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**The impact of unemployment on mental health across European gender
 regimes**

Master thesis

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Abstract

This thesis explores how unemployment impacts mental health among men and women across various gender regimes in European countries. Previous studies have shown mixed results, with some indicating a greater impact on men's mental health, while others suggest a stronger effect on women's mental health. This study emphasizes the role of gender regimes as a crucial institutional context in determining the mental health outcomes of unemployment for both men and women. Utilizing Korpi's family policy typology, the study classifies 26 European countries into five distinct gender regimes with unique family policies: Traditional-Central, Traditional-Southern, Dual-Earner, Market, and Contradictory. Data from the European Social Survey 2012 and 2014 (N = 40,049) are analysed using multiple logistic regressions within each gender regime. The research employs the CES-D8 scale to measure depressive symptoms as an indicator of mental health. The findings reveal that while unemployment is associated with increased depressive symptoms across all regimes, the impact varies significantly by gender and regime type. In Traditional-Southern and Contradictory regimes, unemployed men experience a more pronounced increase in depressive symptoms compared to unemployed women. Conversely, in Dual-Earner and Market regimes, gender differences in the impact of unemployment on depressive symptoms are not significant, indicating a similar impact on mental health for both men and women. These results show the importance of considering institutional factors, such as gender regimes, in understanding the mental health implications of unemployment.

Keywords: unemployment, gender, mental health, gender regimes, Europe

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1. Introduction

Work is a key social determinant of health and health inequalities (Bambra, 2011; Marmot & Wilkinson, 2006). Numerous studies have highlighted the negative effect of unemployment on mental wellbeing (Bambra & Eikemo, 2009; Paul & Moser, 2009) and persistent health inequalities between employed and unemployed people exist within Europe (Brydsten, Hammarström, & San Sebastian, 2018; Mousteri, Daly, & Delaney, 2018). Unemployment is a stressful life event impacting psychological well-being and has been associated with higher rates of depression, an increased likelihood of anxiety, and diminished subjective well-being (Brand, 2015; Paul & Moser, 2009). While unemployment rates in Europe have recently fallen to around 6.0% in 2024 (Eurostat, 2024), recent crises such as the COVID-19 pandemic and the 2007–2008 financial crisis have demonstrated the potential for unemployment rates to rise rapidly (Eurofound, 2021). This makes it important to better understand how experiencing job loss may impact people's mental health.

While traditional research on the relationship between unemployment and health has primarily focused on the economic problems of unemployment, more recent studies have emphasized the psychosocial effects, such as the impact on an individual's status and loss of self-worth (Bambra, 2011). Nowadays, in Western societies, employment is experienced as more than a means to provide for oneself; it also functions as an important source of identity, social interaction, and personal fulfilment (Jahoda, 1982). Not having a job carries a social stigma which can lead to feelings of anxiety, insecurity and shame (Brand, 2015).

While the relationship between unemployment and mental health is well-established, there is ongoing debate regarding the role of gender in this context. Early studies often focused exclusively on men, arguing that men are more affected by unemployment due to the stronger association of their identity with employment compared to women (Gedkili et al, 2023). Meta-studies provide contrasting results: one suggests that women experience worse mental health outcomes during unemployment (McKee-Ryan et al., 2005), while others indicate worse outcomes for men (Paul & Moser, 2009; Gedkili et al, 2023). Additionally, single-country studies have shown varied findings. For example, research in Spain found that unemployment had a greater effect on the mental health of men compared to women (Artazcoz et al., 2004), whereas a study in Sweden concluded that men are not more affected by the health consequences of unemployment than women (Hammarström et al., 2011).

Health inequalities between genders are primarily socially produced, arising from existing social structures, norms, and power dynamics related to gender (Annandale & Hunt, 2000). Gender refers to the 'to the different roles, responsibilities, limitations, and experiences provided to individuals based on their presenting sex/gender' (Johnson & Repta, 2012)¹. Given that work is a

¹ In this thesis, the focus will be exclusively on the binary gender division of male and female.

crucial determinant of health and is traditionally heavily influenced by gender divisions, exploring the relationship between work and health across genders is particularly important. This interest is heightened by the increasing participation of women in the labour market in Western societies since the late 20th century (Cipollone, Patacchini & Vallanti, 2014), showing the growing importance of employment in women's lives.

Previous research on the gendered dimensions of the work-health relationship have often been based on data from individual countries, potentially overlooking contextual factors that influence gendered outcomes in this relationship. Therefore, exploring broader cross-national perspectives is important to better understand how men and women experience and cope with unemployment. Studies indicate that the impact of social determinants, such as employment, on public health outcomes varies significantly across countries, shaped by diverse social policies and welfare state institutions (Dahl et al., 2006; Bambra & Eikemo, 2018). The World Health Organisation (2008) also recognizes that social policies significantly influence population health and health disparities.

This thesis will use the concept of gender regimes to investigate how unemployment impacts mental health differently for men and women across various institutional contexts. Gender regimes refer to the policies and institutional norms that shape gender equality, often reflecting the rules and expectations associated with gender relations (Sainsbury, 1999). By analysing how gender roles and responsibilities are institutionalized within different countries, the study will explore how these societal structures influence the division of paid and unpaid work and consequently affect gender inequalities in health outcomes. Research by Cortès-Franch et al. (2019) and Strandh et al. (2013) has shown that variations in gender regime policies related to family and employment can lead to different health outcomes during unemployment for men and women. This thesis will apply Korpi's (2000) family typology to categorize countries into distinct groups based on their family policy institutions. These groups indicate to what extent a country supports or addresses a gender division of labour, serving as a measure of the overall gender equality policies in each country or group of countries (Korpi et al, 2013). Comparing these different groups of countries may reveal how different institutional environments contribute to disparate mental health outcomes for unemployed men and women.

This study uses data from the European Social Survey (ESS) rounds 6 (2012) and 7 (2014) to explore inequalities in mental health outcomes between employed and unemployed individuals, focusing on both men and women across different gender regimes in Europe. These waves were selected because they are the most recent versions of the ESS that measure the CES-D8 depression scale, a widely used indicator of mental health and psychological well-being (Radloff, 1977). Multiple logistic regressions are performed in each gender regime, based on Korpi's (2000) typology. This typology identifies three family policy models: (1) countries with Traditional family policies, (2) countries with Dual-Earner family policies, and (3) countries with Market-oriented

family policies. Additionally, a fourth group with Contradictory family policies, containing a wide range of Eastern European countries, will be included. This study aims to answer the following research question

How do the effects of unemployment on mental health differ by gender across various European gender regimes?

2. Literature review

Several studies across various institutional and national contexts have investigated how the effects of unemployment or employment status (such as job quality) on mental health differ by gender.

2.1 Single-country studies

Artazcoz and colleagues (2004) examined the influence of unemployment on mental health in Spain, exploring how gender, family roles, and social class moderate this relationship using data from a 1994 health survey. Although their study does not compare different gender regimes, it still provides insights into how gender roles intersect with unemployment. They find that the impact of unemployment on mental health varies across gender, family role, and social class categories. Specifically, unemployed men experience more significant negative effects on mental health compared to women. Marriage and parenthood influence this relationship differently for each gender: for men from lower social classes, being married or cohabiting increases the risk of poor mental health compared to single men. In contrast, marriage and parenthood act as protective factors for unemployed women, mitigating the impact of unemployment on their mental health compared to unmarried women. The authors attribute these differences to the distinct roles that men and women traditionally play in family responsibilities. They argue that for men, the role of the traditional breadwinner leads to stigmatization and financial difficulties in the case of unemployment. In contrast, married women, even if unemployed and not receiving benefits, often have their basic economic needs covered by their husbands' income. Next to that, they point to the role enhancement hypothesis, which suggests that individuals may derive alternative rewards from other roles when faced with challenges in one role, such as employment. Building on this, they argue that women are more likely to find fulfilment in their nurturing family roles after experiencing unemployment (Artazcoz et al., 2004).

Similarly, in a study among Italian households, Russo, Decataldo, and Terraneo (2021) find that both unemployed men and women experience worse mental health compared to their employed counterparts, but with unemployed men facing a larger impact. The study also shows that family roles and proximity to the family of origin moderate the negative impact of unemployment on mental health, particularly for women. The results suggest that being in a stable couple relationship and being a parent has a protective effect on mental health for both genders, with a greater impact on women, while living near the family of origin is crucial for both men and women. The authors argue that this shows that being invested in multiple roles in life, such as a parenting role, helps mitigate the negative effects of unemployment. They state that the larger protective effect of parenting for women indicates that traditional gender roles, where women are expected to perform informal care labour and men are expected to be the primary breadwinners,

remain prevalent in Italy. This explanation aligns with the study of Artazcoz et al. (2004) in Spain, pointing to potential similarities in traditional gender roles in these Southern European countries.

Contrastingly, Hammarström et al. (2011) found in a longitudinal study in Sweden that unemployment impacts the mental health of both women and men similarly, without significant differences in its effects. They attribute this equality to higher rates of female labour force participation in Sweden. These findings challenge traditional beliefs about men as primary breadwinners and highlight the importance of considering evolving gender roles and the broader societal context in understanding the health consequences of unemployment.

2.2 Comparative studies across countries

Strandh et al (2013) use longitudinal data to study the relationship between gender, unemployment and mental wellbeing in Sweden and Ireland. They find that unemployment negatively impacts men's mental health more than women's in Ireland, whereas in Sweden, both genders experience similar effects. They attribute these differences to the varying gender relations and gender regimes between the two countries. In Ireland, traditional gender roles persist, with lower female labour force participation and a higher economic and psychosocial need for employment among men, leading to a stronger negative impact on men's mental health. Conversely, in Sweden, high female labour force participation and greater economic independence for women result in similar economic and psychosocial needs between genders, producing comparable mental health impacts from unemployment. The study concludes that societal context significantly affects the relationship between unemployment, gender, and mental health. When gender roles are more similar, unemployment affects mental health similarly across genders. However, significant differences in gender roles lead to varied impacts (Strandh et al., 2013).

