life satisfaction (Clair et al., 2017; Davidson & Rossall, 2015; Landeiro et al., 2017; Nichols & Riemer, 2009; Sibley et al., 2016; Valtorta & Hanratty, 2012).

As a consequence of the ageing in German society, the number of older people who receive publicly financed care services has substantially increased, while spouses and children assume less responsibility in caregiving. However, a substantial portion of older Germans who need care still receive care only from a family member. Many researchers are critical about care from family members, since this is typically provided by women, and family care therefore is seen as a form of gender inequality (Eggers et al., 2020; Daly, 2021).

This dissertation focusses on the later lives of older people regarding household and family life. Analysing the relationship between household-related factors and household-related life satisfaction reveals the connection between these elements. Based on the definition of life satisfaction by Bidzan-Bluma and her colleagues (Bidzan-Bluma et al., 2020), *household-related life satisfaction* in this study is being further expanded and defined as people's subjective evaluations of their current situation in relation to the material, physical and psychological aspects of their family



and household lives. To accommodate the concept of household-related life satisfaction, this dissertation defines household-related life domain more broadly than merely family life. This expanded concept of family life includes factors (such as income and housing) that were regarded as belonging to other life domains in previous studies. Compared to overall life satisfaction, household-related life satisfaction in older people within the broader field of household-related life domain is more compatible with individuals in later life.

This dissertation consists of seven chapters. Chapter 2 provides an overview of previous research regarding life satisfaction and its relationship to quality-of-life studies and studies about life satisfaction. Then, it presents the findings of previous research regarding outcomes on later life, life satisfaction, and household-related factors for older people. This part also demonstrates the research gap regarding life satisfaction in older people. Chapter 3 introduces the theoretical framework and the main concepts of this empirical study. It explains why the study distinguishes between overall life satisfaction and domain satisfaction, and furthermore, it offers an innovative approach to the concept of household-related life satisfaction in older people. The chapter also introduces the main hypotheses, which are evaluated on the basis of the empirical study. Chapter 4 introduces the surveys and data on which the study is based. It also presents the statistical methods for data analysis that are used in the study. Additionally, variables and control variables are explained in detail. Chapter 5 introduces the findings of the empirical study, which are based on correlation analysis, linear regression, one-way analysis of variance (ANOVA) and cross-tabulation analysis to determine interactions between the independent variables and the dependent variable—older people's household-related life satisfaction. Furthermore, the discrepancies between age groups, genders and health conditions are shown in this chapter. Chapter 6 explains how the data analysis findings support the main hypotheses of the study. Chapter 7 presents the conclusion.

## 2. State of the Art

### 2.1. Life Satisfaction and Life-Quality Indicators

#### 2.1.1. Development of life satisfaction research

Life satisfaction is one of the main indicators in quality-of-life research and is typically considered to be one of the key measurements for subjective well-being (Maddox, 1987; Noll, 2004); it is used interchangeably with terms such as *happiness* and *well-being* (Veenhoven, 2012). Scholars have long been concerned about how happily people live their lives (e.g., see Aristotle's interpretation of happiness). Modern life satisfaction studies have developed as extensions of quality-of-life research and have typically been measured by material levels of living which were usually presented as national GDP or GNP in the first half of the 20th century (Veenhoven, 1996). Growing rapidly after the Second World War, both population and socioeconomic status brought significant changes to the global environment and increased the range of indicators that measure quality of life; this is known as the *social indicator movement*, which contributed to developments toward a comprehensive measure for quality of life in a nation and across nations, thus enabling governments to establish policy goals and evaluation criteria (Sheldon & Freeman, 1970; Veenhoven, 1996). In addition to the development of social indicator research in the US since the 1960s, quality-of-life research has developed into cross-disciplinary research that guides policymaking and even politicians' slogans (Di Tella & MacCulloch, 2006; Dorling & Ward, 2003; Hand, 2020; Kroll, 2008; Layard, 2007; Weiman et al., 2015). Accordingly, life satisfaction has become a main theme in this field.

The concept of life satisfaction usually includes subjective feelings as well as personal cognitions, experiences and expectations. It is defined as the integral evaluation of one's life at a specific point in time based on feelings and attitudes and includes three indicators: positive effect, negative effect and life satisfaction (Diener, 1984). Positive effect regards issues that cause positive feelings, whereas negative effect relates to

issues that cause negative feelings (also see Diener et al., 1985). In another study, Diener et al. (1999) conclude that life satisfaction relates to the view of one's current life, the desire to change the current situation, and satisfaction with one's whole life course (Diener et al., 1999). Similarly, dissonance between 'desire and achievement' (Diener et al., 2003) is negatively related to an individual's life satisfaction. Many studies have presented the interaction between emotions and life satisfaction (Frisch, 2006; Prasoon & Chaturvedi, 2016; Şimşek, 2011) and have stated that the relative correlation indicates a satisfaction with positive emotions and dissatisfaction with negative or stressful emotions (Abolghasemi & Varaniyab, 2010; Prasoon & Chaturvedi, 2016; Tremblay et al., 2006). Due to the discrepancy between personal characteristics and personal cognition, life satisfaction demonstrates great diversity among individuals (Brunstein et al., 1998; Emmons, 1991; Van Hoorn, 2008).

Furthermore, life satisfaction also provides an evaluation of one's material condition, which contains both mental and material status in either the past or the future. Sumner (1966) defines *life satisfaction* as 'a positive evaluation of the conditions of your life, a judgment that at least on balance, it measures up favorably against your standards or expectations'. Multiple studies demonstrate the possibility of life satisfaction by measuring indicators of objective living condition for an individual. Among these objective indicators, economic status and income, career and health conditions earn the most research interest (Easterlin, 1974; Jan & Masood, 2008; Jovanović & Joshanloo, 2019; Khanna, 2015; Kousha & Moheen, 2004; Prasoon & Chaturvedi, 2016; Rice et al., 1979). Additionally, study findings have verified the significant role of demographic factors, such as age, gender and marital status, in affecting one's life satisfaction (Chima et al., 2020; Hashemi, 2019; Melin et al., 2003; Steptoe et al., 2015; Thieme & Dittrich, 2015).

Along with the development of life quality and social indicator studies, research regarding life satisfaction has broadened, thus improving the accuracy in measuring

people's well-being. A combination of subjective and objective evaluations of life satisfaction research is essential in modern life quality measurements. Some researchers consider life satisfaction to be a cognitive judgement or assessment of one's current condition as compared to the cognitive standard or a comparison between reality and expectation (Diener et al., 1985; Iverson & Maguire, 2000; Veenhoven, 1993), emphasising life satisfaction as an overall evaluation of one's life as a whole (known as *overall life satisfaction*), which includes both subjective and objective aspects (also see Bidzan-Bluma et al., 2020). In addition to overall life satisfaction, many of the modern life satisfaction studies classify life into different domains and concentrate on domain satisfaction (Andrews & Withey, 1976; Brief et al., 1993; D'Ambrosio et al., 2020; Kalka, 2017; Liu & Upenieks, 2020; Neal et al., 1999).

Different concepts of life satisfaction are based on expectations and perceptions, on lifestyles and values, on finance, and on environment and conditions (Kane & Kane, 2000; Mishra, 1992; Rudinger & Thomae, 1990); however, they all consider life satisfaction to be a subjective evaluation. Furthermore, there are still debates regarding whether a subjective assessment of life satisfaction provides an accurate evaluation of objective living standards (Vladisavljević & Mentus, 2018).

### **2.1.2. Research regarding the relationship between life satisfaction and quality of life**

As one of the main indicators in quality-of-life research and subjective well-being, research about life satisfaction is closely connected to the development of quality-of-life research. The majority of researchers acknowledge that modern quality-of-life research began in the 1960s. Noll emphasises in his research that 'former U.S. President Lyndon Johnson stated that "the society is concerned not with how much, but with how good—not with the quantity of goods but with the quality of their lives' (Noll, 1999, p4). To predict the impacts of the space race between the US and the Soviet Union, NASA and the American Academy of Arts and Sciences made the first

attempt to measure non-economic indicators (Land, 1983; Noll & Zapf, 1994). Noll (1999) also states that quality of life appears to substitute the concept of affluent society which being questioned and to match the complexity and multidimensionality of societal development. The results from NASA and American Academy of Arts and Sciences' research use the term *social indicator* for the first time by Bauer (1966) and indicate the development and movement of social indicators.

Veenhoven (1996:1) notes that quality of life is measured mainly in material levels of living and was usually presented as GDP or GNP at national levels for the first half of the 20th century. Social indicator movement has been key in the development of a comprehensive measure for not only scholars, but for governments as well (Sheldon & Freeman, 1970; Veenhoven, 1996:1). In the second half of the previous century, political interest focussed on the measurement of well-being in two waves—in the 1960s and the 1990s (Bache & Reardon, 2016). The first wave originally focussed on social policy, but the recession in the 1970s restricted this focus to the less costly measurement of well-being based on traditional economic indicators (Andrews, 1989; Bache & Reardon, 2016). Concern with environmental issues produced the demand for sustainable development indicators in well-being measurements and caused the second wave of political interest in well-being, which remains ongoing. The second wave has developed new measurements in broader frameworks of an 'international context, a wide range of national contexts and supernational organizations' (Bache & Reardon, 2016).

Two approaches for measuring quality of life were developed in the US and in Nordic countries simultaneously. The American approach of subjective well-being measures subjective indicators at the micro level and uses life satisfaction and happiness as its main measurements (Campbell et al., 1976; Noll, 2000). The other approach was developed by Scandinavian researchers; it regards quality of life and quality of society as a unit at the macro level to measure the relevant resources that are governable by

individuals and are related to their level of living (Drenowski, 1974; Erikson, 1974; Noll, 2000; Rapley, 2003; Uusitalo, 1994). These resources are critical to people's lives and welfare, and are defined as property, income, knowledge, social security, social relations and psychic as well as physical energy (Erikson & Uusitalo, 1987). George and Bearon (1980) define *objective conditions* and *subjective evaluations* as follows: assets and external resources are objective conditions, and cognition, life satisfaction, emotions and self-value are subjective evaluations in quality-of-life research.

The perception of the importance of measuring satisfaction with life as a whole and the presence of different dimensions of life across individuals have caused scientists to anticipate an integrated concept of quality of life in social sciences and relevant domains (Land, 2000). The beginning of the second wave of well-being and social indicator research in the 1990s saw the development of quality-of-life indicators and the construction of a multidimensional measurement that covers an individual's whole life course.

Recent quality-of-life studies have combined the Scandinavian approach of objective living standards with the American approach of subjective well-being to produce the measurement for an individual's whole life course. Veenhoven (1996) developed a happy life expectancy index, in which he attempts to connect subjective happiness with the objective indicator of life expectancy. Quality of life in the German approach is characterised as 'good living conditions which go together with positive subjective well-being' (Noll, 2000; Zapf, 1984). Hogenraad and Grosbois (1997) describe the factors which threaten the security of Belgians' lives: crime, unemployment, starting a new business, over consumption and disquietude of building a family. The majority of these factors are related to objective living standards in quality-of-life domains. Salvaris (2000) defines *national well-being* with multidimensional indicators, which largely comprise objective determinants. Felce and Perry (1995) define quality of life as 'an overall general well-being that comprises objective descriptors and subjective

evaluations of physical, material, social and emotional well-being together with the extent of personal development and purposeful activity all weighted by a personal set of values' (Felce & Perry, 1995).

Similarly, Cummins (1997) defines *quality of life* more comprehensively in both subjective and objective aspects. He states,

*Quality of Life is both objective and subjective, each axis being the aggregate of seven domains: material well-being, health, productivity, intimacy, safety, community and emotional well-being. Objective domains comprise culturally relevant measures of objective well-being. Subjective domains comprise domain satisfaction weighted by their importance to the individual (Cummins, 1997, p7).*

Additionally, many scholars have found that some objective indicators, such as health and economic factors, correlate positively with subjective well-being (Argyle, 1996; Balatsky & Diener, 1993; Diener, 2000; Diener & Suh, 1999; Donovan et al., 2002; Frey & Stutzer, 2002; Helliwell, 2001, 2006; Helliwell & Putnam, 2004; Sandvik et al., 1993).

Brock (1993) emphasises the importance of satisfaction in defining quality of life and elaborates on three theories in constructing 'the good life'. Hedonist theory characterises this lifestyle as having experiences of happiness, pleasure or satisfaction; preference-satisfaction theory states that the fulfilment of desires constitutes the good life, and people's demands are well satisfied with a minimal number of dissatisfactions, which results in a 'better' life. Ideal theory holds that instead of conscious enjoyment or satisfaction of preferences, the good life should contain the satisfaction of specific normative ideals. Similarly, Goode (1994) defines this 'better' quality of life as occurring when people's primary demands are satisfied and they have the opportunity to achieve their main life goals. He also states that people's life quality is related to other persons in their environment.

Reviewing various definitions of quality of life and life satisfaction research reveals similarities in them by enlarging the scope of influence factors and the availability in measuring both subjective and objective dimensions. There are debates on whether life quality terms, such as *quality of life*, *subjective well-being*, *life satisfaction* and *happiness* could be used interchangeably. The health-related quality-of-life scale from the World Health Organization states that 'Quality of life cannot simply be equated with the terms "health status", "life satisfaction", "mental state", or "well-being". Rather it is a multi-dimensional concept' (WHOQOL Group, 1993).

Some scholars believe that life satisfaction rather than quality of life is more easily affected by current feelings and emotions and more fluctuant in a short period (Bidzan-Bluma et al., 2020; Ferrans & Powers, 1992; Miniszewska et al., 2020; Yildirim et al., 2013).

Some studies have demonstrated the universality of life-quality indicators, such as life satisfaction, happiness, subjective well-being and quality of life (Chekola, 1975; Shin & Johnson, 1978). However, there are also concerns that respondents' answers regarding their life quality or life satisfaction may be influenced by their current emotions and moods or the level of adaptation to their current situation (Pavot & Diener, 1993). Compared to the term *life satisfaction*, happiness is affected by unstable moods, emotions and feelings and is less reliable for measuring subjective well-being through cognitive expressions (Campbell et al., 1976; Lane, 2000).

According to the development of modern life satisfaction research, this dissertation analyses the household-related life satisfaction in older Germans on the basis of the German approach in quality of life research, which consider both subjective and objective aspects in private households.



## **2.2. Research on Older People and Their Families**

### **2.2.1. Particularity of older people**

Many multidisciplinary studies concentrate on older people for their particularity among age groups. Retirement, deteriorating health conditions, and social network changes place older people at risk of financial insecurity, care dependency and feelings of isolation (Atchley, 1989; Moen et al., 1992; Thoits, 1992). Walsh (2016) emphasises that retirement is the milestone for many people's lives and often signifies the loss of status, self-esteem and other benefits acquired from employment. Some in the older population may thereafter experience anxiety, bitterness and stress.

Cornwell and his colleagues (2008) discuss the difficulties of later life. Older people are facing challenges in determining their identity, maintaining social roles and transitioning to later life. They state that retirement narrows social connections and blocks social contacts, especially with people outside of one's family. Reducing social connections further produces isolation and loneliness for older people (also see Fokkema & Naderi, 2013). However, they also argue that retirement or bereavement may reduce obligations and allowing more time for older people to seek 'compensatory participation', which are considered as more social participation or entrée into new social networks compare with before (Cornwell et al., 2008).

Health conditions cannot be neglected in ageing studies. Illness can cause physical suffering, such as pain and restrictions that make older people dependent on others. Additionally, illness leads to increasing expenses for treatment and nursing, which may overload seniors' financial capabilities. Furthermore, the ageing process brings a greater uncertainty about illness, accidental injuries (e.g., fracture by falling), public health crises (e.g., COVID-19 pandemic) and even death, which increase seniors' mental stress (Burlacu et al., 2020; Shigemura et al., 2020).

However, many previous studies support a U-shaped phenomenon on quality of life and life satisfaction over one's whole life course, which indicates that well-being and life satisfaction usually decrease persistently in midlife and increase in later life (Blanchflower, 2020; Cheung & Lucas, 2015; Clark, 2007; Frey & Stutzer, 2002; Galambos et al., 2020; Glenn, 2009; Movshuk, 2011). This may lead to relief from the pressures of midlife crises and child-rearing.

### **2.2.2. The role of family for older people**

Social contacts and resources that family provide are critical for older people. Walsh (2016) thoroughly discusses later life cases from the family perspective in her research. She states that the view of families, including those in later life, should be expanded to include the variety of relationships and types of households in society. According to Walsh (2016), family bonds, retirement, grandparenthood, illness, caregiving and widowhood produce the main impacts for older adults. Marriage (including cohabitation) in later life provides not only intimacy but also shared history, shared activities and companionship, which increase seniors' satisfaction. Walsh (2016) believes that older people who live with multiple generations of family or who have a comparatively larger number of adult children tend to experience greater benefits in social contacts and support than those who do not. Furthermore, grandparenthood ameliorates intergenerational relationships (Walsh, 2016).

According to a study by Liu and Upenieks (2020), marital quality in an older family is significant for seniors' well-being. Based on a typology of marital quality, they conducted a statistical analysis on the correlation between older adults' well-being and marital quality. Their results reveal a significant impact of marital quality on older adults' well-being and health. Similar results of the correlation between marriage and health have been presented in other studies (Birmingham et al., 2015; Carr et al., 2014;

Thomas et al., 2017). Moreover, family members are irreplaceable in preventing the emotional and mental dissonance of stress, depression, isolation and loneliness by providing appropriate companionship and support (de Jong Gierveld et al., 2012; Fokkema & Naderi, 2013; Thomas et al., 2017; Umberson et al., 2010). The care demands of older adults increase along with the ageing progress and health deterioration. Studies have declared that partners and adult children are the primary sources of informal care services (de Jong Gierveld et al., 2012; Grigoryeva, 2017; Pinguart & Sorensen, 2006; Seltzer & Bianchi, 2013; Stevens & Westerhof, 2006; Walsh, 2016). Sufficient social contact and support, particularly by older adults' families, may enable older adults to remain active and healthy, which increases longevity (Litwin, 1996).

### **2.3. Life Satisfaction in Older People**

Previous and current life satisfaction research in older people has mainly focussed on dimensions of age, health conditions, income, social connections and family, which are recognised as the decisive dimensions of older people's lives. Due to retirement and the reduction of social contacts mentioned previously, life satisfaction in older people presents a particularity compared to other age groups.

