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**Work-family combinations and depression at older age:
A gendered life course perspective**

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Abstract

Depression at older age is a great public health challenge and distributed unequally between genders. It can result from chronic stressors earlier in the life course, which often occur in the work or family domain. On one hand, combining competing responsibilities from multiple social roles in early adulthood can cause stressful role conflicts, which increase the risk for depression. On the other hand, paid work and family networks provide access to important psychosocial and financial resources, which are protective against later depression. Most work-family research stems from cross-sectional studies but new insights from life course epidemiology suggest that it is not sufficient to look at risk factors from one point in time. The original research presented in this dissertation aims to understand the relationship between work-family trajectories in adulthood and depression at older age and to analyse whether this relationship is moderated by partner's employment situation and labour market context. For this purpose, data was retrieved from retrospective life history interviews in three different studies on ageing: the German Heinz-Nixdorf-Recall (HNR) study, the Survey of Health, Ageing and Retirement in Europe (SHARE), and the English Longitudinal Study on Ageing (ELSA). Similar work-family trajectories were grouped together with the help of sequence and cluster analysis for later regression analysis on depressive symptoms. In the second study, additional interaction analyses were performed to evaluate the role of partner's employment situation. In a final study, the link between work-family trajectories and depression was compared between different labour market contexts. Specifically, interactions between trajectories and national female employment rates were calculated. The results show that combining paid work and parenthood does not benefit mental health of older European men and women equally. For men, episodes of non-employment were only associated with increased depression when their partner was also in irregular employment, which can possibly be explained by decreased shared financial resources. For women, labour market context was more important than household context and combining multiple roles was mainly linked to decreased depressive symptoms in countries with higher female employment rates. The findings underline that individuals' life courses are interrelated and suggests that a supportive social context can help to reduce mental health inequalities at older age.

Zusammenfassung

Depressionen im Alter stellen eine große Herausforderung für die öffentliche Gesundheit dar und sind ungleich zwischen den Geschlechtern verteilt. Sie können aus chronischen Stressoren im früheren Verlauf des Lebens resultieren, die häufig im beruflichen oder familiären Bereich auftreten. Einerseits kann die Kombination konkurrierender Verpflichtungen mehreren sozialen Rollen im frühen Erwachsenenalter zu Stress durch Rollenkonflikte führen, die das Risiko für eine spätere Depression erhöhen. Andererseits bieten bezahlte Arbeit und Familiennetzwerke einen Zugang zu wichtigen psychosozialen und finanziellen Ressourcen, die vor Depressionen schützen. Die meiste bisherige Forschung zu Rollenkonflikten stammt aus Querschnittsstudien, aber neue Erkenntnisse aus der Lebenslaufepidemiologie legen nahe, dass es nicht ausreicht, Risikofaktoren nur zu einem bestimmten Zeitpunkt zu betrachten. Die in dieser Dissertation vorgestellten Forschungsarbeiten zielen darauf ab, den Zusammenhang zwischen geschlechtsspezifischen Berufs- und Familienverläufen im frühen Erwachsenenalter und Depressionen im höheren Alter zu verstehen, und zu analysieren, ob die Erwerbssituation des Partners und der Arbeitsmarktkontext diesen Zusammenhang moderieren. Hierzu wurden retrospektive Lebenslauf-Daten aus drei verschiedenen Altersstudien betrachtet (HNR, SHARE und ELSA) und ähnliche Verläufe mit Hilfe von Sequenz- und Clusteranalysen gruppiert. Im Anschluss wurde mit Regressionsanalysen der Zusammenhang mit depressiven Symptomen im Alter untersucht. In der zweiten Studie wurden zusätzliche Interaktionsanalysen durchgeführt, um die Rolle der Erwerbssituation des Partners/der Partnerin zu evaluieren. Analog wurden in einer dritten Studie verschiedene Arbeitsmarktkontexte verglichen und Interaktionen zwischen Erwerbsverläufen und der nationalen Erwerbsquote von Frauen berechnet. Die Ergebnisse zeigen geschlechtsspezifische Zusammenhänge: Bei Männern waren Phasen der Nichterwerbstätigkeit vor allem dann mit einer verstärkten Depression assoziiert, wenn ihre Partnerin auch irregulär beschäftigt war, was möglicherweise durch verringerte finanzielle Mittel erklärt werden kann. Für Frauen war der Arbeitsmarktkontext wichtiger als der Haushaltskontext, und die Kombination mehrerer Rollen war vor allem in Ländern mit einer höheren Erwerbsquote mit weniger depressiven Symptomen im Alter assoziiert. Die Ergebnisse unterstreichen, dass die Lebensläufe von Individuen miteinander verbunden sind und legen nahe, dass ein unterstützendes soziales Umfeld dazu beitragen kann, Ungleichheiten bei Depression im Alter zu verringern.

List of Abbreviations

APA	American Psychiatric Association
BDI	Beck's Depression Inventory
CAPI	Computer-Assisted Personal Interviews
CES-D	Center for Epidemiological Studies Depression (Scale)
DALY	Disability Adjusted Life Years
DSM	Diagnostic and Statistical Manual of Mental Disorders
ELSA	English Longitudinal Study of Ageing
EURO-D	European Depression (Scale)
g2aging	Gateway to Global Aging (Data)
GSOEP	German Socio-Economic Panel
HAM-D	Hamilton Depression (Scale)
HNR	Heinz-Nixdorf-Recall (Study)
HPA	Hypothalamic-Pituitary-Adrenal (Axis)
ILO	International Labour Organization
MDD	Major Depressive Disorder
PHQ	Patient Health Questionnaire
SEP	Socio-Economic Position
SHARE	Survey of Health, Ageing and Retirement in Europe
SSRI	Selective Serotonin Reuptake Inhibitors
TCA	Tricyclic Antidepressants
WHO	World Health Organization

Table of Contents

1	Introduction	1
1.1	Outline.....	1
1.2	Depression at older age	3
1.2.1	Definition and classification.....	3
1.2.2	Epidemiology	4
1.2.3	Course of disease.....	5
1.2.4	Aetiology.....	6
1.2.5	Summary.....	9
1.3	Theoretical considerations	10
1.3.1	Role theories.....	10
1.3.2	Life course perspective.....	12
1.3.3	Gendered experiences.....	16
1.3.4	Social context	18
1.3.5	Summary.....	21
1.4	Aims	22
1.5	Ethical clearance	23
2	Methods	24
2.1	Data basis	24
2.1.1	Heinz Nixdorf Recall Study (HNR)	24
2.1.2	Survey of Health, Ageing and Retirement in Europe (SHARE).....	24
2.1.3	English Longitudinal Study of Ageing (ELSA).....	25
2.1.4	Gateway to Global Aging Data (g2aging).....	25
2.2	Measurements	26
2.3	Analytical strategy	28
3	Results (Published Original Articles)	29
3.1	Gendered work-family trajectories and depression at older age. Engels, M., Weyers, S., Moebus, S., Jöckel, K.-H., Erbel, R., Pesch, B., Behrens, T., Dragano, N., Wahrendorf, M., <i>Aging & Mental Health</i> , 23(11): 1478-1486. (2019).....	29
3.2	Linked work lives: The interrelation of own and partner’s employment history and their relationship with mental health in older European couples. Engels, M., de Moortel, D., Weyers, S., Dragano, N., Wahrendorf, M., <i>Archives of Gerontology and Geriatrics</i> , 89: 104092. (2020)	30
3.3	Multiple social roles in early adulthood and later mental health in different labour market contexts. Engels, M., Wahrendorf, M., Dragano, N., McMunn, A., Deindl, C., <i>Advances in life course research</i> , 50: 100432. (2021)	31

4	Discussion	32
4.1	Summary of results	32
4.2	Integration of findings.....	35
4.3	Methodological considerations	39
4.4	Implications.....	44
4.5	Directions for future research.....	48
4.6	Conclusion.....	51
5	Reference List	52

List of Tables

Table 1	Summary of published original research	23
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1 Introduction

1.1 Outline

According to the World Health Organization (WHO), depressive disorders are the third-leading cause of disability worldwide and a “major contributor to the overall global burden of disease” (WHO, 2021). Depression at older age often remains undetected and untreated for a long time, which worsens its outcomes in terms of quality of life and mortality (Fiske et al., 2009). Around the world, women show higher rates of depressive symptoms than men (Salk et al., 2017; van de Velde et al., 2010), making it one of the most persistent health inequalities between genders.

The aetiology of depression at older age is complex but the importance of social roles for mental health has been highlighted by a growing body of research (Piccinelli & Wilkinson, 2000; Sachs-Ericsson & Ciarlo, 2000). Stressful experiences in the work and family domain are among the main psychosocial risk factors for depression (Epel et al., 2018). Repeated studies have shown that stable employment can be protective for mental health (Harvey et al., 2017), but at the same, combining work and family responsibilities can also cause role conflicts, which in turn increase the risk for depression (Borgmann et al., 2019). Previous studies on the effects of role conflicts on mental health have mostly focused on snapshots of work-family combinations from one point in time but the relationship between multiple social roles and depression is dynamic and changes, for example, as children get older (Leupp, 2017). Life course epidemiology provides a more holistic (developmental) frame and regards whole patterns of previous employment and parenthood situation over time. These patterns of combining social roles over the life course are called work-family trajectories (Aassve et al., 2007).

Individual work-family trajectories are gender-specific and always embedded within different social contexts: In the immediate environment, couples’ life courses are intertwined and partners often make shared decisions about the division of paid work (Jayawarna et al., 2020; Killewald & García-Manglano, 2016) but so far, life course studies have ignored the role of partner’s employment trajectories. In the wider social environment, work-family trajectories are affected by current family policies and cultural norms (Zagel & van Winkle, 2020). Despite cross-sectional studies that show disparities in levels of work-family conflict between countries (Notten et al., 2017), there are no

longitudinal studies that test whether macro level context moderates the link between work-family trajectories and depression at older age.

In view of these research gaps, my dissertation aims to contribute to a better understanding of the interrelation between combined social roles over the life course and later mental health. Focusing on the most meaningful years in career building and family formation, I will analyse the links between work-family trajectories in early adulthood and depression at older age. Then, I test if these associations differ according to social context at household and country level. Specifically, I explore if the relation is moderated by partner's employment trajectory and national female employment rate. The overall goal of this research is to extend the theoretical knowledge of the contribution of social roles in the development of depressive symptoms at older age. In our rapidly ageing population, it is important to understand the circumstances under which combining employment and family can contribute to better mental health at older age.

In the remaining sections of the introduction, I will first describe the outcome variable, depression at older age, and its most common risk factors (Section 1.2). Then I will explore how role theories and life course epidemiology explain the links between work-family combinations and depression (Section 1.3). The research questions of this dissertation are presented in Section 1.4. The methods (Section 2) briefly describe the datasets and measurements of the studies on ageing used for the three longitudinal studies presented in the original research articles (Section 3). Finally, in the discussion (Section 4), I will integrate the findings into the current research landscape and explain how the results can help to improve diagnosis and treatment.

1.2 Depression at older age

Before I present the theoretical framework for this dissertation, I want to give a brief overview of what is known about the main outcome of my research: depression at older age. This section will define depressive disorders, describe their epidemiology and explore the most important risk factors associated with depression at older age.

1.2.1 Definition and classification

The American Psychiatric Association (APA) distinguishes between several types of unipolar depressive disorders, including major depressive disorder, dysthymic disorder, substance-induced depressive disorder and mood disorder due to a general medical condition (Fifth Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5); APA, 2013). All of these disorders are referred to as “depression” and characterised by a presence of depressive symptoms but they differ in their intensity, duration, timing and aetiology.

A number of different affective, cognitive, physical and behavioural symptoms can accompany depression. Core symptoms are (1) depressed or irritable mood and (2) loss of interest or pleasure. Accompanying symptoms can be significant changes in (I) appetite and weight, (II) sleeping patterns, (III) psychomotor speed, or (IV) loss of energy, (V) strong feelings of worthlessness or guilt, (VI) inability to concentrate or make decisions, and (VII) recurrent thoughts of death or suicide (APA, 2013). According to the DSM-5, a “major depressive episode” occurs when a) five or more depressive symptoms have been present for a 2-week period (with at least one core symptom), b) the symptoms reflect a change from the individual’s previous state and affects his/her ability to function, and c) the symptoms are not attributable to substances or other medical conditions. In order to be diagnosed as major depressive disorder (MDD), one or more major depressive episodes must occur independently from any psychotic disorders or disorders on the schizophrenic spectrum. When major depressive episodes are preceded by at least one manic episode, they indicate bipolar mood disorders which are classified separately from unipolar depressive disorders (APA, 2013).

If less than five depressive symptoms occur at any given time but persist over a longer period, this is called “dysthymia”. The experience of depressive symptoms without a diagnosis for a depressive disorder is sometimes called “minor depression” or “subsyndromal depression” and can also be clinically relevant. Some researchers describe depression on a spectrum, where even mild symptoms should be treated as a concern for

public mental health (Judd et al., 2002). Going forward in this dissertation, I will analyse the presence of depressive symptoms as an indicator of (major or minor) depressive episodes.

1.2.2 Epidemiology

The general lifetime prevalence of depressive disorders ranges between 10% and 30%, depending on the region and method of assessment (Andreas et al., 2017; Kessler et al., 2012; Lim et al., 2018). In Germany, 8.1% of the adult population (9.7% of women and 6.3% of men) reported being diagnosed with a depressive disorder during the past twelve months (Thom et al., 2017). The twelve-month prevalence is highest in mid-life with 11.8% of women and 8.5% of men aged 45 to 65 reporting a diagnosed depression. Of those aged 65 and older, 8% of women and 5% of men reported a diagnosis. Depression is one of the main reasons for sickness absence and early retirement in Germany (Wedegaertner et al., 2013). Contrary to developments in the younger population, prevalence of depression at older age has remained rather stable over the past decades (Bretschneider et al., 2018; Haigh et al., 2018).

Depression at older age, also called “late life depression” (Fiske et al., 2009), differs from depression earlier in the lifespan. It is associated with more comorbidities and an accelerated decline in cognitive, physical and social functioning. Interestingly, while the prevalence of diagnosed depression in the general population is slightly lower among older adults (>65 years old) compared to those in mid-life, the prevalence of minor depression and depressive symptoms is higher in the older age group with up to 50% (Haigh et al., 2018). Older people are more likely to report physical symptoms such as sleep disturbances, fatigue or psychomotor retardation but less likely to report cognitive-affective symptoms, such as dysphoria, which are often necessary for a clinical diagnosis (Rodda et al., 2011). Yet, even subsyndromal depression increases health-care costs for older adults significantly compared to non-depressed older persons (Ludvigsson et al., 2018).

Older women’s depression rates are about twice as high as older men’s rates across most countries (Horackova et al., 2019). Depression at older age is also distributed very heterogeneously according to individuals’ socio-economic position (SEP), with a strong social gradient. Older women in the lowest education group are twice as likely to suffer from depression as those in the highest education group (10.1% vs. 5.3%) and older men with lower education are also more likely to report a diagnosis of depression than those

with higher education (5.6% vs. 4.2 %) (Thom et al., 2017). Furthermore, there are strong regional differences: Within Germany, twelve-month prevalence of depression in West Germany is about twice as high as in former East Germany. This partly relates to an urban-rural divide in the availability of psychiatric health care, with higher rates of diagnosed depression in cities and lower rates in more rural areas with fewer doctors (Melchior et al., 2014). A recent longitudinal study mapped depressive symptoms over 13 years in older adults from the urban Ruhrgebiet in West Germany and almost 20% of respondents showed high depressive symptoms at some point (Engel et al., 2020). There are also differences between countries, with a prevalence of late-life depression two to three times higher in Eastern Europe than in Scandinavia (Hansen et al., 2017; Horackova et al., 2019). Across Europe, point prevalence for depressive symptoms among the over 65-year-olds ranges from 5% to 18%, Germany being somewhat below average with 7% prevalence (Hapke et al., 2019). Reasons for this range include differences in availability of healthcare, economic situation as well as attitudes towards mental disorders in elderly people (Andreas et al., 2017).

1.2.3 Course of disease

Depressive disorders often have a remitting and relapsing course of disease with large variations in the age of first onset (Beesdo-Baum & Wittchen, 2011). Most patients develop depressive symptoms for the first time during adolescence or young adulthood (Kessler & Bromet, 2013) but first onset at older age is not uncommon. About half of older patients with depression have experienced episodes of mental illness earlier in their life, whereas the other half have first encountered depressive symptoms in old age (Fiske et al., 2009). The latter phenomenon is called late-onset depression. The average duration of depressive episodes in older people is around 21 weeks, compared to about 10 weeks in young adults (Beesdo-Baum & Wittchen, 2011). Older adults are also more likely to experience recurring depressive symptoms (Haigh et al., 2018).

There are effective treatments for depressive disorders: The two main types of treatment are psychotherapy and psychotropic medication. Most common forms of psychotherapy are psychodynamic therapy and cognitive behaviour therapy (Beesdo-Baum & Wittchen, 2011). Newer approaches include behavioural activation, interpersonal psychotherapy and acceptance and commitment therapy. A meta-review by Cuijpers et al. (2014) found cognitive behavioural therapy and problem-solving therapy most effective for older adults. For severe cases of depression, antidepressant medication,

such as selective serotonin reuptake inhibitors (SSRI) and tricyclic antidepressants (TCA), can be prescribed (Haupt et al., 2017). For mild and moderate forms of depression, evidence for the effectiveness of antidepressant medication is still inconsistent (Munkholm et al., 2019). Psychotropic medication tends to have a high number of side-effects, which should be compared and considered during prescription (Cipriani et al., 2018). Combining short periods of antidepressant intake with prolonged psychotherapy is often recommended, as it reduces the risk of therapy drop-out and relapse (Beesdo-Baum & Wittchen, 2011).

Despite a number of effective treatments, mental disorders often remain untreated for a long period of time when they first occur. The mean time delay for treatment of mood disorders is two years and tends to be greater for men than for women (Angst et al., 2002; Wang et al., 2007). There is wide consensus that undertreatment of depressive disorders is particularly problematic in the older population (Barry et al., 2012; Hirschfeld, 1997), and one study by Trautman et al. (2017) showed that depression remains undetected by general practitioners in half of their older patients with MDD. Horackova et al. (2019) estimated that only 21% of older Europeans with clinically relevant depressive symptoms reported a diagnosis of a mental disorder or antidepressant intake. This indicates a strong gap between mental health needs and mental health service use.

Depressive disorders account for more than 10% of disability adjusted life years (DALY) and have devastating consequences for the quality of life, especially at older age (GBD 2017 Disease and Injury Incidence and Prevalence Collaborators, 2018; Rodda et al., 2011). Depression at older age is also related to increased frailty and dementia in a dose-dependent manner, with more severe depressive symptoms linked to higher impairment (Borges et al., 2020; Wu et al., 2020). Mortality related to depressive disorders is high, which is partly attributable to death by suicide (Dong et al., 2019). About half of the patients with severe depressive disorders attempt suicide, with up to 15% fatality (Beesdo-Baum & Wittchen, 2011). The prevalence of suicide attempts in older adults is higher compared to younger adults (Haupt et al., 2017) and the majority of suicides at older age can be linked to MDD (Conwell et al., 2011). Therefore, early detection of a risk for depression at older age is critical.

1.2.4 Aetiology

The causes of depressive disorders are complex and multifactorial. Depressive episodes often develop as a result of individual predisposition combined with adverse

environmental conditions (Ingram & Luxton, 2005). A number of biological and psychosocial risk factors interact over time and differ depending on the age of onset (Colman & Ataullahjan, 2010). The most important biological risk factors are genetic predisposition (Kendler et al., 2005), impaired endocrine and immune responses, as well as presence of physical illnesses and medication intake (Fiske et al., 2009). Neurological and cardiovascular diseases in particular are often linked to depression, but it can also be caused by diabetes, infections or inflammation. While biological risk factors are most important for those who develop depression early in life, psychosocial risk factors, especially stressful experiences, become more influential for late-onset depression (Haupt et al., 2017).