Cortès-Franch et al. (2019) use a revised version of Esping-Andersen's welfare state typology (1990) to examine the well-being of employed and unemployed individuals, focusing on different job qualities (low-quality and high-quality) and exploring gender disparities across 23 European countries grouped into 5 welfare state regime types. Their findings reveal that in Social-Democratic countries, employment status has no significant association with mental well-being for either gender. Conversely, in Southern and Eastern European countries, both men and women in low-quality jobs or unemployed report similarly poor mental well-being. However, in Conservative welfare regimes, such as Germany and The Netherlands, and Liberal welfare regimes, such as the United Kingdom and Ireland, significant gender differences emerge. For men, employment status significantly affects mental well-being, whereas for women, no such relationship is observed. The authors suggest that this might be due to the traditional breadwinner model prevalent in Conservative and Liberal countries, which may lead to greater adverse effects of unemployment on men.

Fujishiro, Ahonen, and Winkler (2021) analyse how different welfare regimes influence the association between low-quality employment and self-perceived health for both men and women. Using a gender-sensitive welfare regime typology, they categorize European countries into five groups based on their family welfare models (e.g., traditional family vs. market-oriented), state expenditure on family support, and labour market penalties for women. These penalties were assessed through ratios of women's to men's wages, numbers of managerial workers, post-secondary degree holders, unemployment rates, and labour market participation rates. The study finds that poor-quality employment is associated with poor health for both genders. However, the impact of welfare regimes plays a crucial role in determining to what extent poor-quality employment affects health. In countries that uphold traditional gender roles, with higher state expenditure on family support and greater labour market penalties for women, men experience stronger negative health effects from poor-quality employment. Conversely, in countries where women are expected to undertake unpaid caregiving duties without substantial state support, women show a stronger association between poor-quality employment and health. In countries with more gender-neutral expectations for both paid employment and unpaid caregiving, there is no significant gender difference in the relationship between low-quality employment and health. The authors argue that these findings highlight the need to understand work as a gendered experience that impacts health differently across various societal contexts.

Tattarini and Grotti (2022) examine the relationship between unemployment, self-perceived health, and gender across various national and regional contexts. One of their main findings is that in Italy, women report a less negative impact on their health due to unemployment compared to men. They attribute this to Italy's traditional societal norms, where roles such as 'wife' and 'mother' remain central for women, while men are expected to be the primary breadwinners. In this context, unemployment is less stigmatized for women, who may have more socially accepted alternative roles, whereas men face greater negative consequences of unemployment due to fewer available alternative roles. In contrast, the study finds no significant gender differences in Sweden regarding the effects of unemployment on self-perceived health. This is interpreted in light of Sweden's more egalitarian gender roles, where both men and women are seen to have more equal opportunities and expectations in work and family life. Consequently, unemployment affects men and women's health outcomes more similarly in Sweden than in Italy.

The earlier-mentioned single-country studies from Italy, Spain, and Sweden fit in with these findings and further confirm how the impact of unemployment on mental health is influenced by gender roles and institutional context. In Spain and Italy, traditional gender roles worsen the negative impact of unemployment on men's mental health, while protective factors for women include marriage and parenthood. Conversely, in Sweden, egalitarian gender roles lead to similar impacts of unemployment on both men and women. This will be further elaborated in the theoretical framework, where a detailed typology of countries based on their gender regimes will

be discussed to better understand the varying effects of unemployment on mental health across different institutional contexts.

3. Theoretical framework

3.1 Latent deprivation model

Traditionally, the majority of studies concerning unemployment and mental health have primarily focused on either material effects or psychosocial effects as the key explanatory factors for their relationship. Jahoda's latent deprivation model (1981) is the leading psychosocial theory in this regard. According to this social psychological model, employment not only has a manifest (intended) function, providing financial income, but also five latent functions, which are its so-called unintended consequences. Jahoda's names the following five latent functions of employment:

1. Time structure: Employment provides a structured daily routine, and the sudden loss of this structure can lead to feelings of chaos and negative emotions and a decline in mental health.
2. Social contact: Jobs offer regular interaction with others, which is important for maintaining a good mental health.
3. Collective purpose: Employment contributes to a sense of purpose and meaning by involving individuals in collective projects that transcend their individual existence.
4. Status and identity: Being employed and earning one's own income enhances one's status and societal appreciation, which positively influences mental health.
5. Activity: Employment provides external goals that encourage activity, which leads to mental well-being

These latent functions correspond to important psychological needs. Consequently, losing one's job leads to the inability to satisfy these basic psychological needs, resulting in a negative impact on mental health (Jahoda, 1981). This model can be used not only to explain the differences in mental health between employed and unemployed individuals but also to account for the variation in mental health among the unemployed. Based on this theory, other social institutions, such as parenthood, can also provide some of the latent functions of employment. For example, parenthood can offer a daily time structure and enhance status and identity (Nordenmark & Strandh, 1999).

However, this approach can be criticized for its functionalist approach, meaning that it assumes that these latent psychological needs are fixed for each individual. This perspective overlooks the possibility that psychological needs may vary across individuals and societies or change over time. It fails to account for the diversity of experiences and evolving needs among different groups of people, such as men and women. Next to that, Fryer (1992) critiques this theory from a more materialist perspective, arguing that it is primarily the loss of income due to unemployment that leads to a decline in mental well-being. In his agency theory, individuals are perceived as intrinsically motivated agents striving to achieve what they perceive as important

goals. Becoming unemployed can frustrate the human desire for agency and self-directedness, primarily due to the loss of financial means, leading to a decrease in mental well-being.

3.2 Psychological and economic need for employment

To address these critiques, this research will use Nordenmark & Strandh's (1999) theoretical model to analyse the mental well-being consequences of unemployment. This model integrates elements from both the functionalist and agency perspectives, focusing on two central dimensions of employment: psychosocial and economical. It starts from the idea that individual identities are socially constructed and closely tied to the desire to fulfil certain roles and achieve specific goals, which are strongly influenced by one's position in society.

Nordenmark and Strandh view these roles and goals as socially defined needs, with employment serving as a key resource for meeting these needs. However, the importance of employment varies among individuals. For instance, employment is likely to be more important for someone with a long career in full-time jobs than for someone who has worked part-time while primarily engaging in caregiving roles. The first person's identity is closely tied to their job, while the second person's identity includes both their job and caregiving responsibilities. Consequently, the significance of employment will differ based on these socially defined roles and needs.

This variation in the importance of employment means that unemployment can impact mental well-being differently depending on how central employment is to an individual's socially defined needs. For those who view employment as a core aspect of their identity and fulfilment, unemployment can severely disrupt their ability to meet these needs, potentially leading to significant declines in mental well-being. Conversely, for individuals who do not rely on employment as heavily for meeting their socially defined needs, the impact of unemployment may be less pronounced. Thus, understanding the psychological consequences of unemployment involves considering the gap between an individual's needs and the resources available to them in their specific situation (Nordenmark & Strandh, 1999). Nordenmark and Strandh's model differs from Jahoda's in that it recognizes the variability and flexibility of psychological needs, accounting for the diverse experiences and social contexts that influence these needs (Nordenmark & Strandh, 1999). This approach emphasizes that psychological needs are not fixed but adapt to individual circumstances and societal influences.

In their theoretical model, Nordenmark & Strandh argue that that employment fulfills two central dimensions that are crucial for meeting individuals' socially defined needs: the psychosocial and the economic dimensions. The psychosocial dimension highlights the role of employment in providing a social identity and status within a society where employment is the norm. Employment is more than just a source of income; it also has psychosocial value, by providing a social identity for people. In Western societies, having a paid job is the norm, and multiple studies have shown that unemployment impacts psychosocial factors such as an individual's self-esteem, sense of

purpose, control, and meaning in life (Brand, 2015). The economic dimension of employment concerns the financial resources it provides, which are essential for meeting socially defined needs. In Western societies characterized by consumption, it is important to have economic resources to fully participate in society. Having sufficient economic resources is crucial for full participation in social activities and maintaining a standard of living comparable to one's peers.

Nordenmark & Strandh (1999) argue that, unlike the latent deprivation model, the importance of employment for satisfying socially defined needs varies among individuals and is not fixed. Some people are less dependent on employment for economic resources, while others can maintain a social identity and role even when unemployed. This means that varying levels of economic and psychosocial need for employment influence individuals' ability to meet their socially defined needs during periods of unemployment. Individuals who have a higher psychosocial and/or economic need for unemployment are expected to suffer more from becoming unemployed than individuals who have a lower psychosocial and/or economic need.

This idea will form the starting point for potential gender differences in the relationship between unemployment and mental health. Men and women often occupy different roles in the labour market and family life, which influences the economic and psychosocial significance of employment for each gender. By considering these differing roles and needs, this model provides a framework for understanding the gendered impact of unemployment on mental health, suggesting that the effects of unemployment may differ based on the varying importance of employment to individuals' socially defined roles and needs.

3.3 Gender regimes

In Western societies, traditional gender roles have historically assigned women as primary caregivers and homemakers, while men have been predominantly seen as primary providers engaged in full-time paid work (Fraser, 1994). This division of labour has strongly shaped the perceptions of the roles of men and women in society, with men's identities closely tied to their employment, whereas women's identities have often been less defined by their work, leading to women being seen as secondary earners (Hakim, 1991; Paul & Moser, 2009; Sjöberg, 2004). However, in recent decades, the division of labour in Western societies has become less gender segregated, as shown by the increasing participation of women in the labour market since the late 20th century (Cipollone, Patacchini & Vallanti, 2014). Despite this trend, women continue to spend more time on childcare and household tasks compared to men (Crompton, 2006; García-Mainar, Molina, & Montuenga, 2011; Wheatley, Lawton & Hardill, 2017). Furthermore, women frequently occupy disadvantaged positions in the labour market when employed, such as less secure jobs, lower pay, and lower-quality positions (Eurofound, 2016), typically serving as secondary earners within families.

Although traditional attitudes about gender roles have declined across Europe, variations in expectations and norms regarding employment and caregiving persist between countries (Knight & Brinton, 2017; Grunow, Begall & Buchler, 2018). These variations are influenced by national gender regimes, which are the institutions and regulations that govern gender relations and shape roles, obligations, and rights based on gender (Siaroff, 1994 & Sainsbury, 1999). Gender regime typologies analyse how welfare states promote or constrain female autonomy and economic independence from the family (Sainsbury, 1999; Bambra, 2007).

