WITHIN-COUPLE EQUALITY AND FEMALE HEALTH OUTCOMES

A Study on the Effects of Gender Equality Within Couples on Female Health Outcomes Among the

Population of the European Union & Israel

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Abstract

The present study aims to examine the relationship between gender equality within couples and female health outcomes among individuals aged 30 to 80 in 20 European countries and Isreal. Research on within-couple gender equality is necessary to inform policies on gender equality and improve populations' overall well-being. Prevailing studies lack focus on the association between couple-level gender equality and health outcomes. Data from the SHARE dataset is analysed by performing binary logistic regressions in SPSS involving 1664 heterosexual couples. Both spouses are required to live in one household and be either employed or homemaker. The main dependent variable in this study is self-perceived health, and the independent variable is gender equality within couples, which is measured by differences within couples in the current employment situation and the years of education. The study's results suggest that there is a statistically insignificant positive correlation between within-couple gender inequality and the odds of the female partner reporting lower self-perceived health while controlling for an age gap, children in the household, chronic diseases and the Gender Inequality Index. Furthermore, the study found that the Gender Inequality Index, which is an indicator of gender inequality at the national level, has a statistically insignificant positive relationship with the odds of the female spouse reporting lower self-perceived health. Thus, within-couple inequality and a country's higher Gender Inequality Index might negatively affect women's health. Therefore, to reduce health disparities and improve populations' overall health and well-being, the European Union must further develop policies to promote gender equality.

Keywords

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Introduction

Gender is one of the main causes of inequalities in living conditions around the world according to the World Health Organisation (2008). Macro-level gender equality refers to men and women having equal rights, treatment, opportunities, resources and responsibilities, regardless of their gender (UN, 2001). In regard to couples, gender equality considers equality between spouses both in the domestic sphere, such as power dynamics, household work and caregiving responsibilities, and in the public sphere, such as occupational position and income distribution (Månsdotter, 2006).

Despite the fact that the European Union employs policies to promote gender equality, the Gender Inequality Index (GII) by the Human Development Report reveals that differences in gender equality between the European member states remain (UN, 2022). Positive associations have been found between macro-level gender equality and both women's and men's health outcomes (Milner et al., 2021). Gender-based inequalities in living conditions can result in disparities in violence, power and resources and can create an uneven division in leisure time and work which will eventually affect health outcomes (Milner et al., 2021). Previous research shows that especially in Eastern and Southern European countries, a gender health gap exists (Dahlin et al., 2013). Among their populations, women clearly report worse health outcomes than men. However, in other European countries, this gender health gap is minimal to nonexistent (Dahlin et al., 2013).

Extensive research has been conducted on gendered health differences related to gender equality with cross-national and longitudinal comparisons. The results are divergent, depending on the context and research methods (Milner et al., 2021). In contrast, the association between couple-level gender equality and female health outcomes is scantily explored. Therefore, supplementary research is required to fully understand this complex relationship. Supplementary knowledge on couple-level gender equality is important for global societies, not only for couples since more gender equality will create healthier and safer societies over the world and a sustainable future with

more economic growth (OECD, 2015). Moreover, it supports achieving multiple Sustainable Development Goals by the United Nations (OECD, 2015. Therefore, it is essential for the health and well-being of the world's population (Milner et al., 2021). For European member states, better health outcomes become increasingly important since their ageing populations will put more pressure on healthcare systems (Gómez-Costilla et al., 2021).

By conducting secondary data analysis, an answer to the central research question will be found: "What is the relationship between gender equality within couples and female health outcomes, in 20 European countries and Israel?" Additionally, the following research question will be examined: "What is the relationship between a country's Gender Inequality Index and the odds of the female spouse reporting lower health?". This study will increase understanding of how gender norms and roles affect within-couple inequalities and women's overall health and well-being. Additionally, it can inform European policies that promote gender equality, with the goal of reducing gendered health disparities.

First, through a literature review, the effects of both macro- and couple-level gender equality on health outcomes are considered. This gives the basis for the conceptual model and the hypotheses. Following this, the methodology of the data analysis is clarified and the results of the binary logistic regressions are discussed.

