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Protecting mental health in times of change

Report on the data collection and analysis

Document date: 29/08/2024
Document version: v3
Deliverable No: D1.3

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NATIONAL SUICIDE RESEARCH FOUNDATION	NSRF	4	Beneficiary
REGION HOVEDSTADEN	PCC	5	Beneficiary
DET NATIONALE FORSKNINGSCENTER FOR ARBEJDSMILJØ	NFA	6	Beneficiary
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FUNDACIO INSTITUT HOSPITAL DEL MAR D INVESTIGACIONS MEDIQUES	IMIM	14	Beneficiary

Version Control

Version	Changes	Date
1.0	First draft	05.07.2024
2.0	Internal review	01.08.2024
3.0	Final for submission	29.08.2024

D1.3: Report on the data collection and analysis

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1. Executive Summary

Background and aims: Deliverable 1.3 – "Report on data collection and analysis" is the third deliverable for Work Package 1 (WP1) – Mental Health Epidemiology and Interventions, which is the first research work package in the overall project, Protecting Mental Health in Times of Change (MENTBEST). Work Package 1 has the overarching aim of providing evidence-based high-quality information about the effectiveness of existing interventions that address mental health conditions and about mental health challenges due to dramatic social, economic, political or other change with a focus on the five vulnerable populations addressed by MENTBEST (*migrants/refugees, older people, younger people, long-term unemployed, and those with mental disorders)*.

In this third deliverable of WP1 (D1.3), the two overall aims were to 1) develop a resource of existing high-quality, culturally sensitive, large-scale datasets on mental health in order to enable long-term monitoring and evaluation of COMBINA interventions, and 2) analyze data from two large-scale datasets in order to narrow the knowledge gaps identified in D1.1 with regard to the onset and exacerbation of sub-clinical mental health challenges due to dramatic social, economic, political, digital and other change, in (a) the general population and (b) identified vulnerable groups.

More specifically, the data analyses presented in this report aimed at answering the following three specific questions:

> 1) How has the level of self-reported symptoms of depression changed over the last decade among people aged 50 and older in European countries?
>
> 2) Can the changes in symptoms of depression in the European countries be related to two major crisis in the last decade, that is the migration crisis from 2015 and the COVID-19 crisis from 2020 to 2022?
>
> 3) How has the level of self-reported symptoms of depression changed in the last decade in a selected Nordic country (Denmark), for which we had detailed survey data, with regard to age, migration status, and unemployment?

Methods: The questions were answered using data from a large cross-European dataset (Survey of Health, Ageing and Retirement in Europe, SHARE) and by using data from a detailed national survey (Work Environment and Health in Denmark survey, WEHD), ensuring availability of data from both the geographical areas (South and East European countries) and subgroups (older adults and unemployed individuals) identified as having lack of knowledge regarding changes in mental health in the scoping reviews in D1.1. First, we used data from the European countries participating in SHARE to create an overview of how the level of self-reported depressive symptoms (EURO-D) had changed from 2011 to 2021/2022. We looked at both the proportion of participants with a high level of depressive symptoms (EURO-D ≥4) and the median EURO-D score. Further, we substantiated whether the identified patterns of change could be related to the migration crisis and the COVID-19 pandemic. Second, using a large and detailed nationwide Danish survey (The Work Environment and Health in Denmark Study), we created a similar overview of how the level of self-reported depressive symptoms had changed from 2012 to 2018. We then further stratified the sample by age group, migration background, and unemployment status to investigate whether the pattern of changes in symptoms differed among these vulnerable subgroups.

Results: In the analyses of the European data (SHARE), we found that the level of depressive symptoms was relatively stable over time when looking at the entire European population (the proportion with a high level of depressive symptoms was 30.9 % in 2011 and decreased to 28.1% in 2021/22); however, when looking at the 27 participating countries separately, we saw large variations in levels and patterns of change over time. The countries of The Northern European region had the overall lowest levels but with a similar pattern of increase as the countries of the Western European region, although these countries generally had a higher starting point (19.0% in 2011 for the Northern European region and 28.0% in 2011 for the Western European Region). Among the countries of the Southern and Eastern European regions, we found the highest overall levels of depressive symptoms and saw large variation across time (the Southern European region: 34.0% had a high level of symptoms in 2011 and 28.0% in 2021/22. The Eastern European Region: 37.4% in 2011 and 28.0% in 2021/2022).

In Austria, Spain and Italy, we found that the level of depressive symptoms peaked in 2017, with a sharp increase from 2015 to 2017 and then a sharp decrease from 2017 to 2019. During the migration crisis in 2015, both Italy and Austria received particularly high numbers of immigrants and refugees. However, in Spain, which was not so much a destination for immigrants and refugees as compared to Italy and Austria, a similar peak in depressive symptoms was seen. The COVID-19 pandemic one way or the other affected all European countries. Bulgaria and Hungary had the highest number of deaths per capita but experienced a decrease in depressive symptoms from before (2019/20) to after (2021/22) the start of the pandemic. The European countries with the highest infection rates and days with lockdowns were also identified, but the pattern of change in depressive symptoms varied largely.

In the analyses of the Danish data (WEHD), there was an overall relative increase in depressive disorder symptoms from 2012 to 2018. Higher initial levels as well as larger increases were generally found among the younger age group, participants with immigration background and with recent unemployment.

Conclusion: Our findings suggest that both the level of depressive symptoms and the change in depressive symptoms over time vary considerably within the regions and countries of Europe. Some of the countries most affected by the migration and COVID-19 crisis, showed large increases in reported symptoms of depression, whereas others did not, underlining that many other factors (which largely differ between European countries) probably influenced how a dramatic societal change or challenge affect the mental health of the population.

Our analyses within a selected Nordic country, Denmark, further indicated that the identified vulnerable groups (migrants, unemployed and younger individuals) had a considerably worse subclinical mental health status as compared to natives, employed and middle-age/older individuals, respectively, and that the subclinical mental health symptoms of the vulnerable groups increased more over time as compared to the non-vulnerable counterpart.

The report was prepared by the lead of WP1, The National Research Centre for the Working Environment, Copenhagen, Denmark (NFA; Louise Dalsager, Sandra Nielsen and Reiner Rugulies) and Southeast European Research Centre, Thessaloniki, Greece (SEERC; Ana Vivas and Lina Gega) and reviewed by Instituto de Saúde Pública da Universidade do Porto (ISPUP; Virgínia Ermelinda Mendes da Conceição; Joana Moreira and Ricardo Gusmão).

This report uses data from SHARE Waves 4, 5, 6, 7, 8 and 9 (DOIs: 10.6103/SHARE.w4.900, 10.6103/SHARE.w5.900, 10.6103/SHARE.w6.900, 10.6103/SHARE.w7.900, 10.6103/SHARE.w8.900, 10.6103/SHARE.w9.900). The SHARE data collection has been funded by the European Commission, DG RTD through FP5 (QLK6-CT-2001-00360), FP6 (SHARE-I3: RII-CT-2006-062193, COMPARE: CIT5-CT-2005-028857, SHARELIFE: CIT4-CT-2006-028812), FP7 (SHARE-PREP: GA N°211909, SHARE-LEAP: GA N°227822, SHARE M4: GA N°261982, DASISH: GA N°283646) and Horizon 2020 (SHARE-DEV3: GA N°676536, SHARE-COHESION: GA N°870628, SERISS: GA N°654221, SSHOC: GA N°823782, SHARE-COVID19: GA N°101015924) and by DG Employment, Social Affairs & Inclusion through VS 2015/0195, VS 2016/0135, VS 2018/0285, VS 2019/0332, VS 2020/0313 and SHARE-EUCOV: GA N°101052589 and EUCOVII: GA N°101102412. Additional funding from the German Ministry of Education and Research, the Max Planck Society for the Advancement of Science, the U.S. National Institute on Aging (U01_AG09740-13S2, P01_AG005842, P01_AG08291, P30_AG12815, R21_AG025169, Y1-AG-4553-01, IAG_BSR06-11, OGHA_04-064, BSR12-04, R01_AG052527-02, HHSN271201300071C, RAG052527A) and from various national funding sources is gratefully acknowledged (see www.share-eric.eu).

2. Introduction and Background

2.1. Role of this Deliverable in the Project

The overarching aim of MENTBEST is to support vulnerable groups (*migrants/refugees, older people, younger people, long-term unemployed, and those with mental disorders*) in the general population especially at risk of being disadvantaged by dramatic societal change, of experiencing stressors, and of suffering (further) negative impacts on their mental health.

MENTBEST will first characterise the scale of change-related mental health challenges in Europe and then working with patients, healthcare and other stakeholders, identify interventions and tools that best build resilience and maintain mental health.

By expanding existing MENTBEST partner expertise in community-based interventions to reduce depression and suicidal behaviour (EAAD 4-Level-Intervention) and including the identified interventions and tools, MENTBEST will create and then deliver and validate in five model regions across five countries (Spain, Ireland, Estonia, Greece, Albania), a comprehensive community-based intervention, known as COMBINA.

An innovative addition will be the MENTINA App, tested via a randomised controlled trial (RCT) of app-based self-monitoring and self-management technologies for mental health, which use artificial intelligence and statistics to create individualised predictive models and provide users with preventive and self-management support.

MENTBEST is an ambitious project, led by the European Alliance Against Depression (EAAD) with a multi-disciplinary consortium of a further 13 partners, collectively covering 10 countries.

Work Package 1 – Mental Health Epidemiology and Interventions (WP1), as the first research package in MENTBEST, has the overarching aim of providing evidence-based high-quality information about the effectiveness of existing interventions that address mental health problems, and about the scale of change-related mental health challenges in Europe, with a focus on the five vulnerable populations addressed by MENTBEST (*migrants/refugees, older people, younger people, long-term unemployed, and those with mental disorders)*. The specific four objectives of WP1, as stated in the DoA are:

- To provide high-quality data to the evidence base on the prevalence and severity of rapidly changing mental health needs across Europe in the general population, taking into consideration demographic and vulnerability factors such as age (younger and older age), education, and socio-economic status level (e.g., poverty and unemployment) and migrant status.
- To identify and aggregate information about published interventions that have addressed (a) sub-clinical mental health symptoms and (b) mental disorders with a focus on the identified vulnerable populations.
- To select from these, the most promising interventions to be included in COMBINA and the MENTINA app. These interventions must collectively address (a) the specified vulnerable groups, (b) mental disorders (depression, anxiety disorders, suicide prevention) and/or (c) sub-clinical mental health challenges (e.g. subthreshold depressive syndromes, mental distress, resilience building)
- To address the existing knowledge gap on mental health data in Southeast Europe.

In terms of WP1 tasks, the work is organised around four main tasks as shown in the Table below (Table 1).

Table 1: Overview of tasks in Work package 1.

TASK	LEAD	PARTNERS	OUTPUTS
1.1. Scoping Reviews x 2: - *Epidemiological studies* - *Clinical studies*	SEERC	NSRF, NFA, ISPUP, UAM	Report on prevalence data + intervention effects, costs, acceptability
1.2. Intervention selection - *Stakeholder consultation*	NSRF	SEERC, ISPUP, EAAD	List of selected interventions for COMBINA & MENTINA
1.3. Database hub creation + data analysis with 2 databases	NFA	SEERC, NSRF	Report of database hub creation + findings of analysis
1.4. New data collection system + survey in Greece with migrants	SEERC	NSRF, NFA, ISPUP	New database

This report describes the work and outputs of the creation of the database overview (Task 1.3.1) and the data analyses (Task 1.3.2), culminating *Deliverable 1.3 – Report of data analyses and database overview* (D1.3):

> **Task 1.3.1** – aimed at developing **a resource of existing** high-quality, culturally sensitive, large-scale **datasets on mental health** (either open-access datasets or datasets that are owned by this consortium), particularly sub-clinical anxiety and depression symptoms, across Europe, which include vulnerable groups. The developed resource will be utilized for long-term monitoring and evaluation of COMBINA interventions
>
> **Task 1.3.2** - aimed at analyzing at least two large datasets (Survey of Health, Aging and Retirement in Europe (SHARE) and Work Environment and Health in Denmark (WEHD)), to narrow the knowledge gaps identified in T1.1 with regard to the onset and exacerbation of sub-clinical mental health challenges due to dramatic social, economic, political, digital and other change, in (a) the general population and (b) identified vulnerable groups.

Through the successful delivery of these tasks, D1.3. addresses one of the main specific objectives of MENTBEST as reflected in the DoA. Specifically:

- SO1: *to characterise the scale and severity of mental health challenges associated with rapid societal, economic, environmental and other change in Europe, particularly for five vulnerable groups (migrants/refugees, older people, younger people, long-term unemployed, those with mental disorders)*

2.2. Background for the data analysis

The background presented below has formed the basis of the work conducted in work package 1 – both for this and previous deliverables. Besides the theoretical background, the work presented in this report is based on the outcome of deliverable 1.1 (D1.1) - Two Scoping Reviews, which identified current gaps in the scientific literature. Thus, the specific research questions formulated and presented in the end of this section, are based on both the theoretical background and gaps identified in the literature in D1.1.

2.2.1. Theoretical background

In September 2022, the European Commission identified mental health protection and promotion as major strategic goals for the Union amid pan-European dramatic economic, societal and environmental challenges (European Commission, 2022). Drawing on the future for population mental health in the 21st century, Fuhrer and Keyes (2019) refer explicitly to a time for action to protect mental health and prevent mental illness in light of current major societal challenges. These challenges, which have been catalysed by recent global shocks such as the COVID-19 pandemic and the war in Ukraine, give way to isolation, population displacements, energy crises, economic downturns, alongside global megatrends such as climate change, an ageing population, and digitalisation (Charlson et al., 2021; Cianconi et al., 2020; Godinic et al., 2020; Naslund et al., 2020).

The wider socio-economic, environmental and political context have a major and disproportionate effect on the mental health and wellbeing of populations around the world, posing major challenges for the identification and mitigation of risk factors for poor mental health and the support of those who are already experiencing diagnosable mental health conditions (Moen, 2022; Santomauro et al., 2021). Epidemiological studies have confirmed the cross-country impact of the wider socio-economic, environmental and political context on people's mental health and wellbeing. Examples include the COVIDiSTRESS global survey (Yamada et al., 2021), the Global Burden Disease Study (Santomauro et al, 2021) and the European Social Survey (Alvarez-Gavez et al., 2022). Digitalization and transition to digital life in the aftermath of crises, such as the recent pandemic, may have altered wellbeing parameters and may have increased the rates of subclinical mental health conditions (subsyndromal anxiety and depression) (Naslund et al., 2020; Gurvich et al., 2021).

Vulnerable groups

Specific groups of people within the general population are more likely to experience the negative effects of dramatic economic, societal and environmental changes on their health and wellbeing (Red Cross EU Office, 2023). For example, individuals and families with low income, or who are unemployed long-term, are at greater risk of mental distress and poorer wellbeing as a consequence of economic downturns (Batic-Mujanovic et al., 2017; Buffel et al., 2015). Children and adolescents (Adjei et al, 2022) and older adults (Pruchno et al., 2021) are also at greater risk of poor mental health in the face of adverse circumstances. Asylum-seekers and refugees have higher rates of persistent depression and post-traumatic stress disorder (PTSD) compared to the general population (Blackmore et al 2020). Finally, the negative effects of an unexpected crisis like the COVID-19 pandemic are more pronounced among people with pre-existing mental health or addiction problems (Gega & Aboujaoude, 2021).

Mechanisms of vulnerability

Several mechanisms and mediating factors may account for the increased mental health vulnerability of certain population groups to economic, societal and environmental challenges, including disparities in stress exposure and protective resources (Moen, 2022), barriers to accessing and using mental health services (Satinsky et al., 2019), stigmatisation, social exclusion, ostracism or discrimination (Galanaki & Gkinopoulos, 2023). Adversities in early-life, co-morbidity and gene-environment interactions are also likely contributing explanations to why some individuals are more vulnerable/likely to develop mental health conditions than others (Arango et al., 2021; Smoller et al.,

2019). Still, the majority of people within vulnerable groups do not develop mental health conditionss in the face of adversity and external stressors (Cuijpers, Furukawa, & Smit, 2021).

Initiatives to protect mental health and prevent mental illness

Initiatives to promote good mental health may prevent mental health conditions and mitigate vulnerabilities (Richter & Dixon, 2023). This may include psychosocial and lifestyle interventions that aim to improve mental health literacy in terms of both knowledge, attitude and skills or mental wellbeing, build resilience, combat stigma, enhance self-help competency, minimise risk factors and reduce threshold symptoms of clinical conditions (Kutcher, Wei & Coniglio, 2016; Kutcher et al., 2016). Such interventions may be developed and delivered in the context of stressors like the COVID-19 pandemic (e.g. Bryant et al., 2022), life-related transitions due to ageing and retirement (e.g. Cassanet et al., 2022), migration (e.g. Ciaramella et al., 2022; Uphoff et al, 2020) and climate change (Massazza et al., 2022). Interventions to protect mental health may be offered universally to a country's general population (Papola et al., 2020) or to targeted vulnerable or underserved groups defined by specific characteristics such as age and migration status (Goodkind et al., 2020; Soltan et al., 2022). For more details see D.1.1.

Opportunities in times of change

Digitally enabled interventions can leverage the power of social media and telecommunication technologies to protect and improve mental health (Ratheesh & Alvarez-Jimenez, 2022; Torous et al., 2020; Zhou et al., 2021). Technology enables us to reach geographically and ethnically diverse populations and to shift delivery from individual to community-based approaches, which are important considerations for interventions that are scalable and durable across different settings and populations (Kubzansky et al., 2023). Considering environmental and climate considerations, the concept of sustainable mental health interventions is a positive step towards prevention and future proofing both the workforce that supports mental health interventions and the spaces and methods through which such interventions are delivered (Royal College of Psychiatrists, 2021).

2.2.2. Scientific background – findings from the scoping review (D1.1)

Our scoping review of reviews included 11 papers that captured changes in the prevalence and severity of mental disorders, the direction of mental health trajectories, and the levels of mental wellbeing, over time or/and across countries or populations in Europe. In total, the reviews included 915 epidemiological studies worldwide and 207 in European countries (not necessarily within the European Union) and synthesized data for 5,080,255 participants in total and for 1,369,344 participants from European countries.

With regard to geographical distribution, the number of countries included in the reviews varied from 7 to 38. Our inclusion criteria specified that reviews should include studies with European populations, even if they are mixed with worldwide populations outside Europe. The geographical distribution of the 207 studies was dominated by North-west European countries. Thisis in agreement with the gap in mental health knowledge in Southeast Europe reported in the literature, in this case in terms of data

about mental health challenges in the general population or/and in the five MENTBEST vulnerable groups.

All reviews, except one, related either exclusively to children and adolescents (6), or to mixed populations of children, adolescents, adults (4). Only 1 review related exclusively to people with pre-existing mental health challenges (PTSD; Diamond et al. 2022), and 1 review related to MENTBEST intersectional vulnerability, that is, children and adolescents who were unaccompanied refugees living in European countries (Daniel-Calveras et al., 2022). This supports that our reviews of reviews likely reflect the increased interest, in recent years, in child and adolescent mental health, compared to the relative absence of recent reviews pertaining to unemployed people, and older adults.

In terms of global (societal, economic and environmental) stressors within which the reviews were conducted, seven addressed the COVID-19 pandemic, four referred to disasters such as terrorism (1), political conflict/violence (1) and natural catastrophes due to climate change (2), and one referred to traumatic events (e.g., car accidents and physical assault). As our searches were limited to the last three years, our review of reviews reflects the worldwide interest in the impact of the most recent and predominant global stressor, the COVID-19 pandemic, on mental health.

Finally, with regard to outcomes of interest, the majority of reviews reported change on both anxiety/stress measures and depression/mood measures (10), with one review reporting exclusively on change in anxiety/stress measures, one review including wellbeing and resilience measures, and four reviews including self-harm and suicide measures.

In conclusion, based on the literature review conducted in scoping review 1 of D1.1. SR1, it was identified that there is a:

1. Lack of knowledge in older adults and unemployed individuals
2. Less knowledge from South and East European countries
3. Limited knowledge regarding a global stressor like migration
4. Comprehensive knowledge on COVID-19 and mental health in younger and general populations but not in older individuals

Approach

In order to identify relevant, high-quality datasets, all MENTBEST Consortium members were invited to share their knowledge on relevant datasets that they have access to. Members from a COMBINA-intervention country were approached again separately and the importance of identification of datasets from their countries were stressed.

To investigate mental health challenges in times of change, specifically focusing on the knowledge gaps identified in the scoping reviews, we selected a period spanning from 2011 to 2021/2022 to cover the most recent development while also ensuring that large datasets were available for analyses. We selected the datasets based on availability of data from the South and Eastern European countries, which were identified in the scoping review as regions with less knowledge, and based on availability of data about older adults, unemployed and migrants. In the selected time-period, European countries faced different challenges; however, two of the most influential and widespread challenges affecting all countries, and were we had data from both before and after initiation of the crises, were the migrant crisis in 2015 and the COVID-19 pandemic arising in 2020. In the analyses of changes in mental health over time, we will thus try to identify patterns related to these specific dramatic societal changes.