Gender regime typologies often critique Esping-Andersen's (1990) classification of welfare states, which initially overlooked gender considerations (Siaroff, 1994; Sainsbury, 1999; Bambra, 2007). Esping-Andersen's typology remains influential in comparative welfare state analysis, categorizing Western welfare states into Liberal, Conservative, and Social Democratic types based on decommodification, social stratification, and the roles of various welfare providers (Esping-Andersen, 1990). Public health research has long relied on this typology to explain differences in health outcomes between countries (Bambra, 2007).

In this study, Korpi's (2000) gender regime typology will be used to examine how gendered institutions in different countries influence the work-health relationship for men and women. This typology categorizes countries based on their family policies and the extent to which they promote gendered divisions of paid and unpaid work (Korpi et al., 2013). Previous research has demonstrated that this typology is effective in assessing the influence of national family policies on gender inequalities in overall health (Palència, 2014). Korpi's typology examines gender inequality in labour force participation by analysing how public support for families is structured. It focuses on social rights, which are the claim rights to receive material support, such as cash and services from the government, to facilitate gender equality.

To categorize countries, three policy dimensions are used, each likely differing in their consequences for women's choices between paid and unpaid work:

1. **The traditional-family dimension:** This dimension includes policies promoting the traditional family model, where men are the primary breadwinners and women are the primary homemakers. It is based on four policy indicators: child allowances for minor children, part-time public daycare services for children aged three to school age, home care allowance for a parent caring for children below school age, and marriage subsidies via tax benefits to households with an economically inactive spouse.
2. **The dual-earner dimension:** This dimension reflects policies that support the transfer of childcare responsibilities from families to the public sector, enabling mothers to maintain continuous employment. This dimension is based on three policy indicators: Public daycare services for the youngest children (0–2 years of age), full-time public daycare services for children over three years old and earnings-related parental insurance.

3. **The dual-carer dimension:** This dimension involves policies encouraging fathers to take a more active role in childcare. This dimension is based on two policy indicators: the weeks of paid leave that can be used by either the mother, the father, or both and the weeks of paid leave reserved specifically for fathers

Countries are subsequently scored and grouped based on these three dimensions, leading to a classification into three distinct groups.

1. **Traditional-Family policies group:** This group includes countries with high values on the traditional-family dimension but relatively low values on dual-earner and dual-carer support. Initially, this group encompassed all welfare states in Continental Western Europe, that promote the traditional gender role of women as a homemaker and/or a secondary earner. In these nations, claim rights support women's unpaid domestic work, assuming that women bear the primary responsibility for caregiving and engage in paid work primarily as secondary earners.
2. **Earner-carer policies group:** This group consists of countries with high values on both the dual-earner and dual-carer dimensions. This group encompasses the Nordic countries, where policy institutions actively promote women's sustained labour force participation and strive to redistribute caregiving responsibilities within families.
3. **Market-oriented policies group:** The group consists of countries with comparatively low values across all three dimensions of family policies. This category includes Switzerland, the United Kingdom, and Ireland, where the market primarily governs individuals' and families' access to resources, and where strong state policies focusing on either traditional family models or dual-earner models are absent.

Recently, the initial groups have been refined by subdividing the Traditional-Family Policies Group into two categories and incorporating former European socialist countries. Due to the varied gender policies within the Traditional-Family policy group, researchers have suggested further dividing it into two subcategories: Southern European countries, labelled as **Traditional-Southern**, and other Continental European nations, labelled as **Traditional-Central** (Pàlencia, 2014; Thévenon, 2011). Southern European countries, like Italy, Spain, and Greece, tend to have more fragmented family policies that rely heavily on unpaid help and the voluntary sector (Ferrera, 1996).

Furthermore, former Eastern European socialist countries have begun to be included in (gender) welfare regimes typologies, though they were traditionally excluded from Korpi's framework (Eikemo et al., 2008; Bambra & Eikemo, 2009; Vonneilich, Lüdecke, & von dem Knesebeck, 2020; Ferrarini & Sjöberg, 2010). These countries share a political background that sets them apart from Western European countries. They simultaneously strive to maintain a highly

gendered division of labour while also supporting the dual-earner family model, leading to their classification as the **Contradictory Policies Group**. During the communist era, female labour force participation was notably higher compared to Western Europe, and part-time work was uncommon. The state provided generous parental leave schemes, childcare provisions, and benefits to encourage female participation in paid work. However, the division of housework remained traditional. Although some transitional countries still offer relatively generous parental leave schemes, many have experienced setbacks in family policies, such as reductions in public childcare, following the transition to a market economy. Nevertheless, female labour force participation remains high, and full-time employment is the norm, while the division of housework remains traditional. Consequently, many working women in these countries are likely to work long hours in both paid and unpaid labour (Boye, 2011; Ferrarini and Sjöberg, 2009).

In all Western societies, regardless of their family policies, having a paid job plays an important role in fulfilling people's socially defined needs. For both men and women, unemployment is expected to result in heightened depressive symptoms. This is because losing a job means being unable to fulfil a societal role or identity in societies where having a job is the norm. Additionally, in societies where employment serves as the primary source of income, unemployment leads to a loss of essential economic resources. Thus, it is hypothesized that the psychological impact of unemployment, in terms of increased depressive symptoms, will be evident across Western societies due to the role of employment in meeting both social and economic needs.

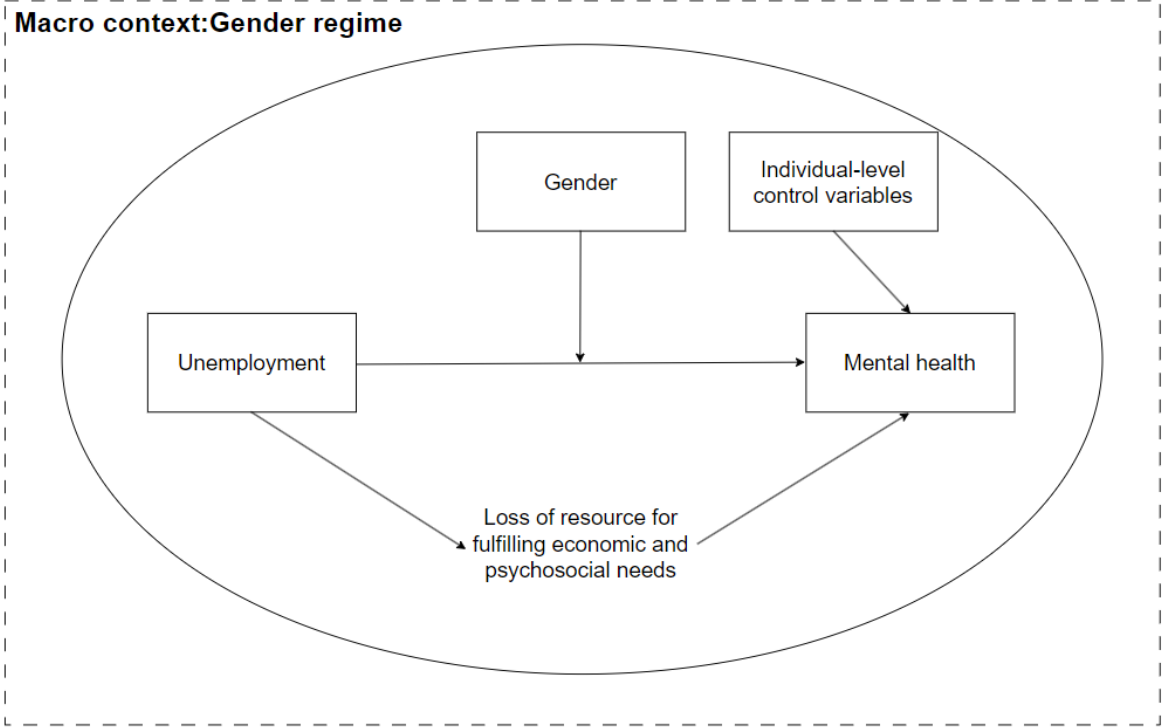
H1: Unemployed individuals will have higher depressive symptoms compared to employed individuals across all gender regimes.

Korpi's gender regime typology illustrates how family policies shape gendered perspectives on labour and caregiving responsibilities across different countries. These policies influence the psychosocial and economic needs of both men and women. In more egalitarian welfare regimes, which promote dual-earner models and gender equality in labour force participation, employment holds a central role for both genders. This equal emphasis on economic participation may lead to more similar mental health outcomes between men and women in response to unemployment. However, in traditional regimes where gender roles are more distinct, women often carry primary caregiving responsibilities in addition to their employment. As a result, the psychological impact of unemployment on men's mental health may be more severe compared to women, who might find support from a wider range of roles such as caregiving or motherhood. Thus, it is hypothesized that gender disparities in the mental health effects of unemployment will vary across different family policy regimes.

H2: The gender differences in the impact of unemployment on mental health will vary across different gender regimes.

Figure 1 presents the conceptual model that shows the expected relationships between unemployment, gender, and mental health across different gender regimes. A discussion of the individual-level control variables is included in the methods section.

Figure 1. Conceptual model



4. Methods

4.1 Dataset and sample

This study uses data from the European Social Survey (ESS) rounds 6 (2012) and 7 (2014). The ESS, founded by the European Science Foundation, is a repeated cross-sectional survey carried out in various European countries since 2002. The ESS gathers data on social attitudes, beliefs, and behaviour patterns both within and across European nations. Wave 6 of the survey included specialized modules on 'Personal and Social Wellbeing' and wave 7 on 'Social Inequalities in Health and their Determinants' (in ESS Round 7 (2014/2015)). These waves were selected because they are the most recent iterations of the ESS that include the CES-D8 depression scale, a widely recognized measure of mental health and psychological well-being (Radloff, 1977). Later waves have less detailed measures of mental health.

