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Gender differences in treatment with antidepressants during first weeks of a sick-leave spell due to depressive episode

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Background: The incidence of depression is higher in women; women are more often on sick leave due to depression, and more women than men use antidepressants. The objective of this study was to explore possible gender differences in buying prescribed antidepressants during the first 21 days of a new sick-leave spell due to depressive episode. **Methods:** Included were all individuals living in Sweden in working age (18–64 years old) who in 2010 or 2011 began a new sick-leave spell due to depressive episode (ICD-10 F32) lasting at least 21 days (n = 44 863). Register data on sociodemographics, morbidity and dispensed prescription medication were used to investigate associations between gender and buying prescribed antidepressants in the total group and in subgroups, using multiple logistic regression models. **Results:** The study population consisted of 69.5% women. Within the first 21 days of the sick-leave spell, 48.0% of the men and 42.1% of the women had dispensed prescribed antidepressants. In the adjusted multiple logistic regression model, men had an odds ratio of 1.28 (95% confidence interval 1.23–1.33) as compared with women, for buying prescribed antidepressants. **Conclusions:** In this nationwide register study, nearly half of the women and men on sick leave with depressive episode bought prescribed antidepressants during the first three weeks of the sick-leave spell. In the adjusted models, men were more likely to do this. Further studies are needed to elucidate the reasons for this gender difference.

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Introduction

Depressive disorders are among the leading causes of disability, believed to affect more than 300 million people of all ages worldwide.[1] The lifetime risk of developing depression has been estimated to be between 10 and 18%[2–4] with a gender risk ratio of about 2:1 for women as compared with men. The gender gap in depression seems to exist across populations and cultures[5] and is also apparent in Sweden, where the present study was conducted.[6] The reasons why depression is more common in women than men are debated. The proposed possible explanations include potential differences in biological and psychological susceptibility between women and men as well as differences in environmental exposures at both micro and macro levels.[7] At young ages, depression is somewhat more common in boys than in girls, but in the early teens that pattern shifts[8] providing the largest gender difference for some years.[5]

There are different factors that directly and indirectly might contribute to the gender gap in depression. Such factors may work on different structural levels and may be more or less distal or proximal to the individual. Among the individual-level factor that could contribute to differences in incidence and in treatments are women's and men's different healthcare seeking behaviours. It is known that men are less prone to seek help for their mental disorders, which subsequently might delay diagnosis and treatment.[9–12]

According to a Swedish study examining self-reported depression, men were at least as likely to report having depressive symptoms as women, implying that men's lower prevalence of diagnosed depression may be due to under-detection.[13] The European Commission's report on the state of men's health in Europe (2011)

concluded that men's depression probably is under-detected as well as under-treated in all European countries.[14]

The gender gap in prevalence of diagnosed depressive disorders is mirrored by Swedish data on sick leave and drug utilization. All people living in Sweden and aged ≥16 with income from work or student, parental-leave or unemployment benefits are covered by a public sickness absence insurance. The first day of a sick-leave spell is a waiting day, followed by 13 days covered by the employer, and thereafter are covered by the Social Insurance Agency. Sick-leave benefits can be granted for part-time or full-time of ordinary work hours (25, 50, 75 or 100%).

Ever since the beginning of the 1980s, women have had higher sick leave rates than men, a pattern typical for many European countries.[15] There has been a variation in type of main sick-leave diagnoses over the years,[16] however, a long-term trend in many countries is an overall increase in sick leave due to a mental diagnoses, which in Sweden now is the most common sick-leave diagnostic group for both women and men.[17] The Swedish labour market is relatively gender segregated; on average many women and men work in different sectors and professions and it has been shown that differences in professional grade, working conditions and homework interference can contribute to gender differences in sick leave.[18,19] Furthermore, despite high work participation in the total working age population, a higher proportion of women work part-time.[20]

In Sweden, obtaining an antidepressant medication requires a prescription from a physician and the drug is then bought by the patient at a pharmacy. There are gender differences in drug prescription and drug utilization for mental disorders, where women buy almost twice as much antidepressants than men.[11,13] While such data describe the gender differences in total dispense and use of antidepressants it does, however, not account for potential factors contributing to whether a prescription is issued or not during a consultation. Such factors include disease severity and comorbidity as well as patients' own experiences and preferences. Other potential reasons that could explain gender differences in antidepressant prescription and utilization could be dissimilarities in disease trajectory. Other potential reasons that could explain gender differences in prescription and dispensing of medications could be gender stereotype management by the healthcare professionals i.e. a form of unwarranted gender bias.

