

# Gender inequalities in mental wellbeing in 26 European countries: do welfare regimes matter?

Stefanie Dreger<sup>1,2</sup>, Thomas Gerlinger<sup>3</sup>, Gabriele Bolte<sup>1,2</sup>

1 Department of Social Epidemiology, Institute for Public Health and Nursing Research, University of Bremen, Bremen, Germany

2 Health Sciences Bremen, University of Bremen, Bremen, Germany

3 Department of Health Care Systems, Health Policy and Sociology of Health, Faculty of Health Sciences, University of Bielefeld, Bielefeld, Germany

**Correspondence:** Stefanie Dreger, Department of Social Epidemiology, Institute for Public Health and Nursing Research, University of Bremen, Grazer Straße 4, 28359 Bremen, Germany. Tel: +0421/218-68822, Fax: +0421/218-9868822, e-mail: stefanie.dreger@uni-bremen.de

**Background:** Nature and extent of welfare regimes and social policies are important determinants of health and health inequalities. This study examines the association of gender and mental wellbeing in European countries and investigates whether type of welfare regime plays a role in this association. **Method:** Data of 19 366 women and 14 338 men of the third round of the European Quality of Life Survey (2011–12) was used to analyse mental wellbeing, assessed by the World Health Organization 5—Mental Wellbeing Index. Multilevel logistic regression analyses were performed to analyse the association between gender and good mental wellbeing first at country-level, and secondly the between country variation was analysed and welfare regimes were included as explanatory variables. **Results:** We observed cross-national variation in good mental wellbeing. At country levels gender inequalities in good mental wellbeing were observed in 7 out of 26 countries. In analyses considering all countries together gender inequalities in good mental wellbeing were identified independent of further individual socio-demographic variables and independent of the welfare regimes that people lived in [women vs. men: OR=0.76; (95% CI=0.71–0.81)]. Gender inequalities in good mental wellbeing were not modified by welfare regimes. **Conclusion:** There are cross-national differences in good mental wellbeing between European countries. Gender inequalities with a lower prevalence of good mental wellbeing among women are common in European countries. This study suggests that welfare regimes do not modify these gender inequalities in mental wellbeing.

## Introduction

It is well documented that nature and extent of welfare regimes and social policies are important determinants of health and health inequalities, as they modify the impact of the socioeconomic position on health.<sup>1,2</sup> Welfare regimes have increasingly been considered within social epidemiology to analyse cross-national variations in population health.<sup>2–6</sup> However, up to now it is not clear which welfare regime arrangements are associated with smallest health inequalities.<sup>7</sup>

Recently the welfare regime categorization has also increasingly been used to analyse gender inequalities in health between men and women.<sup>8,9</sup> Women might have worse health due to lower socioeconomic position,<sup>9</sup> power<sup>10</sup> and resources,<sup>11</sup> weaker labor market attachment, double burden of paid work and household responsibilities<sup>12,13</sup> as well as less participation in the public sphere.<sup>9</sup> Gender inequalities in health are mainly socially produced. Thus they can be improved through policy changes.<sup>14</sup> Welfare regimes differ in the degree to which they influence the above-mentioned factors<sup>15</sup> to ensure that opportunities and resources are granted to women and men equally and by this they might moderate the relationship between gender and health. Also it has been shown that social provisions of welfare regimes, for example de-commodification and redistribution, might have different effects on men and women.<sup>11</sup> Equality in health can be promoted by valuing female and male attributes more equally, by holding less rigid gendered stereotypes of behavioral patterns,<sup>16</sup> or by access to health promoting resources.<sup>13,16</sup> Welfare regime typologies place those countries that are most similar together into clusters of welfare regimes, emphasising within regime coherence

and between regime differences.<sup>5</sup> Welfare regime arrangements are especially important to gender equality in health in terms of how the state interacts with the family structure<sup>17</sup> and thereby reduces the welfare burden on women.<sup>18</sup> Welfare regime policies aiming at gender equality may contribute to gender inequalities in health being smaller, or non-existent.<sup>19</sup> There are few European cross-national studies on gender inequalities in health. A recent review partially supports the hypothesis that gender inequalities in health are smaller in the social democratic welfare regime.<sup>20</sup>