#### **2.3.1. Age-related life satisfaction in older people**

Since population ageing is an important part of global social change, research has expanded regarding the life satisfaction of older people. Age distinguishes older and younger age groups, and age is connected to increasing problems in health conditions, activity and care dependence. As mentioned previously, the U-shaped relationship on life satisfaction in the whole life course indicates that older people tend to have higher average satisfaction level compare with younger generations (Clark, 2007; Frey & Stutzer, 2002; Galambos et al., 2020). To explain the higher average satisfaction level among the older cohort, some researchers have stated that older people are well

experienced in emotions and therefore can better adapt and avoid negative impacts than the younger cohort (Carstensen et al., 2000; Charles et al., 2001). A study from Kutubaeva (2019) employs Sweden, Austria and Spain as examples to analyse how the ageing process affects older people's life satisfaction. Panel data was used, and Kutubaeva (2019) controlled the variables of marital status, number of children and grandchildren, education, income and self-assessment of health; the results reveal no significant connection between life satisfaction and age in the older cohort. Instead of age, self-assessment of one's health condition correlates significantly with seniors' life satisfaction, in that their self-assessed health conditions worsen in later life. By controlling the cohort effect, Gwozdz and Sousa-Poza (2010) find that life satisfaction is relatively stable instead of U-shaped during the life course. Other studies have also emphasised that life satisfaction is not necessarily connected with age, as expected by some scholars (George, 2010; Lukaschek et al., 2017; Mercier et al., 1998; Shmotkin, 1990; Tomini et al., 2016; Wettstein et al., 2015).

### **2.3.2. Health-related life satisfaction in older people**

Along with the ageing progress, health deterioration and physical dependence are inevitable for older people. In all studies, health is highly related to one's life quality, life satisfaction and happiness (Bader & Rogers, 2002; Kutubaeva, 2019; Lewinsohn et al., 1988; Liu & Upenieks, 2020). The number of older people with chronic diseases, such as high blood pressure, insomnia and diabetes, or with critical diseases, such as cancer and stroke, increases with age (Aldwin & Park, 2007; Walsh, 2016). However, some scientists believe that there are differences between self-assessments of health and objectively measured health. These researchers have declared that diagnosed diseases or physical limitations do not lead to an absolute lower life satisfaction, but self-assessment of health does (Berg et al., 2006; Borg et al., 2006; Bowling et al., 1996; Kutubaeva, 2019). Similarly, a study of people aged 85 and older indicates that their life satisfaction is strongly associated with self-assessments of health (Hamashima, 1994). In addition to objectively measured health conditions, functional

capacity in daily activities—which is also known as *self-care abilities* or *independency*—is considered one of the predictors for life satisfaction (Karmiyati & Wahyuningsih, 2019; Markides & Martin, 1979). Mental health significantly impacts life satisfaction in older people because of its close connection to individual perceptions, emotions and stress. Some studies have indicated that depression and anxiety are negatively related to life satisfaction of the older cohort (Collins et al., 2009; Lukaschek et al., 2017; Sivertsen et al., 2015). The ageing progress, loss of functional capacity and health deterioration may increase older people's dread of falling, becoming ill and losing loved ones (Walsh, 2016). This dread could produce dysphoria or depression and further decrease older people's well-being (Bidzan-Bluma et al., 2020; Burlacu et al., 2020; Shigemura et al., 2020).

### **2.3.3. Income-related life satisfaction in older people**

As the most important economic indicator, income per capita (or household income) is used to describe people's financial situations in all disciplines. Among all quality-of-life indicators, economic measurements are considered the central element for both objective and subjective measurements in the majority of studies. Scholars have found a correlation between income-related factors and life satisfaction (Cid et al., 2007; Diener, 1984; Diener et al., 1985; Diener et al., 1993; Easterlin, 1974; Fernández-Ballesteros et al., 2001; Lukaschek et al., 2017; Wallace, 2008). Before the 1960s, income-related indicators, such as GDP, GNP, net income and household income, were the main indicators to demonstrate quality of life and have been proven to have a positive effect on life quality. Nevertheless, the income-happiness paradox (also called the *Easterlin paradox*) has demonstrated an insignificant correlation between GDP and subjective well-being in some developed countries, which indicates that economic growth improves well-being only to a certain extent (Diener & Oishi, 2000; Easterlin, 1974; Frey & Stutzer, 2002a; Max-Neef, 1995; Veenhoven, 1989). Two theories are widely discussed in interpreting the Easterlin paradox. Adaptation theory states that after positive or negative experiences, an individual's happiness gradually

returns to former levels after increasing or decreasing (Lyubomirsky, 2010). Comparison theory emphasises that comparing one's economic status with that of others has a greater impact on one's well-being than the actual situation (Clark & Oswald, 1996). Several current studies have revealed the significant connection between household income (household wealth) and life satisfaction as well as between household debt and well-being (Brown & Gray, 2016; D'Ambrosio et al., 2020; Heady & Wooden, 2004; Keese & Schmitz, 2014). Additionally, scholars have found the role of lost and gained income and their effect on well-being; losing income impacts an individual's well-being more significantly than gaining income (Boyce et al., 2013; D'Ambrosio & Frick, 2011). According to D'Ambrosio et al. (2020), the relationship between happiness and income differs by types and components of income and wealth as well as by current and permanent income (D'Ambrosio et al., 2020).

With improvements in the global economy, economic indicators have become insufficient to offer a comprehensive evaluation of human life. However, these indicators still function directly as the decisive factor in one's objective living standard. Antonucci et al. (1999) state that economic status positively affects one's social network. A better economic status usually provides individuals more resources and opportunities for diverse social participation (Fokkema & Naderi, 2013). For the majority of older people after retirement, pensions typically constitute their main income. As a response to the growing problem of ageing, pension systems in many ageing societies have undergone necessary adjustments, such as postponing the pensionable age and earliest possible pensionable age, increasing contribution rates and developing various training programmes for the elderly (Ebbinghaus & Hofäcker, 2013; Frerichs & Naegele, 2008; Hess, 2018; Leve et al., 2009; Moehring, 2015). A study reveals that the average pension of Germans in 2013 was relatively low: €913 per month for men and less than €600 per month for women (Blank et al., 2016). This gender gap in pensions may lead to a higher risk of poverty for elderly women, which would directly lower their later life quality and well-being (Meyer & Pfau-Effinger, 2013).

According to the German Federal Bureau of Statistics (Statistisches Bundesamt), the average pension benefit for individuals has risen by 15.4%—from €1,130 per month in 2016 to €1,304 per month in 2020 (Statistisches Bundesamt, 2020a). According to the German Federal Pension Insurance, the average pension of retired people in Germany was €1,089 per month in 2021 (Deutsche Rentenversicherung Bund 2022). Although this number differs across studies and statistics, the amount of pension benefits indicates that the income of older Germans may be insufficient to remain wealthy in later life. It is also important to mention that there is a gender gap in pensions and that women are mainly affected by the risk of low pensions and old-age poverty (Meyer & Pfau-Effinger, 2013).

#### **2.3.4. Family-related life satisfaction in older people**

The transition after retirement changes older people's relationships from double core of work-family to mostly family contacts in later life. Family is irreplaceable in providing comfort and support for older people and benefit their well-being (Güven & Şener, 2010; Hartwell & Benson, 2007; Umberson et al., 2010). Housing, marriage or cohabitation, adult children, household responsibilities, household structure and family relationships comprise the family-related dimension in later life, and this dimension contains both objective and subjective factors. Marriage or cohabitation is one of the main focusses of previous family studies, which have indicated that marital status and the quality of the marriage or cohabitation directly connect to one's life satisfaction through emotions and feelings (Buber & Engelhardt, 2008; Fukukawa et al., 2000; Thomas, 2010; Thomas et al., 2017; Walsh, 2016). Additionally, many studies have supported the role of marriage or cohabitation in improving the physical and mental health of older people (Borg et al., 2006; Bowling et al., 1996; Kutubaeva, 2019; Litwin, 1996; Thomas et al., 2017; Walsh, 2016). Relationships with other family members, such as adult children and siblings, have been closely connected to older people's well-being in many studies. Furthermore, family members are the front line in providing informal care and home care for older people (Qualls & Zarit, 2009).

### **2.3.5. Social connection related life satisfaction in older people**

As recognised by some research, social networks are indispensable for successful ageing because they enable older people to reach social resources and support (Antonucci & Akiyama, 1995; Coleman, 1988; Elder & Giele, 2009; Marshall & Mueller, 2003) and allow a sense of belonging (Fiori et al., 2006). Retirement leads to an unavoidable loss of one's career-based social network as well as a reduction in social connections, which further increases the risk of loneliness and depression, potentially producing a negative impact on life satisfaction (Walsh, 2016). However, there are debates on the change of social connections after retirement. Cornwell et al. (2008) emphasise the complexity of social participation by older people after retirement or bereavement. They state that retirement and bereavement may lead to compensatory participation as the result of reductions in social obligations and career competition; furthermore, they may impede older people's social connections due to health deterioration and limitations in social resources (Cornwell et al., 2008). After retirement, relationships with one's spouse and family members increase in significance for social interactions, social participation and social connections and are associated with seniors' well-being (Hsieh & Hawkey, 2018; Lee & Szinovacz, 2016; Reczek et al., 2014; Thomas et al., 2017).

## **2.4. Research Regarding the Role of Private Household Factors in Life Satisfaction**

As stated previously, household-related life satisfaction is important for older people who have retired from the labour market. Private household factors are closely connected with the daily lives of older people. Some authors have argued that it is essential to analyse life satisfaction on the basis of family determinants and focus on emotional factors between family members. Furthermore, they have emphasised the importance of including private household-related determinants, such as



accommodation, marital status, quality of relationships and household structure (Argyle, 1996; Diener et al., 1999; Easterlin, 2004; Frey & Stutzer, 2002a; Hettlage, 2002; Layard, 2005; Myers, 2000). Work and family are believed to be the most significant dimensions in people's lives in general, while household living comprises the majority of older people's lives after they retire. Household-related determinants satisfy the majority of older people in their basic needs of living and become not only the primary but also the most important determinants for older people's life satisfaction (Crnic et al., 2005; Avison et al., 2007; Craig & Churchill, 2019).

#### **2.4.1. Housing**

According to the findings of empirical studies, accommodation, also known as housing, is an essential element of life since people need space for living, sleeping and private activities; it is especially important for older people who need community care (Means, 1998). For older people, suitable accommodation is crucial in keeping them from higher risk of health, psychological and financial problems (ODPM, 2006). Studies demonstrate that older people who choose to stay in their old accommodation typically do so because of emotional ties with their home and neighbourhoods or a positive environment, whereas older people who choose to move to new accommodation do so from a demand for better life quality (Pannell et al., 2012; Fletcher et al., 1999). Older people's choice of housing is usually restricted by their physical, mental and economic changes as well as by the death of a spouse or other locational factors (Frolik, 1999). Different types of housing also lead to a discrepancy of life quality: those living in multiunit housing may indicate lower life satisfaction than those living in detached or semi-detached dwellings (Winston, 2015).

Foye (2017) comprehensively examined the relationship between living space and subjective well-being. He states that increasing living space (e.g., number of rooms) indirectly improves men's life satisfaction by increasing their social status; the same is

not true for women. He believes that, due to the adaptation theory, subjective well-being has little connection with larger accommodation.

#### **2.4.2. Living arrangements**

Living arrangements refers to the personal choices regarding whether to live independently or with someone else; this choice determines the household size and structure and is connected to the sources of support that can be accessed (Lin et al., 2020). Living arrangements of older people have received significant attention and have been presented as closely related to later life quality in gerontological as well as other studies (Kamiya & Hertog, 2020; Ong et al., 2016; Henning-Smith et al., 2018; Zimmer & Das, 2014). As has been verified by some studies, there is a significant relationship between living arrangements and life satisfaction (Kostka & Jachimowicz, 2010; Lin et al., 2020)

As one of the main components of living arrangements, household structure reveals the constitution of a family with one or more generations and different family personalities. There are various classifications of household structure with different criteria in age, generations, social roles and relationships (Kamiya & Hertog, 2020). On the bases of generations and family personalities, household structure has usually been classified in nine categories: one-person household, couple-only household, couple residing with child(ren), single-parent household (residing with children), residing with parent(s), three or more generations, skip-generation household, residing with other relatives and residing with non-relatives (Bongaarts & Zimmer, 2002; Kamiya & Hertog, 2020; United Nations, Department of Economic and Social Affairs, Population Division, 2019). Different types of households represent different household sizes and furthermore lead to the diversity in household responsibilities, household income, mental and physical support, relationships and daily activities. Fengler et al. (1983) analyse the life satisfaction of older Americans who live alone or with others in

comparison with married couples. Their research indicates that older people who live alone frequently express low levels of life satisfaction; older people who live with others also report lower life satisfaction than older married couples (Fengler et al., 1983). Similar results are found by Pichler (2006).

Household size is another indispensable element of older people's living arrangements, and even a single person comprises a complete family. Phillipson and Bernard (2000) find that reducing the number of generations and the number of family members in a household leads to a sharp increase in the proportion of older people who live alone. In this circumstance, older people are more likely to express a strong sense of loneliness and to be isolated. Moreover, household size is connected to household income, which is one of the key factors for the household living standard. Townsend (1979) finds that a one-person household has the highest probability of poverty; an increase in the number of persons in the household decreases this probability, although the probability rises again among households with five or more persons. Small households are less likely to experience variations in living standards; furthermore, although households with five or more persons contain more income potential, they do not necessarily raise households out of poverty. A larger household size potentially increases social connections and is beneficial for older people to maintain their psychological well-being.

#### **2.4.3. Marriage and cohabitation**

Within a household, marriage or partnership, whether heterosexual or same-sex, is the most important of all family relationships during adulthood (Bookwala, 2012). Many scientists have indicated that marriage provides protection against loneliness or isolation (de Jong Gierveld et al., 2012; Fokkema et al., 2012; Yeh & Lo, 2004) and satisfies older people's emotional demands and various support needs (Walsh, 2016). They have also claimed that marriage significantly decreases mortality and morbidity

and prevents psychological and mental illnesses. Researchers have argued that the difference in satisfaction between married and cohabitating couples is small, and both types of couples respond with a higher life satisfaction than those who are single or have never been married (Buber & Engelhardt, 2008; Evans & Kelley, 2004; Hughes & Waite, 2009; Marks & Fleming, 1999; Stack & Eshleman, 1998; Tomini et al., 2016). Additionally, many studies have indicated that marital quality has a strong connection with personal well-being (Carr & Springer, 2010; Liu & Waite, 2014; Thomas et al., 2017; Umberson et al., 2013). A positive marital relationship usually produces more support in later life as well as better health and mental conditions. Conversely, being in a poor marital relationship could be even more harmful both mentally and physically than being an older single person (Birmingham et al., 2015; Carr et al., 2014; Graham et al., 2006; Holt-Lunstad et al., 2008; Kiecolt-Glaser & Newton, 2001; Lee & Szinovacz, 2016; Liu & Waite, 2014; Proulx et al., 2007; Rook, 2014; Umberson et al., 2006). Still other studies have indicated that negative marital relationships may produce far-reaching impacts on individuals as compared to positive relationships (De Vogli et al., 2007; Lee & Szinovacz, 2016). Similarly, Liu and Upenieks (2020) use a typology of marriage to analyse the connection between marital quality and the well-being of older people in four types of marriages (supportive, aversive, indifferent and ambivalent marriages). They find that older couples in supportive marriages tend to have better health conditions and higher levels of satisfaction than those in other types of marriages (also see Hsieh & Hawkey, 2018).

Not only connected to emotional feelings, marital status is also connected to economic status. When older people experience divorce, separation or the death of a spouse, they, especially older women, have a particularly high risk of financial problems (Larochelle-Côté et al., 2012). Some researchers have also indicated that married or cohabitating couples have a better economic status and could overcome financial difficulties more easily than those who are single (Townsend, 1979; Ian Rees Jones et al., 2008).

#### **2.4.4. Adult children and grandchildren**

Do children increase the happiness or life satisfaction in a family? Many papers have declared that children have a positive effect in raising the happiness and life satisfaction of a couple (Haller & Hadler, 2006; Clark & Oswald, 2002; Frey & Stutzer, 2006). Nonetheless, some researchers have also found that children negatively impact women's happiness because of financial problems or duties involved in rearing children (Kohler et al., 2005). The majority of the debates and discussions on child-related life satisfaction concern young parents and the high cost of private time and money in rearing children. Conversely, older parents receive financial assistance, mental as well as psychological comfort and health care from their adult children as they transform from caregivers to care receivers (Brzozowski, 2013). The more adult children that older people have, the more concern and support they may receive. Kim (2012) claims that family support, especially financial support for older people, efficiently reduces poverty in the elderly population, which demonstrates the importance of financial contributions from adult children to their elderly parents.

Studies have demonstrated that compared to those who live alone, older people who live with adult children in the same dwelling may experience a higher level of well-being and a lower level of loneliness (Chen & Short, 2008; de Jong Gierveld et al., 2012). Many older people do not live with their children and relatives in the same dwelling; however, their relationships are still contributing to older people's emotional status through the frequency of face-to-face (FTF) or remote contact through electronic equipment. Kroll (2008) claims that infrequent FTF contact with other people increases one's feelings of isolation and distrust, which leads to the trend of low subjective well-being and depression. Another study indicates that meeting with family members periodically may partially satisfy older people in their need for communication and relieve feelings of isolation or loneliness as well as healthcare demands (Fiorillo &

Sabatini, 2011). Changes in household structures and broad use of information and communication technology create less frequent FTF contact between older people and their relatives outside the household. However, remote contact with relatives outside the household through electronic equipment, such as telephones, mobile phones, email and webcams, occupies FTF time but conveniently engages the social network in another way (WRVS, 2012).

#### **2.4.5. Social connections**

As has been discussed by many scholars, social relationships are irreplaceable in affecting people's life quality and life satisfaction because they offset difficulties and compensate for economic uncertainty (Donovan et al., 2002; Kroll, 2008; Myers, 1999; Rodrik, 1999). Moreover, they lead to the main difference in nations' subjective well-being (Gundelach & Kreiner, 2004). A study from Simone et al. (2019) indicates that both FTF and technology-based contact with others are important for one's life satisfaction and relieve depression (Simone et al., 2019). Among all kinds of social relationships, family members usually provide comparatively stable and reliable relationships as well as corresponding support for older people. Relationships with family members are an important source of social connection for older people (Hartwell & Benson, 2007; Umberson et al., 2010). Szcześniak and Tulecka (2020) find that family functioning has an indirect connection with life satisfaction. They believe that positive and communicative relationships are beneficial for one's life satisfaction, whereas disengaged and chaotic family relationships lead to lower life satisfaction (Szcześniak & Tulecka, 2020). Family support, which supplements welfare policy when older people face material or emotional problems, has become less beneficial for the elderly, as changes in household structures have reduced household sizes. Consequently, support from adult children and relatives living outside the household is more significant and positively affects older people's lives.

Some studies have revealed the significance of intergenerational relationships: they affect the well-being of both older adults and younger generations of children and grandchildren (Mahne & Huxhold, 2015; Merz et al., 2009; Polenick et al., 2016) because adult children enlarge the social network of their older parents and provide care (Seltzer & Bianchi, 2013; Umberson et al., 2010). Tomas (2010) indicates that emotional support is a win-win system between older people and their adult children, since older people also experience increased well-being by providing support to their children. Thomas and Umberson further note that even a stressful relationship with adult children benefits older people in cognitive health (Thomas & Umberson, 2017). Many studies have confirmed the significant effect of grandchildren in raising the well-being of older people, with the exception of overloaded childcare responsibilities (Kim et al., 2017; Lee et al., 2016; Thomas et al., 2017).