Theoretical framework

Theories on the effects of gender inequality on health

Health outcomes at an older age are the result of the cumulative effects of wider determinants of health throughout the life course (Omran, 2005). Among the determinants of health are social factors, which are affected by a country's social environment. This social environment prescribes different behaviour, actions, responsibilities and privileges that influence people's everyday life and affect exposure to health risks (Heise et al., 2019). Included are thoughts on gender roles, gender norms and gendered power dynamics. Both men and women are affected by the social determinants of health in different ways, which may result in a gender health gap (Roxo et al., 2020). Thus, gender equality, both on a couple- and a macro-level, has implications for health outcomes (Heise et al., 2019; Schlomo &Kuh, 2002). Furthermore, structural determinants of health, related to gender equality, including policies and laws on for instance paid-parental leave and child support can add to the gender health gap (Heise et al., 2019). Finally, biological determinants of health can affect the gender health gap. They relate to a person's sex and include the effects of hormone levels, diseases of gender-specific organs and body features (Heise et al., 2019). Due to the fact that most health research is men favoured, there is a gap in the data landscape on women's bodies and health outcomes (Verdonk et al., 2009). Thus, women can experience disadvantages in the health system. Although women generally live longer than men in the majority of western countries, women are more likely to report lower health outcomes and more diseases than men (Oksuzyan et al., 2009). This is also referred to as the male-female health-survival paradox.

Although compared to global levels the gender gap in European countries is relatively small, gender gaps exist in every country. This can be based on numbers by the Gender Inequality Index. The index, created by the Human Development Report, is an indicator of national-level gender inequality in the majority of countries worldwide (UN, 2022). It considers inequalities based on

gender in the labour market, reproductive health and empowerment. As the index shows inequalities, countries with a relatively high index number have relatively low equality between men and women. Especially in Eastern and Southern European countries, the Gender Inequality Indexes are high.

A potential pathway in which gender inequalities within couples may result in lower health outcomes is through a sense of low control for one of the spouses (Bohlin, 2013). One's sense of control within the partnership can be enhanced by having higher educational levels, more years of education, being employed, having higher income levels and being economically self-sufficient (Krieger, 2011). As visible in the conceptual model in Figure 1, a sense of low control in the partnership can be constituted by two sources (Chandola et al., 2004). Firstly, a sense of low control can be a result of an unequal power relation within the couple (Chandola et al., 2004). When one of the spouses is employed while the other spouse is the homemaker, the unemployed spouse may have less power over the spending patterns of the income and experience less personal fulfilment which results in a lower sense of control (Backhans et al., 2009). Secondly, it may be the result of "demand overload". This refers to the spouse being unable to meet the disproportionate demands from family members such as being responsible for a disproportionate amount of household tasks while lacking materialistic and physiological resources (Chandola et al., 2004). Importantly, when only one spouse is employed, it may also result in difficulties. This includes stress for the employed spouse caused by the pressure to work, provide sufficient income and the fear of becoming unemployed (Backhans et al., 2009). Finally, an unequal sense of control between the spouses can generate feelings of unfairness for both parties and low satisfaction regarding the partnership (Bohlin, 2013). Furthermore, low satisfaction regarding the partnership can add to mental health problems which can additionally add to pressure and stress (Staland-Nyman et al., 2008). Thus, within-couple equality is a relevant factor contributing to positive health outcomes for both partners.

A longitudinal European study on the effects of gender on health outcomes related to societal gender equality finds that educational and occupational differences between men and women have an important influence on health outcomes (Roxo et al., 2020). The study demonstrates that occupational position and education affect experiences and opportunities which influence inequalities in the social determinants of health. Therefore, this study will explore gender equality within couples in terms of differences in years of education and employment.

Previously conducted research

Research has found positive associations between within-couple gender equality and female health outcomes. Results from a study in 2018 support the argument that stimulating gender equality results in significantly greater self-reported subjective well-being for both women and men (Audette et al., 2019). This study used the four most acclaimed measures of gender (in)equality to measure national-level gender equality in relation to the subjective well-being of populations. Results show that higher levels of gender equality lead to greater life satisfaction for both women and men (Audette et al., 2019). It argues that gender equality leads to women experiencing a multitude of benefits, created by the society they live in which treats them equal to men, such as having more control over their lives (Audette et al., 2019). Furthermore, it argues gender equality will create a stronger economy through an increase in workers in the workplace and in the amount of discretionary income. A stronger economy usually results in higher levels of subjective well-being. A different study combines eight studies on the association between within-country gender equality in high-income countries and health to explore their different outcomes (Milner et al., 2021). The majority of the analysed studies find that gender equality is associated with better health outcomes including mortality levels, morbidity and mental health (Milner et al., 2021). The majority of the positive health outcomes were related to mental health such as lower depression rates and less stress. Similarly, a Swedish study considering gender equality on a couple-level,

found that the correlation between couple-level gender equality and women's health is strongest with physiological health outcomes (Staland-Nyman et al., 2008). Furthermore, the results displayed a positive relationship between perceived equity in performing domestic work and self-perceived health (Staland-Nyman et al., 2008). A within-couple difference in the employment situation can result in an unequal division of domestic work which can lead to a higher workload for one of the spouses (Staland-Nyman et al., 2008). This excessive demand may lead to worse health outcomes through stress and pressure.

