# Responsiveness of European countries to the population mental health needs: a cross-national comparison study

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## ABSTRACT

### BACKGROUND

This study aimed to cross-compare European countries' responsiveness to their populations' mental health (MH) needs.

### METHODS

For the EU 27 countries and the UK the 2023 Headway Initiative collected data on 15 Key Performance Indicators (KPIs) in responsiveness in healthcare, including workforce, facilities, quality of care and MH expenditure and 14 KPIs in responsiveness in workplaces, schools and society. Bivariate correlations between Headway-transformed KPIs scores, which were standardised in a 1-10 Likert Scale (1: worst performance; 10: best performance), tested for putative associations

### RESULTS

Responsiveness in healthcare: Sweden (10), Denmark (8.8) and Finland (8.3) showed the best performance, while Romania (1.0), Slovakia (1.1), Latvia and Bulgaria (1.2) had the poorest performance. Responsiveness in workplaces, schools and society: Germany (10.0), France (9.1) and Denmark (9.1) were the most responsive countries, while Greece and Slovakia (1.0) had the poorest responsiveness. MH status total scores negatively correlated with global scores on responsiveness in healthcare ($r$=-0.34, $p$=.075), workplaces ($r$=-0.46, $p$=.014), schools ($r$=-0.59, $p$=.003) and society ($r$=-0.53, $p$=.003) -poorer MH status, greater responsiveness-.

### CONCLUSIONS

European countries significantly differed in their responsiveness to the population MH needs, although the real effectiveness of their MH policies remains to be elucidated. Whether more responsive countries, which achieved poorer MH outcomes, successfully met greater pre-existing MH needs, they failed to do so or the relationship is driven by other third variables (e.g. quality of MH assessment) requires future investigation.


**Key words**: Mental health, responsiveness, Europe, healthcare disparity, policy evaluation.



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## INTRODUCTION

Despite the ongoing global mental health (MH) crisis, service provision continues to lag behind the need for care [1,2]. The treatment gap represents a major public health issue [3,4], which has widened over time [2]. In 2023, up to 25% of European citizens raised issues about mental healthcare, such as unacceptably long waiting lists, increased treatment cost and lack of information on service provision [5]. Of concern, investment in MH continues to lag behind other medical specialities, such as oncology and cardiology [6], and remains inequitably distributed within- and between populations [2,7]. It is true, however, that beyond a certain threshold increased funding in mental healthcare may not achieve better outcomes, which may require greater social care expenditure [8]. In addition, stigma, among other unresolved issues, continues to prevent MH patients from receiving appropriate care [9–11].

In the first Headway-based article (Lopez-Morinigo et al., this issue) Europeans' MH status was showed to significantly vary across countries, which was determined by a complex interplay of individual, environmental and social factors. A fundamental question therefore arises: *what can be done*? In short, two approaches can be adopted. First, universal primary prevention measures addressing the determinants of MH may reduce the incidence of mental disorders [7,12], which was discussed in depth in the aforementioned article (Lopez-Morinigo et al., this issue). Second, from a secondary/tertiary prevention model, enhancing countries' responsiveness to people's MH needs should improve patient outcomes [13], which forms the context for this study. In brief, it can be anticipated that both increased MH funding and closer multi-agency collaboration across social services, education, labour and justice system will be required [14].

In addition, our first Headway-based article in this issue (Lopez-Morinigo et al.) revealed that within the ongoing post-pandemic polycrisis [15] the impact of the determinants of MH differed between European countries, in line with previous reports [5,16,17]. Somehow surprisingly, the correlation between determinants of MH and population MH status was found to be weak across Europe, including 'high risk, good MH status' and 'low risk, poor MH status' countries (Lopez-Morinigo et al., this issue). Among other contributors, we speculated



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that between-country differences in their *responsiveness* to the population MH needs may partly explain this (Lopez-Morinigo et al., this issue). In order to test this hypothesis we carried out the present cross-national comparison study of the EU-27+UK countries' responsiveness in healthcare, workplaces, schools and society to their population MH needs.

## METHODS

### The 2023 Headway Mental Health Index Initiative

The Headway Initiative methodology was detailed elsewhere [15] (see also Lopez-Morinigo et al., this issue). Briefly, the 2023 Headway - Mental Health Index 3.0 collected data on 54 key performance indicators (KPIs) across the EU-27+UK countries, including 14 KPIs in the responsiveness in healthcare and 15 KPIs in the responsiveness in workplaces, schools and society. Data sources were official authoritative open-access datasets (e.g. WHO) and KPIs were decided by expert consensus meetings. Not only did this reduce the risk of potential selection bias, but also the use of open-access datasets ensured the replicability of the study, which is imperative in high-quality research.

For each KPI scores ranged from 1 (worst performance) to 10 (best performance) depending on the *relative* performance of each country compared with all other countries, thus making the data comparable across the board (see Lopez-Morinigo et al, this issue, for further details).

#### *Responsiveness in healthcare*

14 KPIs (see Table 1, below) were examined across four major domains: i) MH workforce - rate of psychiatrists, child neuropsychiatrists, psychologists and nurses per 100,000 inhabitants-; ii) mental healthcare facilities - rate of hospital beds, child and adolescent psychiatric beds, psychiatric hospitals, psychiatric units in general hospitals and community-based MH facilities per 100,000 inhabitants; iii) quality of care, which encompassed rate of hospital discharges from psychiatric wards, MH consultations and published psychiatric articles per 100,000 inhabitants, length of stay and percentage of surveyed people reporting unmet needs; and iv) economic resources for MH, measured as the percentage on total healthcare expenditure.



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**Insert Table 1 here**

***Responsiveness in workplaces, schools and society***

Table 2, below, details the KPIs in responsiveness in workplaces, schools and society, the variable(s) included in each KPI, the variable measure and data source

In terms of responsiveness in *workplaces* we looked at 6 KPIs, namely wage gap between people with/without mental disorders, employment rate, sick leave benefits and unemployment benefits of people with mental disorders, job quality or satisfactions and availability of MH promotion programmes in workplaces.