The main psychosocial risk factors for depression at older age are low SEP, social isolation and stressful life events and experiences (Koster et al., 2006). Low SEP, in terms of lower education, lower income or lower occupational status, is associated with higher risk for depressive disorders (Osler et al., 2015). The relationship between low SEP and depressive disorders is bidirectional. Depending on their timing in the life course, depressive episodes can also be a risk factor for low SEP (Gibb et al., 2010). High SEP (i.e. high education, high income and high occupational status) can act as a resource and be a protective factor against depression (Salk et al., 2017). Another important psychosocial resource is social support from the close and wider social network: The more isolated people live, the higher their risk for depression (Cacioppo et al., 2010; Cairney et al., 2003). The number of social contacts per se does not determine the amount of social support individuals perceive but rather the quality of the relationships. Close social contacts, such as partners and children are often the primary source of social support, particularly for older adults (Perreault et al., 2017). Finally, stressful experiences including adverse (childhood) conditions, experiences of loss and trauma but also drastic changes in general life circumstances (e.g. job changes or birth of a child), can be causes for depression (Nolen-Hoeksema & Ahrens, 2002). Even life events that are generally categorised as positive can be experienced as stressful by the individual and increase the risk for depression (Weber et al., 2013). For example, parents of young children often experience a rise in depressive symptoms in the first years after childbirth (Evenson & Simon, 2005), especially non-married or separated couples. In some cases, stressful experiences are not inherently connected to a particular life event but rather to a series of minor stresses or prolonged exposure to stressful environments, in which perceived control and predictability of the outcome is low (e.g. poor working conditions or

unemployment) (Lazarus & Folkman, 1984; Modini et al., 2016; Paul & Moser, 2009). Stressful experiences in the work and family domain are predestined to result in negative mental health outcomes, as they are often long-lasting and of high importance to one's identity.

Neurobiologists have identified several underlying mechanisms explaining the pathways between stressful experiences and depressive disorders (Thase, 2009). Most of them relate to a dysfunction of the hypothalamic-pituitary-adrenal (HPA) axis, which regulates the brain-body interaction in response to stressful experiences. Stress disrupts the individual's physiological and emotional balance (homeostasis). Starting in the hypothalamus, stress sets off a hormonal chain-reaction from the pituitary glands in the upper brain stem via the central nervous system to the adrenal glands, where cortisol is released (Smith & Vale, 2006). Cortisol levels have effects on various endocrine and immunological processes in the peripheral nervous system, such as inflammation or insulin response. This process is called "allostasis" and is adaptive for survival in the short term (e.g. by freeing up energy in the body). However, repeated allostatic activation in response to chronic stressors can cause the system to "wear and tear". This is referred to as "allostatic load" (McEwen, 1998) and can contribute to cardiovascular disease, chronic pain, cognitive dysfunction and depressed mood in the long-term (Peters et al., 2017).

Stressful experiences over the life course can have lasting effects on HPA axis regulation and the structure of the brain's limbic system, which lead to increased sensitivity to stress (Bremner, 2006; Heim et al., 2001; Swaab et al., 2005). In a 21-year follow-up of the Whitehall II Study, Virtanen et al. (2015) were able to find strong links between low occupational position, high job stress and fewer social relationships in mid-life and depressive symptoms at older age. Good working conditions, on the other hand, can make employment an important protective factor for later mental health (van der Noordt et al., 2014). Recently, the increasing availability of longitudinal data has been the basis for demonstrating the long-term effects of previous stressful experiences for later mental health, with a focus on stressors in the work and family domain (Epel et al., 2018) (more in Section 1.3.2). Still, only a few longitudinal studies consider which work-family combinations in adulthood are linked to depression at older age and what role the social context plays. Given the strong differences between men and women, one remaining question is how gender-specific experiences in the work and family domain relate to depression at older age.

1.2.5 Summary

In sum, this section presents depression at older age as an important public health challenge with high prevalence and high rates of disability. It often remains untreated for a long time, which makes early identification of risk factors critical. Aetiological models predict that stressful experiences accumulate over time and increase the risk for depression at older age. In the following sections, I will explore theoretical approaches regarding the importance of combined social roles over the life course and pay increased attention to gender differences and the role of household and labour market situation.

1.3 Theoretical considerations

1.3.1 Role theories

We can look at role theories to explain why combining paid employment and parenthood can be both beneficial and detrimental for later mental health. A “role” is defined as a set of expectations towards a person in a given life situation or position (Parsons, 1951). Adherence to social role expectations (also called role scripts) in everyday life maintains a predictable order in society and simplifies social interactions (G. J. McCall & Simons, 1978). The primary social roles in adulthood are employment, partnership and parenthood (Sachs-Ericsson & Ciarlo, 2000). An individual can hold multiple roles at the same time with overlapping or opposing expectations such as employee versus parent. Not fulfilling role expectations can cause internal and interpersonal stress. (Note: The term “gender role” refers to expectations around a person’s gender, i.e. how feminine or masculine they are perceived (Davidson-Katz, 1991) More information in gender roles can be found in Section 1.3.3.)

In the 1970s, two divergent theoretical streams on the mental health impact of combining work and family roles arose: Role strain and role enhancement (Goode, 1960; Sieber, 1974). One is based on the idea that work and family obligations compete for a limited amount of personal resources, such as time and energy, and that combining multiple roles can lead to role strain (S. R. Marks, 1977). It suggests that conflicting responsibilities between domains, also called “inter-role-conflicts”, lead to the experience of stress and in turn increases the risk for mental health problems. Role strain theories evolved into the modern day concept of “work-family conflict” (N. F. Marks, 1998). It entails the subjective experience of obligations from one life domain interfering with responsibilities from another life domain in either direction (Greenhaus & Beutell, 1985; Marchand et al., 2016). Work-family conflict is higher when children are present in the household and working hours are long (Stier et al., 2012); it is strongest among women, individuals in low SEP, and in early adulthood (Allen & Finkelstein, 2014; Bianchi & Milkie, 2010).

An opposite theory highlights the benefits of combining work and family and emphasises a positive concept of multiple social roles. Role enhancement or role expansion theory states that combining employment and parenthood improves mental health because it provides increased resources (Sieber, 1974). These resources can be financial (i.e. higher income, better insurance or pensions) as well as psychological (i.e. bigger social networks, more social support and equality). Each role entails its own

identity and potential for success and can be a source of recognition and reward. These rewards include role privileges, overall status security, enrichment of the personality and ego gratification (Sieber, 1974; Thoits, 1983). Especially for women, combining work and family can also increase agency (McMunn et al., 2006). Another mechanism of role enhancement is that negative experiences in one life domain can be compensated with positive experiences in the other (Linville, 1987), also referred to as “cross-compensation” (Wiese et al., 2010). On top of this buffering effect, positive experiences and skills from one domain can be transferred to the other, also called “positive spillover” (Hammer et al., 2005; Powell & Greenhaus, 2010). This expansionist concept of multiple roles has informed the modern concept of “work-family enrichment” (Carlson et al., 2006; Greenhaus & Powell, 2006).

Previous research

Two recent reviews found that high work-family conflict is associated with depression and intake of antidepressant medication (Borgmann et al., 2019; Milner et al., 2019). Another review emphasised that work-family conflict is linked to increased sickness absence and women reported work-family conflict more often (Nilsen et al., 2017). At the same time, Hammer et al. (2005) find that positive spillover from one domain to another is associated with a reduction of depressive symptoms and that this effect is stronger than the negative effect of work-family conflict. Kang and Jang (2020) found a negative association between the number of social roles a woman holds and depressive symptoms. Work-family conflict and work-family enrichment are often studied as separate experiences but Grzywacz and Bass (2003) found that combinations with high “work-family fit” (low conflict and high enrichment) are especially beneficial for mental health.

Most previous studies have a cross-sectional design and investigate work-family combinations and depression from one point in time (e.g. Marchand et al., 2016) but some studies have also found long-term effects of work-family conflict and work-family enrichment on depression some years later (e.g. Frone, 2000; Hanson et al., 2014). One Swedish study found that having multiple roles increased mental well-being between two measurements around 10 years apart for both genders (Nordenmark, 2004). The levels of conflict and enrichment evolve over time and differ between age groups and life stages: Demerouti et al. (2012) suggest that work-family conflict is highest in early to mid-adulthood and decreases at older age. Older workers (>55 years old) reported better work-

family fit and more resources than younger workers (Hill et al., 2014) but less attention has been paid to the changing dynamics of work-family combinations over the life course so far.

1.3.2 Life course perspective

One growing field in public health science is that of life course epidemiology (Kuh & Ben-Shlomo, 2004). It investigates the development and interaction of biological and psychosocial risk factors across the life span and their long-term effects on health and well-being (Blane et al., 2013; Harris & McDade, 2018). The life course framework holds five key principles (Elder et al., 2003): The first one is the principle of life-span development, stating that individuals continue to develop and change across the whole life span. The term ‘trajectory’ refers to the long-term pattern of development over the life course (Hutchison, 2011). Each trajectory can include several phases of change (transitions) and phases of stability (spells). The second is the principle of timing and transitions, which highlights the importance of certain changes and life events for the rest of the trajectories. Another principle is that of agency, which proposes that life course trajectories are the result of individual decisions and actions. These decisions take place within given social contexts and constraints, addressed in the remaining two principles. The principle of linked lives focuses on the interdependence of individual trajectories within families and other social systems. Finally, Elder et al. (2003) emphasise the influence of the wider social and historical context in which trajectories are embedded. This is called the principle of time and place. In the following, I will explain how the first two principles can be applied to the relations between work-family combinations and depression at older age. The gender differences in “agency” will be discussed in Section 1.3.3 and the role of “linked lives” and “time and place” will be addressed further in Section 1.3.4.

The life course framework recognises that it is not sufficient to look at psychosocial risk factors at one point in time. Rather, it is necessary to take into account long-term trajectories of individual’s experiences. Trajectories often describe a person’s development in one life domain, for example paid work (i.e. employment trajectories). Work-family trajectories are a way to capture the parallel developments of combined social roles over a longer period of time. Analysing work-family trajectories as a whole is important, as it helps to further the understanding of the dynamic interactions between social roles over time. Life course epidemiology has resulted in three different theoretical

models that describe how different trajectories link to later health (Burton-Jeangros et al., 2015). In the first, “critical period model”, exposure to risk factors will only have negative consequences for health later in life if they occurred in a certain “critical period” of the life course (Kuh et al., 2003). Similarly, there are “sensitive periods” of rapid development in which negative effects of risk factors can be enhanced but are potentially reversible. These periods of rapid change and increased vulnerability can be at a certain age (e.g. early childhood) or around a specific transition in the life course (e.g. school-to-work). Applied to depression, early childhood can be considered one of the sensitive periods that increase the risk for later mental illness (Hughes et al., 2017). Regarding depression at older age, sensitive periods could occur much later in the life course. For instance, work-family conflict has been found to be highest in early adulthood (mid-20s to mid-40s) (Bianchi & Milkie, 2010; Hill et al., 2014), when career building and family formation come up against each other.

The second model is called “pathway model” and suggests that disadvantages in early life affect health later in life indirectly by placing individuals on disruptive pathways (e.g. in terms of education, lifestyle and SEP) that ultimately damage their health (Graham, 2002; Power & Hertzman, 1997). Another name for it is “trigger model” because one initial negative life event can trigger a “chain of adversities”. Pathway model suggests that early life socio-economic disadvantages can make individuals more likely to experience adverse work and family conditions over the life span and therefore increase the risk for depression later in life (Arpino et al., 2018). Johansson et al. (2007) showed that early educational inequalities shape occupational patterns and result in poorer working conditions (e.g. job insecurity, low payment, etc.) that have long-lasting negative effects on mental health.

The third model, “accumulation model”, proposes that social and health disadvantages add up and lead to a higher risk over the life course (Dannefer, 2003). At the same time, advantages can also accumulate to favour individuals with better health and in higher social positions and differences between groups increase over time (Blane et al., 2007). In contrast to the “pathway model”, where disadvantaged and advantaged groups tend to remain stable and differences level out eventually, “accumulation model” hypothesises that inequalities become more consequential with age, as economic and health disparities blend together. There is evidence supporting all three models but single processes affecting health over the life course are difficult to disentangle (Hallqvist et al., 2004). Psychobiological models of depression are more in line with “accumulation

model” and suggest that stressful experiences add up over time and make individuals more vulnerable for mental health problems at older age (Job et al., 2020; Turner & Lloyd, 1995). This idea corresponds with the concept of “allostatic load” described in Section 1.2.4 (Kelly-Irving, 2019; McEwen, 1998). Over the life course, psychosocial and financial resources can accumulate over time and lead to better social support and higher wealth and income, two important protective factors for mental health at older age. Being employed and having a partner and children often form the basis of stable social networks over the life course (Becker et al., 2019). At the same time, during early adulthood, men and women’s work and family lives are often particularly busy and offer a number of potential stressors (e.g. from unfulfilled role expectations) that could accumulate and make individuals more likely to develop depression at older age.

Previous research

Over recent years, depression at older age has increasingly been investigated from a life course perspective but most studies have focused on one social domain only. A number of life course studies have studied the relationship between employment trajectories and depression at older age and revealed the benefits of stable and continuous employment for later mental health (Giudici & Morselli, 2019). In contrast to that, episodes of unemployment have repeatedly been associated with an increased risk for later depression and poor self-rated health (Daly & Delaney, 2013; Voßemer et al., 2018; Wahrendorf, Hoven, et al., 2019). Findings also indicate that the experience of stressful working conditions or disadvantaged occupational positions during mid-life increases the risk for depressive symptoms after retirement (Wahrendorf et al., 2013). Similarly, temporary work is associated with increased risk for depressive symptoms later in life (Wahrendorf, Hoven, et al., 2019). As an exception, Di Gessa et al. (2020) did not reveal significant associations between employment trajectories and depressive symptoms in English older men and women.

The life course framework has also been applied to the family domain and has highlighted parenthood as an important life course social role for depression. On one hand, having children is often associated with increased life satisfaction and happiness and can have a protective effect on mental health at older age (Umberson et al., 2010; van den Broek, 2020). On the other hand, experiencing pregnancies and looking after small children can also be stressors and increase the risk for depressive disorders (Evenson & Simon, 2005). Reibling and Möhring (2018) showed that depression at older age was

lower for mothers than for childless women in Europe. They also found that the relationship between parenthood and depression differed between countries. Studies that compared different parenthood trajectories revealed that early parenthood and short birth intervals are associated with higher depressive symptoms at older age (Grundy et al., 2020). The association was mediated by financial hardship and partnership dissolutions. Studies show that the relationship between employment, parenthood and mental health is dynamic and changes over time. Leupp (2017) analysed parents' employment trajectories from their late 20s to mid-50s in the US National Longitudinal Survey of Youth and found that, for women, the relationship between paid work and depression changes as children get older. When children are young, mothers' employment is not related to depression but as the children get older, being employed becomes protective against depression. For men, the mental health benefits of employment are increasing with their own age rather than the children's age. In an earlier study, Frech and Damaske (2012) showed that combining employment with parenthood is beneficial for mothers and fathers, even when children are at a very young age. These findings suggest a necessity to shift the focus away from looking at work and family trajectories separately.

There are only a few previous studies that investigated work-family combinations and mental health from a life course perspective and most of them come from the UK, where birth cohort studies have a long tradition and provide rich longitudinal data. These studies have all used typologies of work-family trajectories (created by grouping similar trajectories in the sample together) to compare the link between previous employment and parenthood situation with later depression. While one study in the 1946 British birth cohort found higher subjective health for continuously employed women than homemakers (McMunn et al., 2006), Lacey, Stafford et al. (2016) found no significant differences in the association between types of work-family trajectories and mental well-being in the same cohort. In another study, Lacey, Kumari et al. (2016) found no effect of work-family trajectories on stress markers such as cortisol. In study of the 1958 birth cohort, Lacey, Sacker et al. (2016) found higher levels of inflammatory markers for types with early parenthood (with or without work) but no differences in cortisol markers. Depression at older age was only considered in three studies. Research by McDonough et al. (2015) and by Benson et al. (2017) revealed higher depressive symptoms for non-employed and part-time working mothers compared to full-time working mothers in the UK and the US. Recently, Tosi and Grundy (2021) found that for UK adults born between 1933 and 1945, work-family trajectories characterised by low SEP and early family

formation were associated with impaired mental health at older age. Men and women with high SEP, long episodes of employment and two children had the best mental health scores at older age and there were no significant differences between parents and non-parents.

1.3.3 Gendered experiences

When analysing work-family trajectories over the life course it is important to consider the principle of agency, i.e. the importance of people's individual decisions to enter or exit a certain social role (Elder et al., 2003). Most strikingly, men and women differ in the way they combine work and family responsibilities over the life course (Widmer & Ritschard, 2009; Worts et al., 2016). These psychosocial gender differences relate to socially-constructed characteristics of men in women in a given society, also termed gender roles (Davidson-Katz, 1991). Gender roles can affect experiences, attitudes and behaviours in all domains of public and private life, including work, family and healthcare (David & Kaplan, 1995) and can variate strongly across cultures (Pessin & Arpino, 2017). Gendered experiences in the work and family domain can also be explained by theories of structure and agency (Cockerham, 2005). On the one hand, men and women show different preferences because they have internalised attitudes about typically female and male behaviour from their social environments. This process of gender socialisation is also called "doing gender" (West & Zimmermann, 1987). On the other hand, institutions and social structures can limit women's access to employment opportunities (Damaske, 2011; England, 2011). In this case, choice and constraint are difficult to disentangle because subjective attitudes towards gender roles can provide a meaningful narrative for a lack of alternatives (García-Manglano, 2015; Gerson, 1986).

Considerable gender differences persist in the labour market. Despite further increases in female employment rates over the past decades, work environments remain strongly segregated by gender (Eurofound, 2020). To start with, there is a significant gender gap in overall employment: Women still work about 20% less (in full-time equivalents) than men (European Commission, 2019) and make up the majority of the part-time workforce in Europe. Horizontal segregation is marked by working sectors that are either male-dominated or female-dominated. Men tend to be overrepresented in sectors related to infrastructure (e.g. construction, electricity, transport, manufacturing and agriculture), while more than two thirds of the workforce in the public service sector (e.g. healthcare and education) are women. Vertical segregation refers to the hierarchic

division of job positions. Men occupy a larger part of managerial positions across all sectors. This often results in a pay inequality, also referred to as the “gender pay gap” (Busch, 2013). This gap widens further by the uneven distribution of unpaid domestic work, such as household and care work, which is mostly performed by women. Parenthood has a strong impact on gender differences in employment, as women are more likely to reduce paid working time after childbirth, especially those with a partner (Killewald & Zhuo, 2019).

Gender segregation of the labour market leads to a different set of potential work-related psychological stressors for men and women. In a review, Campos-Serna et al. (2013) found that women report higher job insecurity, worse contractual working conditions and lower pay than men. On the other hand, men’s jobs were often characterised by longer working hours, higher physically demanding work and more noise. Given the strong gender differences in work-family experiences, analyses of the link between specific work-family trajectories and depression should be gender-sensitive. Cross-sectional research shows that the relationship between unemployment and mental health differs by gender and SEP (Artazcoz et al., 2004).

Previous studies

Previous life course studies of employment trajectories also suggest gender differences: For men, interrupted employment trajectories are consistently associated with higher risks for depression later in life, whereas, for women, episodes of non-employment often make little or no difference to their mental health at older age (Wahrendorf et al., 2013). The association between temporary work and depression was also stronger for men than for women (Wahrendorf, Hoven, et al., 2019). One possible explanation for this is that for men, paid employment is still regarded as their main responsibility, which leads to more psychological distress in case of job loss; while women are more likely to interrupt their careers by choice (e.g. for childrearing activities) (van de Velde et al., 2010). (Note: In this dissertation, the term “non-employment” refers to all episodes without paid work. This includes unemployed persons, available for paid work but not currently employed, as well as persons who are not economically active, currently not available for paid work. This differs from the classification by the ILO.)

Gender-comparative research on the link between combined work-family trajectories and depression is rare, as most studies included only women in their sample (Benson et al., 2017; McDonough et al., 2015). In an exception, Tosi and Grundy (2021) found that

interrupted employment trajectories were only related to worse mental health in men and not in women. The increase in inflammatory markers for early parents found by Lacey, Sacker et al. (2016) was also stronger for men than for women.

1.3.4 Social context

As stated above, individual decisions differ from person to person but are always taken within their respective social systems (Crompton, 2006). Opportunities and constraints at any given stage of the life course are reflected in the immediate and wider social context. Following the principle of linked lives, life courses are not just shaped by own experiences but also by those of parents, partners, children or other members of their closer network (Elder et al., 2003). According to the principle of time and place, individuals' life courses are influenced by the local and historical contexts. Thus, for example, mothers' decisions to re-enter the labour market after childbirth depend not just on individual attitudes but also on subjective feelings of discrimination as well as childcare availability and employment contracts too (García-Manglano, 2015). In the following, I will focus on partner's employment situation as an indicator for social context at household level and on labour market situation as an indicator for social context at country level.

