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Identification of major depressive disorder among the long-term unemployed

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Abstract

Purpose Depression is a common mental health disorder among the unemployed, but research on identifying their depression in health care is scarce. The present study aimed to explore the identification of major depressive disorder (MDD) in health care on long-term unemployed and find out if the duration of unemployment correlates with the risk for unidentified MDD.

Methods The study sample consisted the patient files of long-term unemployed people (duration of unemployment 1–35 years, median 11 years), who in a screening project diagnosed with MDD ($n = 243$). The MDD diagnosis was found in the health care records of 101. Binomial logistic regression models were used to explore the effect of the duration of unemployment, as a discrete variable, to the identification of MDD in health care.

Results MDD was appropriately identified in health care for 42% ($n = 101$) of the participants with MDD. The odds ratio for unidentified MDD in health care was 1.060 (95% confidence interval 1.011; 1.111, $p = 0.016$) per unemployment year. When unemployment had continued, for example, for five years the odds ratio for having unidentified MDD was 1.336. The association remained significant throughout adjustments for the set of background factors (gender, age, occupational status, marital status, homelessness, criminal record, suicide attempts, number of health care visits).

Conclusions This study among depressed long-term unemployed people indicates that the longer the unemployment period has lasted, the more commonly these people suffer from unidentified MDD. Health services should be developed with respect to sensitivity to detect signs of depression among the long-term unemployed.

Keywords Depression · Health care · Identification · Major depressive disorder · Unemployment

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Introduction

Major depressive disorder (MDD) causes significant human suffering and is the second leading cause of years lived with disabilities globally [1]. According to a review article the 12-month prevalence of MDD is 6.9% [2]. Unipolar depression also is a leading contributor to a burden of disease measured by disability adjusted life years: The number of lost years of healthy life has been calculated as 4,320,400 in Europe [3, 4]. According to earlier studies around 10% of primary health care patients [5, 6] and 50% of specialized mental health care patients [5] suffer from clinical

depression. The financial burden of depression is also notable. The total costs of MDD in the USA have been estimated at over \$210.5 billion in 2010 [7]. One potentially affective means of combatting the challenges posed by MDD would be to focus the health service resources for the risk groups.

One of the most noteworthy risk groups for MDD is unemployed people. A connection between unemployment and deteriorated mental health, especially depression, has been demonstrated in several studies [8–11]. In particular, prolonged unemployment incurs a risk for depression and vice versa: poor mental health may negatively affect re-employment [12, 13].

The identification of depression is a key objective in improving depression remission rates. In primary care settings the depression identification rate has varied between 47 and 84% [14, 15]. As unemployment and depression commonly co-occur, paying attention especially to the identification of depression among unemployed people could substantially enhance the rate of identified depression as a whole. The identification of depression may, however, be more complicated among the unemployed because there are no job-related requirements regarding mental health and the need for seeking care may also be reduced.

The reasons for inadequate identification of depression among the unemployed largely lie in their particular patterns of utilization of health services. Visits to health care professionals have been demonstrated to decrease during unemployment but the results are not entirely conclusive [16–19]. At least some activity and initiative on the part of the individual concerned would have been demanded to seek professional help for mental problems but these properties are often deficient in people with mental disorders. It is known that the unemployed do not seek professional help for their health problems as actively as do employees, or even if they seek help from health care, their mental health problems and need for treatment go largely unidentified [20, 21]. In sum, there is substantial evidence of a connection between depression and unemployment. However, research on the extent to which depression among the unemployed is identified in health care is scarce.

The aim of this study was to explore the identification of depression among the long-term unemployed in health care focusing especially on the duration of unemployment. We expected to find that the risk of suffering from unidentified depression increases along with the lengthening of the unemployment spell.

Materials and methods

The study sample consisted of long-term unemployed people involved in the 'Eligibility for a Disability Pension' project (EDIPE), initiated by the Ministry of Labour in Finland

[22]. According to the above demonstrated association between deterioration of health with prolonged unemployment, the idea of the EDIPE—project was to identify from among the long-term unemployed those who might be permanently unable to work, to offer them a thorough multi-professional, medical examination and, in cases where the criteria for the disability pension were fulfilled, to provide a certificate to support a disability pension application. The EDIPE—process was initiated by the employment authorities, who assessed the participant's eligibility on the basis of the records of health problems, limitations in working ability and duration of the unemployment period, which should be at least 1 year.