Nonetheless, a number of studies exhibit contrasting outcomes. For instance, a Swedish micro-level study shows similarities to the analysis that is performed in this study. It considers the effect of gender equality of couples on health outcomes, regarding the effects of the couples' psychical surroundings and environment (Backhans et al. 2009). Couple-level gender equality is measured in both the public and the private sphere and health outcomes are measured by the number of compensated days from sickness insurance. The outcomes suggest that the effects of gender equality within couples on health are dependent on the gender norms of the people living in the same municipality as the couple (Backhans et al. 2009). In certain municipalities, that were more traditional in respect of gender norms and roles, negative associations between gender equality and female health outcomes are found. This highlights that the effects of gender on health vary within the context of each specific individual, couple, and society (Sen & Östlin, 2014). Another Swedish study finds similar results regarding couple-level equality in the public sphere. This study measures health by sickness absence at work and overall mortality rates and measures gender equality between couples in both the domestic and the public sphere. Regarding the public sphere: occupational position and the division of income, the results indicate that within-couple equality can lead to lower health outcomes for females (Månsdotter, 2006). This may be due to the "double burden" which refers to a situation in which the female spouse is responsible for the majority of household responsibilities and is also employed (Backhans et al., 2009). This double

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burden can lead to increased levels of stress and fatigue which can negatively affect physical and mental health (Backhans et al., 2009). However, in the same study, the analysis of the association between equality between spouses in the domestic sphere: parental leave and the division of childcare, shows contrasting outcomes. The results indicate that better health for both men and women may be achieved if the couple is relatively equal in this regard (Månsdotter, 2006). Thus, better health outcomes are argued to be caused by a lower burden for both spouses, but only when the couple is equal in both the public and private spheres.

Hypotheses and conceptual model

Based on previous research on the gender health gap, it is expected that couples with a negative difference in years of education and current job situation have higher odds of the female spouse reporting worse self-perceived health. These lower health outcomes will be the result of a potential double burden, stress, feelings of unfairness and other physiological effects caused by inequalities within the couple. Regarding the Gender Inequality Index of the Human Development Report, it seems plausible that in countries with a higher Gender Inequality Index, indicating relatively more inequality between the genders, the odds of females reporting lower health than their spouses will be bigger. This will be caused by women experiencing the negative effects of gender inequalities possibly both on a macro level and on a couple level. Based on the reviewed academic literature, the conceptual model in Figure 1 displays how gender inequality within couples may lead to worse health outcomes for the disadvantaged spouse, which is usually the female (Staland-Nyman et al., 2008).
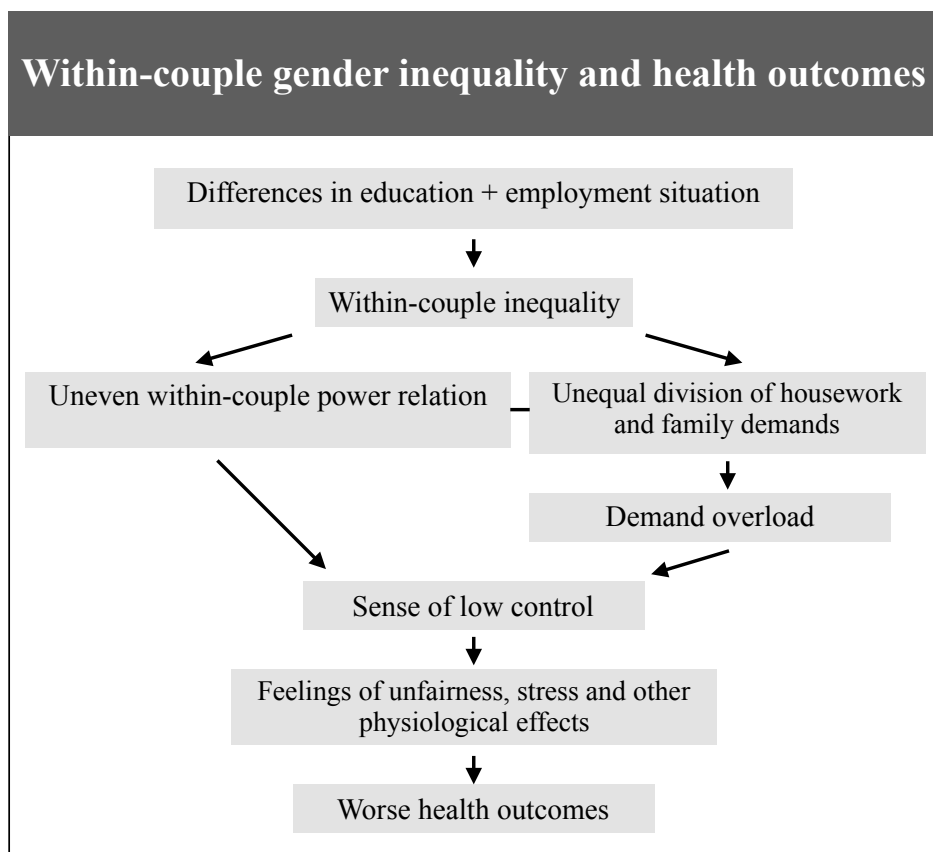
Within-couple gender inequality and health outcomes

