THEORETICAL ARTICLE

The state of the art on European well-being research within the area of mental health

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Abstract As part of A Roadmap for Mental Health Research in Europe project, the aim of the present study was to perform a systematic mapping of the main publications in peer-reviewed journals for well-being research within the area of mental health or mental disorders in Europe. The PubMed and PsycINFO databases were used to identify papers on well-being within the area of mental health and mental disorders published from January 2007 to September 2014. Mean 5-year impact factors were obtained. The number of publications for each country was analysed by population size and gross domestic product (GDP). A total of 4,423 unique publications were identified. The number of publications increased for the analysed time period. France and the Netherlands had the highest 5-year mean impact factor. Publications per capita were higher in the Nordic countries, Ireland and the Netherlands. After adjusting for GPD, the most productive countries were the Nordic countries and the Netherlands. There is a marked variation in well-being publications by country in Europe. Eastern European countries produce little research taking into consideration the levels of resources available. Research on older adults was underrepresented and should be prioritised.
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Panorama actual de la investigación europea sobre el bienestar en el área de salud mental

Resumen   Como parte del proyecto ''Una Hoja de Ruta para la Investigación en Salud Mental en Europa'', el objetivo del presente estudio fue realizar un mapeo sistemático de las principales publicaciones sobre bienestar en el área de salud mental y trastornos mentales en Europa. Se utilizaron las bases de datos PubMed y PsycINFO para identificar los artículos publicados entre Enero de 2007 y Septiembre de 2014. Se obtuvieron factores de impacto medio en cinco años. El número de publicaciones para cada país se analizó por tamaño de la población y producto interior bruto (PIB). Se identificó un total de 4.423 publicaciones. El número de publicaciones fue en aumento durante el periodo de tiempo analizado. Francia y Holanda presentaron el mayor factor de impacto medio en cinco años. El número de publicaciones por habitante fue más elevado en los países nórdicos, Irlanda y Holanda. Al controlar por PIB, los países más productivos fueron los países nórdicos y Holanda. Existe una marcada variación por país en las publicaciones sobre bienestar en Europa. Los países del este de Europa producen escasa investigación, teniendo en cuenta los niveles de recursos disponibles. La investigación en personas mayores estuvo infrarrepresentada y debería ser una prioridad.

Well-being is becoming a social and political priority in Europe. Researchers in several behavioural and social-science disciplines have recommended supplementing objective economic and social indicators by subjective measures of how people experience their lives (Huppert et al., 2009). Therefore, a great deal of effort is underway to comprehend well-being and how to measure it (Helliwell, Layard, & Sachs, 2012). In France, the Commission on the Measurement of Economic Performance and Social Progress recommended collecting information on the well-being of the population in every country (Stiglitz, Sen, & Fitoussi, 2010). In the United Kingdom, the government asked the Office of National Statistics to develop new ways of measuring well-being in order to start keeping track of national progress on improving people's lives, rather than relying solely on economic growth figures (Self, Thomas, & Randall, 2012).

Some of the most widely accepted definitions of well-being are the one proposed by Diener, Suh, Lucas and Smith (1999) that defines well-being as ''a category of phenomena that includes a person's satisfaction with various domains of life, his/her global judgments of life satisfaction, and his/her current affective state measured as a time-weighted metric of amount of negative or positive emotions'' and the one proposed by Keyes and Lopez (2001) that states that well-being ''reflects individual's perception and evaluation of their own lives in terms of their affective states and psychological and social functioning''. Nevertheless, there is still a lack of consensus on the definition of well-being and its relationship with concepts such as quality of life, happiness and functioning in the health context (Salvador-Carulla, Lucas, Ayuso-Mateos, & Miret, 2014).

Diener and his colleagues (1999) in their reviews about subjective well-being research have shown that research on the field has progressed rapidly, moving from describing the demographic characteristics that correlate with well-being to understanding the processes that underlie happiness.

Furthermore, new methods for assessing subjective well-being besides global self-reports became available in the late nineties and at the beginning of the millennium (Diener et al., 1999). The evidence, available at the beginning from wealthier, westernised nations, has recently started to become available from large representative samples from diverse nations (Diener, 2012). Nevertheless, most of the evidence still comes from correlational studies, with few experimental, longitudinal and multi-method approaches (Diener, 2012).