The analysis of the impact of welfare regimes on gender inequalities in health is an intersectionality-informed approach. Within an intersectionality framework for analysis of health inequalities, the focus on only a single analytical category of social difference (e.g. gender) has limited explanatory power. Thus, the complexity of social inequalities has to be addressed by considering interactions between social determinants both at individual and structural levels. Moreover, at the individual level diversity between different groups of women and men has to be included rather than quantifying exclusively independent effects of inequality dimensions.<sup>21,22</sup>

Although welfare regime arrangement and social policies are increasingly studied as macrosocial determinants of health and inequalities in health,<sup>2–5</sup> there is scarcity of research on the association between welfare regimes and mental wellbeing. Mental health is namely more than the absence of disease but it includes a reflection of the presence of functioning in life and positive affect.<sup>23,24</sup> Studies provide empirical support that mental health consists of two dimensions: mental ill-health and mental wellbeing.<sup>23,24</sup> These two concepts are not two opposite sides of one continuum but rather constitute distinct, though correlated,

axes.<sup>24,25</sup> Especially whether welfare regime structures modify gender inequalities in mental wellbeing is not known. Thus, the aim of this study is to generate evidence on the relationship between welfare regimes and gender inequalities in mental wellbeing in European countries. By this, it complies with the claim in social epidemiology research to investigate macrosocial determinants of population health.<sup>26</sup>

## Methods

### Data

We used data of the third round of the European Quality of Life Survey (EQLS 2012).<sup>27</sup> In all countries, data was collected via face-to-face interviews at respondents' home, selected by multistage random sampling. Response rates ranged from >60% (Bulgaria, Poland, Slovakia) to below 30% (Luxembourg, UK). The overall response rate was 41% (Supplementary Table SA). Details on the survey and the sampling procedure are provided elsewhere.<sup>28</sup> The study sample used in this analysis consisted of 19 366 women and 14 338 men.

### Variables

#### Individual variables

Our dependent variable mental wellbeing was measured with the World Health Organization 5—Mental Wellbeing Index (WHO-5).<sup>29</sup> An average score of the index was calculated for the study population, based on all individuals of the 26 countries. Individuals with values above the 75% percentile were considered to have good mental wellbeing.

Our main independent variable was gender measured as man or woman. Age (in years), educational status (according to the International Standard Classification of Education, merged into 'primary or less', 'secondary' and 'tertiary'), working status ('working' and 'not working'), marital status ('living with a partner' and 'not living with a partner') and having children ('having children' and 'not having children') were considered as individual socio-demographic factors.

#### Contextual variables

At the contextual level countries were grouped according to the predominant welfare regimes. For this purpose we used the classification of Ferrera<sup>30</sup> that has been highlighted as one of the most empirically accurate welfare regime typologies<sup>5</sup> as adapted by Bambra and Eikemo<sup>3</sup> and Lunau et al.<sup>6</sup> We distinguished between six types of welfare regime: The Scandinavian, Anglo-Saxon, Bismarckian, Southern, Former Soviet Union (FSU) and Central and Eastern European (CEE) Countries (see Supplementary Table SB for classification of countries).

#### Statistical analysis

We restricted our analyses to 26 countries with established welfare regime classification. After basic sample description, we performed random intercept multilevel logistic regression analyses. Multilevel models are particularly appropriate for research designs where data for participants are organized on more than one level to take into account the between- and within-variability of these hierarchically organized data.<sup>31</sup> The EQLS allows for three hierarchic levels to be used. Level 1 units are individual people; level 2 units are regions within countries, while countries are level 3 units.