Differences in education + employment situation

↓

Within-couple inequality

Uneven within-couple power relation — Unequal division of housework and family demands

Demand overload

Sense of low control

Feelings of unfairness, stress and other physiological effects

Worse health outcomes

Figure 1. Conceptual model

Material and method

Data source and sample

In order to explore the correlation between couple-level gender equality and differences in within-couple health outcomes, secondary data is used to look at the microdata of inhabitants of 20 European countries and Israel. The data is collected in 2004 by SHARE: the Survey of Health, Ageing and Retirement in Europe. The participants in the SHARE data collection are aged between 30 and 80. The specific dataset that is used for the analysis is the *easy*SHARE dataset, which is a simplified version of the original SHARE data file with a restricted share of variables (Gruber, 2019). The data is originally collected for a different purpose; to explore the life situation of older people in Europe to facilitate research on health, social networks and health behaviour (Gruber, 2019).

This study will explore the differences in health outcomes as a function of gender equality, by examining older couples within the sample. The original data sample exists of 412110 participants. The selection criteria for the sample are: the respondent is part of a couple, the couple is heterosexual, the respondent participated in the data collection wave in 2004, the partner lives in the same household, both of their current job situations are either homemaker or (self) employed and the interview of the partner is available. Although data wave 1, collected in 2004, is not the most recent, it contains the largest number of participants compared to the other waves. Same-sex couples and single-parent households are excluded to be able to capture gender differences. Regarding the current job situation, only the responses: homemaker and (self) employed are included in the analysis since being unemployed, permanently sick, disabled or retired are reasons to be unemployed which are unrelated to gender. Finally, all missing values for the relevant variables were deleted, which resulted in a final sample of 3328 respondents from 1664 couples. The countries that are included in the final analysis are Austria, Germany, Sweden, Netherlands, Spain, Italy, France, Denmark, Greece, Switzerland, Belgium and Isreal.Overview of the analysed variables

Dependent variable: Lower health female spouse

To measure health outcomes as a relationship to gender equality, the dependent variable in the analysis quantifies a lower health outcome for the female spouse in comparison to their male spouse. The original variable that is used to capture the difference in health outcomes is the self-perceived health of both males and females. This variable gives an accurate indication of subjective health outcomes since it considers an overall view of a person's satisfaction with their current state of health. The original ordinal variable ranges from 1: excellent health to 5: poor health. The difference in health between the genders is calculated and recoded into a dummy variable, with 0

indicating the woman reported better or equal health than their male spouse and 1 indicating the woman reported lower health.

The main independent variable: Gender equality within-couple

The level of equality within the couple is assessed using the variables: years of education and current job situation. Firstly, the difference between the spouse's years of education is calculated and recoded into -1 indicating a negative difference of at least 2 years for the female spouse, 0 having an equal amount of years or a maximum of 2 years difference and 1 indicating a positive difference of more than 2 years. Following, the nominal variable: current job situation is recoded into a dummy, with 0 indicating being a homemaker and 1 indicating being employed. The difference between the couples' employment status is calculated and recoded into -1 indicating only the male being employed, 0 both being employed or homemaker and 1 indicating only the female being employed. Finally, the new variable Gender Equality of Couple (GEC) is created, combining both differences in employment and years of education within the couple. This is recoded into a dummy, which will serve as the main independent variable for the analysis. The GEC defines 0 as the male and female spouses having relatively equal years of education and a matching current job situation, and 1 as the spouses being unequal in either one of the two situations.

The control variables

To limit the influence of other variables and solely capture the correlation between gender equality and health outcomes, control variables are used. A dummy variable is created which indicates when the female is at least five years older than the male spouse. At an older age, worse health is more likely to occur. Additionally, the interval variable showing if the female spouse has chronic diseases is recoded into a dummy variable and is being controlled for. Chronic diseases might not be influenced by gender equality but do have an effect on self-perceived health. Finally,

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the nominal variable: having at least one child living in a household/building is recoded into a dummy variable as it may influence labour market participation. By measuring this relationship on a couple level, the effects of other social influences can be disregarded in the analysis. For instance, the effects of income differences, racism and the living environment do not have to be controlled for since both spouses live in the same household and living environment and assumably share their socio-economic situation. Finally, since the dataset does not contain information regarding data on gender equality on a macro level, the country's Gender Inequality Index by the Human Development Report is added. A high Gender Inequality Index number reveals a country having relatively low equality between the genders (UN, 2022). The relationship between this index and the odds of females reporting lower health than their spouses will be examined.