Well-being is gaining momentum in the public health area. The World Health Organization's Regional Office for Europe has held several expert meetings on measurement and target-setting for well-being in order to provide guidelines on how to report well-being (World Health Organization. Regional Office for Europe, 2012a, 2012b).

The concept of well-being is especially relevant in the mental health and mental disorders area. Mental illness is the single most important cause of a low well-being (Helliwell, Layard, & Sachs, 2013). On the other hand, many voices have emphasised the importance of promoting positive mental health and well-being for the general population. The Foresight Mental Capital and Wellbeing project (2008) argued that achieving a small change in the average level of well-being across the population would produce a large decrease in the percentage of people with mental disorders, and also in the percentage of people who have a sub-clinical disorder.

A Roadmap for Mental Health Research in Europe (ROAMER) is a European project that has as one of its main objectives developing a roadmap on the promotion and integration of mental health research across European countries (Haro et al., 2014). As part of this international project, the aim of the present study was to perform a systematic mapping of the main publications in peer-reviewed journals for well-being research within the area of mental health or mental disorders in Europe. The research associated

with this paper was designed to inform the ROAMER by developing an accurate picture the state-of-the art of the research in this specific area. Understanding what research achievements have already been made would help identify existing research gaps, and ascertain which are the research advances needed for the future.

Method

In this theoretical study (Montero & León, 2007), a systematic mapping of the literature was used. The methodology based on the protocol described in Curran, Knapp, McDaid and Li (2007) for systematic multidisciplinary reviewing of the literature and the recommendations of Perestelo-Pérez (2013) were followed.

The literature review comprised three steps: In step one, published European studies about well-being within the area of mental health or mental disorders were searched and selected; in step two, data extraction from each study was performed; and in step three, the information extracted was analysed.

For step one, two electronic searches using the PubMed and PsycINFO databases were conducted. Each database has different search functions, and search terms were tailored accordingly. Where possible, the 'limits' function in each database was used to adjust the search to the inclusion and exclusion criteria. The search strategies included general terms for mental health, mental ill-health and mental disorders; terms for well-being; and geographical search terms for Europe. As the aim was to identify the most recent 'state of the art' research only papers published from 1 January 2007 to 30 September 2014 were included in the review. Academic peer-reviewed papers, covering original research papers and review papers (systematic reviews, non-systematic reviews and meta-analyses) published in the English language were included. No restrictions were made regarding the type of study, the study sample or outcome measures in order to be as inclusive as possible with the aim of being able to map all the research being carried out in the area. All studies had to be set in Europe (including EU-27 countries, EU Candidate countries and/or other European countries), and the corresponding author had to be from a European institution. Only publications including an abstract were considered.

The references were transferred to a software package for managing bibliographies and the duplicates were removed. Each paper was coded as either included or excluded, with a secondary code reporting the reason for rejection. Two different reviewers carried out the original mapping for the time period 2007-2011. Both of them independently reviewed 10% of the papers. The same searching procedures were replicated by two additional reviewers for publications between January 2012 and September 2014. A 10% of the articles were also double checked for this last time period.

In step two, codes were assigned to characterise each reference. The aim was to look at the characteristics of the papers identified, not the evidence contained in them. The mean 5-year impact factor for each European country was calculated based on the country of the corresponding author and considering the period of 2009-2013, which is the last

available 5-year mean impact factor reported in the Journal Citation Reports® (JCR). Publications in journals that were not indexed in JCR in 2013 were not considered to obtain the mean score. In the case that the 5-year impact factor was not available because in some of those years the journal was not indexed in JCR, the impact factor for 2013 was then used. To ensure representativeness of the mean 5-year impact factor by country, only countries with at least 10 publications were included in the analyses. Moreover, the percentages of articles from journals that were not indexed in the JCR and from journals in the first quartile in the JCR were also reported for 2013 according to the country of the corresponding author. A journal was considered as belonging to the first quartile when it was in the first quartile of any of the categories of the Science or Social Sciences editions of the JCR. A similar analysis was conducted considering only primary studies that included original data (i.e., excluding systematic reviews, non-systematic reviews and meta-analyses).

The type of study was classified as: 1) review studies (including systematic reviews, non-systematic reviews and meta-analyses); 2) experimental studies; and 3) observational studies. Articles were classified as undetermined if it was not possible to know the type of study.