First we investigated the association between gender and mental wellbeing in each country separately. These analyses included two levels: individuals on level one and regions on level two. We conducted bivariate analyses of the association between gender and good mental wellbeing and multivariate analyses to adjust for socio-

demographic variables. Afterwards, we investigated the variation of good mental wellbeing between countries and possible explanation for such variation. In these analyses three levels of data were considered: individuals, regions, and countries. We calculated four models, starting with an 'empty model'. In the second model individual variables were added. In model 3 welfare regimes were added. In model 4 interactions between welfare regime and gender were included. Additionally, we present the Median Odds Ratios (MORs), the between country variance and between region variance. According to the intersectionality paradigm it is important to take heterogeneity among men and women, respectively, into account.<sup>22</sup> Therefore, we performed a first exploratory analysis testing the interaction between gender and educational level as one indicator for social position with fewest missing values within the available data.

Because the amount of missing data was considerably low (<1.3%), we conducted a complete case analysis. Although interrelations between factors were found, no collinearity was detected. To assure representativity in terms of gender, age, urbanisation level, region and household size, two types of weighting coefficients were used: design weights and post-stratification weights. In sensitivity analyses multilevel logistic regressions were conducted with weights (product of design weight and post-stratification weight). The parameter estimates were substantially similar to unweighted estimates. Therefore, the unweighted ORs are presented because they are more efficient and the standard error is correct.<sup>32</sup> All statistical analyses were conducted using SAS statistical software version 9.3.

## Results

Sample characteristics are given in Table 1. The welfare regimes differed in the distribution of educational achievements. However men and women within the welfare regimes were comparable in terms of educational achievements. Prevalence of good mental wellbeing differed between welfare regimes and between men and women. Prevalence of good mental wellbeing was in most instances higher among men compared with women at welfare regime level, with the exception of the FSU welfare regime, where women report slightly higher prevalence of good mental wellbeing. Highest prevalence of mental wellbeing was found in the Scandinavian welfare regime for men (17.14%) and women (14.96%). Lowest prevalence was found in the FSU welfare regime with 7.74% reporting good mental wellbeing among men and 7.82% among women.

In Table 2, we present prevalences of good mental wellbeing in single countries and ORs for the association between gender and good mental wellbeing. Statistically significant inequalities in good mental wellbeing by gender were observed for 7 out of 26 European countries after controlling for individual factors. In the UK, France, the Netherlands, Spain, Portugal, Bulgaria and Romania women had significantly lower chances to report good mental wellbeing than men. The OR for women ranged from 0.42 (CI 0.30–0.59) in Romania to 0.72 (CI 0.53–0.96) in Spain. Finland, Estonia, and Slovakia showed trends for women being more likely to report good mental wellbeing than men, but these results were not statistically significant.

Next, we present results from multilevel logistic regression analyses with good mental wellbeing as dependent variable (Table 3) including all countries. In the empty model between-country variance are observed with a MOR of 1.35. In model 2 individual level variables (age, education, working situation, having children, marital status) are introduced. The chances for women to report good mental wellbeing compared with men is significantly lower, independently of further individual level socio-demographic variables (OR = 0.75; 95% CI 0.70–0.81). The inclusion of individual level variables did not reduce the between-country

**Table 1** Characteristics of the study sample by welfare regime<sup>a</sup>

	Scandinavian		Anglo-Saxon		Bismarckian		Southern		FSU		CEE	
	Men n = 1475	Women n = 1541	Men n = 1567	Women n = 1665	Men n = 4434	Women n = 4728	Men n = 2750	Women n = 2954	Men n = 1365	Women n = 1671	Men n = 4553	Women n = 4976
Mean age	51.15	51.28	51.60	50.90	51.08	51.30	50.04	51.40	48.20	55.33	48.94	50.55
Education (%)												
Primary or less	7.59	7.56	8.01	7.44	5.79	9.10	21.09	28.21	2.89	3.61	5.09	9.71
Secondary	57.83	53.73	59.96	59.43	68.59	67.53	60.68	53.95	70.43	61.43	78.57	73.53
Tertiary	34.58	38.70	32.03	33.13	25.61	23.37	18.23	17.85	26.69	34.96	16.23	16.76
Currently working	54.63	48.74	52.40	45.79	55.74	44.75	52.36	36.79	55.17	42.30	54.59	39.85
Living together with partner	52.33	48.25	55.82	51.30	55.36	50.75	59.04	53.33	52.91	44.59	57.86	51.87
Having children	61.06	69.39	60.00	72.38	60.94	71.12	60.68	68.73	61.44	77.15	64.10	74.93
Prevalence of good mental wellbeing (in %)	17.14	14.96	13.79	8.53	15.24	12.18	14.43	11.37	7.74	7.82	13.76	10.37