In their research, Kamiya and Timonen (2011) indicate that, in addition to the rate of receiving financial assistance, the rate at which elderly people receive other forms of assistance also increases. Murphy (1983) believes that the support from family members and friends positively impacts depression in the elderly by demonstrating care for them, keeping them company, reminding them of their improvements and the positive aspects of their lives (Murphy, 1983). Other studies have emphasised the role of siblings, indicating that better relationships with siblings usually positively affects older people's well-being (Bedford & Avioli, 2001; Cicirelli, 2004; Thomas, 2010; Waldinger et al., 2007).

#### **2.4.6. Household responsibilities**

As defined by Pfau-Effinger (2010), household labour (or household responsibilities) is usually associated with housework (such as cooking and cleaning) and caregiving for one's spouse, grandchildren and disabled relatives; thus, it cannot be ignored in measuring individuals' life satisfaction and well-being (Ferrant et al., 2014; Stiglitz et

al., 2007). Pfau-Effinger (2010) argues that people's decisions between housework and employment may be influenced by many complex factors, such as cultural values, cultural family models, gender divisions in a family, and labour market participation. She states that the nature of housework restricts it to belonging within the family. Although the redistribution of housework improves gender inequality to some degree, the gendered nature of such tasks continues to play a significant role in the subjective choices of housework types.

Typically, the amount and hours of housework are associated with the burden of paid work between a couple—the person with fewer working hours may contribute more in daily housework (Rodriguez-Stanley et al., 2020; Thomas et al., 2018). For older people, however, gender and physical health are the decisive factors instead of hours of paid work. Housework is the daily affair that the older cohort must address, and numerous studies have indicated that performing physical activities and housework appropriately benefits older people in independence and functional health (Lawlor et al., 2002; Rodriguez-Stanley et al., 2020; Sayer & Gornick, 2009; Tabler & Geist, 2021; Wassink-Vossen et al., 2014). The fairness of housework has been stated in some studies to have a close connection with personal life quality and marital conflict (Lennon & Rosenfield, 1994; Lively et al., 2010; Newkirk et al., 2017; Rodriguez-Stanley et al., 2020; Ruppner et al., 2018). Rodriguez-Stanley et al. (2020) believe that measuring perceived fairness is better than hours of housework since housework may depend on socioeconomic status and physical health condition.

As another domestic activity, caregiving for children or grandchildren who do not live with the older person is becoming the main contribution and output assistance of older people. Hughes et al. (2007) state that there is no link between caring for grandchildren and grandparents' health, although it does provide psychological benefits for grandmothers. Moreover, caring for grandchildren may improve connections between generations, thus avoiding the psychological isolation of the elderly and enabling them



to maintain better mental health compared to those who do not care for grandchildren (Tsai, 2016). However, raising grandchildren may also disrupt social participation and cause financial problems, which could change the family relationships and raise the parental stress of grandparents (Bulter & Zakari, 2005).

#### **2.4.7. Demographic factors**

In addition to the household-related factors, the older cohort's life satisfaction may be associated with other factors which impact older people directly or indirectly by affecting household determinants, such as age, gender and health conditions. Many quality-of-life researchers consider age to be an inevitable determinant that drives people's health conditions, their independence in daily activities or even the number of family members and other relationships (de Ree & Alessie, 2011). Differences between men and women are common not only in quality-of-life research but also in all disciplines. Some researchers focus on gender differences in housework responsibilities, the way of consumption, health conditions and perceptions of marriage or partnership. Health conditions impact life significantly throughout one's lifetime, but this is especially true of older people as the risk of health problems increases. Hence, health conditions are both directly and indirectly associated with the majority of household determinants. Consequently, many quality-of-life researchers concentrate on groups of people with serious diseases, such as cancer, Alzheimer's and other health-related restrictions.

Many researchers emphasise the importance of personal cognition in one's subjective well-being, as individuals have their own standards to define well-being (Diener & Lucas, 1999; Kahnemann, 1999; Ratzlaff et al., 2000; Seligmann, 2002). As claimed by some scholars, one's subjective well-being perpetually returns to the set point which depends on personality and genetics, even after significant life changes (Brickman et al., 1978; Costa et al., 1987; Cummins et al., 2002; Grinde, 2002a, 2002b; Lucas,

2007). This may reasonably explain why some people find it easier than others to recover emotionally when facing the same difficulties.

#### **2.4.8. Gender differences**

According to the differences in social and family roles, employment, health conditions and financial resources (Lukaschek et al., 2017; Pinqart & Sorensen, 2000, 2001), gender differences are one of the central focusses in family-related life satisfaction (Liu & Waite, 2014; Revenson et al., 2016; Williams, 2004; Zhang & Hayward, 2006). In the study by Lukaschek et al. (2017), statistical analysis indicates that living alone restricts older women from social ties and therefore negatively impacts their well-being, whereas its role for the well-being of older men is not significant (Lukaschek et al., 2017). Furthermore, regarding intergenerational relationships, older women tend to receive more impact, as they have closer emotional ties than older men with adult children and grandchildren (Milkie et al., 2008; Swartz, 2009). Gender differences are also present in caregiving among young-old and mid-old cohorts with highly dependent parents. Females usually assume significantly more responsibilities than males in caring for parents and parents-in-law (Grigoryeva, 2017; Pinqart & Sorensen, 2006). Additionally, older women more frequently than older men care for their grandchildren (Bordone et al., 2022).

Lohr et al. (1988) measured the relationship between life satisfaction in older women and their physical health conditions. In comparison with physical health alone, their findings emphasise the more significant role of a multidimensional conceptualisation of health conditions. They believe that the finding is beneficial, as it comprehensively reveals the relationship between older women's life satisfaction and health conditions. Likewise, Meggiolaro and Ongaro (2013) claim that physical restrictions impact women more significantly than men. The impact from mental dissonance differs between older men and older women. Studies have indicated that older females tend to receive more

negative impact than older males from anxiety and depression, which results in a lower subjective well-being (Lukaschek et al., 2017; Sunderland et al., 2015; Trollor et al., 2007). Vinsi (2014) studied the life satisfaction of men and women in old-age homes and finds a significant difference between the two: female geriatrics tend to be more satisfied than males.

Marital quality produces different effects on older males and older females since older females are usually the primary family caregivers as well as emotional support providers for their male spouse and undertake the majority of housework (Boerner et al., 2014; Schafer, 2013; Umberson et al., 1996; Umberson & Williams, 2005). Studies indicate that males tend to receive stronger emotional support from their female spouses than females receive from males (Umberson & Kroeger, 2016), whereas females benefit more than males from other relatives and friends in increasing their life satisfaction (Gurung et al., 2003; Sheung-Tak & Chan, 2006). A broken marriage is more harmful for females than males both emotionally and physically, as they are more vulnerable than males in social status and resources (Bloch et al., 2014; Kiecolt-Glaser & Newton, 2001; Liu & Upenieks, 2020; Wanic & Kulik, 2011).

The differences between genders in providing care and performing housework have also been the focus of previous studies. Findings have demonstrated that women, especially older women, usually expend more time in daily housework and informal care work than men (Altschuler, 2004; Tabler & Geist, 2021; Wong & Almeida, 2012). Scholars have recognised that the perceived fairness of housework is more significant in family relationships and personal well-being than absolute fairness (Lennon & Rosenfield, 1994; Lively et al., 2010; Newkirk et al., 2017; Rodriguez-Stanley et al., 2020; Ruppanner et al., 2018). Moreover, studies have suggested that the distribution of household responsibilities tends to be more equal between males and females in high-income countries than in lower-income countries (Ferrant et al., 2014).

Another significant difference between older males and older females in many developed post-industrial societies, including Germany, is the amount of pension benefits. Studies and statistics have indicated that older females in Germany, compared with older males, receive less pension benefits although they have longer life expectancies (Blank et al., 2017; Statistisches Bundesamt, 2020a). This means that older women who live alone (with the marital status of separated, divorced, widowed or single) are at a higher risk of financial difficulty. Especially for those whose spouse or partner is deceased, a sudden reduction in household income could overburden them in running the household.

## **2.5. Older People and Their Family Lives in Germany**

Demographic ageing has driven Germany to become one of the oldest societies—by the end of 2020, the nation had more than 21 million people aged 65 and over. The household size in Germany has been decreasing for the past three decades and is now less than two persons per household, on average; 42% are one-person households and 33% are two-person households. Concurrently, less than 1% of households have older people living with younger generations (Statistisches Bundesamt, 2020b). Due to the difference in life expectancy between males and females, the proportion of women aged 80 and over who live alone is four times higher than that of older men in Germany (Statistisches Bundesamt, 2020b).

Pensions and health are two main fields that are closely related to an individual's later life because of their significant role in affecting all other life indicators. To address the deepening ageing problem, German pension policies have undergone a series of adjustments in pensionable age (which has gradually risen from 65 to 67), earliest possible pensionable age (which has risen from 60 to 63) and contribution rates (Ebbinghaus & Hofäcker, 2013; Frerichs & Naegele, 2008; Hess, 2018; Leve et al.,

2009; Moehring, 2015). The German pension system includes three main pillars: the mandatory public pension system, which is statutory for all employees and civil servants, and the non-mandatory pension system for private (the second pillar) and occupational pensions (the third pillar) (European Commission, 2017). According to the German Federal Pension Insurance, the average pension of retired people in Germany in the first pillar was €1,089 per month in 2021 (Deutsche Rentenversicherung Bund, 2022). This is a relatively low average pension level, which is barely above the poverty level and insufficient to lead an affluent later life. Additionally, there are strong gender differences in the average amount of pensions; women receive, on average, lower pensions than men: the average pension of men was €1,208 per month, and the average pension of women was €1,001 per month in 2021 (Deutsche Rentenversicherung Bund, 2022). The main reason for this discrepancy is that German pensions are mainly employment related. The female employment rate in Germany was relatively low for decades, which has resulted in relatively low pensions for women after retirement. However, the women's employment rate has substantially increased in recent decades. From 1991 to 2021, it increased from 57% to 71.8%, while the employment rate of men decreased from 78.4% to 75.5% in the same time period. Therefore, the gender gap in employment rates has decreased considerably during this time, from 21.4% to 3.7%. However, a large proportion of women continue to work in part-time jobs with unstable situations and relatively low wages. The share of women working part-time among all employed women in Germany was 45.7% in 2021 (Statista, 2022). Specifically, women who are married and are raising children often find that household responsibilities and caring for their children keep them away from the well-paid labour market and full-time employment (Meyer & Pfau-Effinger, 2013).

Many researchers study the relationship between life satisfaction and life factors in different life domains as well as life satisfaction in different groups of people in Germany; however, there are few studies about the connection between life

satisfaction in Germany and retirement as well as pensions. The average low pension in Germany is usually associated with low income and decreases living conditions in later life. It can be assumed that among older people with low pensions, particularly women, the level of life satisfaction is relatively low.

Additionally, the care policy in Germany is another key factor in people's later lives. By the end of 2015, the number of older people in Germany who needed care was over 2.4 million, and according to estimates, it will sharply increase to 3.2 million by the end of 2030 (Bundesinstitut für Bevölkerungsforschung, 2017; Destatis Pflegestatistik 2015, 2017). From a comparative cross-national perspective, the long-term care policies of the German welfare state are relatively generous: older people who need care can choose between publicly co-financed extra-familial home care services or in care homes and care by family members, for which the caregiving family members receive financial compensation from the state (Eggers et al., 2020). Consequently, a substantial portion of older people who need care in Germany receive care at home by a care agency so that these individuals can maintain their social connections and autonomy to some degree (de Jong et al., 2019; Hajek et al., 2018; Heuchert et al., 2017). Professional training for care workers in care homes and care service agencies is well developed in Germany (Woods, 2014), but many care workers receive relatively little training. However, extra-familial care from care agencies often requires substantial additional care by family members (de Jong et al., 2019). Another substantial portion of older people who need care receive care only from family members, who then receive government payments for their services (Eggers et al., 2020). For older people, family members provide not only physical care services but also psychological comfort through their joint experiences and emotional interactions, which contribute to raising their satisfaction.

Eichler and Pfau-Effinger (2009) argue that care recipients' decisions between extra-familial care and familial care are influenced by cultural values and labour market

participation. In Germany, women are still the main caregivers for care-dependent older people (Ferrant et al., 2014). It is a common argument that women who provide family care are hindered from participating in the employment system, which therefore contributes to the persistence of gender inequality.

## **2.6. Research Gaps and Innovations**

Through an elaborate overview of the current research regarding older people's life satisfaction and their later lives, a framework has been distinctly presented. Many of the determinants are linked to household-related factors. Although many studies focus on the marital factors, family relationships and social connections support the role of household-related factors in well-being and life satisfaction; however, there is a lack of integrated research on older people's household-related factors and their life satisfaction. There are also few studies that consider the impact of the state of one's housing on life satisfaction, especially in older people. Additionally, there is a lack of research on gender differences in the life satisfaction of older people from a household-related perspective.

Younger adults live diverse lives with interwoven life domains (Liu & Cheung, 2015; Sanz-Vergel & Rodríguez-Muñoz, 2013; Schnettler et al., 2020; Steiner & Krings, 2017); conversely, older people's lives are simplified into fewer domains that are divided from each other after they retire from the labour market. An integrated study on household-related life satisfaction, as presented in this dissertation, is important to allow consideration of the complexity of household factors. The author analyses not only the degree to which household-related factors impact one's life satisfaction but also the relationships between household factors. This research also presents a new concept—household-related life satisfaction—as well as a better measurement for the life satisfaction of older people. Combined with the household-related life domain, household-related life satisfaction is innovative, as it features a wider range of factors

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and higher pertinence toward older people than previous research. It offers an innovative approach to the concept of household-related life satisfaction of older people. Through statistical analysis, this study provides an elaborate discussion regarding the precise differences between men and women, how these differences occur and the differences among age groups as well as among older people with different health conditions. Furthermore, the state of one's housing and its effect on one's life satisfaction are measured innovatively in this dissertation.



## 3. Theoretical Framework

### 3.1. Main Concepts

#### 3.1.1. Older people

The age of 65 and older is the generally accepted standard in the majority of post-industrial countries for delimiting elderly people. In response to Germany's continuously ageing population, the German Bundestag have stipulated that retirement age in Germany must be prolonged one month every year between 2012 and 2023 and two months every year between 2024 and 2029. However, people may still choose earlier retirement if they are approved and accept a reduced pension (OECD, 2018a). Hence, age should not be the only standard in determining whether an individual is elderly. Continuation of labour market participation benefits individuals' physical, mental and material vitality; furthermore, it maintains their social participation and social connections and commonly preserves the working-age state. Therefore, the concept of older people in this research is defined by both age and current working status. Hence, older people in this study refers to those aged 65 and over who have retired from the labour market.

#### 3.1.2. Private households

The term *private household* in this study is employed in a broader sense with a wider range of elements than in other studies. Covering more than the term *family*, a generalised household is comprised of household members, their relationships, the living arrangements of the household, household-related affairs and the material situation of the household. *Household members* means not only one's spouse, children, siblings and other relatives but also unrelated residents. Relationships with those who live inside the household and with relatives who live outside are all considered. *Living arrangements* of the household represents the household size and household types, such as those comprised by multiple generations and family personalities. Activities of

cooking, housework and informal care are assigned to household-related affairs. The material situation of a household includes household income and situations related to the accommodation of older people.

### **3.1.3. Life satisfaction in general and related to household domains**

As discussed previously, life satisfaction has been defined in two ways: the more subjective way of feelings and emotions (Diener, 1984; Diener et al., 1985; Rudinger & Thomaе, 1990; Veenhoven, 2012) and the more comprehensive way, which covers the whole life (Bidzan-Bluma et al., 2020; Sumner, 1966; Veenhoven, 1993). This dissertation's author focusses on the comprehensive life satisfaction of older Germans by considering household elements, which contain both material and emotional factors. Hence, being expanded from the definition by Bidzan-Bluma and her colleagues (Bidzan-Bluma et al., 2020), the term *life satisfaction* follows an all-inclusive interpretation, which is defined as the subjective evaluation of people's lives in their current situation in relation to the material, physical and psychological aspects.

On the basis of the term *life satisfaction*, the specific term *household-related life satisfaction* in this dissertation is defined as people's subjective evaluations of their current situation in relation to the material, physical and psychological aspects of their family and household lives. Since this concept includes household-related material factors, such as household income, housing and household responsibilities, it offers an adequate approach to the analysis of life satisfaction in older people related to their household conditions.

## **3.2. Theoretical Innovations**

### **3.2.1. Domain satisfaction and demarcation of life domains**

The impetus of quality of life and developments in social indicator research in the second half of the 20th century caused researchers who aimed to study the necessary conditions to improve people's lives to employ various social indicators to analyse people's well-being (Arhau-Day et al., 2005). As one of the main indices for subjective well-being, life satisfaction was used to analyse people's feelings regarding different spheres of their lives. Many researchers have noticed that individuals may actually undergo dissatisfaction in some of their life domains while reporting a positive overall life satisfaction in another life domain (Doerwald et al., 2021; Hsieh, 2003). Accordingly, many scholars started to focus on life satisfaction in a specific life domain (Rojas, 2007).

Overall life satisfaction is a general evaluation of individuals' satisfaction with their lives as a whole, while domain-life satisfaction concentrates on a certain life domain. Many studies have indicated that overall life satisfaction is closely connected with domain-life satisfaction in diverse life areas; life satisfaction in specific domains independently impact individuals' lives (Bardo & Yamashita, 2014; Brief et al., 1993; Busseri & Mise, 2020; Häusler et al., 2018; Heller et al., 2004; Loewe et al., 2014; Pavot & Diener, 2008; Viñas-Bardolet et al., 2019). The spillover model is widely used to examine the relationship between overall life satisfaction and domain-life satisfaction. Through the model, results have verified that an individual's satisfaction in one life domain spills over to affect overall life satisfaction and life satisfaction in other life domains (Unanue et al., 2017; Wilensky, 1960). Additionally, the similar theory of crossover describes the phenomenon that satisfaction has a mutual influence on individuals in close relationships (Demerouti et al., 2001; Grzywacz & Demerouti, 2013; Schnettler et al., 2020; Steiner & Krings, 2017).

Rojas (2007) states that overall life satisfaction is connected with domain-life satisfaction in more complex ways than expected. It is not a simple weight of satisfaction in each life domain on average, and it might not increase as satisfaction in one or several life domains increase. He further believes that satisfaction in some life domains is more significant than in others, such as family, health, job or economic areas.

There is significant arbitrariness on the domains of life in demarcation, since the distinction between people's life domains are often constructed based on scholars' research goals. Nevertheless, the general partitions usually contain health, work (productivity), family life (marriage, intimacy), material well-being (economic, living standard), social relationships (social participation, community), emotional (spiritual) well-being, leisure (recreational) activities and environmental (policy concerns) (Argyle, 2001; Cummins, 1996; Day, 1987; Flanagan, 1978; Headey & Wearing, 1992).