Step three involved analysing the information collected. The kappa coefficient (Cohen, 1960) was employed as the statistical measure of inter-rater agreement regarding inclusion or exclusion of 10% double checked papers. As two different reviewers checked different time periods, a different kappa confident was calculated for the periods 2007-2011 and for 2012-2014; 95% confidence intervals (CI) for the kappa statistics were calculated using an analytical method (Fleiss, 1981). Descriptive and frequency analyses were conducted. The number of publications per year was reported for each of the four continental regions (Northern, Southern, Eastern, and Western Europe) established by the United Nations (2013). Considering data from the whole period (January 2007-September 2014), the association between type of study and continental region of the corresponding author was assessed by means of a chi-square test. Pearson correlation coefficients between number of publications in the period considered, and population and gross domestic product (GDP) were calculated. Moreover, partial correlation coefficients between number of publications and population (after adjusting for GDP), and between number of publications and GDP (after adjusting for population), were reported. The number of publications for each country was adjusted by population size (European Commission, 2013b) and GDP according to the most updated data (World Bank, 2013). Number of publications per 10 billion euros (€10,000,000,000) GDP was estimated. The statistical analyses were performed using Stata package version 11.0 (StataCorp., 2010).

Results

The search in PubMed produced 3,267 records whereas the search in PsycINFO produced 2,167 records. The number of identified records for screening and categorisation was reduced to 4,423 after exclusion of duplicates. After reviewing the abstracts 2,299 (52%) articles were excluded. The main reasons for excluding the papers from this review were
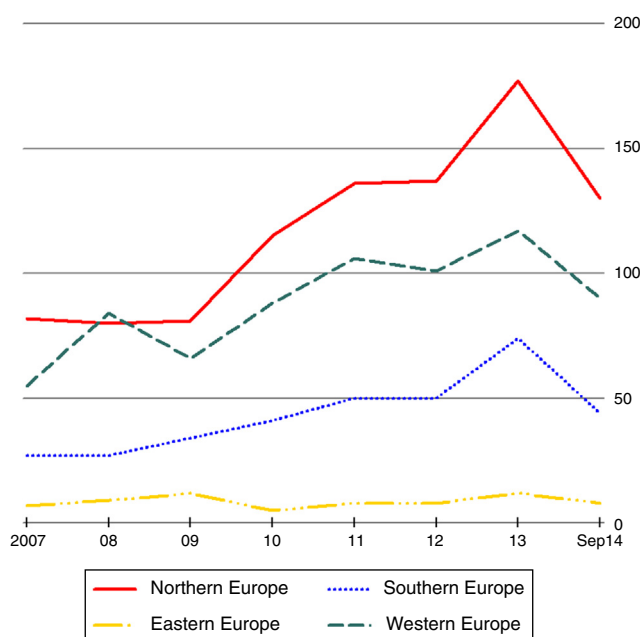
Figure 1 Number of publications per year in each European region.

'No mental health, mental-ill health or well-being content' (63.1%) and 'Corresponding author from outside Europe' (17.4%). Other causes were 'Not published between 2007 and 2014′ (3.1%), 'No European sample' (1.4%), 'Not an academic peer-reviewed paper' (.3%), and 'More than one of the previous reasons' (14.7%).

The percentage of agreement regarding whether to include or exclude each article between the two independent researchers who reviewed 10% of the papers was 85.65% for the period 2007-2011. Kappa coefficient was .71 (95% CI = .62, .80). Similar values of agreement were found between the two reviewers who conducted the mapping between January 2012 and September 2014, with a Kappa coefficient of .71 (95% CI = .62, .81) and a percentage of agreement of 85.92%, which also indicates good agreement.

The number of articles in the area of mental health and well-being exponentially increased during the period considered. The number of papers published in 2013 (the last full year considered in this review) doubled the number given in 2007. In absolute frequency terms, the number of articles published in 2007 was 178; in 2008, 205; in 2009, 197; in 2010, 253; in 2011, 307; in 2012, 308; in 2013, 393; and finally, in the first nine months of 2014, 280 articles. The number of publications per year and European region is shown in Figure 1. Results showed an overall increasing trend for all the European regions. Southern Europe showed the highest ratio (2.74) in the number of publications between 2007 and 2013, followed by Northern Europe (2.16) and Western Europe (2.13). Eastern Europe showed the lowest ratio of increment (1.71).