Methodological approach

    With these variables, the relationship between gender equality between the spouse and female health outcomes at an older age in comparison to their spouse will be examined. This will be done by conducting multiple binary logistic regression models in SPSS statistics 29. A binary logistic regression examines the correlation between the binary dependent variable and the independent variables. It predicts how much impact the independent variables have on the dependent variable. The main null hypothesis states that in the population, there is no relationship between the odds of the female reporting lower self-perceived health and the gender equality of the couple. The results are statistically significant when the significance level is below 0.05, and fitting, 95% confidence intervals are presented. First, the association between the main independent variable: gender equality within the couple and the dependent variable: the female spouse reporting lower health is analysed. After, in two binary logistic regression models, the separate effects of the differences in employment situation and differences in years of education on the odds of the female spouse reporting lower health are considered.

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Ethics

Regarding research ethics, the data collected by SHARE is in accordance with the fundamental ethical research principles. Since the dataset is accessible to the whole research community, the respondents' privacy and confidentiality are protected.

Results

Descriptive statistics

The cross-tabulation presented in Table 1 shows the relationship between the dependent variable (female's self-perceived health) and the main independent variable (within-couple gender equality in terms of years of education and/or employment situation). The results indicate that 518 out of 1664 couples have a female who reports lower self-perceived health than her spouse. Regarding within-couple gender equality, a total of 900 couples are unequal regarding the years of education and/or employment situation. The cross-tabulation shows that 291 couples display both an inequality within the couple and have the female reporting lower self-perceived health than their spouse. However, it is also important to note that for 609 unequal couples, the female does not report lower self-perceived health.

Couple is unequal * Female lower health Cross-tabulation					
		Female spouse lower health		Total
		0	1	
Couple is unequal	0	537	227	764
	1	609	291	900
Total		1146	518	1664

Table 1. Descriptive statistics of the dependent & the main independent variable

The descriptive statistics of the remaining variables, visible in Appendix A, show that in 539 couples, only the male spouse is employed and the female spouse is the homemaker. In 412 couples, the female has had at least two years of education less than her spouse. Following, the descriptive statistics of the control variables (Appendix A) display that for 36 couples, the female spouse is at least 5 years older than the male spouse, 607 females indicate having at least one chronic disease and 964 couples have at least one child currently living in the household. Lastly, the descriptive statistics of the Gender Inequality Index display that the minimum index number is 0.05 and the maximum is 0.18.
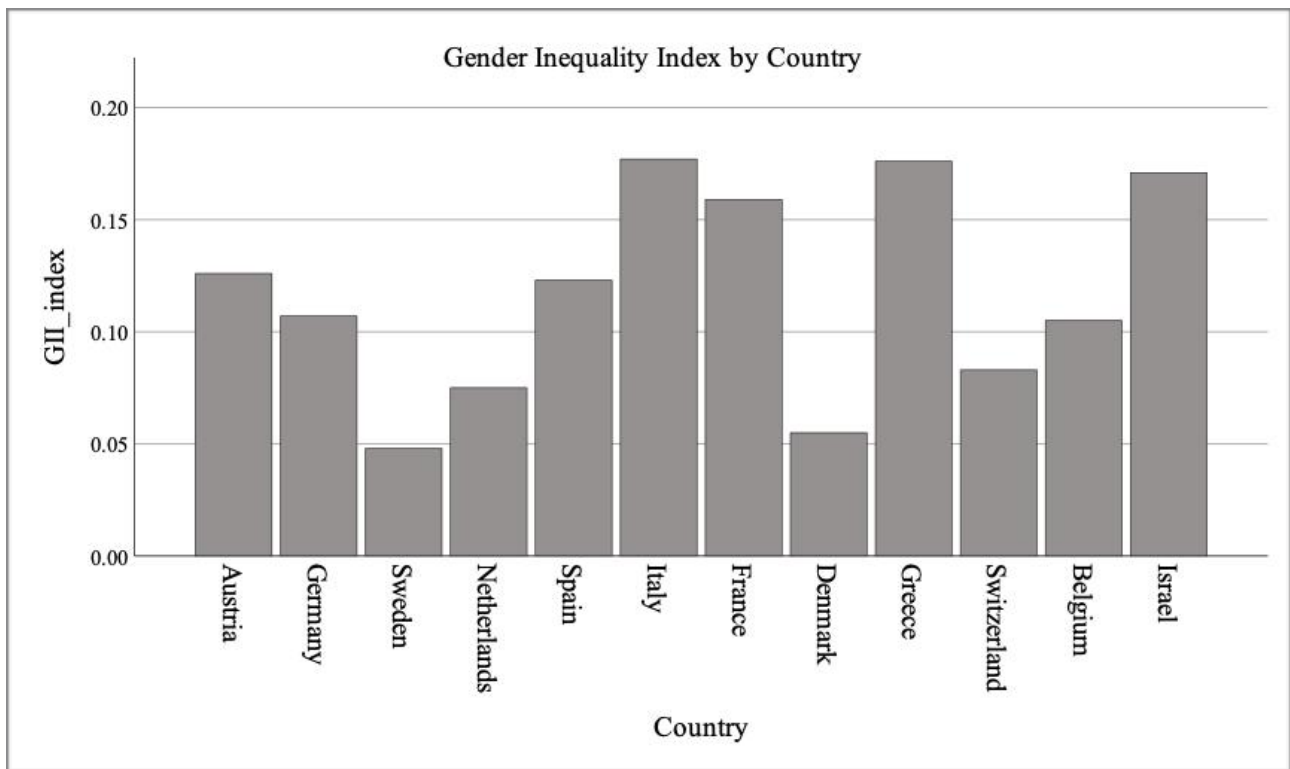