Below follows a brief description of the migration crisis in 2015 and the COVID-19 pandemic in 2020-2022.

The migration crisis

The migration crisis in Europe during the 2010s, primarily fueled by conflicts in Syria, Afghanistan, and Iraq, resulted in over a million refugees and migrants entering European countries in 2015 alone (Borg-Barthet & Lyons, 2016; Rybakov & Kvon, 2019). Most refugees arrived in Greece and Italy, after which many headed towards Austria, Germany and Sweden, but also other EU Member states. At the beginning of the crisis, Hungary had many refugees passing through the country, and a large proportion continued through Croatia (European Union Agency for Fundamental Rights, 2016). The large number of migrants coming to Europe in this period might have had mental health impacts on the general population, with migrants and ethnic minority groups being particularly vulnerable to mental disorders such as depression, anxiety, and post-traumatic stress disorder (PTSD)(Martin & Sashidharan, 2023; Nowak, Nutsch, Brake, Gehrlein, & Razum, 2023). The likelihood of developing depression, PTSD or anxiety is found to significantly increase with the number of traumatic events experienced. Also, different post-migration stressors are associated with these mental disorders (Nowak et al., 2023).

The visible presence of refugees in need of help triggered an unprecedented response by the population in many countries. Many volunteered to help, but at the same time, anti-refugee attitudes also increased, and violent outbursts occurred in some countries (European Union Agency for Fundamental Rights, 2016). Different national governmental measures to manage the arrival of the many refugees might also have had impacts on mental health of both the general population and refugees and migrants.

The COVID-19 crisis

The COVID-19 pandemic in Europe was a significant public health crisis caused by the spread of the novel coronavirus (SARS-CoV-2). It led to widespread illness, overwhelmed healthcare systems, and prompted governments to implement lockdowns, travel restrictions, and social distancing measures to curb the virus's spread. Vaccination campaigns were later launched to control the outbreak (European Centre for Disease Prevention and Control, 2024). The consequences of the COVID-19 pandemic in Europe were multifaceted. Studies have shown that the pandemic led to varying levels of mortality across different regions, with factors such as the share of risk groups, societal beliefs on health measures, GDP per capita, and industry employment influencing the number of reported cases and mortality rates (Szysz & Torój, 2023). Some of the highest rates of cases infected with COVID-19 was measured in Austria, with 670,727 cases per one million citizens, followed by Slovenia (652,803), France (612,013), Luxembourg (609,044), and Greece (591,412). Some of the countries with the highest mortality rate per one million citizens were Bulgaria (5,661) and Hungary (5,106), followed by Croatia (4,604), Czech Republic (4,053) and Slovakia (3,887). Of these countries, France and Greece were also among the countries experiencing the longest period of lockdown in the beginning of the pandemic, together with Italy, Spain and Lithuania, whereas Hungary and Portugal experienced the shortest period of lockdown (Atalan, 2020; Worldometer, 2024). The very different approaches applied to containment, vaccination, and addressing economic repercussions between the European countries, have probably been influential on the large differences in consequences (Lynggaard, Jensen, & Kluth,

2023; Vicente & Suleman, 2022). Open Data analysis of the Northern countries revealed varying COVID-19 outcomes, with rural areas experiencing lower death rates and localized public health management showing effectiveness in outbreak control (O'Callaghan & Glynn, 2023). The pandemic significantly impacted the labour market for immigrant workers, with migrants facing higher employment loss risks due to occupational sorting and industry distribution (Fasani & Mazza, 2023).

Research questions for the data analyses

Based on the background presented above and the objectives of MENTBEST and WP1, we formulated the following specific research questions for the data analyses:

1) How has the level of self-reported symptoms of depression changed over the last decade among people aged 50 and older in European countries?

2) Can the changes in symptoms of depression in the European countries be related to two major crises in the last decade, that is the migration crisis from 2015 and the COVID-19 crisis from 2020 to 2022?

3) How has the level of self-reported symptoms of depression changed in the last decade in a selected Nordic country (Denmark), for which we had detailed survey data, with regard to age, migration status, and unemployment?

3. Methods

3.1 Task 1.3.1: Overview of high-quality datasets

We built an overview of existing high-quality datasets (either open-access or owned by members of the MENTBEST Consortium) containing information on symptoms on mental health from European countries. As the overview is aimed at being used for long-term evaluation and follow-up of the COMBINA intervention, on-going cohorts and data collections from the intervention countries (Greece, Ireland, Spain, Estonia and Albania) are of particular importance. The overview consists of a table including information on the most important aspects of each dataset (e.g. country, year of data collection, number of participants, type of mental health information etc.) enabling fast and easy identification of relevant datasets and cohorts (Table 2). We identified open-access databases and invited the members of the MENTBEST consortium to suggest relevant datasets from their countries that they have access to.

3.2 Task 1.3.2: Analyses in two datasets

This task was conducted using data from a large cross-European dataset (Survey of Health, Ageing and Retirement in Europe, SHARE) and by using data from a detailed national survey (Work Environment and Health in Denmark survey, WEHD). We decided to use SHARE as this study is focusing on the older European population, which was identified in the scoping review (D.1.1) as a vulnerable group with limited knowledge on changes in mental health due to dramatic societal, economic, political or other dramatic changes. As unemployed individuals were identified as the second vulnerable group with limited knowledge on changes in mental health, we decided to use WEHD, which includes detailed information on unemployment, as well as on migration background, in a large national, representative population sample. Further, the data from WEHD was already available and well-known to us, which was a great advantage in terms of time and resources used to apply for data-access etc.

First, we used data from the European countries participating in SHARE to create an overview of how the level of self-reported depressive symptoms (EURO-D) had changed from 2011 to 2021/2022. Further, we substantiated whether the identified patterns of change could be related to the migration crisis or the COVID-19 pandemic.

Second, using a large and detailed nationwide Danish survey (The Work Environment and Health in Denmark Study), we created a similar overview of how the level of self-reported depressive symptoms had changed from 2012 to 2018. We then further stratified the sample by age group, migration background, and unemployment status to investigate whether the pattern of changes in symptoms differed among these vulnerable subgroups.

3.2.1 Description of the Survey of Health, Ageing and Retirement in Europe (SHARE)

SHARE, the Survey of Health, Ageing and Retirement in Europe, is a research infrastructure for studying the effects of health, social, economic and environmental policies over the life-course of European citizens and beyond. From 2004 until today, 530,000 in-depth interviews with 140,000 people aged 50 or older from 28 European countries and Israel have been conducted. A detailed description of the

SHARE survey, including the data collection process, participants, methodology etc. has been described and published elsewhere (Bergmann et al., 2019; Bergmann et al., 2021; Bergmann et al., 2024; Börsch-Supan et al., 2013; Malter et al., 2013, 2015, 2017; SHARE, 2024; SHARE-ERIC, 2024: Wave 4-9;).

Data selection

We used SHARE data from 2011 to 2021/2022 (wave 4 to 9) from 27 European countries (Austria, Germany, Sweden, Netherlands, Spain, Italy, France, Denmark, Greece, Switzerland, Belgium, Czech Republic, Poland, Luxembourg, Hungary, Portugal, Slovenia, Estonia, Croatia, Lithuania, Bulgaria, Cyprus, Finland, Latvia, Malta, Romania, and Slovakia). We chose this study period to examine the two recent major dramatic societal changes in Europe; the migration crisis and the COVID-19 pandemic. Looking at this 10-year period allowed us to investigate the population mental health condition both before and after the crises began. We are aware that in the beginning of the period, the Global Financial Crisis (GFC) was still evident and serious in some of the included countries. However, as SHARE data was only available for a smaller number of countries (mainly Western European) from 2005 and since this crisis is already well-researched, we chose not to include this in the present report.

In the period from 2011 to 2022, 27 countries participated in the SHARE survey; however, it varied in which year each country entered the study, and in how many waves they participated. Across the included six waves, 97,165 individuals participated with at least one reply, and contributed to 303,396 observations in total across all waves (Figure 2).

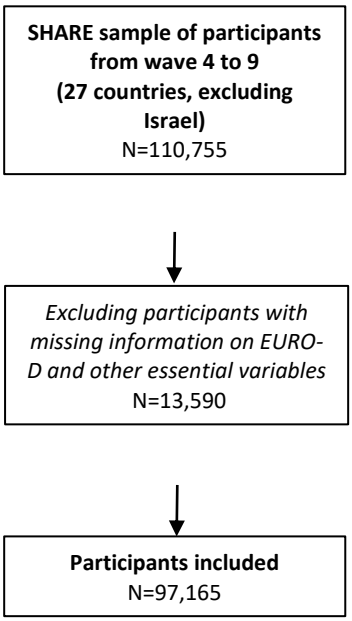


Figure 1: Selection of study participants from SHARE

Data source and included variables

EURO-D: The EURO-D is a scale originally developed to compare symptoms of late-life depression across 11 European

countries in the EURODEP Concerted Action Programme (Guerra et al., 2015). The EURO-D consists of 16 questions assessing the following 12 items: depression, pessimism, suicidality, guilt, sleep, interest, irritability, appetite, fatigue, concentration, enjoyment, and tearfulness. The maximum score a respondent can get is 12 ("very depressed") and the minimum score is 0 ("not depressed"). The attainment of a scale score of 4 or higher has previously been categorized as a "case of depression" (Prince et al., 1999). However, for the current analyses, a score ≥4 will be defined as having "a high level of depressive symptoms", whereas a score <4 will be defined as "not having a high level of depressive symptoms".

Background information/demographics: Participant's background characteristics were taken from the first wave of response (baseline response). We used information on years of age, gender (male, female), marital status ("married and living together with spouse", "registered partnership", "married and living separated from spouse", "never married", "divorced", "widowed", or "unknown"), years of education, current job situation ("retired", "employed or self-employed", "unemployed", "permanently sick or disabled", "homemaker", "other", or "unknown"), and migration background ("born in the country of interview"; yes, no or unknown). Further, we grouped each country of residence into four European Regions; Northern Region (Sweden, Denmark, Finland), Southern Region (Spain, Italy, Greece, Portugal, Cyprus, Malta), Eastern Region (Czech Republic, Poland, Hungary, Slovenia, Estonia, Croatia, Lithuania, Latvia, Romania, Slovakia, Bulgaria), and Western Region (Austria, Germany, Netherlands, France, Switzerland, Belgium, Luxembourg).

Statistical analyses:

Table 3 presents participants' baseline characteristics of years of age (mean, Inter Quartile Range (IQR)), gender (female, %), marital status (married/registered partner, % (pooling of the following answers: married and living together with spouse, registered partnership, married and living separated from spouse)), years of education (mean, IQR), current job situation (unemployment, %), and migration background (born in the country of interview, %).

Levels of self-reported symptoms of depression is presented by country-specific proportion of participants with a high level of depressive symptoms (EURO-D score of 4 or more) and country-specific median of depressive symptoms (EURO-D scale from 0 to 12) across six waves of SHARE (2011 to

2021/2022) (Figures 4 to 18). Table S1 presents number of observations (N), weighted prevalence estimates, 95% confidence intervals (95% CI) and p-values (test for no difference between the waves within each country). A p-value < 0.05 indicates a statistically significant difference in the prevalence within a country across time. Table S2 presents number of observations (N), weighted median, IQR and p-values (test for no difference in the EURO-D score between the waves within each country). A p-value < 0.05 indicates a statistically significant difference in the score within a country across time. We further tested whether the trends in prevalence and median EURO-D score over time were different between the four European regions. A p-value <0.05 indicates that the trends in change over time were statistically different between the regions (presented in Figures 9 and 10). In order to make the sample representative of the national populations, calibration weights were added. The weights were calculated by SHARE and are based on country-specific information on gender, age class and NUTS (The Nomenclature of Territorial Units for Statistics) classification, which is a geographical nomenclature dividing economic territory of the European Union (European Union, 2024); SHARE, 2024). All numbers are presented for each country, each region (Northern, Southern, Eastern, and Western), and for Europe in total.

All analyses were conducted in SAS version 9.4.

3.2.2 Description of The Work Environment and Health in Denmark Study (WEHD)

The Work Environment and Health in Denmark (WEHD) study consists of a series of nationwide cross-sectional surveys on working conditions and health established in 2012 and repeated in 2014, 2016 and 2018 among employees in Denmark.

For each wave, Statistics Denmark drew a random nationwide sample of employees (approximately 35,000 people) between 18 and 64 years of age, working ≥ 35 hours per month and with earnings ≥ 3000 Danish kroners per months (about 400 Euros), who were invited to complete the WEHD questionnaire. Approximately 86,000 people completed the questionnaire in one of the waves. All respondents were subsequently followed-up in national registries providing information on socioeconomic conditions, health and labour market participation. An additional stratified workplace sample was collected in 2012 (N=15,691) and 2016 (N=15,108).

This study included participants from both the nationwide random samples and the stratified workplace samples. Participants were included if they met the following criteria: i) they reported being employed at the time of completing the questionnaire; ii) they completed the questions on depressive symptoms and provided complete information on key covariates (see Figure 3 - flowchart). Out of the 169,922 individuals invited to participate in one of the four longitudinal waves of WEHD (2012 to 2018), 86,823 (51.1%) completed the questionnaire. Detailed information on participant numbers and attrition across the four waves is presented in Figure 3. In total, 4,776 participants who did not meet the inclusion criteria at the time of the survey were excluded, along with 5,271 participants who either did not complete the Major Depression Inventory or lacked data on sex, age, and educational level. This resulted in a final sample of 76,770 responders (23,002 in 2012, 16,422 in 2014, 20,352 in 2016 and 16,994 in 2018).

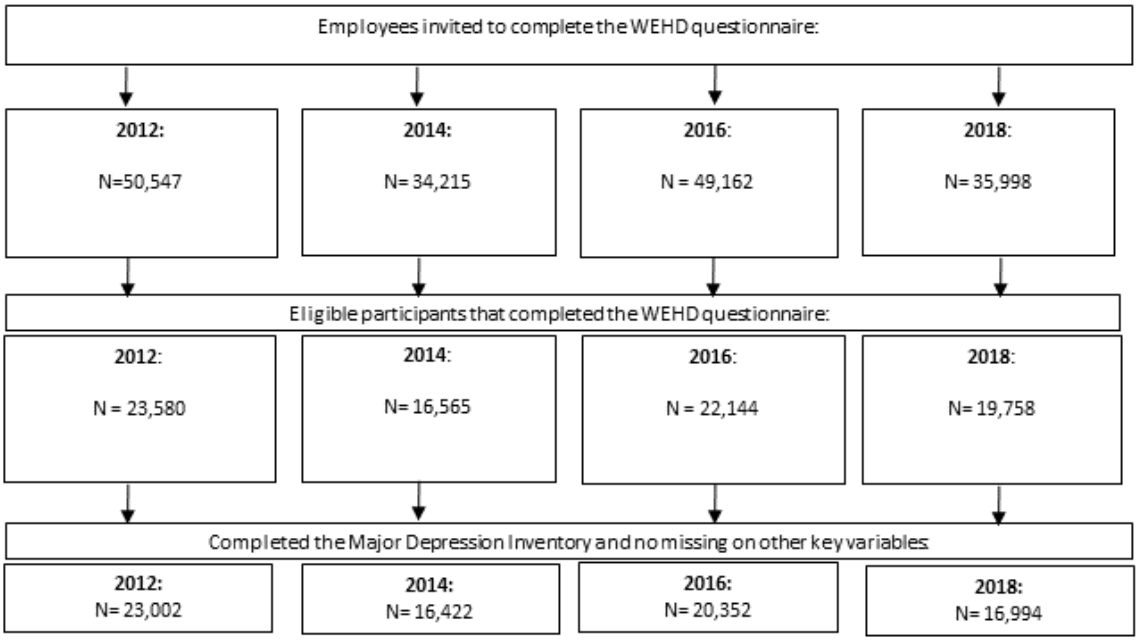


Figure 2: Flowchart of participant selection from WEHD

To make our sample comparable to the entire Danish working population (in accordance with the study's inclusion criteria), we applied weights to our analyses based on sex, age, industry, and study design. The weights were generated by Statistics Denmark (Jensen et al., 2022)

Included variables and data source

From the questionnaire

Major Depression Inventory (MDI): We measured depressive symptoms using the Major Depression Inventory (MDI), which is a clinically validated self-administered questionnaire (Bech et al., 2001, Bech et al., 2015, Olsen et al., 2003). The MDI consists of 12 items rating symptoms of depression during the last two weeks in accordance with the diagnostic criteria in ICD-10 (Bech et al., 2001). The items are rated from 0 ("not present at all") to 5 ("present all of the time"). For two pairs of items (item 8 and 9, and item 10 and 11) only the item with the highest score is included. The 10 remaining items are summed, creating a total MDI-score ranging from 0 to 50. An MDI-score of ≥ 21 indicates the presence of a probable depressive disorder, according to a Danish validation study (Bech et al., 2015). For the current analyses, MDI ≥21 will be interpreted as "probable depressive disorder", whereas MDI <21 will be interpreted as "no probable depressive disorder".

From national registries

Age, sex, cohabitation, migration background,

educational attainment, unemployment:

Linking the participants' unique civil registrations numbers to the Danish registries, we obtained information on date of birth, sex, cohabitation (living alone or with someone else), migration background (Danish origin, immigrant, descendant), educational attainment (highest completed education) and employment status for every year (2010-2018).

This information was used to create the following variables for use in the analyses: age group (younger (18-29 years), middle-aged (30-59 years), older (≥60 years)), educational level (high, medium high, medium low, low (based on ISCED (UNESCO, 2003)), recent unemployment (yes = at least one of the previous three years with a period of unemployment lasting more than 6 months, no = everyone else).

Statistics

We provide the distribution (number and %) of participants based on key characteristics (sex, age group, educational level, cohabitation, migration background, and recent unemployment) for each of the four WEHD waves (Table 4).

We calculated the proportion of participants with a high level of depressive symptoms (MDI score >=21) with weighted estimates and corresponding 95% confidence intervals (CI) for each of the four waves of WEHD (2012, 2014, 2016, and 2018) stratified by age groups, migration background and recent unemployment. We further tested (partial Wald test) whether any difference in the trend of symptoms across time was significantly different within the groups investigated (age groups, migration background and recent unemployment) (Tables 5-7). The results of the analyses are also presented visually in Figures 19 to 21.

Further, we estimated the mean MDI score and corresponding standard deviation (corrected for the weighting procedure) for each of the four waves of WEHD stratified on age groups, migration background and recent unemployment. We tested (F-test) whether any difference in the trend of mean score across time was significantly different within the groups investigated (age groups, migration background and recent unemployment) (Table 8-10).

Analyses were conducted in R version 4.3.1 and SAS version 9.4.

4. Results

4.1 Task 1.3.1 (Overview of high-quality datasets)

In this section, we present the output of the work conducted aiming at identifying large-scale European datasets on mental health (Task 1.3.1).

As elaborated in section *2.1. Role of this Deliverable in the Project*, the aim was to:
"… develop a resource of existing high-quality, culturally sensitive, large-scale datasets on mental health (either open-access datasets or datasets that are owned by this consortium), particularly sub-clinical anxiety and depression symptoms, across Europe, which include vulnerable groups. The developed resource will be utilised for long-term monitoring and evaluation of COMBINA interventions."

We were interested in all datasets from European countries that contained information on mental health, however, we had a particular focus on identifying datasets that fulfilled one or more of the following criteria:

1) Have vulnerable population groups among the respondents (younger/older/refugees/unemployed/mental disorder)
2) Have data from the COMBINA-intervention countries (Albania, Estonia, Germany, Spain and Greece)
3) Are open-access or are accessible by members of the MENTBEST consortium
4) Have plans of future data collection/follow-up of respondents

An overview of the datasets identified, along with some key information about the data collection, is presented in table 2 below.