The number of articles by country, based on the corresponding author and the sample used, is shown in Table 1. The list is sorted by mean 5-year impact factor. A total of 87.5% of the articles was published in journals indexed in JCR in 2013. The overall mean 5-year impact factor for all countries was 3.04 (SD = 2.64), considering the 1,858 articles

that had been published in journals indexed in JCR. France had the highest mean 5-year impact factor (4.99 ± 8.78), followed by the Netherlands, the United Kingdom, Germany, Belgium, and Switzerland, with mean 5-year impact factors higher than 3. Norway, Finland, Austria, Italy, and Ireland had mean 5-year impact factors between 2.8 and 3. The percentage of articles from journals that are not in JCR, by country, is also shown in Table 1, as well as the percentage of articles from journals in the first quartile in JCR. Of the countries with a mean 5-year impact factor of 2.8 or higher, the Netherlands, Germany, Switzerland, Norway, Finland, and Austria had a percentage of articles not indexed in JCR lower than 10%; whereas France showed rates higher than 50% regarding the percentage of articles from journals in the first quartile in JCR.

According to the type of study, 1,456 articles (68.6%) were classified as observational studies, 438 (20.6%) as experimental studies, and 212 (10%) as review studies (including systematic reviews, non-systematic reviews and meta-analyses). The remaining 18 articles (.8%) were considered as undetermined. A significant relationship between the type of study and the continental region of the corresponding author was not found [χ^2 (6) = 11.02, $p = .09$].

Table 2 shows the number of publications, percentage of articles published in journals not indexed in JCR, mean 5-year impact factor, and percentage of articles in the first quartile, by country, considering only primary studies with original data (i.e., excluding review studies). The results obtained were similar to those described in Table 1, with France representing the country with the highest 5-year mean impact factor, followed by the Netherlands, Germany and the United Kingdom. Regarding the 212 studies that were classified as review studies, in 75 of them (35.7%) the corresponding author was from the United Kingdom, in 21 (10%) from Germany and in 20 (9.5%) from the Netherlands. In the remaining countries, the number of review articles was lower or equal than 15.

A correlation between number of publications and GDP was found ($r = .66$; $p < .001$), with a broad 95% CI (.44, .81). Partial correlation coefficient, after adjusting for population, was similar ($r = .68$, $r^2 = .46$, $p < .001$). In the case of the pairwise number of publications - population, the unadjusted correlation was moderate ($r = .35$; $p = .025$), with a broad 95% CI (.05, .60), where the lower bound was close to zero; after adjusting for GDP, the partial correlation coefficient between number of publications and population was similar to the unadjusted coefficient in magnitude, but in the opposite direction ($r = -.39$, $r^2 = .15$, $p = .015$), suggesting that the relationship between number of publications and population was influenced by GDP.

The number of publications from each European country, based on the corresponding author, was adjusted by the population size of each country to obtain the number of publications per population million for the period between January 2007 and September 2014. Iceland, Norway, the Netherlands, Finland, Sweden, and Ireland were the countries with the highest number of research publications per capita (Figure 2), followed by Switzerland, the United Kingdom, Denmark, and Belgium.