### **3.2.2. The concept of the household-related life domain**

To summarise the literature, life domains related to individuals' family lives are divergent in various research perspectives. To accommodate the concept of household-related life satisfaction, this dissertation employs the household-related life domain, which is broader than the domain of family life. It expands the concept of family life and includes factors (such as income and housing) that were believed to belong to other life domains by previous researchers. Different from the demarcation of family life, the household-related life domain in this study has a broader range and embraces every element which directly explains one's household-related situation. Consequently, the concept of the household-related life domain in connection with the analysis of older people's life satisfaction is based on an innovative way of distinguishing the household as a main sphere to which older people's life satisfaction can be related. In other words, this new concept of the household-related life domain provides an

adequate approach to analyse older people's life satisfaction, since it offers the potential to analyse people's subjective evaluations of both their objective situation and subjective feelings.

The concept of the household-related life domain uses the household as the linchpin of life satisfaction. Instead of a single area, this new concept includes factors in various life areas of people's objective living standards, such as housing, social connections, demographic elements and emotional well-being. The concept is particularly relevant for the analysis of older people's lives, because younger adults have diverse lives in which different life domains are linked (Liu & Cheung, 2015; Sanz-Vergel & Rodríguez-Muñoz, 2013; Schnettler et al., 2020; Steiner & Krings, 2017), but older people's lives are restricted to fewer domains which are also more clearly divided from each other after they retire from the labour market. The demarcation of the household-related life domain includes housing and housing facilities, household-related living standards and household income, marriage and cohabitation, family members and relationships with family members, household responsibilities (housework, cooking and informal care for family members) and the demographic situation of the household. These factors compose a closed loop of household life, which is particularly important for older people.

### **3.2.3. The advantage to measuring household-related life satisfaction instead of overall life satisfaction**

This dissertation analyses the household-related life satisfaction in older Germans on the basis of modern life satisfaction research and the German approach in quality of life research, considers both subjective and objective aspects in private households. Before analysing household-related life satisfaction, one prerequisite should be fulfilled, which is to verify the advantage of statistically analysing domain satisfaction, especially household-related domain satisfaction, rather than overall life satisfaction. Therefore, the author assumes that in comparison to overall life satisfaction, household-related

life satisfaction offers a more accurate and more reliable approach to measuring the satisfaction of older people.

With three factors (marital status, number of rooms in accommodation, self-rated health condition) chosen from different life domains, the author used correlation analysis and linear regression to analyse the factors' effect on the three targeted satisfaction indicators (household-related life satisfaction, overall life satisfaction and happiness). The results demonstrate the validity of household-related life satisfaction in measuring one's household-related factors.

### **3.3. Main Hypotheses**

With the guidance of the literature overview, the following main hypotheses were developed to answer the research questions; consequently, they guide the statistical analysis. To more accurately measure household-related life satisfaction, a discussion is applied through a theoretical framework to adopt an appropriate relationship between overall life satisfaction and domain satisfaction. Therefore, the first hypothesis relates to the adoption of dependent variables and to the verification of the validity and reliability of the household-related life satisfaction measurement. The first hypothesis (H1) is this: compared with overall life satisfaction, household-related life satisfaction is a more accurate and more reliable indicator to measure the satisfaction of older people within the household-related life domain.

In previous studies, specific household factors have been viewed as potential determinants of the life satisfaction of older Germans (Glaesmer et al., 2011; Zumbro, 2014). As presented in the literature review (Chapter 2.4.1. of this dissertation), housing is considered to be a significant indicator of satisfaction in later life. The second hypothesis (H2) refers to older Germans' accommodation: It is assumed here

that accommodation is significantly related to older people's household-related life satisfaction and that ownership of the accommodation offers older people a higher level of household-related satisfaction. Additionally, the number of rooms in the accommodation impacts seniors' life satisfaction positively, in that a higher number of rooms leads to a higher life satisfaction.

One of the most significant elements within a household is marriage or cohabitation, since the other person provides companionship and emotional support for older people. The author assumes for the third hypothesis (H3) that marital status has a close correlation with older people's household-related life satisfaction and that those who are married or living with a partner have a higher level of household-related life satisfaction.

Contact with children and relatives is usually considered to be a significant household activity for older people to avoid a sense of loneliness and isolation. The fourth hypothesis (H4) refers to contact frequency with family members: the higher the contact frequency (both FTF and remote) with family members, the higher the level of household-related life satisfaction for older people.

When seniors encounter difficulties (e.g., illness, depression and the need for advice or financial assistance) in their daily lives, people within and outside their families may be relevant sources of support. However, support from family members and non-family individuals or organisations may have different effects on older people's life satisfaction. Regarding the sources of support, the author assumes that for all kinds of difficulties, support, especially from family members, significantly increases the household-related life satisfaction of older Germans (H5).

Housework, to some extent, is regarded as a burden for older people, especially those

who are dependent on others in their daily activities. However, there are debates on whether appropriate housework benefits older people by improving their mental and physical functioning. The author assumes for the sixth hypothesis (H6) that performing housework is negatively related to seniors' household-related life satisfaction and that the more housework older people provide, the lower their satisfaction level.

Except for those receiving care, older people, especially older females, may become caregivers for their spouses, aged parents, disabled family members and grandchildren. According to previous research, providing informal care for relatives and friends is common for older people, which may create burdens and lower their quality of life (Patricia et al., 2017; Sacco et al., 2020). However, there are also debates that moderate care for grandchildren is associated with high levels of well-being in older people, since they may enjoy this less stressful relationship (Kim et al., 2017; Lee et al., 2016; Mueller & Elder, 2003; Walsh, 2016). How does informal caregiving impact older people's household-related life satisfaction? The seventh hypothesis (H7) assumes that the provision of informal care for family members decreases older Germans' household-related satisfaction.



## 4. Methodological Approach

### 4.1. Database

The empirical study on which this dissertation is based used a sample of 1,735 people aged 65 and over from three waves of the EQLS in 2007, 2012 and 2016. The EQLS is a cross-national questionnaire survey which aims to measure European quality of life. This series of surveys have been conducted once every four or five years (2003, 2007, 2012 and 2016) and are pertinent to the lives of European citizens in comprehensive dimensions, including demographic indicators, employment, accommodation, social life, culture, family life, health, education, environment, public services and economic status (Eurofound, 2009; Eurofound, 2012). As the first attempt of the EQLS, the 2003 survey and variables were not well developed and featured a small sample that was insufficient to represent entire groups and the German population as a whole. Furthermore, the design of the survey questions and variables was different than later surveys and is invalid for time series research (see European Quality of Life Survey 2003). This wave of data, consequently, was not included in this study. In the EQLSs from 2007, 2012 and 2016, the questions and variables, through their multidimensional design, covered both the subjective well-being and objective living conditions of individuals from all EU member countries as well as several non-EU countries and regions in interdisciplinary fields. Based on overall population size, 1,000-3,000 interviewees were chosen in each country. More than 70 questions were designed to comprehensively measure quality of life. In the household-related dimension of the survey, more than 20 questions were classified into six sub-dimensions to reveal household economic status, accommodation, relationships, marital status, housework, caregiving and the demographic characteristics of respondents' households. The effective respondents in 2007, 2012 and 2016 were 35,634, 43,636 and 36,908, respectively. In the 2007 wave, 529 respondents were aged 65 and over, with 51% being older males and 49% being older females among all effective samples in Germany. In the 2012 wave, the effective older samples were

996 of the 3,055 Germans in the dataset; 46.8% of these were older males and 53.2% were older females. In 2016, the fourth EQLS, there were only 350 older participants among the 1,631 respondents in Germany, with older males comprising 46.9% and older females comprising 53.1%.

Although the fourth EQLS collected data from fewer elderly participants in Germany, its survey questions were inherited from the previous surveys and maintained the surveys' continuity. To enlarge the sample size and verify the reliability of statistical results, this study used data from all three waves of the EQLS as one database with 1,875 collected participants aged 65 and over. By cross-checking age and current situation, the author discovered that 96 of the participants in the panel were still employees, employers, self-employed or relatives assisting with the family farm or business. Besides, 44 respondents presented missing answers in dependent variables of this dissertation. These cases did not fit with the definition of older people in this research and were out of consideration in the statistical analysis. Hence, the effective sample for this research included 1,735 people aged 65 and over who were out of the labour market. Due to the missing answers in some independent variables the numbers of cases for regression models of family life satisfaction and accommodation satisfaction are 651 and 424, and are accordingly 37.5% and 24.4% of the original sample.

As a pooled database from three waves of EQLS, there may be a potential bias among older people in different survey years. To avoid such distortions, survey years of 2007, 2012 and 2016 is considered as an independent variable to be controlled in following statistical analysis.

The EQLS offers an advantage in the quality-of-life field over other surveys due to its wide scale of coverage, specific focus on quality-of-life indicators and description of

single indicators from different angles. For example, in this study, measuring only the frequency of housework per week or only the fair share of housework would be insufficient to obtain a result for the relationship between life satisfaction and housework. Moreover, the EQLS provides better options in measuring life satisfaction by life domains, which builds an effective connection between household factors and household-related life satisfaction.

The focus of this study is older people in Germany; this nation is typical of a highly developed post-industrial society with a well-developed welfare state that offers a relatively high degree of social security for older people. The results of this research may provide general conclusions for highly developed post-industrial European societies with similar cultural backgrounds and situations for their elderly population.

## **4.2. Methods**

Quantitative research methods aim to reveal the relationships between two or more variables, explain the phenomenon, and offer predictions through statistical analyses of collected data (Aliaga & Gunderson, 2002). The hypotheses in the theoretical framework were tested with collected data from the EQLSs, and the author used different quantitative research methods to find the degree to which household-related factors impact one's household-related life satisfaction in later life.

Descriptive analyses are inevitable in both quantitative and qualitative research to demonstrate the basic status of all dependent and independent variables that are adopted in a study. Furthermore, descriptive analyses also provide a reference standard for a study's statistical analyses.

Quantitative research methods have been developed sporadic multi-disciplinary (e.g.,

Campbell & Stanley, 1963; Creswell, 1994; Kumar, 1996). Sukamolson (2007) distinguishes three types of survey research methods: correlational research, experimental research and causal-comparative research. Correlational research was the main research method applied in this study to discover the correlations between household factors, test the main hypotheses and measure the differences between groups based on the same factors.

#### **4.2.1. Correlational research**

As one of the main quantitative research methods, correlational research is designed to reveal the relationship between two or more dependent and independent variables in target groups; it functions in two ways: as an explorative or a predictive method (Creswell, 2008; Leedy & Ormrod, 2010). Different statistical methods are available for correlational research. Quantitative research methods of correlation analysis, linear regression analysis and cross-tabulation analysis were adopted in this study to determine how household-related factors affect the household-related life satisfaction of older Germans and how these factors are linked with each other.

All dependent and independent variables in this study were quantified originally into categorical variables (including monthly income and age) so the Kendall's  $\tau$  correlation coefficient could be used to acquire accurate results in the correlation analysis (see Maache & Lepage, 2003). The value of the correlation coefficient moves between -1 and 1, and a negative value indicates an inverse movement of one variable as another changes. The absolute value of the correlation coefficient indicates the degree of correlation: a smaller absolute value signifies a smaller correlation between variables. When the value reaches 0, the correlation between the variables is considered totally irrelevant. Another situation that scarcely occurs is two completely synchronous variables, which requires the absolute value of the correlation coefficient to reach 1 or -1.

Linear regression was used to measure three factors selected from different life domains and their correlation with each life satisfaction indicator; furthermore, verified the hypothesis would be supported by the findings. Even though, some studies indicate that linear regression is insufficient to reveal the relationship between life satisfaction and its determinants. The author of this study conducted linear regression since the dependent variables of satisfaction were measured on a 10-level ordinal scale and could be regarded as quasi-metric variables (McCullagh, 1980).

The result of linear regression shows whether independent variables impact as determinants significantly through the value *Sig. (P)* and in what degree they affect the dependent variable through the standard coefficient Beta. Furthermore, the *R square* of linear regression gives the percentage improvement in forecasting the mean of the dependent variable based on all predictor variables, compared to having no information about associations of the dependent variable (Agresti, 2009: 264). Specifically speaking, the value of R square distributes between 0 and 1. It shows how well the regression model can predict the whole sample; a bigger value on R square represents a better fitting degree of the regression model. Through the linear regression, the author testified the specific degree to which household-related factors influence household-related life satisfaction. It was used to test the bivariate analysis on relationships between each indicator and household-related life satisfaction. The one-way analysis of variance (ANOVA) was widely adopted in this study to test whether there was any significance of the variance between sample groups.

#### **4.2.2. Research design**

The statistical analysis of this study comprised six steps. First, a screen of the whole sample on the basis of the established definitions of older people and the household-related life domain was necessary. Due to the difference in questions among the three

waves of the EQLS, some of the variables were quantified by different standards. Therefore, data processing with a unitary standard was important to maintain data uniformity. After the second step (descriptive statistical analysis), the author testified the theoretical hypothesis through correlation analysis and linear regression. The testification used marital status, number of rooms in one's housing and self-rated health condition as independent variables from different life domains and measured their correlation with three dependent variables of overall life satisfaction, happiness, household-related life satisfaction (accommodation satisfaction and family life satisfaction). Through the correlation analysis and linear regression of dependent variables with each of the three chosen independent variables, the one with the highest level of significance and the largest correlation coefficient was testified as the most appropriate measurement for the relevant independent variable and for the related life domain. The result provided significant empirical support for the subsequent statistical analysis.

In the next step, correlation analysis was used to perform a preliminary test on the correlations of household factors with household-related life satisfaction. Based on the preliminary test, the linear regression was applied and non-household factors were controlled to determine the significant factor and the degree of its impact on household-related life satisfaction. The final step used a one-way ANOVA and a cross-tabulation analysis to test whether there was any great significance of variance between the independent variables and groups. The one-way ANOVA revealed the variance of a single factor in different groups (e.g., elderly people in different income levels, different age groups and genders) more directly than the correlation analysis. Additionally, the cross-tabulation analysis enabled the author to group respondents with composite characteristics.

### **4.3. Variables and Control Variables**

#### **4.3.1. Dependent variables**

According to the EQLSs, life satisfaction is classified in eight life domains: educational satisfaction, job satisfaction, accommodation satisfaction, family life satisfaction, health satisfaction, standard of living satisfaction, social life satisfaction, and socioeconomic situation satisfaction.

In all three waves of the EQLS, accommodation-related factors are listed as a unique dimension that is separate from the dimension of family life. However, according to the domain-life demarcation in the theoretical innovation presented in this study (Means, 1998; Winston, 2015), housing and housing-related issues should be incorporated with the household-related life domain. Accommodation and related issues are treated as household factors in this research for their indispensable role in one's private household.

To measure household-related life satisfaction, this dissertation uses the accommodation satisfaction and family life satisfaction, which are significantly related to the private household, as dependent variables. The measurement of accommodation satisfaction is based on questions regarding interviewees' level of satisfaction with their current accommodation, housing types, housing affordability and household facilities. The measurement of family satisfaction is based on questions regarding the interviewees' satisfaction with their current family life, including the individual's family status (marital status and number of children), family relationships, contact frequency with family members and received support, housework responsibilities and caregiving. With a 10-point Likert scale, two household-related dependent variables offered exhaustive evaluations of one's household-related satisfaction from 1 = 'very dissatisfied' to 10 = 'very satisfied'.

### **4.3.2. Independent variables**

The survey questionnaires provide extra options of "refuse to answer" and "do not know" for respondents in every question. They would be excluded from statistical analysis of this dissertation for their helplessness. On the basis of 1,735 effective samples in original, there are 651 and 424 cases left after all the missing values are being excluded in the regression models for family life satisfaction and accommodation satisfaction, which is 37.5% and 24.4% of the original sample size.

#### **Accommodation**

The independent variables in this study were taken from the indicators in the EQLSs to maintain the uniformity of data selection and analysis. A series of variables were chosen as the most appropriate and most effective description of each indicator. 'Types of accommodation' is one of the independent variables and describes the ownership of one's current accommodation in all three waves of the EQLSs. Respondents were asked about their current accommodation. The answer options were 'own without mortgage' (quantified as Category 1), 'own with mortgage' (quantified as Category 2), 'Tenant, paying rent to private landlord' (quantified as Category 3), 'tenant, paying rent in social/voluntary/municipal housing' (quantified as Category 4), 'accommodation provided rent free' (quantified as Category 5) and 'other' (quantified as Category 6). To maintain the uniformity of data across the EQLSs, Category 6 (others) was recoded and pigeonholed into Category 5. All the situations that represent respondents' accommodation are embraced by these options. The rank of these options is based on the amount of money respondents pay for their current accommodation as well as ownership status. Differences in types of accommodation may lead to potential discrepancies in levels of satisfaction.

The number of rooms in respondents' accommodation is another independent variable for accommodation satisfaction. However, there are debates on whether more rooms



are beneficial for older people (Foye, 2017), as more rooms may increase the housework burden. In the survey questionnaires, respondents were asked how many rooms they have in their current accommodation. To avoid small case numbers in categories of five rooms and more, the independent variable 'number of rooms' was recoded into five categories, with Categories 1 through 4 representing accommodation with one to four rooms and Category 5 representing accommodation with five or more rooms.

Housing facilities presents another series of independent variables for accommodation satisfaction since a shortage or ageing of basic housing facilities may result in a lower living standard, extra expenses, or increased risk of health problems for older people who have limited incomes. There are some questions related to the state of housing in the EQLSs. Respondents were asked whether there are problems with their current accommodation, such as shortage of space, rot in windows/doors/floors, damp/leaks in walls/roof, lack of indoor flushing toilet, lack of bath/shower, lack of balcony/garden/terrace. Every problem is regarded as an independent variable in this research. The answers to all five problems in the state of housing were quantified into four categories: Category 1 represents affirmative answers to the existence of problems, Category 2 represents negative answers.

The stability of one's current accommodation is another independent variable, which is based on the survey question regarding the likelihood that respondents would need to leave their current accommodation because they can no longer afford such housing. The inability to afford one's current accommodation and reluctance to leave are likely to significantly negatively impact individuals, especially older people who have physical dependency and economic limitations. Some studies have indicated that the effect is similar if people are asked whether they are at risk of becoming homeless (see Biswas-Diener & Diener, 2006; Mercado et al., 2021). Available options for respondents were collected from 1 = 'very likely' to 4 = 'very unlikely'.

### **Living arrangements**

Based on the EQLSs, two independent variables that relate to older people's living arrangements were adopted to measure how living arrangements are connected to older people's household-related life satisfaction. Household structure is regarded as the first independent variable in household types. The survey questions focus on the detail of respondents' household members instead of the household types. For this study, the independent variable of household types was rebuilt through by integrating data regarding household members. According to previous research, the household types in this study are one-person household, couple-only household, couple residing with child(ren), single-parent household (residing with children), residing with parent(s), three or more generations, skip-generation household, residing with other relatives and residing with non-relatives (Bongaarts & Zimmer, 2002; Kamiya & Hertog, 2020). They are quantified from 1 to 9 sequentially.