a: *n* and prevalences are calculated using the product of the design weight and the post-stratification weight as weighting factor.

**Table 2** Prevalence of good mental wellbeing in men and women by country and OR and 95% CIs for the association of gender and good mental wellbeing

	Men		Women		Association of gender and good mental wellbeing <sup>a</sup>				
	<i>n</i>	% high mental wellbeing	<i>n</i>	% high mental wellbeing	% point difference	Unadjusted		Adjusted <sup>b</sup>	
						OR	95% CI	OR	95% CI
<b>Scandinavian</b>									
Denmark	494	24.4	524	20.1	4.3	0.76	(0.57–1.00)	0.84	(0.63–1.12)
Finland	489	10.9	517	11.5	–0.6	1.23	(0.84–1.83)	1.18	(0.79–1.77)
Sweden	491	16.0	499	12.2	3.8	0.72	(0.51–1.04)	0.77	(0.53–1.13)
<b>Anglo-Saxon</b>									
Ireland	506	15.7	530	10.1	5.6	0.68	(0.48–0.97)	0.71	(0.50–1.02)
UK	1060	12.9	1135	7.8	5.1	0.65	(0.49–0.86)	0.64	(0.48–0.85)
<b>Bismarckian</b>									
Austria	489	16.8	532	15.7	1.1	0.77	(0.55–1.08)	0.82	(0.57–1.13)
Belgium	485	15.8	511	11.6	4.2	0.69	(0.48–1.00)	0.70	(0.48–1.02)
Germany	1446	15.3	1545	14.4	0.9	0.85	(0.69–1.05)	0.93	(0.75–1.12)
France	1069	14.5	1168	9.8	4.7	0.67	(0.52–0.86)	0.64	(0.49–0.83)
Luxembourg	452	13.0	460	10.4	2.6	0.71	(0.48–1.06)	0.71	(0.47–1.08)
Netherlands	491	16.7	509	9.6	7.1	0.54	(0.38–0.78)	0.50	(0.34–0.72)
<b>Southern</b>									
Greece	486	12.9	503	9.9	3.0	0.73	(0.48–1.10)	0.79	(0.51–1.21)
Spain	725	17.6	762	13.0	4.6	0.71	(0.53–0.95)	0.72	(0.53–0.96)
Italy	1057	11.5	1162	9.9	1.6	0.84	(0.63–1.11)	0.84	(0.62–1.12)
Portugal	481	17.6	525	13.7	3.9	0.65	(0.45–0.93)	0.61	(0.42–0.90)
<b>FSU</b>									
Lithuania	501	11.2	604	9.1	2.1	0.76	(0.49–1.17)	0.79	(0.50–1.26)
Latvia	435	6.7	532	6.4	0.3	0.85	(0.49–1.45)	0.73	(0.41–1.32)
Estonia	428	4.7	535	7.7	–3.0	1.65	(0.92–2.97)	1.67	(0.89–3.12)
<b>CEE countries</b>									
Bulgaria	447	25.0	499	15.4	9.6	0.60	(0.42–0.85)	0.53	(0.36–0.78)
Czech Republic	481	12.1	514	8.5	3.6	0.64	(0.41–0.98)	0.67	(0.42–1.02)
Hungary	472	11.7	542	12.4	–0.7	1.05	(0.71–1.55)	1.03	(0.69–1.54)
Poland	1017	12.2	1138	11.1	1.1	0.81	(0.61–1.07)	0.84	(0.63–1.11)
Romania	718	18.9	770	8.3	8.5	0.43	(0.31–0.59)	0.42	(0.30–0.59)
Slovenia	476	5.4	500	6.5	1.1	0.98	(0.58–1.68)	1.07	(0.62–1.86)
Slovakia	468	9.0	502	10.4	–1.4	1.29	(0.79–2.09)	1.62	(0.98–2.69)
Croatia	470	15.6	508	10.5	5.1	0.70	(0.47–1.01)	0.67	(0.45–1.00)