Table 2: Overview of existing high-quality datasets

Name of study*	Size of population	Characteristics of population	Date of start	Date of follow-up	Type of study	Primary outcome
WEHD	>70,000	Age 18-65, employed in Denmark	2012 to 2018	2014,16,18 ongoing follow up in hospital registers	Observational + national health registers	Clinical and sub clinical
DaWCo	>950,000	Age 15-30, in Denmark	1995-2009	Ongoing in Health registers	Observational registers + Job Exposure Matrix	Depressive disorders with hospital treatment
JEMPAD	1.6 Million	Age 30-59, employed, Denmark	2000	Annual JEM each year	Observational registers + Job Exposure Matrix	Somatic and depressive disorders
SHARE	150,000	Age 50+, from EU28 + Israel	2004	2006-2021	Longitudinal with >50,000 in depth interviews	Physical and mental health, well-being
BiB/AoW	30,000	Children and adolescents, UK ethnically diverse	2007	Annual to 2030	Longitudinal survey + education and	Anxiety, depression, wellbeing, sub-

Name of study*	Size of population	Characteristics of population	Date of start	Date of follow-up	Type of study	Primary outcome
					health databases.	clinical mental disorders
EPITeen	3,000	Born 1990, Portugal	2003	Every 4 years	Longitudinal survey	Wellbeing, QoL, social indicators
NSHRI	Nationwide: population: 5,123,536; 245,000 cases if self-harm	People Presenting to general hospital emergency departments following self-harm, Ireland	2002	Ongoing Follow-up is facilitated by unique IDs	Surveillance system	Self-harm, self-harm repetition, lethality
SEYLE		School children around 15 years old, 10 EU-countries[1]	2009-2010	3 and 12 months after initiation	Cross-sectional	Suicidal behaviors
DBD	2017: 2,000 2018: 5,000 2019: 5,350 2020: 5,178 2021: 5,283 2022: 5,050 2023: 5,196	Representative sample for Germany (18-79 years)	2017-2023	none	Cross-sectional, repeated with different samples each year	Knowledge/ Opinions/ Stigma about depression, contact to depression (self-report: affected/ related to someone with depression?)
ADHS 2007/08	9000	Aged 15-49, Albania	2008		Cross-sectional	Depression Self-reported
ADHS 2017/18	17,000	Age 15-59, Albania	2017	No plans for another round	Cross-sectional	Depression Self-reported
HBSC	>5,000	Age 11,13,15, schools, Albania	2013/14 2017/18 2021/22	2025/26	Cross-sectional	Anxiety, depression, wellbeing
IMIAS	400	Aged 65-74 Tirana, Albania	2012 2014 2016	closed	cohort	Depression (CES-D)
Youth Strengths and Dificulties	1000	14-18 Tirana, Albania	2014	No follow up	Cross-sectional	Depression (CES-D) Melancholy Suicidal thoughts
Youth risky behaviours	4000	14-18, Albania	2005 2009	No plans for another round	Cross sectional	Feeling hopeless last 2 weeks Planning suicide
EHIS	12,000	>15, Albania	2020	2026	Cross sectional	Depression
HDX	100,000	Greece	2000	2004, 2011-2019,2018-2019	Weighted average using population estimates from the World Population Prospect, produced by the UN Population	Number of suicide deaths in a year,

[1] Austria, Estonia, France, Germany, Hungary, Ireland, Israel, Italy, Romania, Slovenia and Spain

Name of study*	Size of population	Characteristics of population	Date of start	Date of follow-up	Type of study	Primary outcome
					Division, as denominators	
LLMS	22,000	Adults, Greece	2008	2009-2013	Longitudinal	Effect of unemployment in mental health in Greece

** **WEHD**: Work Environment and Health in Denmark; **DaWCo**: Danish Work Life Course Cohort Study; **JEMPAD**: Job Exposure Matrix Analyses of Psychosocial Factors and Healthy Ageing in Denmark; **SHARE**: Survey of Health, Ageing and Retirement in Europe; **BiB/AoW**: Born in Bradford + Age of Wonder; **EPITeen**: Epidemiological Health Investigation of Teenagers in Porto; **NSHRI**: National Self-Harm Registry Ireland;* **SEYLE***: Saving and Empowering Young Lives in Europe; **DBD**: Deutschland Barometer Depression;* **ADHS**: *Albania Demographic and Health Survey;* **HBSC**: Health Behaviour in School-aged Children; **IMIAS**: The International Mobility in Aging Study; **EHIS**: *European Health Interview Survey; **HDX**: The Humanitarian Data Exchange; **LLMS**: The Longitudinal Labor Market Study*

4.2 Task 1.3.2 (Analyses in two datasets)

4.2.1 Results of the analyses in SHARE

4.2.1.1 Participants' background information and demographics

Table 3 : Weighted baseline characteristics of participants in wave 4 to 9 in each of the 27 European countries.

	N (%)	**Age, years** Mean (IQR)	**Female, %**	**Married/ registered partner, %**	**Education, years** Mean (IQR)	**Unemployed, %**	**Born in country of interview, %**
Total	**97,165 (100)**	**70.3 (61.0-77.0) min 53; max 124**	**51.4**	**64.7**	**11.6 (8.0-13.6)**	**5.0**	**92.5**
Austria	5,431 (5.6)	70.0 (59.7-77.9)	50.5	62.6	10.3 (7.4-12.4)	3.3	90.3
Germany	6,663 (6.9)	70.6 (60.2-78.7)	50.6	63.0	13.3 (10.7-15.0)	4.1	87.8
Sweden	3,037 (3.1)	69.2 (59.7-76.4)	49.4	60.2	12.3 (9.1-14.6)	3.4	89.5
The Netherlands	2,599 (2.7)	71.4 (62.6-77.1)	49.7	70.5	12.6 (9.4-14.8)	2.9	91.6
Spain	5,520 (5.7)	68.0 (59.5-73.5)	51.7	63.5	11.6 (7.1-15.4)	10.0	91.6
Italy	4,380 (4.5)	73.6 (64.3-80.5)	51.0	70.1	9.7 (4.9-12.4)	4.6	98.5
France	4,828 (5.0)	69.6 (59.8-76.5)	50.5	63.1	12.5 (9.3-14.4)	5.8	89.2
Denmark	2,841 (2.9)	67.8 (59.1-74-2)	48.6	68.4	13.8 (11.2-15.8)	3.3	94.0
Greece	2,530 (2.6)	72.0 (62.8-79.1)	51.7	74.2	10.4 (5.6-13.2)	7.0	96.4
Switzerland	2,945 (3.0)	70.1 (60.7-76.9)	48.0	67.2	7.9 (2.8-11.7)	3.6	79.2
Belgium	6,172 (6.4)	68.8 (58.3-75.8)	48.8	65.2	12.9 (9.8-15.1)	4.3	86.9
Czech Republic	6,342 6.5)	70.0 (60.3-77.1)	51.2	60.4	12.4 (11.0-12.9)	3.1	96.0
Poland	4,454 (4.6)	67.4 (60.5-71.7)	52.6	65.3	11.5 (9.4-12.5)	5.2	99.1
Luxembourg	2,053 (2.1)	74.2 (65.0-81.1)	51.4	68.2	11.8 (8.2-14.2)	1.6	64.6
Hungary	3,827 (3.9)	72.0 (61.6-79.3)	54.2	57.3	10.8 (7.9-11.5)	4.1	98.2
Portugal	2,494 (2.6)	72.5 (62.1-81.4)	52.3	76.2	6.6 (3.4-8.7)	6.9	96.1
Slovenia	6,572 (6.8)	72.0 (61.7-80.2)	50.2	69.2	10.7 (7.6-11.8)	6.5	87.8
Estonia	7,874 (8.1)	72.6 (60.8-82.2)	57.4	51.8	11.4 (8.6-13.5)	5.3	79.0
Croatia	5,454 (5.6)	71.1 (62.1-78.4)	53.8	62.8	10.6 (7.6-11.8)	8.4	83.9
Lithuania	1,590 (1.6)	70.5 (61.5-77.4)	59.4	60.4	11.9 (10.2-13.4)	7.2	95.0
Bulgaria	1,050 (1.1)	70.4 (61.5-76.8)	54.4	58.1	10.7 (7.7-11.6)	8.4	99.3
Cyprus	892 (0.9)	69.2 (60.3-75.6)	50.6	75.1	10.2 (5.7-12.1)	2.4	97.4
Finland	2,048 (2.1)	70.7 (61.5-77.2)	52.6	53.4	13.1 (9.4-15.4)	1.9	99.4
Latvia	1,802 (1.9)	69.6 (60.6-76.4)	60.2	60.7	11.9 (10.0-13.2)	4.0	84.7
Malta	1,000 (1.0)	70.8 (62.4-77.0)	52.7	75.6	10.5 (7.4-12.0)	1.1	99.1
Romania	1,642 (1.7)	70.1 (61.8-76.0)	54.5	68.1	9.7 (7.3-11.4)	0.1	99.9
Slovakia	1,125 (1.2)	69.4 (61.3-75.0)	55.7	63.2	11.7 (10.6-12.1)	2.8	99.4

Note: Participants' background information derived from their first interview in SHARE. As some participants were interviewed prior to wave 4, there will be missing of characteristics variables for some of the included individuals.

Table 3 presents weighted baseline characteristics of participants in each country, including information on years of age, gender, marital status, years of education, current job situation, and migration background. In total, 97,165 individuals from 27 European countries participated in one or more of the waves, with most participants from Estonia, Germany, and Czech Republic (7,874; 6,663 and 6,342, respectively), and fewest participants from Cyprus, Malta and Bulgaria (892; 1,000 and 1,050, respectively). The total mean age across all countries was 70.3 years. The highest mean age was seen in Luxembourg, Estonia, and Portugal (74.2, 72.6, and 72.5 years, respectively), whereas the lowest mean age was seen in Poland, Denmark, and Spain (67.4, 67.8, and 68.0 years, respectively). The total mean proportion of women across all countries was 51.4%. In most of the countries, with the exception of Sweden, The Netherlands, Denmark, Switzerland, and Belgium, there were more women than men. The highest proportion of women was seen in Latvia and Lithuania (60.2% and 59.4%), and

the lowest proportion was seen in Switzerland, Denmark, and Belgium (48.0%, 48.6%, and 48.8%, respectively). The total mean proportion of participants who were married or living with a spouse was 64.7% for Europe overall, with the highest proportion in Portugal, Malta, and Cyprus (76.2%, 75.6%, and 75.1%, respectively), and the lowest in Estonia and Finland (51.8% and 53.4%). The total mean years of education across all countries was 11.6 years, with the highest mean years of education seen in Denmark, Germany and Finland (13.8, 13.3, and 13.1 years, respectively) and the lowest in Portugal and Switzerland (6.6 and 7.9). The total mean proportion of participants who were unemployed was 5.0% across Europe as a whole. The highest proportion of unemployed participants were seen in Spain, Croatia, and Bulgaria (10.0%, 8.4%, and 8.4%, respectively), whereas fewest were unemployed in Romania and Malta (0.1% and 1.1%). The total proportion of participants born in the country of interview (migration background) was 92.5% across all countries, with the highest proportions seen in Romania, Slovakia, Finland, and Bulgaria (99.9%, 99.4%, 99.4%, and 99.3%, respectively) and the lowest in Luxembourg, Estonia, and Switzerland (64.6%, 79.0%, and 79.2%, respectively).

4.2.1.2 Self-reported depressive symptoms in 27 European countries from 2011 to 2022

Self-reported depressive symptoms in Europe

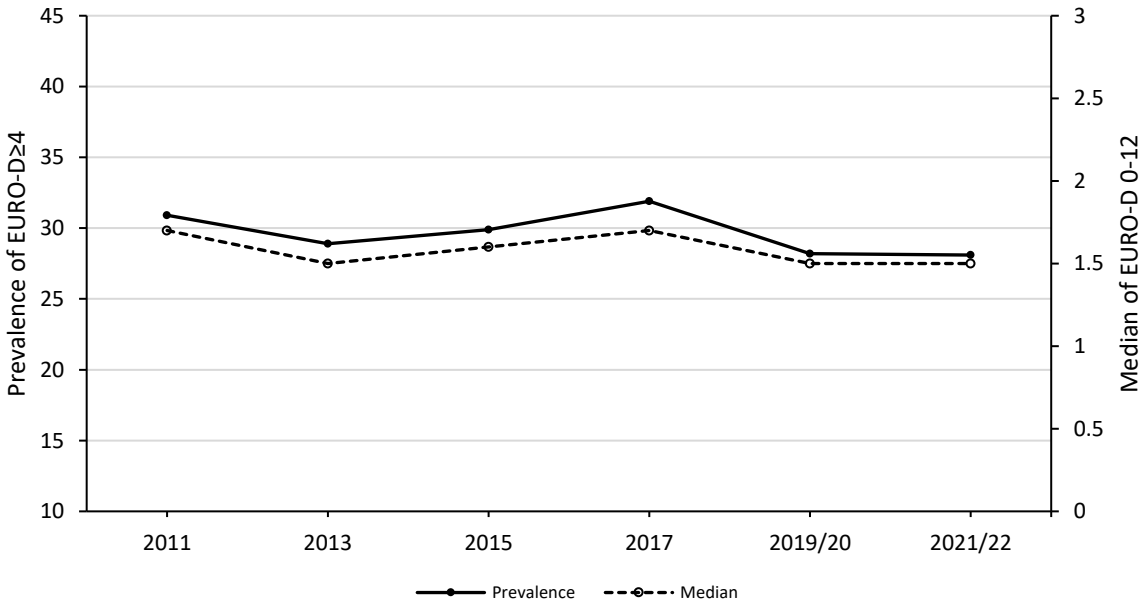


Figure 3: Prevalence of a high level of depressive symptoms (EURO-D≥4) and median of depressive symptoms (EURO-D 0-12) in Europe from 2011 to 2021/22. Weighted.

Figure 4 shows the prevalence of a high level of depressive symptoms (EURO-D≥4) and the median of depressive symptoms (EURO-D 0-12) in Europe (all 27 countries together) from 2011 to 2021/22. Overall, the prevalence of a high level of depressive symptoms and the median level of depressive symptoms were relatively stable across all years, with an overall slight decrease from the first (2011) to the last wave (2021/22). The prevalence of a high level of depressive symptoms was 30.9 in 2011 and decreased to 28.1 in 2021/22. The median of depressive symptoms was 1.7 in 2011 and decreased to 1.5 until 2021/22. There was a small peak in depressive symptoms in 2017 (prevalence: 31.9%, median: 1.7). For further information, see Tables S1 and S2 in Appendix A, respectively.

Self-reported depressive symptoms in 27 European countries

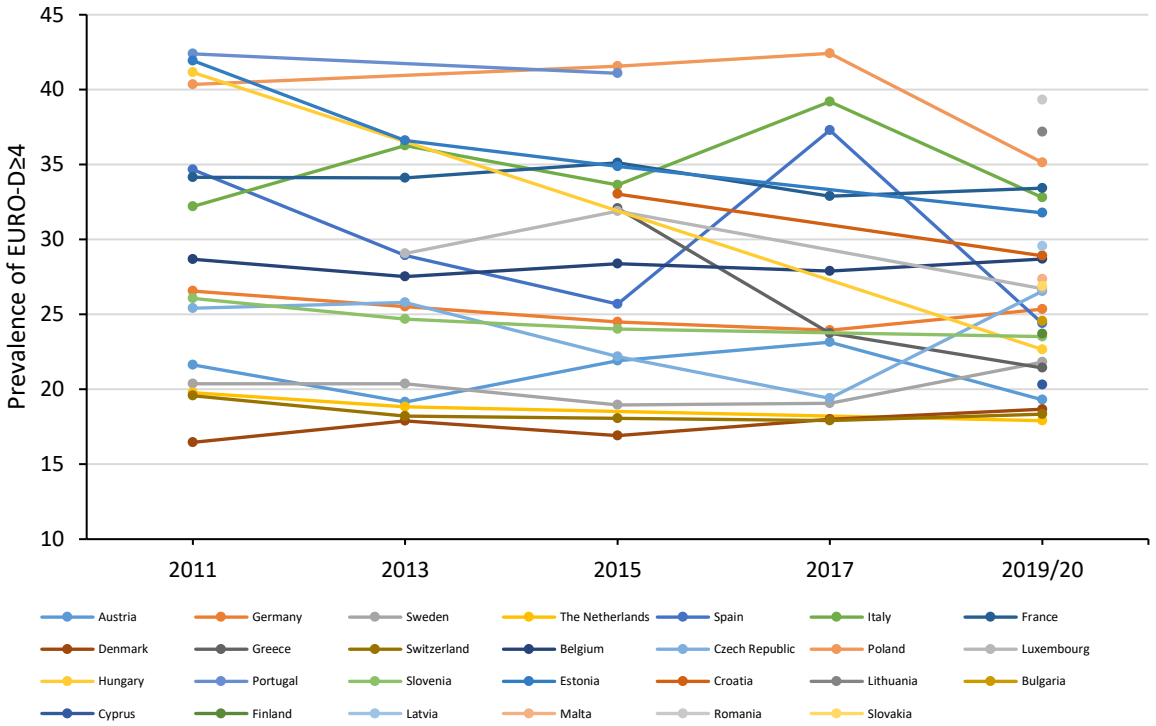


Figure 4: Prevalence of a high level of depressive symptoms (EURO-D≥4) in 27 European countries from 2011 to 2019/20. Weighted.

Figure 5 shows the prevalence of a high level of depressive symptoms (EURO-D≥4) in 27 European countries from 2011 to 2019/20. There was a large variation in the prevalence symptoms across countries and years from 2011 to 2019/20. The lowest prevalence was seen in Denmark in 2011 and 2015 (16.5% and 16.9%), in Switzerland in 2017 (17.9%), and in The Netherlands in 2019/20 (17.9%). The highest prevalence was seen in Poland in 2017 (42.4%) and in Portugal in 2011 (42.4%). Between countries, there was a large variation in the development of prevalence of a high level of depressive symptoms over time from 2011 to 2019/20. For example, in Spain in 2017, there was a large peak in the prevalence, which increased from 25.7% in 2015 to 37.3% in 2017. In Italy, there was a similar peak in 2017; however, an overall higher prevalence compared to Spain. In other countries, e.g. Denmark, Sweden, Belgium, and Switzerland, the prevalence of a high level of depressive symptoms was relatively stable from 2011 to 2019/20. For further information, see Table S1 in Appendix A.

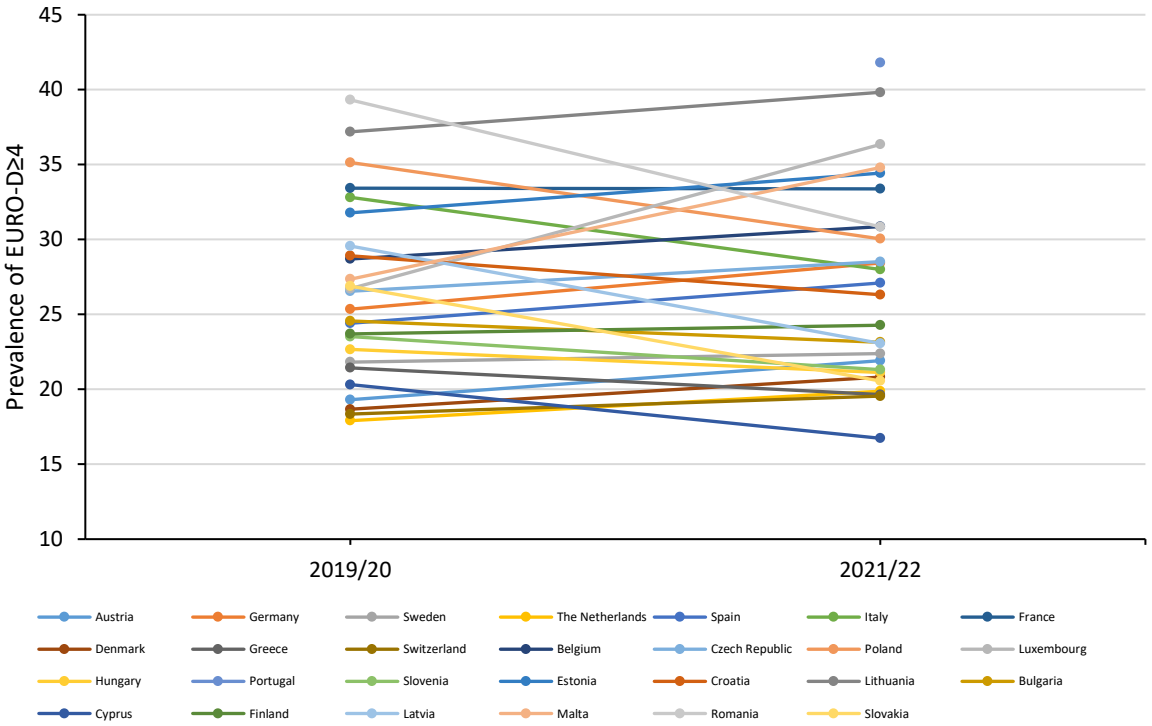


Figure 5: Prevalence of a high level of depressive symptoms (EURO-D≥4) in 27 European countries from 2019/20 to 2021/22. Weighted.

Figure 6 shows the prevalence of a high level of depressive symptoms (EURO-D≥4) in 27 European countries from 2019/20 to 2021/22 (the COVID-19 period). From 2019/20 to 2021/22, there was a large variation in the prevalence between countries. Countries like Denmark, Switzerland, Austria and The Netherlands had the lowest prevalence in 2019/20 (18.7%, 18.3%, 19.3% and 17.9% respectively), whereas countries like Romania, Lithuania and Poland had the highest (39.3%, 37.2% and 35.1%, respectively). The prevalence decreased in Italy, Greece, Poland, Hungary, Slovenia, Croatia, Bulgaria, Cyprus, Latvia, Romania, and Slovakia. The prevalence increased in Austria, Germany, Sweden, Netherlands, Spain, Denmark, Switzerland, Belgium, Czech Republic, Luxembourg, Estonia, Lithuania, Finland, and Malta. For further information, see Table S1 in Appendix A.