Figure 2. The Gender Inequality Index of the countries included in the analysis

Country identifier * Female lower health Cross-tabulation				
% within Country identifier				
		Female lower health		Total
		0	1	
Country identifier	Austria	68.3%	31.7%	100.0%
	Germany	66.7%	33.3%	100.0%
	Sweden	69.5%	30.5%	100.0%
	Netherlands	65.5%	34.5%	100.0%
	Spain	56.9%	43.1%	100.0%
	Italy	64.1%	35.9%	100.0%
	France	69.7%	30.3%	100.0%
	Denmark	71.8%	28.2%	100.0%
	Greece	70.4%	29.6%	100.0%
	Switzerland	69.6%	30.4%	100.0%
	Belgium	71.8%	28.2%	100.0%
	Israel	71.6%	28.4%	100.0%
Total		68.9%	31.1%	100.0%

Table 2. Cross-tabulation of the variables: country and Female spouse reporting lower health

The Gender Inequality Index

Figure 2 shows the Gender Inequality Index for each country included in the analysis. Additionally, Table 2 shows the percentage of couples per country that have a female spouse reporting lower health. The figures display contradicting relations. Although the Netherlands is part of the three countries with the highest index, it is also in the top three countries with the highest percentage of couples with females spouse reporting lower health. Similarly, although Greece is among the three countries with the lowest index, it is also part of the three countries with the lowest percentage of couples with a female spouse reporting lower health. This information contradicts the initial expectation that the countries with the lowest index number also have the lowest percentage of the female spouse reporting lower health.

Binary logistic regression

The requirements for binary logistic regression are met. Considering the Omnibus Tests of Model Coefficients, the model is significant (Appendix B). Thus, compared to the null model, there is a significant improvement in the model and it indicates that the data is a good fit. The significance values of the Hosmer and Lemeshow Test are also above 0.05, which is an indicator that the model fits the data well. Additionally, the contingency table for the Hosmer and Lemeshow Test shows that the values of the observed and the predicted model are approximately the same. This further supports the conclusion that the data is a good fit for the model.

The result of the binary logistic regression is provided in Table 3. The results suggest that the effect of being an unequal couple considering equal years of education and current job situation has a positive effect on the likelihood to report lower health by a factor of 1.131 (95% C.I. = 0.915-1.397). But, since this relationship is not significant (significance level = 0.284) and 1 falls in the 95% confidence interval, the in the population, no statistically significant relationship exists between the spouses being unequal regarding education and current job situation and the odds of the female spouse reporting lower health. Concerning the control variable: the female is older than the male spouse, in the population, the odds of the female spouse reporting lower health increase by a factor of 1.073 (95% C.I. = 0.830-1.387) compared to couples with a younger or equal old female. However, this relationship is not significant. The control variable: the female has chronic diseases increases the odds by a factor of 1.857 (95% C.I. = 1.499-2.301) and this relationship is significant. Lastly, in the population, the odds of the female spouse reporting lower health when the couple has one child in the household decrease by 0.933 (95% C.I. = 0.747-1.166) compared to couples that don't have a child in the household.