Household level

In the immediate social environment, partner relationships and household arrangements can influence men and women's work-family trajectories. Van Hedel et al. (2018) found that compared to living alone, marriage or cohabiting partnerships are important protective factors against depression in both genders. Couples' employment trajectories are often intertwined and children in the household further increase the influence of partner's employment situation on own work decisions, as time allocated to childcare and household responsibilities is often negotiated within families (Killewald & García-Manglano, 2016; Stertz et al., 2017). These within-couple arrangements can influence the link between parents' employment and mental health (Milkie et al., 2010).

There are several explanations for this: First of all, most financial and psychosocial resources are shared within partnerships. In married or long-term cohabiting couples, a shared household income determines economic hardship or well-being for both partners (Wickrama et al., 2020). For example, simultaneous non-employment can put the household in a precarious financial situation and make both partners more vulnerable to

developing depressive symptoms. At the same time, social approval (gained through adherence to gender roles and social norms) is another important resource, and according to the theory of social production function (Steverink & Lindenberg, 2006), approval is weighed against financial resources to maintain well-being. Schröder (2018) demonstrated that couples' life satisfaction is highest in constellations where women work less than their partners, regardless of their respective incomes. Another way to explain interdependencies at household level is strain crossover (Westman, 2001), which characterises the transfer of stressful experiences between individuals. Men's psychological distress about unemployment could cross over from one partner to another (Bakker et al., 2008). Role strain can cross over directly via empathy for the partner's suffering, or indirectly by affecting shared resources or relationship well-being. Some studies also point to the possibility of positive crossover within couples (e.g. Neff et al., 2012).

Previous research

A cross-sectional study by Lu and Shelley (2019) shows that depressive symptoms in older couples were not only related to own social and financial resources but also to partner's resources. A recent study by Esche et al. (2020) confirmed that mental well-being of both partners suffers when one partner loses his or her job and that this effect is stronger for men's unemployment. One study found that women are more susceptible to their partner's work stress than men (Florea & Engelhardt, 2020), while others show no gender differences in crossover. Only one life course study has looked at the role of household context in the link between employment trajectories and depression. Wan et al. (2018) investigated employment trajectories around the time of retirement in older couples and found that retiring men whose wives continued to work had the highest depressive symptoms. Women's depressive symptoms were only related to their own retirement trajectories and not to their partner's.

Country level

At the macro level, there is a wide array of national policies and socio-cultural norms that can influence gendered work-family trajectories. Two family policies that play an important role for work-family combinations are the provision of formal childcare and paid parental leave. Both differ considerably between European countries (Notten et al., 2017). In an attempt to summarise family policies, Western countries have been classified

as either familialising or de-familialising (Saraceno & Keck, 2010). Familialism places the responsibility for childcare and elderly care mainly within the families (accompanied by generous leave policies) while de-familialisation regards childcare as a shared responsibility in the society (underscored by widespread public childcare services).

The level of de-familialisation creates opportunities or constraints for combining employment and parenthood in adulthood, especially for mothers. A review by Cukrowska-Torzewska (2017) found that the provision of institutional childcare for children under three increased mothers' employment rates whereas paid parental leave increases the employment gap between mothers and childless women. A cross-country comparison of panel data by Aisenbrey and Fasang (2017) suggests that work-family trajectories are highly gender-specific in Germany and less gendered but strongly stratified by social class in the US. Worts et al. (2016) also found that gender differences in labour market attachment differ between countries with stronger gender differences in Germany and Italy than in Sweden or the US. Nordic countries tend to have more de-familialised policies, while policy regimes in Southern European countries still support traditional family models. Family policies evolve over time and change in correspondence with changing cultural views and norms in a society (Zagel & van Winkle, 2020). It is possible that national family policies and socio-cultural norms also affect the relationship between gender, work-family combinations and depressive symptoms (Zella & Harper, 2020b). The availability of childcare and financial support around the time of family formation could alleviate role strain from working mothers in particular. Therefore, life course studies have to take into account the historical context in which men and women entered the labour market when analysing the relationship with mental health.

Previous research

Artazcoz et al. (2014) found that the association between current work-family situation and psychological well-being differs between genders and European family policy regimes. For example, simultaneous demands of parenthood, partnership and employment were related to worse mental health for women in Southern countries and for men in Anglo-Saxon countries. Previous studies by Glass et al. (2016) also found that countries with family policies that include paid time off and large child-care subsidies (thus encouraging longer episodes of non-employment) show smaller differences in happiness between parents and nonparents. Notten et al. (2017) found that the provision

of institutional childcare decreased experiences of work-family conflict for both men and women

Only a couple of life course studies investigated moderation effects mental health at country level. Zella and Harper (2020a) found that older women in Europe showed higher depressive symptoms after trajectories of non-employment (for domestic work) than women who had been employed (full-time or part-time). The difference was greatest in familialistic welfare regimes and smallest in countries with a liberal welfare regime. In an analysis of parenthood trajectories across Europe, Grundy et al. (2019) found that the association between number of children and depression was stronger in Eastern than in Western European countries. Comparative studies on the link between work-family trajectories and depression are still lacking.

1.3.5 Summary

Both work-family conflict and work-family enrichment are related to depressive symptoms in cross-sectional studies but little is known about the long-term effects of combining employment and parenthood on mental health at older age. Life course research investigates the longitudinal development of psychosocial risk factors for depression rather than just at one point in time. Individuals' employment and family trajectories are strongly gender segregated and influenced by social context. I propose that the relationship between combined work-family trajectories and depression also varies by gender and social context and that this explains the lack of clear findings in the past. As individuals, men and women are influenced by their previous experiences and the expectations attached to their gender but they are also affected by their social context. In the immediate social environment, partners often arrange work-family combinations within the household, which is why partner's employment situation should be taken into account. At macro-level, socio-cultural norms and national family policies create opportunities and constraints for work-family arrangements and make it necessary to consider the labour market context at the time. Therefore, the relationship between work-family combinations and depression should be investigated from a gendered life course perspective and integrate measures of the social context at household and country level.

1.4 Aims

Against the background of the theoretical considerations described above, the original research presented in the following sections has two overarching aims: The first aim is to analyse the relationship between gender-specific work-family trajectories in early adulthood and depression at older age. The second aim is to investigate whether this relationship is moderated by social context at household and country level.

Most studies in the past that have investigated the link between work-family combinations have a cross-sectional design and do not consider patterns of change and stability over the life course. Another shortcoming of previous research is that the few longitudinal studies on work-family trajectories often include only women in their samples and therefore lack a gender comparative perspective. The focus is limited on men and women as isolated individuals and there is too little concern with the social context in which their work-family trajectories are embedded. Finally, mental health at older age has often been measured rather superficially, focusing on subjective well-being and happiness, rather than measuring actual depressive symptoms at older age. A gendered life course perspective on work-family combinations and their association with depression at older age has not yet been tested in the German or European context.

In this dissertation, I answer the following research questions to address this research gap:

1. How are gender-specific work-family trajectories related to depression at older age?
2. Does partner's employment situation moderate the relationship between own work-family trajectory and depression at older age?
3. Does the labour market situation at the time moderate the relationship between gender-specific work-family trajectories and depression at older age?

I investigated these research questions empirically in three longitudinal studies using three different sets of data. The results have been published in three original articles (presented in Section 3). The first article explored work-family trajectories of men and women born in West Germany in mid-20th Century (1925–1955) and their association with depression at older age (see Section 3.1; Engels et al., 2019). I used data from the Heinz Nixdorf Recall (HNR) study (Erbel et al., 2012; Stang et al., 2005) to derive work-family trajectories, taking into account employment and parenthood situation for each year between the ages of 20 and 50. The second article examined gender-specific work

trajectories between the ages of 30 and 50 in long-term cohabiting couples in a European population (see Section 3.2; Engels et al., 2020). It used data from the Survey of Health, Ageing and Retirement in Europe (SHARE) (Börsch-Supan et al., 2005). The third original article explored combined employment, parenthood and partnership trajectories between the ages of 25 and 40 and their link with depression (see Section 3.3; Engels et al., 2021) across different European labour market contexts. This study combined data from SHARE and the English Longitudinal Study of Ageing (ELSA) (Stephoe et al., 2013). Table 1 summarises the core variables of each study.

The findings I present will not only contribute to ongoing research in the fields of public health and life course epidemiology but can also have practical implications for clinicians and health care professionals who are involved in the diagnosis or treatment of depression at older age. They are also relevant for policy makers and health professionals for preventing disability caused by depression at older age (described in the discussion).

Study No.	Datasets	Trajectories	Age span	Outcomes	Moderator	Article reference
1	HNR	Employment, parenthood	20-50	Depressive symptoms, antidepressant medication		Engels et al., 2019
2	SHARE	Employment	30-50	Depressive symptoms	Partner's employment trajectory	Engels et al., 2020
3	SHARE, ELSA	Employment, parenthood, partnership	25-40	Depressive symptoms	Female employment rate	Engels et al., 2021

Table 1 Summary of published original research. Study number, datasets used, roles included in work-family trajectories, age spans included in the trajectories, outcome variables, moderating variables and article reference for each study.

1.5 Ethical clearance

The empirical studies presented in this dissertation all used anonymised and publicly available datasets (described in further detail in Section 2.1). The analyses are covered by votes of the Ethical Commission at the Faculty of Medicine at the Heinrich-Heine-University Düsseldorf (Reference no: 5627 and 2018-40-RetroDEuA).

2 Methods

2.1 Data basis

2.1.1 Heinz Nixdorf Recall Study (HNR)

Data basis for the first article in this dissertation was the HNR study (Erbel et al., 2012). The HNR study is a population-based prospective study conducted in three adjacent cities in the industrial Ruhr-area in West Germany (Bochum, Essen, and Mülheim). It started with the recruitment of 4,814 respondents aged 45 to 75 in 2000-03 (wave 1) and continued in 2006–08 (wave 2; n=4,157) and in 2011-14 (wave 3; n=3,088). The sample was drawn randomly from mandatory local registries with an original response rate of 56% (Schmermund et al., 2002). Recall is short for “Risk Factors, Evaluation of Coronary Calcification, and Lifestyle” and the study recorded a number of clinical and psychosocial measures, assessed with the help of self-administrated questionnaires, computer-assisted personal interviews (CAPI) and clinical examinations. Data was recorded at the examination centre located at the University Clinic in Essen. In addition to prospective health measures, the third wave included a retrospective questionnaire on previous employment histories. For this, respondents were asked to prepare notes on each previous job that lasted longer than 6 months. These notes assisted the interviewees in reconstructing their whole employment trajectories during the examinations (Wahrendorf, Marr, et al., 2019).

2.1.2 Survey of Health, Ageing and Retirement in Europe (SHARE)

The second and third paper presented in Section 3 relied on data from SHARE (Börsch-Supan et al., 2005). SHARE is an interdisciplinary panel study that started in ten European countries in 2004-05 (wave 1) and is still ongoing with now 29 countries. It collects data on health, social networks and the socio-economic situation on a bi-annual basis. Its sample is representative of the non-institutionalised European population aged 50 and over (and their partners in the same household). In the third wave between 2008 and 2009, retrospective life history interviews were performed with over 30,000 respondents from 14 countries in the so-called “SHARELIFE” survey with extensive information on employment and economic circumstances, on family and relationship histories, and on childhood health and living conditions (Börsch-Supan et al., 2013). Life history interviews were repeated in the seventh wave (conducted in 2017) for respondents who entered the survey after 2010. Data was collected with CAPI and “life history calendars”

(or “life grid”) for SHARELIFE, in which graphical representation of the life course are filled out during the interview (Belli, 1998). This way, events from one domain (e.g. birth of a child) could serve as a reminder for events in different domains (e.g. transition to a new job). This life grid template for retrospective life history interviews is also used in comparable studies on ageing (see 2.1.3 and 2.1.4).

2.1.3 English Longitudinal Study of Ageing (ELSA)

In the third study, SHARE data was linked with data from ELSA. ELSA is another nationally representative panel survey of older people (50+) and their partner in the same household (Stephens et al., 2013). It first started in England between 2002 and 2003 (wave 1) with new waves every two years. The original ELSA sample consisted of 11,050 individuals and was drawn from the Health Survey for England (1998-2001) (Mindell et al., 2012). ELSA also combines CAPI with self-completion pen and paper questionnaires. Additional life history interviews were conducted with a sub-sample willing to take part after the third wave in 2007 (Ward et al., 2009).

2.1.4 Gateway to Global Aging Data (g2aging)

Both, SHARE and ELSA, are part of a group of longitudinal studies on ageing that implement similar surveys and measurements across the world. The g2aging is an online-platform that provides access to a total of eleven studies on ageing (from Africa, Europe, Asia, North America and South America) and is hosted by the University of Southern California (Lee et al., 2021). The project is funded by the National Institute on Aging (NIA) in the United States with the goal to encourage cross-national comparison of data on ageing. It offers harmonised life history datasets with concordant formatting for SHARE and ELSA which is used in the third study of this dissertation (Wahrendorf, Deindl, et al., 2019a, 2019b).

2.2 Measurements

Measurements of depression

The dependent variable for all three studies is depression at older age. The presence of depressive symptoms can be assessed with the help of standardised questionnaires. Routinely used scales in the general population include the “Beck’s Depression Inventory” (BDI; Beck et al., 1988) and the “Hamilton Depression Scale” (HAM-D; Hamilton, 1960). Both of these have a strong focus on somatic symptoms of depression and are therefore not recommended for use at older age (Rodda et al., 2011). The “Center for Epidemiological Studies – Depression scale” (CES-D; Radloff, 1977) or the “Patient Health Questionnaire” (PHQ-9; Kroenke et al., 2001) are instruments that are commonly used to assess depressive symptoms in the older population. The presentation of some depressive symptoms can also vary with cultural context, which makes cross-national comparisons of scores difficult. Therefore, Prince et al. (1999) developed the “European depression scale” (EURO-D) in an attempt to make assessment of depressive symptoms comparable over different European countries. These scales include questions about the frequency of affective or behavioural symptoms occurring within a fixed period (e.g. the past two weeks). A cut-off score usually indicates whether respondents are at risk for a depressive episode.

For the purpose of this research, I relied on the available measurements of depressive symptoms in the studies on ageing presented in Section 2.1. In the HNR study and ELSA, depressive symptoms were assessed with the CES-D scale while SHARE uses EURO-D. Depression scores are available for 21 countries in SHARE. For some of the respondents, depressive symptoms at older age were assessed repeatedly in the prospective waves of the studies. Whenever multiple measurements are available, I used the average score of across waves. In the third study, I used standardised z-scores of depressive symptoms to allow comparison between the two samples. In the first study of this dissertation, current intake of antidepressant medication (e.g. SSRI or TCA) served as an additional objective measure of depression.

Measurements of work-family trajectories

The main independent variable was work-family trajectory, assessed slightly differently in each study. The retrospective life history questionnaires from HNR, SHARE and ELSA served as the basis for reconstruction of work-family trajectories in my research. One way to analyse life history data is using methods from sequence analysis to describe and

compare life course patterns. Information on each phase of employment (start and end date of each job, working hours) as well as episodes of domestic work and birth dates of children were derived and translated into one work-family state per year. The succession of all states in a trajectory formed one “sequence”. With the help of sequence analysis tools (e.g. “SADI” or “TraMineR”; Gabadinho et al., 2011; Halpin, 2017), I calculated the number of state changes in each sequence (“number of spells”) and the total amount of years spent in each state (“cumulative duration”). In the next step, each individual sequence was compared to all others and distance matrices were generated. These distance measures were then used to group similar work-family trajectories into clusters for multivariate analyses. Details of the different sequence states and generated types of work-family trajectories used for each study are stated in the articles in Section 3.

Measurements of social context

Social context at household level was operationalised as partner’s type of employment trajectory in the second study of this dissertation. SHARELIFE data includes retrospective interviews for older adults and their partners in the same household. Partnership trajectories were compared and couples were included in the sample if they had been together for more than 20 years (entry into the current relationship before the age of 30). Employment trajectories were analysed as described above and each respondent was assigned to two groups (own employment trajectory and partner’s employment trajectory).

Historical labour market participation rates served as an indicator for the social context at country level. Specifically, national female employment rates from the 1970s and 1980s were retrieved from the yearbooks of the International Labour Organization (ILO, 2021). High female employment rates can be an indicator for de-familialised national policy sets with high availability of public childcare services and short well-paid parental leave, whereas policies that support familialism put the responsibility for care work within the families and often result in lower female employment rates (Naldini et al., 2016). Employment rates were not available for each year in every country. Therefore, the average female employment rate of the decade in which respondents started their work-family trajectory was calculated and analysed as a potential moderator in the third study.

2.3 Analytical strategy

In all three studies, I used regression models to answer the research questions regarding the link between work-family trajectories and depression. For the first question, I set types of work-family trajectories as the independent variable and depression as the dependent variable in hierarchical regression models. All models were calculated separately for men and women and adjusted for common covariates (such as age, physical health and income). In order to analyse potential moderations, interaction terms were added to the models in the second and third study. The interaction between own and partner's trajectories on depression was calculated to analyse the second research question. For the third question, labour market context (i.e. female employment rate) was included as a level two variable in a multilevel regression model.

Further details about the data, measurements and analytical strategy are described in the research articles in Section 3.

3 Results (Published Original Articles)

- 3.1 Gendered work-family trajectories and depression at older age. Engels, M., Weyers, S., Moebus, S., Jöckel, K.-H., Erbel, R., Pesch, B., Behrens, T., Dragano, N., Wahrendorf, M., Aging & Mental Health, 23(11): 1478-1486. (2019)**

3.2 Linked work lives: The interrelation of own and partner's employment history and their relationship with mental health in older European couples. Engels, M., de Moortel, D., Weyers, S., Dragano, N., Wahrendorf, M., Archives of Gerontology and Geriatrics, 89: 104092. (2020)

3.3 Multiple social roles in early adulthood and later mental health in different labour market contexts. Engels, M., Wahrendorf, M., Dragano, N., McMunn, A., Deindl, C., *Advances in life course research*, 50: 100432. (2021)

4 Discussion

4.1 Summary of results

Depression at older age is an important public health challenge with high prevalence and strong differences between genders. Previous studies have demonstrated the relevance of employment and parenthood for later mental health but only few studies so far have examined the relationship between patterns of previous work-family combinations and depression using longitudinal designs. The overarching goal of the research presented in this dissertation was to explore this link from a gendered life course perspective. The first research question was how gendered work-family trajectories in adulthood relate to depression at older age. The second and third research question asked whether this relationship is moderated by partner's employment trajectory or labour market context (see Section 1.4). In the following, I will discuss the answers to these research questions along the three empirical studies presented in Section 3.

Gendered work-family trajectories and depression at older age (Engels et al., 2019):

In the first study (Engels et al., 2019), I investigated the relationship between types of work-family trajectories and depression at older age in the German HNR study. I identified six types of work-family trajectories for each gender and overall, women's work-family trajectories were more heterogeneous than those of men. For men, five types were marked by continuous full-time employment, and could be distinguished by the timing and number of children, and one type included unstable trajectories with episodes of non-employment and part-time employment. For women, there were two types with continuous full-time employment (with or without children), two with episodes of non-employment after childbirth followed by re-entry into employment (full-time or part-time work) and two types with early parenthood that were either followed by part-time work or non-employment.

The relationship between types of work-family trajectories and depression at older age differed between men and women. Men in the group with full-time work and many children showed the least depressive symptoms and antidepressant intake at older age. Highest rates of depressive symptoms could be found in the group of full-time workers with early parenthood and fathers with unstable work but the differences between types were only marginally significant and disappeared when adjusted for SEP. In contrast to that, there were significant differences between two types of women's work-family

trajectories: Women who returned to part-time employment after a longer period of non-employment had the lowest number of depressive symptoms and rates of antidepressant intake, whereas women who returned to full-time employment had the highest.

This study did not analyse whole partnership trajectories but current partner status was taken into account. Interestingly, there were no differences between parents and childless persons when comparing the types of work-family trajectories, but strong differences between currently married persons and those currently living without a partner, with the lowest depressive symptoms for married men and women.