For this research the data was derived from the documents of the case history register of the EDIPE-project. The research register included 505 participants of the EDIPE-evaluation in Tampere, Finland for the years 2001–2006. The documents consisted of medical records requested from primary and specialized health care and the medical examinations of the EDIPE -project. The research register is presented in more detail in our previous publication [23].

The psychiatric assessments in the EDIPE project were made by experienced psychiatrists. The diagnoses of MDD (F32.*) or recurrent MDD (F33.*) were set in clinical examination by adhering to the criteria of ICD-10 [24]. Before the clinical examination, the psychiatrist acquainted him/herself thoroughly with the health records acquired from primary and specialized health care as well as with the health records produced in the multi-professional assessment conducted during the EDIPE -project. A total of 243 participants (48% of the sample of 505 long-term unemployed) received a MDD-diagnosis. They comprised the sample of the present study. This sample was classified into those who, according to the documents acquired from health care, had been diagnosed as suffering from MDD prior to entering into EDIPE -project into 'the identified' ($n = 101$, 42%) and those whose depression had not been diagnosed 'the unidentified' ($n = 142$, 58%). This dichotomous variable was the outcome of the study.

The explanatory factor was duration of unemployment, which was handled as a discrete variable in the multivariate analyses and presented in quartiles (1–6, 7–10, 11–13 and 14–35 years) in bivariate analyses. The duration of unemployment refers to the continuous duration of the person being recorded in the employment office as an unemployed jobseeker before entering in the EDIPE project. The recorded unemployment period included also participation in active labour market policy measures, such as various courses or spells of subsidized re-employment.

Background variables were as follows: Age was set as a discrete variable in the multivariate analyses and categorized into four-classes in the bivariate analyses. Marital status was dichotomized to single (including unmarried, divorced

and widowed) and married/cohabiting. Occupational status was trichotomized to unskilled and skilled manual workers and non-manual workers including entrepreneurs. The information on homelessness was self-reported, as was having a criminal record. The information on suicide attempts (yes or no) was gathered from the records of primary and specialized health care, as was the number visits to physicians during the preceding 3 years. The number of visits was handled as a discrete variable in multivariate analyses and categorized into four in the bivariate analyses.

After describing the associations between background factors and 'Identification of MDD', binomial logistic regression analyses were conducted with 'Identification of MDD' as the dependent variable and duration of unemployment, as a discrete variable, as the main explanatory variable. The analysis was adjusted separately for sociodemographic background variables, for variables with statistically significant difference for the identification of MDD in bivariate analyses, for variables associated to social exclusion and for variables associated with the using health care services. Finally, the whole set of variables was introduced into the regression model.

Pearson's Chi-square and Fisher's exact tests were used in the comparison of the categorical variables in bivariate analyses. In the regression models the association of the identification of MDD in health care with the duration of unemployment was described by odds ratios (OR) per 1 year of unemployment and corresponding 95% confidence intervals (CI). The statistical significance was determined with p value < 0.05. Statistical analyses were conducted by SPSS/Win software version 23, IBM^R SPSS^R statistics.

Results

Of the studied group of long-term unemployed diagnosed as depressed on the EDIPE-project, men accounted for 59% ($n = 144$). The mean age was 52 years (SD 6.3, range 29–64 years). Single were 73% ($n = 178$) and manual workers, skilled or unskilled, amounted for 82% ($n = 193$). The unemployment had lasted for a very long time, on average 10 years (median 11 years, SD 5.7) and at maximum 35 years. Suicide attempts were found in the records of 20% ($n = 49$) of the participants. On an average 11 visits in health care were observed in the 3 years prior to the entry into the EDIPE-project (median 8, SD 10.7, range 0–89).

Of those 243 with diagnosed MDD, 8.6% suffered mild, 54.7% moderate, 21.4% severe, 0.8% psychotic depression and on 14.4% the severity of MDD remained unspecified. Recurrent episode of depression was discovered on 10.7% and psychiatric comorbidity occurred on 79% of participants. The most prevalent comorbidity, alcohol use disorder (AUD, containing ICD-codes F10.1 alcohol abuse and F10.2

alcohol dependence), was diagnosed on EDIPE-project on 49%, personality disorder (F6*, according to ICD-10) on 38% and anxiety disorder (F4*, according to ICD-10) on 25% of the participants.