When the number of publications was adjusted by the GDP of each country, Iceland, Croatia, Finland, the Netherlands, and Sweden were lifted into the first level of
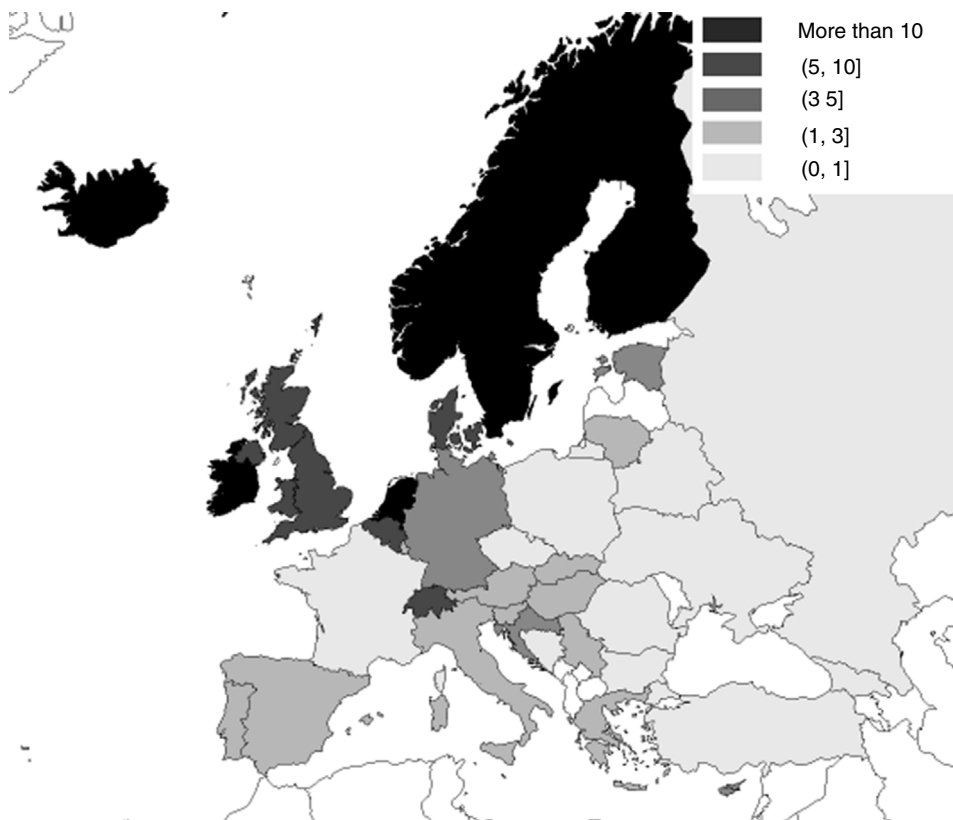
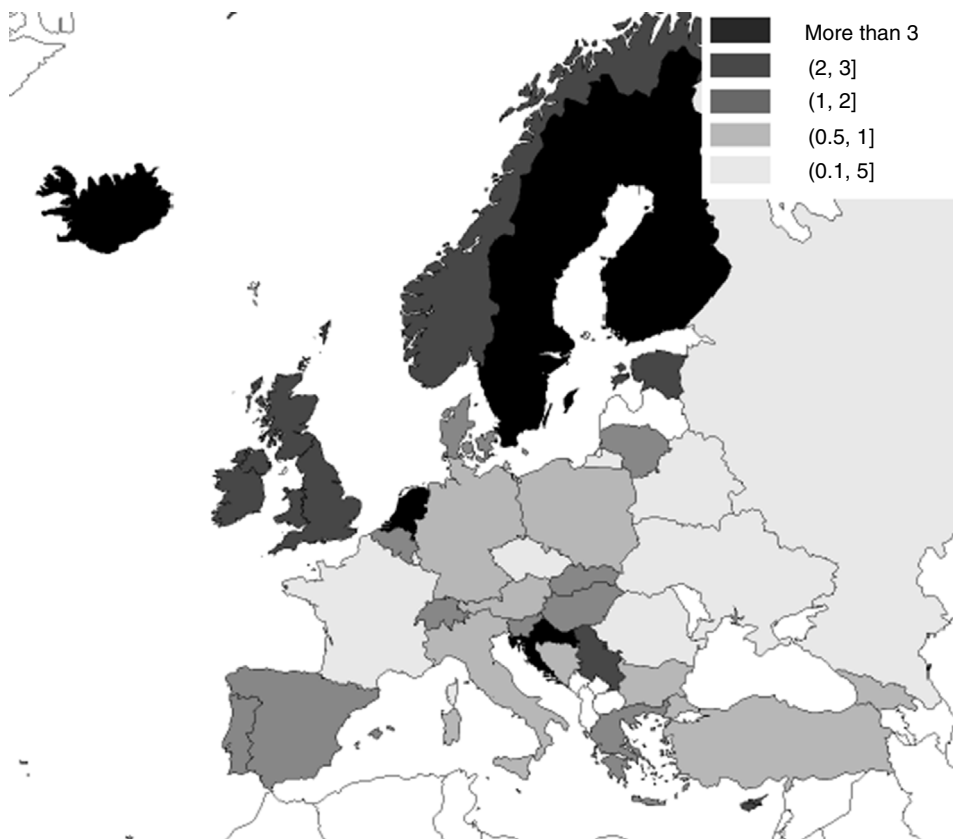**Figure 2**   Number of publications per million population.

Figure 3   Number of publications per 10 billion Euros GDP.

Table 1   Number of publications, mean 5-year impact factor and percentage of papers in the first quartile, by country. Countries sorted by mean 5-year impact factor.