3 KPIs in responsiveness to MH needs in *schools* were measured: availability of day centers for young people with mental disorders, percentage of youth dropping out of school due to MH issues and availability of MH promotion programmes in schools.

Regarding responsiveness in *society*, we evaluated 6 KPIs: availability of social workers and occupational therapists in the MH sector and hospital beds per 100,000 inhabitants, social support (measured as the proportion of people aged 15 who self-perceived poor social support), disability benefits for people with mental disorders and existence of MH promotion programmes for the general public.

**Insert Table 2 here**

**Statistics**

Scores on all KPIs were reported per country which were ordered alphabetically, including an overall EU-27+UK average, at a descriptive level. We also ran a set of bivariate correlations between KPIs scores to explore potential associations. Since all Headway-transformed KPIs scores, which ranged from 1 to 10, followed a normal distribution, Pearson coefficients and the corresponding p-value were reported. Given the exploratory nature of the analyses, correction for multiple testing techniques were not applied to the correlations, which were unadjusted. The Statistical Package for Social Science version 25.0 (SPSS Inc., Chicago, IL, USA) was used for all the above analyses. Significance level (two-tailed) was set at $p < .05$.



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## RESULTS

### Responsiveness in Healthcare

Headway scores on KPIs in responsiveness in healthcare for the EU-27+UK countries are detailed in Table 3, below.

**Insert Table 3 here**

Overall, Sweden (10), Denmark (8.8) and Finland (8.3) had the best performance, while Romania (1.0), Slovakia (1.1), Latvia (1.2) and Bulgaria (1.2) had the poorest responsiveness.

In terms of overall workforce, Finland achieved the best performance (10.0), followed by The Netherlands (9.7) and Denmark (8.3), while Bulgaria (1.0), Portugal (1.9) and Romania (2.0) had the poorest performance. Further details about the full raw data and Headway-transformed scores are provided in Table S1 in the online supplementary material.

With regard to facilities, Slovenia (10), Italy (9.9) and Cyprus (9.6) were the more resourced countries, whereas The Netherlands (1.0), Germany (1.5) and Belgium (3.4) had the poorest performance in facilities. The raw data and Headway-transformed scores are detailed in Table S2 (online supplementary material).

Regarding quality of care, Denmark (10.0), Ireland (9.4) and Sweden (8.7) showed the highest performance, whereas Romania (1.0), Slovakia (1.4), Bulgaria and Latvia (1.5) had the poorest quality of care (see Table S3, online supplementary material, for further details).

In terms of MH expenditure (see also Table S4, online supplementary material), France, Germany, and Sweden spent 13.9%, 13.1% and 10.0% of the total health expenditure on MH, respectively. On the other hand, Bulgaria (2%), Estonia (2.9%) and Italy (3.0%) showed the lowest percentage of MH expenditure.

### Responsiveness in workplaces, schools and society

Headway scores on KPIs in the responsiveness in workplaces, schools and society are provided in Table 4, below.

**Insert Table 4 here**



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According to total scores, Germany (10), France (9.1) and Denmark (9.1) achieved the best performance, while Slovakia (1.0), Greece (1.1) and Cyprus (3.5) had the poorest response.

Regarding KPIs in responsiveness in *workplaces*, Germany (10), Finland and Belgium (9.4) reached the best performance, while Greece (1.0), Slovakia (1.4), Czechia and Hungary (3.4) had the poorest response (see also Table S5, online supplementary material).

In terms of responsiveness in *schools*, France (10.0), Latvia and Lithuania (8.6) had the best performance, whereas Slovakia (1.0), Cyprus (2.2) and Greece (2.4) had the poorest one (see also Table S6, online supplementary material).

Regarding KPI scores in responsiveness in *society* Germany (10), France (9.3) and Sweden (8.6) achieved the highest performance, while Greece (1.0), Estonia (2.0) and Romania (3.1) had the poorest performance (see, Table S7 in the online supplementary material for further details).

Overall KPIs scores in responsiveness in non-healthcare Germany (10), France and Denmark (9.1) were the most responsive countries, while Slovakia (1.0), Greece (1.0) and Cyprus (3.6) had the lowest scores.

**Relationship between MH status and responsiveness of the system**

Bivariate correlations between status and determinants KPIs across EU-27+UK countries are detailed in Table 5. While overall performance on healthcare responsiveness ($r$ = -0.34, $p$ = .075) did not reach statistical significance (although at a borderline level), responsiveness in workplaces ($r$ = -0.46, $p$ = .014), schools ($r$ = -0.59, $p$ < .001) and society ($r$ = -0.53, $p$ = .003) correlated with overall status -better responsiveness, worse MH status-. Further significant correlations emerged from the analyses (Table 5).

**Insert Table 5 here**

**Overall results**

Overall results, including all KPIs in MH status, determinants and responsiveness to MH needs are graphically summarised in Figure 1. In particular, those countries in the top-right corner (in green colour) achieved the best overall performance in MH-related KPIs,



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namely Sweden, Finland and Denmark. Conversely, countries in the bottom-left quadrant (in red colour) had the poorest overall performance in MH-related KPIs, such as Greece and Slovakia, although both countries had very good MH status (see bubble dimension, although note that the larger the bubble, the better the MH status), as discussed further below.

**Insert Figure 1 here**

## DISCUSSION

### Principal findings

This second Headway-based paper revealed a high variation in the responsiveness to MH needs across EU-27+UK countries, which was shown to negatively correlate with the population MH status -poorer MH status, better responsiveness-. Thus, Sweden, Finland, Denmark, France and Germany achieved the best performance on responsiveness to their populations' MH needs, although their performance in MH status was poor. On the other hand, Greece, Slovakia and Cyprus, which performed well in MH status KPIs, showed the poorest performance in responsiveness to MH needs. At first glance, it seems that countries' responsiveness failed to mitigate the impact of the determinants of MH. Conversely, one may argue that better-performing countries in responsiveness might do so because of greater pre-existing MH needs (e.g. Scandinavian countries) and vice versa (South-European countries). Nevertheless, tackling inequality and bridging the mental healthcare gap should guide future European MH policies.