Another independent variable refers to the household size of older people. The survey question asks respondents, 'Including yourself, could you please tell me how many people live in your household?' (EQLS, 2007, 2012, 2016). The answer options are numbered from 1 to 10 to indicate the exact number of people, and 10 stands for households with 10 or more people. This study uses household type and household size as two of the independent variables for older people's household-related life satisfaction since each may impact later life by affecting household responsibilities, household income, informal care work, relationships and social participation. To avoid small case number in categories, the independent variable 'household size' was recoded into five categories before the linear regression, with Categories 1 through 4 representing households with one to four persons and Category 5 representing households with five or more persons.

### **Household income**

Income plays a decisive role in one's life quality by fulfilling the basic demands of living and enabling the opportunity to pursue higher life goals (Diener et al., 1993). For the majority of older people, pensions are usually the significant portion of their economic status and are considered the main source of income, even if the amount has been cut in half after retirement (Börsch-Supan & Quinn, 2015). Compared to personal income, household income tends to be more appropriate in representing one's current living standard. A household with two or more members increases the total income accordingly but decreases the average living cost per person.

In this study, the objective ranking of household net income and the self-rated situation of household income compared to that of others were adopted as independent variables to enable the analysis of their relationship with household-related life satisfaction and the evaluation of its effect on other independent variables. According to the EQLSs, objective ranking of household income comprises 21 levels, from the lowest level with less than €50 per month to the highest level with more than €4,500 per month.<sup>1</sup> The independent variable 'household income level' was downsized into five categories with 1 as the lowest (Levels 1 through 5), 2 as lower (Levels 6 through 10), 3 as the middle (Levels 11 through 15), 4 as higher (Levels 16 through 18) and 5 as the highest (Levels 19 through 21).

### **Marital status**

To maintain this study's coherency with the EQLS data, questions related to marital status ask respondents whether they are married or living with a partner, separated or divorced, widowed or never married. In the 2007 and 2012 surveys, the answer options for marital status are slightly different than in the 2016 version. The option 'separated

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<sup>1</sup> The monthly household income is classified into 22 levels with from level 1 "less than €50 per month" to level 22 "more than €5,500 per month" in 2016 version. In order to keep the uniformity of data, level 22 in 2016 version is reassembled into level 21.

or divorced' (2016 version) is separated into two options of 'separated' and 'divorced', thus producing two variables. These two variables were reorganised into a single variable to mirror data in the previous surveys. It should be noted that marital status is not limited under legal frameworks and contains both heterosexual and same-sex relationships.

### **Number of children**

Children, especially adult children, play an important role for older people by providing emotional and other types of support (Seltzer & Bianchi, 2013; Thomas et al., 2017; Umberson et al., 2010). However, these types of support differ greatly based on an older individual's number of children (Albertini & Kohli, 2009; Uhlenberg & de Jong Gierveld, 2004). Children-related survey questions require the predominant proportion of variables in the household dimension. The question regarding one's number of children asks respondents, 'How many children of your own do you have?' The answer options for this question on the 2016 questionnaire are partially different than in other waves of the questionnaire, as they are divided into two categories of juvenile children and adult children. For the statistical analysis in this study, reorganising these two categories was necessary. The answers were quantified into five categories where 1 = 'no child'; 2 = 'only one child'; 3 = 'two children'; 4 = 'three children' and 5 = 'four or more children'.

### **Contact frequency with family members**

In the questionnaires from 2007 and 2012, older people were asked about the average direct FTF contact frequency in four sub-questions pertaining to their children, parents, other relatives, and friends or neighbours, who are limited to people living outside their household. The frequency was ranked from 1 to 7 (the 2012 and 2016 waves featured only 1 to 6). With the same sub-questions as FTF contact frequency, the question for the independent variable of remote contact frequency asked respondents about the

frequency of contact by phone, internet and post. As with FTF contact frequency from 2007 and 2012, contact frequency with children and other relatives were independent variables in both FTF and remote contact. However, in 2016, children, parents and other relatives were classified and defined as a single variable under 'family members'. To maintain uniformity for statistical analysis, the variables of contact frequency (both FTF and remote) were reprocessed. Contact frequency with children, parents and other relatives were merged into the broader scale of 'family members'. Contact (both FTF and remote) with family members every day or almost every day was quantified as 1; contact at least once per week was quantified as 2; contact one to three times per month was quantified as 3; less often than once per month was quantified as 4 and 5 meant that the respondent had no living family members or they had no contact with family members.

### **Support from family members**

As indicated in previous studies, compared to other relationships, family relationships are irreplaceable because of their effect on one's life satisfaction (de Jong Gierveld et al., 2012; Fokkema & Naderi, 2013; Thomas et al., 2017; Umberson et al., 2010). Specifically, family support contributes significantly to the life satisfaction of older people (Doerwald et al., 2021; Yeung & Fung, 2007). In all three waves of surveys, older people's difficulties are classified into five aspects: illness, the need for advice, the need for a job, psychological depression and financial difficulties. In the 2012 and 2016 surveys, the answers for these questions list four sources of support (family member or relative, friend, neighbour or colleague, service provider or organisation and nobody) which older people could enlist when facing such difficulties. However, the sources of support listed in the 2007 survey are different than those in the 2012 and 2016 surveys. Several items needed to be integrated to allow a coherent comparison. During data processing, this was recoded into a new variable regarding support from family members in two steps. The first step of re-quantisation for this variable applies as 1 = 'a member of your family/relatives', 2 = 'a friend, neighbour or

someone who does not belong to your family or relatives', 3 = 'a service provider, institution or organisation' and 4 = 'nobody'. To eliminate the irrelevant elements from household-related factors, the second step of re-quantification kept only 'a member of your family or relatives' and recoded it into 1 (if the help came from family members) and 0 (if none help came from family members). All the difficulties were processed in the same way to create five new dummy independent variables: 'support from family when ill', 'support from family when needing advice', 'support from family when seeking a job', 'support from family when feeling depressed' and 'support from family when needing financial assistance'.

### **Caregiving**

Except for those who receive care and support from others, older people may provide unpaid care for older parents, children, grandchildren, their spouse and other disabled relatives. In the EQLSs, respondents were asked the frequency of caregiving and the number of hours of caregiving per week for children or grandchildren and other relatives. Based on the characteristics of care receivers, caregiving is divided into two types on the questionnaires: caring for children or grandchildren and caring for elderly or disabled relatives. Additionally, caregiving is measured by frequency and numbers of hours per week. Based on the survey questions, caregiving in this study was divided into two independent variables: caring for children or grandchildren and caring for elderly or disabled relatives. Defined with the same frequency as the variable 'contact frequency with family members' (both FTF and remote), the quantification of the variables 'frequency of caring for children or grandchildren' and 'frequency of caring for elderly or disabled relatives' was ranked from 1 = 'every day or almost every day' to 5 = 'never'.

### **Performing housework**

Housework, such as cooking and cleaning, also requires time and labour from elderly

people. Previous researchers have argued whether housework benefits older people's independence (Lawlor et al., 2002; Rodriguez-Stanley et al., 2020; Sayer & Gornick, 2009; Tabler & Geist, 2021; Wassink-Vossen et al., 2014). In the surveys, housework is measured through two independent variables. The first variable investigates respondents' housework frequency with answer options of 'everyday', 'several times a week', 'once or twice a week', 'less often' and 'never', which are quantified from 1 to 5. Another variable relates to the amount of housework that older people share with a partner. Respondents were asked to evaluate whether the part of housework they perform is 'more than the fair share', 'just about the fair share' or 'less than the fair share' (quantified from 1 to 3).

#### 4.3.3. Covariates

This research also contains non-household-related variables and used them as covariates to control the effects of demographic factors, such as gender, age, health condition, job before retirement and educational background. By controlling these variables, irrelevant influences on household-related factors were controlled to acquire a relatively accurate observation.

Age, as a demographic factor, may have a relationship with life satisfaction, especially for the older cohort. The older one's age, the higher the risk of negative health conditions and the greater the individual's inactivity. Therefore, the age variable must be controlled to ascertain the differences in age groups regarding satisfaction for each independent variable. Old age is divided generally into three periods: 65 to 74 is called the *young-old*. People in this period tend to have a satisfactory condition of health and are highly independent; they may have the ability to care for children and older or disabled people. The period from 75 to 84 is called the *mid-old*; the elderly in this stage is less independent and less active, and they also experience a higher risk of health problems. The third period is over 85, which is referred to as the *oldest-old*; in this

period, the elderly tends to be inactive and dependent, and a higher risk of health problems is inevitable (Hooyman & Kiyak, 2010). In this dissertation, older people are divided into young-old (quantified as Category 1), mid-old (quantified as Category 2) and oldest-old (quantified as Category 3) to measure the relationship between the life satisfaction of the elderly as well as of each age group and to explain the differences between the groups.

As an inevitable variable, gender also relates to life satisfaction due to the existence of gender inequality in health conditions, jobs, income and household responsibilities. Therefore, gender was controlled to measure the differences between males and females for each household determinant and to determine the relationship between gender and household-related life satisfaction as well as between gender and household-related factors. Taken from the EQLSs, gender was quantified a 1 = 'male' and 2 = 'female'.

Health conditions are usually regarded as one of the most important factors in the majority of quality-of-life studies and may directly impact other factors. A self-evaluation of one's health condition demonstrates physical, mental and personal health-related perceptions and furthermore reflects an individual's veritable feelings. In the surveys, health conditions are classified into five degrees, from 1 = 'very good' to 5 = 'very bad'. The author controlled health conditions to observe how household determinants affect older people's household-related life satisfaction under different health conditions as well as the relationship between health condition and household-related determinants.

In addition to one's self-rated health condition, the impact of chronic diseases and physical limitations from health problems are also potentially influential factors within household determinants. According to the adaptation theory, however, worse perceptions of self-rated health condition or chronic diseases may not lead to a



continuous negative impact on an individual's daily life (Lyubomirsky, 2010). In this circumstance, physical limitations are more reliable in measuring the actual connection between health conditions and household-related life satisfaction as well as household-related determinants. The question for physical limitation in the survey asked respondents if they are hampered in daily activities by a chronic (long-standing) physical or mental health problem, illness or disability. The answers are quantified as 1 = 'yes, severely', 2 = 'yes, to some extent' and 3 = 'no'.

Older people's employment before retirement directly impacts their pensions, which comprise the majority of their later-life income (Neugschwender, 2016). In the survey, respondents were asked to describe their most recent occupation and were offered specific classifications with 11 types of jobs,<sup>2</sup> including management worker, professional worker, technician or junior professional worker, clerical support worker, service worker, sales worker, skilled agricultural forestry and fishery worker, craft and related trade worker, plant and machine operator or assembler, elementary occupations (unskilled workers) and armed forces occupations. In this dissertation, most recent job before retirement was used as the control variable to determine the correlation between the most recent job before retirement and household-related determinants. Furthermore, this measured the impact of different types of jobs on household-related life satisfaction and household factors.

There are debates in previous studies on whether personal educational background affects one's life satisfaction (Edgerton et al., 2012; Powdthavee et al., 2015). A higher level of education leads individuals to better chances of well-paid employment (Luy et al., 2019). However, it is still unclear how educational background drives one's perception of emotions and feelings. By controlling the educational background of

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<sup>2</sup> In wave 2007, the variable 'types of last occupation' have been classified into 14 types with different standard. To keep the uniformity with other waves of data, this variable is redistributed.

older people, the author eliminated the irrelevant influence of one's educational background and analysed the correlations between educational background and household-related determinants. The classification of educational levels in the three waves of the EQLS required a recompilation of this variable to maintain data consistency in the statistical analysis.

The data that used in statistical analysis are pooled from three waves of European Quality of Life Survey in three survey years. Hence, survey year is designed as a covariate to be controlled in analysis with the consideration of potential

#### **4.4. Additional Information Not Used in this Study**

Whereas extensive household-related factors are collected by the EQLSs, some questions receive few responses. After a primary check of the database, the factors 'hours per week involved in care for child or grandchild', 'hours per week involved in care for elderly or disabled relatives' and 'hours per week involved in cooking and housework' have very few effective samples (261 effective samples for 'care for child or grandchild' and 113 effective samples for 'care for elderly or disabled relatives'). Furthermore, the measurement of these variables become overlap with the measurement of frequency on care and housework within a household. Therefore, these variables were excluded from statistical analysis.

Additionally, some of the factors, that are irrelevant for measuring the household-related life satisfaction, were collected together with the household factors. These variables give unnecessarily detailed additional information for this dissertation. By recoding and re-quantifying these variables, the variables 'FTF contact frequency with friends or neighbours', 'remote contact with friends or neighbours' and 'support from non-family members when older people meet difficulties' were excluded from the

following statistical analysis.

## 5. Results

### 5.1. Descriptive Analysis

The EQLSs use multiple indicators for overall life satisfaction, happiness and life satisfaction in various life domains to measure individuals' life quality. Each indicator or measurement has a rational view and explanation. Specifically, life satisfaction in a certain life domain guides respondents to evaluate their satisfaction in greater detail and directionality. The broadness of household-related life satisfaction as defined in this study indicates that accommodation satisfaction and family life satisfaction should be two dependent variables that comprise household-related life satisfaction. Additionally, overall life satisfaction and happiness were adopted to present a comparison against domain-life satisfaction (family life satisfaction and accommodation satisfaction) in correlation with household-related factors. All the household-related factors and some non-household factors that may impact household-related life satisfaction were measured in the descriptive analysis to reveal their basic situation. Results are presented in Table 1 (ordered categorical variables), Table 2 (nominal categorical variables).

For indicators of overall life satisfaction, happiness and domain-life satisfaction, respondents were asked to evaluate their life as a whole or in a specific domain on a 10-point Likert scale where 1 = 'very dissatisfied' and 10 = 'very satisfied'. As Table 1 illustrates, there was a distinguishable difference in average scores between happiness and overall life satisfaction, which indicated their divergence in measuring one's life. Many researchers regard *happiness* as an interchangeable term with *life satisfaction* (e.g., Oishi & Lucas, 2009; Veenhoven, 2012), although other scholars argue that happiness is easily affected by unstable moods, emotions and feelings and thus is not reliable for measuring subjective well-being through cognitive expression (e.g., Campbell et al., 1976; Lane, 2000). In the statistical analysis, the average score of overall life satisfaction was 7.49, which was considerably lower than the average

score of accommodation satisfaction (with an average score of 8.35) and the average score of family life satisfaction (with an average score of 8.02).

According to the demarcation of the household-related life domain in this study, many factors that closely relate to household and individuals' entire lives were selected as independent variables. The majority were quantified into ordered categorical variables with their values ranked in order. These ordered categorical variables are presented in Table 1. Unordered categorical variables were not ranked in a certain order. The value of their means and standard deviations was meaningless for analysis. Therefore, Table 2 provides only the description of options presented in the questionnaire.

Household type and household size are demographic factors for a household. Statistical data from the OECD indicates that the household size in Germany had decreased from three persons per household in the 1950s to two persons per household by 2014, which is one of the lowest household sizes among European countries (data source: OECD Family Database, 2016). In older Germans' households, 54% were two-person households and 43% were one-person households. Only 3% of older Germans' households contained three or more persons. Concurrently, as the number of generations in a household decreased, the percentage of older people who lived alone or with only a spouse decreased, as one-person households and households without children rose sharply in recent decades (Statistisches Bundesamt, 2015). For older Germans' households, nine types of households have been established, which are based on various generations and members in different family roles. In addition to one-person households (41.9%), households with only a couple comprised the majority (54.1%) of the 1,735 households represented in this study. Less than 4% of households were of other types: older couples who resided with their child or children comprised 1.8%, and single parents who lived with their child or children comprised 1.2%. Older people who lived with their grandchild or grandchildren were rare and comprised only 0.2% of older families.

This research includes accommodation types, number of rooms in one's accommodation, the possibility of being unable to afford one's accommodation and various problems as well as a shortage of basic household facilities in the descriptive analysis. Accommodation types (presented in Table 2) describes whether older people possess their current accommodation and how they pay for their accommodation. Combined with the rate of each type of housing, nearly half of the older people (47.8%) among these 1,735 cases were living in their own accommodation without a mortgage. Other main types of accommodation are 'rented from private landlord/company' (25.4%) and 'tenant, paying rent to social/municipal/non-profit housing provider' (18.3%). The number of rooms in the accommodation represent a part of living conditions for older people. The average number of rooms for the sample was 3.39; the rooms that were counted did not include kitchen, bathroom, balcony, storeroom and those which were used for business only. Among this sample, accommodation with two, three or four rooms were the most common, with rates of 23.4%, 35.4% and 20.5%, respectively. The proportion of older people who lived in a household with only one room or with more than five rooms were 2.2% and 7.0%, respectively. This could be due to a joint influence of personal choice and economic limitations.

Problems in the state of one's housing and basic household facilities tend to have a direct impact on individual's living standards. Following the EQLSs, this study includes six problems related to shortage of and damage to household facilities. As presented in Table 1, these problems comprise 'accommodation is short of space', 'accommodation has rot in windows, doors or floors', 'accommodation has dampness or leaks in walls or roof', 'accommodation lacks an indoor flushing toilet', 'accommodation lacks a bath or shower' and 'accommodation lacks a balcony, garden or terrace'. These problems were quantified with a range 0 to 1, where 1 means that respondents have these problems in their household and 0 means that they do not have these problems. With the development of socioeconomic status, people's living

standards have improved sharply with all-pervading basic household facilities. As illustrated in Table 1, the mean value of each accommodation problem was close to 0; for the variables 'accommodation has rot in windows, doors and floors', 'accommodation lacks an indoor flushing toilet' and 'accommodation lacks a bath and shower', the mean values reached 0.02, 0.01 and 0.01, which indicated that very few households had these problems. Compared with other problems in the state of one's housing, the lack of a balcony, garden or terrace had the highest proportion, with 8.0% among 1,735 cases.

The EQLSs also investigate the possibility that older people may be forced to leave their current accommodation because their housing is no longer affordable. The answers were quantified from 1 = 'very likely' to 4 = 'very unlikely'. The results in Table 1 suggest that only a small portion of older people were very likely (0.8%) or quite likely (0.6%) to leave their current accommodation because they could no longer afford such housing. For these older people, however, such a transition would be a decisive factor in lowering their life satisfaction.

As presented in Table 2, the independent variable of marital status was classified into four types: 1 (married or living with partner), 2 (separated or divorced and not living with partner), 3 (widowed and not living with partner) and 4 (single or never married and not living with partner). Older people who were married or living with a partner comprised 55.0% of the sample. As a consequence of the increase in mortality along with the ageing process, older people who were widowed and not living with a partner comprised more than 34% of this sample. The percentage of older people who were separated or divorced and not living with a partner as well as those who were single or never married and not living with a partner were 6.6% and 3.6%, respectively. The result of the descriptive analysis indicated that the number of children for older people were mostly one, two or three, with a proportion of 19.3%, 36.4% and 19.7%,

respectively. Only 13.9% of the older people had more than three children, and 10.2% had no children.