Sweden, like most countries, endorses evidence-based treatment recommendations. The Swedish Board of Health and Welfare has published treatment recommendations for depression and anxiety disorders.[21,22] These recommendations promote both treatment with psychotherapy and antidepressants for mild and moderate depressive disorder. The treatment recommendations are gender neutral, meaning that the recommendations apply alike to both women and men. There are studies that have looked into whether women and men respond differently to antidepressants, were some results suggest that women may have a greater benefit,[23,24] whereas other studies report no such differences.[25] If there is a true gender difference in treatment effect, it seems to be so small that current knowledge does not warrant gender-differentiated treatment recommendations.

There are several known risk factors for sick leave, including age, sex, education, country of birth and work status.[26] While there are known gender differences in sick-leave prevalence as well as in overall antidepressant use, little is known about the underlying mechanisms behind these differences, such as if women and men in similar situations are treated alike or not.

The rationale behind this study was to shed light on potential gender disparities in a specific situation, namely: whether there are gender differences in prescribing antidepressants during the first three weeks of a new sick-leave spell due to depressive episode (International Statistical Classification of Diseases and Related Health Problems version 10 (ICD 10): F32.[27] This situation was chosen because starting a new sick-leave spell, lasting several weeks or longer, indicates not only being diagnosed with a depressive episode, but also that the symptoms are so severe that they have led to a reduction of functioning to such an extent that the patient, by the physician, is assessed as being work incapacitated. In such a situation, it is likely that the physician also reflects on the need for pharmaceutical treatment with an antidepressant, either as a new treatment or as a change from a previous treatment. The initiation of such treatment is likely to occur close in time after the deterioration leading to the sick-leave spell.

The aim of this study was to explore if there was a gender difference in dispensing described antidepressants within three weeks after the initiation of a new sick-leave spell due to depressive episode, in general and in different subgroups.

Methods

This study used microdata from the following four nationwide Swedish registers:

- the register for Micro-Data for Analysis of the Social Insurance System (MiDAS) held by the National Social Insurance Agency, regarding sick-leave spells (dates, diagnoses and work status);
- the LISA-register (Longitudinal integration database for health insurance and labour market studies) from Statistics Sweden regarding sociodemographics (sex, age, birth country, educational level and occupation) and:
- the National Patient Register covering specialized healthcare utilization (regarding dates for hospitalizations and visits to specialized healthcare for F32 and other mental and behaviour disorders (F00–F99 diagnoses), respectively, during a period 12 months before the date of the index sick-leave spell for each individual) and the Prescribed Drug Register (regarding numbers and dates of dispensed prescribed antidepressants within 12 months before and 21 days after the start date of the index sick-leave spell), both held by the National Board of Health and Welfare.

Data were linked at individual level, using the unique personal identity numbers assigned to all residents in Sweden. The study population consisted of all individuals of working age (18–64 years) who during 2010–2011 had a new sick-leave spell ≥21 days due to depressive episode (ICD 10: F32) as the main sick-leave diagnosis, according to MiDAS. If an individual had more than one such sick-leave spell during the inclusion period, only the first spell was included. This led to inclusion of 44 863 unique individuals. The project was approved by the Regional Ethical Review Board of Stockholm, Sweden.

Variables

The primary dependent variable was buying prescribed antidepressant medication (Anatomical Therapeutic Chemical [ATC] Classification System, N06A) at a pharmacy during the 21 first days of the index sick-leave spell. The N06A class includes selective serotonin reuptake inhibitors as well as other types of antidepressants.