### Responsiveness in healthcare

The World Health Organization defined health systems *responsiveness* as '*how well the health system meets the legitimate expectations of population for non-health enhancing aspects of the health system*' [18], hence an inherent goal of any health system which must be measured and monitored over time [19]. More specifically, health system responsiveness encompasses both the system's ability and capacity to respond and its actual response to medical [20] and non-medical issues [18].

In particular, Scandinavian countries, such as Sweden (10), Denmark (8.8) and Finland (8.3), showed the best performance in responsiveness in healthcare, while Romania



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(1.0), Slovakia (1.1), Latvia and Bulgaria (1.2) had the poorest results. Specifically, four major domains of healthcare systems across Europe were evaluated, namely workforce, facilities, quality of care and economic resources.

Regarding workforce, Finland (10), The Netherlands (9.7) and Denmark (8.3) achieved the best performance, while Bulgaria (1.0), Portugal (1.9) and Romania (2.0) showed the lowest scores. As of 2021, on average for the EU27+UK countries there were 18.8 psychiatrists per 100,000 inhabitants, ranging from 10.2 (Bulgaria) to 28.6 (Germany), that is, an almost 3-fold variation. Two countries - Spain and Malta - had no child psychiatrists at all. Such a high variability of healthcare professionals rates across European countries may have widened since the COVID-19 pandemic [2–4]. Of concern, there has been a severe shortage of MH professionals as the number of individuals in need increased, which seems to be exacerbated by high levels of staff burnout [21]. Thus, it is estimated that by 2030 Europe will face a shortfall of approximately 600,000 doctors [22]. Although Digital Mental Health approaches may mitigate this [23–25], their long-term outcomes remain unknown [26]. Therefore, urgent action is needed to enhance staff recruitment and retention rates across Europe [22].

In terms of facilities, Slovenia (10), Italy (9.9) and Cyprus (9.6) were the most resourced countries, whereas The Netherlands (1.0), Germany (1.5) and Belgium (3.4) had the poorest performance. Given the Headway Initiative methodology [15], results of worse-performing countries may only indicate a better provision of inpatient, rather than community-based, MH facilities; and not necessarily limited MH facilities.

In keeping with the above, mental healthcare expenditure significantly varied across Europe, with France (13.9%), Germany (13.1%) and Sweden (10.0%) -all of them countries with good performance in responsiveness- emerging as the principal investors, significantly exceeding the EU27+UK average of 5.4%. Hence, many European countries failed to comply with the 2018 Lancet Commission recommendations according to which national MH budgets should receive between 5% (low- and middle-income countries) and 10% (high-income countries) of the total healthcare [27]. Certainly, greater national MH expenditure was



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linked to better quality of care in psychiatry [28], including lower suicide rates [29]. Also, MH prevention yields a high long-term return on investment [30].

Regarding quality of care, Denmark (10.0), Ireland (9.4) and Sweden (8.7) showed the highest performance, whereas Romania (1.0), Slovakia (1.4), Bulgaria and Latvia (1.5) had the poorest quality of care. Despite MH becoming a top priority in the political agenda of European governments and institutions [31], up to 6.2% Europeans reported unmet MH needs due to financial issues in 2022, ranging from 1.1% (Romania) to 29.8% (Finland). [5]. These *apparent* between-country differences, however, may well reflect quality of data and reporting issues, including the influence of stigma, which tends to discourage people from talking openly about MH [11].

**Responsiveness in workplaces, schools and society**

Regarding responsiveness in workplaces, Germany (10), Finland and Belgium (9.4) reached the best performance, while Greece (1.0); Slovakia (1.4) and Czechia and Hungary (3.4) had the lowest scores. Overall, almost 2 in 3 Europeans with mental disorders were found to be unemployed and get paid, on average, 30% lower wages than their counterparts. Indeed, MH patients face exclusion from work, largely due to stigma and discrimination, which prevents from recovery [11,32]. Labour market integration policies should be promoted [33,34], which also reduced suicide risk [35], while community-based mental healthcare effects on return-to-work outcomes are less clear [36]. Although the WHO developed specific guidelines on MH promotion at work [37], guidelines compliance and their effects on health and social outcomes remain to be established [38].

In terms of responsiveness in schools, France (10.0), Latvia and Lithuania (8.6) achieved the best performance, whereas Slovakia (1.0), Cyprus (2.2) and Greece (2.4) had the poorest results. It is well-established that for almost 2 in 3 MH patients the illness onset occurs before age 25, with a peak at 14.5 years [39]. In Europe, full-time compulsory education/training usually lasts 10-11 years and ends at the age of 15-16 years [40]. Our results revealed that overall performance on responsiveness in schools negatively correlated with overall MH status and suicide rates -better performance at schools, poorer MH status,



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279 including higher suicide rates-. However, up to 20% of European children were showed to
280 experience MH problems during their school years and a comparable proportion reported
281 feelings of unhappiness and anxiety about the future, which was linked to bullying,
282 challenging schoolwork and loneliness [5]. In addition, EU Countries widely differed in the
283 ability to provide MH prevention and promotion programmes at schools and between 7.5%
284 (Estonia) and up to 21.5% (The Netherlands) of school drop outs were children with mental
285 disorders [41]. Hence, few would question the appropriateness of schools as 'the right place
286 at the right time' for early intervention [12,42]. Consistent with this, targeted prevention
287 programmes reduced depression and anxiety symptoms [43], whereas universal school-
288 based interventions prevented suicidal behaviour in adolescents [44]. In addition, school-
289 based MH promotion programs focused on resilience may aid students in manage their own
290 stress [45], which could be delivered through digital technologies [46]. MH clinical liaison
291 teams appear to facilitate access to care [47,48], which should result in better long-term
292 outcomes, although this remains to be demonstrated.