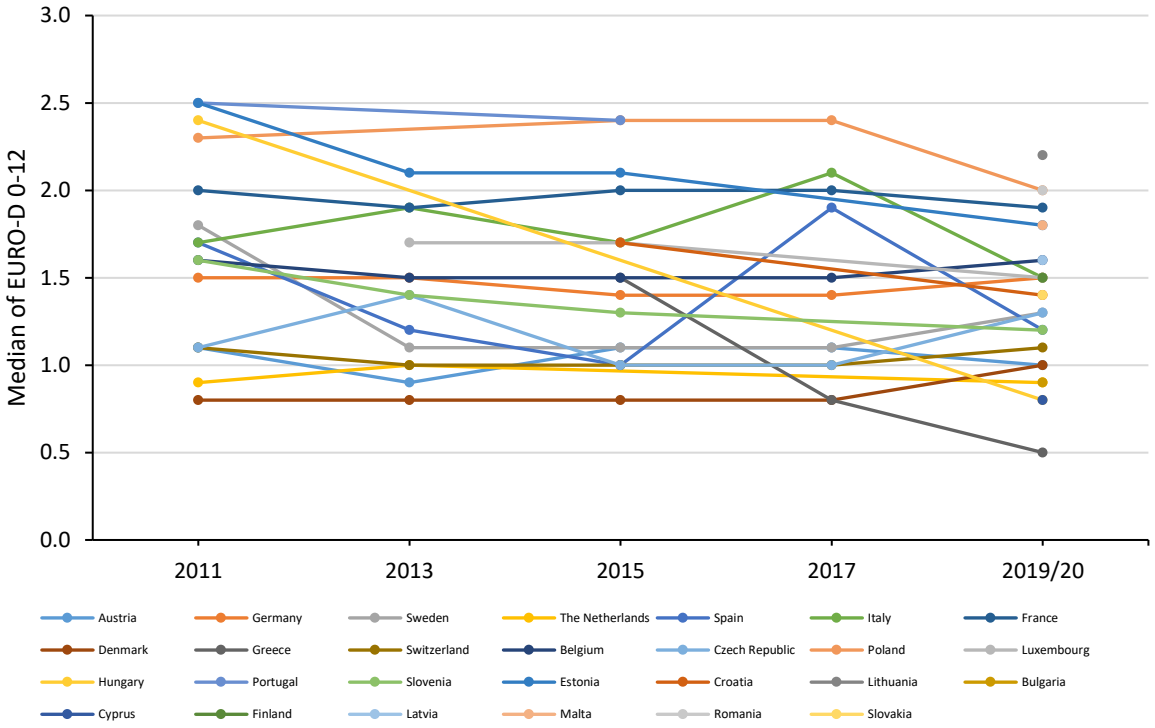


Figure 6: Median of depressive symptoms (EURO-D 0-12) in 27 European countries from 2011 to 2019/20. Weighted.

Figure 7 shows the median of depressive symptoms (EURO-D 0-12) in 27 European countries from 2011 to 2019/20. There was a large variation in the median across countries and years. The lowest median was seen in Greece in 2019/20 (0.5%) and in Denmark in 2011 to 2017 (0.8%), whereas the highest median was seen in Estonia and Portugal in 2011 (both 2.5%) as well as in Portugal in 2015 and Poland in 2015 and 2017 (both 2.4%). There was also a large variation in the change in the median of depressive symptoms from 2011 to 2019/20 between countries. In Spain in 2017, there was a large peak in the median, which increased from 1.0% in 2015 to 1.9% in 2017. In Italy, there was a similar peak in 2017, however with an overall higher median of depressive symptoms across time. In other countries, e.g. Denmark, Switzerland, Germany, Belgium, and Cyprus, the medians were relatively stable from 2011 to 2019/20. For further information, see Table S2 in Appendix A.

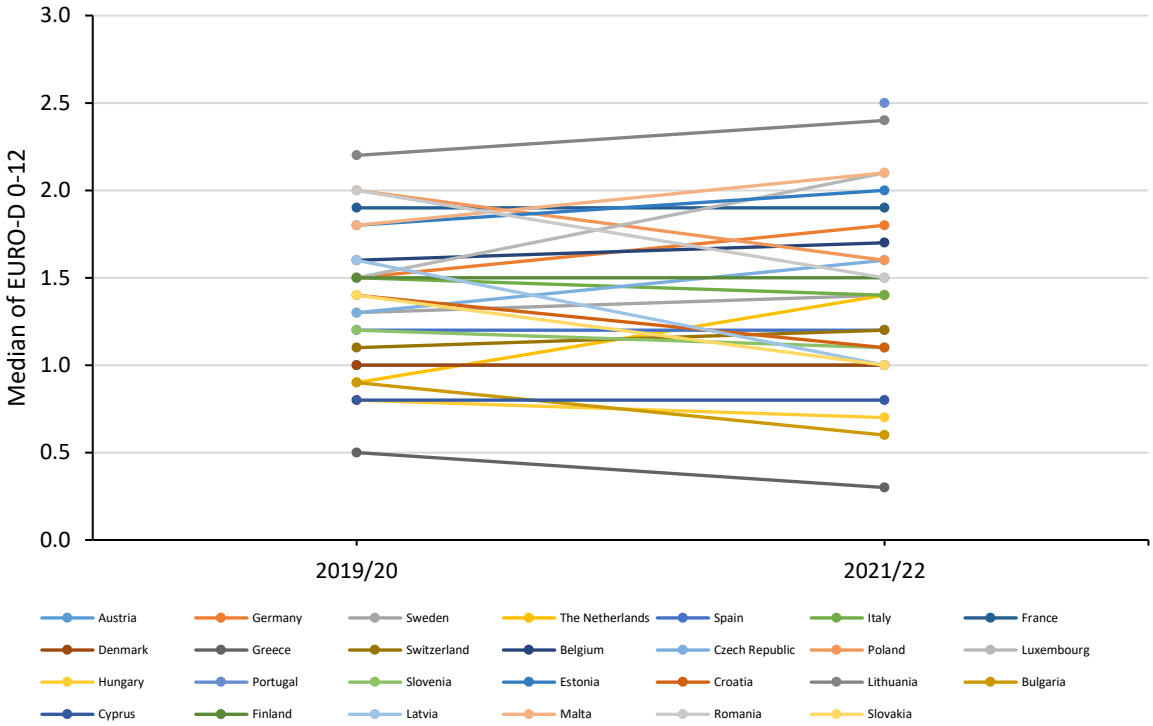
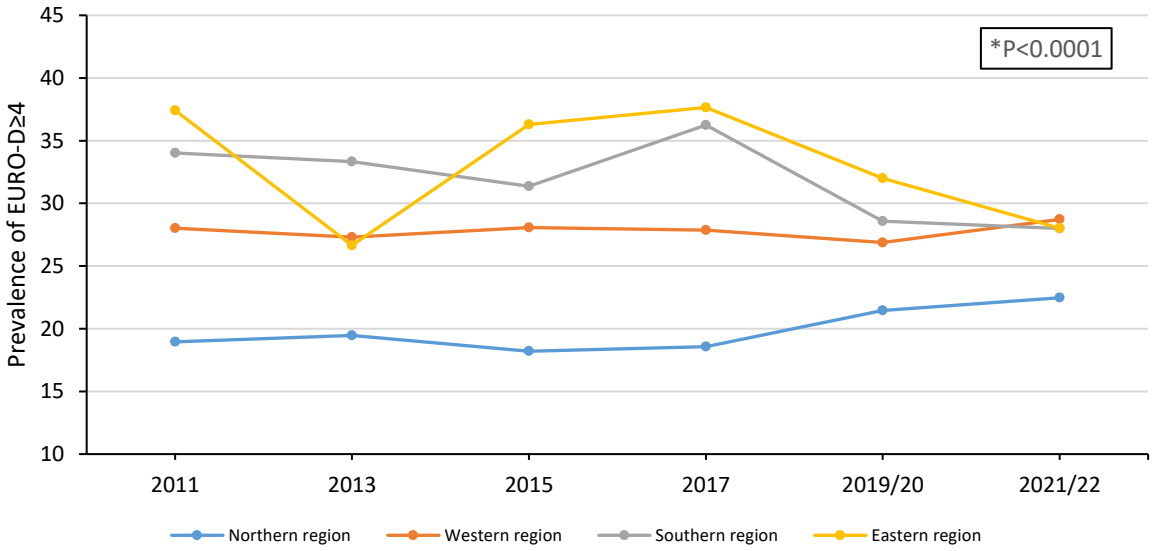


Figure 7: Median of depressive symptoms (EURO-D 0-12) in 27 European countries from 2019/20 to 2021/22. Weighted.

Figure 8 shows the median of depressive symptoms (EURO-D 0-12) in 27 European countries from 2019/20 to 2021/22 (the COVID-19 period). In this period, there was a large variation in the median between countries. Countries like Greece, Hungary, Cyprus, Bulgaria and The Netherlands had the lowest median scores in 2019/20 (0.5, 0.8, 0.8, 0.9 and 0.9 respectively), whereas countries like Lithuania, Romania and Poland had the highest (2.2, 2.0 and 2.0, respectively). The median of depressive symptoms decreased in Italy, Greece, Poland, Hungary, Slovenia, Croatia, Bulgaria, Latvia, and Slovakia. The median of depressive symptoms increased in Germany, Sweden, Netherlands, Switzerland, Belgium, Czech Republic, Luxembourg, Lithuania, and Malta. For further information, see Table S2 in Appendix A.

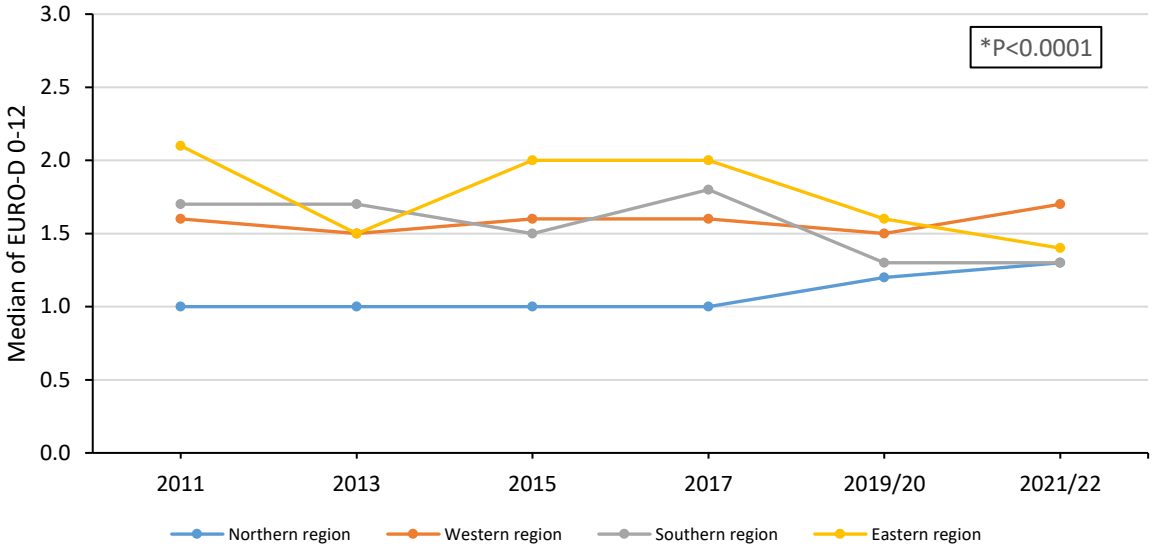
Self-reported depressive symptoms in four European regions



**Prevalence of depression over time were statistically significant different between the four regions.*

Figure 8: Prevalence of a high level of depressive symptoms (EURO-D≥4) in four European regions from 2011 to 2021/22. Weighted.

Figure 9 shows the prevalence of a high level of depressive symptoms (EURO-D≥4) in the four European regions from 2011 to 2021/22. The Northern European region had the overall lowest prevalence of a high level of depressive symptoms in all years. From 2011 to 2021/22, the prevalence in the Northern European region increased slightly from 19.0 to 22.5%. The prevalence of a high level of depressive symptoms in the Western European region was consistently higher than in the Northern European region. The prevalence was also relatively stable from 2011 to 2021/22 with slight increase from 28.0% to 28.4%. In the Southern and Eastern European region, we found the highest overall prevalence of a high level of depressive symptoms. In the Southern European region, the prevalence decreased from 34.0% in 2011 to 28.0% in 2021/22, although there was a peak in 2017 (36.2%). In the Eastern European region, there was an overall decrease from 37.4% in 2011 to 28.0% in 2021/22, but the lowest level was observed in 2013 (26.7%). The p-value for the test of difference in trends across regions was <0.0001 (test for interaction between regions and waves), indicating that the prevalence l of a high level of depressive symptoms over time was statistical significantly different between the four regions. For further information, see Table S1 in Appendix A.



**Prevalence of depression over time were statistically significant different between the four regions.*

Figure 9: Median of depressive symptoms (EURO-D 0-12) in four European regions from 2011 to 2021/22. Weighted.

Figure 10 show the median of depressive symptoms (EURO-D 0-12) in the four European regions from 2011 to 2021/22. In the Northern European region, we saw the overall lowest median of depressive symptoms in all years. From 2011 to 2021/22, the median in the Northern European region increased slightly from 1.0 to 1.3. The median in the Western European region were also relatively stable from 2011 to 2021/22, however higher than in the Northern European Region, and there was a slight increase from 1.6 to 1.7. In the Southern European region, the median of depressive symptoms decreased from 1.7 in 2011 to 1.3 in 2021/22, however, there was a peak in 2017 (1.8). In the Eastern European region, we saw the overall highest median in 2011. There was an overall decrease from 2.1 in 2011 to 1.4 in 2021/22. The p-value for the test of difference in trends across regions was <0.0001 (test for interaction between regions and waves), indicating that the level of depressive symptoms over time was statistical significantly different between the four regions. For further information, see Table S2 in Appendix A.

Figures 11, 13, 15 and 17 show the prevalence of a high level of depressive symptoms (EURO-D≥4) for the countries of the Northern, Western, Southern, and Eastern European regions from 2011 to 2021/22, respectively. Whereas tables 12, 14, 16, and 18 show the median of depressive symptoms (EURO-D 0-12) in countries of the Northern, Western, Southern, and Eastern European regions from 2011 to 2021/22, respectively. In the following, we present the prevalences of high levels of depressive symptoms and medians of depressive symptoms for the countries included in each of the four regions in order to compare the countries within a region.

Self-reported depressive symptoms in Northern European countries

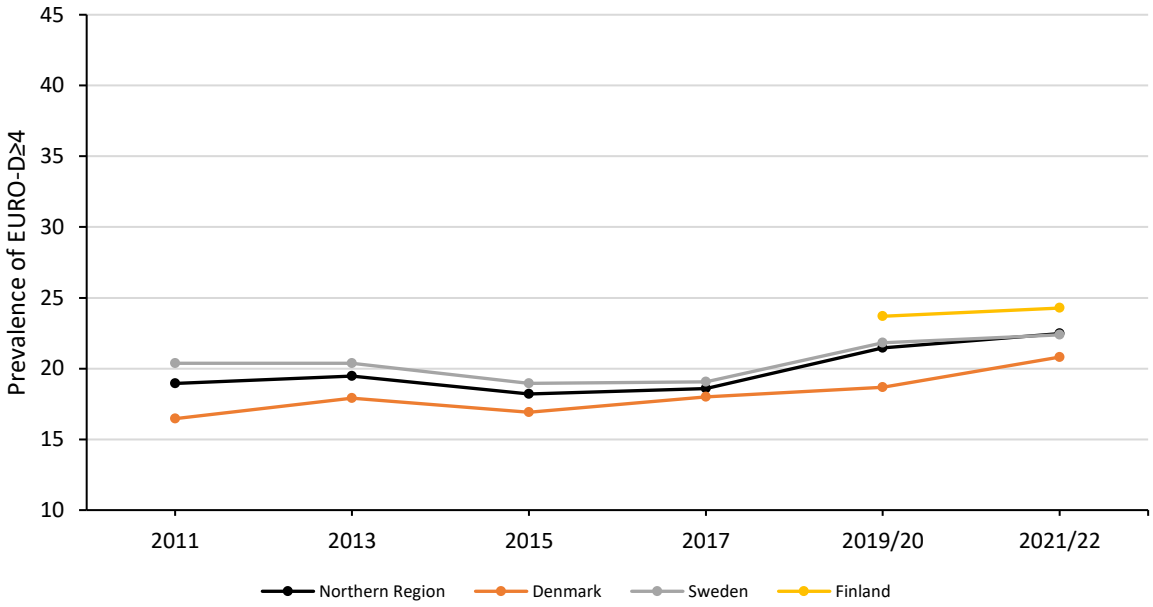


Figure 10: Prevalence of a high level of depressive symptoms (EURO-D≥4) in the Northern European region from 2011 to 2021/22. Weighted.

In the Northern European countries of Denmark and Sweden, there was approximately the same development in the prevalence of a high level of depressive symptoms from 2011 to 2021/22 (and Finland from 2019/20 to 2021/22). The highest prevalence was seen in Finland in 2021/22 (24.3%) and the lowest in Denmark in 2011 (16.5%). In both Denmark and Sweden, there was a slight increase in the prevalence (from 16.5% in 2011 to 20.8% in 2021/22 for Denmark, and from 20.4% in 2011 to 22.4% in 2021/22 in Sweden). In Finland, the prevalence also increased from 23.7% in 2019/20 to 24.3% in 2021/22 (Figure 11). For further information, see Table S1 in Appendix A.

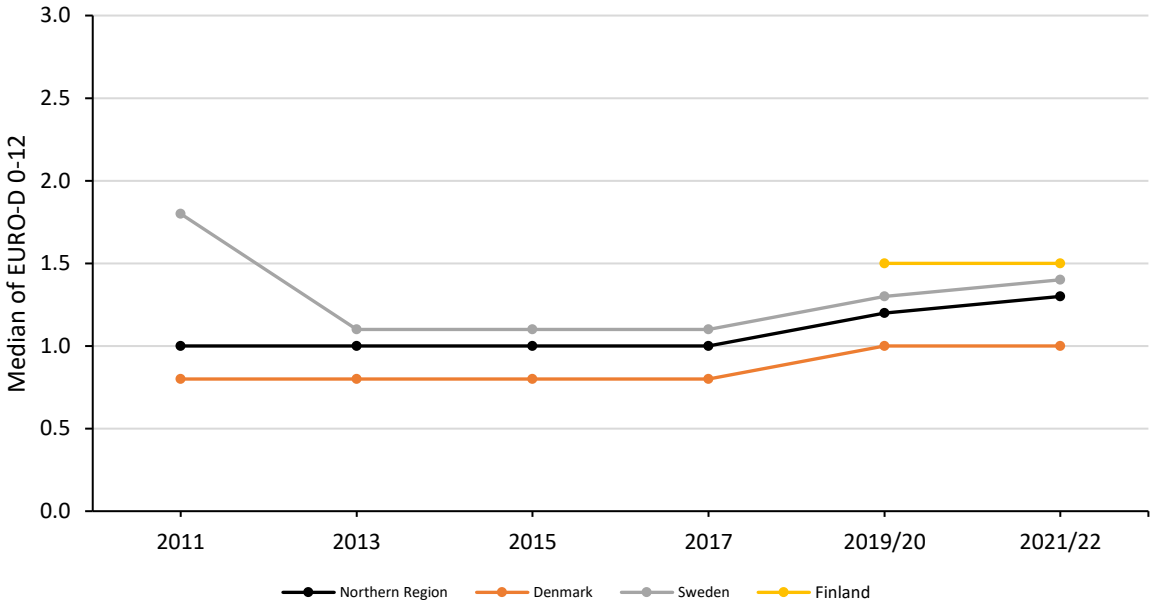


Figure 11: Median of depressive symptoms (EURO-D 0-12) in the Northern European region from 2011 to 2021/22. Weighted.

In the Northern European countries of Denmark and Sweden, there was approximately the same development in the median of depressive symptoms from 2011 to 2021/22 (and Finland from 2019/20 to 2021/22). However, in Sweden in 2011, there was a markedly higher (and overall highest) median of depressive symptoms of 1.8, where after the median sharply decreased to 1.1 in 2013. The lowest median of depressive symptoms was seen in Denmark from 2011 to 2017 (0.8 in all years). In Denmark, there was a slight increase in the median from 0.8 in 2011 to 1.0 in 2021/22, and in Sweden, there was an overall decrease from 1.8 in 2011 to 1.4 in 2021/22. In Finland, the median of depressive symptoms was the same in 2019/20 and 2021/22 (1.5) (Figure 12). For further information, see Table S2 in Appendix A.