The mean value of FTF contact frequency with family members (2.26) was higher than remote contact frequency with family members (2.14). The joint influence of change on older people's living arrangements and demand in communication means that remote contact with family members outside the household was the substitute for FTF contact in the majority of cases. In the investigation of support from family members when older people met various difficulties, the values were defined as 1 (support from family members) and 0 (support from non-family members). The mean values of these variables in Table 1 indicated that family members were the main source of support when older people met difficulties including illness, the need for advice, depression and the need for financial assistance. When older people were seeking a job, however, family members could not provide enough support (mean value of 0.24).

Following the EQLSs, this research includes three common household activities: providing care for and educating children or grandchildren, providing care for elderly and disabled relatives, cooking and housework. According to the results in Table 1, on average, older people in Germany were infrequently involved in providing care for children as well as elderly and disabled relatives. Due to the living arrangements, older people in Germany assumed less responsibility in caring for children and grandchildren. The percentage of older people who did not provide care for or educate children or grandchildren was 61.8%. Similarly, the percentage of older people who did not provide care for elderly or disabled relatives was 87.1%. Determining the fair share of housework is a subjective assessment of housework equality. With one-person households removed from consideration, 61.9% of 805 respondents believed that they performed their fair share of housework. The resulting lower proportion of self-rated housework inequality indicated that the risk of family disputes in this area may also be low.



Some non-household factors were considered during the statistical analysis for their non-negligible role in one's whole life and in household-related life domain. As presented in Tables 3 and 4, these non-household factors were age groups, self-rated health condition, situations of chronic disease, situations of limitations in daily activities, highest education level, career experience and survey year. The answers for situations of chronic disease were ranked as 1 = 'yes, severely' and 0 = 'no'. The answers for highest education level were ranked in ascending order, where 1 = 'the lowest' and 5 = 'the highest'. The answers for situations of limitations in daily activities were ranked as 1 = 'yes, severely', 2 = 'yes, to some extent' and 3 = 'no'. More than 32.8% of the respondents were limited to some extent in their daily activities by health problems, and 9.7% experienced severe limitations every day. Additionally, nearly half (49.6%) of respondents had chronic (long-standing) disease or disability.

## **5.2. Testification of the Validity of Household-Related Life Satisfaction**

The theoretical framework of this research defines a new demarcation of the household-related life domain and presents this hypothesis: compared with overall life satisfaction, household-related life satisfaction is more accurate and more reliable in measuring the satisfaction of older people within the household-related life domain. To testify this hypothesis, correlation analysis and linear regression were adopted to measure the differences in the relationships between factors in life domains and several life satisfaction indicators.

There are two reasons for this research to testify the theoretical hypothesis through linear regression. First, linear regression is intuitive. By omitting the other potential factors, the result of a linear regression reveals a general relationship between two variables. The second reason is related to the intercommunity. Ordered categorical

variables with equidistant, increasing multiple values (usually more than five) are considered to be continuous variables in some cases. Hence, linear regression would be suitable for further analysis to offer an accurate measurement of specific relationships between household-related life satisfaction and all the potential determinants.

Marital status and number of rooms in one's accommodation are typical factors for family life and housing situations. In theoretical testification, marital status and number of rooms are independent variables that correspond to family life satisfaction and accommodation satisfaction in the EQLSs; self-rated health condition is the other independent variable, which belongs to neither of these two life domains. Four linear regression models are included based on the four life satisfaction indicators. In addition to the family life satisfaction model and the accommodation satisfaction model, the indicators of happiness and overall life satisfaction were used as contrasting models to testify the validity and reliability of household-related life satisfaction. The results are listed in Table 3 and Table 4.

As all the variables adopted are categorical, the correlation analysis used Kendall's  $\tau$  correlation coefficient, which refers to the extent of the correlation between types of accommodation and dependent variables (four chosen indicators). The larger the absolute value, the higher the correlation (1 means the two variables are identical and 0 means they have no connection with each other). The coefficient beta indicates how dependent variables change when the independent variable changes. A larger absolute value means that every one unit of change in the independent variable leads to a larger change in the dependent variable. The R-square value indicates the proportion of the sample that a regression model reflects. *Sig.*  $p$  represents the significance of the regression model.

All the life satisfaction indicators significantly correlated with the independent variable 'marital status' ( $p \leq 0.01$ ); however, family life satisfaction had the highest value for the correlation coefficient  $\tau$  at -0.283, which was considerably higher than the other indicators. The result of the linear regression in all the models also indicated that marital status had a more significant impact on family life satisfaction than on other indicators. The value of the standard coefficient Beta ( $\beta = -0.311$ ) means that increase in marital status led to 0.311-unit decrease in family life satisfaction. Specifically speaking, among all four types marital status, older people who 'married or living with partner' report the highest score in family life satisfaction. The result also assumes that the score of family life satisfaction in 'married or living with partner', 'separated or divorced', 'widowed' and 'single and never married' decreases 0.311 sequentially. Likewise, the R-square of the family life satisfaction model was 0.097, which was also the highest among the four models. The more accurate explanation will be given after a further statistical analysis and discussion later in this chapter.

The independent variable 'number of rooms' has been regarded as a factor in the accommodation or housing domain of one's life in previous research. Following the new demarcation in the household-related life domain, accommodation-related factors were reclassified into household-related factors, but they were still linked with accommodation satisfaction, which was attributed to the setting of the questionnaire. Hence, the indicator 'accommodation satisfaction' was tested separately and was also regarded as a joint dependent variable for household-related life satisfaction. When the process was repeated, the result revealed a similarity with the variable 'marital status', as expected (see Table 3 and Table 4). Compared with other models, the accommodation satisfaction model had higher values in the correlation coefficient ( $\tau = 0.145, p \leq 0.01$ ), the standard coefficient beta ( $\beta = 0.130$ ) and R-square ( $R^2 = 0.017$ ). These results suggest a close connection between accommodation factors (number of rooms) and accommodation satisfaction.

'Self-rated health condition' is a non-household variable which was analysed with the same dependent variables and the same methods for a comparison. As presented in Table 3, 'self-rated health condition' were more significantly correlated with overall life satisfaction and happiness than it with family life satisfaction and accommodation satisfaction'; the analysis revealed higher values in the correlation coefficient ( $\tau = -0.218$  for overall life satisfaction and  $0.219$  for happiness), the standard coefficient beta ( $\beta = -0.228$  and  $-0.260$ ), and R-square ( $R^2 = 0.052$  and  $0.067$ ). The results confirm that 'self-rated health condition', as the factor from another life domain, is less correlated with family life satisfaction and accommodation satisfaction.

Using statistical verification as an example enabled the conclusion that family life satisfaction and accommodation satisfaction were closely correlated with factors in their own life domains but not with the factors in other life domains. In summary, this analysis with the joint statistics from correlation analysis and linear regression supports the theoretical hypothesis. Compared with overall life satisfaction and happiness, household-related life satisfaction (accommodation satisfaction and family life satisfaction) is more accurate and more reliable for measuring the satisfaction of older people based on the household-related life domain.

### **5.3. Correlation Analysis of Household-Related Life Satisfaction**

With testified empirical support, the result of the statistical analysis on the relationship between household-related factors and household life satisfaction is more persuasive. As the first step in a cross-check analysis, a correlation analysis revealed the bivariate correlation between household-related factors (accommodation factors and family life factors) and household-related life satisfaction (accommodation satisfaction and family life satisfaction) as well as between non-household-related factors and household-related life satisfaction. As noted, all of the correlation analyses used Kendall's  $\tau$

correlation coefficient since all of the variables were quantified into categorical variables (ordered and nominal). The results are presented in Table 5.

Among all the accommodation factors, accommodation that lacked an indoor flushing toilet and lacked a bath or shower were insignificant in the correlation analysis, with correlation coefficients of 0.022 and -0.001, respectively. There were 24 respondents who lacked an indoor flushing toilet in their accommodation, which was 1.4% of the whole sample. However, only two reported relatively lower satisfaction toward their accommodation by providing a score of 7 or lower. Similarly, 21 of the 1,735 respondents lacked a bath or shower in their accommodation, but only three of the 21 evaluated their accommodation satisfaction with a score of 7 or lower. The results from an ANOVA on types of accommodation represented by these two problems in the state of housing indicated that there was no difference between types of accommodation. Additionally, although the variables 'rot in windows, doors or floor' and 'dampness or leaks in walls or roof' correlated significantly with accommodation, their correlation coefficients (-0.089 and -0.073, respectively) were not high enough to produce a significant impact on accommodation satisfactions.

'Household size' and 'household income level' are independent variables for both accommodation satisfaction and family life satisfaction. They also influence one's accommodation condition in number of rooms and type of accommodation. A larger household may require more rooms in the accommodation, and a higher household income level may lead individuals to choose accommodation with more rooms and a better situation (e.g., owned without mortgage). As presented in Table 5, household size significantly correlated with accommodation satisfaction; however, the correlation coefficient ( $\tau = 0.055$ ,  $p \leq 0.05$ ) was low. Household income level also correlated significantly and positively with accommodation satisfaction ( $\tau = 0.157$ ,  $p \leq 0.01$ ), which indicated that every unit of increase in household income level resulted in a 0.157 increase in accommodation satisfaction.

For the family life factors of older Germans, as presented in Table 5, 'household size', 'household type', 'marital status', 'number of children', 'support from family members' when experiencing the four aforementioned difficulties (except seeking a job), 'FTF contact' and 'remote contact frequency' with family members, 'caring for child or grandchild', 'fair share of housework', and 'household income levels' significantly correlated with family life satisfaction. The positive correlation coefficients for 'household size' and 'household type' indicated that they connected positively with family life satisfaction; furthermore, additional generations and larger household size tended to result in a higher score in family life satisfaction. A negative correlation coefficient for 'marital status' indicated that older people who were married or living with a partner (category 1) were more satisfied than people with other marital statuses.

In addition to the variable 'support from family when seeking a job', other variables of family support in difficult situations were positively related to older people's life satisfaction, which meant that when older people experienced difficulties, support from family members would benefit them in their satisfaction toward family life. The variable 'support from family when seeking a job' was uncorrelated; it earned the lowest correlation coefficient at -0.008. There might be two explanations for this result. First, older people rarely need to find a job. This is believable since the target group was identified as people aged 65 and over who were retired from the labour market. The second explanation relates to the limitation of an individual's role in helping others find a job.

There seems to be a consensus that if people spend more time and more frequently perform housework and informal caregiving, then they carry a heavier burden both mentally and physically, which would inevitably affect life quality to some extent (Rodriguez-Stanley et al., 2020; Thomas et al., 2018). Contrary to expectations, with

the exception of 'frequency of caring for child or grandchild', all the variables related to caregiving and housework were uncorrelated to family life satisfaction in the correlation analysis. More frequent in cooking, housework and caring for elderly or disabled relatives did not necessarily impact one's satisfaction with family life. The frequency of caring for a child or grandchild significantly correlated with older people's family life satisfaction but had a low correlation coefficient ( $\tau = -0.066$ ,  $p \leq 0.01$ ). The negative correlation indicated that a higher frequency of caring for a child or grandchild might benefit older people in their family life satisfaction.

Similarly, the number of children was a significant factor in family life satisfaction but also had a low correlation coefficient ( $\tau = 0.047$ ,  $p \leq 0.05$ ). This might have been caused by the subjectivity of older Germans' selected living arrangements. As discussed earlier, the overwhelming majority of the sample chose to live by themselves or with their spouse only. If they did not live with their children, then older people did not note a difference in the number of children if their children had appropriate remote contact and provided essential support for older parents. An analysis of the mean value of family life satisfaction in older people with different numbers of children revealed a nonlinear relationship. For people who had zero to four children, the mean value of family life satisfaction increased as the number of children increased and decreased sharply as the number of children continued to rise past five.

As presented in Table 5, the factors 'household size', 'household type', 'marital status', 'support from family when ill', 'support from family when feeling depressed' and 'household income' correlated significantly with family life satisfaction; the absolute value of the  $\tau$  correlation coefficient was above 0.150. These six factors closely correlated with the family life satisfaction of older Germans. Among family life factors, 'number of children', 'support from family when needing financial assistance' and 'fair share of housework' were significantly correlated and had lower correlation coefficients

( $\tau < 0.10$ ). However, it remained unclear the degree to which these factors impacted family life satisfaction specifically.

#### 5.4. Linear Regression

As the first step of cross-checking, correlation analysis provided a sketchy exploration of decisive determinants of household-related life satisfaction. The results in Table 5 present only the significance and directions of bivariate correlations. Hence, a regression analysis was applied to further cross-check the decisive determinants of household-related life satisfaction. Since both 10-level ordinal categorical dependent variables can be seen as quasi-metric variables, linear regression was the rational regression method. Before the linear regression, the distributions of dependent variables are shown in Chart 1 and Chart 2. In linear regression models, the correlation coefficient Beta demonstrates the specific effect that an independent variable impact on related dependent variable. It shows the degree of change in dependent variable when every 1-unit change in independent variable. The standard deviation demonstrates the distribution degree of independent variable in the regression model. Generally speaking, the smaller value in standard deviation represents the smaller fluctuation of independent variable. *Sig.(P)* in regression model demonstrates the significance level. When  $P > 0.05$  or  $P > 0.01$ , the null assumption is rejected and indicates that relevant independent variable does not impact on dependent variable significantly. In linear regression models, the constant represents a certain intercept of dependent variables when independent variables make 0-unit change. R-square ( $R^2$ ) is usually considered as an important indicator in regression model and indicates the goodness -of-fit of the model. The value of R square shows the portion that the regression model explained of the whole sample. The larger value of R square may indicate the better goodness-of-fit of the regression model.



#### 5.4.1. Linear regression of accommodation factors

With all potential accommodation factors and non-household related covariates included, the result of linear regression for accommodation satisfaction are presented in Table 6. The accommodation factors include 'household size', 'household income level', 'number of rooms', 'types of accommodation', accommodation problems of 'shortage of space', 'rot in windows/doors/floor', 'damp/leaks in walls/roof', 'Lack of indoor flushing toilet', 'Lack of bath/shower', 'lack of balcony/garden/terrace' and 'possibility of being unable to afford one's accommodation'. Independent variables of 'age groups', 'gender', 'self-rated health condition', 'situation of chronic disease', 'situation of physical limitation', 'have you ever had a job', 'last occupation', 'highest education level' and 'survey year' are controlled as covariates. In the model, the constant is 4.270,  $R^2 = 0.169$ , indicates a good fitting degree. Among all of the accommodation related factors, 'household income level', 'types of accommodation', 'shortage of space', 'lack of balcony/garden/terrace' and 'possibility of being unable to afford one's accommodation' are testified as factors that significantly impacted accommodation satisfaction.

As one of the significant factors, household income level (coefficient Beta = 0.122,  $P = 0.003 < 0.01$ ) impacts on accommodation satisfaction positively. The coefficient Beta indicates that every one level increase in household income level consequences 0.122 rise in accommodation satisfaction of older Germans. Similarly, as expected, the possibility that older people may be forced to leave their current accommodation due to being unable to afford such housing was negatively and closely correlated with accommodation satisfaction (coefficient Beta = 0.155,  $P = 0.000 < 0.01$ ); one unit change (decrease in possibility) consequences 0.155 rise in score of accommodation satisfaction. These findings could be summarised as follows: the possibility of leaving one's current accommodation due to being unable to afford such housing negatively correlated with one's accommodation satisfaction. In other words, a higher possibility of being unable to afford one's accommodation resulted in a lower level of

accommodation satisfaction.

Types of accommodation is also a significant factor with a relative low coefficient value (coefficient Beta = -0.088,  $P = 0.043 < 0.05$ ). According to the quantified categories, older Germans who live in their owned accommodation without mortgage tend to be more satisfied than those in other categories of accommodation. Among all six accommodation problems, 'shortage of space' (coefficient Beta = -0.158,  $P = 0.000 < 0.01$ ) and 'lack of balcony/garden/terrace' (coefficient Beta = -0.141,  $P = 0.000 < 0.01$ ) are the only problems that impact older Germans' accommodation satisfaction significantly. According to the categories, older Germans who have shortage in space with their accommodation reports on average 0.158 scores lower in accommodation satisfaction than those who do not have this problem. It was noteworthy that a shortage of space did not apply to the number of rooms, since the variable 'number of rooms' was verified as an insignificant factor for older Germans' accommodation satisfaction. Likewise, compare with those who do not have the problem of lack of balcony/garden/terrace, older Germans who have this problem may reports 0.141 scores lower in accommodation satisfaction.

For older Germans, number of rooms in accommodation is not the decisive impact factor for their accommodation satisfaction. Instead, enough space in accommodation (including the balcony, garden or terrace) is quite significant for them, even more significant than other accommodation conditions.

#### **5.4.2. Linear regression of family life factors**

As the elements for the main part of the household-related life domain, family factors were widely included in the linear regression model in this research. Table 7 presents the significance of the independent variables in the linear regression models. With controlling on all the non-household factors, factors 'household size', 'household

income level', 'number of children', 'marital status', 'FTF contact frequency', 'remote contact frequency', 'support from family when ill', 'support from family when seeking a job', 'support from family when needing advice', 'support from family when feeling depressed', 'support from family when needing financial assistance', 'Frequency of caring for child/grandchild', 'Frequency of caring for elderly/disabled relatives', 'Frequency of housework/cooking', and 'Fair share of housework'. The regression model is shown with a goodness-of-fit (constant = 2.810, R square = 0.168), and explained 16.8% of the whole sample.

As shown in Tables 9, there were only three family life factors being testified as significant factors for family life satisfaction of older Germans. Out of the expectation, support from family when seeking a job negatively impact on family life satisfaction of older Germans significantly with the highest standard coefficient Beta of -0.193 ( $P = 0.014 < 0.05$ ). To give a further elaboration for this result, when older people is facing difficulty in finding a job, who receive support from their family will report 0.193 scores lower than those do not receive support from their family. If older people after retirement have demand in finding a job, they are probably facing a financial difficulty or needing increase in income. That may lower their life satisfaction in some degree. Besides, support from family when needing financial assistance (standard coefficient Beta = 0.165,  $P = 0.014 < 0.05$ ) is another decisive factor and have a positive impact on family life satisfaction of older Germans. When meet financial difficulty, older Germans who receive assistance from their family will report 0.165 scores higher in family life satisfaction than those receive no assistance from family. Moreover, the frequency of caring for elderly or disabled relative has a positive role in affecting the family life satisfaction (standard coefficient Beta = 0.173,  $P = 0.024 < 0.05$ ). On the basis of quantified categories, every one category rise (decrease in frequency) will consequences 0.173 scores increase in family life satisfaction for older Germans.

The variable 'marital status' was testified as an insignificant factor in household-related life satisfaction by linear regression; however, the result of a one-way ANOVA revealed the discrepancies between satisfaction levels in different marital statuses. The mean value of family life satisfaction for older people who were married or living with a partner (8.70) was significantly higher than for other marital statuses, and the mean value of family life satisfaction for older people who were separated or divorced (6.71) was lower than for other marital statuses. In other words, those who were married or living with a partner were associated with a higher household-related life satisfaction level.