Country	Articles whose corresponding author is from this country	Articles with sample from this country	Articles (%) from journals that are not in JCR[a]	Mean 5-year impact factor 2013 (Mean ± SD)	Articles (%) from journals in the first quartile in JCR[b]
France	37	24	5 (13.5)	4.99 ± 8.78	21 (56.7)
The Netherlands	273	180	13 (4.8)	3.57 ± 2.44	123 (45.1)
United Kingdom	515	400	95 (18.4)	3.40 ± 3.23	194 (37.7)
Germany	254	169	16 (6.3)	3.35 ± 2.91	110 (43.3)
Belgium	65	46	8 (12.3)	3.05 ± 1.68	28 (43)
Switzerland	65	41	3 (4.6)	3.03 ± 1.90	25 (38.5)
Norway	93	77	9 (9.7)	2.88 ± 1.69	33 (35.5)
Finland	87	71	7 (8)	2.86 ± 1.60	33 (37.9)
Austria	24	14	1 (4.2)	2.85 ± 1.72	9 (37.5)
Italy	140	92	16 (11.4)	2.82 ± 1.59	52 (37.1)
Ireland	48	39	15 (31.3)	2.80 ± 1.78	15 (31.3)
Spain	116	95	9 (7.8)	2.45 ± 1.29	33 (28.4)
Denmark	40	25	5 (12.5)	2.44 ± 1.41	8 (20)
Sweden	136	90	23 (16.9)	2.43 ± 1.28	40 (29.4)
Hungary	13	10	2 (15.4)	2.37 ± 1	4 (30.8)
Greece	24	22	4 (16.7)	2.36 ± 1.12	7 (29.2)
Poland	27	23	8 (29.6)	2.28 ± 2.03	4 (14.8)
Turkey	51	33	4 (7.8)	1.97 ± 1.04	16 (31.4)
Portugal	26	22	5 (19.2)	1.75 ± 1.18	5 (19.2)
Croatia	19	12	3 (15.6)	1 ± .88	1 (5.3)
Serbia	9	5	1 (11.1)	–	–
Slovakia	9	5	0 (0)	–	–
Iceland	8	10	0 (0)	–	–
Czech republic	6	5	0 (0)	–	–
Lithuania	5	4	2 (60)	–	–
Slovenia	5	3	0 (0)	–	–
Estonia	4	4	0 (0)	–	–
Cyprus	4	3	1 (25)	–	–
Bulgaria	4	2	3 (75)	–	–
Malta	2	2	1 (50)	–	–
Russia	2	2	1 (50)	–	–
Georgia	1	2	1 (100)	–	–
Ukraine	1	2	0 (0)	–	–
Belarus	1	1	0 (0)	–	–
Bosnia-Herzegovina	1	1	0 (0)	–	–
Romania	1	1	1 (100)	–	–
Luxembourg	1	0	1 (100)	–	–
Albania	0	1	–	–	–
Andorra	0	1	–	–	–
Azerbaijan	0	1	–	–	–

[a] Percentage calculated over the number of articles whose corresponding author is from this country.
[b] Percentage calculated over the number of articles from journals indexed in JCR whose corresponding author is from this country; Mean 5-year impact factor and percentage of articles in the first quartile in JCR were not reported for countries with less than 10 publications, according to the country of the corresponding author.

publications (Figure 3), followed, in the second level, by Malta, Ireland, Serbia, the United Kingdom, Cyprus, Norway, and Estonia. Belgium, Denmark, Portugal, Lithuania, Slovenia, Greece, Hungary, Switzerland, Slovakia, and Spain constituted a third level, where the number of publications was between one and two per 10 billion euros GDP. In the rest of the countries, the number of publications was lower than one per 10 billion euros GDP.

The majority of studies that specified the gender of the sample included both genders (86.3%) with only a small number focused on a specific gender (10.2% included females only and 3.5% males only). In 10.6% of the publications analysed, the sample comprised children, adolescents, or both age groups; in 62.9% of the papers, adults were the population participating in the study; the elderly were the population studied in 3.8%; and finally, in 22.7% of the

Table 2 Number of publications, mean 5-year impact factor and percentage of papers in the first quartile, by country, considering only primary studies with original data. Countries sorted by mean 5-year impact factor.