293 Regarding responsiveness in society, Germany (10), France (9.3) and Sweden (8.6)
294 achieved the highest performance, while Greece (1.0), Estonia (2.0) and Romania (3.1) had
295 the poorest performance. Of note**,** there was a negative association between responsiveness
296 in society, especially MH promotion programs, and MH status -poorer MH status, better
297 responsiveness-. From a societal perspective, stigma and discrimination were identified as
298 the main areas of concern for improving people's MH [11]. Stigma was defined as the co-
299 occurrence of stereotyping, separating, status loss, and discrimination in the context of
300 power inequities [49]. While the youth may particularly benefit from anti-stigma campaigns
301 [50], such as the England-based Time-to-Change [51], especially in the short-term [51], their
302 long-term effects remain far from clear [52].

303 **Next steps**

304 In the first Headway-based article (Lopez-Morinigo et al., this issue), we examined the
305 MH status of Europeans and its determinants. Interestingly, overall KPIs scores on
306 responsiveness in workplaces ($r$ = -0.46, $p$ = .014), schools ($r$ = -0.59, $p$ < .001) and society



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($r$ = -0.53, $p$ = .003) negatively correlated with overall KPIs scores on MH status -better responsiveness, worse MH status-. On the other hand, the correlation between overall performance in responsiveness in healthcare and MH status did not reach significance ($r$ = -0.34, $p$ = .075). Taken together, these findings deserve some consideration. First, it seems that responsiveness to people's MH needs may largely occur in workplaces, schools and society rather than in healthcare systems. Second, there was a negative correlation between MH status and responsiveness -better status, worse responsiveness-. Whether more responsive countries succeeded in meeting pre-existing greater MH needs (i.e., a positive result) or they failed to address people's MH issues (i.e., a negative result) remains to be clarified. Of relevance, overall KPIs scores on determinants, which were not linked with MH status KPIs (Lopez-Morinigo et al, this issue), positively correlated with responsiveness in HC ($r$ = 0.41, $p$ = .031) and in workplaces ($r$ = 0.40, $p$ = .034). This noted, further theoretical debate about the appropriateness of KPIs for the evaluation of public MH policies is still warranted.

Indeed, the lack of comprehensive, independent and comparable data poses a major barrier to the development of a monitoring and evaluation/accountability framework in MH policymaking. To address this challenge, within the United Nations Sustainable Development Goals agenda the Countdown Global Mental Health 2030 was designed, which collected data on 48 indicators from 15 sources covering 193 countries across the globe. Specifically, indicators were clustered around three themes: determinants of MH and factors shaping MH needs and their response [53]. Easily-accessible datasets, such as the European Headway Initiative [15] and the Countdown Global Mental Health [53], may inform public MH policymaking, including between-country comparisons, whereas researchers may generate novel real-world hypotheses. However, these data-driven approaches are not exempt from criticism, namely the extent to which somehow arbitrarily chosen KPIs really align with the population MH needs and the time required to evaluate MH policy changes.

In particular, this study results may contribute to future evidence-based MH policies aimed to address Europe-level and country-specific challenges. To this end, scientific



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societies, such as the EPA and the WPA, are committed to providing strong leadership. This being said, it is worth noting that more than 9 in 10 healthcare interventions subject to Cochrane Reviews were not supported by high-quality evidence, while harms do not tend to get published [54]. In addition, health authorities must bridge the gap between research evidence, clinical guidelines recomendations and approved interventions by regulatory bodies, especially in children and adolescents with serious mental illness [55,56].

Of relevance, MH policymaking is not exempt from compliance with international codes of ethics in psychiatry [57]. To this end, the ongoing dialogue between the EPA and the WPA [58] and closer collaboration between national psychiatric associations [59] will be essential. Digital MH raises ethical issues about privacy and use of personal data, which is particularly relevant to children and adolescents [60]. More broadly speaking, public MH also faces the challenge of appropriately timing and targeting interventions, which is crucial from staging models [61], not to mention the sometimes blurred boundaries between health and disease in MH [60].

In order to address the increased MH needs after the COVID-19 pandemic, some MH action plans have been made by European governments. For instance, since 2021 the UK government has offered training grants for senior mental health leads to all state schools and colleges, whereas in Spain a 24-hour suicide prevention hotline became available that same year. In 2022 MH services in Belgium were reformed to facilitate access to care from schools, sport facilities and work. One year later, the 2023 German Centre for Mental Health (DZPG) research network was launched. In Italy since 2023/2024 a psychologist can be accessed both in schools and in Primary Care (i.e., “Psicologo di base”) [15].

In light of our results, further evidence-based public MH interventions can be recommended. In order to enhance responsiveness in healthcare systems, not only higher MH expenditure is required, but also optimisation of available resources, such as so-called digital MH [62]. Labour market integration policies may make the onset of work-related mental disorders less likely [33,34]. In schools MH promotion programs [46] and clinical



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liaison teams [48] may become key primary and secondary (i.e., early detection/intervention) preventive strategies, respectively. Finally, from a societal approach anti-stigma campaigns should facilitate professional help-seeking by MH patients [11]. See Table 6 for further details.

**Insert Table 6 here**

## Strengths and limitations

The Headway Initiative collected cross-national population-level data on 54 MH-related KPIs, including MH status and determinants (Lopez-Morinigo et al., this issue) and responsiveness of the systems to the population MH needs. Data came from official, authoritative open-access datasets, such as Eurostat, WHO or the OECD, thus ensuring the replicability of the study. Owing to this methodology, some evidence-based public MH interventions were recommended.