Self-reported depressive symptoms in Western European countries

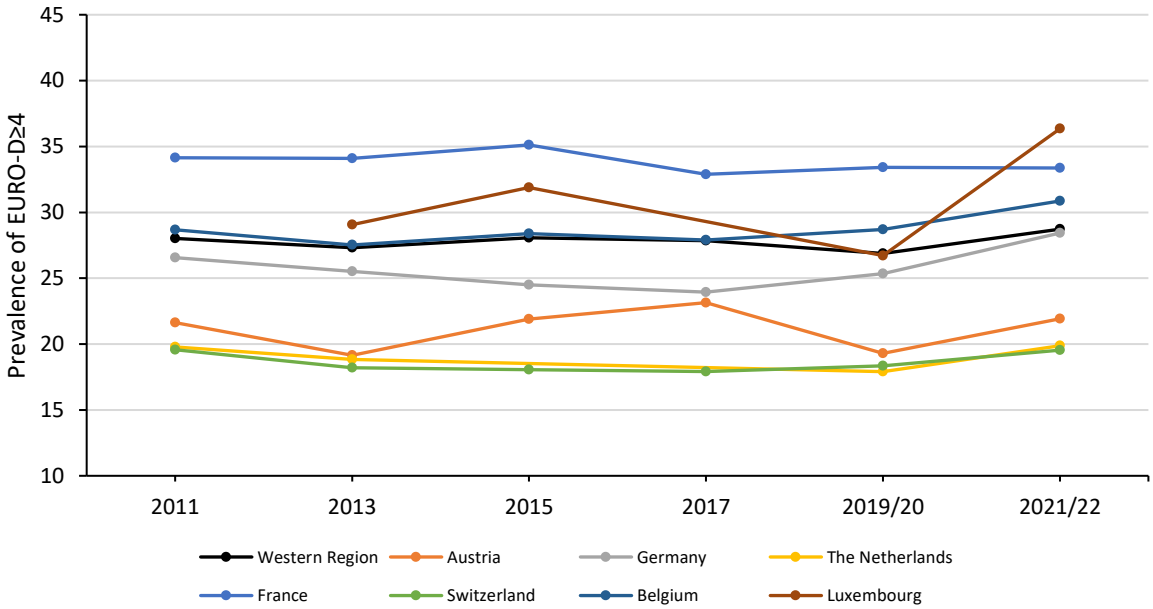


Figure 12: Prevalence of a high level of depressive symptoms (EURO-D≥4) in the Western European region from 2011 to 2021/22. Weighted.

In the majority of countries included in the Western European region, the development of the prevalence of a high level of depressive symptoms was relatively stable over time (France, Belgium, Germany, and Switzerland). However, there was a large variation in the prevalence between the countries, with the highest overall prevalence in France in 2013 (34.1%), and the lowest in The Netherlands in 2019/20 (17.9%) and Switzerland in 2019/20 (18.3%). In Austria, the prevalence was approximately the same in the first and last year (21.6% and 21.9%), however, the prevalence increased from 19.1% in 2013 to 23.1% in 2017. In Luxembourg, the prevalence increased sharply from 26.7% in 2019/20 to 36.3% in 2021/22 (Figure 13). For further information, see Table S1 in Appendix A.

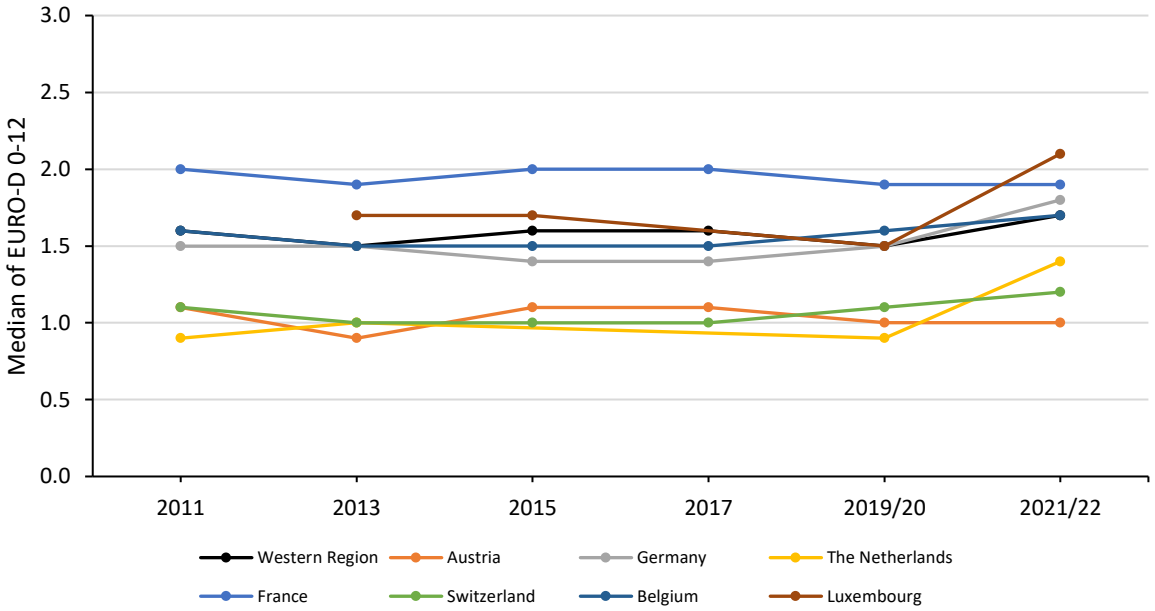


Figure 13: Median of depressive symptoms (EURO-D 0-12) In the Western European region from 2011 to 2021/22. Weighted.

In the majority of countries included in the Western European region, the development of the median of depressive symptoms was relatively stable over time (France, Belgium, Germany, and Switzerland and Austria). However, there was a large variation in the median of depressive symptoms between countries, with the highest median in France in 2011, 2015, and 2017 (2.0) and the lowest in Austria in 2013 (0.9). In Austria, the median was approximately the same in the first and last year (1.1 and 1.0), however, the median increased from 0.9 in 2013 to 1.1 in 2017. In Luxembourg and the Netherlands, the median of depressive symptoms increased sharply from 1.5 and 0.9 in 2019/20 to 2.1 and 1.4 in 2021/22, respectively (Figure 14). For further information, see Table S2 in Appendix A.

Self-reported depressive symptoms in Southern European countries

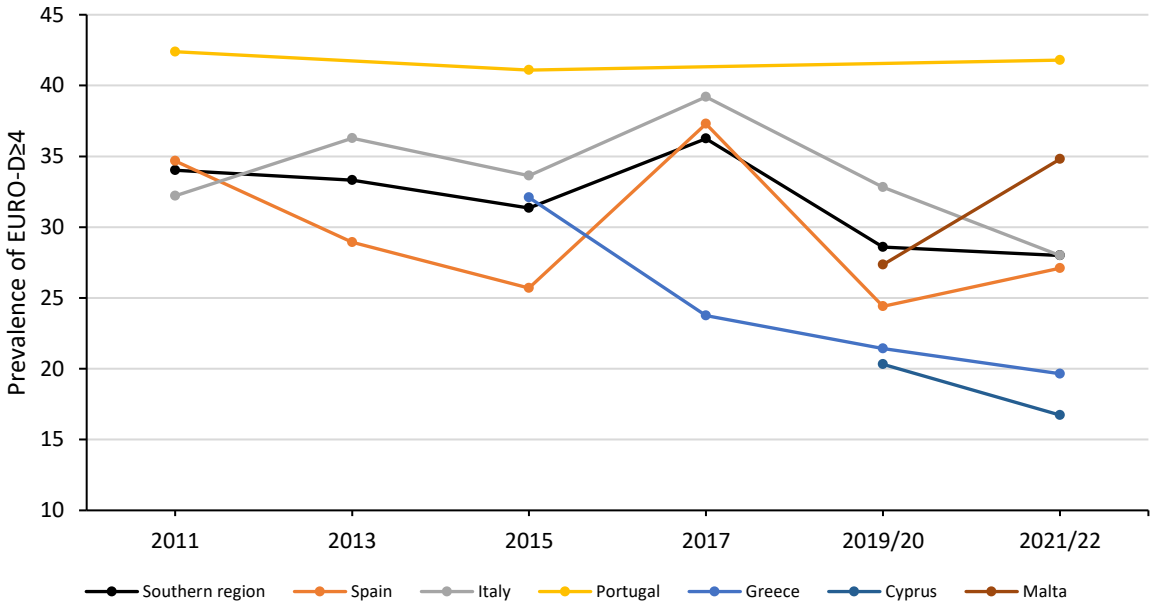


Figure 14: Prevalence of a high level of depressive symptoms (EURO-D≥4) in the Southern European region from 2011 to 2021/2022. Weighted.

For the countries included in the Southern European region, there was a large variation in the prevalence of a high level of depressive symptoms. In Portugal, we saw the overall highest prevalence (42.4% in 2011, 41.1% in 2015, and 41.8% in 2021/22). In Spain, the prevalence decreased from 34.7% in 2011 to 25.7% in 2015, where after it increased markedly to 37.3% in 2017, and then decreased again to 27.1% in 2021/22. In Italy, the prevalence was generally higher than in Spain, but followed a similar pattern over time. In Greece and Cyprus, the prevalence decreased from 32.1% in 2015 to 19.7% in 2021/22, and from 20.3% in 2019/20 to 16.7% in 2021/22, respectively. In Malta, the prevalence increased sharply from 27.3% in 2019/20 to 34.8% in 2021/22 (Figure 15). For further information, see Table S1 in Appendix A.

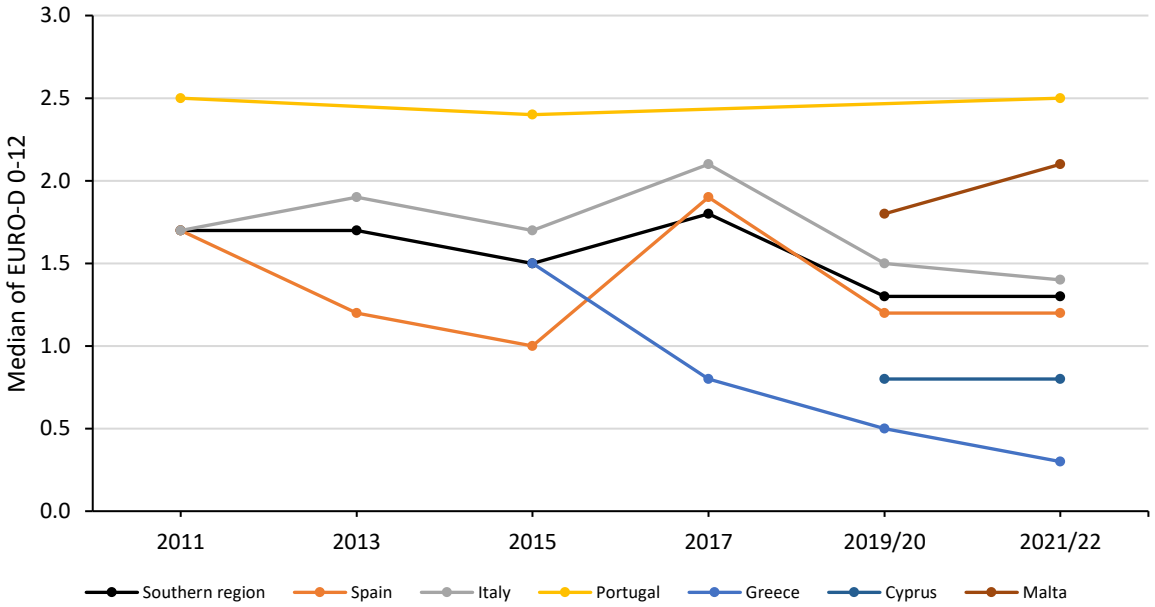


Figure 15: Median of depressive symptoms (EURO-D 0-12) in the Southern European region from 2011 to 2021/22. Weighted.

For the countries included in the Southern European region, there was also a large variation in the median of depressive symptoms. In Portugal, we found the overall highest median of depressive symptoms (2.5 in 2011, 2.4 in 2015, and 2.5 in 2021/22). In Spain, the median decreased from 1.7 in 2011 to 1.2 in 2015, after which it increased markedly to 1.9 in 2017, and decreased to 1.2 in 2019/20 where it also remained in 2021/2022. In Italy, the median was generally higher than in Spain, but followed a similar pattern over time. In Greece, the median of depressive symptoms decreased from 1.5 in 2015 to 0.3 in 2021/22. In Malta, the median increased from 1.8 in 2019/20 to 2.1 in 2021/22. In Cyprus, the median of depressive symptoms was the same in both 2019/20 and 2021/22 (0.8) (Figure 16). For further information, see Table S2 in Appendix A.

Self-reported depressive symptoms in Eastern European countries

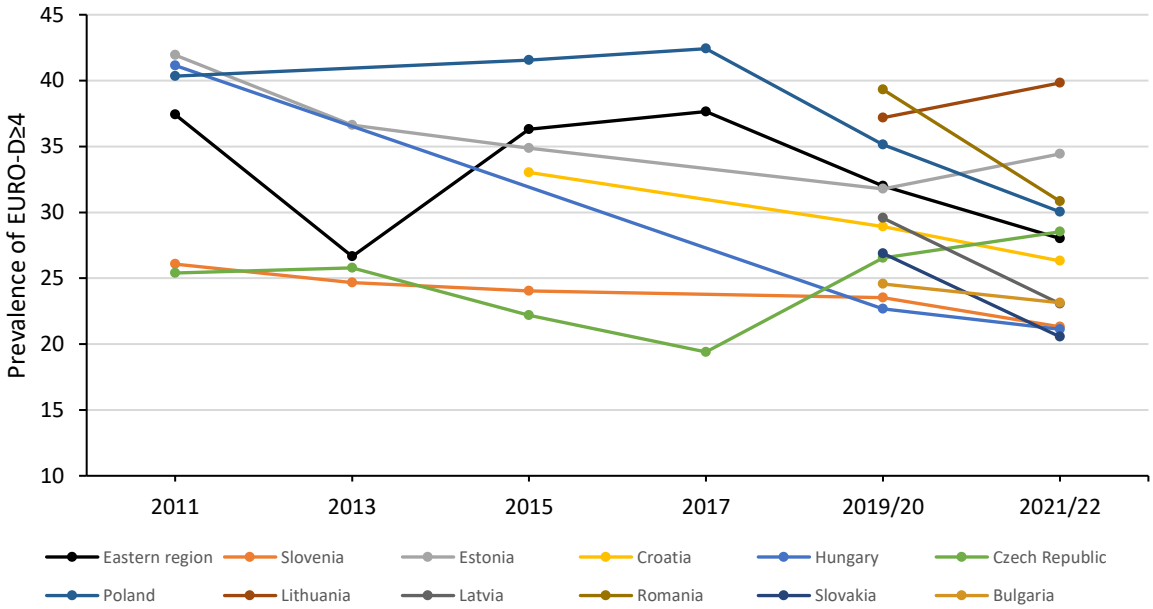


Figure 16: Prevalence of a high level of depressive symptoms (EURO-D≥4) in the Eastern European region from 2011 to 2021/22. Weighted.

For the countries included in the Eastern European region, there was a large variation in the prevalence of a high level of depressive symptoms. In Czech Republic, the prevalence decreased to the overall lowest level in the Eastern European region in 2017 (19.4), after which it increased markedly until 2021/22 (28.5%). In Slovenia, the prevalence of a high level of depressive symptoms decreased slightly in all years (no prevalence in 2017), overall from 26.1% in 2011 to 21.3% in 2021/22. A similar pattern was seen for Estonia but with an increase in the prevalence in the last wave (2021/22), and general higher prevalence. In Croatia, the prevalence of a high level of depressive symptoms decreased from 33.0% in 2015 to 28.9% in 2019/20 and 26.3% in 2021/22. In Poland, the prevalence increased slightly from 40.3% in 2011 and 41.6% in 2015 to 42.4% in 2017, after which it decreased to 30.0% in 2021/22. In Hungary, we found a relatively high prevalence of a high level of depressive symptoms in 2011 (41.2%), where after it decreased markedly to 22.7% in 2019/20 and 21.1% in 2021/22. Slovakia, Romania, Latvia, Bulgaria, and Lithuania first entered the SHARE study in 2019/20 so no detailed development in the prevalence of a high level of depressive symptoms is available for these Eastern European countries. In Romania, Slovakia, and Latvia the prevalence decreased markedly from 2019/20 to 2021/22. In Bulgaria, the prevalence decreased slightly from 2019/20 to 2021/22, whereas it increased in Lithuania in this period (Figure 17). For further information, see Table S1 in Appendix A.

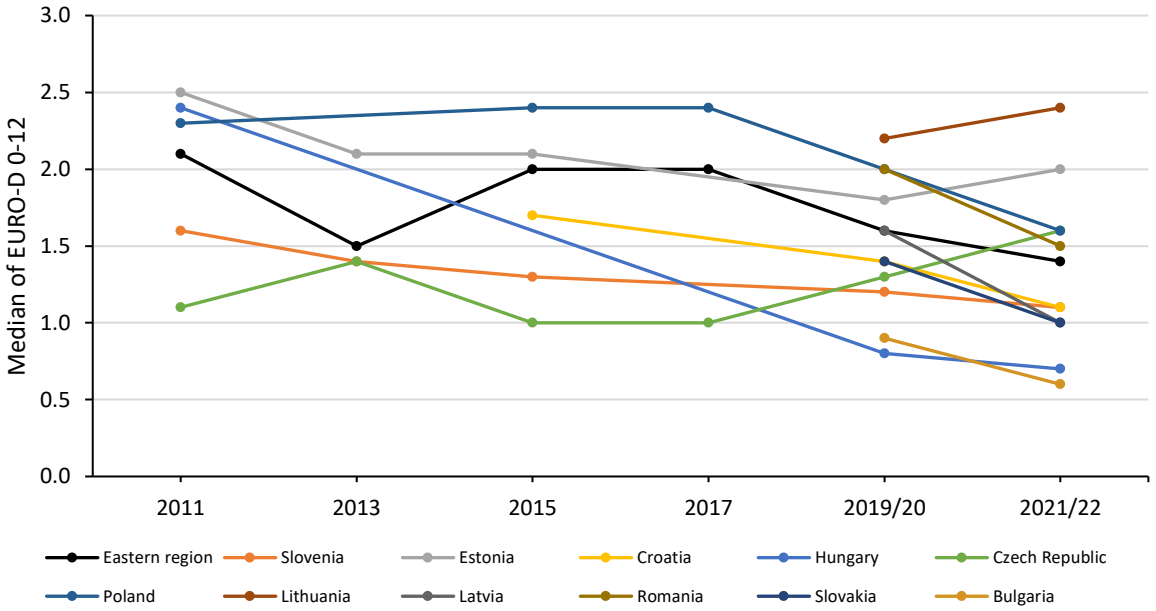


Figure 17: Median of depressive symptoms (EURO-D 0-12) in the Eastern European region from 2011 to 2021/22. Weighted.

Within the Eastern European region, there was a large variation in both the level and development of the median of depressive symptoms between countries. In Hungary in 2011, the median of depressive symptoms was one of the highest (2.4) whereas it decreased to the lowest levels in 2019/20 and 2021/22 (0.8 and 0.7). In Czech Republic, the median overall increased from 1.1 in 2011 to 1.6 in 2021/22, however with a small peak in 2013 (1.4). In Slovenia, the median decreased slightly in all years (no median in 2017), overall, from 1.6 in 2011 to 1.1 in 2021/22. We found a similar pattern in Estonia until 2019/20, but with an increase in 2021/22 and a generally higher median. In Croatia, the median of depressive symptoms decreased from 1.7 in 2015 to 1.4 in 2019/20 and 1.1 in 2021/22. In Poland, the median increased slightly from 2.3 in 2011 to 2.4 in 2015 and 2017, where after it markedly decreased in 2021/22 (1.6). Slovakia, Romania, Latvia, Bulgaria, and Lithuania first entered the study in 2019/20 so no detailed development in the median of depressive symptoms is available for these Eastern European countries. In Romania, Slovakia, Latvia, and Bulgaria, the median of depressive symptoms decreased from 2019/20 to 2021/22, whereas the median increased in Lithuania in this period (Figure 18). For further information, see Table S2 in Appendix A.

Self-reported depressive symptoms in 27 European countries separately

Country-specific figures of developments in prevalence of a high level of depressive symptoms (EURO-D≥4) and median of depressive symptoms (EURO-D 0-12) from 2011 to 2021/22 are available in Appendix B. The corresponding prevalence and 95% confidence intervals are available in Table S1 in Appendix A, whereas the corresponding medians and interquartile ranges are available in Table S2 in Appendix A.

4.2.1.3 Self-reported depressive symptoms during two dramatic societal changes in Europe

In the following section, we will try to relate the changes observed in depressive symptoms across the European countries to the two recent dramatic societal changes; the migration crisis in 2015 and the COVID-19 crisis arising in 2020 (briefly described in section 2.2. Background for the data analysis under "Approach").