Considering the association with the Gender Inequality Index, the relationship is positive but insignificant (significance level = 0.778). Thus, in the sample, a country with a higher index, meaning lower equality between the genders, results in higher odds of the female spouse reporting

lower health. The odds increase with a factor of 1.303 (95% C.I. = 0.128-13.293). However, again

no conclusions can be made about the population.

| | | B | S.E. | Wald | df | Sig. | Exp(B) | 95% C.I.for EXP(B) | |
								Lower	Upper
Step 1a	Couple is unequal	.116	.108	1.147	1	.284	1.123	.908	1.388
	Female is >5 years older	.611	.344	3.158	1	.076	1.842	.939	3.615
	Female has chronic diseases	.616	.109	31.776	1	<.001	1.852	1.495	2.295
	At least one child in household	-.066	.114	.334	1	.563	.936	.750	1.170
	GII_index	.334	1.185	.079	1	.778	1.396	.137	14.256
	Constant	-1.115	.163	46.653	1	<.001	.328		

Table 3. Binary logistic regression: Within-couple difference and lower female health

The result of the binary logistic regression measuring the association between the spouses'

current employment situation and female health outcomes is visible in Appendix C. The

requirements for binary logistic regression are met (Appendix D). For couples in which the male

spouse is employed and the female spouse is a homemaker, the odds of the female spouse reporting

lower health increase by a factor of 1.235 (95% C.I. = 0.981-1.554) compared to both being

employed or both being homemakers. However, this relationship is insignificant (significance level

= 0.072).

Finally, the results of the binary logistic regression measuring the association between a

negative difference in years of education and lower female health outcomes are visible in Appendix

E. Again, the requirements for binary logistic regression are met (Appendix F). The association is

positive but insignificant (significance level = 0.410). The odds of the female spouse reporting lower self-perceived health increase by a factor of 0.102 (95% C.I. = 0.128-13.293) compared to the spouses having equal years of education or a positive difference.

Conclusion

This study explored the relationship between within-couple gender equality and the female spouse reporting lower self-perceived health. Firstly, for the majority of the couples, a negative gender health gap for women was not found. For 518 couples the female spouse reported lower self-perceived health while for 1146 couples health outcomes were equal or the female reported better self-perceived health. Besides, the results indicate that in the population there is an insignificant yet positive relationship between equality within older couples, regarding current job situation and differences in years of education, and the odds of the female spouse reporting lower health. The Gender Inequality Index of the countries did not have a significant relationship with the odds of females spouses reporting lower self-perceived health. This also becomes clear when comparing each country's Gender Inequality Index and the percentage of couples with the female spouse reporting lower health. The specific associations between employment differences and female health outcomes and differences in years of education and female health outcomes are both also positive yet insignificant. Since the study did not find significant results, future research must be conducted to further examine the correlation between health and couple-level gender equality.

Discussion

The main aim of this study was to understand the effects of within-couple gender equality on female health outcomes. The data of 1664 European couples shows that inequality within a couple leads to higher odds of the female spouse reporting lower self-perceived health outcomes, although this relationship is not statistically significant. Additionally, the associations between health and employment differences and between health and a negative 2 years difference in years of education are positive, yet insignificant. Thus, a negative difference in years of education and only the male spouse being employed both increases the odds of the female spouse reporting lower health. These results are in accordance with the provisional expectations and support the hypothesis that within-couple inequality leads to lower female health outcomes. Furthermore, it is consistent with previous research arguing inequality between the spouses can create an uneven power relation and an unequal division of housework and family demands which may result in a sense of low control which produces stress, feelings of unfairness and other negative physiological effects (Chandola et al., 2004; Staland-Nyman et al., 2008). Furthermore, the positive, yet insignificant, association between the Gender Inequality Index and the odds of the female spouse reporting lower health supports the hypothesis; lower gender equality leads to higher odds of the female spouse reporting lower health. This corresponds with previous research on women experiencing the negative effects of macro-level gender inequalities (Audette et al., 2019).

The results add to the body of research that finds positive associations between gender equality and female health. A possible explanation for the insignificant association is the fact that the countries that are included in the analysis have a relatively low gender equality index compared to global levels. This suggests that the countries have relatively small gender inequalities and this could lead to a small or nonexistent gender health gap. Making it difficult to detect the effects of within-couple gender inequalities on health outcomes. Also, the effects of the double burden may

diminish the positive effects of within-couple gender equality on health outcomes (Staland-Nyman et al., 2008).

It must be considered that the analysis has a number of limitations. Although the secondary data is of high quality, it does not perfectly fit the research objective of this study. This can result in inconsistencies between the study population and the populations of the analysed countries which affects the generalisability of the results. Regarding the independent variable: the gender equality of the couple, it must be taken into account that employment and education do not give a full depiction of equality within the couple. Within-couple gender inequality is a subjective complex concept that is difficult to measure. The dataset lacks information on the private sphere of within-couple gender equality such as the power relation, division of household tasks and childcare, et cetera. Similarly, regarding the dependent variable; health outcomes can not be measured completely by self-perceived health.