The association between gender and buying prescribed antidepressants was assessed for the total study population, as well as for different strata of the study population and in a subgroup of those not having been dispensed prescription antidepressants within a period of 12 months prior the start date of their index sick-leave spell (i.e. in a sample being untreated with antidepressants the past 12 months). The strata were based on categorizations of educational level (three categories: elementary school (0–9 years), secondary school (10–12 years) and university/college (>12 years)), birth country (three categories: Sweden, the rest of EU 25 or the rest of the world), work status when the sick-leave spell begun (two categories: employed/self-employed/student/on parental leave vs. unemployed) and occupation in the previous year (three categories; blue- or white-collar work or no information about occupation).

Since previous morbidity, sick leave and healthcare utilization may be associated with current drug prescription, the following variables were used as co-variates in the multiple regression models—all regarding the 12-month period preceding the start date of the index sick-leave spell:

- Number of net sick-leave days, categorized into 0, 1–7 days, 8–30 days and >30 days. To calculate net days, part-time sick-leave days were combined e.g. two days of 50% sick leave was combined to one net day.
- Having had a sick-leave spell due to depressive episode or other mental disorder (ICD 10 F32 or F00–F99) (yes/no).
- Number of visits to specialized healthcare for a mental diagnosis (F00–F99) (not counting in-hospital healthcare stays), categorized into 0, 1, 2–5 or >6 visits.
- Dispensing of prescribed antidepressants (N06A) (yes/no).

Statistics

Chi-square tests, *t*-tests and Mann–Whitney U-tests were used to test for gender differences in characteristics of the study population. Associations between gender and dispensed antidepressants were tested using chi-square as well as logistic regression analyses. The regression analyses tested different models were model 1 were crude associations between gender and dispensing of antidepressants, and models 2 and 3 adjusted for various co-variates. Regression model 2 adjusted for gender, age, education, birth country and work status. Model 3 adjusted for all variables in model 2, and also for the different variables regarding number of net sick-leave days and visits to specialist healthcare due to mental diagnoses as well dispensing of antidepressants in the 12 months before start date of the index sick-leave spell. Results from the regression models were presented as odds ratios (ORs) with 95% confidence intervals (CI). All tests were two-sided and a $P < 0.05$ was considered statistically significant. All analyses were performed in SPSS 23.0 (IBM SPSS Statistics for Windows, IBM Corp., Armonk, NY).

Results

The study population consisted of 44 863 individuals of which the majority were women (69.5%). The average age was 42.0 (SD 11.3) years and the most common highest achieved educational level was secondary school. There were no large differences between women and men in net sick-leave days during the 12-month period before the start date of the index sick-leave spell (Table 1).

A higher proportion of men than women had dispensed antidepressants during the first 21 days of the sick-leave spell (48.0% vs. 42.1%, $P < 0.001$). The gender gap of higher dispensing of antidepressants to men was present also in different strata, based on highest achieved educational level, work status and occupation (Table 2). Dispensing of antidepressants was less common in those born outside the EU. While there was a statistically significant

Table 1 Characteristics of the study population of all people with a new sick-leave spell ≥21 days in 2010–2011, due to depressive episode, for all and among women and men, respectively