However, three main limitations of this study should be acknowledged. First, the Headway methodology relied on national datasets which differed in quality of data and data availability (i.e., under- and over-reporting issues), including cross-national cultural differences. Also, data on KPIs were collected in different years depending on data availability, i.e., from the most recent year when the variable data were available. In addition, it is worth noting that 'association does not mean causation' [63] and caution is needed when inferring causality from the above bivariate correlations. Second, further non-tested KPIs, such as psychiatric medication availability and compliance and/or funding source of healthcare systems may have altered the results. Third, the Headway Initiative adopted both analytical and qualitative approaches, which, although unlikely, may have biased the results. In particular, the Headway Mental Health Index aimed to comparatively measure European countries' relative performance on a number of MH-related KPIs, thus ranking them rather than cross-comparing raw data on the above variables.

## Conclusions

The world is facing an unprecedented MH crisis, which requires a high degree of responsiveness in healthcare systems, but also in workplaces, schools and society. In this



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respect, the Headway Mental Health Index proved useful in assessing up to 54 MH-related KPIs across European countries, which may also monitor changes over time. This study findings may therefore guide future evidence-based European MH policies.

MH has become a top priority for European institutions [31]. It is therefore in our hands not to miss this unique opportunity to make a change in European MH policymaking. Enhancing our countries' responsiveness to their citizens' MH needs will benefit both the current and future generations.



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## DATA AVAILABILITY STATEMENT:

All the data supporting the findings of this study are available in the online supplementary material.

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## AUTHOR CONTRIBUTIONS:

Conceptualization: JDLM, AF, GD, CA. Data curation: JDLM. Formal analysis: JDLM. Methodology: JDLM, AF, GD, CA. Project administration: JDLM, CA. Supervision: AF, GD, CA. Validation: JDLM, AF, GD, CA. Visualization: JDLM, AF, GD, CA. Writing-original draft: JDLM. Writing-review and editing: JDLM, AF, GD, CA.

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## CONFLICTS OF INTEREST:

JDLM, AF and GD declare no conflicts of interest. CA has been a consultant to or has received honoraria or grants from Acadia, Angelini, Biogen, Boehringer, Gedeon Richter, Janssen Cilag, Lundbeck, Medscape, Menarini, Minerva, Otsuka, Pfizer, Roche, Sage, Servier, Shire, Schering Plough, Sumitomo Dainippon Pharma, Sunovion and Takeda.

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612 Figura 1

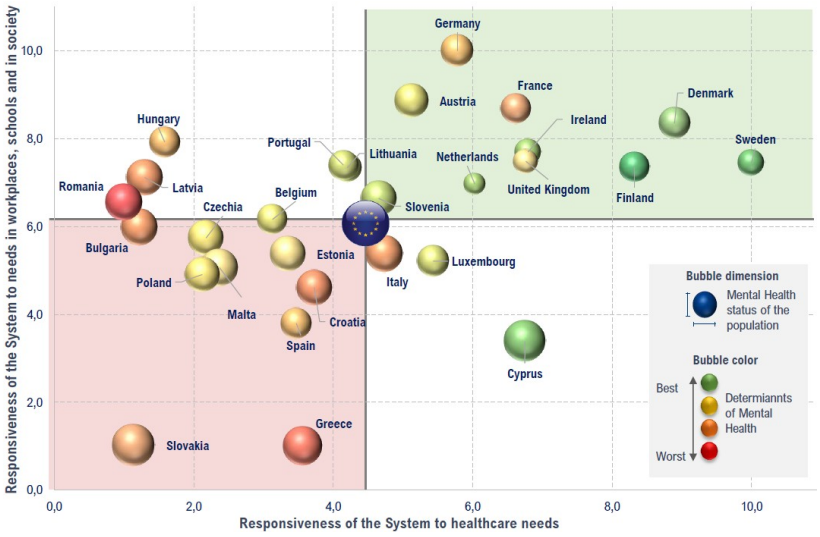


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**Table 1. KPIs in Responsiveness to mental health needs in healthcare across European countries**

| Key Performance Indicators | Variable | Measure | Data Source |
|---|---|---|---|
| ***Workforce*** | Psychiatrists | Rate per 100,000 inhabitants | Eurostat, 2021 |
| | Child Psychiatrists | Rate per 100,000 inhabitants | WHO Mental Health Atlas, 2020 |
| | Psychologists | Rate per 100,000 inhabitants | WHO Mental Health Atlas, 2020 |
| | Mental Health Nurses | Rate per 100,000 inhabitants | WHO Mental Health Atlas, 2020 |
| ***Facilities*** | Psychiatric hospital beds | Rate per 100,000 inhabitants | Eurostat, 2021 |
| | Child and Adolescent inpatient beds | Rate per 100,000 inhabitants | Signorini et al., 2017 |
| | Psychiatric hospitals | Rate per 100,000 inhabitants | WHO, 2019 |
| | Psychiatric units in general hospitals | Rate per 100,000 inhabitants | WHO, 2019 |
| | Community mental health facilities | Rate per 100,000 inhabitants | WHO, 2019 |
| ***Quality of care*** | Hospital discharge rates | Rate per 100,000 inhabitants | OECD |
| | Length of stay | Days | OECD |
| | Mental Health consultations | Rate per 100,000 inhabitants | Eurostat, 2019 |
| | Unmet needs due to finances | % | Eurostat, 2019 |
| | Published psychiatric articles | Rate per 100,000 inhabitants | Scimago, 2022 |
| ***Economic resources for Mental Health*** | % of total health expenditure | % on Healthcare Expenditure | WHO, 2011 |

616 URLs:
617 Eurostat, 2021: https://ec.europa.eu/eurostat/databrowser/view/hlth_rs_physcat__custom_11584649/default/table?lang=en
618 WHO Mental Health Atlas: https://apps.who.int/gho/data/view.main.HWF11v
619 Signorini et al., 2017: https://pubmed.ncbi.nlm.nih.gov/28596067/
620 WHO: https://apps.who.int/gho/data/node.main-eu.MHFAC?lang=en
621 OECD: data-
622 explorer.oecd.org/vis?df[ds]=DisseminateFinalDMZ&df[id]=DSD_HEALTH_PROC%40DF_KEY_INDIC&df[ag]=OECD.
623 ELS.HD&dq=.IMMUN.....&pd=2010%2C&to[TIME_PERIOD]=false
624 Eurostat, 2019: https://ec.europa.eu/eurostat/databrowser/view/hlth_ehis_am6e/default/table?lang=en
625 Scimago, 2022: https://www.scimagojr.com/countryrank.php?year=2023&order=ci&ord=desc&category=2738
626 WHO, 2011: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/government-expenditures-on-mental-
627 health-as-a-percentage-of-total-government-expenditures-on-health-(-)
628