*N* and prevalences are calculated using the product of the design weight and the post-stratification weight as weighting factor.

a: Reference: men, b: Adjusted for age, education, working status, having children, living together with partner.

variance of good mental wellbeing. In the next model the welfare regimes typologies are introduced, which leads to a reduction of the between country variance. Women have a significantly lower chance to report good mental wellbeing compared with men independently of welfare regimes. People in the FSU and the CEE welfare regime showed statistically significant lower chances to report good mental wellbeing compared with the Scandinavian welfare regime.

We tested potential effect modification of the association between gender and good mental wellbeing by welfare regime. There was no significant interaction (see Supplementary Table SC). In a further explanatory intersectionality-informed analysis we tested potential interaction between gender and educational level. Again, there was no significant interaction (results not shown).

**Table 3** Association between gender, welfare regime and good mental wellbeing (dependent variable), (ORs and 95% CI)

	Model 1	Model 2 (individual level variables) <sup>a</sup>	Model 3 (model 2+ welfare regimes)
Gender		0.75 (0.70–0.81)	0.76 (0.71–0.81)
<b>Welfare Regimes (Scandinavian=ref.)</b>			
Anglo-Saxon			0.66 (0.38–1.12)
Bismarckian			0.82 (0.55–1.22)
Southern			0.73 (0.48–1.13)
FSU			0.40 (0.25–0.64)
CEE countries			0.59 (0.40–0.87)
Random effects			
Between country variance (SE)	0.1005 (0.03840)	0.09928 (0.03821)	0.04832 (0.02686)
MOR	1.35	1.35	1.23
Between region variance (SE)	0.1629 (0.02518)	0.1650 (0.02550)	0.1662 (0.02579)

a: Control variables not shown: age, education, working status, having children, living together with partner.

## Discussion

Our results point to visible cross-national variation in good mental wellbeing. We identified gender inequalities in good mental wellbeing; these were independent of further individual socio-demographic variables and did not vary among groups with different educational degree. Moreover, they were independent of the welfare regime that people lived in. Type of welfare regime did not modify gender inequalities in good mental wellbeing.

Our findings on cross-country variations in the prevalence of good mental wellbeing supports results of previous research based on the EQLS from 2007 and the Eurobarometer Survey.<sup>33,34</sup>

We observed gender inequalities in good mental wellbeing that were independent of further individual socio-demographic characteristics and independent of welfare regimes. These results confirm previous studies. Schütte et al.<sup>33</sup> reported gender inequalities in mental wellbeing, also assessed by the WHO-5, analysing data of the EQLS from 2007. Comparing levels of mental wellbeing, assessed by the Energy and Vitality Index, in the Eurobarometer Survey, Lehtinen et al.<sup>34</sup> also report lower levels of mental wellbeing for women than for men. Gender inequalities in health are also well documented for other health outcomes.<sup>35</sup> Women have a higher morbidity<sup>36</sup> in a range of non-fatal diseases and have a fewer years in good health, despite having a longer life expectancy.<sup>35</sup> It is argued that these inequalities could be attributed to women's weaker labor market attachment, lower socioeconomic position, lesser participation in the public sphere<sup>9</sup> as well as the double burden of paid work and household responsibilities.<sup>12,13</sup>