	Women *n* = 31 193	Men *n* = 13 699	Total *n* = 44 863	*P*-value
Age, years, mean (SD)	41.7 (11.1)	42.6 (11.5)	42.0 (11.3)	<0.001[a]
Educational level, % (*n*)				<0.001[b]
Elementary school	11.3 (3525)	18.9 (2583)	13.6 (6108)	
Secondary school	49.4 (15 411)	53.8 (7361)	50.7 (22 772)	
University/college	39.3 (12 241)	27.3 (3742)	35.6 (15 983)	
Work status, % (*n*)				<0.001[b]
Employed, self-employed student or on parental leave	88.2 (27 512)	85.1 (5614)	87.3 (39 176)	
Unemployed	11.8 (3681)	14.9 (2035)	12.7 (5716)	
Occupation, % (*n*)				<0.001[b]
White collar	37.7 (11 747)	34.3 (4699)	36.7 (16 446)	
Blue collar	58.6 (18 271)	59.7 (8171)	58.9 (26 442)	
No information	3.7 (1159)	6.0 (816)	4.5 (1031)	
Birth country, % (*n*)				<0.001[b]
Sweden	84.2 (26 237)	82.5 (11 295)	83.7 (37 533)	
The rest of EU 25	5.5 (1715)	5.1 (698)	5.4 (2413)	
The rest of the world	10.3 (3225)	12.4 (1692)	11.0 (4917)	
Born outside Sweden, % (*n*)	15.8 (4940)	17.5 (2390)	16.3 (7330)	<0.001[b]
Sick-leave days the previous 12 months[c] mean/median	18.9/0	20.0/0	19.3/0	<0.001[d]
People with sick-leave days previous 12 months, % (*n*)				<0.001[b]
0	72.6 (22 644)	75.4 (10 316)	73.5 (32 960)	
1–7	5.1 (1577)	3.6 (488)	4.6 (2065)	
8–30	8.3 (2579)	6.9 (942)	7.8 (3521)	
>30	14.0 (4337)	14.2 (1940)	14.1 (6317)	
Sick leave due to depressive episode (F32). previous 12 months, % (*n*)	5.9 (1841)	6.3 (868)	6.0 (2709)	0.073[b]
Sick leave due to other mental diagnoses previous 12 months, % (*n*)	8.3 (2595)	6.7 (921)	7.8 (3516)	<0.001[b]
People with respective No. of specialist visits previous 12 months because of other mental diagnoses, % (*n*)				<0.001[b]
0	86.6 (26 542)	81.9 (10 813)	85.2 (37 335)	
1	5.9 (1821)	8.0 (1057)	6.6 (2878)	
2–5	6.1 (1866)	8.2 (1085)	6.7 (2951)	
>6	1.3 (404)	1.8 (244)	1.5 (648)	
Dispensed prescribed antidepressants (N06A) previous 12 months, % (*n*)	43.7 (13 686)	42.1 (5759)	43.2 (19 383)	0.001[b]
Dispensed prescribed antidepressants (N06A) during the first 21 days of the index sick-leave spell, % (*n*)	42.1 (13 114)	48.0 (6563)	43.1 (9941)	<0.001[a]

Notes: Sick-leave spells shorter than 14 days not included. SD, standard deviation; N06A, Antidepressants according to ATC classification.
[a]*t*-test.
[b]Chi-square test.
[c]Net days.
[d]Mann–Whitney U-test.

Table 2 Proportions of the study population with dispensed prescribed antidepressants (N06A) during the first 21 days of a new sick-leave spell due to depressive disorder (F32), among all and among women and men, respectively, in different strata

Proportion with dispensed antidepressants (N06A) within the first 21 days of the new sick-leave spell	Women $n = 31\ 177$	Men $n = 13\ 686$	Total $n = 44\ 863$	*P*-value for comparison of women and men
All, % (*n*)	42.1 (13 114)	48.0 (6563)	43.1 (9941)	<0.001
According to education, % (*n*)				
Elementary school	41.7 (1471)	46.7 (1206)	43.8 (2677)	<0.001
Secondary school	43.3 (6675)	49.3 (3632)	45.3 (10 307)	<0.001
University/college	40.6 (4968)	46.1 (1725)	41.9 (6693)	<0.001
According to work status, % (*n*)				
Employed, self-employed, student or on parental leave	43.2 (11 884)	50.0 (5821)	45.2 (17 705)	<0.001
Unemployed	33.4 (1230)	36.5 (742)	34.5 (1972)	0.02
According to occupation, % (*n*)				
White collar	40.6 (4769)	47.2 (2218)	42.5 (6987)	<0.001
Blue collar	43.5 (7942)	49.0 (4005)	45.2 (11 947)	<0.001
No information	34.8 (403)	41.7 (340)	37.6 (743)	0.002
According to birth country, % (*n*)				
Sweden	42.4 (11 135)	49.4 (5580)	44.5 (16 715)	<0.001
The rest of EU 25	41.1 (705)	45.0 (314)	42.2 (1019)	0.08
The rest of the world	39.5 (1274)	39.5 (669)	39.5 (1943)	0.98

Notes: Chi-square tests. Null hypothesis, no gender difference within strata.