Descriptive statistics of the study population according to the identification of MDD are presented in Table 1. Non-identification was associated with male gender ($p = 0.047$),

Table 1 Association of the background variables with the identification of major depressive disorder (MDD) in health care (HC)

	Identification of MDD				p
	MDD identified in HC		MDD unidentified in HC		
	N	%	N	%	
	101	41.6	142	58.4	
Gender					**0.047**
Female	49	48.5	50	35.2	
Male	52	51.5	92	64.8	
Age					0.429
23–39 years	7	6.9	5	3.5	
40–49 years	21	20.8	30	21.1	
50–59 years	69	68.3	96	67.6	
60–64 years	4	4.0	11	7.7	
Marital status					0.244
Single	70	69.3	108	76.1	
Married/cohabiting	31	30.7	34	23.9	
Occupational status					0.607
Non-manual worker	19	19.2	24	17.5	
Skilled manual worker	63	63.6	95	69.3	
Unskilled manual worker	17	17.2	18	13.1	
Homelessness					**0.027**
No	98	97.0	126	88.7	
Yes	3	3.0	16	11.3	
Criminal record					0.862
No	85	84.2	117	82.4	
Yes	16	15.8	25	17.6	
Duration of unemployment (in quartiles)					**0.003**
1–6 years	35	34.7	29	20.4	
7–10 years	25	24.8	31	21.8	
11–13 years	14	13.9	48	33.8	
14–35 years	27	26.7	34	23.9	
Previous suicide attempt					**0.006**
No	72	71.3	122	85.9	
Yes	29	28.7	20	14.1	
Use of health services (visits in 3 years)					**< 0.001**
0	5	5.0	31	21.8	
1–6	20	19.8	42	29.6	
7–13	29	28.7	43	30.3	
14–89	47	46.5	26	18.3	

Bold values indicate statistically significant ($p < 0.05$)

homelessness ($p = 0.027$) and longer duration of unemployment ($p = 0.009$). Previous suicide attempts ($p = 0.006$) and higher number of visits in health care ($p < 0.001$) were positively associated with the identification of MDD. Mean duration of unemployment was 11 years (SD 5.5) and 9 years (SD 5.9) among those with unidentified and identified MDD ($p = 0.014$), respectively. In addition, the identification of MDD in health care among homeless persons tended to remain lower than among those with a permanent residence (16 vs. 44%, $p = 0.027$). Furthermore, MDD was identified more commonly among subjects with suicide attempts (59 vs. 37%, $p = 0.006$). Of the whole study population 15% had not visited health care at all in the 3 years prior to participating in the EDIPE-project, 6% of women and 21% of men, and of those whose depression remained unidentified 22% had not used any health care services. The identification of MDD was more frequent when there had been at least 14 visits to health care during the last 3 years before the EDIPE-project compared to 1–6 or 7–13 visits, 64 vs. 32% and 40%, respectively.

The health records revealed the information of ongoing and/or past mental health care as follows: of the study group, 59% were prescribed antidepressive medicine. The regular psychiatric treatment relationship in specialized mental health clinic had carried out on 14%, but intensive psychotherapy got only 3%. Psychiatric hospitalizations had 15% of the study group. A treatment contact in the outpatient substance abuse services had met with 32% and in inpatient detoxification care 28%.

In the binomial regression analysis (Table 2) the OR for unidentified MDD was 1.060 ($p = 0.016$) per 1 year of unemployment. This means a higher risk for unidentified MDD among those with longer duration of unemployment. If unemployment had continued 5 years the OR for unidentified MDD increased to 1.336 and after 10 years of unemployment to 1.786. The binomial regression analyses were conducted to exclude potential confounders among factors associated to identification or non-identification of MDD in bivariate analyses. The result remained at the same level throughout adjustments: In Model 2 sociodemographic background variables (OR 1.056, $p = 0.028$), in Model 3 for variables with statistically significant difference in the bivariate analyses from the identification of MDD (OR 1.057, $p = 0.033$), in Model 4 for variables associated with social exclusion (OR 1.070, $p = 0.009$), in Model 5 for variables associated with the use of health services (OR 1.062, $p = 0.022$) and in Model 6 the full model for all the background variables in Models from 2 to 4 (OR 1.073, $p = 0.012$).