Similar to marital status, both FTF contact frequency and remote contact frequency with family members were testified as insignificant factors in the linear regression. When checking the variance between categories through a one-way ANOVA, the results indicated that both were correlated with family life satisfaction to some degree. For FTF contact frequency with family members, the mean value of family life satisfaction in the highest contact frequency (Category 1) was 8.43. This value decreased regularly as contact frequency decreased, earning a mean value of 6.92 for those who had no contact with family members. The same trend appeared in remote contact frequency with family members. Thus, it could be concluded that contact frequency with family members (both FTF and remote) positively impacted the household-related life satisfaction of older Germans to some extent, and a higher frequency of contact may produce a higher level of satisfaction.

### **5.5. The Effects of Covariates**

During the linear regression, eight non-household factors were controlled as covariates. In both models for accommodation and family life satisfaction, the covariates of gender, chronic disease, physical limitations, most recent occupation, highest education level, survey year and whether they ever had a job were testified as insignificant factors. The only two significant non-household factors (age group and self-rated health condition)

are further discussed in this section. Their detailed information was listed in Table 6 and Table 7.

For linear regression of accommodation satisfaction, age group and self-rated health condition were significant covariates. The age of respondents was classified into three groups: Group 1 were those aged 65 to 74, Group 2 were those aged 75 to 84 and Group 3 were those aged 85 and older. In Table 6, the standard coefficient Beta of accommodation satisfaction by age groups was 0.135 ( $P = 0.000 < 0.01$ ). This indicated that every increase in group level (10 additional years of age) resulted in an increase of 0.135 scores for accommodation satisfaction. In other words, older people in higher age groups tended to be more satisfied with their accommodation. The mean scores of accommodation satisfaction among age groups (8.47 for the oldest-old, 8.32 for the mid-old and 8.34 for the young-old) were also supported with this conclusion.

Additionally, self-rated health condition was a significant covariate for older people's accommodation satisfaction, with a standard coefficient Beta of -0.098 ( $P = 0.025 < 0.05$ ). Hence, every one level of deterioration in the self-rated health condition of older people resulted in a decrease of 0.098 scores in accommodation satisfaction. Thus, the self-rated health condition of older people positively related to their accommodation satisfaction. However, the small value of coefficient Beta signified that self-rated health condition seems to be an accommodation satisfaction limited effect.

For family life satisfaction, the result of linear regression indicated no significant correlation with any of the covariates. Combines the significance (Sig.  $P$ ) with standard coefficient Beta, the author found that age group impact on older Germans family life satisfaction in some degree (standard coefficient Beta = 0.156,  $P = 0.054$ ). One can deduce from this result that every group level increase (10 additional years of age) produced 0.156 scores increase in family life satisfaction. It is also verified by the result

of ANOVA on family life satisfaction in age groups; the group 'oldest-old' have obviously lower family life satisfaction (7.72 on average) than the 'mid-old' (7.90) and the 'young-old' (8.11).

## **5.6. Group Discrepancies**

With the guidance of the linear regression, the significant covariates of 'age group', and 'self-rated health condition' are discussed to ascertain discrepancies between groups. A one-way ANOVA was used to analyse whether the variance was significant between age groups, and between older people with different health conditions. In one-way ANOVA,  $p$  represents for the significance of variance of mean, when  $p \leq 0.05$  demonstrates that the variance of mean in this variable is significant. The results are presented in Table 8.

### **5.6.1. Discrepancies between age groups**

The result of the one-way ANOVA on household-related life satisfaction by age group indicated that differences were only regular and significant in family life satisfaction ( $p = 0.049 > 0.05$ ); however, the mean scores of the oldest-old, compared to other age groups, were the highest in accommodation satisfaction (8.47) and the lowest in family life satisfaction (7.72). The reason for the highest accommodation satisfaction for the oldest-old may relate to their stability and adaptability in their current accommodation. Additionally, one explanation for the lowest family life satisfaction in the oldest-old is the increasing risk of health problems throughout the ageing process; another explanation relates to the higher rate of widowhood (over 70%) in the oldest-old and its impact on living standards and feelings.

As presented in Table 8, among all the household-related factors, the discrepancy in age groups was only significant in 'household income level' ( $p = 0.002 < 0.01$ ): the

young-old were significantly higher than the mid-old ( $p = 0.042 < 0.05$ ); the mid-old were significantly higher than the oldest-old ( $p = 0.044 < 0.05$ ) and the variance between the young-old and the oldest-old was also significant ( $p = 0.001$ ). The result of the one-way ANOVA on age groups for dependent variables and all household-related factors revealed that, except for 'household income level', the variance of all household-related factors between different age groups of older people did not produce any other significant effects on their household-related life satisfaction.

### **5.6.2. Discrepancies between older males and older females**

Even though gender was testified as insignificant covariate for both family life satisfaction and accommodation satisfaction, it was included in one-way ANOVA to analyse the potential differences between older males and older females in Germany. As presented in Table 8, the discrepancy between older males and older females occurred in four variables. Initially, the discrepancy was significant in the dependent variable 'family life satisfaction' ( $p = 0.001$ ). This mean score was higher for older males (8.20) than for older females (7.85). Older females tended to be more dissatisfied in their household-related lives than older males. The second discrepancy was in 'household income level'. The mean value of 'household income level' indicated that older females (3.01) have lower household income level than older males (3.23). This discrepancy of 0.22 levels was equal to approximately €325 after conversion.

'Types of accommodation' was another variable with a significant discrepancy between older males and older females ( $p = 0.018$ ). The mean value of this variable for older females was 2.30, which was 0.15 lower than for older males, whose mean value was 2.15. The result of cross-tabulation analysis indicated that older males have the larger proportion (around 3%) in owning an accommodation without mortgage and owning an accommodation with mortgage compare with older females. Besides, 'support from family when seeking a job' was also the variable with significant discrepancy between

older males and older females ( $\rho = 0.015$ ). The proportion of older females who receive support from family was 5.8% higher than it for older males. This result indicated that older females are more dependent on their family members.

### **5.6.3. Discrepancies between self-rated health conditions**

Health conditions are widely used not only in well-being studies but also in interdisciplinary research for their irreplaceable role in impacting individuals' lives. Through a one-way ANOVA, self-rated health condition was found to have significant group discrepancies with six variables in this study. As presented in Table 8, the discrepancy between older people with different health conditions emerged in two dependent variables of household-related life satisfaction ( $\rho = 0.000$  for both family life satisfaction and accommodation satisfaction). Checking the mean value of family life satisfaction in self-rated health condition revealed a decrease in values that followed the deterioration in health condition. The mean value for family life satisfaction in elderly people in 'very bad' health condition (6.90) was 1.60 scores lower than for elderly people in 'very good' health condition (8.56). A similar result was repeated in accommodation satisfaction. A decrease in the mean value of accommodation satisfaction followed the deterioration in health condition. A mean value of 8.74 was expressed by those in 'very good' health condition, which decreased to 7.84 for those in 'very bad' health condition; the variance of 0.80 scores illustrated the significant role of health condition in positively affecting accommodation satisfaction. In other words, a higher level of household-related life satisfaction usually accompanied better health conditions.

'Household income level' was one of the variables with a significant discrepancy between older people in different self-rated health conditions ( $\rho = 0.000$ ). Older people with the best health condition (category 1 as 'very good') have the highest mean value of 3.29. This mean value decreases smoothly to 3.00 (category 5 as 'very bad') along



with the deterioration in health condition. A possible reason may relate to the high medical cost for older people with bad health condition. Meanwhile, their monthly income may also be restricted by the bad health condition. 'Types of accommodation' and 'lack of balcony/garden/terrace' were testified as two variables with significant discrepancies in different self-rated health conditions of older Germans ( $p = 0.001$ ). Compare with those in good health condition, the older people with bad health condition were associated with lower percentage of possessed accommodation and lack of place (such as balcony, garden or terrace) to sit outside. The significance of these two variables may closely connected with the income level of an individual.

'Support from family when needing financial assistance' was testified as another variable with significant discrepancies in self-rated health conditions. However, the discrepancies were not absolute regular. The result of one-way ANOVA indicated that the percentage of older people with bad and very bad health condition tend to be slightly lower in receiving financial support than those with 'fair' or better health conditions.

## 6. Further Discussion

Household-related satisfaction in this research comprises two dependent variables: accommodation satisfaction and family life satisfaction, and the results, to some extent, are in majority meet expectations. First, the theoretical hypothesis (H1) is testified. Through a cross-check of correlation analysis and linear regression, household-related life satisfaction (accommodation satisfaction and family life satisfaction) is confirmed to have a close connection with household-related factors ('number of rooms' and 'marital status', for example) instead of non-household factors ('self-rated health condition', for example). Furthermore, correlation coefficients and the significance of linear regression models verify the validation and advantage of household-related life satisfaction, in comparison with overall life satisfaction and happiness, in measuring household-related factors.

For the second hypothesis (H2), the result of the linear regression indicates that the number of rooms in one's accommodation is insignificant in accommodation satisfaction. This result may have two explanations. Initially, the number of rooms commonly matches the household size. The proportion of households with less than two persons is 97% in the data and over 75% of all German households (Statistisches Bundesamt, 2014). Accommodation with two to four rooms is the situation for the majority of households. The second reason may relate to housework. More rooms create additional housework for older people. Generally, the functionality of accommodation is important not only for the elderly but also for every resident. The second hypothesis indicates that the type of accommodation significantly impacts seniors' household-related life satisfaction. The result of the linear regression and one-way ANOVA both support this hypothesis. The result of the one-way ANOVA indicates, however, that satisfaction with different accommodation types is related to possession of the asset on one hand and to the cost per month or per year on the other. Using the mean value of accommodation satisfaction as a comparison reveals that elderly people

own their accommodation are more satisfied than rent, elderly people who own their accommodation without a mortgage are more satisfied than those who have a mortgage and elderly people who have rent-free accommodation are more satisfied than those who pay rent or a mortgage each term.

This research suggests that other accommodation factors significantly impact satisfaction. One factor is the possibility of being unable to afford one's accommodation, which presents a higher likelihood that elderly people will have to leave their current accommodation, and thus, they report a lower level of accommodation satisfaction. Another accommodation factor which negatively impacts accommodation satisfaction is the lack of a balcony, garden or terrace in the accommodation. Additionally, a lack of space in the accommodation is also a significant factor for household-related life satisfaction.

The third hypothesis assumes that marital status has a close correlation with older people's household-related life satisfaction: those who are married or living with a partner express a higher level of household-related life satisfaction. Marital status was testified as an insignificant factor for household-related life satisfaction by the linear regression, although the result of a one-way ANOVA revealed a significant discrepancy in the satisfaction levels of those with different marital statuses. The mean value of family life satisfaction for older people who were married or living with a partner was significantly higher than for other marital statuses; the mean value of family life satisfaction for older people who were separated or divorced was lower than for other marital statuses. This suggests that the marital status of those who are married or living with a partner, to some degree, is associated with higher household-related life satisfaction, whereas broken relationships (such as divorced and separated) produce a negative impact on household-related life satisfaction. Hence, the third hypothesis (H3) is proved.

Similar to marital status, the frequency of both FTF and remote contact with family members was testified as insignificant in the linear regression. However, the cross-check with a one-way ANOVA indicated that they correlated with family life satisfaction regularly to some degree. Generally, it could be concluded that contact frequency with family members (both FTF and remote) positively impacts the household-related life satisfaction of older Germans to some extent, and a higher contact frequency with family members may produce a relatively higher level of satisfaction. The fourth hypothesis (H4) is proved.

In the linear regression, 'support from family when needing financial assistance' and 'support from family when seeking a job' were the two only variable that significantly impacted family life satisfaction among all variables that relate to difficulties older people encounter in their later lives. However, the cross-check through a one-way ANOVA indicated that support from family in other difficulties was also connected to family life satisfaction. The cross-check with two methods testified the role of family support in affecting older Germans' household-related life satisfaction. Hence, the fifth hypothesis (H5) is proved.

In this study, the results of the linear regression and the one-way ANOVA on frequency of housework both falsified the hypothesis that housework is highly related to household-related life satisfaction in older Germans. There isn't any significant connection between family life satisfaction and the frequency of housework in older Germans. However, the one-way ANOVA on variable 'fair share of housework' indicated, if one more than fair share of housework tends to report much lower family life satisfaction than other two categories ('just about the fair share' and 'less than fair share'). Housework still plays a role in affecting older Germans' household related life satisfaction. Hence, the sixth hypothesis (H6) is partially proved.

Even though variable 'frequency of caring for elderly or disabled relative' was testified as significant factor by the linear regression, a cross-check with one-way ANOVA indicated that the discrepancies were insignificant. Hence, it will not be concluded as significant impact factor for older Germans' household-related life satisfaction. The result contradicts the seventh hypothesis (H7).

The independent variables 'household size', 'household type' and 'number of children' were testified as insignificant in the household-related life satisfaction of older Germans. There are two possible explanations for the insignificance of these factors. One explanation relates to the living arrangements and culture of older generations in Germany; because of these factors, the majority of older people in Germany choose to live apart from their adult children. Therefore, their households are small, and their connection with children and relatives as well as their support (such as caregiving) for children and relatives are limited. The other explanation relates to Germany's well-developed care policies. Measurements of the nation's long-term care policies in a cross-national study (Grages et al., 2021) indicate that the generosity of extra-familial long-term care in Germany is relatively high ('high' for home care services and 'medium to high' for care in nursing homes). Familial long-term care policies in Germany are rated as 'medium to high' in the degree of generosity of public support (cash benefit or care allowance); the degree of generosity for care leave, however, is 'low to medium' (Eggers et al., 2020). With over two decades of development, the family policies toward preschool (age 1 to 6) childcare are generous in Germany. Extra-familial childcare for children aged 1-6 is publicly co-paid and affordable for parents, and it can, to a relatively large extent, meet the needs of parents at different income levels. Furthermore, childcare policies generously offer paid parental leave with job and income protection for parents with children under 3 years of age, and parents can share the leave and combine it with part-time employment (Pfau-Effinger, 2018). Moreover, childcare policies in Germany effectively encourage fathers to participate in

childcare (Eydal, 2005; Eydal & Rostgaard, 2011; Reimer, 2013). Finally, German policies provide childcare services for all children of preschool age and support women in labour market participation as well as a more egalitarian gender division of labour (Pfau-Effinger, 2018).

Well-elaborated German care policies provide various care services for preschool-aged children, the elderly and the disabled. Public and private service providers, professional medical care, informal care, public day care, nursing homes, parental leave, childcare allowances and various other services and allowances offer better options for people with care-receiving needs. Consequently, older people in Germany do not spend significant time or energy in caregiving.

Additionally, the independent variable 'household income' is testified as a significant household-related factor for both indicators (accommodation satisfaction and family life satisfaction) of household-related life satisfaction. Higher levels of household income usually indicate higher levels of satisfaction. Additionally, it is also the determinant for several household-related factors (e.g., 'accommodation type' and 'possibility of being unable to afford one's accommodation').

## 7. Conclusion

Household life becomes increasingly important in older people's daily lives after they retire from the labour market, and later life is simplified from the complex social network and intertwined life domains. Thus, the household-related life domain is more likely to become an integral loop with less disturbance from other life domains. Therefore, it is appropriate to conduct an integrated study to examine the household-related life domain. This dissertation focussed on the life satisfaction of older people in Germany based on their household-related life domain and aimed to find the significant household-related factors which impact older people's household-related life satisfaction. Based on previous studies in well-being and life domains, this research presented a new demarcation of the household-related life domain that features a wider range of factors and better pertinence toward older people than previous studies; moreover, it presented a theoretical hypothesis: compared to overall life satisfaction, household-related life satisfaction is more accurate and more reliable in measuring the satisfaction of older people within the household-related life domain. With a series of statistical analyses, the theoretical hypothesis was well confirmed, and furthermore, provided empirical support for the analysis of household-related factors that followed. The main statistical methods were correlation analysis, linear regression, cross-tabulation analysis and one-way ANOVA.

As defined in this research, the household-related life domain is a comprehensive life domain with two dependent variables and various factors. Therefore, a single statistical method of linear regression was insufficiently effective. A three-method cross-check allowed the conclusion to be more elaborate.

Household income level; types of accommodation; lack of a balcony, garden or terrace in one's accommodation; a shortage of space in one's accommodation; the possibility

of being unable to afford one's accommodation; support from family members when needing financial assistance; support from family members when seeking a job; fair share of housework were testified as significant factors that affect older Germans' household-related life satisfaction. Moreover, marital status, contact frequency (both FTF and remote) with family members, support from family members (when ill, needing advice or depressed) were also verified to connect with household-related life satisfaction to some extent.

Among the household-related factors, household size, household type, number of children, number of rooms, caring for child or grandchild, and four of the six problems in the state of one's housing were testified as insignificant factors in the household-related life satisfaction of older people in Germany. Household size, household type and number of rooms were closely correlated with each other. A smaller household size usually represents a household type with simple relationships and a smaller number of rooms in one's accommodation. The insignificance of these factors may have been affected by living arrangements, cultural values and habits. Smaller size, fewer generations in the household and autonomy are typical for German families, especially older German families. The insignificance of providing care (for child or grandchild as well as for elderly or disabled relatives) and number of children may have been because of Germany's well-developed care policies (Woods, 2014). Older people and their adult children are less involved in providing informal care. The explanation for the insignificance of the majority of problems in the state of one's housing may be related to the adaptation theory (Lyubomirsky, 2010), which means that older Germans with these problems in the state of their housing are, to some degree, adapting to their current accommodation situation.

Compared with other age groups, the oldest-old (people aged 85 and over) responded with the highest score in accommodation satisfaction (8.47) and the lowest in family life satisfaction (7.72). According to previous studies, there are several possible



explanations for the low household-related life satisfaction of the oldest-old. The first explanation relates to the high possibility of the loss of one's spouse. This causes a lower life satisfaction due to the negative impact on subjective feelings and the reduction in household income (Walsh, 2016). Another explanation is related to the poorer health conditions and the higher dependency of the oldest-old in comparison with younger age groups (Kutubaeva, 2019; Liu & Upenieks, 2020). Furthermore, the oldest-old may experience more loss of family members and friends and are facing their own end of life. The majority of this group tend to be stressed and mournful over their losses and their own situation (Cornwell et al., 2008; Walsh, 2016). The discrepancies in self-rated health conditions were significant and led to extra effects on household-related life satisfaction and household income of older Germans. The discrepancies between males and females significantly affected household-related life satisfaction. Additionally, discrepancies between males and females were significant in housework. Housework and care work may be influenced by many complex factors, such as cultural values, family models, gender division in a family, and labour market participation. The characteristics of housework restrict it to being completed within the family. The redistribution of housework and care work has improved gender equality to some degree, although females remain the main providers (Pfau-Effinger, 2010). Gender inequality inside the household is the main reason that lowers women's household-related life satisfaction.

