

## REVIEW ARTICLE

# Health in the Long-Term Unemployed

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## SUMMARY

**Background:** Although the unemployment rate in Germany is currently low, more than a million persons in the country have been out of work for more than a year. In this review article, we address these persons' state of health, the effect of unemployment on health, and the influence of macroeconomic factors and social policy.

**Methods:** This article is based on a selective review of pertinent literature in the PubMed database.

**Results:** Large-scale meta-analyses and systematic reviews have shown that the long-term unemployed have an at least twofold risk of mental illness, particularly depression and anxiety disorders, compared to employed persons. Their mortality is 1.6-fold higher. Unemployment seems to be not only an effect of illness, but also a cause of it (i.e., there is evidence for both selection and causality). Learned helplessness is an important psychological explanatory model. Limited evidence indicates that the long-term unemployed have a moderately elevated prevalence of alcoholism; unemployment can be both an effect and a cause of alcoholism. Unemployment also seems to be associated with higher risks of heart attack and stroke. Cancer can lead to loss of employment. The link between unemployment and poorer health is strengthened by macroeconomic crises and weakened by governmental social interventions.

**Conclusion:** The long-term unemployed carry a markedly higher burden of disease, particularly mental illness, than employed persons and those who are unemployed only for a short time. The burden of disease increases with the duration of unemployment. The vicious circle of unemployment and disease can be broken only by the combined effects of generally available health care, special health-promoting measures among the unemployed, and social interventions.

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According to current statistics, more than 1 million people in Germany have been unemployed for more than one year (e1). The Marienthal Study, which investigated the consequences of the economic collapse of Marienthal, Austria and still remains very influential, was conducted as long ago as the 1930s (e2, e3). It has been known since then that poor health makes it difficult to accept work and that unemployment is associated with health problems. This last fact is confirmed by current data from Germany (1).

This article is intended to provide an overview of the relationship between health and job loss. Because there has been little success in the reintegration of the long-term unemployed despite positive developments in the labor market in recent years, special emphasis is placed on the health of the long-term unemployed.

## Methods

This article is based on a selective search of the literature in the PubMed database. Due to the breadth of the subject and the large number of articles, the search was primarily limited to reviews, systematic reviews, and meta-analyses conducted in the last 10 years. Where no reviews on a particular subject were available, original articles have been consulted; these are described accordingly in the text. The publications mentioned below were identified as being relevant to this article by the three authors, first independently and then in collaboration. German publications (articles, books, reports) from the authors' own collections were also consulted.

## Search strategies and keywords

The illnesses that were specifically searched for were selected iteratively, i.e. according to evidence for increased prevalence in reviews, and on the basis of Grobe and Schwartz (2), among other works. The following keywords were used:

- Unemployment, long-term unemployment: “involuntary job loss,” “unemployment,” “long term unemployment”
- Diseases and risk factors: “health,” “disease,” “mortality,” “mental health,” “depression,” “anxiety,” “schizophrenia,” “addictions/substance abuse/alcoholism,” “heart disease,” “cardiovascular disease,” “cancer,” “diabetes,” “obesity,” “asthma.”

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## Health problems

### The association between unemployment and poor health

A causal relationship between unemployment and poor health has been the subject of research for many years. Two possible scenarios have been investigated: selection and causality.

**Selection:** In this scenario, chronically ill individuals have an increased risk of becoming unemployed. As a result, individuals with such illnesses are over-represented among the unemployed (illness leading to unemployment). Such effects may occur for various reasons:

- Dismissal as a result of illness (3)
- Dismissal as result of repeated inability to work (4)
- Difficulty finding another job, particularly in the case of disability (5, 6)
- Low levels of qualifications, associated with both an increased risk of illness and reduced chances in the labor market (7).

**Causality:** This scenario, in contrast, describes cases in which unemployment itself triggers illness. On the one hand, unemployment is a severe psychological burden for the person affected, leading to an increased risk of illness, particularly in the long term. On the other hand, financial poverty is an important determining factor in health and life expectancy. This is because good nutrition, environment, participation in social activities, access to medical care, and other factors depend upon income (8).