Future research should consider the relationship between the wider determinants of within-couple gender equality and female health outcomes. For instance, the effects of the double burden should be further investigated. Additionally, current research on the effects of gender equality on health outcomes primarily focuses on females and lacks attention to male health outcomes. Finally, future research can look into the association between gender equality within non-heterosexual couples and health outcomes for other genders.

This study has found more confirmations of previous research results indicating that gender equality within couples is positively associated with female health outcomes. Thus, the European Union, global health institutions and national governments should focus on putting effort into reducing gender gaps by creating policies aimed at promoting gender equality. Ultimately reducing health disparities and lowering pressure on European healthcare systems.

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Appendix A: Descriptive statistics of the analysed variables

Statistics

GII_index		
N	Valid	1664
	Missing	0
Mean		.1188
Minimum		.05
Maximum		.18

Descriptive Statistics

	N	Sum
Female lower health	1664	518
Couple is unequal	1664	900
Only male spouse is employed	1664	539
Female less years of education	1664	412
Female is >5 years older	1664	36
Female has chronic diseases	1664	607
At least one child in household	1664	964
Valid N (listwise)	1664	

Appendix B: Test requirements binary logistic regression: Unequal couple and Lower female health

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	38.324	5	<.001
	Block	38.324	5	<.001
	Model	38.324	5	<.001

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	13.832	8	.086

Contingency Table for Hosmer and Lemeshow Test

		Female lower health = 0		Female lower health = 1		Total
		Observed	Expected	Observed	Expected	
Step 1	1	117	118.540	39	37.460	156
	2	132	124.363	33	40.637	165
	3	126	118.653	33	40.347	159
	4	108	113.617	46	40.383	154
	5	130	125.989	42	46.011	172
	6	113	122.856	56	46.144	169
	7	114	117.143	63	59.857	177
	8	90	101.563	75	63.437	165
	9	110	104.348	64	69.652	174
	10	106	98.928	67	74.072	173

Appendix C: Binary logistic regression: Within-couple difference in the employment situation and lower female health

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1a	Only male spouse is employed	.211	.117	3.229	1	.072	1.235	.981	1.554
	Female is >5 years older	.630	.344	3.353	1	.067	1.878	.957	3.686
	Female has chronic diseases	.614	.109	31.528	1	<.001	1.848	1.492	2.290
	At least one child in household	-.077	.114	.457	1	.499	.926	.741	1.157
	GII_index	-.040	1.214	.001	1	.974	.961	.089	10.387
	Constant	-1.070	.157	46.637	1	<.001	.343		

Appendix D: Test requirements binary logistic regression: Within-couple difference in the employment situation and lower female health

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	40.387	5	<.001
	Block	40.387	5	<.001
	Model	40.387	5	<.001

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	3.133	8	.926

Contingency Table for Hosmer and Lemeshow Test

		Female lower health = 0		Female lower health = 1		Total
		Observed	Expected	Observed	Expected	
Step 1	1	143	138.365	39	43.635	182
	2	110	112.441	38	35.559	148
	3	114	114.427	38	37.573	152
	4	111	117.754	47	40.246	158
	5	135	131.128	45	48.872	180
	6	123	122.202	48	48.798	171
	7	97	98.813	54	52.187	151
	8	102	99.697	58	60.303	160
	9	101	99.933	63	64.067	164
	10	110	111.241	88	86.759	198

Appendix E: Binary logistic regression: Negative difference in years of education and lower female health

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1a	Female less years of education	.102	.123	.678	1	.410	1.107	.869	1.410
	Female is >5 years older	.607	.344	3.116	1	.078	1.836	.935	3.603
	Female has chronic diseases	.619	.109	32.075	1	<.001	1.858	1.499	2.302
	At least one child in household	-.060	.114	.281	1	.596	.941	.753	1.176
	GII_index	.421	1.181	.127	1	.722	1.523	.151	15.407
	Constant	-1.092	.160	46.755	1	<.001	.336		

Appendix F: Test requirements binary logistic regression: Negative difference in years of education and lower female health

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	37.849	5	<.001
	Block	37.849	5	<.001
	Model	37.849	5	<.001

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	7.587	8	.475

Contingency Table for Hosmer and Lemeshow Test

		Female lower health = 0		Female lower health = 1		Total
		Observed	Expected	Observed	Expected	
Step 1	1	128	130.440	45	42.560	173
	2	133	127.268	37	42.732	170
	3	106	107.435	38	36.565	144
	4	137	129.295	37	44.705	174
	5	116	119.271	46	42.729	162
	6	118	118.391	45	44.609	163
	7	104	105.767	58	56.233	162
	8	102	112.853	82	71.147	184
	9	94	94.910	63	62.090	157
	10	108	100.370	67	74.630	175