Although the main research question and its derived hypotheses were testified through multiple quantitative research methods, there are still limitations and deficiencies in this dissertation. First, one of the deficiencies relates to the possibility of generalising the findings beyond the borders of Germany. The difference in generosity of pension policies and long-term care policies in other countries may shape later life differently. Then, there is also a deficiency relates to the statistical analysis, which is still at the basic level and not sufficient for an in-depth study on complicated impact factors. Moreover, cultural values in different countries and different regions may result in

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diversity in personal choices. Second, another limitation relates to the uniqueness of the database. Due to the uniformity of independent variables, all the samples were collected from one survey series, which limits the database to relatively low diversity. Additionally, personal experiences and feelings are complex for researchers to measure.

Regarding deficiencies in this research, future research should focus on specific groups of older people with different marital statuses, different job experiences and different economic statuses, especially older women who live alone or in physical dependency, as their vulnerability in material, physical and psychological factors may seriously impact their later lives. A series of further research will be carry out in my future work to ameliorate the deficiencies in this topic on the basis of this dissertation.

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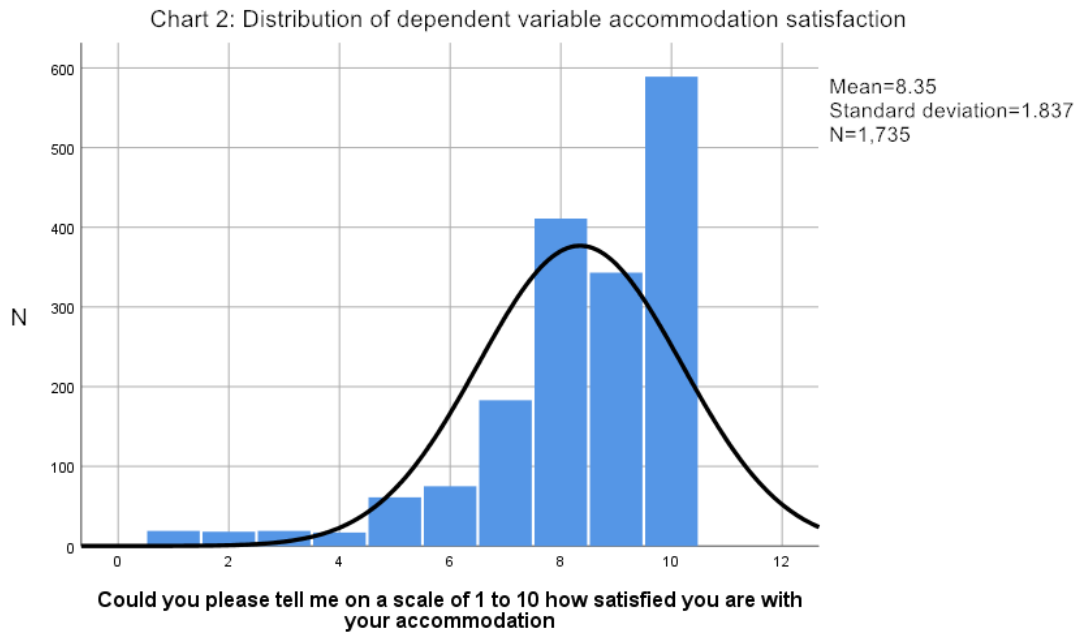
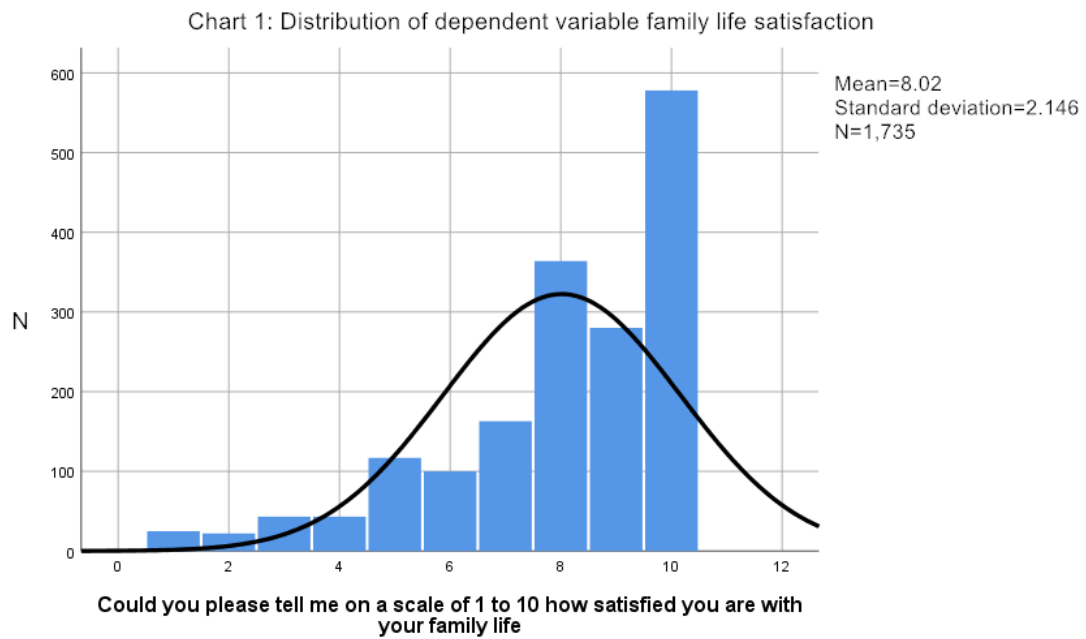
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## Appendix 4:



**Table 1:** Descriptive statistics on variables of household-related life satisfaction in older Germans (aged 65 and over)

Variables	Mean	Standard Deviation	Range	N
<i>Dependent variables</i>				
overall life satisfaction	7.49	2.096	1-10	1,733
family life satisfaction	8.02	2.146	1-10	1735
accom satisfaction	8.35	1.837	1-10	1735
happiness	7.37	1.874	1-10	1,723
<i>Independent variables</i>				
household size	1.62	0.578	1-5	1,735
household income in level	3.12	0.783	1-5	1,372
number of children	2.08	1.164	0-4	1,726
number of rooms	3.27	1.073	1-5	1,708
accom <sup>1</sup> shortage of space	0.04	0.196	0-1	1,733
accom rot in windows/doors/floors	0.02	0.133	0-1	1,733
accom damp/leak in walls/roof	0.04	0.187	0-1	1,730
accom lack of indoor flushing toilet	0.01	0.117	0-1	1,734
accom lack of bath/shower	0.01	0.109	0-1	1,735
accom lack of balcony/garden/terrace	0.08	0.266	0-1	1,735
possibility of being unable to afford one's accom	3.91	0.375	1-4	1,728
FTF <sup>2</sup> contact frequency with family members	2.26	1.121	1-5	1,733
remote contact frequency with family members	2.14	1.055	1-5	1,732
support from family when ill	0.76	0.425	0-1	1,723
support from family when needing advice	0.76	0.429	0-1	1,719
support from family when seeking a job	0.24	0.429	0-1	1,279
support from family when feeling depressed	0.69	0.464	0-1	1,714
support from family when needing financial assistance	0.68	0.467	0-1	1,692
frequency of caring for children/grandchildren	4.36	1.082	1-5	1,636
frequency of caring for elderly/disabled relatives	4.72	0.909	1-5	1,693
frequency of housework/cooking	1.74	1.254	1-5	1,709
fair share of housework	2.10	0.466	1-3	808
<i>Covariates (non-household related variables)</i>				
age	73.56	6.308	65-95	1,735
age groups	1.45	0.620	1-3	1,735
self-rated health condition	2.71	0.862	1-5	1,733
situation of chronic disease	0.50	0.500	0-1	1,722
situation of physical limitation in daily activity	1.95	0.579	1-3	860
do you ever had a job	0.95	0.208	0-1	1,724
highest education level	2.75	0.817	1-5	1,733

Source of data: pooled from database of three waves (2007, 2012 and 2016) European Quality of Life Survey (UK data service).

Note: the data is not design-weighted; 1. "accom" is short for accommodation; 2. "FTF" is short for "face-to-face".

**Table 2:** Descriptive statistics on nominal categorical variables

Variable	Description	N
<b>Household-Related Independent Variables</b>		
Household types	1. one-person household (41.9%); 2. couple-only household (54.1%); 3. couple residing with children (1.8%); 4. single-parent household (residing with children) (1.2%); 5. residing with parents (0.1%); 6. three or more generations (0.3%); 7. skip-generation household (0.2%); 8. residing with other relatives (0.2%); 9. residing with non-relatives (0.1%)	1,732
Types of accom <sup>1</sup>	1. own without mortgage (47.8%); 2. own with mortgage (5.1%); 3. tenant, paying rent to private landlord (25.4%); 4. tenant, paying rent to social/municipal/non-profit housing provider (18.3%); 5. accommodation provide rent free/other (2.9%)	1,725
Marital status	1. married or living with partner (55.0%); 2. separated or divorced and not living with partner (6.6%); 3. widowed and not living with partner (34.6%); 4. single or never married and not living with partner (3.6%)	1,733
<b>Non-Household Variables (Covariate)</b>		
Last occupation	<b>1. management worker</b> (owner/manager of hotel/bank/restaurant, managing director, senior government official) (7.3%); <b>2. professional worker</b> (scientist/professor/teacher, doctor/psychologist, lawyer/judge, engineer/architect/IT specialist, artist, journalist) (11.1%); <b>3. technician, junior professional worker</b> (19.9%); <b>4. clerical support worker</b> (secretary, telephone operator, accountant, reception, mailmen) (16.5%); <b>5. service worker</b> (train attendants, cook, waiter, hairdresser, driver, funeral, driving instructor, janitor, health care assistant, firefighter, police officer, guard) (8.0%); <b>6. sales worker</b> (shop owners, shop assistants, sellers, cashier) (6.2%); <b>7. skilled agricultural forestry and fishery worker</b> (farmer, fisherman, gardener) (2.5%); <b>8. craft and related trade worker</b> (masons, carpenters, electricians, plumbers, painter, welder, blacksmith, tool maker, mechanic, printer, repairer, instrument builder, tailor, baker, butchers, furniture makers) (7.4%); <b>9. plant/machine operator/assembler</b> (7.0%); <b>10. unskilled worker</b> (cleaning staff, construction workers, factory assistant, kitchen assistant, street sweeper, counter-reader, waste sorter) (9.2%); <b>11. armed forces occupation</b> (0.1%).	1,656
Survey year	1. the survey year 2007; 2. the survey year 2012; 3. the survey year 2016	1,735

Source of data: pooled from database of three waves (2007, 2012 and 2016) European Quality of Life Survey (UK data service).

Note: the data is not design-weighted; 1. "accom" is short for accommodation.

Table 3: Result of correlation analysis on life satisfaction measurements and factors from different life domains (coefficient-tau with sig.p)

Life satisfaction measurements	Marital status	Number of rooms	Self-rated health condition
Overall life satisfaction	-.081** (.000)	.080** (.000)	-.218** (.000)
Household-related life satisfaction	Family life satisfaction	.106** (.000)	-.122** (.000)
	Accommodation satisfaction	.145** (.000)	-.128** (.000)
Happiness	-.191** (.000)	.086** (.000)	-.219** (.000)

Source of data: pooled from database of three waves (2007, 2012 and 2016) European Quality of Life Survey (UK data service); N = 1,696.

Note: the significances of correlation analysis are shown in parentheses; \*\*indicates correlation coefficient  $\tau$  is significant at  $p \leq 0.01$ , \* $p \leq 0.05$ .

Table 4: Result of linear regression on life satisfaction measurements and factors from different life domains.

	Life satisfaction indicators	Constant	Standard coefficient Beta	R square	Sig
Marital status	Overall life satisfaction	7.844	-.091	.008	.000
	Happiness	8.068	-.201	.041	.000
	Family life satisfaction	9.248	-.311	.097	.000
	Accommodation satisfaction	8.539	.003	-.056	.019
Number of rooms	Overall life satisfaction	7.142	.067	.005	.005
	Happiness	7.125	.054	.003	.026
	Family life satisfaction	7.545	.091	.008	.000
	Accommodation satisfaction	7.765	.130	.017	.000
Self-related health condition	Overall life satisfaction	8.992	-.228	.052	.000
	Happiness	8.903	-.260	.067	.000
	Family life satisfaction	9.044	-.152	.023	.000
	Accommodation satisfaction	9.030	-.118	.014	.000

Source of data: pooled from database of three waves (2007, 2012 and 2016) European Quality of Life Survey (UK data service); N = 1,696.  
 Note: the data is not design-weighted.

**Table 5:** Result of correlation analysis on household-related life satisfaction (accommodation satisfaction and family life satisfaction) and influential factors, coefficient Kendall-tau with significance

<i>Accom<sup>1</sup> Factors</i>	<b>Accom Satisfaction</b>	<b>Family Life Satisfaction</b>	<i>Family Life Factors</i>
Number of rooms	.145**(.000)	.211**(.000)	Household size
Type of accom	-.148**(.000)	.283**(.000)	Household types
Shortage of space	-.128**(.000)	-.283**(.000)	Marital status
Rot in windows/doors/floor	-.089**(.000)	.047' (.018)	Number of children
Damp/leak in walls/roof	-.073**(.000)	.182**(.000)	Support from family when ill
Lack of indoor flushing toilet	.022 (.601)	.143**(.000)	Support from family when needing advice for family issue
Lack of bath/shower	-.001 (.731)	-.008 (.799)	Support from family when seeking a job
Lack of balcony/garden/terrace	-.116**(.000)	.172**(.000)	Support from family when feeling depressed
possibility of being unable to afford one's accom	.119**(.000)	.091**(.000)	Support from family when needing financial assistance
Household size	.055* (.019)	-.140**(.000)	FTF <sup>2</sup> contact frequency with family members
Household income level	.157**(.000)	-.117**(.000)	Remote contact frequency with family members
<b>Accom Satisfaction</b>	<b>Non-Household Factors</b>	<b>Family Life Satisfaction</b>	
.016 (.451)	Age group	-.046* (.028)	.156**(.000) Household income level
-.031 (.146)	Gender	-.090**(.000)	.092**(.004) Fair share of housework
-.128**(.000)	Self-rate health condition	-.122**(.000)	-.066**(.001) Caring for child/grandchild (frequency)
-.065**(.003)	Chronic disease	-.055* (.011)	.026 (.229) Caring for elderly/disabled (frequency)
.066* (.025)	Limitation in daily life	.105**(.000)	.030 (.138) Housework/cooking (frequency)
.041 (.058)	Have you ever had a job	.065**(.002)	
-.068**(.000)	Last occupation	-.059**(.002)	
.076**(.000)	Highest education level	.062**(.002)	
-.027 (.193)	Survey year	-.051* (.012)	

Source of data: pooled from database of three waves (2007, 2012 and 2016) European Quality of Life Survey (UK data service); 808 ≤ N ≤ 1,735.

Note: the data is not design-weighted; 1. "accom" is short for accommodation; 2. "FTF" is short for "face-to-face"; The significances of correlation analysis are shown in parentheses, \*\*indicates correlation coefficient  $\tau$  is significant at  $p \leq 0.01$ , \* $p \leq 0.05$ .



Table 6: Result of linear regression on accommodation satisfaction and impact factors

Variables	Standard coefficient Beta	Standard deviation	Sig. (P)
Household size	.038	.134	.360
Household income level	.122**	.105	.003
Number of rooms	.031	.078	.499
Types of accom <sup>1</sup>	-.088*	.060	.043
Shortage of space	-.158**	.347	.000
Rot in windows/doors/floor	.020	.460	.608
Damp/leaks in walls/roof	-.055	.348	.157
Lack of indoor flushing toilet	.107	1.755	.278
Lack of bath/shower	-.012	1.866	.902
Lack of balcony/garden/terrace	-.141**	.257	.000
Possibility of being unable to afford one's accom	.155**	.185	.000
<b>Control variables (covariate)</b>			
Age groups	.135**	.110	.000
Gender	.057	.146	.156
Self-rated health condition	-.098*	.103	.025
Situation of chronic disease	-	-	-
Situation of physical limitation	-.034	.140	.444
Have you ever had a job	.005	.993	.891
Last occupation	.007	.028	.870
Highest education level	.026	.092	.545
Survey year	-.031	.107	.411
Constant		4.270	
R square (R <sup>2</sup> )		.169	

Source of data: pooled from database of three waves (2007, 2012 and 2016) European Quality of Life Survey (UK data service); N = 651.

Note: the data is not design-weighted; 1. "accom" is short for accommodation; \*\*indicates standard coefficient Beta is significant at  $P \leq 0.01$ , \* $P \leq 0.05$ ;

Table 7: Result of linear regression on family life satisfaction and impact factors

Variables	Standard coefficient Beta	Standard deviation	Sig. (P)
Household size	.084	.305	.321
Household income level	.137	.203	.080
Number of children	.060	.140	.503
Marital status	-.010	.410	.892
FTF <sup>1</sup> contact frequency with family members	-.078	.141	.381
Remote contact frequency with family members	.022	.144	.785
Support from family when ill	.061	.537	.474
Support from family when needing advice	-.050	.434	.565
Support from family when seeking a job	-.193*	.332	.014
Support from family when feeling depressed	.089	.371	.322
Support from family when needing financial assistance	.165*	.339	.051
Frequency of caring for child/grandchild	.009	.123	.910
Frequency of caring for elderly/disabled relatives	.173*	.141	.024
Frequency of housework/cooking	-.088	.109	.299
Fair share of housework	.127	.285	.111
<b>Control variables (covariate)</b>			
Age groups	.156	.273	.054
Gender	.092	.309	.284
Self-rated health condition	-.019	.192	.824
Situation of physical limitation	.126	.261	.154
Have you ever had a job	-.024	1.281	.747
Last occupation	.035	.054	.693
Highest education level	-.083	.180	.333
Survey year	.025	.352	.801
Constant		2.810	
R square		.168	

Source of data: pooled from database of three waves (2007, 2012 and 2016) European Quality of Life Survey (UK data service); N = 424.

Note: the data is not design-weighted; 1. "FTF" is short for "face-to-face"; \*\*indicates standard coefficient Beta is significant at  $P \leq 0.01$ , \* $P \leq 0.05$ ;

**Table 8:** The significance ( $\rho$ ) of one-way ANOVA of group discrepancies (age groups, gender and self-rate health conditions) in significant factors

Variables	Groups	Age group	Gender	Self-rate health condition
Family life satisfaction		.049*	.001**	.000**
Accommodation satisfaction		.720	.187	.000**
Household income level		.002**	.000**	.000**
Types of accommodation		.468	.018*	.001**
Shortage of space in accommodation		.651	.805	.926
Lack of balcony/garden/terrace		.205	.513	.033*
Possibility of being unable to afford one's accommodation		.514	.281	.073
Support from family when needing financial assistance		.988	.195	.047*
Support from family when seeking a job		.682	.015*	.926
Frequency of caring for elderly/disabled relatives		.367	.887	.267
Self-rate health condition		.000**	.039*	-

Source of data: pooled from database of three waves (2007, 2012 and 2016) European Quality of Life Survey (UK data service); N = 1,279.

Note: the data is not design-weighted; all the homogeneity of variance test were passed at  $P > 0.05$ ; \*\*indicates the discrepancy in groups is significant at  $\rho \leq 0.01$ , \* $\rho \leq 0.05$ ;