Linked work lives: The interrelation of own and partner's employment history and their relationship with mental health in older European couples (Engels et al., 2020):

The second study analysed employment trajectories of long-term cohabiting couples in Europe with the help of data from the SHARE study (Engels et al., 2020). Again, similar employment trajectories were grouped into types. For both genders, the most common type was characterised by continuous full-time employment and the least common type by continuous part-time employment. Additionally, I identified one type where men transitioned from full-time work to no work towards the age of 50, and one with unstable employment and longer episodes of non-employment throughout. For women, there was one type with continuous non-employment and one type with irregular work and repeated transitions between employment and non-employment. In the majority of couples, I found a reflection of the “male-breadwinner model” with women working somewhat less than their partners do. However, the most frequent combination was full-time employment for both partners reflecting a rather egalitarian household work-arrangements.

The type with unstable employment and longer episodes of non-employment was associated with higher depressive symptoms for men, while there was no direct association between women's types of employment trajectories from the age 30 to 50 and depression at older age. At household level, I tested the interaction between own and partner's employment trajectories with depressive symptoms. For men in long-term couples, the link between employment history and depression was moderated by their partner's employment trajectory. Specifically, the association between non-employment and depression in men was strongest when their partners were in part-time or irregular work. However, this group was very small and the effect of the interaction was only marginally significant. For women, the associations between employment trajectory and depression at older age did not change markedly by partner's situation but they showed

slightly higher depression scores when both partners had longer episodes of non-employment.

Multiple social roles in early adulthood and later mental health in different labour market contexts (Engels et al., 2021):

The third study (Engels et al., 2021) analysed combined trajectories of multiple work-family roles (employment, parenthood and partnership) in early adulthood and their link with later depression across 22 European countries. Here, I grouped together similar work-family trajectories retrieved from harmonised SHARE and ELSA data (Wahrendorf, Deindl, et al., 2019a, 2019b) into three types for men and four types for women: men who combined all three roles, childless men with work and partners, childless men with work but without partners, women with all three roles, childless women with work (with or without partners), non-working mothers with partners and working mothers without partners.

Compared to all other types, I found that men and women who combined all three roles (paid work, parenthood and partnership) between the ages of 25 and 40 had significantly lower depressive symptoms later in life. At country level, interaction analyses revealed that women's association between types of work-family trajectories and depression at older age depended on labour market context at the time. In countries with high female employment rates, childless working women (with or without a partner) had significantly higher depression scores than partnered women who combined paid employment and parenthood. In countries with lower female employment rates, differences between women were smaller and childless women had the least depressive symptoms.

In sum, all three studies present additional evidence for strong gender differences in the relation between work-family trajectories and mental health at older age. While men with children tended to show higher depression when they had longer episodes of non-employment in their trajectories, the differences between employed and non-employed mothers were smaller. The role of social context also varied by gender. For men, the link between work-trajectories and depression was moderated by partner's employment situation while women's associations with depression were moderated by labour market situation at the time.

4.2 Integration of findings

The findings for men are mostly in line with previous studies on employment trajectories and depression and confirm the importance of stable full-time work as a protective factor for mental health over the life course, regardless of the family situation (e.g. Giudici & Morselli, 2019). This is probably due to better access to financial and psychosocial resources. For women, however, interrupted employment trajectories were not associated with increased depression at older age. The German mothers in the first study who returned to full-time work after a longer episode of childcare had higher depression scores at older age. One potential explanation for this is the accumulation of stress resulting from repeated work-family conflict over adulthood. Bovenberg (2005) called the family forming years in early to mid-adulthood the “summer season” of the life course and describes it as follows:

“The summer season in the modern life course is quite hot. The costs of living are high while time is scarce, as parents invest not only in their children but also in their careers. Parents of young children face both a ‘time crunch’ and a ‘money bind.’” (Bovenberg, 2005, p. 400).

The allocation of time in this life course stage is more difficult for women than for men, as they take on the majority of responsibility for childcare and unpaid household activities (Carmichael & Ercolani, 2016). When time demands from work and childcare occur simultaneously, working mothers are more likely to experience conflict or role strain, possibly outweighing the positive effect of increased resources (Leupp, 2019). Leupp (2017) also found in her research that reducing working hours when childcare demands are high (i.e. when children are young) can be beneficial for mothers’ mental health. Chandola et al. (2019) could also demonstrate lower levels of allostatic load in employees with reduced working time. This is one possible explanation why part-time working mothers were less depressed than full-time working mothers in the first study.

In contrast to women, the gender role expectation for men in most countries is to remain in full-time employment regardless of family situation, and part-time work is often perceived as a career failure (Pedulla, 2016). In line with that, men’s mental health was negatively associated with non-standard employment trajectories that included spells of part-time work in the second study (Engels et al., 2020). On the other hand, working time did not make a difference in women’s depression in the second study. This could partly be due to the variations between the samples. While the first study included women from

one region in West Germany only, the second one included women from 14 European countries. Social norms and practices surrounding part-time work differ greatly between countries (Lyonette, 2015). In Germany, women's part-time work is encouraged by a tax return system that rewards households, in which one partner earns considerably less than the other – the so called 'Ehegattensplitting' (Dieckhoff et al., 2016).

This points to a second potential explanation: accumulated financial resources (Wickrama et al., 2016). Van de Velde et al. (2010) could show that SEP is at least as important for depression as men and women's family situation and it is possible that they interact. Episodes of non-employment over the life course are typically related to lower pension incomes at older age (Möhring, 2018). Recent studies analysing SHARE data have identified pension contributions as one gender-specific pathway between employment trajectories and depressive symptoms (Hoven et al., 2020): employment without pension contribution was linked to elevated depressive symptoms for women but not for men. The studies presented in this dissertation investigated this pathway through hierarchical modelling and additional sensitivity analyses. Controlling for socio-economic circumstances (e.g. income and wealth) at older age did not diminish the association between work-family trajectories and depression in the second and third study but could explain differences in the first study.

Another aspect to consider is the fact that, in these older cohorts, mothers in continuous full-time employment are more often unmarried (Killewald & Zhuo, 2019). For these women, there are limited choices on the labour market and they have a higher risk of experiencing stressful working conditions over the life course. It is therefore possible that the results in the first study could be due to a larger number of single working mothers in the "full-time returner" group while the second study was limited to long-term cohabiting couples. While partnered women seem to generally benefit from paid employment, the results suggest that single mothers experience greater conflict when combining work and family roles. Not being able to share financial resources, they are sometimes forced to work more hours while simultaneously experiencing fewer support with childcare demands. The precariousness of single parenthood and the mental health risks that follow this have been demonstrated in multiple studies (Hübgen, 2020). For men, single parenthood was not linked to depression at older age in the studies presented above. There are two possible explanations for this. One is the fact that less than 15% of single fathers have full custody for their children and role conflicts are less likely when children do not live in the same household permanently (Greif, 1994; Steinbach, 2019).

Another is that men have higher earnings and are less likely to interrupt their employment for childcare and can therefore rely on a more stable income at older age.

Notably, the results from the first and second study differ from previous studies of women's work-family trajectories in the UK (e.g. Benson et al., 2017; Lacey, Stafford, et al., 2016; McDonough et al., 2015), which showed either no differences in mental health at older age or fewer depressive symptoms for full-time working mothers compared to part-time working mothers. The results of this dissertation regarding the role of the social context can help to explain these discrepancies. For long-term cohabiting couples, the results of the second study (Engels et al., 2020) underline the importance of linked lives (Elder et al., 2003) and indicate that work-family trajectories are interrelated at household level. Men's non-employment was more strongly associated with later depression when their partners were in part-time or irregular work. One mechanism behind this could be reduced shared financial resources within the couple (Lu & Shelley, 2019). On top of that, the likelihood of low mood crossing over from one partner to another is increased when both spend a lot of time at home (Bakker et al., 2008). Somewhat surprisingly, the link between women's employment trajectories and later depressive symptoms was not moderated by their partner's employment situation. The results of the third study highlighted that women's link between work-family trajectory and depression differed more by social context at country level.

Whether combining work and family responsibilities is experienced as a burden or blessing, can depend on the macro-level context. The principle of time and place (Elder et al., 2003) states that the historical and cultural background influences life trajectories, as individuals make choices within constraints of societal and political contexts. The results presented above underline the importance of this principle for life course epidemiology. The third study in this dissertation revealed that differences between working mothers and childless women were larger in countries with high female employment rates, possibly indicating lower role strain for working parents in supportive contexts. For women, being childless may also be related to stigmatisation in a society where the social norm is to "have it all" (Stahnke et al., 2020).

Generally, socio-cultural norms about combining work and family roles differ between countries. For example, in West Germany, societal approval of working mothers is rather low (Steiber & Haas, 2010). This is also illustrated in the term "Rabenmutter", which exists in the German language to describe mothers who neglect their children and is often referred to denounce full-time employed mothers (Denisova-Schmidt & Nicolas-

Kryzhko, 2020). This can explain the results of the first study, where full-time working mothers showed the highest depressive symptoms (Engels et al., 2019). At the same time, family policies can influence work-family trajectories independently from cultural norms around gender egalitarianism (Zagel & van Winkle, 2020). De-familialising policies include short and well-paid parental leaves and high availability of early institutionalised child-care, which encourage women to re-enter the labour market sooner after childbirth and provide better opportunities for career advancement. Thereby, financial resources can be increased and role conflicts reduced. This might explain why differences between working mothers had lower depressive symptoms compared to other groups in countries with higher female employment rates (particularly in Nordic countries). I also found that inequalities in mental health between single working mothers and partnered working mothers were smaller in countries with high female employment rates.

In sum, the results imply that combining work and family roles in the early adulthood stage of life does not per se increase or decrease the risk for depression at older age. Role conflicts and role enhancement can counterbalance each other and affect men and women differently, depending on their immediate and wider social environment.

4.3 Methodological considerations

Study design

A major strength of the studies is that they allow a gendered life course perspective on the relationship between work-family combinations and depression. Most previous studies on the combination of work and family roles and mental health had cross-sectional designs or included female-only samples. The studies on ageing used in this dissertation sampled men and women over 50 and include measures of depression at older age as well as retrospective life history interviews, which makes it one of the first analyses of whole work-family trajectories and mental health for both genders. It also places work-family trajectories in their respective social context rather than conceptualising men and women as isolated individuals. The household sampling in SHARE made it possible to control for partner's work-family trajectory and the harmonised data from SHARE and ELSA allowed for an extended cross-national comparisons of labour market context at macro-level in 22 European countries.

The retrospective nature of the life history data has advantages and disadvantages. While offering a cost and time-effective method to assess work-family trajectories over longer periods without attrition, there is also a potential risk for bias in the interviews. Respondents might not accurately recall all details of their past employment and family situation or leave out certain episodes in their life course. However, validity studies for life history interviews show high accuracy and representative trajectories retrieved in this way, even when compared to administrative data (Berney & Blane, 1997; Bourbonnais et al., 1988; Wahrendorf, Marr, et al., 2019).

Furthermore, the study design does not allow me to determine causality between work-family trajectories and depression at older age. The median age of onset for depression is in the early to mid-20s, which can have negative consequences for the patients' educational and subsequent employment trajectories as well as for their marriage and family lives (a phenomenon also called "role impairment") (e.g. Kessler et al., 1997; Kessler et al., 1998). This has recently been shown in an Australian longitudinal study (Leach & Butterworth, 2020), where individuals with early depression were more likely never to enter a partnership or report more relationship conflict and lower support. A Swedish study by Moustერი et al. (2019) also points out an increased risk of unemployment in adulthood for men with diagnosed mental health conditions during adolescence. On the other hand, Landstedt et al. (2016) reported no significant association between early depression and later employment trajectories when also controlling for

parental SEP. In the studies presented above, I controlled for early life circumstances (childhood health adversities and education) and depression in early life wherever possible. Accounting for early depression in additional sensitivity analyses in study 2 and 3 did not affect the results. To fully exclude the possibility for reverse causality, the sample would have to be restricted to those who never experienced depressive disorder or dysthymia before older age. However, the available data on previous mental health conditions in the used longitudinal studies on ageing is limited. Neither was it possible to influence the details of measurement for other variables in the studies.

Measurements

The measurements of depression applied in this dissertation bring some potential limitations. Firstly, the instruments used to assess depressive symptoms at older age (CES-D and EURO-D) include a possible gender bias and the majority of questions account for symptoms that are observed more often among women (e.g. crying and interpersonal problems), compared with “typically male” symptoms of depression (e.g. substance use or aggression) (Zierau et al., 2002). Therefore, an underestimation of depression in men in the presented papers is possible (Cavanagh et al., 2017). However, research by Stommel et al. (1993) showed no gender bias in the short version of the CES-D scale, which was used in the studies presented above. Secondly, analysing the number of depressive symptoms as the primary outcome variable does not reflect a clinical diagnosis of major depression and should be interpreted with care. Fried and Nesse (2015) point out that calculating a sum score of depressive symptoms, without distinguishing between core symptoms and accompanying symptoms, can be problematic in clinical studies. Yet, a more recent study by Siddaway et al. (2017), integrating a perspective of positive clinical psychology, suggests that the CES-D scale measures a continuum of mental health from well-being to depression, with more symptoms reflecting a higher risk for major depressive disorder. These scales can be used for screening purposes or in public health research but in clinical settings, standardised or structured clinical interviews are required to diagnose a major depressive disorder (Beesdo-Baum & Wittchen, 2011). Finally, measures of depressive symptoms are sensitive to medication intake and other forms of treatment that could not entirely be controlled for in the presented studies. This makes it difficult to distinguish between those who have a high risk of depression and who are already being treated for depression. To overcome this

problem, I used two outcome measures in the first publication (Engels et al., 2019), depressive symptoms and antidepressant intake, and both analyses yielded similar results.

Relying on public datasets from studies on ageing used for the empirical work above also resulted in a lack of detail in measurement of the work-family trajectories. For instance, I did not distinguish between different reasons for non-employment in the first and third study. Especially for women, interruptions of paid work are often a conscious choice for domestic work whereas interruptions in the employment trajectories of men are more often involuntary. It can be argued that unemployment and non-employment for domestic work have different mental health outcomes. However, distinguishing reliably between the two was not possible with the available data (e.g. answer categories in the life history data differ between countries). The data also limits detailed analyses of family trajectories. For example, when it comes to distinguishing biological or adopted children. For adopted children, data lacks information on timing of the adoption and therefore, the birthdate had to serve as the year for family state transition but not all children are adopted as newborns. Furthermore, the work-family trajectories did not take into account number of children in the household. Keenan and Grundy (2019) found higher scores of depression for parents of more than four children and other studies also suggest a u-shaped association between number of children and depressive symptoms. This should be considered in future studies. With the changing realities of families, it is also important to gather additional details about any stepchildren from re-marrying.

Additionally, partnership or marital status was measured divergently in the three presented papers. While current marital status at older age was considered in the first study (Engels et al., 2019) (see 3.1), partnership status through early adulthood was analysed in the third study (Engels et al., 2021) (see 3.3). The second publication included long-term cohabiting couples only (Engels et al., 2020) (see 3.2) and therefore no comparison with other partnership trajectories was possible. Ideally, partnership trajectories over the life course as well as current partnership status should be considered when analysing depression at older age. Particularly, recent transitions to non-partnered states, such as separation, divorce or widowhood, are linked to depressive episodes (Nolen-Hoeksema & Ahrens, 2002). While divorce at older age is less common, the loss of a partner through bereavement becomes more likely with advanced age. In previous versions of the DSM, depressive episodes in the two months following a significant loss were not diagnosed as major depression despite some behavioural resemblances. Clinicians are now advised to carefully distinguish between an expected grief response

and an additional depressive episode that might have been triggered by the loss (APA, 2013). This distinction has to take into account an individual's history of mental illness and the culturally normative grief expression. Despite not controlling for recent changes in relationship status in some of the analyses above, averaging over depressive symptoms at multiple measurement points probably balances out the short-term mental health impact that they would have had.

Finally, I considered a slightly different age span for the work-family trajectories in each of the studies above (20-50, 30-50 and 25-40), which makes the resulting types less comparable. Sequence analysis in the first study revealed that most changes in work-family roles occurred between the mid-20s and mid-40s (Engels et al., 2019). After that, life courses become more stable and work-family conflict reduces (Hill et al., 2014). Choosing a later starting age and shorter age span means that fewer role changes can be observed and fewer clusters are generated (Engels et al., 2021). Yet, some valuable information on early parenthood and re-entry phases could be lost. Some previous studies have considered trajectories starting as early as 18 but it can be argued that the ages between 18 and 25, also called emerging adulthood (Arnett, 2007), represent a different life stage than the family forming and career building years of early adulthood, which are sometimes called the "rush-hour of life" (Zannella et al., 2019). Setting a clear definition for the life stage of interest is difficult because the timing of these life events also depends on cohort, gender, SEP and cultural context.

Generalisability

The findings are concerning work-family trajectories of older generations and are not fully applicable to men and women who are currently going through early adulthood in Europe. Comparison of work-family trajectories across three cohort studies in the UK has shown a reduction of gender differences between people born in 1946 and those born in 1970 (McMunn et al., 2015). In the past, trajectories of non-employment were a preferred choice for the majority of young women (Gerson, 1986). Following the generation of "baby-boomers" (born between 1945 and 1964), changes in women's employment trajectories were radical, ignited by the women's right movement and shifting social norms around maternal employment (García-Manglano, 2015). More recent studies show that, for the majority of women, including mothers, full-time work has become the new norm and fewer than 10% now follow a trajectory of continuous domestic work (Damaske & Frech, 2016). In former West Germany, the traditional "housewife trajectories" have

also become less common (Simonson et al., 2011). In turn, Adler & Brayfield (2006) found that public attitudes have become more supportive towards maternal employment over the past decades. Nevertheless, the complexity in employment trajectories differs more between countries than between birth cohorts (van Winkle & Fasang, 2017). National family policies are also constantly adapting and evolving (Daly & Ferragina, 2018). In turn, the role of the social context in the relation between work-family trajectories and mental health might also change. Recent findings by Zella and Harper (2020a) show that continuous domestic work was more detrimental for younger women than for those in older birth cohorts. Future research should investigate the role of social context for depressive symptoms in younger generations.

The findings also do not represent all dimensions of gender. Psychosocial gender differences are separate from biological differences, also called “sex differences”. Sex differences include chromosomal distinctions, morphological differentiation and consequent differences in hormonal and immunological response (Klinge & Wiesemann, 2010). A person’s biological sex does not always correspond with the identified gender role and more than two gender variations exist (Kreukels et al., 2018). Women can identify with more masculine or more feminine role attributions and vice versa (Toller et al., 2004). The available data did not allow me to distinguish between sex and gender differences as the studies only assessed gender as a one-dimensional binary construct. I also had to exclude some individuals from sexual minorities (e.g. same-sex couples) in the second study, because of their low case numbers. Some recent studies could already identify that the impact of work and family roles on depression differs for same-sex couples (Umberson et al., 2020). As societies and legislation become more open for gender and sexual minorities, public mental health research should focus more on integrating the perspectives of members from the LGBTQIA+ community. (Note: LGBTQIA+ is an inclusive term for individuals who identify as lesbian, gay, bi-sexual, transgender, queer, intersexual, asexual or different from the heterosexual norm in other ways.)

4.4 Implications

Theoretical implications

The findings presented above demonstrate that there is not one work-family trajectory that is best for mental health at older age. Rather than investigating the relationship between standardised employment and family trajectories and depression, future research should focus on testing long-term patterns of “work-family fit” (Grzywacz & Bass, 2003; Moen, 2011), taking into account the individual’s socio-economic circumstances as well as the current and past social context. Integrating principles (of linked lives and time and place) from life course research into epidemiological studies of depression can help to disentangle intra and inter-individual processes in the pathogenesis of depression. Specifically, the research in this dissertation has shed a light on the role of the social context at household and country-level. Both, partner’s trajectories and national labour market situation, moderate the gender-specific relation between work-family combinations over the life course and depression at older age. Dahlgren and Whitehead (1993) describe further levels at which the individual’s behaviour is influenced by the social context. At meso-level, individuals interact with their communities and within organisations, which are also likely to moderate the relationship between multiple roles and depression (Fenwick & Tausig, 2007). For example, a recent study by Beutell and Gopalan (2019) emphasised the importance of supervisor and co-worker support for experiences of work-family enrichment. Institutions should encourage female (maternal) employment and make employers realise the potential of combining multiple social roles for the well-being of their employees. A number of studies point towards the benefits of non-family social roles, such as volunteering in the community, for well-being at older age (Kang & Jang, 2020; Moen et al., 1992).