Table 3 Logistic regression models presenting OR with 95% CI for dispensed prescribed antidepressants (ATC N06A) for men as compared with women, within the first 21 days of a new sick-leave spell due to depressive episode (F32) during 2010–2011

	Model 1 (Crude)	Model 2[a]	Model 3[b]
	OR (95 % CI)	OR (95 % CI)	OR (95 % CI)
Men (women ref)	1.27 (1.22–1.32)	1.28 (1.23–1.33)	1.28 (1.23–1.33)
Age (years)	1.00 (1.00–1.00)	1.00 (1.00–1.00)	1.00 (1.00–1.00)
Country of birth			
Sweden (ref)			
Rest of EU 25	0.91 (0.84–0.99)	0.94 (0.87–1.02)	0.95 (0.87–1.04)
Rest of the world	0.81 (0.77–0.86)	0.85 (0.80–0.90	0.86 (0.80–0.91)
Education			
University[a] (ref)			
Secondary school[a]		1.10 (1.03–1.17)	1.11 (1.04–1.18)
Primary school[a]		1.15 (1.10–1.20)	1.15 (1.11–1.20)
Work status			
Unemployed (ref)			
Employed, self-employed, student or on paternal leave	1.57 (1.48–1.66)	1.59 (1.50–1.68)	1.47 (1.38–1.56)
Net days on sick leave previous year			
0 (ref)			
1–7	1.03 (0.94–1.12)		1.13 (1.03–1.25)
8–30	1.00 (0.93–1.07)		1.11 (1.03–1.20)
>30	0.66 (0.62–0.70)		0.82 (0.77–0.89)
On sick leave previous year due to mental diagnoses yes (No = ref)	0.69 (0.65–0.73)		0.78 (0.73–0.85)
No. of specialist visits previous 12 months because of other mental diagnoses			
0 (ref)			
1	0.93 (0.86–1.00)		0.99 (0.92–1.07)
2–5	0.79 (0.73–8.86)		0.92 (0.85–1.00)
>5	0.64 (0.54–0.75)		0.82 (0.69–0.97)
Dispensing of antidepressant treatment (N06A) last year			
No (ref)			
Yes	0.87 (0.84–0.90)		0.98 (0.94–1.02)

[a]Model 2 adjusts for gender, age, education, birth country and work status.
[b]Model 3 adjust for all covariates in model 2 + net sick-leave days and the number of visits to a specialist due to mental disorder and dispensing of antidepressant treatment in the 12-month period before start date of the index sick-leave spell.

gender difference in dispensing of antidepressants for those born in Sweden, this difference was not seen among those born outside Sweden.

Men had higher ORs than women for having been dispensed antidepressants in the regression models. The crude OR for men as compared with women was 1.27 (95% CI 1.22–1.32) (Table 3). The OR did not change considerably in the multiple regressions, where the full model, adjusting for sick-leave days, sick-leave spells due to mental diagnosis, visits to specialist healthcare due to a mental diagnosis and being dispensed prescribed antidepressants during the previous 12 months resulted in an OR of 1.28 (95% CI 1.23–1.33). People who were born 'in the rest of the world' had lower ORs of antidepressant dispensation compared with those born in Sweden (OR 0.86; 95% CI 0.80–0.91) in the fully adjusted model. Adjusting also for having been hospitalized for depressive episode during the previous year (2.2% for men vs. 1.1% for women, *P* < 0.001) did not change the results (not shown in tables).

A little more than half of the study population (56, 8%, *n* = 25 480) had not been dispensed prescribed antidepressants during the 12-month period prior to the start date of the index sick-leave spell.

In this group, a lower proportion of women (42.9% vs. 50.6%, $P < 0.001$) were dispensed antidepressants during the first 21 days of the index sick-leave spell. In the fully adjusted regression model in this group, men, as compared with women, had a higher OR of having been dispensed antidepressants during the first 21 days: 1.35 (95% CI 1.28–1.43) (not shown in tables).