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**Table 2. Responsiveness to mental health needs in workplaces, schools and society**

| Key Performance Indicators | Variable | Measure | Data Source |
|---|---|---|---|
| **Workplaces** | Average gross wage for people with MD compared with those without MD | % | OECD, 2013 |
| | Employment rate among people with MD | % | OECD, 2010 |
| | Paid sick leave benefits for people with MD | Euros per inhabitant | Eurostat, 2021 |
| | Unemployment benefits for people with MD | Euros per inhabitants | Eurostat, 2021* |
| | Job quality among people with MD | Survey score | Eurofound |
| | MH programmes in workplaces | Number, type | WHO[1] |
| **Schools** | Community facilities for those with MD | Rate per 100,000 inhabitants | WHO[2] |
| | School drop-outs among those with MD | % | OECD |
| | MH Promotion programmes | Number, type | WHO[3] |
| **Society** | Social workers | Rate per 100,000 inhabitants | WHO[4] |
| | Occupational Therapists | Rate per 100,000 inhabitants | COTEC |
| | Social support | % of over-15 reporting poor social support | Eurostat, 2019 |
| | Hospital beds | Rate per 100,000 inhabitants | Eurostat, 2022 |
| | Disability benefits | Per capita expenditure for MD people | Eurostat |
| | MH promotion programmes | Number, type | WHO |

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631



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URLs:

OECD, 2013: www.oecd-ilibrary.org/social-issues-migration-health/persons-with-mental-health-conditions-have-lower-wages-than-those-without_d8c41b45-en

OECD, 2010: www.oecd-ilibrary.org/sites/ea07586c-en/index.html?itemId=/content/component/ea07586c-en

Eurostat, 2021: https://ec.europa.eu/eurostat/databrowser/view/spr_exp_fsi__custom_11609858/default/table?lang=en

Eurostat, 2021*: ec.europa.eu/eurostat/databrowser/view/spr_exp_fsi__custom_11609858/default/table?lang=en

Eurofound: https://www.eurofound.europa.eu/en/data-catalogue/european-working-conditions-telephone-survey-2021-0

WHO1:

WHO2

OECD:

WHO3

WHO4: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/social-workers-working-in-mental-health-sector-(per-100-000)

COTEC: https://www.coteceurope.eu/wp-content/uploads/2023/06/Summary-of-the-Profession-2023.pdf

Eurostat, 2019: https://ec.europa.eu/eurostat/databrowser/view/hlth_ehis_ss1b/default/table?lang=en&category=hlth.hlth_det.hlth_senv

Eurostat, 2022: https://ec.europa.eu/eurostat/databrowser/view/hlth_rs_bds1__custom_11597103/default/table?lang=en

Eurostat, 2021: https://ec.europa.eu/eurostat/databrowser/404-product/SPR_EXP_SUM__custom_256520?lang=en



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**Table 3. Headway Initiative Scores on Key Performance Indicators in Responsiveness in Healthcare**

| | Workforce | Facilities | Quality of care | Economic resources | FINAL SCORE |
|---|---|---|---|---|---|
| Austria | 5,6 | 7,3 | 4,6 | 2,7 | 5,1 |
| Belgium | 5,4 | 3,4 | 4,8 | 2,1 | 3,1 |
| Bulgaria | 1,0 | 7,9 | 1,5 | 1,0 | 1,2 |
| Croatia | 3,3 | 8,0 | 3,0 | 2,7 | 3,7 |
| Cyprus | 3,0 | 9,6 | 7,5 | 3,1 | 6,4 |
| Czechia | 2,6 | 6,1 | 2,3 | 2,6 | 2,2 |
| Denmark | 8,3 | 6,7 | 10,0 | 3,6 | 8,8 |
| Estonia | 3,7 | 7,6 | 3,3 | 1,7 | 3,3 |
| Finland | 10,0 | 7,3 | 6,0 | 4,3 | 8,3 |
| France | 6,0 | 5,1 | 2,6 | 10,0 | 6,6 |
| Germany | 7,1 | 1,5 | 3,8 | 9,4 | 5,8 |
| Greece | 3,9 | 8,4 | 2,7 | 1,8 | 3,6 |
| Hungary | 2,5 | 5,9 | 2,5 | 1,9 | 1,8 |
| Ireland | 5,3 | 5,9 | 9,4 | 3,3 | 6,7 |
| Italy | 4,1 | 9,9 | 3,6 | 1,7 | 4,7 |
| Latvia | 2,7 | 4,1 | 1,5 | 3,1 | 1,2 |
| Lithuania | 5,6 | 7,7 | 2,4 | 2,7 | 4,3 |
| Luxembourg | 5,5 | 5,3 | 4,4 | 5,8 | 5,4 |
| Malta | 2,5 | 3,6 | 3,3 | 4,6 | 2,3 |
| Netherlands | 9,7 | 1,0 | 8,6 | 2,9 | 6,0 |
| Poland | 2,5 | 7,5 | 1,7 | 1,8 | 2,1 |
| Portugal | 1,9 | 8,7 | 4,0 | 3,5 | 4,2 |
| Romania | 2,0 | 6,2 | 1,0 | 1,8 | 1,0 |
| Slovakia | 2,1 | 5,5 | 1,4 | 2,2 | 1,1 |
| Slovenia | 2,8 | 10,0 | 2,4 | 3,9 | 4,6 |
| Spain | 2,5 | 7,3 | 3,2 | 3,3 | 3,4 |
| Sweden | 6,9 | 8,7 | 8,7 | 7,1 | 10,0 |
| United Kingdom | 4,1 | 7,5 | 7,1 | 5,2 | 6,7 |
| EU-27 + UK | 4,7 | 6,1 | 4,1 | 5,0 | 4,9 |