Discussion

The study revealed that the diagnosis of MDD can be found in the documents of the health care in less than half of the long-term unemployed suffering from this disorder. Moreover, in the line with our expectations, the risk for

Table 2 Association of the duration of unemployment, as discrete variable, with unidentified major depressive disorder (MDD) in health care (HC) in crude model and after adjusting for several multivariate models described by odds ratios (OR) per 1 year of unemployment and 95% confidence intervals (CI)

	OR/1 year of unemployment	CI	p
Model 1	1.060	1.011;1.111	**0.016**
Crude model			
Model 2	1.056	1.006;1.108	**0.028**
Adjusted for sociodemographic characteristics: Age, gender, marital status			
Model 3	1.057	1.004;1.113	**0.033**
Adjusted for variables with statistically significant difference from identification of MDD in bivariate analyses: gender, homelessness, suicide attempts, number of visits to HC in last 3 years			
Model 4	1.070	1.017;1.126	**0.009**
Adjusted for variables related to social exclusion: gender, marital status, occupational status, homelessness, criminal record			
Model 5	1.062	1.009;1.118	**0.022**
Adjusted for variables related to use of HC: Number of visits to HC, age, gender, suicide attempts			
Model 6	1.073	1.016;1.135	**0.012**
Full model. Adjusted for: age, gender, marital status, occupational status, homelessness, criminal record, suicide attempts, number of visits to HC in last 3 years			

Bold values indicate statistically significant ($p < 0.05$)

unrecorded depression increased along with the duration of the unemployment.

The reason of missing records was naturally evident in the case of those 36 (15%) individuals who had not used health care services during the preceding 3 years. The rest had 1–89 physician visits, and among these a record of depression was found in 46%. This figure nearly falls within the wide range from 47 to 84% found in earlier studies for the identification of depression among primary health care patients by general practitioners (GP) [14, 15]. Moreover, there is evidence that unemployment may be one background factor increasing the detection of depression by GPs [3, 25]. We also found that the number of visits was positively associated with a recording of depression, indicating in line with earlier research [26] that a proper diagnostics of depression requires multiple appointments.

The findings of this study need to be assessed in the light of the nature of the data. The study material was quite comprehensive, including not only primary health care documents but also documents from outpatient and inpatient care in specialized health services, including psychiatry, rehabilitation institutions and even the prison administration. Thus the identification rate of 42% is quite low. On the other hand, the use of the health services comprises most commonly different kinds of acute or subacute appointments, so it is conceivable that in the context of such an encounter it is not even relevant to raise and tackle potential mental health issues. This also applies to visits to specialized secondary health care. Secondly, the clinicians may have considered a patient's depressiveness and unemployment as a kind of complex that does not serve a starting point for diagnostic and therapeutic measures and have classified this more as a social problem. At the other extreme of the identification of depression there are those patients who had attempted suicide. As suicidality is closely connected to MDD as one serious symptom or complication of the syndrome, a previous suicide attempt increased the likelihood of MDD being diagnosed in health care. The result may refer to only observing and diagnosing MDD after it had become even more serious and complicated accompanied by suicidal intentions. There is evidence that recognition of depression is directly related to its severity [26]. The proportion of suicide attempts in the study population was 20%, which is relatively high when compared to previous Finnish primary care studies on patients with MDD (10–17%) [27, 28].

We applied fairly strict criteria, requiring an explicit MDD diagnosis for a record to be valid and considered identification of MDD in the EDIPE-project as 'the gold standard'. These diagnoses were not standardized in the sense of a uniform procedure. However, the diagnoses were based on individual clinical interviews according to the ICD-10 criteria and extensive preliminary knowledge acquired by the experienced psychiatrists engaged on the EDIPE project.

In the other words, the 'standard' was EDIPE's overall interest in assessing the extent to which depression, alone or in combination with other psychiatric or somatic diseases, contributed to a patient's impaired work ability both present and future. This EDIPE scope and associated interrater incompatibility [29] may have contributed to but cannot be the major explanation for the huge discrepancy between health care recorded and EDIPE diagnosed prevalence of MDD. A more substantial, though not exhaustive, explanation may be that, as indicated in some earlier studies, recording of the diagnosis may be deficient in spite of appropriate recognition of MDD in health care [30, 31]. Moreover, in some cases the health care records may miss the diagnosis because MDD has appeared shortly before the entry or even during the EDIPE -process. The knowledge of functional capacity would complete the relevance of identification of depression, but, as a limitation, the information was not systematically recorded.