Discussion

The aim of this nationwide population-based study was to explore if there was a gender difference in dispensed prescribed antidepressants during the first 21 days of a new sick-leave spell due to depressive episode (F32). We found that men had a significantly higher OR for such dispensing (OR 1.28; 95% CI 1.23–1.33). The absolute difference between rates of women and men was 5.9% percentage points (48.0 vs. 42.1%), which is not very large but yet a clear difference.

The strengths of this study include that all people in a whole country with a new sick-leave spell due to depressive episode ≥21 days, were included, not a sample or selection. Another strength is the large study population and the use of nationwide high-quality register data linked at individual level.[28–30] A further strength is that the main exposure and outcome, as well as all included covariates, were administrative data, not based on self-reports, avoiding report- and recall bias. Thus, the results, based on real life data, indicate that there in fact is a gender difference in antidepressant treatment among individuals on a new sick-leave spell due to depressive episode.

An obvious limitation of the study is that we do not have information on whether there was a gender difference in prescription of antidepressants, only in individuals actually buying such prescription medications. There may be patients who receive prescriptions by their physician, but then decide not to buy the medication or to buy them at a point in time later than the time-frame of 21 days used in this study. A gender difference in such non-adherent behaviour or timing of dispensation would affect the results in the present study. As men could be more non-adherent to antidepressant dispensing than women,[13] such bias would underestimate the true gender difference in this study.

Other limitations involve the lack of information on several potential explanatory factors for the observed gender difference. Such factors may include, but are not limited to, potential gender differences in depression severity and in psychiatric comorbidity and social determinants. Furthermore, an individual's own treatment preferences are important in situations where different options are available. Previous research findings suggest that treatment preferences influence treatment choice, where women with depression have been shown to prefer psychotherapy whereas men more often prefer pharmaceutical treatment.[31–33] There are some other concerns worth noting. The drug prescription register does not cover treatments administered in hospital healthcare, thus patients who received antidepressants when hospitalized are less likely to be represented in the material.

It is known that women have higher incidence rates for depression[7] and studies suggest that a higher proportion of women use antidepressants than men.[11] A few studies have investigated gender differences in the use of antidepressants in European populations, however, without finding any substantial differences between women and men.[34,35] The results in the present study show that men are more likely than women to receive antidepressants during the first 21 days of a new sick-leave spell due to depressive episode. There are a couple of possible explanations to these seemingly conflicting results. A likely reason for the higher overall utilization of antidepressants in women is women's more frequent healthcare utilization, implying that the probability of receiving a drug prescription increases with the number of visits to a physician. It is also possible that the findings in this study are not representative for every instance when an individual is diagnosed with a depressive episode, but merely when the condition is assessed as so severe that it has led to work incapacity requiring sick leave.

This study includes individuals, on long-term sick leave certified by a physician, with a depressive episode diagnosis. The rational for using a new sick-leave spell as the point of inclusion was to identify newly developed work incapacity i.e. a deterioration where pharmacological treatment with antidepressants may be a possible treatment option. It turned out that many (43.2%) in the study population already had bought prescribed antidepressants within the previous 12 months. There are several conditions, other than depressive episode, where antidepressant treatment may be suitable. Such conditions include other affective disorders as well as neurotic, stress-related, somatoform and premenstrual dysphoric disorders.

Conclusion

In summary, we used nationwide data of all individuals with a new sick-leave spell due to depressive episode to investigate whether there is gender difference in buying prescribed antidepressants during the first 21 days of a sick-leave spell. The main results show that a higher proportion of men than women had dispensed prescribed antidepressants within the 21 first sick-leave days. This finding remained significant when adjusting for sociodemographic factors as well as previous health status, healthcare visits for depression, sick-leave and antidepressant medication. Further studies are needed to elucidate the reasons for the observed difference.

Funding

Key points

- There are large gender differences in depression; more women than men are diagnosed, on sick leave and on anti-depressive treatment.
- We investigated, in a nationwide sample, gender differences in dispensing prescription antidepressants after starting a new sick-leave spell due to depressive episode.
- Close to half of the study population had bought antidepressants within the first three weeks after the first sick-leave day.
- Men were somewhat more likely than women to have bought antidepressants within the given period, a finding that was also present in different strata according to education, work status and occupation.