The ESS is a representative sample of all persons aged 15 and over (no upper age limit) resident within private households in each country, regardless of their nationality, citizenship or language. Strict random probability methods are used to select individuals at all stages of the sampling design. This means that every member of the ESS target population in a country has a probability greater than zero of being included in the sample. Each country aims for a predicted effective sample size of at least 1,500, except for smaller countries with a population of fewer than 2 million people aged 15 or over, where the minimum effective sample size is set at 800. While population registers are the preferred sampling frame, countries without them utilize address lists or area sampling (ESS, 2018). The data is collected through face-to-face interviews (CAPI).

The unweighted pooled dataset includes 40049 respondents from 26 countries. Israel is excluded as it is not part of Europe. Next to that, Albania, Iceland and Kosovo are left out since they are not categorized within the gender regime literature (Korpi et al, 2012; Palencia et al, 2014). For the analysis, a subsample of individuals aged 25 to 60 ('prime working years') was selected, including both employed and unemployed individuals. This subsample excludes individuals currently in education, those permanently sick or disabled, retired individuals, those in community or military service, individuals engaged in housework or caring for children or other people, and those who had never held a paid job. This ensures that the analysis focuses on individuals who have been part of the labour force. Missing values for the independent variables were handled by listwise deletion. Person mean imputation will be applied to the dependent variable, mental health, which will be explained in the operationalization. The final sample includes 18,191 employed men and 17,734 employed women, and 2,076 unemployed men and 2,048 unemployed women.

The average response rate for the 2012 round was 60.8%, with rates ranging from 33.7% in Germany to 77.1% in Portugal. Ten countries did not meet the target response rate of 70%, while all other countries either exceeded this target or came very close to achieving it (ESS, 2014). A

comparison with a similar cross-national survey, the European Union Labour Force Survey (LFS), revealed small differences for six socio-demographic variables in several ESS 6 countries, though some countries showed large discrepancies in one or more variables (Koch, 2016). The average response rate in the 2014 round 7 was 55.2%, with rates ranging from 31.4% in Germany to 68.9% in Lithuania. None of the countries reached the targeted response rate of 70%. However, compared to wave 6, most countries maintained stable response rates, though some experienced a significant decline (ESS, n.d.). A comparison with the LFS shows similar results to round 6, with data from the LFS revealing only small differences. At the same time, large differences were observed in several other countries. Sometimes for one or two variables, and other times for most of the variables examined (Koch, 2018). To account for potential bias in the data, all analyses will use a design weight, *anweight*, from the European Social Survey. This design weight corrects for differential selection probabilities within each country as specified by the sample design, as well as for nonresponse and noncoverage. It also takes into account differences in population size across countries (ESS, 2020).

4.2 Operationalisation

4.2.1 Depressive symptoms

The prevalence of depressive symptoms serves as an indicator for assessing mental health and psychological well-being, measured using the CES-D8 scale (Radloff, 1977). The CES-D was designed to identify populations at risk of developing depressive disorders. The CES-D8 scores range from 0 to 24, with higher values indicating a greater frequency and severity of depressive symptoms. The items included in the CES-D8 scale in the ESS questionnaires were as follows: Respondents were asked how often they felt depressed, felt that everything was an effort, slept restlessly, were happy, felt lonely, enjoyed life, felt sad, and could not get going. The response categories were 'none or almost none of the time' (1), 'some of the time' (2), 'most of the time' (3) and 'all or almost all of the time' (4). The two positive items, 'were happy' and 'enjoyed life' were reverse coded, so a higher score indicates more depressed symptoms. The responses to these eight items were summed to create a 24-point CES-D8 scale. Respondents who answered less than 5 items were excluded from the analysis ($n=$). Following earlier research using the CES-D8 scale (Von dem Knesebeck, 2011; Huijts et al., 2017; Van de Velde et al., 2013), person mean imputation was applied for respondents who provided valid answers to at least 5 out of the 8 items. The internal consistency reliability coefficients of the 8-item scale were satisfactory (Cronbach $\alpha = 0.81$). For this study, a dichotomous variable will be used to measure depressive symptoms, following the approach of previous research. Scores ranging from 0 to 9 are categorized as below the depression cut-off point, while scores from 10 to 24 are categorized as above the cut-off point (Huijts et al, 2017; Von dem Knesebeck, 2011; Van de Velde et al, 2013).

4.2.2 Unemployment

Employment status was measured through the following question: ‘Which of these descriptions best describes your situation (in the last seven days)?’. Respondents were provided with nine different categories to choose from. Among these, the following three categories were used to measure employment status: ‘in paid work (or away temporarily) (employee, self-employed, working for your family business)’ (1), unemployed and actively looking for a job (3) and unemployed, wanting a job but not actively looking for a job (4). For analysis, the unemployed categories were merged, and the variable was transformed into a dummy variable, where 0 indicated employed and 1 indicated unemployed.

4.2.3 Gender

Gender in the ESS is categorized into binary groups of male and female, assessed through interviewer observation. In the analysis men are coded as the reference category (0) and women as the main category (1).

4.2.4 Gender regimes

The assessment of gender regimes will rely on Korpi's typology of family policy models (Korpi, 2000; Korpi et al., 2013), which initially comprised three main models but has since been expanded to include a fourth and fifth model (Boye, 2011; Ferrarini & Sjöberg, 2010; Thévenon, 2011). The classification of countries into groups is presented in Table 1.

Table 1. Country typology of Korpi's family policies

Typology	Countries	N	Characteristics
Traditional-Central	Austria	932	High values on the traditional-family dimension but relatively low values on dual-earner and dual-carer support.
	Belgium	1694	
	Germany	2720	
	France	1900	
	Netherlands	1688	
Traditional-Southern	Cyprus	538	Family policies are more fragmented and rely more on unpaid help and the voluntary sector.
	Italy	426	
	Portugal	1624	
	Spain	1935	
Dual-earner	Denmark	1490	High values on both the dual-earner and dual-carer dimensions.
	Finland	1975	
	Norway	1555	
	Sweden	1690	
Market-oriented	Ireland	2186	Comparatively low values across all three dimensions of family policies.
	Switzerland	1435	
	United Kingdom	1910	
Contradictory countries	Bulgaria	999	Simultaneously striving to maintain a highly gendered division of labour while also supporting the dual-earner family model
	Czech Republic	2013	
	Estonia	2067	
	Hungary	1724	
	Lithuania	2085	
	Poland	1624	
	Russian Federation	1229	
	Slovakia	891	
	Slovenia	1080	
	Ukraine	797	

4.2.5 Control variables.

Based on previous research, a number of control variables will be included in the analysis (Paul & Moser, 2009; Strandh et al, 2013; Cortès-Franch, 2019).

Marital status will differentiate individuals into those living with a partner (0) and those not living with a partner (1). Individuals living together might experience the negative effects of unemployment differently than individuals living alone.

A binary variable will be created to account for whether the respondent has children, where 0 signifies no children and 1 indicates at least one child. Individuals with children might experience the negative effects of unemployment differently than those without children. Although considering the total number of children living at home would have been insightful, this data was not available in the ESS.

Economic household situation was assessed using the question: "Which of the descriptions on this card comes closest to how you feel about your household's income nowadays?" Respondents could select one of the following responses: 1) Living comfortably on present income, 2) Coping on present income, 3) Finding it difficult on present income, or 4) Finding it very difficult on present income. Three dummy variables will be created with "living comfortably on present income" as the reference category.

Education will be categorized according to the International Standard Classification of Education (ISCED), which comprises seven categories. Educational level may be related to both unemployment and mental health. For analysis purposes, the original education variable will be reclassified into the following categories: lower secondary education or below (ISCED I and II); upper secondary education or advanced vocational education (ISCED IIIa, IIIb, and IV); and tertiary education (ISCED V1 and V2).

Age is used as a continuous control variable. Additionally, a squared age term will be included in the analysis to account for the potential non-linear relationship between age and mental health. Researchers have argued that middle-aged individuals might experience a greater negative impact of unemployment on mental health compared to younger and older individuals. Middle-aged people are more likely to have family responsibilities, increasing the financial importance of a job, while younger and older individuals face less financial pressures. Additionally, employment may be more important for middle-aged individuals compared to older workers nearing retirement and younger persons not yet fully integrated into the workforce (Paul & Moser, 2009).

Lastly, to account for potential differences between ESS rounds 6 and 7, a time dummy variable will be included in the analysis, with round 6 as the reference category. Including this variable helps control for changes over time, ensuring that any differences observed in the data are not just because of the specific survey wave.

4.3 Research design

First, bivariate analyses will be conducted to test for gender differences in the dependent and independent variables in each country typology at the bivariate level. The chi-square test for categorical variables and the t-test for age will be used. Subsequently, multiple logistic regressions will be performed to examine the relationship between unemployment, gender, and mental health outcomes. These analyses will control for having children living at home, living with a partner, economic household situation, education, age, and a time variable. The analysis aims to estimate the odds of reporting a high depression score associated with unemployment and being female. Given the interest in understanding whether the impact of unemployment on health varies between genders across different welfare regime types, an interaction term between gender and unemployment status will be included. Separate regressions will be conducted for each welfare regime type to examine how these relationships differ across societal contexts. Variables will be entered stepwise to observe how the effect of unemployment on depressive symptoms is moderated by gender and subsequently by the control variables. The regressions will estimate odds ratios (ORs) and their corresponding 95% confidence intervals (CIs) to quantify the strength and direction of the associations.

For logistic regression, three key assumptions must be met: observations should be independent, there should be no multicollinearity, and there must be a linear relationship between continuous predictors and the logit transformation of the dependent variable. More details can be found in the Appendix on assumptions and outlier tests. The most significant potential issue relates to the first assumption. Since this study uses data from the European Social Survey, where respondents are nested within countries, there is a risk of intra-country correlation due to shared socio-economic and cultural factors. Although this analysis does not employ multilevel modelling or clustered standard errors to account for this, the potential impact on the results is acknowledged and will be discussed further in the discussion section. Regarding outliers and influential points, no observations with studentized residuals greater than 3 were identified, and leverage values were generally within acceptable ranges, suggesting no major issues. However, the dual-earner regime did show a higher number of observations with elevated leverage values and relatively high Cook's distance values, although none of these exceeded the common threshold of 1 for high influence.