The results presented above further indicate that family roles associated with childcare can have a positive influence on mental health at older age. Despite potential increase in role strain in adulthood itself, the resources and benefits are more important in the long-term. In contrast to that, caregiving for ill family members has consistently been found to increase depressive symptoms at older age (Kang & Jang, 2020). Often, those who interrupted employment for childcare in early adulthood are also more likely to reduce employment for other family care activities later in life (e.g. Bianchi & Milkie, 2010). When studying work-family trajectories and mental health, researchers should therefore analyse the links between unpaid caregiving and childcare activities over the life course and investigate the long-term mental health impacts of weak labour market

attachment for carers. With increasing life expectancies and later births in modern society, the number of women with simultaneous care demands, e.g. for small children and frail parents, is also increasing and this “sandwich generation” (Brody, 1981) could be particularly at risk for depression at older age.

Clinical implications

The findings presented in this dissertation make a case for moving further towards personalised medicine in the field of geriatric psychiatry and can help to target clinical interventions at older people’s mental health care needs. One serious problem is that depression at older age often remains untreated for longer periods (Horackova et al., 2019). Delayed treatment can have negative consequences for the course of the illness and increases the likelihood to develop other mental disorders (APA, 2013). Reasons for this late onset of treatment include delayed help-seeking, wrong diagnosis from general practitioners and long waiting lists for psychotherapy (Seidler et al., 2016). Insights from life course epidemiology can improve public mental health care by helping to understand how individual circumstances in early adulthood can make older men and women more vulnerable to depression at older age. Assessing stressors in individuals’ work-family trajectories could help to identify older adults with increased risk for depressive episodes early on and prevent adverse consequences of delayed treatment.

Identifying patients with stressful work-family trajectories can also help to target preventative efforts to the most vulnerable. This can be particularly relevant for care-home patients. Psychosocial risk factors, such as experiences of loss, are more frequently encountered in this population. At the same time, positive experiences and general activity decrease, which can also lead to mood disturbances. Amidst the current COVID-19 pandemic, depression at older age has reached peak incidence (Ettman et al., 2020). Especially for elderly people who live in facilities or alone, non-pharmaceutical interventions, such as social distancing measures, have led to a spike in social isolation (El Haj et al., 2020). Caring for patients’ mental health needs on top of their physical care needs has become a real burden for care workers and care home staff. Life course anamnesis could be used to target preventive efforts prior to onset. Staff could be encouraged to ask questions about previous work and family circumstances to find out more about accumulated psychosocial risks and resources. In a recent effort, Aupperle et al. (2020) tested a web-based tool for graphical presentations of the life course to improve the anamnesis process within clinical and care settings. Participants rated the tool helpful

for understanding the development of different mental health conditions. Cuijpers et al. (2014) have also found that reviewing previous life experiences with a therapist can also be an effective early intervention for treating depression at older age.

Another application in the clinical practice can result from the insights around linked lives. Especially for older couples who have been in a long-term relationship, involving both partners in the diagnostic and therapeutic processes is likely to result in better outcomes. Firstly, given that partner's non-employment was related to depression at older age for men in the second study (Engels et al., 2020), it is important to assess work-family trajectories of both partners to identify potential risk factors for later depression. Secondly, it is likely that partners have great insights about the life course developments and transitions of each other and can report stressful times (e.g. with high role strain) for their counterpart. This can be particularly helpful in patients with neurological comorbidities or dementia. Thirdly, the findings underline the potential of interpersonal therapy for depression at older age (Xu & Koszycki, 2020). In this form of therapy, the focus lies on close relationships to strengthen social support as a resource. For unpartnered and childless patients, other close social contacts could be involved such as siblings or co-workers.

Policy recommendations

The results in this dissertation do not provide a simple deduction of family policy recommendations. Yet, they point towards possible greater role strain in labour market contexts with the lowest female employment rates. These are predominantly found in Southern European countries (Portugal, Spain, Italy and Greece) with strong familialism, where the main responsibility for childcare is placed within families rather than institutions. Recent comparative analyses on social determinants of self-rated health have pointed towards greater health discrepancies between gender, educational attainment and family status in familialistic countries (Gumà et al., 2019). Previous research has also identified a supportive function of childcare provision for maternal well-being (Cukrowska-Torzewska, 2017; Notten et al., 2017). It is therefore likely that extending free childcare for children aged three or younger could have long-lasting positive effects on women's mental health. The provision of childcare alone is not sufficient in cultural contexts where disapproval for mothers' employment are high. In more traditional societies, supported familialism (including paid leave and tax reliefs for care work) had positive effects on well-being (de Moortel et al., 2014). Saraceno (2011) suggests

extending both, leave policies and childcare services, to offer more flexibility to parents in making choices based on their individual preferences and thereby alleviating role strain and mental health inequalities. Furthermore, paternal leave policies have been found to have positive effects on a more balanced share of unpaid care work within couples in some countries (Flaquer et al., 2016).

Finally, working single mothers showed increased risk for depressive symptoms at older age, which is likely to result from increased work-family conflict and limited financial resources. Therefore, new policies should aim to improve the situation for single parents, for example by extending childcare services and reducing costs for this group. Targeted welfare reforms supporting working single parents (e.g. special tax deductions and pension plans) have been shown to improve single mothers' health in the UK (Harkness, 2016). Increasing availability of harmonised data from studies on ageing all over the world (e.g. g2aging; see 2.1.4), can facilitate cross-country comparisons of family and welfare policies and their impact on mental health at older age (Banks et al., 2020).

4.5 Directions for future research

In the coming years, the increased availability of longitudinal and panel data will enable researchers to analyse links between work-family combinations and depression on a higher temporal resolution. Future studies should focus more on the timing of transitions in the life course. It has previously been shown that life-changing events (including marital dissolution or change in employment status) are related to an increase in depressive symptoms (Wójcik et al., 2019). However, this research is often cross-sectional in nature. Timing of work-family transitions in the life course seems to be very important and can help to explain some of the contradictory findings in this dissertation. For example, recent studies from the German Socio-Economic Panel (GSOEP) indicate that the age at which an episode of unemployment is experienced has an impact on the length of mental health recovery (Manzoni & Mooi-Reci, 2020). Innovative methodological approaches, such as multi-channel sequence analysis or combining sequence analysis with event-history analysis, can help to further understand the role of timing (Piccarreta & Studer, 2019) for certain transitions (e.g. return to work after episode of childcare). Early adulthood, especially the time around the transition to parenthood, could be tested as a “sensitive period” for later mental health.

Aspects of timing should also be considered in more detail for the outcome. About one third of patients only experience one major depressive episode in their lifetime (Beesdo-Baum & Wittchen, 2011). The chance of relapse increases with each experienced episode. Future studies should therefore consider mapping trajectories of mental health and changes in depressive symptoms in relation to working conditions (Engel et al., 2020; Heinz et al., 2018). This type of data could also be used to further establish causal influences between work-family related psychosocial risk factors and late-onset depression by testing whether changes in work-family situation increase the risk of developing depressive symptoms in older adults with no previous diagnosis. Future studies could also test the length of mental health impacts of stressful experiences in the life course.

The studies presented above only capture how the amount of social roles for any given year in adulthood is linked to later depression but I did not assess the subjective experience of stress within each domain. Role strain effects can be enhanced further by job stress at work (Bonde, 2008; Wahrendorf et al., 2013) or lack of approval and marital warmth at home (Sperlich et al., 2013; Wickrama et al., 2017). These exposure to these psychosocial conditions is also dynamic and should be analysed in more depth. Future

studies should take into account changes in the subjective experience work-family fit and for each year in adulthood. This requires more extensive longitudinal (and prospective) data as well as advanced methods to integrate quantitative and qualitative aspects of work-family combinations over the life course.

Another question that remains open is whether men and women show different vulnerability to psychosocial stressors in the work-family domain (Marchand et al., 2016). New insights from psychoneuroimmunology have emerged over the past years that help to refine the understanding of the brain-body interaction behind social stressors and depressive disorders (Quadt et al., 2020). These modern aetiological models of depression link processes of inflammation to HPA axis dysregulation in face of stressful experiences and take into account the individual's ability to process sensory information, social cues and internal bodily signals (i.e. interoception). Given some results hinting at the impact of sex and gender on all of the components in these models (Derry et al., 2015; Grabauskaitė et al., 2017; Taylor et al., 2000), they could be developed further and used to enhance the understanding of the links between chronic stressors in the work-family domain and their gendered link with depression at older age.

Another aspect to consider is the fact that depression is a disorder that is not equally distributed among social groups. In the presented research, this was the case for gender and SEP, where being a woman in a low SEP can amplify potential risks for depression at older age. Research on gender differences in health and research on social inequalities between genders are therefore inseparable. In an evaluation of the relationship between gender equality and mental health, Van de Velde et al. (2013) found that a high degree of macro-level gender equality is beneficial for the mental health of both men and women. This reduction was more evident for those living in non-traditional family arrangements (i.e. employed mothers or non-cohabiting parents). Female employment rate is only one of many indicators for gender equality. For example, several studies hint to the chances of improved education for women's mental health. Platt et al. (2020) found that gender gap in depression reduced over time and that these reductions were mediated by improved ratios of college degrees.

"The greater the equality in a society, the smaller the gender gap in mental health problems" - (van de Velde et al., 2013, p. 682)

This also points towards the significance of health inequalities beyond gender and the importance of intersectionality, defined as “*the relationships among multiple dimensions and modalities of social relations and subject formations*” (L. McCall, 2005, p. 1771). Intersectionality theory states that disadvantages associated with different (discriminated) identities accumulate across the life course (Mandelbaum, 2020). Apart from gender and socio-economic differences, intersectionality also considers ethnic minorities. For instance, Bromberger et al. (2004) report higher rates of depressive symptoms among Hispanic and Black women and these differences are linked to unequal distribution of other psychosocial risk factors. Some US studies have investigated intersectionality in the context of work-family trajectories and found higher proportions of Black and Latin-American women in continuous employment compared to White women (Damaske et al., 2017). Rung et al. (2021) found positive effects of work-family spillover for White women only. Future studies should take a closer look at the intersections between gender, ethnicity, sexuality and SEP and their impact on depression over the life course.

4.6 Conclusion

The aim of the research presented in this dissertation was to investigate the relationship between work-family combinations and mental health at older age from a gendered life course perspective. The results highlight gender differences in the way that combined employment, parenthood and partnership trajectories are linked to later depression. Overall, combining multiple social roles earlier in life was associated with lower scores for depression at older age but the relationship differed by gender and social context. Episodes of non-employment were related to increased depression for men, especially when their partners were also in irregular employment. For women, the relationship between work-family trajectories and depression was moderated by labour market situation at the time. In countries with higher female employment rates, working mothers showed lower depressive symptoms than childless working women, suggesting stronger role enhancement effects in supportive social contexts.

The results highlight the role of close interpersonal relationships and social norms, which shape life course developments and later mental health. There is reason to believe that addressing gender inequalities across domains (i.e. in the labour market and within households) can reduce discrepancies between men and women's mental health at older age. Understanding the mechanisms behind this can help to address mental health needs of older people more effectively. Considering previous (stressful) experiences in the work-family domain during clinical anamnesis can help to detect potential stressors and risk factors earlier and improve outcomes of treatment for depression in the older population. The ongoing COVID-19 pandemic has directly affected the arrangement of work and family life of most European citizens and has increased work-family conflicts, especially for women (Czymara et al., 2020; Xue & McMunn, 2021). A surge in mood disorders among future older generations is likely to follow if public measures in health care and family policies are not adjusted accordingly.

5 Reference List

- Aassve, A., Billari, F. C., & Piccarreta, R. (2007). Strings of Adulthood: A Sequence Analysis of Young British Women's Work-Family Trajectories. *European Journal of Population*, 23(3-4), 369–388.
- Adler, M. A., & Brayfield, A. (2006). Gender Regimes and Cultures of Care. *Marriage & Family Review*, 39(3-4), 229–253. https://doi.org/10.1300/J002v39n03_02
- Aisenbrey, S., & Fasang, A. (2017). The Interplay of Work and Family Trajectories over the Life Course: Germany and the United States in Comparison. *American Journal of Sociology*, 122(5), 1448–1484. <https://doi.org/10.1086/691128>
- Allen, T. D., & Finkelstein, L. M. (2014). Work-family conflict among members of full-time dual-earner couples: An examination of family life stage, gender, and age. *Journal of Occupational Health Psychology*, 376–384. <https://doi.org/10.1037/a0036941>
- Andreas, S., Schulz, H., Volkert, J., Dehoust, M., Sehner, S., Suling, A., Ausín, B., Canuto, A., Crawford, M., Da Ronch, C., Grassi, L., HersHKovitz, Y., Muñoz, M., Quirk, A., Rotenstein, O., Santos-Olmo, A. B., Shalev, A., Strehle, J., Weber, K., . . . Härter, M. (2017). Prevalence of mental disorders in elderly people: The European MentDis ICF65+ study. *British Journal of Psychiatry*, 210(2), 125–131. <https://doi.org/10.1192/bjp.bp.115.180463>
- Angst, J., Gamma, A., Gastpar, M., Lépine, J.-P., Mendlewicz, J., & Tylee, A. (2002). Gender differences in depression. Epidemiological findings from the European DEPRES I and II studies. *European Archives of Psychiatry and Clinical Neuroscience*, 252(5), 201–209.
- APA. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5* (5th ed.). American Psychiatric Publishing. <https://doi.org/10.1176/appi.books.9780890425596>
- Arnett, J. J. (2007). Emerging Adulthood: What Is It, and What Is It Good For? *Child Development Perspectives*, 1(2), 68–73. <https://doi.org/10.1111/j.1750-8606.2007.00016.x>
- Arpino, B., Gumà, J., & Julià, A. (2018). Early-life conditions and health at older ages: The mediating role of educational attainment, family and employment trajectories. *PloS One*, 13(4), e0195320.
- Artazcoz, L., Benach, J., Borrell, C., & Cortès, I. (2004). Unemployment and mental health: Understanding the interactions among gender, family roles, and social class. *American Journal of Public Health*, 94(1), 82–88.
- Artazcoz, L., Cortès, I., Puig-Barrachina, V., Benavides, F. G., Escribà-Agüir, V., & Borrell, C. (2014). Combining employment and family in Europe: The role of family policies in health. *European Journal of Public Health*, 24(4), 649–655.
- Aupperle, R. L., Paulus, M. P., Kuplicki, R., Touthang, J., Victor, T., Yeh, H.-W., & Khalsa, S. S. (2020). Web-Based Graphic Representation of the Life Course of Mental Health: Cross-Sectional Study Across the Spectrum of Mood, Anxiety, Eating, and Substance Use Disorders. *JMIR Mental Health*, 7(1), e16919.
- Bakker, A. B., Demerouti, E., & Dollard, M. F. (2008). How job demands affect partners' experience of exhaustion: Integrating work-family conflict and crossover theory. *The*

Journal of Applied Psychology, 93(4), 901–911. <https://doi.org/10.1037/0021-9010.93.4.901>

- Banks, J., Brugiavini, A., & Pasini, G. (2020). The powerful combination of cross-country comparisons and life-history data. *The Journal of the Economics of Ageing*, 16, 100206. <https://doi.org/10.1016/j.jeoa.2019.100206>
- Barry, L. C., Abou, J. J., Simen, A. A., & Gill, T. M. (2012). Under-treatment of depression in older persons. *Journal of Affective Disorders*, 136(3), 789–796. <https://doi.org/10.1016/j.jad.2011.09.038>
- Beck, A. T., Steer, R. A., & Carbin, M. G. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review*, 8(1), 77–100. [https://doi.org/10.1016/0272-7358\(88\)90050-5](https://doi.org/10.1016/0272-7358(88)90050-5)
- Becker, C., Kirchmaier, I., & Trautmann, S. T. (2019). Marriage, parenthood and social network: Subjective well-being and mental health in old age. *PloS One*, 14(7), e0218704. <https://doi.org/10.1371/journal.pone.0218704>
- Beesdo-Baum, K., & Wittchen, H.-U (2011). Depressive Störungen: Major Depression und Dysthymie. In H.-U. Wittchen & J. Hoyer (Eds.), *Springer-Lehrbuch. Klinische Psychologie & Psychotherapie* (2nd ed., pp. 879–914). Springer-Medizin.
- Belli, R. F. (1998). The structure of autobiographical memory and the event history calendar: Potential improvements in the quality of retrospective reports in surveys. *Memory*, 6(4), 383–406. <https://doi.org/10.1080/741942610>
- Benson, R., Glaser, K., Corna, L. M., Platts, L. G., Di Gessa, G., Worts, D., Price, D., McDonough, P., & Sacker, A. (2017). Do work and family care histories predict health in older women? *European Journal of Public Health*, 27(6), 1010–1015. <https://doi.org/10.1093/eurpub/ckx128>
- Berney, L. R., & Blane, D. B. (1997). Collecting retrospective data: Accuracy of recall after 50 years judged against historical records. *Social Science & Medicine*, 45(10), 1519–1525.
- Beutell, N. J., & Gopalan, N. (2019). Pathways to work-family synergy: resources, affect and wellbeing. *Journal of Family Studies*, 1–17.
- Bianchi, S. M., & Milkie, M. A. (2010). Work and Family Research in the First Decade of the 21st Century. *Journal of Marriage and Family*, 72(3), 705–725.
- Blane, D., Kelly-Irving, M., d'Errico, A., Bartley, M., & Montgomery, S. (2013). Social-biological transitions: How does the social become biological? *Longitudinal and Life Course Studies*, 4(2), 136–146.
- Blane, D., Netuveli, G., & Stone, J. (2007). The development of life course epidemiology. *Revue D'epidemiologie Et De Sante Publique*, 55(1), 31–38.
- Bonde, J. P. E. (2008). Psychosocial factors at work and risk of depression: A systematic review of the epidemiological evidence. *Occupational and Environmental Medicine*, 65(7), 438–445.
- Borges, M. K., Aprahamian, I., Romanini, C. V., Oliveira, F. M., Mingardi, S. V. B., Lima, N. A., Cecato, J. F., Petrella, M., & Oude Voshaar, R. C. (2020). Depression as a determinant of frailty in late life. *Aging & Mental Health*, 1–7.