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Social inequalities in health: duration of unemployment unevenly effects on the health of men and women

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Background: Employment status is an important determinant of health inequalities. The aim of this article is to analyze the association between duration of unemployment and the presence of cardiovascular risk factors, self-perception of health and presence of depression and anxiety, assessing differences in the effects of unemployment by sex and age. **Methods:** The sample was composed of 12 123 people (52.4% men), 18 to 74 years old (mean age= 43.5 years, SD = 10.4). Logistic regression analyses were used to study the influence of duration of unemployment on health ('0 days', '≤11 months' and '≥12 months'). Sex, age, level of education, employment status and time spent unemployed, as well as tobacco and alcohol use and physical activity, were considered. Morbidity variables were hypertension, hypercholesterolemia, diabetes, obesity, depression and anxiety, and a subjective health assessment. **Results:** The results showed both unemployed men and women had worse outcome in health compared with their active counterparts. The risk of hypertension was presented in long-term unemployed men, which had 1.3 times more likely to suffer from hypertension. The risk of obesity was presented only in unemployed women, which had 1.5 times more risk of obesity, doubling the risk (OR= 2.2) among women under age 40. The unemployment had a protective effect against anxiety among younger women (OR = 0.53) **Conclusion:** It has been observed a different influence of unemployment time on men and women's health. The employment status should be considered in public health policy agendas with the purpose of reducing inequalities in health.

Introduction

Economic situation and employment status condition the social environment of individuals and have an important effect on the burden of disease,[1] thus can be considered a public health problem.

Characteristics associated with employment such as educational level,[2] income[3] and occupation[4] are considered social determinants of health. It has been described[5] that health problems due to social status affect men and women unequally, due at least in part to discrepancies in job insecurity or maternal age.[6] This can lead to gender inequalities in occupational health.

The previous studies have shown discrepancies on the extent to which unemployment affects mental health.[7] Some evidence shows that unemployment is a cause of deteriorating mental health[8–10] while others do not see this effect.[11] This is also observed for cardiovascular morbidity. While some analyses find an association between unemployment and cardiovascular risk factors,[12,13] others find that this association is not significant.[14] In addition, few studies have evaluated inequalities in health according to gender using unemployment time as a determining factor.

The relationships between socio-economic status and health are influenced by national policy agendas, but these inequalities persist and have even widened[15] in European countries with social protection policies, which is a great disappointment for public health.[16] Increased awareness of health inequalities contributes to their reduction, combating physical and mental morbidity.

The aim of this article is to analyze the differences in health between men and women considering the presence of hypertension, hypercholesterolemia, diabetes, obesity, depression, anxiety and self-perception of health, according to the duration of unemployment. Additionally, the data were evaluated considering the age groups.

Methods

Sample

The data used in this study were obtained from the European Health Survey of Spain (EHSS) of the year 2014 (the latest available data at the time of preparing this work), conducted by the Instituto Nacional de Estadística (National Statistics Institute), inside the framework of the European Health Surveys, and published by the Spanish Ministry of Health, Consumer Affairs and Social Welfare (http://www.msssi.gob.es/estadEstudios/portada/home.htm). The EHSS, which is a representative population survey resident in Spain, aims to provide information on the health of the Spanish population, in an anonymized and freely available form.

From the complete survey including 22 842 people persons older than 16 years. It has refined database eliminating study 521 under 17 years of age, 1162 people who had never worked in a paid capacity, 7442 people directly or indirectly receiving pension benefits due to retirement or disability and 1197 people lacking data related to their employment situation. Records with missing or error data were also removed, with 289 records lacking body mass index (BMI), 31 for hypertension, 36 for hypercholesterolemia, 11 for tobacco use, 9 for consumption of alcohol, 8 for physical activity and 6 for depression and/or anxiety. The final database included 12 123 individuals (6355 men, 52.4%), 18–74 years old, with a mean of 43.5 years old (SD = 10.4).

Variables studied

Socio-demographic variables

The socio-demographic variables included in this study were sex, age, education level and unemployment time.