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**Table 4. Headway-transformed KPIs scores in responsiveness in workplaces, society and schools**

| | Workplaces | Schools | Society | FINAL SCORE |
|---|---|---|---|---|
| Austria | 7,8 | 7,6 | 7,4 | 9,0 |
| Belgium | 9,4 | 4,0 | 6,1 | 6,4 |
| Bulgaria | 3,7 | 5,2 | 4,5 | 6,1 |
| Croatia | 5,4 | 6,7 | 3,7 | 4,7 |
| Cyprus | 5,6 | 2,2 | 3,7 | 3,5 |
| Czechia | 3,4 | 4,1 | 7,5 | 5,6 |
| Denmark | 8,9 | 7,5 | 7,2 | 9,1 |
| Estonia | 4,9 | 7,4 | 2,0 | 5,5 |
| Finland | 9,4 | 7,5 | 4,7 | 7,6 |
| France | 8,9 | 10,0 | 9,3 | 9,1 |
| Germany | 10,0 | 8,1 | 10,0 | 10,0 |
| Greece | 1,0 | 2,4 | 1,0 | 1,0 |
| Hungary | 3,4 | 9,0 | 7,5 | 8,0 |
| Ireland | 8,2 | 6,3 | 6,6 | 7,9 |
| Italy | 6,2 | 6,8 | 3,9 | 5,6 |
| Latvia | 4,5 | 8,6 | 4,8 | 7,3 |
| Lithuania | 4,8 | 8,6 | 7,2 | 7,5 |
| Luxembourg | 9,2 | 3,7 | 6,7 | 6,0 |
| Malta | 6,0 | 4,2 | 4,0 | 5,6 |
| Netherlands | 9,2 | 4,9 | 3,3 | 7,1 |
| Poland | 6,6 | 5,3 | 6,0 | 5,0 |
| Portugal | 5,0 | 7,3 | 6,0 | 7,5 |
| Romania | 4,0 | 6,0 | 3,1 | 6,3 |
| Slovakia | 2,4 | 1,0 | 3,5 | 1,0 |
| Slovenia | 4,3 | 7,9 | 5,7 | 7,0 |
| Spain | 4,7 | 5,1 | 4,5 | 4,1 |
| Sweden | 6,4 | 5,1 | 8,6 | 8,0 |
| United Kingdom | 4,5 | 8,4 | 6,2 | 7,6 |
| EU-27 + UK | 6,7 | 7,0 | 6,5 | 7,1 |

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**Table 5. Relationship between mental health status and responsiveness across EU-27+UK countries**