5. Results

5.1 Description of the sample

Table 2 presents the descriptive statistics of the sample by gender and country group. Across all regions, women consistently report higher depression scores than men. The largest gender inequalities in depression scores are observed in the Contradictory countries, with 21.0% of women reporting high depressive symptoms compared to 15.3% of men ($\chi^2(1, 12831) = 71.19, p < 0.01$). The smallest gender disparities are found in the Dual-earner countries, where 8.1% of women and 5.4% of men report high depressive symptoms ($\chi^2(1, 1970) = 5.57, p < 0.05$). In terms of employment status, significant gender differences are found only in the Traditional-Southern countries, where women are more often unemployed (21.4%) compared to men (17.8%) ($\chi^2(1, 8004) = 14.72, p < 0.01$). Additionally, women are significantly more likely to have children living at home than men in all regions except the Dual-earner countries, with the most significant difference observed in the Contradictory countries (61.1% of women vs. 51.3% of men) ($\chi^2(1, 12831) = 121.13, p < 0.01$). Regarding living arrangements, women in the Traditional-Central, Market, and Contradictory countries are significantly less likely than men to live together with a partner. Only in Contradictory countries are there significant gender differences in the reporting of economic difficulties, with 47.7% of women reporting such issues compared to 41.4% of men ($\chi^2(1, 12831) = 51.04, p < 0.01$). Educational attainment also shows significant gender differences. In all regions, women are more likely to have completed tertiary education compared to men. For example, in the Dual-earner countries, 39.5% of women have completed tertiary education compared to 27.4% of men ($\chi^2(2, 1971) = 36.28, p < 0.01$).

Table 2. Descriptive statistics by gender and gender regime group (significant differences indicated by asterisks in the women's group).

	Traditional-Central		Traditional-Southern		Dual-earner		Market		Contradictory	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
	<i>N</i> = 7532	<i>N</i> = 6344	<i>N</i> = 3861	<i>N</i> = 3143	<i>N</i> = 1031	<i>N</i> = 939	<i>N</i> = 3109	<i>N</i> = 2651	<i>N</i> = 6803	<i>N</i> = 6028
High Depression Score	8.2%	13.3%**	13.2%	18.4%**	5.4%	8.1%*	8.5%	13.1%**	15.3%	21.0%**
Employment status										
Employed	90.9%	90.4%	82.2%	78.6%**	93.6%	93.1%	92.0%	91.8%	91.6%	91.1%
Unemployed	9.1%	9.6%	17.8%	21.4%	6.4%	6.9%	8.0%	8.2%	8.4%	8.9%
Children living at home	55.3%	58.6%**	51.3%	61.1%**	53.5%	56.1%	53.2%	56.6%*	55.4%	65%**
Living together	75.9%	73.1%**	68.5%	67.7%	73.9%	73.3%	73.6%	66.3%**	77.0%	66.2%**
Difficult Economic situation	15.5%	16.5%	28.7%	29.3%	7.5%	8.7%	18.5%	18.6%	41.4%	47.7%**
Education										
Lower secondary	14.6%	14.9%**	45.1%	34.7%**	13.8%	8.9%**	20.9%	22.3%	15.7%	10.7%**
Upper secondary	63.3%	60.0%	32.6%	32.9%	58.8%	51.5%	47.7%	45.1%	63.2%	59.4%
Tertiary	22.1%	25.1%	22.3%	32.4%	27.4%	39.5%	31.3%	32.5%	21.1%	29.9%
Age (SD)	43.2(9.8)	43.8(9.8)**	42.1 (9.6)	42.5 (9.5)	43.4(9.8)	43.8(10.0)	42.3(10.0)	42.5(10.0)	41.2(10.1)	42.4(9.5)**

* $p < 0.05$, ** $p < 0.01$. p-values compare men and women in each country group.

5.2 Logistic regressions

The results of the multiple logistic regression models within each family policy regime are discussed below. For each model, variables have been entered stepwise as follows: Model 1 includes only unemployment; Model 2 adds the gender variable; Model 3 includes the interaction term with unemployment; Model 4 adds variables related to the family (living together and having children) and economic household situation; and Model 5 includes all control variables.

5.2.1 *Traditional-Central regimes*

Table 3 presents the results of the estimated logistic regression models under the traditional central policy regimes. In Model 1, unemployed individuals had 2.75 times higher odds of scoring high on depressive symptoms compared to employed individuals (95% CI [2.38, 3.17]). Model 2 indicates that women have higher odds of scoring high on depressive symptoms than men (OR = 1.71, 95% CI [1.53, 1.91]). Model 3 shows a significant interaction effect of unemployment and gender on a high score for depressive symptoms, with an odds ratio of 0.72 indicating that unemployed women have lower odds of experiencing high depressive symptoms compared to unemployed men (95% CI [0.54, 0.97]). However, after including family and economic variables in Model 4, the interaction term between unemployment and gender becomes insignificant.

Furthermore, model 4 shows that living with a partner significantly lowers the odds of scoring high on depressive symptoms (OR = 0.48, 95% CI [0.42, 0.54]), while having children at home is not significantly related to depressive symptoms (OR = 1.01, 95% [0.89, 1.14]). Individuals experiencing difficulties with their current household income had 3.366 times higher odds of scoring high on depressive symptoms compared to those with fewer difficulties, indicating a strong effect of economic household situation on depressive symptoms (95% CI [2.96, 3.83]). After adding these variables, the impact of being unemployed on high depressive symptoms decreases but remains significant.

In the final model, Model 5, with all available control variables, the associations remain similar. Additionally, education is found to be significantly related to depressive symptoms. Individuals with upper secondary education are 0.78 times less likely than those with lower secondary education or below to have high depressive symptoms (95% CI [0.67, 0.89]). Those with tertiary education are 0.48 times less likely than individuals with lower secondary education or below to have high depressive symptoms (95% CI [0.40, 0.58]). Age is not significantly associated with depressive symptoms (OR = 0.97, 95% CI [0.92, 1.03]). Lastly, there is evidence of variation in scores on depressive symptoms across different rounds of the ESS in Traditional-Central regimes. People scoring high on depressive symptoms were less likely in the 2012 round compared to the 2014 round (OR = 0.80, 95% CI [0.71, 0.89]).

Table 3. Odds ratios for depressive symptoms by employment status, gender and control variables in the Traditional-Central regimes (N = 13,876)

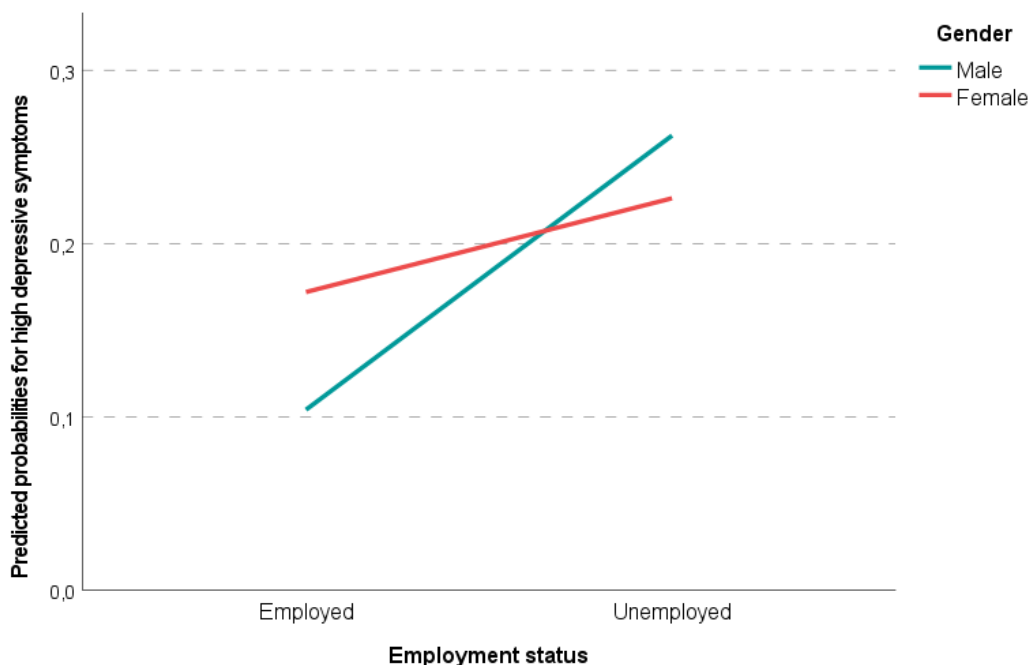
	Model 1		Model 2		Model 3		Model 4		Model 5	
	B(SE)	95% CI	B(SE)	95% CI	B(SE)	95% CI	B(SE)	95% CI	B(SE)	95% CI
Being unemployed	2.748**	(2.379, 3.174)	2.750**	(2.379, 3.179)	3.271**	(2.654, 4.031)	1.652**	(1.320, 2.068)	1.547**	(1.232, 1.941)
Female			1.712**	(1.533,1.911)	1.812**	(1.604, 2.046)	1.763**	(1.556, 1.998)	1.766**	(1.557, 2.002)
Being unemployed x Female					0.723*	(0.541, 0.966)	0.747	(0.553, 1.010)	0.775	(0.572, 1.049)
Living Together							0.479**	(0.422, 0.544)	0.463**	(0.408, 0.526)
Children living at home							1.011	(0.894, 1.144)	1.053	(0.924, 1.198)
Difficult Economic situation							3.366**	(2.958, 3.83)	3.054**	(2.675, 3.486)
Education										
Upper secondary									0.775**	(0.670, 0.896)
Tertiary									0.481**	(0.395, 0.586)
Age									0.969	(0.916, 1.025)
Age squared									1.00	(1.00, 1.001)
Ess Round									0.798**	(0.712, 0.893)
R ² (Nagelkerke)	0.012		0.018		0.019		0.112		0.124	
R ² (Cox & Snell)	0.024		0.037		0.038		0.055		0.061	

* p < 0.05, ** p < 0.01

Traditional-Southern regimes

Table 4 shows the regression results for the Traditional-Southern policy regimes. Model 1 indicates that the odds of scoring high on depressive symptoms are approximately twice as high for unemployed individuals compared to employed individuals (OR = 2.09, 95% CI [1.81, 2.42]). Similar to the findings in traditional central countries, women have higher odds of scoring high on depressive symptoms compared to men, as shown in Model 2 (OR = 1.44, 95% CI [1.26, 1.64]). Model 3 reveals a significant interaction effect between unemployment and gender on depressive symptoms (OR = 0.460, 95% CI [0.34, 0.62]). In contrast to the Traditional-Central regimes, this interaction term remains significant and consistent in the following models that include other control variables. Figure 2 illustrates the interaction effect between gender and unemployment on the predicted probabilities of having high depressive symptoms, based on the final model and adjusted for control variables. The graph reveals that both men and women experience an increase in the probability of scoring high depressive symptoms when unemployed. However, this increase is more pronounced for men, indicating that unemployment may have a more substantial impact on men's mental health compared to women's in the Traditional-Southern countries. The crossing of the lines in the graph further provides evidence for this interaction effect.