- Borgmann, L.-S., Rattay, P., & Lampert, T. (2019). Health-Related Consequences of Work-Family Conflict From a European Perspective: Results of a Scoping Review. *Frontiers in Public Health*, 7, Article 189, 189.
- Börsch-Supan, A., Brandt, M., & Schröder, M. (2013). SHARELIFE-One century of life histories in Europe. *Advances in Life Course Research*, 18(1), 1–4.
- Börsch-Supan, A., Hank, K., & Jürges, H. (2005). A new comprehensive and international view on ageing: Introducing the 'Survey of Health, Ageing and Retirement in Europe'. *European Journal of Ageing*, 2(4), 245–253.
- Bourbonnais, R., Meyer, F., & Theriault, G. (1988). Validity of self reported work history. *British Journal of Industrial Medicine*, 45(1), 29–32. <https://doi.org/10.1136/oem.45.1.29>
- Bovenberg, A. L. (2005). Balancing Work and Family Life during the Life Course. *De Economist*, 153(4), 399–423. <https://doi.org/10.1007/s10645-005-2659-3>
- Bremner, J. D. (2006). Traumatic stress: Effects on the brain. *Dialogues in Clinical Neuroscience*, 8(4), 445–461.
- Bretschneider, J., Janitza, S., Jacobi, F., Thom, J., Hapke, U., Kurth, T., & Maske, U. E. (2018). Time trends in depression prevalence and health-related correlates: Results from population-based surveys in Germany 1997-1999 vs. 2009-2012. *BMC Psychiatry*, 18(1), 394.
- Brody, E. M. (1981). "Women in the middle" and family help to older people. *The Gerontologist*, 21(5), 471–480. <https://doi.org/10.1093/geront/21.5.471>
- Bromberger, J. T., Harlow, S., Avis, N., Kravitz, H. M., & Cordal, A. (2004). Racial/ethnic differences in the prevalence of depressive symptoms among middle-aged women: The Study of Women's Health Across the Nation (SWAN). *American Journal of Public Health*, 94(8), 1378–1385. <https://doi.org/10.2105/ajph.94.8.1378>
- Burton-Jeangros, C., Cullati, S., Sacker, A., & Blane, D. (Eds.). (2015). *A Life Course Perspective on Health Trajectories and Transitions*. Springer. <https://doi.org/10.1007/978-3-319-20484-0>
- Busch, A. (2013). Der Einfluss der beruflichen Geschlechtersegregation auf den „Gender Pay Gap“. *KZfSS Kölner Zeitschrift für Soziologie und Sozialpsychologie*, 65(2), 301–338. <https://doi.org/10.1007/s11577-013-0201-1>
- Cacioppo, J. T., Hawkey, L. C., & Thisted, R. A. (2010). Perceived social isolation makes me sad: 5-year cross-lagged analyses of loneliness and depressive symptomatology in the Chicago Health, Aging, and Social Relations Study. *Psychology and Aging*, 25(2), 453–463. <https://doi.org/10.1037/a0017216>
- Cairney, J., Boyle, M., Offord, D. R., & Racine, Y. (2003). Stress, social support and depression in single and married mothers. *Social Psychiatry and Psychiatric Epidemiology*, 38(8), 442–449. <https://doi.org/10.1007/s00127-003-0661-0>
- Campos-Serna, J., Ronda-Pérez, E., Artazcoz, L., Moen, B. E., & Benavides, F. G. (2013). Gender inequalities in occupational health related to the unequal distribution of working and employment conditions: A systematic review. *International Journal for Equity in Health*, 12(1), 57. <https://doi.org/10.1186/1475-9276-12-57>

- Carlson, D. S., Kacmar, K. M., Wayne, J. H., & Grzywacz, J. G. (2006). Measuring the positive side of the work–family interface: Development and validation of a work–family enrichment scale. *Journal of Vocational Behavior*, *68*(1), 131–164.
- Carmichael, F., & Ercolani, M. G. (2016). Unpaid caregiving and paid work over life-courses: Different pathways, diverging outcomes. *Social Science & Medicine (1982)*, *156*, 1–11.
- Cavanagh, A., Wilson, C. J., Kavanagh, D. J., & Caputi, P. (2017). Differences in the Expression of Symptoms in Men Versus Women with Depression: A Systematic Review and Meta-analysis. *Harvard Review of Psychiatry*, *25*(1), 29–38. <https://doi.org/10.1097/HRP.0000000000000128>
- Chandola, T., Booker, C. L., Kumari, M., & Benzeval, M. (2019). Are Flexible Work Arrangements Associated with Lower Levels of Chronic Stress-Related Biomarkers? A Study of 6025 Employees in the UK Household Longitudinal Study. *Sociology*, *53*(4), 779–799. <https://doi.org/10.1177/0038038519826014>
- Cipriani, A., Furukawa, T. A., Salanti, G., Chaimani, A., Atkinson, L. Z., Ogawa, Y., Leucht, S., Ruhe, H. G., Turner, E. H., Higgins, J. P. T., Egger, M., Takeshima, N., Hayasaka, Y., Imai, H., Shinohara, K., Tajika, A., Ioannidis, J. P. A., & Geddes, J. R. (2018). Comparative efficacy and acceptability of 21 antidepressant drugs for the acute treatment of adults with major depressive disorder: A systematic review and network meta-analysis. *Lancet*, *391*(10128), 1357–1366. [https://doi.org/10.1016/S0140-6736\(17\)32802-7](https://doi.org/10.1016/S0140-6736(17)32802-7)
- Cockerham, W. C. (2005). Health lifestyle theory and the convergence of agency and structure. *Journal of Health and Social Behavior*, *46*(1), 51–67. <https://doi.org/10.1177/002214650504600105>
- Colman, I., & Ataullahjan, A. (2010). Life course perspectives on the epidemiology of depression. *Canadian Journal of Psychiatry. Revue Canadienne De Psychiatrie*, *55*(10), 622–632. <https://doi.org/10.1177/070674371005501002>
- Conwell, Y., van Orden, K., & Caine, E. D. (2011). Suicide in older adults. *The Psychiatric Clinics of North America*, *34*(2), 451–68, ix. <https://doi.org/10.1016/j.psc.2011.02.002>
- Crompton, R. (2006). *Employment and the family: The reconfiguration of work and family life in contemporary societies*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511488962>
- Cuijpers, P., Karyotaki, E., Pot, A. M., Park, M., & Reynolds, C. F. (2014). Managing depression in older age: Psychological interventions. *Maturitas*, *79*(2), 160–169. <https://doi.org/10.1016/j.maturitas.2014.05.027>
- Cukrowska-Torzewska, E. (2017). Cross-Country Evidence on Motherhood Employment and Wage Gaps: The Role of Work–Family Policies and Their Interaction. *Social Politics: International Studies in Gender, State & Society*, *24*(2), 178–220.
- Czymara, C. S., Langenkamp, A., & Cano, T. (2020). Cause for concerns: gender inequality in experiencing the COVID-19 lockdown in Germany. *European Societies*, 1–14. <https://doi.org/10.1080/14616696.2020.1808692>
- Dahlgren, G., & Whitehead, M. (1993). *Tackling inequalities in health: what can we learn from what has been tried: Working paper prepared for The King's Fund*

International Seminar on Tackling Inequalities in Health, Ditchley Park, Oxfordshire. London. King's Fund.

- Daly, M., & Delaney, L. (2013). The scarring effect of unemployment throughout adulthood on psychological distress at age 50: Estimates controlling for early adulthood distress and childhood psychological factors. *Social Science & Medicine (1982)*, 19–23. <https://doi.org/10.1016/j.socscimed.2012.12.008>
- Daly, M., & Ferragina, E. (2018). Family policy in high-income countries: Five decades of development. *Journal of European Social Policy*, 28(3), 255–270. <https://doi.org/10.1177/0958928717735060>
- Damaske, S. (2011). *For the family? How class and gender shape women's work*. Oxford University Press.
- Damaske, S., Bratter, J. L., & Frech, A. (2017). Single mother families and employment, race, and poverty in changing economic times. *Social Science Research*, 62, 120–133. <https://doi.org/10.1016/j.ssresearch.2016.08.008>
- Damaske, S., & Frech, A. (2016). Women's work pathways across the life course. *Demography*, 53(2), 365–391.
- Dannefer, D. (2003). Cumulative advantage/disadvantage and the life course: Cross-fertilizing age and social science theory. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*, 58(6), S327–37. <https://doi.org/10.1093/geronb/58.6.s327>
- David, J. L., & Kaplan, H. B. (1995). Gender, social roles and health care utilization. *Applied Behavioral Science Review*, 3(1), 39–64.
- Davidson-Katz, K. (1991). Gender roles and health. *Handbook of Social and Clinical Psychology*, 179–196.
- de Moortel, D., Vandenheede, H., & Vanroelen, C. (2014). Contemporary employment arrangements and mental well-being in men and women across Europe: A cross-sectional study. *International Journal for Equity in Health*, 13(1), 90. <https://doi.org/10.1186/s12939-014-0090-6>
- Demerouti, E., Peeters, M. C. W., & van der Heijden, B. I. J. M. (2012). Work-family interface from a life and career stage perspective: The role of demands and resources. *International Journal of Psychology : Journal International De Psychologie*, 47(4), 241–258.
- Denisova-Schmidt, E., & Nicolas-Kryzhko, L. (2020). *Rabenmutter*, The Global Informality Project. <https://www.informality.com/wiki/index.php?title=Rabenmutter> [Last accessed on 13.09.2021]
- Derry, H. M., Padin, A. C., Kuo, J. L., Hughes, S., & Kiecolt-Glaser, J. K. (2015). Sex Differences in Depression: Does Inflammation Play a Role? *Current Psychiatry Reports*, 17(10), 78.
- Di Gessa, G., Corna, L., Price, D., & Glaser, K. (2020). Lifetime employment histories and their relationship with 10-year health trajectories in later life: Evidence from England. *European Journal of Public Health*, 30 (4), 793–799. <https://doi.org/10.1093/eurpub/ckaa008>
- Dieckhoff, M., Gash, V., Mertens, A., & Romeu Gordo, L. (2016). A stalled revolution? What can we learn from women's drop-out to part-time jobs: A comparative analysis

- of Germany and the UK. *Research in Social Stratification and Mobility*, 46, 129–140. <https://doi.org/10.1016/j.rssm.2016.09.001>
- Dong, M., Zeng, L.-N., Li Lu, Li, X.-H., Ungvari, G. S., Ng, C. H., Chow, I. H. I., Zhang, L., Zhou, Y., & Xiang, Y.-T. (2019). Prevalence of suicide attempt in individuals with major depressive disorder: A meta-analysis of observational surveys. *Psychological Medicine*, 49(10), 1691–1704. <https://doi.org/10.1017/S0033291718002301>
- El Haj, M., Altintas, E., Chapelet, G., Kapogiannis, D., & Gallouj, K. (2020). High depression and anxiety in people with Alzheimer's disease living in retirement homes during the covid-19 crisis. *Psychiatry Research*, 291, 113294.
- Elder, G. H., Johnson, M. K., & Crosnoe, R. (2003). The Emergence and Development of Life Course Theory. In J. T. Mortimer & M. J. Shanahan (Eds.), *Handbooks of Sociology and Social Research. Handbook of the Life Course* (pp. 3–19). Kluwer Academic/Plenum Publishers. https://doi.org/10.1007/978-0-306-48247-2_1
- Engel, M., Jöckel, K.-H., Dragano, N., Engels, M., & Moebus, S. (2020). Subgroups with typical courses of depressive symptoms in an elderly population during 13 years of observation: Results from the Heinz Nixdorf Recall Study. *The International Journal of Social Psychiatry* 66(8), 799-809. <https://doi.org/10.1177/0020764020925515>
- Engels, M., Moortel, D. de, Weyers, S., Dragano, N., & Wahrendorf, M. (2020). Linked work lives: The interrelation of own and partner's employment history and their relationship with mental health in older European couples. *Archives of Gerontology and Geriatrics*, 89, 104092. <https://doi.org/10.1016/j.archger.2020.104092>
- Engels, M., Wahrendorf, M., Dragano, N., McMunn, A., & Deindl, C. (2021). Multiple social roles in early adulthood and later mental health in different labour market contexts. *Advances in Life Course Research*, 50, 100432. <https://doi.org/10.1016/j.alcr.2021.100432>
- Engels, M., Weyers, S., Moebus, S., Jöckel, K.-H., Erbel, R., Pesch, B., Behrens, T., Dragano, N., & Wahrendorf, M. (2019). Gendered work-family trajectories and depression at older age. *Aging & Mental Health*, 23(11), 1478–1486. <https://doi.org/10.1080/13607863.2018.1501665>
- England, P. (2011). Reassessing the Uneven Gender Revolution and its Slowdown. *Gender & Society*, 25(1), 113–123. <https://doi.org/10.1177/0891243210391461>
- Epel, E. S., Crosswell, A. D., Mayer, S. E., Prather, A. A., Slavich, G. M., Puterman, E., & Mendes, W. B. (2018). More than a feeling: A unified view of stress measurement for population science. *Frontiers in Neuroendocrinology*, 49, 146–169.
- Erbel, R., Eisele, L., Moebus, S., Dragano, N., Möhlenkamp, S., Bauer, M., Kälsch, H., & Jöckel, K.-H. (2012). Die Heinz Nixdorf Recall Studie [The Heinz Nixdorf Recall study]. *Bundesgesundheitsblatt - Gesundheitsforschung - Gesundheitsschutz*, 55(6-7), 809–815.
- Esche, F. (2020). Is the problem mine, yours, or ours? The impact of unemployment on couples' life satisfaction and specific domain satisfaction. *Advances in Life Course Research*, 100354. <https://doi.org/10.1016/j.alcr.2020.100354>
- Ettman, C. K., Abdalla, S. M., Cohen, G. H., Sampson, L., Vivier, P. M., & Galea, S. (2020). Prevalence of Depression Symptoms in US Adults Before and During the COVID-19 Pandemic. *JAMA Network Open*, 3(9), e2019686.

- Eurofound. (2020). *Gender equality at work, European Working Conditions Survey 2015 series*. <http://eurofound.link/ef19003>. [Last accessed on 13.09.2021].
- European Commission. (2019). *2019 report on equality between women and men in the EU*. Directorate General for Justice and Consumers. <https://op.europa.eu/en/publication-detail/-/publication/f3dd1274-7788-11e9-9f05-01aa75ed71a1/> [Last accessed on 13.09.2021]
- Evenson, R. J., & Simon, R. W. (2005). Clarifying the relationship between parenthood and depression. *Journal of Health and Social Behavior*, 46(4), 341–358.
- Fenwick, R., & Tausig, M. (2007). Work and the Political Economy of Stress: Recontextualizing the Study of Mental Health/Illness in Sociology. In W. R. Avison, J. D. McLeod, & B. A. Pescosolido (Eds.), *Mental Health, Social Mirror* (pp. 143–167). Springer Science+Business Media LLC. https://doi.org/10.1007/978-0-387-36320-2_7
- Fiske, A., Wetherell, J. L., & Gatz, M. (2009). Depression in older adults. *Annual Review of Clinical Psychology*, 5, 363–389. <https://doi.org/10.1146/annurev.clinpsy.032408.153621>
- Flaquer, L., Mínguez, A. M., & López, T. C. (2016). Changing Family Models: Emerging New Opportunities for Fathers in Catalonia (Spain)? In I. Crespi & E. Ruspini (Eds.), *Global masculinities. Balancing work and family in a changing society: The fathers' perspective* (pp. 65–81). Palgrave Macmillan. https://doi.org/10.1057/978-1-137-53354-8_5
- Florea, D., & Engelhardt, H. (2020). His and her working hours and well-Being in Germany: A longitudinal crossover-spillover analysis. *Journal of Family Research*(32(2)), 249–273.
- Frech, A., & Damaske, S. (2012). The relationships between mothers' work pathways and physical and mental health. *Journal of Health and Social Behavior*, 53(4), 396–412.
- Fried, E. I., & Nesse, R. M. (2015). Depression sum-scores don't add up: Why analyzing specific depression symptoms is essential. *BMC Medicine*, 13(1), 72.
- Frone, M. R. (2000). Work-family conflict and employee psychiatric disorders: The National Comorbidity Survey. *The Journal of Applied Psychology*, 85(6), 888–895.
- Gabardinho, A., Ritschard, G., Müller, N. S., & Studer, M. (2011). Analyzing and Visualizing State Sequences in R with TraMineR. *Journal of Statistical Software*, 40(4), 1–37.
- García-Manglano, J. (2015). Opting Out and Leaning In: The Life Course Employment Profiles of Early Baby Boom Women in the United States. *Demography*, 52(6), 1961–1993.
- GBD 2017 Disease and Injury Incidence and Prevalence Collaborators (2018). Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990–2017: A systematic analysis for the Global Burden of Disease Study 2017. *Lancet*, 392(10159), 1789–1858.
- Gerson, K. (1986). *Hard choices: How women decide about work, career and motherhood* (Vol. 4). University of California Press.

- Gibb, S. J., Fergusson, D. M., & Horwood, L. J. (2010). Burden of psychiatric disorder in young adulthood and life outcomes at age 30. *British Journal of Psychiatry*, *197*(2), 122–127. <https://doi.org/10.1192/bjp.bp.109.076570>
- Giudici, F., & Morselli, D. (2019). 20 Years in the world of work: A study of (nonstandard) occupational trajectories and health. *Social Science & Medicine* (1982), *224*, 138–148. <https://doi.org/10.1016/j.socscimed.2019.02.002>
- Glass, J., Simon, R. W., & Andersson, M. A. (2016). Parenthood and Happiness: Effects of Work-Family Reconciliation Policies in 22 OECD Countries. *American Journal of Sociology*, *122*(3), 886–929.
- Goode, W. J. (1960). A Theory of Role Strain. *American Sociological Review*, *25*(4), 483.
- Grabauskaitė, A., Baranauskas, M., & Griškova-Bulanova, I. (2017). Interoception and gender: What aspects should we pay attention to? *Consciousness and Cognition*, *48*, 129–137.
- Graham, H. (2002). Building an inter-disciplinary science of health inequalities: the example of lifecourse research. *Social Science & Medicine*, *55*(11), 2005–2016.
- Greenhaus, J. H., & Beutell, N. J. (1985). Sources of Conflict Between Work and Family Roles. *Academy of Management Review*, *10*(1), 76–88.
- Greenhaus, J. H., & Powell, G. N. (2006). When Work And Family Are Allies: A Theory Of Work-Family Enrichment. *Academy of Management Review*, *31*(1), 72–92.
- Greif, G. L. (1994). Single Fathers with Custody Following Separation and Divorce. *Marriage & Family Review*, *20*(1-2), 213–231.
- Grundy, E., Read, S., & Väisänen, H. (2020). Fertility trajectories and later-life depression among parents in England. *Population Studies*, *74*(2), 219–240.
- Grundy, E., van den Broek, T., & Keenan, K. (2019). Number of Children, Partnership Status, and Later-life Depression in Eastern and Western Europe. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*, *74*(2), 353–363.
- Grzywacz, J. G., & Bass, B. L. (2003). Work, Family, and Mental Health: Testing Different Models of Work-Family Fit. *Journal of Marriage and Family*, *65*(1), 248–261.
- Gumà, J., Solé-Auró, A., & Arpino, B. (2019). Examining social determinants of health: The role of education, household arrangements and country groups by gender. *BMC Public Health*, *19*(1), 699.
- Haigh, E. A. P., Bogucki, O. E., Sigmon, S. T., & Blazer, D. G. (2018). Depression Among Older Adults: A 20-Year Update on Five Common Myths and Misconceptions. *The American Journal of Geriatric Psychiatry : Official Journal of the American Association for Geriatric Psychiatry*, *26*(1), 107–122.
- Hallqvist, J., Lynch, J., Bartley, M., Lang, T., & Blane, D. (2004). Can we disentangle life course processes of accumulation, critical period and social mobility? An analysis of disadvantaged socio-economic positions and myocardial infarction in the Stockholm Heart Epidemiology Program. *Social Science & Medicine*, *58*(8), 1555–1562.
- Halpin, B. (2017). SADI: Sequence Analysis Tools for Stata. *The Stata Journal: Promoting Communications on Statistics and Stata*, *17*(3), 546–572.