Country	Articles whose corresponding author is from this country	Articles with sample from this country	Articles (%) from journals that are not in JCR[a]	Mean 5-year impact factor 2013 (Mean ± SD)	Articles (%) from journals in the first quartile in JCR[b]
France	33	24	5 (15.2)	5.29 ± 9.38	18 (54.5)
The Netherlands	252	177	11 (4.4)	3.60 ± 2.51	113 (44.8)
Germany	231	166	15 (6.5)	3.28 ± 2.93	97 (42)
United Kingdom	436	384	75 (17.2)	3.17 ± 2	165 (37.8)
Belgium	58	46	7 (12.1)	2.99 ± 1.61	23 (40)
Switzerland	50	39	3 (6)	2.96 ± 1.77	18 (36)
Austria	23	14	1 (4.3)	2.92 ± 1.72	9 (39.1)
Finland	84	71	6 (7.1)	2.89 ± 1.61	33 (39.3)
Norway	89	77	7 (7.9)	2.81 ± 1.52	32 (36)
Ireland	41	38	12 (29.3)	2.79 ± 1.68	14 (34.1)
Italy	122	89	12 (9.8)	2.69 ± 1.32	42 (34.4)
Denmark	33	23	4 (12.1)	2.65 ± 1.38	7 (21.2)
Spain	111	95	9 (8.1)	2.46 ± 1.31	32 (28.8)
Sweden	125	90	21 (16.8)	2.45 ± 1.28	37 (29.6)
Hungary	13	10	2 (15.4)	2.37 ± 1	4 (30.8)
Greece	23	22	3 (13)	2.36 ± 1.12	7 (30.4)
Poland	24	23	7 (29.2)	2.25 ± 2.12	4 (16.7)
Turkey	47	33	4 (8.5)	1.93 ± 1	15 (31.9)
Portugal	25	22	4 (16)	1.75 ± 1.18	5 (20)
Croatia	14	12	3 (21.4)	1.19 ± 1.02	1 (7.1)
Slovakia	9	5	0 (0)	–	–
Iceland	8	10	0 (0)	–	–
Serbia	6	5	1 (16.7)	–	–
Lithuania	5	4	2 (40)	–	–
Czech Republic	4	5	0 (0)	–	–
Estonia	4	4	0 (0)	–	–
Cyprus	4	3	1 (25)	–	–
Slovenia	4	3	0 (0)	–	–
Bulgaria	3	2	2 (66.7)	–	–
Malta	2	2	1 (50)	–	–
Georgia	1	2	1 (100)	–	–
Russia	1	2	1 (100)	–	–
Ukraine	1	2	0 (0)	–	–
Belarus	1	1	0 (0)	–	–
Bosnia-Herzegovina	1	1	0 (0)	–	–
Romania	1	1	1 (100)	–	–
Luxembourg	1	0	1 (100)	–	–
Azerbaijan	0	1	–	–	–

[a] Percentage calculated over the number of articles whose corresponding author is from this country.
[b] Percentage calculated over the number of articles from journals indexed in JCR whose corresponding author is from this country; Mean 5-year impact factor and percentage of articles in the first quartile in JCR were not reported for countries with less than 10 primary studies, according to the country of the corresponding author.

papers, more than one age group (other than children and adolescents) was considered in the sample.

A total of 765 studies dealt with a specific mental disorder. The group of disorders most frequently studied were mood disorders, analysed in 200 studies (26.1%). This was followed by schizophrenia, schizotypal and delusional disorders with 133 studies (17.4%). Mental and behavioural disorders due to psychoactive substance use were reported in 84 studies (11%). Behavioural syndromes associated with psychological disturbances and physical factors (eating disorders, sexual dysfunctions, and sleep disorders mainly) were assessed in 83 studies (10.9%). Similarly, neurotic, stress-related or somatoform disorders appeared in 83 studies (10.9%). The remaining 182 studies (23.8%) dealt with other mental disorders.

Discussion

The purpose of this article was to present an overview of the current state of well-being research in Europe. The results

of this paper should be interpreted taking into account some limitations. Only articles published in the English language were included in the review, which might have left out some papers published in other languages. However, previous bibliometric research in other areas has found non-English language publications to account for only 3.5% of the total (Clarke et al., 2007). Furthermore, the results only reflect the country of the corresponding author's affiliation and not that of other authors; if all the authors had been taken into account, the amount of publications for each country would have been higher. If grey literature had been included, it might have generated different patterns of activity. Nonetheless, it was decided not to include it since the aim of the study was to map scientific publications and its inclusion does not guarantee the reduction of the publication bias (Martin, Pérez, Sacristán, & Álvarez, 2005).