Figure 2. Predicted probabilities of high depressive symptoms by employment status and gender in Traditional-Southern regimes.



Model 4 shows that individuals living together with a partner have significantly lower odds of experiencing high depressive symptoms to those not living together with a partner (OR = 0.69, 95% CI [0.59, 0.82]). Consistent with findings in Traditional-Central countries, the strongest predictor in the

model is the economic household situation. Specifically, individuals facing difficulties with their current income have more than twice the odds of experiencing high depressive symptoms compared to those without such income problems (OR = 2.40, 95% CI [2.09, 2.77]).

When all control variables are included in Model 5, the differences between men and women, as well as between the unemployed and employed, and their interaction effect remain statistically significant. Additionally, education is significantly related to depressive symptom scores. Individuals with upper secondary education (OR = 0.74, 95% CI [0.63, 0.87]) and those with tertiary education (OR = 0.72, 95% CI [0.60, 0.86]) have lower odds of experiencing high depressive symptoms compared to those with lower secondary education or below, which serves as the reference category. Finally, although age did not show a significant association in Traditional-Central countries, it is significantly associated with depressive symptoms in Traditional-Southern countries. Older individuals in these countries have higher odds of experiencing high depressive symptoms compared to younger individuals (OR = 1.12, 95% CI [1.05, 1.20]).

Table 4. Odds ratios for depressive symptoms by employment status, gender and control variables in the Traditional-Southern regimes (N = 7044)

	Model 1		Model 2		Model 3		Model 4		Model 5	
	B(SE)	95% CI	B(SE)	95% CI	B(SE)	95% CI	B(SE)	95% CI	B(SE)	95% CI
Being unemployed	2.093**	(1.810, 2.421)	2.057**	(1.778, 2.380)	3.060**	(2.493, 3.755)	2.183**	(1.762, 2.704)	2.227**	(1.792, 2.768)
Female			1.440**	(1.264, 1.641)	1.788**	(1.532, 2.087)	1.762**	(1.505, 2.063)	1.848**	(1.575, 2.168)
Being unemployed x Female					0.460**	(0.343, 0.616)	0.479**	(0.356, 0.645)	0.469**	(0.347, 0.632)
Living Together							0.696**	(0.593, 0.816)	0.671**	(0.571, 0.788)
Children living at home							1.116	(0.953, 1.306)	1.007	(0.856, 1.185)
Difficult Economic situation							2.402**	(2.085, 2.767)	2.134**	(1.841, 2.473)
Education										
Upper secondary									0.738**	(0.628, 0.867)
Tertiary									0.717**	(0.597, 0.860)
Age									1.122**	(1.049, 1.199)
Age squared									0.999**	(0.998, 1.000)
Ess Round									0.836*	(0.722, 0.968)
R ² (Nagelkerke)	0.023		0.030		0.037		0.078		0.088	
R ² (Cox & Snell)	0.013		0.017		0.021		0.045		0.051	

* p < 0.05, ** p < 0.01

Dual-earner regimes

Table 5 presents the estimated regression models for Dual-Earner regimes. Model 1 indicates that unemployed individuals have over 5 times higher odds of scoring high on depressive symptoms compared to employed individuals (OR = 4.21, 95% CI [2.64, 6.73]). Consistent with findings in the Traditional regimes, women also have higher odds of scoring high on depressive symptoms compared to men (OR = 1.52, 95% CI [1.06, 2.18]). However, in Model 3, which includes the interaction term, and in Model 4, which incorporates family and economic-related variables, the previously significant relationship between gender and depressive symptoms becomes non-significant. Specifically, Model 3 indicates that there is no significant interaction between unemployment and gender on depressive symptoms in the dual-earner regimes (OR = 1.20, 95% CI [0.46, 3.11]).

Similarly to Traditional-Central regimes, cohabiting with a partner decreases the odds of experiencing high depressive symptoms, as shown in Model 4 (OR = 0.49, 95% CI [0.33, 0.73]). The presence of children at home does not have a significant impact on depressive symptom scores (OR = 1.03, 95% CI [0.70, 1.52]). However, individuals experiencing difficulties coping with their current household income have higher odds of experiencing high depressive symptom scores in dual-earner regimes as well (OR = 2.64, 95% CI [1.60, 4.33]).

In the final model, the previously significant difference between unemployed and employed individuals becomes non-significant (OR = 1.94, 95% CI [0.88, 4.27]). However, the effect of gender on experiencing high depressive scores becomes significant once more (OR = 1.54, 95% CI [1.03, 2.31]). These changes may be explained by the inclusion of the education variable in the final model. Consistent with findings in other regimes, education is significantly associated with depressive symptoms. Individuals with upper secondary education have significantly lower odds of experiencing high depressive symptoms (OR = 0.51, 95% CI [0.31, 0.83]) compared to those with lower secondary education or below, which is used as the reference category. Similarly, individuals with tertiary education also have significantly lower odds of experiencing high depressive symptoms (OR = 0.42, 95% CI [0.24, 0.75]) compared to those with lower secondary education or below.

Table 5. Odds ratios for depressive symptoms by employment status, gender and control variables in the Dual-Earner regimes (N = 1971)

	Model 1		Model 2		Model 3		Model 4		Model 5	
	B(SE)	95% CI	B(SE)	95% CI	B(SE)	95% CI	B(SE)	95% CI	B(SE)	95% CI
Being unemployed	4.214**	(2.639, 6.727)	4.202**	(2.628, 6.718)	3.785**	(1.835, 7.810)	2.035	(0.930, 4.456)	1.942	(0.884, 4.267)
Female			1.524*	(1.063, 2.184)	1.476	(0.993, 2.193)	1.429	(0.958, 2.131)	1.538*	(1.025, 2.310)
Being unemployed x Female					1.201	(0.463, 3.114)	1.413	(0.528, 3.785)	1.377	(0.509, 3.726)
Living Together							0.491**	(0.329, 0.734)	0.499**	(0.332, 0.748)
Children living at home							1.029	(0.696, 1.521)	0.979	(0.636, 1.509)
Difficult Economic situation							2.635**	(1.601, 4.337)	2.451**	(1.478, 4.065)
Education										
Upper secondary									0.509**	(0.314, 0.826)
Tertiary									0.424**	(0.241, 0.747)
Age									1.078	(0.894, 1.301)
Age squared									0.999	(0.997, 1.001)
Ess Round									1.174	(0.814, 1.692)
R ² (Nagelkerke)	0.038		0.045		0.045		0.084		0.097	
R ² (Cox & Snell)	0.015		0.017		0.018		0.033		0.038	

* p < 0.05, ** p < 0.01

Market regimes

Table 6 presents the results of the regression models for countries with Market regimes. Consistent with findings in other regimes, model 1 indicates that unemployed individuals have significantly higher odds of experiencing high depressive symptoms compared to employed individuals (OR = 2.52, 95% CI [1.98, 3.20]). Additionally, Model 2 demonstrates that women have significantly higher odds of experiencing higher depressive symptoms compared to men (OR = 1.63, 95% CI [1.37, 1.93]). However, model 3 provides no evidence for an interaction effect between unemployment and gender on depressive symptoms (OR = 1.22, 95% CI [0.75, 1.99]).

When family and economic-related variables are introduced in Model 4, the significant association between unemployment and depressive symptoms disappears (OR = 1.05, 95% CI [0.71, 1.54]). Additionally, in Market regimes, living with a partner significantly lowers the odds of having high scores on depressive symptoms (OR = 0.59, 95% CI [0.49, 0.72]). Furthermore, individuals who struggle with their current household income have more than three times the odds of experiencing high depressive symptoms compared to those without income difficulties (OR = 3.32, 95% CI [2.74, 4.02]).

In the final model 5, the significant relationship between gender and high depressive symptoms remains (OR = 1.48, 95% CI [1.23, 1.79]). However, regarding education, only tertiary education shows a significant relationship compared to lower secondary education or below. Individuals with tertiary education have lower odds of experiencing severe depressive symptoms (OR = 0.76, 95% CI [0.59, 0.98]). The category of upper secondary education is not significantly associated with depressive symptoms (OR = 0.91, 95% CI [0.74, 1.12]).