Changes in depressive symptoms in relation to the migration crisis

In Austria, Spain and Italy, we found that the prevalence and median of depressive symptoms peaked in 2017, with a sharp increase from 2015 to 2017 and then a sharp decrease from 2017 to 2019. During the migration crisis in 2015, both Italy and Austria received a particularly high number of immigrants and refugees. However, in Spain, which was not so much a destination for immigrants and refugees as compared to Italy and Austria, a similar peak in depressive symptoms was seen. As mentioned, Greece, Sweden and Germany also received many immigrants and refugees; however, the development in depressive symptoms varied between these countries. In Greece, the depressive symptoms decreased considerably from 2015 to 2017 and continued to decrease until 2021/22. In Sweden, the depressive symptoms were stable in 2015 and 2017, but then increased in 2019/20 and 2021/22. In Germany, the depressive symptoms were lowest in 2015 and 2017, with the level decreasing from 2011 to 2015-2017 and increasing from 2015-2017 until 2021/22. However, the overall changes in Germany were relatively small. In Croatia, where many immigrants and refugees were passing through, the depressive symptoms decreased from 2015 to 2021/22. Since we do not have data from Hungary (which also had many refugees travelling through) in the period after 2011 and before 2020, we cannot identify the pattern in depressive symptoms during the period of interest for this country.

Changes in depressive symptoms in relation to the COVID-19 crisis

Of the five countries that experienced some of the highest COVID-19 infection rates, two had an increase in depressive symptoms (Austria and Luxembourg), two had a decrease (Slovenia and Greece), and one had no change (France) from before (2019/20) to after (2021/22) the start of the pandemic. Of the five countries with the highest registered cases of death due to COVID-19 per capita, four (Bulgaria, Hungary, Croatia, Slovakia) showed a decrease in the level of depressive symptoms from before to after the start of the pandemic, whereas one showed an increase (Czech Republic). Of the five countries with the most days with lock-down at the beginning of the pandemic, two showed an increase in the level of depressive symptoms from before to after the start of the pandemic (Spain and Lithuania), two showed a decrease (Greece and Italy), whereas one showed no change (France).

4.2.2 Results of the analyses in WEHD

4.2.2.1 Characteristics of study participants

In all four waves of WEHD, the majority of study participants were men (51.2-53.0%), middle-aged (67.2-79.1%), had a medium-low educational level (50.0-53.2%), were living with someone else (67.2-72.0%), of Danish origin (88.5-93.6%), and not recently unemployed (92.8-96.9%) (Table 4).

Table 4: Characteristics of participants in each of the four samples (2012-2018). Weighted.

	2012		2014		2016		2018	
	N	%	N	%	N	%	N	%
Sex								
Men	10,580	51.5	7,604	51.2	10,002	51.4	8,015	53.0
Women	12,422	48.5	8, 818	48.8	10,350	48.6	8,979	47.1
Educational level								
High	2,719	11.9	2,225	13.1	2,636	13.2	2,609	14.8
Medium high	5,386	20.5	3,934	21.9	4,573	21.8	4,048	20.7
Medium low	11,656	53.2	8,030	50.0	10,250	51.7	8,320	51.3
Low	3,061	14.5	2,127	15.0	2,743	13.3	1,909	13.2
Cohabitation								
Yes	17,012	72.0	12,070	71.5	14,655	70.5	11,916	67.2
No	5990	28.0	4,352	28.5	5697	29.5	5,078	32.8
Age group								
Younger (18-29)	2390	16.9	1,697	20.5	2,251	16.8	1,986	24.9
Middle-aged (30-59)	18,551	76.9	13,063	73.3	15,997	75.5	12,816	67.2
Older (≥60)	2,061	6.2	1,662	6.2	2,106	7.7	2,222	8.2
Migration background								
Immigrant/descendant	1293	6.4	1,293	8.6	1,404	8.0	1,382	11.5
Danish Origin	21,708	93.6	21,709	91.4	18,915	92.0	15,592	88.5
Recent unemployment								
Yes	622	3.1	436	5.2	659	4.0	750	7.2
No	22,380	96.9	15,986	94.8	19,695	96.0	16,274	92.8

4.2.2.2 Prevalence of probable depressive disorder (MDI ≥ 21)

Overall, there was a relative increase in the proportion of participants with a probable depressive disorder (MDI ≥ 21) from 2012 to 2018. However, the initial levels and change over time varied across different age groups, migration backgrounds, and recent unemployment statuses (Figure 19-21).

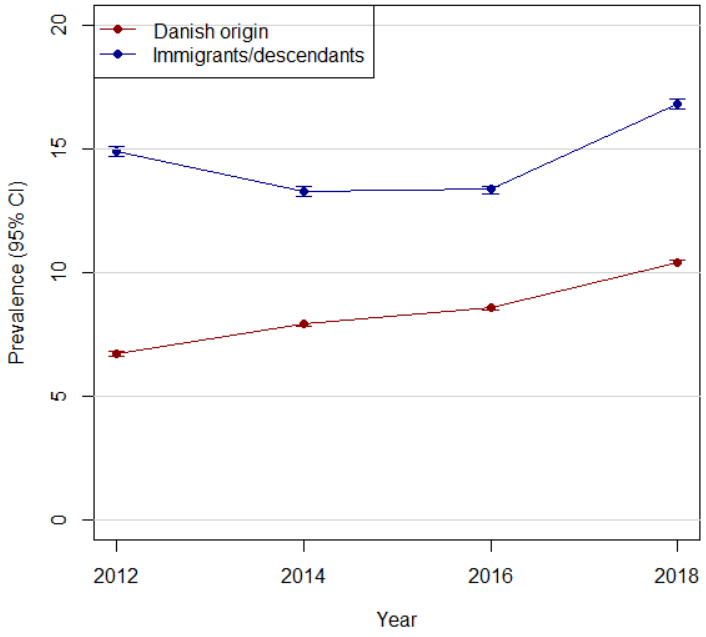


Figure 18: Prevalence of MDI≥ 21 (probable depressive disorder) in 2012, 2014, 2016 and 2018 by migration background

When analyzed by migration background, prevalence of a probable depressive disorder was highest among immigrants/descendants (14.9% in 2012 and 16.8% in 2018) and lowest among those of Danish origin (6.7% in 2012 and 10.4% in 2018) at all time-points. For immigrants/descendants, the prevalence tended to decrease from 2012 to 2016 before rising again from 2016 to 2018, while for those of Danish origin, the prevalence steadily increased throughout the period. The prevalence differed significantly between the groups over time ($p<0.0001$) (Table 5).

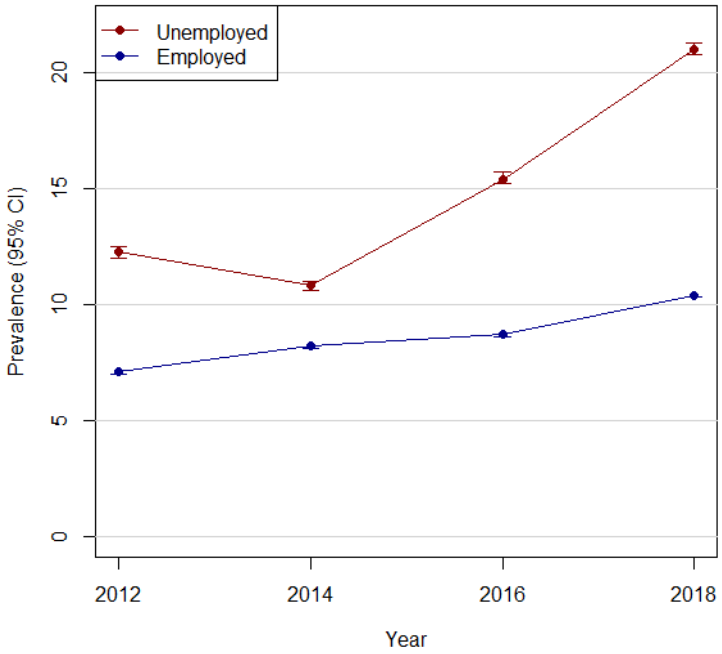


Figure 19: Prevalence of MDI≥ 21 (probable depressive disorder) in 2012, 2014, 2016 and 2018 by recent unemployment status

In analyses considering recent unemployment status, participants with a period of unemployment (> six months) in the past three years had higher prevalence rates of a probable depressive disorder (12.3% in 2012 and 21.0% in 2018) compared to those without recent unemployment (7.1% in 2012 and 10.4% in 2018) at all time-points (Table 4). Both groups saw an increase in prevalence over time, but the increase seemed more marked among those with recent unemployment (Figure 5). The prevalence was significantly different between the groups across time ($p<0.0001$) (Table 6).

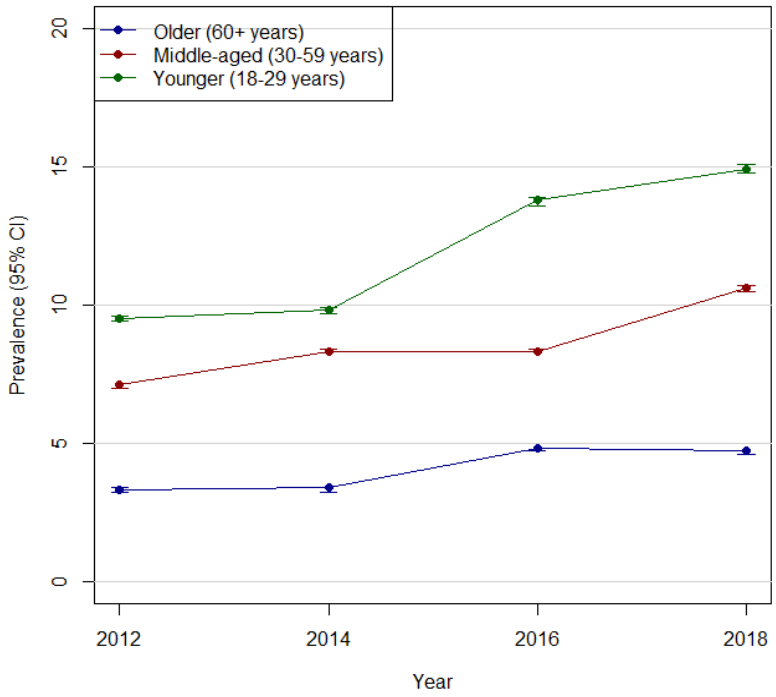


Figure 20: Prevalence of MDI≥ 21 (probable depressive disorder) in 2012, 2014, 2016 and 2018 by age group

In age-stratified analyses, the prevalence of participants with a probable depressive disorder was lowest among older participants (3.3% in 2012 and 4.7% in 2018) and highest among younger participants (9.5% in 2012 and 14.9% in 2018) in all survey waves. The gap between younger and older age groups appeared to widen from 2012 to 2018. The prevalence was statistically significantly different between age groups over time/and waves? (p<0.0001) (Table 7).

Table 5: Prevalence of participants with probable depressive disorder (MDI>=21) stratified by migration background (All estimates are weighted)

	Total	**Immigrant/descendant**		**Danish origin**		
	N	N	Proportion (95% CI)	N	Proportion (95% CI)	Test for difference in trend between the groups (interaction between age groups and waves)
Year						P<0.0001
2012	23,002	1,293	14.9 (14.7;15.1)	21,709	6.7 (6.6;6.8)	
2014	16,422	1,071	13.3 (13.1; 13.5)	15,351	7.9 (7.8;7.9)	
2016	20,319	1,404	13.4 (13.2; 13.5)	18,915	8.6 (8.5;8.6)	
2018	16,974	1,382	16.8 (16.6;17.0)	15,592	10.4 (10.4;10.5)	

N= number of participants; 95% CI= 95% confidence interval

Table 6: Prevalence of participants with probable depressive disorder (MDI>=21) stratified by recent unemployment (All estimates are weighted)

	Total	Recent unemployment		No recent unemployment		
	N	N	Proportion (95% CI)	N	Proportion (95% CI)	Test for difference in trend between the groups
Year						P<0.0001
2012	23,002	622	12.3 (12.0;12.5)	22,380	7.1 (7.0;7.1)	
2014	16,422	436	10.8 (10.6; 11.0)	15,986	8.2 (8.1;8.2)	
2016	20,354	659	15.4 (15.2; 15.7)	19,695	8.7 (8.6;8.7)	
2018	17,024	750	21.0 (20.8;21.3)	16,274	10.4 (10.3;10.4)	

N= number; 95% CI= 95% confidence interval;

[a]=at least one period of unemployment lasting more than 6 months in one of the previous three years

Table 7: Prevalence of participants with probable depressive disorder (MDI>=21) stratified by age group (All estimates are weighted)

	Total	Young (18- 29 years old)		Middle-aged (30-59 years old)		Older (60+ years old)		
	N	N	Proportion (95% CI)	N	Proportion (95% CI)	N	Proportion (95% CI)	Test for difference in trend between the groups
Year								P<0.0001
2012	23,002	2,390	9.5 (9.4;9.6)	18,551	7.1 (7.0;7.1)	2,061	3.3 (3.2;3.4)	
2014	16,422	1,697	9.8 (9.7; 9.9)	13,063	8.3 (8.3;8.4)	1,662	3.4 (3.2;3.4)	
2016	20,352	2,251	13.8 (13.6; 13.9)	15,997	8.3 (8.3;8.4)	2,106	4.8 (4.7; 5.0)	
2018	16,994	1,986	14.9 (14.8;15.1)	12,816	10.6 (10.5;10.7)	2,222	4.7 (4.6;4.8)	

N= number; 95% CI= 95% confidence interval;

[a]=at least one period of unemployment lasting more than 6 months in one of the previous three years

4.2.2.3 Mean MDI score

Overall, we also observed a tendency for the mean MDI score to increase over time, similar to the analyses of the prevalence of a probable depressive disorder (MDI ≥ 21) described above. However, the starting point and rate of increase varied considerably according to participants' age group, migration background, and recent unemployment status (Tables 8-10).

In analyses stratified by migration background, the mean MDI score was highest among immigrants/descendants (10.3 in 2012 and 11.5 in 2018) and lowest among participants of Danish origin (8.2 in 2012 and 9.2 in 2018) at all time-points. Among immigrants/descendants, there was a slight decline in the mean score from 2012 to 2016, followed by an increase from 2016 to 2018, while for those of Danish origin, the mean score appeared to steadily increase throughout the period. The mean MDI score differed significantly between the groups over time (p=0.02) (Table 8).

When stratified by recent unemployment status, the mean MDI score was higher among participants who experienced a period of unemployment (> six months) in the past three years (9.6 in 2012 and 12.1 in 2018) compared to those who did not experience recent unemployment (8.3 in 2012 and 9.3 in 2018) at all time-points (Table 7). The mean score increased over time in both groups, but the increase seemed more pronounced among those with recent unemployment. The mean MDI score was significantly different between the groups over time (p=0.0002) (Table 9).

In analyses stratified by age group, the mean MDI score was lowest among older participants (5.8 in 2012 and 6.3 in 2018) and highest among younger participants (9.8 in 2012 and 11.2 in 2018) in all survey waves. The gap between younger and older age groups appeared to widen from 2012 to 2018. The mean MDI score differed significantly between age groups over time (p<0.0001) (Table 10).

Table 8: Mean (± sd) score on the Major Depression Inventory stratified by migration background (All estimates are weighted)

	Total	**Immigrant/descendant**		**Danish origin**		
	N	N	Mean (± sd)	N	Mean (± sd)	Test for difference in trend between the groups
Year						P=0.02
2012	23,002	1,293	10.3 (±8.7)	21,709	8.2 (±7.2)	
2014	16,422	1,071	10.2 (±9.5)	15,351	8.4 (±7.6)	
2016	20,319	1,404	10.1 (±9.1)	18,915	8.6 (±7.8)	
2018	16,974	1,382	11.5 (±9.8)	15,592	9.2 (±8.3)	

N= number; sd= standard deviation

Table 9: Mean (± sd) score on the Major Depression Inventory stratified by recent unemployment (All estimates are weighted)

	Total	**Recent unemployment**		**No recent unemployment**		
	N	N	Mean (± sd)	N	Mean (± sd)	Test for difference in trend between the groups
Year						P=0.0002
2012	23,002	622	9.6 (±8.6)	22,380	8.3 (±7.2)	
2014	16,422	436	9.7 (±8.2)	15,986	8.5 (±7.8)	
2016	20,354	659	10.7 (±9.2)	19,695	8.7 (±7.8)	
2018	17,024	750	12.1 (±10.4)	16,274	9.3 (±8.3)	

N= number; sd= standard deviation

[a]=at least one period of unemployment lasting more than 6 months in one of the previous three years

Table 10: Mean (± sd) score on the Major Depression Inventory stratified by age group (All estimates are weighted)

	Total	**Young (18- 29 years old)**		**Middle-aged (30-59 years old)**		**Older (60+ years old)**		
	N	N	Mean (± sd)	N	Mean (± sd)	N	Mean (± sd)	Test for difference in trend between the groups
Year								P<0.0001
2012	23,002	2,390	9.8 (±7.7)	18,551	8.2 (±7.2)	2,061	5.8 (±6.0)	
2014	16,422	1,697	9.6 (±8.1)	13,063	8.5 (±7.8)	1,662	5.9 (±6.4)	
2016	20,352	2,251	10.6 (±8.8)	15,997	8.6 (±7.7)	2,106	6.6 (±6.8)	
2018	16,994	1,986	11.2 (±9.0)	12,816	9.2 (±8.4)	2,222	6.3 (±6.8)	

N= number; sd= standard deviation

[a]=at least one period of unemployment lasting more than 6 months in one of the previous three years

5. Discussion

5.1 Summary of main results

In the analyses of the European data (SHARE), we found that the level of depressive symptoms was relatively stable over time when looking at the entire European population; however, when looking at the 27 countries separately, we saw large variations in levels and patterns of change over time. The countries of The Northern European region had the overall lowest levels but with a similar pattern of increase as the Western European Region countries, although these countries generally had a higher starting point. Among the countries of the Southern and Eastern European regions, we found the highest overall levels of depressive symptoms and saw large variation across time.

The symptoms of depressive disorder during two major, recent European crises varied considerably – even between the countries which were mostly affected by the crisis. The mixed picture of the direction of change during the COVID-19 crisis, and also partly during the migration crisis, suggests that factors other than objective measures of severity of a crisis (e.g. number of migrants arriving, infections rates etc.) affect how it impacted the mental health status of a population. For example, even though Sweden and Germany had high numbers of immigrants in relation to the migration crisis in 2015, we did not see any striking changes in mental health during the period of the migration crisis. Societal structures such as government policies, economic conditions, social integration, and cultural norms might also play a role in how a crisis affects the development of mental health and depression symptoms in populations over time. However, we did not have data on this for our analyses.

In the analyses of the Danish data (WEHD), there was an overall relative increase in depressive disorder symptoms from 2012 to 2018. Higher initial levels as well as larger increases were generally found among the younger age group, participants with immigration background and with recent unemployment. This might be explained by socioeconomic challenges, economic distress, lack of social support or increased stress levels among individuals belonging to one of these vulnerable population groups (Latsou & Geitona, 2018; Nowak, Nutsch, Brake, Gehrlein, & Razum, 2023; Pelzer, Schaffrath, & Vernaleken, 2014; Vonneilich et al., 2023).

5.2 Strength and limitations

The major strengths of the analyses are the use of the two large and representative surveys for Europe and Denmark, respectively. The self-reported symptoms of depressive disorder enabled us to investigate patterns in mental health symptoms in accordance with the aims of MENTBEST. We had access to measures of symptoms of depressive disorder at many time-points and also repeatedly for the same individuals (in SHARE), which enabled us to investigate changes over time both within and between individuals.

The analyses are also subject to some limitations. First of all, it was not possible for us to investigate directly how the major dramatic changes affected subclinical mental health due to the lack of available data sources allowing us to establish the analyses necessary to draw that kind of conclusions. However, we did use a large, European survey (SHARE), which allowed us to investigate changes in mental health symptoms in all European regions and in most European countries. This enabled comparisons in levels

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and changes of mental health symptoms between regions and countries affected differently by the migration and COVID-19 crisis, respectively. Second, not all countries participated in SHARE in the entire period of interest (2011-2022). Thus, for some countries we did not have enough information to assess any potential changes in mental health symptoms in the period of the major dramatic changes on a societal level (migration and COVID-19 crisis). Third, our study period began in 2011 where some European countries may have been still affected by the Global Financial Crisis It is possible that late effects of this crisis have impacted the level of depressive disorder symptoms in some of the countries, thus have resulted in relatively high levels of depressive symptoms at the beginning of the study period.

Finally, in the WEHD, only a low proportion of the study population was unemployed. Since we were interested in comparing the level of depressive symptoms in the unemployed compared to employed part of the population, we extended the definition of unemployment to cover any period of unemployment lasting more than 6 months in the year of completing the survey or any of the two years proceeding this. This was possible due to linkage to national registries, which contain detailed information on employment status on an individual level back in time.

5.3 Impact and Conclusion

This report described the work conducted in relation to Task 1.3 and summarised the results from the data analyses conducted to address one of the main objectives of MENTBEST (SO1).

To address MENTBEST SO1, we analysed data from two large, high-quality datasets (Survey of Health and Aging and Retirement in Europe and The Work Environment and Health in Denmark Study). Based on this data, we were able to investigate how the self-reported symptoms of depression have changed in the older European population during the last decade – both in Europe as a whole but also in geographic regions and specific countries. This also enabled comparisons between the European regions and countries and the possibility to explore how the changes in mental health symptoms developed in countries more or less affected by the migration and COVID-19 crisis. Further, we were able to investigate how the self-reported symptoms of depression have changed over time among the relevant vulnerable groups (migrants, unemployed and younger individuals).