We argue that the long-term unemployed are marginalized from appropriate identification of MDD in health care. The argument is supported by the finding that the probability of unrecorded MDD was positively associated with the duration of unemployment. Moreover, this marginalization from health services seems to be a phenomenon of its own, as the association remained significant when a wide range of background variables, including other indicators of marginalization, were controlled for. Our findings add to and specify the body of knowledge showing use of health services as decreased and the unmet care needs as increased among the unemployed [16, 18, 21]. In particular, there are unmet needs for psychiatric care [20], for instance according to an Australian study, the unemployed are twice as likely to suffer from affective symptoms as the employed but they are less likely to consult a GP [17].

Reduced help seeking during unemployment can be explained as a low social pressure for recovery, which, furthermore, can be understood as reflecting lowered level of bonding social capital and consequent reduction in the use of health services [32]. But the reasons for scarce use of health care services and unmet care needs may also lie in the structures of health care. This viewpoint has a particular relevance in Finland: There is a widespread occupational health care system providing easily accessible and free of charge services exclusively for the employed population, whereas the services for the unemployed are limited to universal primary health care [33]. The findings of this study also give reasons to consider ways to improve the coverage and the content of health services among the unemployed.

There is some evidence that unemployment increases the risk for depression particularly among men [34]. Among older long-term unemployed men who were guided to a psychosocial coaching center, more than three quarters were found to suffer from mood disorders and

28% from depression or double depression [35]. However, in line with earlier research [36–38], women (54%) got a diagnosis of MDD in the EDIPE -examinations more commonly than men (45%). Among those with the diagnosis, women's MDD had been recorded in health care more often than men's (50 vs. 36%); this is likely due to gender differences in the threshold to seek help for mental problems [39, 40].

The EDIPE-project was based on the assumption that among the hardest-core long-term unemployed there are many people who have chronic illnesses, who have been marginalized even from health services and whose work ability has not been appropriately assessed. The findings support this assumption: The project was successful in detecting a lot of MDD that had not been identified prior to entry into the EDIPE-examinations. The diagnosis contributed, solely or mostly in combination with other diagnoses, to the decision to apply for a disability pension. Future disability retirement or treatment were not in the scope of this study, which aimed to reveal the features of marginalization with depression as the indicator.

The long-term unemployed are often overrepresented in the groups of non-responders to surveys and dropouts in longitudinal studies [41–43]. Participation in the EDIPE -project was decided on the employment office based on discussion between the client and the counsellor specialized in disabled job seekers. The participants may be considered to represent the target group quite comprehensively or the long-term unemployed and disabled population. Moreover, the health records were collected comprehensively from registers of the existing institutions, both primary and specialized health care. A major strength of the study lies in the unique sample and data. But the uniqueness also means a limitation of generalizability. Because the findings describe the situation of the long-term unemployed with remarkable health and employability problems, the results may not be generalized into the unemployed population as a whole. Furthermore, the results are confidently generalizable in societies like Finland, which represents the Nordic welfare state.

In addition to demonstrating the extent of unidentified MDD among the long-term unemployed, this study showed, to the best of our knowledge for the first time, that identification is negatively associated with duration of the unemployment. The reasons for this evident neglect of MDD range from structures of the health services and practices of health care professionals to the help-seeking behavior of long-term unemployed individuals. Nevertheless, as a policy conclusion, attention should be paid to reducing the employment status related inequality embedded in the structures and in the practices of the health care system.

Conclusions

We concluded that more attention should be paid in health care to identifying MDD among the long-term unemployed as a risk group. The protracted unemployment period seems to be an independent risk factor for non-identification of MDD in health care. There were problems especially in the identification of MDD among long-term unemployed men. Moreover, the long-term unemployed men in the study did not actively seek help even for serious depression. Perhaps some kind of occupational health care system for unemployed could raise the identification rates and achieve adequate treatment for depression, which might even improve the chances for re-employment. A major reform of social and health care services is currently ongoing in Finland in an attempt to affirm the collaboration and streamline the health, social and welfare services [44]. Hopefully these prospective multi-sectoral changes will also improve the health services for the long-term unemployed.

Compliance with ethical standards

Ethical standards The material of the study was based entirely on the record information and there were no personal contacts to the subjects of the study. The research was approved by the ethics committee of Pirkanmaa Hospital District, ETL-code R06032, and the registrar of the EDIPE-project. The manuscript does not contain clinical studies or patient data.

Conflict of interest The authors declare that they have no conflict of interest.

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