Table 6. Odds ratios for depressive symptoms by employment status, gender and control variables in the Market regimes (N =5759)

	Model 1		Model 2		Model 3		Model 4		Model 5	
	B(SE)	95% CI	B(SE)	95% CI	B(SE)	95% CI	B(SE)	95% CI	B(SE)	95% CI
Being unemployed	2.517**	(1.979, 3.199)	2.524**	(1.983, 3.213)	2.262**	(1.571, 3.258)	1.047	(0.710, 1.543)	1.034	(0.698, 1.531)
Female			1.625**	(1.371, 1.926)	1.579**	(1.314, 1.897)	1.482**	(1.227, 1.790)	1.483**	(1.227, 1.792)
Being unemployed x Female					1.220	(0.750, 1.987)	1.608	(0.970, 2.665)	1.622	(0.977, 2.691)
Living Together							0.594**	(0.489, 0.722)	0.589**	(0.484, 0.718)
Children living at home							1.008	(0.833, 1.221)	0.958	(0.786, 1.167)
Difficult Economic situation							3.320**	(2.739, 4.024)	3.136**	(2.575, 3.818)
Education										
Upper secondary									0.909	(0.736, 1.123)
Tertiary									0.759**	(0.589, 0.977)
Age									1.063	(0.976, 1.157)
Age squared									0.999	(0.998, 1.000)
Ess Round									0.917	(0.771, 1.092)
R ² (Nagelkerke)	0.017		0.028		0.029		0.092		0.095	
R ² (Cox & Snell)	0.009		0.014		0.014		0.045		0.047	

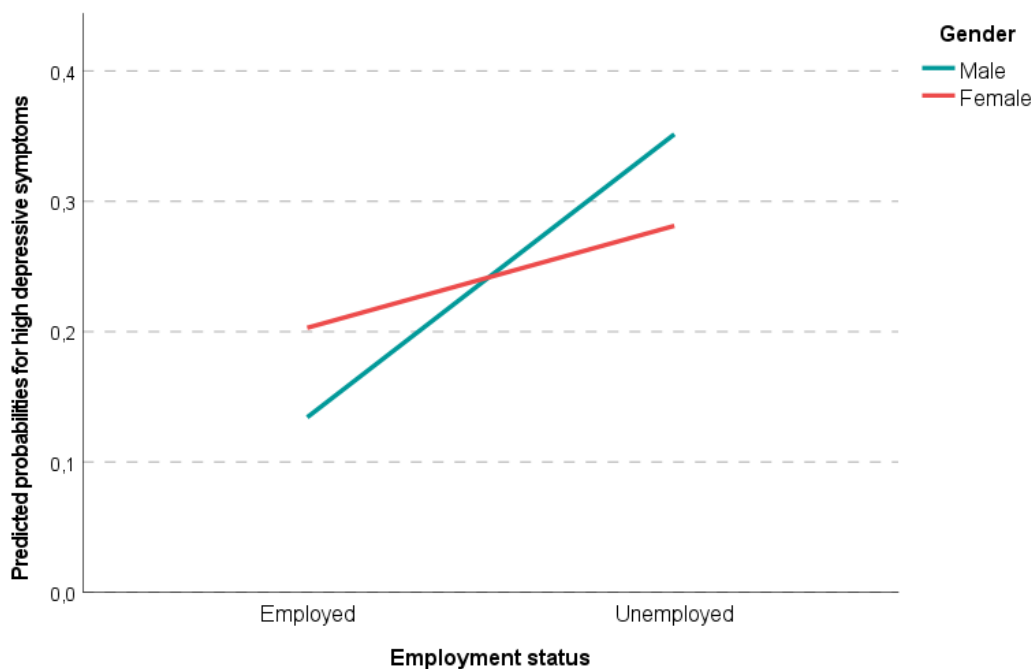
* p < 0.05, p < 0.01

Contradictory regimes

The results for the Contradictory regimes are presented in Table 7. Model 1 reveals that, consistent with the other regimes, unemployed individuals have more than twice the odds of scoring high on depressive symptoms compared to employed individuals (OR = 2.33, 95% CI [2.04, 2.67]).

Additionally, Model 2 shows that women have higher odds of experiencing higher scores on depressive symptoms than men (OR = 1.48, 95% CI [1.35, 1.62]). In Model 3, a significant interaction term between unemployment and gender on depressive symptoms is found (OR = 0.44, 95% CI [0.34, 0.578]), aligning with the Traditional-Southern regimes. This interaction effect remains significant in the final model and is visualized in Figure 3. The figure shows the interaction effect between gender and unemployment on the predicted probabilities of having high depressive symptoms, based on the final model and adjusted for control variables. Similar to the Traditional-Southern regimes, the increase in high depressive symptoms is more pronounced for unemployed men than for unemployed women. While employed women have a higher predicted probability of scoring high on depressive symptoms than employed men, unemployed men have a higher probability of scoring high on depressive symptoms than unemployed women. The interaction effect is indicated by the crossing lines in the graph.

Figure 3. Predicted probabilities of high depressive symptoms by employment status and gender in Contradictory regimes.



When family and economic-related variables are included in Model 4, the significant relationships between unemployment, gender, and their interaction persist. Furthermore, living with a partner significantly lowers the odds of having high scores on depressive symptoms (OR = 0.70, 95% CI [0.63, 0.78]). In contrast to other regimes, a significant relationship is found between having children living at home and depressive symptoms scores in Contradictory regimes, with those having

children at home showing lower odds of high depressive symptoms (OR = 0.76, 95% CI [0.69, 0.84]). Similar to other regimes, struggling to cope with the current household income significantly increases the odds of high depressive symptoms (OR = 2.32, 95% CI [2.11, 2.55]).

In the final model 5, the significant relationships between unemployment, gender and their interaction with depressive symptoms remain unchanged. However, in contradictory regimes, no significant association is found between education and depressive symptoms. Individuals with upper secondary education (OR = 0.92, 95% CI [0.79, 1.05]) or tertiary education (OR = 0.86, 95% CI [0.73, 1.02]) do not have significantly lower odds of high scores on depressive symptoms compared to those with lower secondary education or below. Unlike the Traditional-Central, dual-earner, and market regimes, older age is associated with an increase in the odds of having high depressive symptoms (OR = 1.08, 95% CI [1.03, 1.13]). Additionally, similar to the Traditional-Central regimes, there is evidence of variation in depressive symptoms scores across different ESS rounds. Individuals were less likely to score high on depressive symptoms in the 2012 round compared to those in the 2014 round (OR = 0.81, 95% CI [0.72, 0.92]).

Table 7. Odds ratios for depressive symptoms by employment status, gender and control variables in the Contradictory regimes (N =12,831)

	Model 1		Model 2		Model 3		Model 4		Model 5	
	B(SE)	95% CI	B(SE)	95% CI	B(SE)	95% CI	B(SE)	95% CI	B(SE)	95% CI
Being unemployed	2.329**	(2.035, 2.667)	2.328**	(2.033, 2.667)	3.495**	(2.901, 4.210)	2.255**	(1.858, 2.737)	2.244**	(1.844, 2.731)
Female			1.475**	(1.347, 1.616)	1.642**	(1.488, 1.811)	1.522**	(1.374, 1.686)	1.474**	(1.328, 1.636)
Being unemployed x Female					0.440**	(0.335, 0.577)	0.571**	(0.432, 0.754)	0.592**	(0.447, 0.784)
Living Together							0.703**	(0.634, 0.780)	0.666**	(0.600, 0.739)
Children living at home							0.761**	(0.688, 0.841)	0.722**	(0.652, 0.801)
Difficult Economic situation							2.319**	(2.105, 2.554)	2.136**	(1.931, 2.364)
Education										
Upper secondary									0.917	(0.798, 1.054)
Tertiary									0.861	(0.729, 1.017)
Age									1.079**	(1.029, 1.130)
Age squared									0.999*	(0.999, 1.000)
Ess Round									0.813**	(0.716, 0.923)
R ² (Nagelkerke)	0.017		0.026		0.031		0.083		0.094	
R ² (Cox & Snell)	0.011		0.016		0.019		0.051		0.057	

* p < 0.05, p < 0.01

5.3 Hypothesis testing

Based on the results, hypothesis 1, which states that unemployed individuals will have higher depressive symptoms compared to employed individuals across all gender regimes, is supported. In each gender regime (Traditional-Central, Traditional-Southern, Dual-Earner, Market and Contradictory), unemployed individuals had higher odds of scoring high on depressive symptoms compared to employed individuals. However, in the Market and Dual-Earner regimes, the effect of unemployment on depressive symptoms became non-significant after accounting for family and economic variables. In contrast, the effect of unemployment remained significant in the final model for the other regimes.

The analysis also supports Hypothesis 2, which states that the impact of unemployment on mental health will vary by gender across different gender regimes. Women consistently had higher odds of experiencing high depressive symptoms than men across all regimes. Significant interaction effects between gender and unemployment were observed in the Traditional-Central and Traditional-Southern regimes, indicating differential impacts of unemployment on depressive symptoms for men and women. In the Traditional-Central regimes, this interaction effect lost significance after including family and economic variables, leading to no further analysis of this interaction. In the Traditional-Southern regimes, plotting the predicted probabilities revealed that unemployed men experienced a greater increase in high depressive symptoms scores compared to unemployed women. This pattern was similarly observed in the Contradictory regimes, where the interaction effect was significant, showing higher probabilities of high depressive symptoms for unemployed men compared to unemployed women. In the Dual-Earner and Market regimes, no significant interaction effect between gender and unemployment was found.

6. Conclusion and discussion

The aim of this study was to examine the effects of unemployment on mental health for both men and women, and to explore how these effects vary across different gender regimes in European countries. Previous studies, mostly conducted within single countries, have produced inconclusive findings on whether unemployment impacts men or women more severely (McKee-Ryan et al., 2005; Paul & Moser, 2009). This thesis suggests that the institutional context, specifically the gender regime, plays a critical role in determining these outcomes. The central research question was: *How do the effects of unemployment on mental health differ by gender across various European gender regimes?*. To answer this research question, logistic regressions were conducted for each gender regime using data from the European Social Survey for the years 2012 and 2014.

The results of this study indicate that unemployment is associated with increased depressive symptoms across all gender regimes in European countries. However, the impact of unemployment on depressive symptoms varies by gender and differs depending on the gender regime. In Traditional-Southern and Contradictory regimes, unemployed men experience a greater increase in depressive symptoms compared to unemployed women. An initial interaction effect observed in Traditional-Central regimes became insignificant after controlling for control variables. In Dual-earner and Market regimes, there were no significant gender differences in the impact of unemployment on depressive symptoms. Furthermore, in these last two regimes, the significant effects of unemployment on depressive symptoms were no longer apparent after accounting for variables related to family and economic situations.

Firstly, the findings support the importance of employment as a key social determinant of both health and health inequalities. Drawing on Nordenmark and Strandh's (1999) theory, this thesis argued that employment is not only crucial for financial stability and economic needs but also for meeting psychosocial needs. The finding that unemployed individuals are more likely to experience depressive symptoms underscores the essential role of employment in mental well-being. This finding aligns with the broader literature, which consistently has found employment status to be a significant predictor of mental health outcomes.