Our findings suggest that both the level of depressive symptoms and the change in depressive symptoms over time vary considerably within the regions and countries of Europe. Some of the countries most affected by the migration and COVID-19 crisis showed large increases in reported symptoms of depression, whereas others did not, underlining that many other factors (which largely differ between European countries) probably influenced how a dramatic societal change or challenge affect the mental health of the population.

Our analyses within a selected Nordic country, Denmark, further indicated that the identified vulnerable groups (migrants, unemployed and younger individuals) had a considerably worse subclinical mental health status as compared to natives, employed and middle-aged or older individuals, respectively, and that the subclinical mental health symptoms of the vulnerable groups increased more over time as compared to the non-vulnerable counterpart.

This report will be made available to the MENTBEST consortium via the MENTBEST Teams Channel. And the recommendations and key results will be discussed in a series of meetings with the relevant WPs.

Finally**,** a number of issues and areas for **further research** were identified.

- To reach more conclusive results on the effect of dramatic societal changes on changes in subclinical mental health status, data resources with information on both societal change and mental health status (as well as information on other possible factors related to these) on an individual level are needed.
- Datasets aimed at specifically investigating mental health challenges among migrants and unemployed may be desirable in order to illuminate some of the knowledge gaps that still exist.

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7. Appendix A

Table S1. Weighted prevalence of high levels of depressive symptoms (EURO-D≥4) in 27 European countries from 2011 to 2021/2022 (6 waves).

	2011		2013		2015		2017		2019 / 2020		2021 / 2022		
	N	Weighted % (95% CI)	N	Weighted % (95% CI)	N	Weighted % (95% CI)	N	Weighted % (95% CI)	N	Weighted % (95% CI)	N	Weighted % (95% CI)	P value[a]
Total	**54517**	**30.9 (30.1-31.8)**	**60256**	**28.9 (28.2-29.5)**	**61656**	**29.9 (29.4-30.6)**	**13412**	**31.9 (30.8-33.1)**	**49993**	**28.2 (27.3-29.2)**	**65562**	**28.1 (27.3-28.8)**	**0.0087**
Austria	4725	21.6 (20.3-23.0)	3980	19.1 (17.7-20.6)	3026	21.9 (20.0-23.8)	460	23.1 (19.0-27.2)	1864	19.3 (16.9-21.7)	3244	21.9 (19.9-23.9)	0.0008
Germany	1578	26.6 (24.0-29.2)	5482	25.5 (24.2-26.8)	4240	24.5 (23.0-26.0)	813	23.9 (20.6-27.3)	3742	25.3 (23.7-27.0)	4335	28.4 (26.8-30.0)	<0.0001
Sweden	1916	20.4 (17.8-23.0)	4401	20.4 (18.9-21.8)	3761	19.0 (17.3-20.6)	1031	19.1 (16.5-21.6)	2462	21.8 (19.3-24.3)	2337	22.4 (19.8-24.9)	0.0287
The Netherlands	2692	19.8 (18.0-21.6)	4037	18.8 (16.7-21.0)					1905	17.9 (14.6-21.2)	2036	19.9 (14.4-25.4)	0.6919
Spain	3463	34.7 (32.8-36.5)	6164	28.9 (26.8-31.1)	4955	25.7 (23.3-28.1)	1170	37.3 (34.1-40.5)	1970	24.4 (19.6-29.2)	1936	27.1 (24.0-30.2)	<0.0001
Italy	3394	32.2 (30.2-34.2)	4505	36.3 (34.5-38.0)	4888	33.6 (31.9-35.3)	1499	39.2 (36.4-42.0)	2052	32.8 (29.4-36.3)	3474	28.0 (25.3-30.7)	<0.0001
France	5330	34.1 (32.7-35.6)	4339	34.1 (32.5-35.7)	3703	35.1 (33.4-36.9)	1108	32.9 (30.1-35.7)	2878	33.4 (31.3-35.6)	2777	33.4 (31.2-35.5)	0.5503
Denmark	2159	16.5 (14.8-18.1)	3962	17.9 (16.6-19.2)	3575	16.9 (15.6-18.2)	1260	18.0 (15.8-20.2)	2308	18.7 (16.9-20.5)	2288	20.8 (18.9-22.8)	<0.0001
Greece					4610	32.1 (30.6-33.5)	1856	23.8 (21.7-25.8)	2917	21.4 (19.7-23.2)	3002	19.7 (17.7-21.6)	<0.0001
Switzerland	3612	19.6 (18.2-20.9)	2959	18.2 (16.7-19.7)	2724	18.1 (16.4-19.7)	734	17.9 (15.0-20.8)	2037	18.3 (16.0-20.7)	1815	19.5 (16.9-22.2)	0.6002
Belgium	5039	28.7 (27.3-43.1)	5392	27.5 (26.1-29.0)	5495	28.4 (26.8-30.0)	1515	27.9 (25.6-30.2)	2167	28.7 (26.2-31.2)	4308	30.9 (29.0-32.7)	0.0225
Czech Republic	5155	25.4 (23.6-27.2)	5285	25.8 (23.6-28.0)	4564	22.2 (19.7-24.7)	873	19.4 (15.9-22.9)	2902	26.5 (14.9-38.2)	3113	28.5 (22.8-34.3)	0.0182
Poland	1650	40.3 (37.6-43.1)			1689	41.6 (38.8-44.3)	1093	42.4 (39.2-45.6)	2685	35.1 (33.0-37.3)	4536	30.0 (28.3-31.8)	<0.0001
Luxembourg			1540	29.1 (26.6-31.5)	1504	31.9 (28.9-34.9)			895	26.7 (21.7-31.7)	783	36.3 (28.0-44.7)	0.0267
Hungary	2924	41.2 (37.3-45.0)							1170	22.7 (19.8-25.6)	1775	21.1 (18.8-23.5)	<0.0001
Portugal	1861	42.4 (37.4-47.4)			1467	41.1 (35.8-46.4)					1428	41.8 (34.2-49.4)	0.9168
Slovenia	2613	26.1 (23.4-28.7)	2831	24.7 (22.7-26.6)	3986	24.0 (22.4-25.6)			2869	23.5 (21.7-25.3)	4179	21.3 (20.02-2.7)	0.2758
Estonia	6406	41.9 (40.6-43.2)	5379	36.6 (35.2-38.0)	5096	34.9 (33.5-36.3)			3198	31.8 (30.0-33.6)	4240	34.4 (32.8-36.0)	<0.0001
Croatia					2373	33.0 (30.9-35.1)			1946	28.9 (26.6-31.2)	4394	26.3 (24.8-27.8)	<0.0001
Lithuania									1386	37.2 (34.4-40.0)	1349	39.8 (36.9-42.8)	0.0709
Bulgaria									882	24.6 (21.4-27.7)	812	23.1 (20.8-25.3)	0.7722
Cyprus									506	20.3 (15.6-25.1)	717	16.7 (13.4-20.1)	0.2610
Finland									1123	23.7 (20.1-27.3)	1710	24.3 (21.6-27.0)	0.4053
Latvia									1143	29.6 (26.6-32.5)	1624	23.1 (20.8-25.3)	0.0007
Malta									770	27.3 (23.6-31.1)	849	34.8 (30.5-39.1)	0.0034
Romania									1246	39.3 (35.9-42.7)	1459	30.8 (27.2-34.5)	<0.0001
Slovakia									970	26.9 (23.7-30.1)	1042	20.6 (17.8-23.4)	0.0095
European Region													
Northern	4075	19.0 (17.2-20.7)	8363	19.5 (18.4-20.5)	7336	18.2 (17.1-19.3)	2291	18.6 (16.9-20.3)	5893	21.5 (19.9-23.0)	6335	22.5 (21.0-23.9)	<0.0001
Western	22976	28.0 (26.7-39.3)	27729	27.3 (26.5-28.1)	20692	28.1 (27.1-29.0)	4630	27.9 (26.0-29.7)	15488	26.9 (25.8-28.0)	19298	28.7 (27.6-29.9)	0.0025
Southern	8718	34.0 (32.7-35.4)	10669	33.3 (32.0-34.7)	15920	31.4 (30.1-32.6)	4525	36.2 (34.4-38.1)	8215	28.6 (26.0-31.2)	11406	28.0 (26.2-29.8)	<0.0001
Eastern	18748	37.4 (35.6-39.2)	13495	26.7 (25.0-28.4)	17708	36.3 (34.4-38.2)	1966	37.7 (35.0-40.4)	20397	32.0 (30.4-33.6)	28523	28.0 (26.8-29.2)	<0.0001

[a]A p-value <0.05 indicates a statistically significant difference in the prevalence of a high level of depressive symptoms within a country across the time-period

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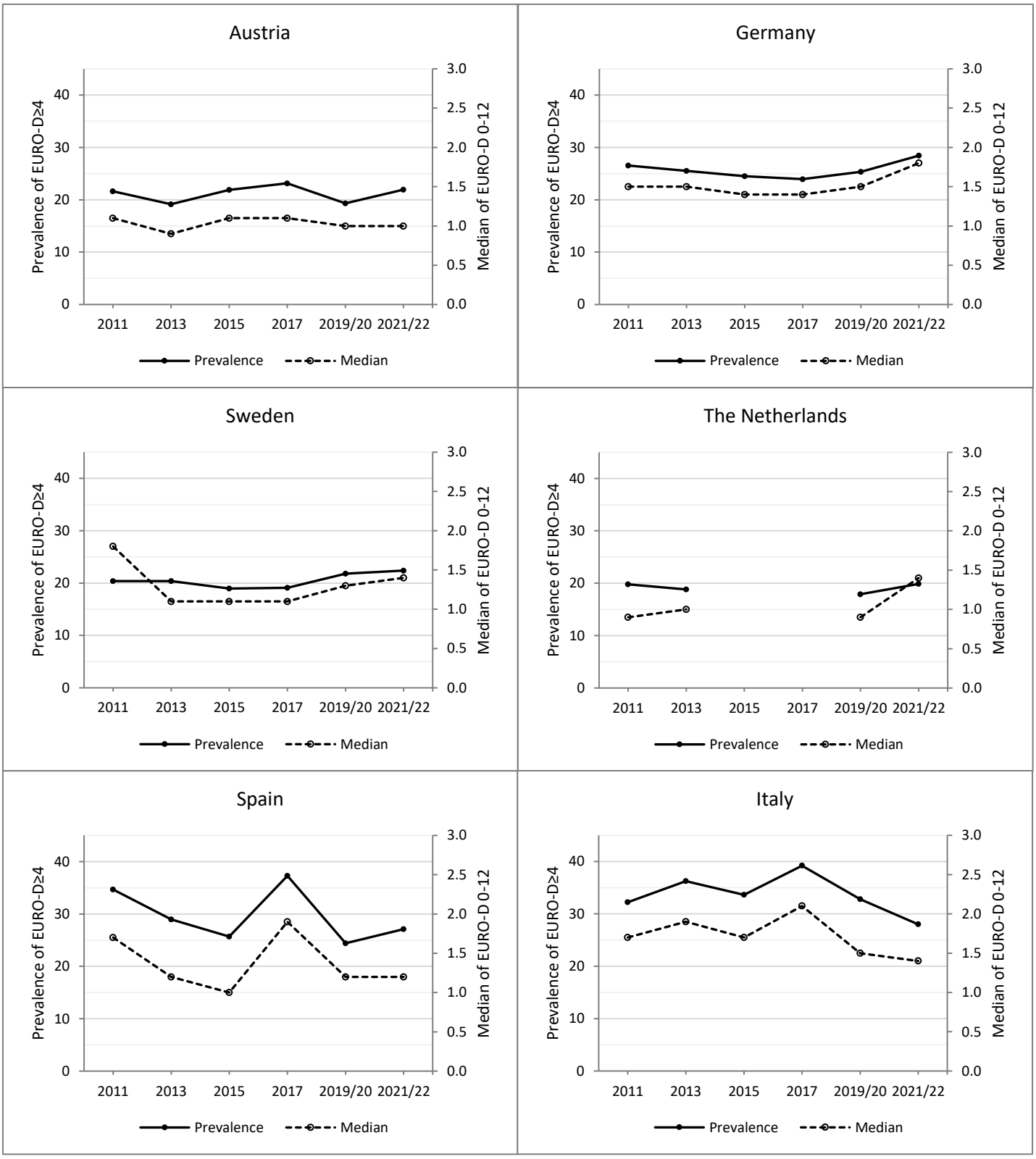
Table S2. Weighted median of depressive symptoms (EURO-D 0-12) in 27 European countries from 2011 to 2021/2022 (6 waves).

	2011		2013		2015		2017		2019 / 2020		2021 / 2022		
	N	Weighted median (IQR)	N	Weighted median (IQR)	N	Weighted median (IQR)	N	Weighted median (IQR)	N	Weighted median (IQR)	N	Weighted median (q1-q3)	P value[a]
Total	**54517**	**1.7 (0.3-3.6)**	**60256**	**1.5 (0.2-3.4)**	**61656**	**1.6 (0.2-3.5)**	**13412**	**1.7 (0.3-3.7)**	**49993**	**1.5 (0.2-3.3)**	**65562**	**1.5 (0.2-3.3)**	<0.0001
Austria	4725	1.1 (0.0-2.7)	3980	0.9 (0.0-2.5)	3026	1.1 (0.0-2.8)	460	1.1 (0.0-2.9)	1864	1.0 (0.0-2.6)	3244	1.0 (0.0-2.7)	<0.0001
Germany	1578	1.5 (0.3-3.1)	5482	1.5 (0.3-3.1)	4240	1.4 (0.2-3.0)	813	1.4 (0.2-2.9)	3742	1.5 (0.3-3.0)	4335	1.8 (0.4-3.3)	<0.0001
Sweden	1916	1.8 (0.1-2.7)	4401	1.1 (0.1-2.6)	3761	1.1 (0.1-2.6)	1031	1.1 (0.1-2.5)	2462	1.3 (0.1-2.8)	2337	1.4 (0.3-2.8)	0.0037
The Netherlands	2692	0.9 (0.0-2.5)	4037	1.0 (0.0-2.4)					1905	0.9 (0.0-2.5)	2036	1.4 (0.2-2.8)	0.1548
Spain	3463	1.7 (0.2-4.1)	6164	1.2 (0.0-3.5)	4955	1.0 (0.0-3.1)	1170	1.9 (0.4-4.4)	1970	1.2 (0.0-3.0)	1936	1.2 (0.2-3.3)	<0.0001
Italy	3394	1.7 (0.3-3.7)	4505	1.9 (0.4-4.2)	4888	1.7 (0.2-3.9)	1499	2.1 (0.4-4.5)	2052	1.5 (0.0-3.9)	3474	1.4 (0.0-3.3)	<0.0001
France	5330	2.0 (0.6-3.8)	4339	1.9 (0.5-3.8)	3703	2.0 (0.6-3.8)	1108	2.0 (0.6-3.8)	2878	1.9 (0.5-3.7)	2777	1.9 (0.6-3.7)	0.1408
Denmark	2159	0.8 (0.0-2.2)	3962	0.8 (0.0-2.3)	3575	0.8 (0.0-2.2)	1260	0.8 (0.0-2.4)	2308	1.0 (0.0-2.5)	2288	1.0 (0.0-2.7)	0.0002
Greece					4610	1.5 (0.0-3.9)	1856	0.8 (0.0-2.9)	2917	0.5 (0.0-2.6)	3002	0.3 (0.0-2.2)	<0.0001
Switzerland	3612	1.1 (0.0-2.6)	2959	1.0 (0.0-2.5)	2724	1.0 (0.0-2.5)	734	1.0 (0.0-2.4)	2037	1.1 (0.0-2.5)	1815	1.2 (0.0-2.6)	0.0147
Belgium	5039	1.6 (0.3-3.4)	5392	1.5 (0.2-3.3)	5495	1.5 (0.2-3.3)	1515	1.5 (0.2-3.3)	2167	1.6 (0.2-3.4)	4308	1.7 (0.3-3.6)	-
Czech Republic	5155	1.1 (0.0-3.0)	5285	1.4 (0.1-3.1)	4564	1.0 (0.0-2.8)	873	1.0 (0.0-2.5)	2902	1.3 (0.1-3.1)	3113	1.6 (0.1-3.3)	<0.0001
Poland	1650	2.3 (0.7-4.4)			1689	2.4 (0.9-4.5)	1093	2.4 (0.7-4.6)	2685	2.0 (0.5-3.9)	4536	1.6 (0.3-3.5)	<0.0001
Luxembourg			1540	1.7 (0.3-3.4)	1504	1.7 (0.3-3.5)			895	1.5 (0.3-3.1)	783	2.1 (0.7-3.7)	0.0134
Hungary	2924	2.4 (0.8-4.6)							1170	0.8 (0.0-2.8)	1775	0.7 (0.0-2.5)	<0.0001
Portugal	1861	2.5 (0.6-4.6)			1467	2.4 (0.7-4.6)					1428	2.5 (1.1-4.7)	0.6836
Slovenia	2613	1.6 (0.5-3.1)	2831	1.4 (0.3-3.0)	3986	1.3 (0.0-2.9)			2869	1.2 (0.1-2.9)	4179	1.1 (0.0-2.7)	<0.0001
Estonia	6406	2.5 (1.0-4.3)	5379	2.1 (0.7-3.9)	5096	2.1 (0.7-3.8)			3198	1.8 (0.6-3.6)	4240	2.0 (0.6-3.7)	<0.0001
Croatia					2373	1.7 (0.1-3.7)			1946	1.4 (0.0-3.4)	4394	1.1 (0.0-3.2)	<0.0001
Lithuania									1386	2.2 (0.8-4.1)	1349	2.4 (0.8-4.3)	0.2146
Bulgaria									882	0.9 (0.0-2.9)	812	0.6 (0.0-2.7)	0.0129
Cyprus									506	0.8 (0.0-2.5)	717	0.8 (0.0-2.3)	0.4692
Finland									1123	1.5 (0.3-2.9)	1710	1.5 (0.3-3.0)	0.9426
Latvia									1143	1.6 (0.2-3.4)	1624	1.0 (0.0-2.8)	<0.0001
Malta									770	1.8 (0.7-3.2)	849	2.1 (0.7-3.7)	0.0426
Romania									1246	2.0 (0.3-4.4)	1459	1.5 (0.0-3.8)	<0.0001
Slovakia									970	1.4 (0.0-3.2)	1042	1.0 (0.0-2.6)	<0.0001
European Region													
Northern	4075	1.0 (0.0-2.5)	8363	1.0 (0.0-2.5)	7336	1.0 (0.0-2.5)	2291	1.0 (0.0-2.4)	5893	1.2 (0.1-2.7)	6335	1.3 (0.2-2.8)	<0.0001
Western	22976	1.6 (0.3-3.3)	27729	1.5 (0.3-3.2)	20692	1.6 (0.3-3.3)	4630	1.6 (0.4-3.3)	15488	1.5 (0.3-3.2)	19298	1.7 (0.4-3.3)	<0.0001
Southern	8718	1.7 (0.3-3.9)	10669	1.7 (0.2-4.0)	15920	1.5 (0.1-3.8)	4525	1.8 (0.3-4.3)	8215	1.3 (0.0-3.4)	11406	1.3 (0.0-3.4)	<0.0001
Eastern	18748	2.1 (0.5-4.1)	13495	1.5 (0.2-3.2)	17708	2.0 (0.5-4.0)	1966	2.0 (0.5-4.2)	20397	1.6 (0.2-3.7)	28523	1.4 (0.0-3.3)	<0.0001

[a]A p-value <0.05 indicates a statistically significant difference in the median of depressive symptoms within a country across the time-period