Our results show an exponential increase in the number of publications from 2007 to 2014. This increase can be explained by the growing interest in the area of well-being in Europe in recent years, but may also reflect the increase in publications in related research areas, such as psychology (Leeuwen, 2013) and stigma and social exclusion related to mental health (Evans-Lacko et al., 2014). Nevertheless, the growth rate has not been the same in all the European regions. Southern Europe is the fastest-growing region in the time period considered, followed by Northern Europe and Western Europe. Eastern Europe is not only the region with the least amount of well-being literature, but also the one with the slowest growth.

On average, articles from France were published in journals with the highest mean 5-year impact factor, followed by the Netherlands, the United Kingdom, Germany, Belgium and Switzerland. The impact factor is a number calculated for each scientific journal based on the average number of times its articles have been cited in other articles (Alberts, 2013). For the purposes of the present study the impact factor has been used as an indicator of the research influence of the articles published, although it must be taken into account that impact factors are a measure of overall journal quality, and not of the quality of individual research articles (Alberts, 2013). It is important to note that the high 5-year mean impact factor in France was slightly biased by a paper published in one of the top-high impact factor journals, which also explains the high standard deviation reported by this country (8 points). Nonetheless, after excluding this high impact publication, France still ranked in the top list countries with a 5-year mean impact factor higher than 3.

As impact factors are different in different fields, and two journals with same impact factor can be in different quartile, the number of articles in the first quartile was also analysed. France, the Netherlands, Germany and Belgium were the countries with more papers in journals in the first quartile. The results were similar when only primary research was analysed.

The present study's results show a skewed distribution of publications in Europe. Nearly half of the studies were conducted in just three countries: the United Kingdom, the Netherlands, and Germany. When adjusted by each country's population size, the leading countries are the Nordic countries, the Netherlands and Ireland. Publications per capita are lower in Eastern European countries. When adjusted for GPD, the most productive countries are Iceland,

Croatia and Finland, Netherlands and Sweden. Southern and Eastern European countries appear to under-invest in well-being research. Our results suggest that GDP is a stronger predictor of publications than population size. This trend has also been shown in Europe in other areas, such as public health (Clarke et al., 2007) as well as in biomedical publications in other world regions (Rahman & Fukui, 2003). Although there is a correlation between GPD and number of publications, if GDP were the same across European countries, there would still be differences in well-being research across Europe.

Previous geographical analyses in other areas of research have found similar distributions. An analysis of the biomedical publications in Europe in the 1990s also showed that the Nordic countries and the Netherlands were the most productive countries in the European Union when the publications were normalised to population size and GDP (Hefler, Tempfer, & Kainz, 1999). Furthermore, a bibliometric analysis of public health research in Europe from 1995 to 2004 also found more publications per capita in the north and west of Europe (Clarke et al., 2007).

The results indicate an under-representation of older people in current well-being research in Europe. Although according to Eurostat (European Commission, 2013a) people aged 65 and over represent 18% of the population in Europe, older adults were the target group in a mere 3.8% of the papers analysed. Among the studies that dealt with a specific mental disorder, mood disorders were the disorders most frequently analysed. This shows that many research efforts are being carried out about the disorders causing the most disability-adjusted life years, which are major depressive disorder, followed by anxiety disorders and drug and alcohol use disorders, and schizophrenia (Murray et al., 2013).

The systematic mapping methodology allowed having an overview of the available evidence, a better understanding of what is known about well-being in the area of mental health and mental disorders across the life span, and identifying geographical disparity in research in Europe. These findings have important implications. Clinicians should be aware of the fact that some of the studies might not be generalizable to the population they work with, since almost 50% of the studies were conducted only in three countries from Northern and Western Europe and also because there are some populations, such as the older people, who are underrepresented in the studies. Researchers and research funding agencies should take into account that research investments in the area of well-being and mental health are needed in Eastern European countries. European Union funding incentives could help develop research capacity and collaborative opportunities especially in new EU Member States. Furthermore, research on older adults should be prioritised. The results of this mapping process are still being discussed in several workshops with scientific experts and stakeholders, and this information, together with the efforts from the other work packages, will contribute to creating a coordinated roadmap for the promotion and integration of mental health and well-being research in Europe.

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