Further analysis revealed that the impact of unemployment on depressive symptoms was somewhat reduced, and in some cases became non-significant (in Dual-earner and Market regimes), when controlling for variables related to living arrangements and economic household conditions. This suggests that economic stability and social support, which are influenced by living arrangements and household income, may help buffer the adverse mental health effects of unemployment. Relating this to Nordenmark and Strandh's (1999) theory, these buffering factors might reduce both the economic and psychosocial needs associated with unemployment, leading to a less detrimental impact on depressive symptoms. However, it is important to note that exploring these buffering factors was not the primary focus of this thesis. Earlier research, such as Russo et al. (2021), has indicated that having

a stable relationship and proximity to the family of origin can moderate the negative impact of unemployment on mental health, suggesting a need for further investigation into these dynamics.

Consistent with earlier research (Strandh et al., 2013; Cortès-Franch et al., 2019), these findings support the idea that the institutional context plays a significant role in shaping the relationship between unemployment, gender, and mental health. This thesis argued that the gendered effects of unemployment on mental health differ vary across institutional contexts, as the gender regime in place creates different psychosocial and economic needs for employment between men and women. Using Korpi's family policy regime typology, this study examined these variations. In Traditional-Southern and Contradictory countries, mainly consisting of Eastern European countries, a significant gendered effect of unemployment on health was found, with men suffering more from unemployment than women. This is likely due the traditional-family policies prevalent in these regimes, where men are seen as the primary breadwinners and women as primary caregivers and secondary earners. Men's roles are more closely tied to their employment status, making the loss of a job particularly detrimental to their mental health. In contrast, women's roles in these regimes are more strongly associated with their responsibilities as caregivers and homemakers, which can buffer the psychological impact of unemployment. Earlier studies in Southern countries, such as Spain (Artazcoz et al., 2004) and Italy (Russo et al., 2021; Tattarini & Grotti, 2022), have also indicated that the negative impact of unemployment tends to be more pronounced for men. These findings align with Korpi's later distinction between Traditional-Central and Traditional-Southern countries. In Traditional-Central countries, such as the Netherlands and Germany, more comprehensive and supportive family policies might help mitigate the impact of unemployment on mental health equally for both genders. Conversely, Traditional-Southern countries rely on more fragmented family policies and unpaid support, which emphasize traditional gender roles and result in a more unequal impact of unemployment. Men in these countries might face greater mental health challenges due to their association with paid work, while women's caregiving roles help to alleviate some of the direct effects of unemployment.

In contrast, in the Dual-Earner regimes, which include the Nordic countries, where policies promote gender equality in labour force participation and support dual-earner families through comprehensive childcare and parental leave policies, no significant gendered effect of unemployment on depressive symptoms was found. This suggests that, in these regimes, employment is central to both men's and women's roles. As a result, the need for employment is more similar between genders, leading to more comparable mental health outcomes in response to unemployment. This aligns with earlier single-country studies in Sweden, which is part of the Dual-Earner regime, that have also found no significant gender differences in the impact of unemployment on mental health (Hammarström et al., 2011; Strandh et al., 2013). In Market regimes, such as the United Kingdom and Ireland, no significant gendered effect of unemployment on mental health was found either. This may be due to the limited state intervention, lack of family support and the reliance on market mechanisms for

welfare provision in these regimes. In such contexts, the role of employment is equally important for both men and women, as the market primarily governs access to resources and economic security. Since these regimes do not have policies that create different needs for employment between men and women, the role of employment in fulfilling psychosocial and economic needs is equally important for both. As a result, the mental health impact of unemployment does not differ significantly between men and women in these regimes. However, some single-country studies within Market regimes, such as in Ireland, have reported that unemployment adversely affects men's mental health more than women's (Strandh et al., 2013). This difference might be due to the specific research design, which focused only on unemployed individuals without a comparison group of employed individuals. Furthermore, while Bambra and Eikemo's research found that women in Market regimes, including Ireland and the United Kingdom, experience more severe impacts from unemployment, their study assessed general health rather than focusing specifically on mental health (Bambra & Eikemo, 2009).

While this study uses Korpi's family policy regime typology to analyse how unemployment affects mental health across different gender regimes, it's important to consider that observed differences might also reflect underlying gender cultures and beliefs about the roles of men and women, not just institutional policies. Research shows that gender role attitudes vary across European countries (Knight & Brinton, 2017; Grunow et al., 2018). For instance, in Sweden, egalitarian gender norms and values align with extensive family policies promoting gender equality (Grunow et al., 2018). In contrast, traditional gender norms and values are more established in countries like Italy and Spain, where family policies reinforce these traditional norms (Tattarini & Grotti, 2022; Russo et al., 2021). Therefore, the significant impact of unemployment on mental health in these countries might be partly due to these established gender cultures, not just the family policy regimes. This highlights the need to consider both institutional and cultural factors to fully understand how unemployment affects mental health.

A notable limitation of this study is that the ESS data are from 2012 and 2014. Since family policies, gender norms, and economic conditions can change over time, these years might not fully reflect the current impact of unemployment on mental health for men and women. Future research using more up-to-date data would be beneficial to provide a clearer understanding of these relationships in the current context. Furthermore, in this study, the decision to use a typology-based analysis was driven by the aim to examine broad patterns and differences across distinct gender regimes. This approach allowed for an investigation into how unemployment affects men and women across different types of gender regimes and their associated family policies. However, a valuable next step would be to incorporate a multilevel analysis to capture more nuanced country-level variations. Multilevel modelling would allow for a more detailed examination of how individual experiences are influenced by the broader country-specific factors, such as economic conditions and cultural norms. This approach could provide deeper insights into the hierarchical structure of the data, potentially revealing significant country-level variations that might impact the relationship between

unemployment, gender, and mental health. Additionally, the cross-sectional design of the study does not allow for the examination of causal relationships over time. This introduces the potential for reverse causation, where poor mental health might lead to unemployment rather than unemployment leading to poor mental health. Future research that combines multilevel analysis with longitudinal data could provide a better understanding of how unemployment affects mental health across different gender regimes.

It is also important to recognize that this research is based solely on traditional gender binary and heteronormative perspectives. An interesting area for future studies would be to explore how gender regimes interact with individuals who do not conform to these conventional binary roles or family structures. Given that welfare states are often designed around traditional gender roles, understanding the impact of employment situations on the mental health of people outside these prescribed roles could offer valuable insights. This also highlights the need for a more detailed micro-level approach to understanding how individuals, and their partners, manage the psychological impacts of unemployment. Examining these effects with consideration to factors such as gender could provide deeper insights into varying mental health outcomes.

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Appendix: Assumptions and outlier test for binary logistic regression

Assumptions

Binary logistic regression relies on three primary assumptions. The first assumption is that observations should be independent of one another. However, this study uses data from the European Social Survey, which will be stratified by gender regimes across multiple countries. Given that respondents are nested within countries, there is a potential for interdependence among observations within the same country. Observations within the same country might exhibit greater similarity due to for example shared socio-economic and cultural factors. This can limit the amount of variability in the data and potentially introduce bias in the results (Harris, 2021). Although this analysis does not employ multilevel modelling or adjust for clustered standard errors to address potential intra-country correlation, this limitation is acknowledged. It is assumed that this potential correlation does not greatly impact the validity of the regression results. Future research might benefit from using techniques that address this issue more directly.

The second assumption is that there is no multicollinearity in the data. To evaluate multicollinearity among independent variables, Variance Inflation Factor (VIF) scores were calculated. All VIF values within each family policy regime are well below the threshold of three, suggesting that multicollinearity is not a significant issue. The age and age-squared variables exhibit high VIF values, but this is expected due to their inherent correlation, as the age-squared term is a quadratic function of age. Therefore, this correlation is not a concern for the analysis.

The third assumption is that there needs to be a linear relationship between any continuous independent variable and the logit transformation of the dependent variable. In this analysis, age is the only continuous predictor. Although a Box-Tidwell test could be performed to test this linearity assumption, it was considered unnecessary because theoretical expectations already addressed it. It was expected that age would have a non-linear relationship with mental health, so an age-squared variable was included instead, making the Box-Tidwell test irrelevant in this case.

Outliers and influential points

To test whether the analysis is influenced by strong outliers or outlier points, studentized residuals and leverage values were estimated to detect potential influential observations. Studentized residuals help identify observations with unusually large residuals, with values greater than 3 indicating potential outliers (Agresti, 2018). For each gender regime, studentized residuals for the final (full) model were computed. No observations with values greater than 3 were found, with the maximum value being 2.78. However, a notable finding was that the dual-earner regime had the most observations with relatively high studentized residuals. Leverage values measure how far an

observation's predictor values are from the mean of the predictor values, helping to identify observations that have the potential to disproportionately influence the regression results (Agresti, 2018). A commonly used criteria for detecting large leverage values is $3 \left(\frac{p}{n}\right)$, where p is the number of predictors in the model and n is the sample size (Agresti, 2018). The leverage thresholds were calculated for each gender regime as follows:

$$\text{For traditional-central } 3 \times \left(\frac{12}{13876}\right) = 0.0025$$

$$\text{For traditional southern this is: } 3 \times \left(\frac{12}{7005}\right) = 0.0051$$

$$\text{For dual earner: } 3 \times \left(\frac{12}{1971}\right) = 0.01826$$

$$\text{For market regimes: } 3 \times \left(\frac{12}{5759}\right) = 0.00625$$

$$\text{For contradictory: } 3 \times \left(\frac{12}{12832}\right) = 0.00281$$

Again, the dual-earner regime stood out, with several observations exceeding the leverage threshold. For observations to be influential, they must have both relatively large residuals and relatively large leverage values. To further assess the potential influence of these observations, Cook's distance values were computed, as this diagnostic depends on both residuals and leverage values. A common criterion is to identify observations with a Cook's distance greater than 1 as highly influential (Agresti, 2018). However, no observations in the dual-earner regime were found to exceed this threshold. Nonetheless, it is important to note that several observations still had relatively high Cook's distance values.