8. Appendix B



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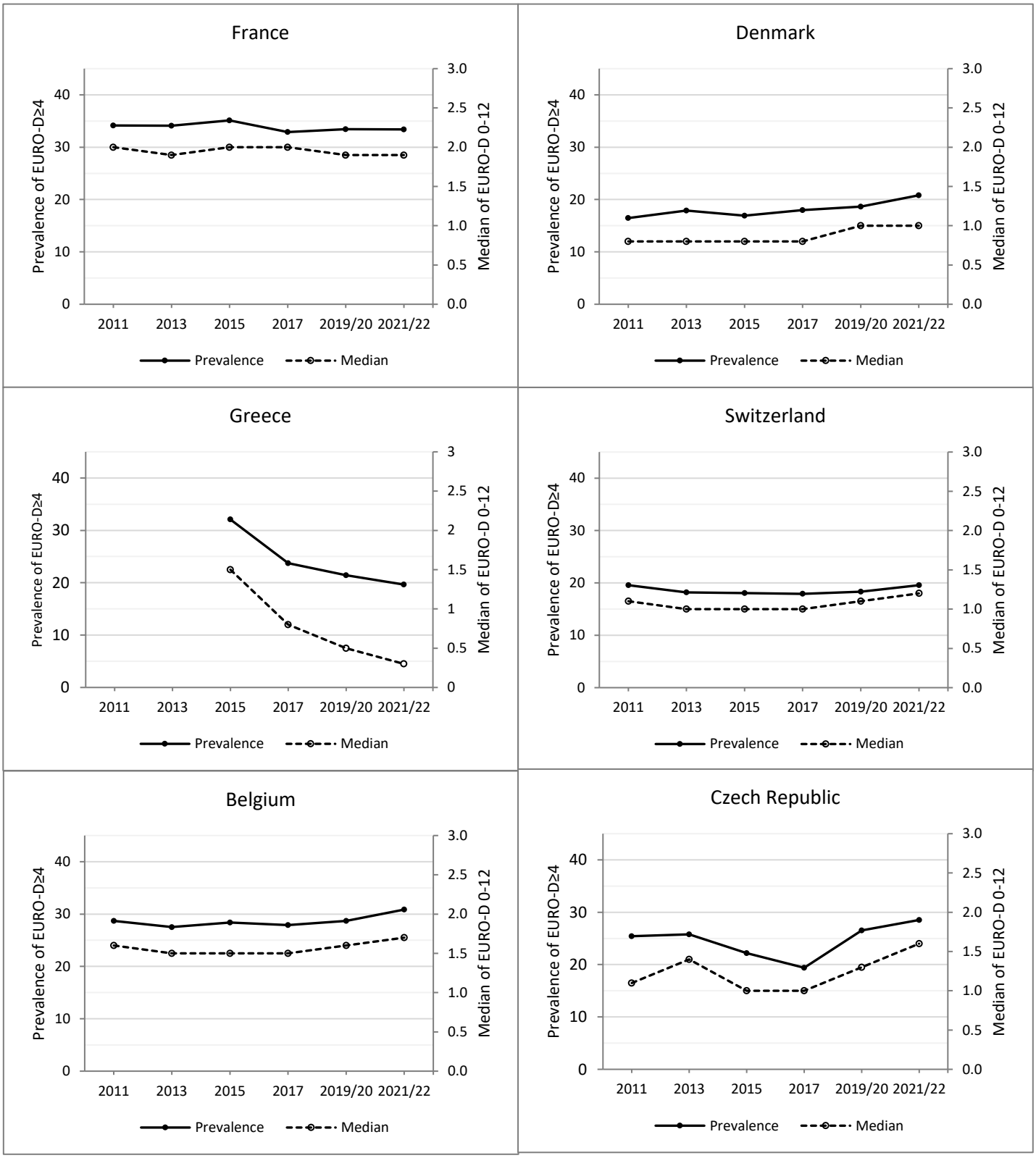
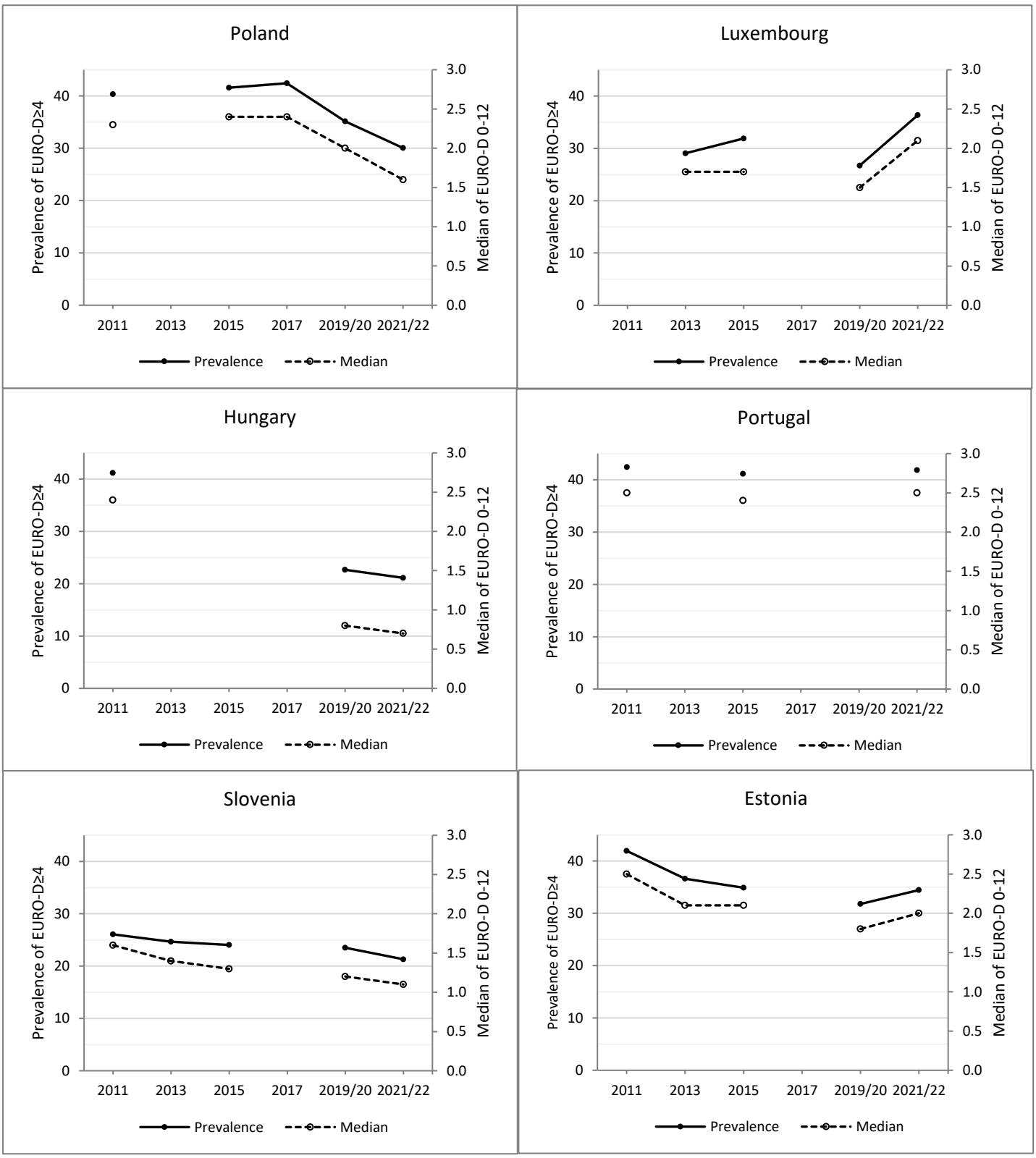

France
Prevalence of EURO-D≥4
Median of EURO-D 0-12
2011 2013 2015 2017 2019/20 2021/22
Prevalence
Median
Denmark
Prevalence of EURO-D≥4
Median of EURO-D 0-12
2011 2013 2015 2017 2019/20 2021/22
Prevalence
Median
Greece
Prevalence of EURO-D≥4
Median of EURO-D 0-12
2011 2013 2015 2017 2019/20 2021/22
Prevalence
Median
Switzerland
Prevalence of EURO-D≥4
Median of EURO-D 0-12
2011 2013 2015 2017 2019/20 2021/22
Prevalence
Median
Belgium
Prevalence of EURO-D≥4
Median of EURO-D 0-12
2011 2013 2015 2017 2019/20 2021/22
Prevalence
Median
Czech Republic
Prevalence of EURO-D≥4
Median of EURO-D 0-12
2011 2013 2015 2017 2019/20 2021/22
Prevalence
Median


Poland
Luxembourg
Hungary
Portugal
Slovenia
Estonia
Prevalence of EURO-D≥4
Median of EURO-D 0-12
0
10
20
30
40
0.0
0.5
1.0
1.5
2.0
2.5
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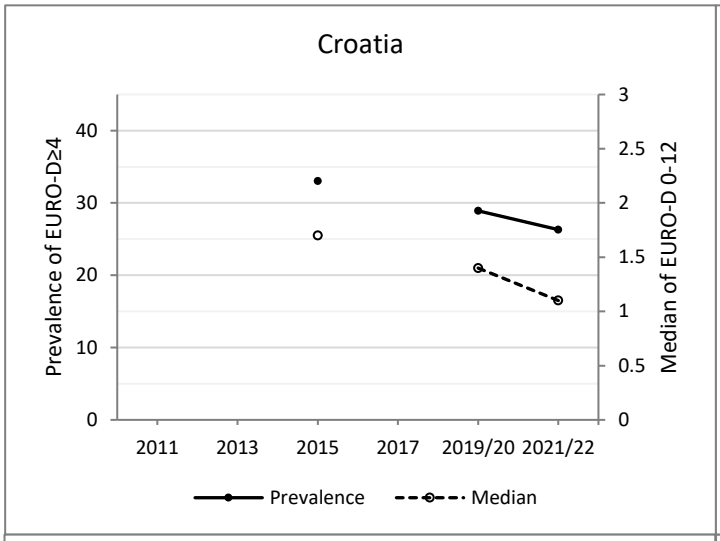
2011
2013
2015
2017
2019/20
2021/22
Prevalence
Median


Croatia
Prevalence of EURO-D≥4
Median of EURO-D 0-12
0
10
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1.5
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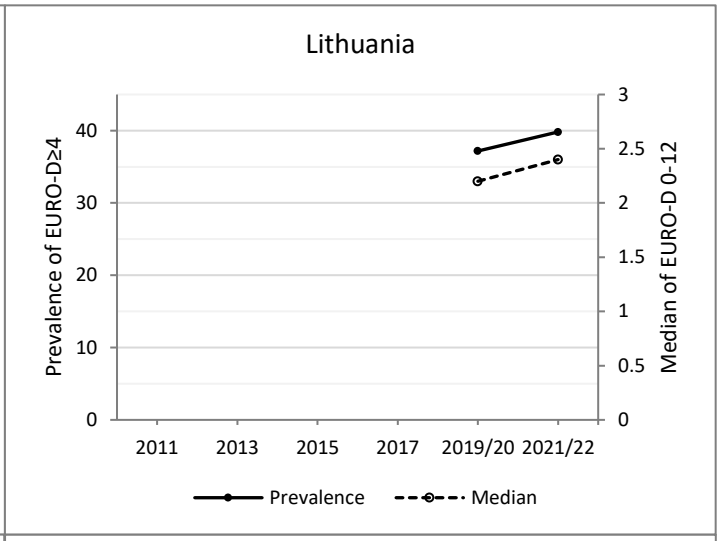
3
2011
2013
2015
2017
2019/20
2021/22
Prevalence
Median


Lithuania
Prevalence of EURO-D≥4
Median of EURO-D 0-12
0
10
20
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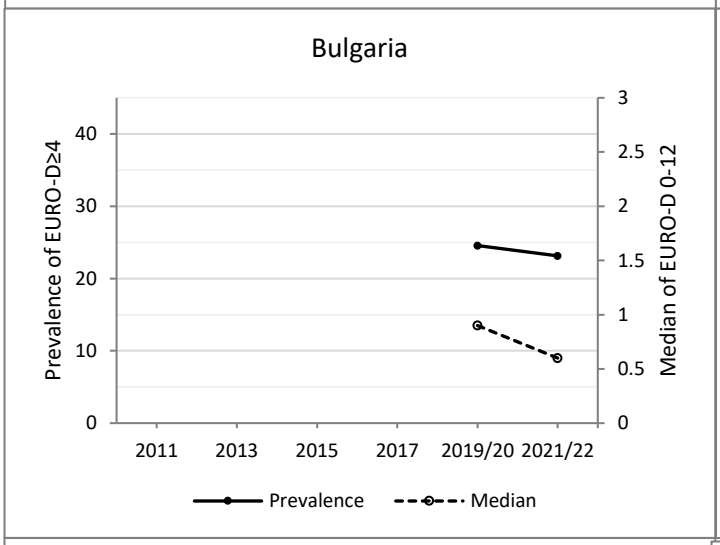
1.5
2
2.5
3
2011
2013
2015
2017
2019/20
2021/22
Prevalence
Median


Bulgaria
Prevalence of EURO-D≥4
Median of EURO-D 0-12
0
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2011
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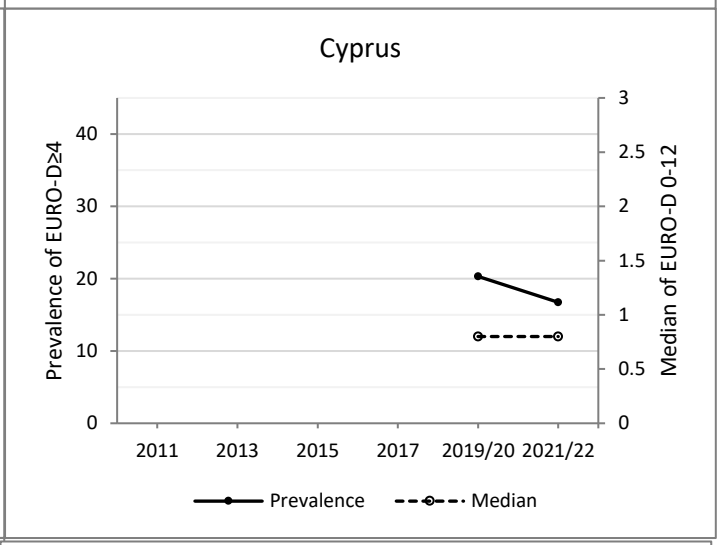
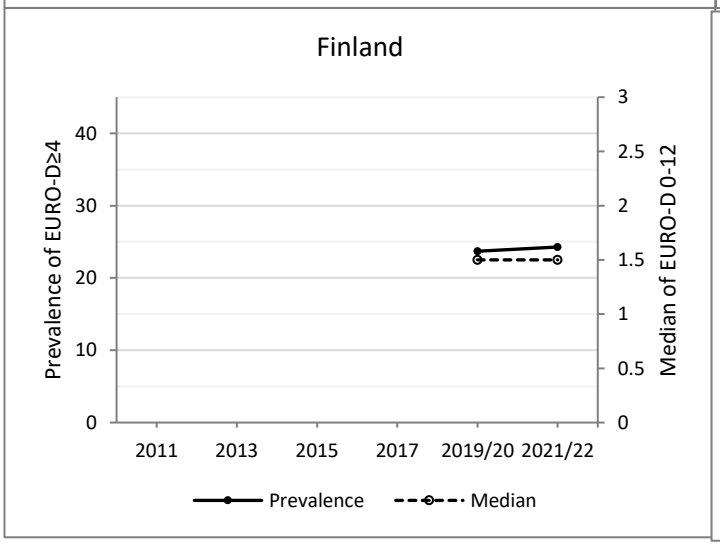
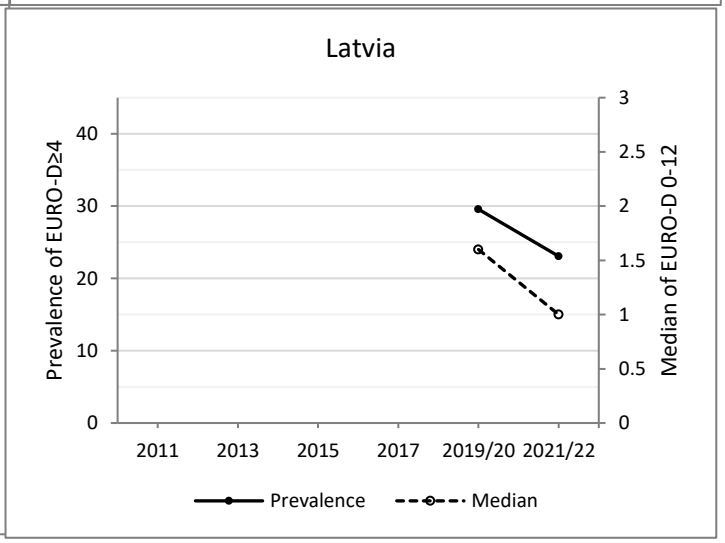
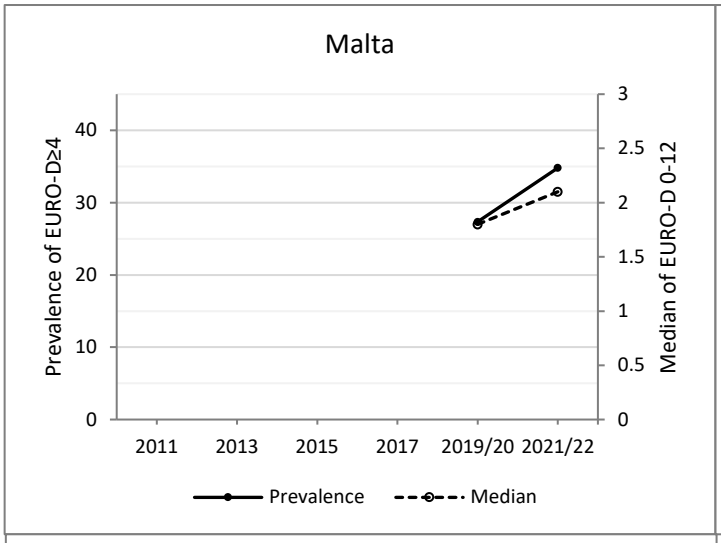
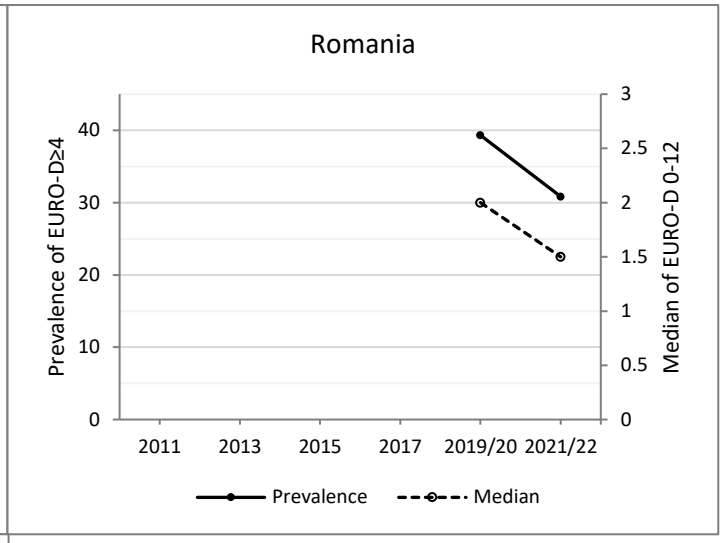
2015
2017
2019/20
2021/22
Prevalence
Median

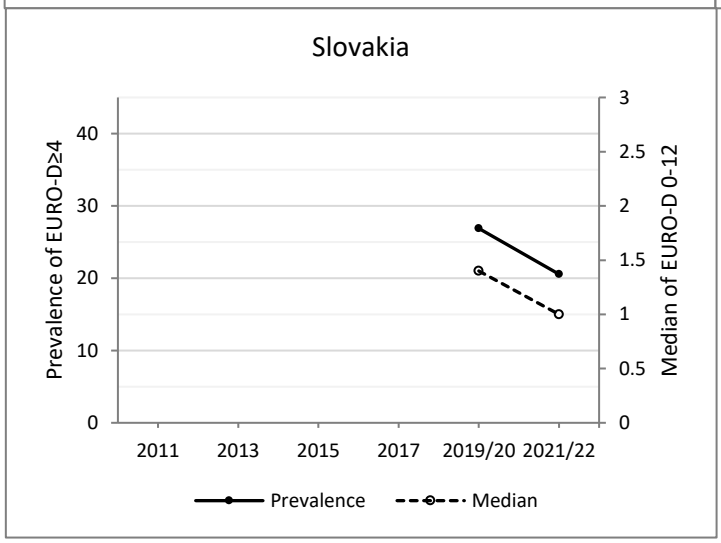

Cyprus
Prevalence of EURO-D≥4
Median of EURO-D 0-12
0
10
20
30
40
0
0.5
1
1.5
2
2.5
3
2011
2013
2015
2017
2019/20
2021/22
Prevalence
Median


Finland
Prevalence of EURO-D≥4
Median of EURO-D 0-12
0
10
20
30
40
0
0.5
1
1.5
2
2.5
3
2011
2013
2015
2017
2019/20
2021/22
Prevalence
Median


Latvia
Prevalence of EURO-D≥4
Median of EURO-D 0-12
0
10
20
30
40
0
0.5
1
1.5
2
2.5
3
2011
2013
2015
2017
2019/20
2021/22
Prevalence
Median


Malta
Prevalence of EURO-D≥4
Median of EURO-D 0-12
0
10
20
30
40
0
0.5
1
1.5
2
2.5
3
2011
2013
2015
2017
2019/20
2021/22
Prevalence
Median


Romania
Prevalence of EURO-D≥4
Median of EURO-D 0-12
0
10
20
30
40
0
0.5
1
1.5
2
2.5
3
2011
2013
2015
2017
2019/20
2021/22
Prevalence
Median


Slovakia
Prevalence of EURO-D≥4
Median of EURO-D 0-12
0
10
20
30
40
0
0.5
1
1.5
2
2.5
3
2011
2013
2015
2017
2019/20
2021/22
Prevalence
Median