| | Prevalence | | Incidence | | YLD_AD | | YLD_20 | | Mortality | | Suicide | | STATUS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *r* | *p* | *r* | *p* | *r* | *p* | *r* | *p* | *r* | *p* | *r* | *p* | *r* | *p* |
| ***Healthcare*** | **-0.41** | **.030** | **-0.67** | **<.001** | -0.19 | .323 | -0.18 | .367 | **-0.43** | **.021** | 0.01 | .981 | -0.34 | .075 |
| *Workforce* | -0.27 | .170 | **-0.48** | **.010** | -0.07 | .724 | -0.11 | .586 | **-0.38** | **.044** | -0.19 | .329 | **-0.49** | **.008** |
| Psychiatrists | -0.32 | .093 | **-0.39** | **.041** | -0.18 | .366 | -0.15 | .433 | -0.24 | .214 | -0.21 | .272 | -0.33 | .089 |
| Child psychiatrists | -0.19 | .321 | -0.32 | .101 | 0.02 | .927 | -0.03 | .897 | -0.19 | .330 | -0.18 | .370 | -0.31 | .108 |
| Psychologists | -0.28 | .144 | -0.35 | .069 | -0.08 | .675 | -0.16 | .400 | **-0.40** | **.033** | -0.07 | .734 | -0.34 | .075 |
| Nurses | -0.01 | .941 | **-0.42** | **.025** | 0.03 | .864 | 0.03 | .882 | -0.33 | .091 | -0.14 | .476 | **-0.52** | **.005** |
| *Facilities* | -0.08 | .681 | 0.10 | .594 | 0.01 | .970 | 0.07 | .771 | 0.32 | .096 | 0.07 | .715 | 0.31 | .106 |
| Psych beds | -0.34 | .072 | -0.29 | .131 | -0.18 | .346 | -0.21 | .292 | 0.01 | .978 | 0.37 | .052 | 0.30 | .126 |
| Child adoles beds | -0.23 | .235 | -0.12 | .530 | 0.16 | .411 | -0.09 | .665 | 0.15 | .452 | 0.34 | .073 | 0.39 | .037 |
| Psych Hospitals | -0.05 | .579 | 0.24 | .214 | 0.01 | .980 | -0.02 | .924 | -0.02 | .922 | 0.14 | .463 | 0.17 | .373 |
| Psych Units | 0.14 | .550 | -0.12 | .590 | -0.22 | .338 | -0.08 | .724 | 0.06 | .786 | 0.20 | .395 | 0.29 | .196 |
| CMHTs | 0.31 | .107 | **0.43** | **.021** | **-0.49** | **.008** | **0.49** | **.008** | **0.52** | **.017** | **-0.70** | **.001** | -0.31 | .108 |
| *Quality of care* | -0.31 | .112 | **-0.51** | **.005** | -0.12 | .426 | 0.06 | .744 | -0.20 | .296 | 0.15 | .438 | -0.17 | .394 |
| Hospital discharge | **-0.45** | **.015** | **-0.41** | **.031** | -0.45 | .016 | -0.25 | .205 | -0.09 | .656 | **0.46** | **.014** | 0.26 | .176 |
| LOS | 0.03 | .860 | 0.12 | .539 | -0.09 | .660 | 0.22 | .252 | 0.13 | .511 | -0.10 | .616 | -0.04 | .855 |
| Consultations | -0.12 | .535 | -0.34 | .079 | -0.09 | .653 | 0.16 | .414 | -0.28 | .153 | -0.18 | .367 | -0.36 | .062 |
| Unmet needs | -0.19 | .330 | -0.26 | .185 | -0.23 | .249 | -0.13 | .508 | -0.28 | .160 | 0.25 | .200 | 0.09 | .625 |
| Articles | **-0.41** | **.028** | **-0.73** | **<.001** | -0.23 | .240 | -0.16 | .416 | **-0.49** | **.008** | 0.16 | .426 | -0.33 | .083 |
| *Health expenditure* | -0.16 | .410 | **-0.40** | **.032** | -0.13 | .429 | -0.19 | .333 | **-0.43** | **.024** | -0.05 | .818 | -0.27 | .177 |
| ***Workplaces*** | -0.19 | .329 | **-0.47** | **.012** | 0.02 | .916 | -0.06 | .761 | **-0.49** | **.009** | -0.12 | .541 | **-0.46** | **.014** |
| Gross wage | 0.27 | .156 | 0.15 | .459 | 0.34 | .073 | 0.20 | .304 | 0.01 | .946 | -0.10 | .620 | -0.13 | .521 |
| Employment rate | 0.19 | .333 | 0.02 | .902 | 0.15 | .443 | 0.11 | .584 | -0.13 | .497 | -0.12 | .543 | -0.17 | .384 |
| Sick leave benefits | -0.23 | .229 | -0.36 | .058 | -0.05 | .787 | -0.16 | .415 | **-0.41** | **.028** | -0.03 | .873 | -0.34 | .073 |
| Unemployment benefits | -0.33 | .085 | **-0.64** | **<.001** | -0.23 | .236 | -0.18 | .362 | -0.11 | .581 | 0.11 | .580 | -0.01 | .979 |
| Promotion programs | -0.18 | .361 | -0.19 | .334 | 0.02 | .933 | 0.03 | .866 | -0.29 | .129 | -0.24 | .225 | **-0.40** | **.034** |
| Job quality | -0.16 | .423 | -0.32 | .395 | -0.07 | .739 | -0.17 | .395 | **-0.56** | **.002** | 0.04 | .847 | -0.35 | .067 |
| ***Schools*** | 0.03 | .890 | 0.07 | .726 | 0.30 | .119 | 0.13 | .516 | -0.22 | .257 | **-0.63** | **.001** | **-0.59** | **.001** |
| Community facilities | -0.30 | .115 | **-0.37** | **.049** | -0.14 | .485 | -0.18 | .365 | -0.24 | .218 | -0.08 | .684 | -0.36 | .061 |
| School drop-outs | 0.18 | .340 | 0.35 | .064 | 0.44 | .019 | 0.29 | .129 | -0.03 | .878 | **-0.43** | **.023** | -0.21 | .294 |
| Promotion programs | 0.06 | .742 | 0.04 | .832 | 0.19 | .336 | 0.06 | .744 | -0.17 | .385 | **-0.57** | **.001** | **-0.53** | **.003** |
| ***Society*** | 0.08 | .699 | -0.14 | .478 | 0.07 | .717 | -0.14 | .462 | -0.29 | .133 | **-0.39** | **.043** | **-0.53** | **.003** |
| Social workers | -0.28 | .154 | **-0.45** | **.017** | -0.14 | .484 | -0.13 | .515 | -0.22 | .259 | -0.10 | .622 | -0.25 | .197 |
| Occupational therapists | -0.02 | .903 | **-0.40** | **.037** | 0.02 | .937 | 0.01 | .950 | **-0.42** | **.026** | -0.05 | .795 | -0.41 | .030 |
| Social support | -0.21 | .273 | -0.35 | .070 | -0.15 | .460 | -0.18 | .349 | -0.11 | .572 | 0.13 | .449 | -0.06 | .766 |
| Residential beds | **0.62** | **<.001** | **0.60** | **<.001** | 0.34 | .075 | 0.12 | .529 | 0.31 | .103 | -0.26 | .188 | 0.02 | .929 |
| Disability benefits | -0.14 | .477 | -0.35 | .067 | 0.00 | .99 | -0.12 | .529 | **-0.38** | **.046** | -0.03 | .882 | -0.35 | .067 |



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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Promotion programs | 0.02 | .913 | -0.03 | .889 | 0.02 | .919 | -0.03 | .872 | -0.26 | .181 | **-0.47** | **.011** | **-0.48** | **.010** |
| **Non-HC system** | -0.02 | .912 | -0.18 | .367 | 0.16 | .429 | -0.08 | .672 | **-0.50** | **006** | **-0.48** | **.010** | **-0.71** | **<.001** |

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**Table 6. Interventions on KPIs in responsiveness to mental health needs in healthcare, workplaces, schools and society**

| | ***Interventions*** | ***Type of prevention*** | ***Level of evidence*** | ***References*** |
|---|---|---|---|---|
| *Healthcare* | Digital Mental Health | Secondary & Tertiary | Umbrella Review | (Witteveen et al., 2022) |
| | Increased expenditure on MH | Secondary & Tertiary | National-based studies | (Nordentoft and Erlangsen, 2019; Salisbury et al., 2017) |
| *Workplaces* | Labour market integration policies | Universal Primary | National-based studies | (Curtis et al., 2019; Hammarström et al., 2024) |
| *Schools* | Clinical Liaison teams | Secondary & selected/indicated | Systematic Review | (McPhail et al., 2024) |
| | MH Promotion programs | Universal Primary | Meta-analysis | (Chen et al., 2024) |
| Society | Anti-stigma campaigns | Universal Primary | Further research is needed | (Thornicroft et al., 2022) |

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