In our study, no gender differences in good mental wellbeing were found in any country of the Scandinavian or the FSU welfare regime. However, it should be noted, that there is a relevant difference: We observed gender equalities on a high level of mental wellbeing in the three countries of the Scandinavian welfare regime in contrast to the countries of the FSU regime where the observed gender equalities are probably due to extremely low levels of good mental wellbeing in men. Comparative studies have suggested that the social democratic countries have the highest absolute health status.<sup>1,4,5</sup> Low prevalence in good mental wellbeing in FSU men go together with findings that men in Eastern European countries are worse off in a number of health outcomes, such as heavy drinking, smoking- and alcohol-related mortality.<sup>37,38</sup>

The fact that welfare regimes did not modify the association between gender and good mental wellbeing is intriguing. To the authors knowledge this is the first study to investigate gender inequalities in mental wellbeing in different countries. There are some studies that investigate the association between welfare regimes and gender equality in self-rated health; however, comparability is limited due to methodological differences. These studies reported differences in gender equality for self-rated health between countries of welfare regimes.<sup>13,19</sup>

One possible explanation for the absence of differences in gender inequality in mental wellbeing by welfare regime is that the mechanisms behind gender inequalities in mental wellbeing cannot be overcome by welfare regime policies. Also it could be argued that welfare regimes do not influence the association between gender and mental wellbeing as they do for other health outcomes.

It has to be noted that these results can be sensitive to the countries included in the welfare regimes. Results could have been different if there was data available for other countries in the welfare regimes. For example, no data was available for Norway, which would also be part of the Scandinavian regime. Inclusion of Norwegian data could have changed the results for the Scandinavian regime. The same could apply to the FSU regime, where results for Estonia differ from the two other countries. If no data had been available for Estonia, conclusion would have been different for this welfare regime.

These findings highlight the continuing need to identify social structures and mechanisms leading to gender inequalities in mental wellbeing and their variation across countries.<sup>13</sup>

## Strengths and limitations

The main strength of this study is that by using data of EQLS 2012 we were able to conduct analyses for mental wellbeing in 26 European countries, taking individual and welfare regime characteristics into account. Moreover, the newest thoughts on welfare regime categorization were applied.

One limitation is the response rate of 41% in the EQLS 2012 which was lower than aspired and differed across countries.<sup>28</sup> Although the EQLS sample is demographically representative, selection bias may have occurred: it is possible that only participants of a certain social position, health status or opinion tended to participate in the study. Another limitation may be seen in the operationalization of the dependent variable mental wellbeing. However, WHO-5 is a validated measure of mental wellbeing in population surveys.<sup>39</sup> To increase knowledge more comprehensive measures<sup>23,40</sup> to assess this complex construct should be used in future surveys. The approach to cluster countries into welfare regimes has been criticized as too crude by some authors, as these ideal types would not fit the complex reality.<sup>7</sup> However, the regime approach is by far the most common to group countries,<sup>7</sup> which enables comparison to other research. Future research should link welfare regime theory to specific gender policy to understand their effect on women's health.<sup>20</sup> Finally, due to the cross-sectional design of the study we could only analyse associations at one point in time between individual and macro-social factors on one hand and mental wellbeing on the other hand. The flexible nature of social categories, processes and structures<sup>21</sup> and its impact on mental wellbeing could not be analysed with the available data.

In conclusion, gender inequalities in prevalence of good mental wellbeing exist in European countries independent of other

socio-demographic characteristics. Type of welfare regime at the macrosocial level does not modify the association between gender at the individual level and good mental wellbeing.

## Supplementary data

Supplementary data are available at *EURPUB* online.

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### Key points

- Prevalence of good mental wellbeing differed across countries in Europe.
- In most countries women reported lower prevalence of good mental wellbeing.
- Gender inequalities in good mental wellbeing were independent of further individual socio-demographic factors and of welfare regimes.
- Type of welfare regime did not modify gender inequalities in good mental wellbeing.

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