- Hamilton, M. (1960). A rating scale for depression. *Journal of Neurology, Neurosurgery, and Psychiatry*, 23, 56–62.
- Hammer, L. B., Cullen, J. C., Neal, M. B., Sinclair, R. R., & Shafiro, M. V. (2005). The longitudinal effects of work-family conflict and positive spillover on depressive symptoms among dual-earner couples. *Journal of Occupational Health Psychology*, 10(2), 138–154.
- Hansen, T., Slagsvold, B., & Veenstra, M. (2017). Educational inequalities in late-life depression across Europe: Results from the generations and gender survey. *European Journal of Ageing*, 14(4), 407–418.
- Hanson, L. L. M., Leineweber, C., Chungkham, H. S., & Westerlund, H. (2014). Work-home interference and its prospective relation to major depression and treatment with antidepressants. *Scandinavian Journal of Work, Environment & Health*, 40(1), 66–73.
- Hapke, U., Cohrdes, C., & Nübel, J. (2019). Depressive Symptomatik im europäischen Vergleich – Ergebnisse des European Health Interview Survey (EHIS) 2. *Journal of Health Monitoring*, 4(4), 62–70.
- Harkness, S. (2016). The Effect of Employment on the Mental Health of Lone Mothers in the UK Before and After New Labour's Welfare Reforms. *Social Indicators Research*, 128(2), 763–791.
- Harris, K. M., & McDade, T. W. (2018). The Biosocial Approach to Human Development, Behavior, and Health Across the Life Course. *The Russell Sage Foundation Journal of the Social Sciences : RSF*, 4(4), 2–26.
- Harvey, S. B., Modini, M., Joyce, S., Milligan-Saville, J. S., Tan, L., Mykletun, A., Bryant, R. A., Christensen, H., & Mitchell, P. B. (2017). Can work make you mentally ill? A systematic meta-review of work-related risk factors for common mental health problems. *Occupational and Environmental Medicine*, 74(4), 301–310.
- Haupt, M., Wolter, D., & Gutzmann, H. (2017). Psychische Störungen im höheren Lebensalter. In H.-J. Möller, G. Laux, & H.-P. Kapfhammer (Eds.), *Springer Reference Medizin. Psychiatrie, Psychosomatik, Psychotherapie* (5th ed., pp. 2849–2873). Springer.
- Heim, C., Newport, D. J., Bonsall, R., Miller, A. H., & Nemeroff, C. B. (2001). Altered pituitary-adrenal axis responses to provocative challenge tests in adult survivors of childhood abuse. *The American Journal of Psychiatry*, 158(4), 575–581.
- Heinz, A. J., Meffert, B. N., Halvorson, M. A., Blonigen, D., Timko, C., & Cronkite, R. (2018). Employment characteristics, work environment, and the course of depression over 23 years: Does employment help foster resilience? *Depression and Anxiety*, 35(9), 861–867.
- Hill, E. J., Erickson, J. J., Fellows, K. J., Martinengo, G., & Allen, S. M. (2014). Work and Family over the Life Course: Do Older Workers Differ? *Journal of Family and Economic Issues*, 35(1), 1–13.
- Hirschfeld, R. M. A. (1997). The National Depressive and Manic-Depressive Association Consensus Statement on the Undertreatment of Depression. *JAMA: The Journal of the American Medical Association*, 277(4), 333. <https://doi.org/10.1001/jama.1997.03540280071036>

- Horackova, K., Kopecek, M., Machů, V., Kagstrom, A., Aarsland, D., Motlova, L. B., & Cermakova, P. (2019). Prevalence of late-life depression and gap in mental health service use across European regions. *European Psychiatry*, 57, 19–25.
- Hoven, H., Dragano, N., Lunau, T., Deindl, C., & Wahrendorf, M. (2020). The role of pension contributions in explaining inequalities in depressive symptoms. Results from SHARE. *Scandinavian Journal of Public Health*, 1403494820909011.
- Hübgen, S. (2020). *Armutrisiko alleinerziehend: Die Bedeutung von sozialer Komposition und institutionellem Kontext in Deutschland*. Budrich UniPress. <https://doi.org/10.3224/86388818>
- Hughes, K., Bellis, M. A., Hardcastle, K. A., Sethi, D., Butchart, A., Mikton, C., Jones, L., & Dunne, M. P. (2017). The effect of multiple adverse childhood experiences on health: a systematic review and meta-analysis. *The Lancet Public Health*, 2(8), e356-e366.
- Hutchison, E. D. (2011). Life Course Theory. In *Encyclopedia of Adolescence* (pp. 1586–1594). Springer, New York, NY. https://doi.org/10.1007/978-1-4419-1695-2_13
- ILO. (2021). *Yearbook of Labour Statistics*. <https://www.ilo.org/stat/Publications/Yearbook/lang--en/index.htm> [Last accessed on 13.09.2021]
- Ingram, R. E., & Luxton, D. D. (2005). Vulnerability-Stress Models. In B. L. L. Hankin & J. R. R. Z. Abela (Eds.), *Development of Psychopathology: A Vulnerability-Stress Perspective* (pp. 32–46). SAGE Publications. <https://doi.org/10.4135/9781452231655.n2>
- Iob, E., Lacey, R., & Steptoe, A. (2020). Adverse childhood experiences and depressive symptoms in later life: Longitudinal mediation effects of inflammation. *Brain, Behavior, and Immunity* (90), 97–107.
- Jayawarna, D., Marlow, S., & Swail, J. (2020). A Gendered Life Course Explanation of the Exit Decision in the Context of Household Dynamics. *Entrepreneurship Theory and Practice*, 104225872094012. <https://doi.org/10.1177/1042258720940123>
- Johansson, G., Huang, Q., & Lindfors, P. (2007). A life-span perspective on women's careers, health, and well-being. *Social Science & Medicine*, 65(4), 685–697.
- Judd, L. L., Schettler, P. J., & Akiskal, H. S. (2002). The prevalence, clinical relevance, and public health significance of subthreshold depressions. *Psychiatric Clinics of North America*, 25(4), 685–698. [https://doi.org/10.1016/S0193-953X\(02\)00026-6](https://doi.org/10.1016/S0193-953X(02)00026-6)
- Kang, J.-W., & Jang, S.-N. (2020). Effects of Women's Work-Family Multiple Role and Role Combination on Depressive Symptoms in Korea. *International Journal of Environmental Research and Public Health*, 17(4), 1249. <https://doi.org/10.3390/ijerph17041249>
- Keenan, K., & Grundy, E. (2019). Fertility History and Physical and Mental Health Changes in European Older Adults. *European Journal of Population = Revue Européenne De Demographie*, 35(3), 459–485. <https://doi.org/10.1007/s10680-018-9489-x>
- Kelly-Irving, M. (2019). *Allostatic load: how stress in childhood affects life-course health outcomes*. <https://www.health.org.uk/publications/allostatic-load> [Last accessed on 13.09.2021]

- Kendler, K. S., Gatz, M., Gardner, C. O., & Pedersen, N. L. (2005). Age at onset and familial risk for major depression in a Swedish national twin sample. *Psychological Medicine*, 35(11), 1573–1579. <https://doi.org/10.1017/S0033291705005714>
- Kessler, R. C., Berglund, P. A., Foster, C. L., Saunders, W. B., Stang, P. E., & Walters, E. E. (1997). Social consequences of psychiatric disorders, II: Teenage parenthood. *The American Journal of Psychiatry*, 154(10), 1405–1411. <https://doi.org/10.1176/ajp.154.10.1405>
- Kessler, R. C., & Bromet, E. J. (2013). The epidemiology of depression across cultures. *Annual Review of Public Health*, 34, 119–138. <https://doi.org/10.1146/annurev-publhealth-031912-114409>
- Kessler, R. C., Petukhova, M., Sampson, N. A., Zaslavsky, A. M., & Wittchen, H.-U. (2012). Twelve-month and lifetime prevalence and lifetime morbid risk of anxiety and mood disorders in the United States. *International Journal of Methods in Psychiatric Research*, 21(3), 169–184. <https://doi.org/10.1002/mpr.1359>
- Kessler, R. C., Walters, E. E., & Forthofer, M. S. (1998). The social consequences of psychiatric disorders, III: Probability of marital stability. *The American Journal of Psychiatry*, 155(8), 1092–1096. <https://doi.org/10.1176/ajp.155.8.1092>
- Killewald, A., & García-Mangano, J. (2016). Tethered lives: A couple-based perspective on the consequences of parenthood for time use, occupation, and wages. *Social Science Research*, 60, 266–282.
- Killewald, A., & Zhuo, X. (2019). U.S. Mothers' Long-Term Employment Patterns. *Demography*, 56(1), 285–320.
- Klinge, I., & Wiesemann, C. (2010). *Sex and gender in biomedicine*. Göttingen University Press.
- Koster, A., Bosma, H., Kempen, G. I. J. M., Penninx, B. W. J. H., Beekman, A. T. F., Deeg, D. J. H., & van Eijk, J. T. M. (2006). Socioeconomic differences in incident depression in older adults: The role of psychosocial factors, physical health status, and behavioral factors. *Journal of Psychosomatic Research*, 61(5), 619–627.
- Kreukels, B. P. C., Köhler, B., Nordenström, A., Roehle, R., Thyen, U., Bouvattier, C., Vries, A. L. C. de, & Cohen-Kettenis, P. T. (2018). Gender Dysphoria and Gender Change in Disorders of Sex Development/Intersex Conditions: Results From the dsd-LIFE Study. *The Journal of Sexual Medicine*, 15(5), 777–785. <https://doi.org/10.1016/j.jsxm.2018.02.021>
- Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, 16(9), 606–613. <https://doi.org/10.1046/j.1525-1497.2001.016009606.x>
- Kuh, D., Ben-Shlomo, Y., Lynch, J., Hallqvist, J., & Power, C. (2003). Life course epidemiology. *Journal of Epidemiology and Community Health*, 57(10), 778–783.
- Kuh, D., & Ben-Shlomo, Y. (Eds.). (2004). *Life course approach to adult health series. A life course approach to chronic disease epidemiology* (2. ed.). Oxford Univ. Press.
- Lacey, R., Kumari, M., Sacker, A., Stafford, M., Kuh, D., & McMunn, A. (2016). Work-Family Life Courses and Metabolic Markers in the MRC National Survey of Health and Development. *PloS One*, 11(8), e0161923.

- Lacey, R., Sacker, A., Kumari, M., Worts, D., McDonough, P., Booker, C., & McMunn, A. (2016). Work-family life courses and markers of stress and inflammation in mid-life: Evidence from the National Child Development Study. *International Journal of Epidemiology*, 45(4), 1247–1259. <https://doi.org/10.1093/ije/dyv205>
- Lacey, R., Stafford, M., Sacker, A., & McMunn, A. (2016). Work-Family Life Courses and Subjective Wellbeing in the MRC National Survey of Health and Development (the 1946 British birth cohort study). *Journal of Population Ageing*, 9(1-2), 69–89. <https://doi.org/10.1007/s12062-015-9126-y>
- Landstedt, E., Brydsten, A., Hammarström, A., Virtanen, P., & Almquist, Y. B. (2016). The role of social position and depressive symptoms in adolescence for life-course trajectories of education and work: A cohort study. *BMC Public Health*, 16(1), 1169.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer publishing company.
- Leach, L. S., & Butterworth, P. (2020). Depression and anxiety in early adulthood: Consequences for finding a partner, and relationship support and conflict. *Epidemiology and Psychiatric Sciences*, 29, e141. <https://doi.org/10.1017/S2045796020000530>
- Lee, J., Phillips, D., & Wilkens, J. (2021). Gateway to Global Aging Data: Resources for Cross-National Comparisons of Family, Social Environment, and Healthy Aging. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*, 76(Supplement_1), S5-S16. <https://doi.org/10.1093/geronb/gbab050>
- Leupp, K. (2017). Depression, Work and Family Roles, and the Gendered Life Course. *Journal of Health and Social Behavior*, 58(4), 422–441. <https://doi.org/10.1177/0022146517737309>
- Leupp, K. (2019). Even Supermoms Get the Blues: Employment, Gender Attitudes, and Depression. *Society and Mental Health*, 9(3), 316–333. <https://doi.org/10.1177/2156869318785406>
- Lim, G. Y., Tam, W. W., Lu, Y., Ho, C. S., Zhang, M. W., & Ho, R. C. (2018). Prevalence of Depression in the Community from 30 Countries between 1994 and 2014. *Scientific Reports*, 8(1), 2861.
- Linville, P. W. (1987). Self-complexity as a cognitive buffer against stress-related illness and depression. *Journal of Personality and Social Psychology*, 52(4), 663–676. <https://doi.org/10.1037/0022-3514.52.4.663>
- Lu, P., & Shelley, M. (2019). Why spouses depress each other: A cross-national study to test the shared resource hypothesis in depressive symptom concordance within older adult couples. *Asian Social Work and Policy Review*, 13(3), 307–319.
- Ludvigsson, M., Bernfort, L., Marcusson, J., Wressle, E., & Milberg, A. (2018). Direct Costs of Very Old Persons with Subsyndromal Depression: A 5-Year Prospective Study. *The American Journal of Geriatric Psychiatry : Official Journal of the American Association for Geriatric Psychiatry*, 26(7), 741–751.
- Lyonette, C. (2015). Part-time work, work–life balance and gender equality. *Journal of Social Welfare and Family Law*, 37(3), 321–333. <https://doi.org/10.1080/09649069.2015.1081225>

- Mandelbaum, J. (2020). Advancing health equity by integrating intersectionality into epidemiological research: Applications and challenges. *J Epidemiol Community Health*, 74(9), 761–762.
- Manzoni, A., & Mooi-Reci, I. (2020). The cumulative disadvantage of unemployment: Longitudinal evidence across gender and age at first unemployment in Germany. *PloS One*, 15(6), e0234786.
- Marchand, A., Bilodeau, J., Demers, A., Bearegard, N., Durand, P., & Haines, V. Y. (2016). Gendered depression: Vulnerability or exposure to work and family stressors? *Social Science & Medicine* (1982), 166, 160–168.
- Marks, N. F. (1998). Does It Hurt to Care? Caregiving, Work-Family Conflict, and Midlife Well-Being. *Journal of Marriage and the Family*, 60(4), 951.
- Marks, S. R. (1977). Multiple Roles and Role Strain: Some Notes on Human Energy, Time and Commitment. *American Sociological Review*, 42(6), 921.
- McCall, G. J., & Simons, J. L. (1978). *The role identity model in Identities and interactions: An examination of human associations in everyday life*. New York: The Free Press.
- McCall, L. (2005). The Complexity of Intersectionality. *Signs: Journal of Women in Culture and Society*, 30(3), 1771–1800. <https://doi.org/10.1086/426800>
- McDonough, P., Worts, D., Booker, C., McMunn, A., & Sacker, A. (2015). Cumulative disadvantage, employment–marriage, and health inequalities among American and British mothers. *Advances in Life Course Research*, 25, 49–66. <https://doi.org/10.1016/j.alcr.2015.05.004>
- McEwen, B. S. (1998). Stress, adaptation, and disease. Allostasis and allostatic load. *Annals of the New York Academy of Sciences*, 840, 33–44. <https://doi.org/10.1111/j.1749-6632.1998.tb09546.x>
- McMunn, A., Bartley, M., & Kuh, D. (2006). Women's health in mid-life: Life course social roles and agency as quality. *Social Science & Medicine*, 63(6), 1561–1572.
- McMunn, A., Lacey, R., Worts, D., McDonough, P., Stafford, M., Booker, C., Kumari, M., & Sacker, A. (2015). De-standardization and gender convergence in work–family life courses in Great Britain: A multi-channel sequence analysis. *Advances in Life Course Research*, 26, 60–75.
- Melchior, H., Schulz, H., & Härter, M. (2014). Stellenwert regionaler Variationen in der Prävalenz und Behandlung depressiver Erkrankungen und Implikationen für die Versorgungsforschung [Significance of regional variations in the prevalence and treatment of depressive disorders and implications for health-care research]. *Bundesgesundheitsblatt - Gesundheitsforschung - Gesundheitsschutz*, 57(2), 224–233. <https://doi.org/10.1007/s00103-013-1890-3>
- Milkie, M. A., Kendig, S. M., Nomaguchi, K. M., & Denny, K. E. (2010). Time With Children, Children's Well-Being, and Work-Family Balance Among Employed Parents. *Journal of Marriage and the Family*, 72(5), 1329–1343. <https://doi.org/10.1111/j.1741-3737.2010.00768.x>
- Milner, A., Scovelle, A. J., King, T. L., & Madsen, I. (2019). Exposure to work stress and use of psychotropic medications: A systematic review and meta-analysis. *J Epidemiol Community Health*, 73(6), 569–576. <https://doi.org/10.1136/jech-2018-211752>

- Mindell, J., Biddulph, J. P., Hirani, V., Stamatakis, E., Craig, R., Nunn, S., & Shelton, N. (2012). Cohort profile: The health survey for England. *International Journal of Epidemiology*, *41*(6), 1585–1593.
- Modini, M., Joyce, S., Mykletun, A., Christensen, H., Bryant, R. A., Mitchell, P. B., & Harvey, S. B. (2016). The mental health benefits of employment: Results of a systematic meta-review. *Australasian Psychiatry : Bulletin of Royal Australian and New Zealand College of Psychiatrists*, *24*(4), 331–336.
- Moen, P. (2011). From ‘work–family’ to the ‘gendered life course’ and ‘fit’: five challenges to the field. *Community, Work & Family*, *14*(1), 81–96. <https://doi.org/10.1080/13668803.2010.532661>
- Moen, P., Dempster-McClain, D., & Williams, R. M. (1992). Successful Aging: A Life-Course Perspective on Women's Multiple Roles and Health. *American Journal of Sociology*, *97*(6), 1612–1638. <https://doi.org/10.1086/229941>
- Möhring, K. (2018). Is there a motherhood penalty in retirement income in Europe? The role of lifecourse and institutional characteristics. *Ageing and Society*, *38*(12), 2560–2589. <https://doi.org/10.1017/S0144686X17000812>
- Mousteri, V., Daly, M., Delaney, L., Tynelius, P., & Rasmussen, F. (2019). Adolescent mental health and unemployment over the lifespan: Population evidence from Sweden. *Social Science & Medicine (1982)*, *222*, 305–314.
- Munkholm, K., Paludan-Müller, A. S., & Boesen, K. (2019). Considering the methodological limitations in the evidence base of antidepressants for depression: A reanalysis of a network meta-analysis. *BMJ Open*, *9*(6), e024886. <https://doi.org/10.1136/bmjopen-2018-024886>
- Naldini, M., Pavolini, E., & Solera, C. (2016). Female employment and elderly care: the role of care policies and culture in 21 European countries. *Work, Employment and Society*, *30*(4), 607–630. <https://doi.org/10.1177/0950017015625602>
- Neff, A., Sonnentag, S., Niessen, C., & Unger, D. (2012). What's mine is yours: The crossover of day-specific self-esteem. *Journal of Vocational Behavior*, *81*(3), 385–394. <https://doi.org/10.1016/J.JVB.2012.10.002> (Journal of Vocational Behavior, *81*(3), 385-394).
- Nilsen, W., Skipstein, A., Østby, K. A., & Mykletun, A. (2017). Examination of the double burden hypothesis—a systematic review of work-family conflict and sickness absence. *European Journal of Public Health*, *27*(3), 465–471. <https://doi.org/10.1093/eurpub/ckx054>
- Nolen-Hoeksema, S., & Ahrens, C. (2002). Age differences and similarities in the correlates of depressive symptoms. *Psychology and Aging*, *17*(1), 116–124. <https://doi.org/10.1037/0882-7974.17.1.116>
- Nordenmark, M. (2004). Multiple Social Roles and Well-Being. *Acta Sociologica*, *47*(2), 115–126. <https://doi.org/10.1177/0001699304043823>
- Notten, N., Grunow, D., & Verbakel, E. (2017). Social Policies and Families in Stress: Gender and Educational Differences in Work-Family Conflict from a European Perspective. *Social Indicators Research*, *132*(3), 1281–1305. <https://doi.org/10.1007/s11205-016-1344-z>

- Osler, M., Bruunsgaard, H., & Lykke Mortensen, E. (2015). Lifetime socio-economic position and depression: An analysis of the influence of cognitive function, behaviour and inflammatory markers. *European Journal of Public Health, 25*(6), 1065–1069.
- Parsons, T. (1951). Illness and the role of the physician: A sociological perspective. *The American Journal of Orthopsychiatry, 21*(3), 452–460. <https://doi.org/10.1111/j.1939-0025.1951.tb00003.x>
- Paul, K. I., & Moser, K. (2009). Unemployment impairs mental health: Meta-analyses. *Journal of Vocational Behavior, 74*(3), 264–282. <https://doi.org/10.1016/j.jvb.2009.01.001>
- Pedulla, D. S. (2016). Penalized or Protected? Gender and the Consequences of Nonstandard and Mismatched Employment Histories. *American Sociological Review, 81*(2), 262–289. <https://doi.org/10.1177/0003122416630982>
- Perreault, M., Touré, E. H., Perreault, N., & Caron, J. (2017). Employment Status and Mental Health: Mediating Roles of Social Support and Coping Strategies. *Psychiatric Quarterly, 88*(3), 501–514. <https://doi.org/10.1007/s11126-016-9460-0>
- Pessin, L., & Arpino, B. (2017). *Country-of-origin gender ideology and immigrants' gender role attitudes toward women's employment*. <https://repositori.upf.edu/handle/10230/30803> [Last accessed: 13.09.2021]
- Peters, A., McEwen, B. S., & Friston, K. (2017). Uncertainty and stress: Why it causes diseases and how it is mastered by the brain. *Progress in Neurobiology, 156*, 164–188. <https://doi.org/10.1016/j.pneurobio.2017.05.004>
- Piccarreta, R., & Studer, M. (2019). Holistic analysis of the life course: Methodological challenges and new perspectives. *Advances in Life Course Research, 41*, 100251.
- Piccinelli, M., & Wilkinson, G. (2000). Gender differences in depression. Critical review. *British Journal of Psychiatry, 177*(6), 486–492.
- Platt, J. M., Bates, L. M., Jager, J., McLaughlin, K. A., & Keyes, K. M. (2020). Changes in the depression gender gap from 1992 to 2014: Cohort effects and mediation by gendered social position. *Social Science & Medicine (1982), 258*, 113088. <https://doi.org/10.1016/j.socscimed.2020.113088>
- Powell, G. N., & Greenhaus, J. H. (2010). Sex, Gender, and the Work-to-Family Interface: Exploring Negative and Positive Interdependencies. *Academy of Management Journal, 53*(3), 513–534. <https://doi.org/10.5465/amj.2010.51468647>
- Power, C., & Hertzman, C. (1997). Social and biological pathways linking early life and adult disease. *British Medical Bulletin, 53*(1), 210–221. <https://doi.org/10.1093/oxfordjournals.bmb.a011601>
- Prince, M. J., Reischies, F., Beekman, A. T., Fuhrer, R., Jonker, C., Kivela, S. L., Lawlor, B. A., Lobo, A., Magnusson, H., Fichter, M., van Oyen, H., Roelands, M., Skoog, I., Turrina, C., & Copeland, J. R. (1999). Development of the EURO-D scale—a European, Union initiative to compare symptoms of depression in 14 European centres. *British Journal of Psychiatry, 174*, 330–338. <https://doi.org/10.1192/bjp.174.4.330>
- Quadt, L., Esposito, G., Critchley, H. D., & Garfinkel, S. N. (2020). Brain-body interactions underlying the association of loneliness with mental and physical health. *Neuroscience and Biobehavioral Reviews, 116*, 283–300. <https://doi.org/10.1016/j.neubiorev.2020.06.015>

- Radloff, L. S. (1977). The CES-D Scale: A Self-Report Depression Scale for Research in the General Population. *Applied Psychological Measurement, 1*(3), 385–401. <https://doi.org/10.1177/014662167700100306>
- Reibling, N., & Möhring, K. (2018). Parenthood and Later Life Health: An International Life Course Analysis of Parents and Childless Adults Aged 50 and Older. *Swiss Journal of Sociology, 44*(2), 327–356. <https://doi.org/10.1515/sjs-2018-0015>
- Rodda, J., Walker, Z., & Carter, J. (2011). Depression in older adults. *BMJ (Clinical Research Ed.), 343*, d5219. <https://doi.org/10.1136/bmj.d5219>
- Rung, A. L., Oral, E., & Peters, E. S. (2021). Work-family spillover and depression: Are there racial differences among employed women? *SSM - Population Health, 13*, 100724. <https://doi.org/10.1016/j.ssmph.2020.100724>
- Sachs-Ericsson, N., & Ciarlo, J. A. (2000). Gender, Social Roles, and Mental Health: An Epidemiological Perspective. *Sex Roles, 43*(9/10), 605–628.
- Salk, R. H., Hyde, J. S., & Abramson, L. Y. (2017). Gender differences in depression in representative national samples: Meta-analyses of diagnoses and symptoms. *Psychological Bulletin, 143*(8), 783–822. <https://doi.org/10.1037/bul0000102>
- Saraceno, C. (2011). Childcare needs and childcare policies: A multidimensional issue. *Current Sociology, 59*(1), 78–96. <https://doi.org/10.1177/0011392110385971>
- Saraceno, C., & Keck, W. (2010). Can we identify intergenerational policy regimes in Europe? *European Societies, 12*(5), 675–696. <https://doi.org/10.1080/14616696.2010.483006>
- Schmermund, A., Möhlenkamp, S., Stang, A., Grönemeyer, D., Seibel, R., Hirche, H., Mann, K., Siffert, W., Lauterbach, K., Siegrist, J., Jöckel, K.-H., & Erbel, R. (2002). Assessment of clinically silent atherosclerotic disease and established and novel risk factors for predicting myocardial infarction and cardiac death in healthy middle-aged subjects: Rationale and design of the Heinz Nixdorf RECALL Study. Risk Factors, Evaluation of Coronary Calcium and Lifestyle. *American Heart Journal, 144*(2), 212–218. <https://doi.org/10.1067/mhj.2002.123579>
- Schröder, M. (2018). How working hours influence the life satisfaction of childless men and women, fathers and mothers in Germany. *Zeitschrift Für Soziologie, 47*(1), 65–82. <https://doi.org/10.1515/zfsoz-2018-1004>
- Seidler, Z. E., Dawes, A. J., Rice, S. M., Oliffe, J. L., & Dhillon, H. M. (2016). The role of masculinity in men's help-seeking for depression: A systematic review. *Clinical Psychology Review, 49*, 106–118. <https://doi.org/10.1016/j.cpr.2016.09.002>
- Siddaway, A. P., Wood, A. M., & Taylor, P. J. (2017). The Center for Epidemiologic Studies-Depression (CES-D) scale measures a continuum from well-being to depression: Testing two key predictions of positive clinical psychology. *Journal of Affective Disorders, 213*, 180–186. <https://doi.org/10.1016/j.jad.2017.02.015>
- Sieber, S. D. (1974). Toward a Theory of Role Accumulation. *American Sociological Review, 39*(4), 567. <https://doi.org/10.2307/2094422>
- Simonson, J., Gordo, L. R., & Titova, N. (2011). Changing employment patterns of women in Germany: How do baby boomers differ from older cohorts? A comparison using sequence analysis. *Advances in Life Course Research, 16*(2), 65–82. <https://doi.org/10.1016/j.alcr.2011.03.002>

- Smith, S. M., & Vale, W. W. (2006). The role of the hypothalamic-pituitary-adrenal axis in neuroendocrine responses to stress. *Dialogues in Clinical Neuroscience*, 8(4), 383–395.
- Sperlich, S., Arnhold-Kerri, S., Siegrist, J., & Geyer, S. (2013). The mismatch between high effort and low reward in household and family work predicts impaired health among mothers. *European Journal of Public Health*, 23(5), 893–898. <https://doi.org/10.1093/eurpub/cks134>
- Stahnke, B., Blackstone, A., & Howard, H. (2020). Lived Experiences and Life Satisfaction of ChildFree Women in Late Life. *The Family Journal*, 28(2), 159–167. <https://doi.org/10.1177/1066480720911611>
- Stang, A., Moebus, S., Dragano, N., Beck, E. M., Möhlenkamp, S., Schmermund, A., Siegrist, J., Erbel, R., & Jöckel, K.-H. (2005). Baseline recruitment and analyses of nonresponse of the Heinz Nixdorf Recall Study: Identifiability of phone numbers as the major determinant of response. *European Journal of Epidemiology*, 20(6), 489–496. <https://doi.org/10.1007/s10654-005-5529-z>
- Steiber, N., & Haas, B. (2010). Begrenzte Wahl-Gelegenheitsstrukturen und Erwerbsmuster in Paarhaushalten im europäischen Vergleich. *KZfSS Kölner Zeitschrift Für Soziologie Und Sozialpsychologie*, 62(2), 247–276.
- Steinbach, A. (2019). Children's and Parents' Well-Being in Joint Physical Custody: A Literature Review. *Family Process*, 58(2), 353–369. <https://doi.org/10.1111/famp.12372>
- Stephoe, A., Breeze, E., Banks, J., & Nazroo, J. (2013). Cohort profile: The English longitudinal study of ageing. *International Journal of Epidemiology*, 42(6), 1640–1648. <https://doi.org/10.1093/ije/dys168>
- Stertz, A. M., Grether, T., & Wiese, B. S. (2017). Gender-role attitudes and parental work decisions after childbirth: A longitudinal dyadic perspective with dual-earner couples. *Journal of Vocational Behavior*, 101, 104–118. <https://doi.org/10.1016/j.jvb.2017.05.005>
- Steverink, N., & Lindenberg, S. (2006). Which social needs are important for subjective well-being? What happens to them with aging? *Psychology and Aging*, 21(2), 281–290. <https://doi.org/10.1037/0882-7974.21.2.281>
- Stier, H., Lewin-Epstein, N., & Braun, M. (2012). Work-family conflict in comparative perspective: The role of social policies. *Research in Social Stratification and Mobility*, 30(3), 265–279. <https://doi.org/10.1016/j.rssm.2012.02.001>
- Stommel, M., Given, B. A., Given, C. W., Kalaian, H. A., Schulz, R., & McCorkle, R. (1993). Gender bias in the measurement properties of the center for epidemiologic studies depression scale (CES-D). *Psychiatry Research*, 49(3), 239–250.
- Swaab, D. F., Bao, A.-M., & Lucassen, P. J. (2005). The stress system in the human brain in depression and neurodegeneration. *Ageing Research Reviews*, 4(2), 141–194. <https://doi.org/10.1016/j.arr.2005.03.003>
- Taylor, S. E., Klein, L. C., Lewis, B. P., Gruenewald, T. L., Gurung, R. A., & Updegraff, J. A. (2000). Biobehavioral responses to stress in females: Tend-and-befriend, not fight-or-flight. *Psychological Review*, 107(3), 411–429. <https://doi.org/10.1037/0033-295x.107.3.411>

- Thase, M. E. (2009). Neurobiological aspects of depression. In I. H. Gotlib & C. L. Hammen (Eds.), *Handbook of depression* (2nd ed., pp. 187–217). Guilford Press.
- Thoits, P. A. (1983). Multiple Identities and Psychological Well-Being: A Reformulation and Test of the Social Isolation Hypothesis. *American Sociological Review*, 48(2), 174. <https://doi.org/10.2307/2095103>
- Thom, J., Kuhnert, R., Born, S., & Hapke, U. (2017). 12-Monats-Prävalenz der selbstberichteten ärztlich diagnostizierten Depression in Deutschland. *Journal of Health Monitoring*, 2(2), 72–80.
- Toller, P. W., Suter, E. A., & Trautman, T. C. (2004). Gender Role Identity and Attitudes Toward Feminism. *Sex Roles*, 51(1/2), 85–90.
- Tosi, M., & Grundy, E. (2021). Work–family lifecourses and later-life health in the United Kingdom. *Ageing and Society*, 41(6), 1371–1397.
- Trautman, S., Beesdo-Baum, K., Knappe, S., Einsle, F., Knothe, L., Wieder, G., Venz, J., Rummel-Kluge, C., Heinz, I., Koburger, N., Schouler-Ocak, M., Wilbertz, T., Unger, H.-P., Walter, U., Hein, J., Hegerl, U., Lieb, R., Pfennig, A., Schmitt, J., . . . Bergmann, A. (2017). The treatment of depression in primary care - a cross-sectional epidemiological study. *Deutsches Ärzteblatt International*, 2017(114), 721–728.
- Turner, R. J., & Lloyd, D. A. (1995). Lifetime Traumas and Mental Health: The Significance of Cumulative Adversity. *Journal of Health and Social Behavior*, 36(4), 360. <https://doi.org/10.2307/2137325>
- Umberson, D., Pudrovska, T., & Reczek, C. (2010). Parenthood, Childlessness, and Well-Being: A Life Course Perspective. *Journal of Marriage and the Family*, 72(3), 612–629. <https://doi.org/10.1111/j.1741-3737.2010.00721.x>
- Umberson, D., Thomeer, M. B., Pollitt, A. M., & Mernitz, S. E. (2020). The Psychological Toll of Emotion Work in Same-Sex and Different-Sex Marital Dyads. *Journal of Marriage and Family*, 82(4), 1141–1158. <https://doi.org/10.1111/jomf.12686>
- van de Velde, S., Bracke, P., & Levecque, K. (2010). Gender differences in depression in 23 European countries. Cross-national variation in the gender gap in depression. *Social Science & Medicine* (1982), 71(2), 305–313. <https://doi.org/10.1016/j.socscimed.2010.03.035>
- van de Velde, S., Huijts, T., Bracke, P., & Bambra, C. (2013). Macro-level gender equality and depression in men and women in Europe. *Sociology of Health & Illness*, 35(5), 682–698. <https://doi.org/10.1111/j.1467-9566.2012.01521.x>
- van den Broek, T. (2020). Is having more children beneficial for mothers' mental health in later life? Causal evidence from the national health and aging trends study. *Ageing & Mental Health*, 1–9. <https://doi.org/10.1080/13607863.2020.1774739>
- van der Noordt, M., IJzelenberg, H., Droomers, M., & Proper, K. I. (2014). Health effects of employment: A systematic review of prospective studies. *Occupational and Environmental Medicine*, 71(10), 730–736.
- van Hedel, K., Martikainen, P., Moustgaard, H., & Myrskylä, M. (2018). Cohabitation and mental health: Is psychotropic medication use more common in cohabitation than marriage? *SSM - Population Health*, 4, 244–253. <https://doi.org/10.1016/j.ssmph.2018.01.001>

- van Winkle, Z., & Fasang, A. (2017). Complexity in Employment Life Courses in Europe in the Twentieth Century—Large Cross-National Differences but Little Change across Birth Cohorts. *Social Forces*, *96*(1), 1–30. <https://doi.org/10.1093/sf/sox032>
- Virtanen, M., Ferrie, J. E., Batty, G. D., Elovainio, M., Jokela, M., Vahtera, J., Singh-Manoux, A., & Kivimäki, M. (2015). Socioeconomic and psychosocial adversity in midlife and depressive symptoms post retirement: A 21-year follow-up of the Whitehall II study. *The American Journal of Geriatric Psychiatry : Official Journal of the American Association for Geriatric Psychiatry*, *23*(1), 99-109.
- Voßemer, J., Gebel, M., Nizalova, O., & Nikolaieva, O. (2018). The effect of an early-career involuntary job loss on later life health in Europe. *Advances in Life Course Research*, *35*, 69–76.
- Wahrendorf, M., Blane, D., Bartley, M., Dragano, N., & Siegrist, J. (2013). Working conditions in mid-life and mental health in older ages. *Advances in Life Course Research*, *18*(1), 16–25.
- Wahrendorf, M., Deindl, C., Beaumaster, S., Phillips, D., & Lee, J. (2019a). *Harmonized ELSA Life History Documentation: Version A, May 2019*. Los Angeles. <https://g2aging.org/>
- Wahrendorf, M., Deindl, C., Beaumaster, S., Phillips, D., & Lee, J. (2019b). *Harmonized SHARE Life History Documentation: Version B, February 2020*. Los Angeles. <https://g2aging.org/>
- Wahrendorf, M., Hoven, H., Goldberg, M., Zins, M., & Siegrist, J. (2019). Adverse employment histories and health functioning: The CONSTANCES study. *International Journal of Epidemiology*, *48*(2), 402–414.
- Wahrendorf, M., Marr, A., Antoni, M., Pesch, B., Jöckel, K.-H., Lunau, T., Moebus, S.; Arendt, M., Brüning, T., Behrens, T., & Dragano, N. (2019). Agreement of Self-Reported and Administrative Data on Employment Histories in a German Cohort Study: A Sequence Analysis. *European Journal of Population = Revue Européenne De Demographie*, *35*(2), 329–346.
- Wan, W. H., Antonucci, T. C., Birditt, K. S., & Smith, J. (2018). Work-Hour Trajectories and Depressive Symptoms among Midlife and Older Married Couples. *Work, Aging and Retirement*, *4*(1), 108–122.
- Wang, P. S., Aguilar-Gaxiola, S., Alonso, J., Angermeyer, M. C., Borges, G., Bromet, E. J., Bruffaerts, R., Girolamo, G. de, Graaf, R. de, Gureje, O., Haro, J. M., Karam, E. G., Kessler, R. C., Kovess, V., Lane, M. C., Lee, S., Levinson, D., Ono, Y., Petukhova, M., . . . Wells, J. E. (2007). Use of mental health services for anxiety, mood, and substance disorders in 17 countries in the WHO world mental health surveys. *Lancet*, *370*(9590), 841–850.
- Ward, K., Medina, J., Mo, M., & Cox, K. (2009). *ELSA wave three: life history interview*. NatCen. https://doc.ukdataservice.ac.uk/doc/5050/mrdoc/pdf/5050_wave_3_life_history_documentation.pdf [Last accessed on 13.09.2021]
- Weber, K., Giannakopoulos, P., Herrmann, F. R., Bartolomei, J., Digiorgio, S., Ortiz Chicherio, N., Delaloye, C., Ghisletta, P., Lecerf, T., Ribaupierre, A. de, & Canuto, A. (2013). Stressful life events and neuroticism as predictors of late-life

- versus early-life depression. *Psychogeriatrics : The Official Journal of the Japanese Psychogeriatric Society*, 221–228.
- Wedegaertner, F., Arnhold-Kerri, S., Sittaro, N.-A., Bleich, S., Geyer, S., & Lee, W. E. (2013). Depression- and anxiety-related sick leave and the risk of permanent disability and mortality in the working population in Germany: A cohort study. *BMC Public Health*, 13, 145. <https://doi.org/10.1186/1471-2458-13-145>
- West, C., & Zimmermann, D. H. (1987). Doing Gender. *Gender & Society*, 1(2), 125–151.
- Westman, M. (2001). Stress and Strain Crossover. *Human Relations*, 54(6), 717–751.
- WHO. (2021). *Factsheet Depression*. <https://www.who.int/news-room/factsheets/detail/depression> [Last accessed on 13.09.2021]
- Wickrama, K. A. S., King, V. A., O'Neal, C. W., & Lorenz, F. O. (2017). Stressful Work Trajectories and Depressive Symptoms in Middle-Aged Couples: Moderating Effect of Marital Warmth. *Journal of Aging and Health*, 898264317736135.
- Wickrama, K. A. S., O'Neal, C. W., & Lee, T. K. (2016). Cumulative Socioeconomic Adversity, Developmental Pathways, and Mental Health Risks During the Early Life Course. *Emerging Adulthood*, 4(6), 378–390.
- Wickrama, K. A. S., O'Neal, C. W., & Lee, T. K. (2020). Aging Together in Enduring Couple Relationships: A Life Course Systems Perspective. *Journal of Family Theory & Review*, 12(2), 238–263.
- Widmer, E. D., & Ritschard, G. (2009). The de-standardization of the life course: Are men and women equal? *Advances in Life Course Research*, 14(1-2), 28–39.
- Wiese, B. S., Seiger, C. P., Schmid, C. M., & Freund, A. M. (2010). Beyond conflict: Functional facets of the work–family interplay. *Journal of Vocational Behavior*, 77(1), 104–117.
- Wójcik, G., Zawisza, K., Jabłońska, K., Grodzicki, T., & Tobiasz-Adamczyk, B. (2019). Transition out of Marriage and its Effects on Health and Health-Related Quality of Life among Females and Males. COURAGE and COURAGE-POLFUS - Population Based Follow-Up Study in Poland. *Applied Research in Quality of Life*, 16(1), 13-49.
- Worts, D., Corna, L., Sacker, A., McMunn, A., & McDonough, P. (2016). Understanding older adults' labour market trajectories: a comparative gendered life course perspective. *Longitudinal and Life Course Studies*, 7(4), 347–367.
- Wu, J.-J., Wang, H.-X., Yao, W., Yan, Z., & Pei, J.-J. (2020). Late-life depression and the risk of dementia in 14 countries: A 10-year follow-up study from the Survey of Health, Ageing and Retirement in Europe. *Journal of Affective Disorders*, 274, 671–677.
- Xu, H., & Koszycki, D. (2020). Interpersonal Psychotherapy for Late-life Depression and its Potential Application in China. *Neuropsychiatric Disease and Treatment*, 16, 1919–1928.
- Xue, B., & McMunn, A. (2021). Gender differences in unpaid care work and psychological distress in the UK Covid-19 lockdown. *PLOS ONE*, 16(3), e0247959. <https://doi.org/10.1371/journal.pone.0247959>
- Zagel, H., & van Winkle, Z. (2020). Women's Family and Employment Life Courses Across Twentieth-Century Europe: The Role of Policies and Norms. *Social Politics*:

International Studies in Gender, State & Society, Article jxz056. Advance online publication. <https://doi.org/10.1093/sp/jxz056>

Zannella, M., Hammer, B., Prskawetz, A., & Sambt, J. (2019). A Quantitative Assessment of the Rush Hour of Life in Austria, Italy and Slovenia. *European Journal of Population = Revue Europeenne De Demographie*, 35(4), 751–776. <https://doi.org/10.1007/s10680-018-9502-4>

Zella, S., & Harper, S. (2020a). Employment trajectories and health: Cohort differences in English and French women. *Journal of Public Health (Oxford, England)*. Advance online publication. <https://doi.org/10.1093/pubmed/fdaa064>

Zella, S., & Harper, S. (2020b). The Impact of Life Course Employment and Domestic Duties on the Well-Being of Retired Women and the Social Protection Systems That Frame This. *Journal of Aging and Health*, 32(5-6), 285–295. <https://doi.org/10.1177/0898264318821205>

Zierau, F., Bille, A., Rutz, W., & Bech, P. (2002). The Gotland Male Depression Scale: A validity study in patients with alcohol use disorder. *Nordic Journal of Psychiatry*, 56(4), 265–271. <https://doi.org/10.1080/08039480260242750>

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