In recent years three meta-analyses have been published on the question of whether selection or causality leads to the association between unemployment and poor health (9–11, e4). On the basis of longitudinal studies, they come to the clear conclusion that both selection and causality are responsible for the morbidity and mortality of unemployed individuals. Because a detailed examination of this issue of cause and effect would exceed the scope of this article, please refer to these publications.

Selection and causality interact and reinforce each other, creating a vicious circle in which a chronically ill individual becomes unemployed (selection) and unemployment then worsens his/her illness (causality), which in turn further reduces his/her chances of finding another job.

### Total mortality

One of the largest current meta-analyses (11), which included 42 longitudinal studies from various countries and more than 20 million individuals, yields an average hazard ratio (HR) of 1.63 (95% confidence interval [95% CI]: 1.49 to 1.79) for total mortality in the unemployed. The risk remains elevated when age and other confounding factors are controlled for. In other words, according to this meta-analysis the unemployed have a 63% higher mortality risk than the population as a whole (employed and unemployed; the difference is even greater when compared to the employed only) (HR: 1.75; 95% CI: 1.54 to 1.98).

Evidence for increased mortality has also been found for Germany specifically, increasing with the duration of unemployment: figures for customers of statutory health insurer Gmünder Ersatzkasse (GEK) showed a 1.6-fold increase in mortality in those unemployed for more than one but less than two years when compared to the general population of continuously employed customers; in those with at least two years' unemployment in the previous three years, the mortality risk in the subsequent period was increased by a factor of 3.4 (2).

Roelfs et al. (11) performed differentiated analyses for different follow-up times, as an approximation to duration of unemployment. Their results showed a 73% increase in the risk of mortality in the unemployed during the first 5 years of follow-up (HR: 1.73; 95% CI: 1.44 to 2.06). This increase remained fairly stable for follow-up durations of 5 to 10 years (HR: 1.76; 95% CI: 1.55 to 2.00) but then fell to 42% for durations of more than 10 years (HR: 1.42; 95% CI: 1.22 to 1.64). There was no significant trend.

## Mental illness

*Table 1* provides an overview of the results of meta-analyses and systematic reviews on mental illness in the unemployed. Two meta-analyses showed significantly worse mental health in the unemployed than the employed, with large effect sizes (9, 12, e4). The average percentage of clinically significant symptoms is twice as high in the unemployed. The two meta-analyses differ in their findings on the effects of duration of unemployment: Brown et al. (12) found no significant trend, while Paul and Moser (9, e4) found a linear increase in problems with duration of unemployment. Individual original studies also confirm an increase in problems (13–15).

### Depression

Depression is the diagnosis group most frequently discussed in the literature. Paul and Moser (9) found almost twice the percentage of individuals with clinically significant symptoms of depression in the unemployed. One study by the authors in the long-term unemployed aged over 50 years (19) found even higher values, measured using the Patient Health Questionnaire (PHQ) and validated by expert evaluations (*Table 2*).

A further study by the authors in which information was gathered using the Hospital Anxiety and Depression Scale (HADS) in 365 long-term unemployed individuals of various ages found evidence of a depressive disorder in 37% of participants (20).

### Anxiety disorders

Anxiety disorders are the most prevalent mental illness in the population as a whole (18). For these, too, individual studies (9, 20, e4) indicate a significantly higher incidence rate in the unemployed. In Limm et al. (20), 47% of the long-term unemployed showed signs of an anxiety disorder. In a representative sample of the German population Margraf and Poldrack (16) also showed that

**HRETABLE 1**

**Prevalence of mental illnesses and differences between the employed and the unemployed/long-term unemployed<sup>1</sup>**

| Study  | Prevalence in the employed (E <sup>2</sup> ) / general population (G <sup>3</sup> ) | Prevalence in the unemployed                        | Differences <sup>4</sup>   | Features  |
|--|---|---|--|---|
| <b>Total mental morbidity</b>                        |   |   |  |   |
| Paul und Moser (9); Paul (e4)                        | 16.0% (E)   | 34.0%   | Overall effect size <sup>5</sup> : d = 0.51  | Moderating effect of duration of unemployment (beta = 0.13, p <0.05): the longer the unemployment, the higher the morbidity   |
| Brown et al. (12)                                    | 6.6% (E)  | 14.0%   | OR = 1.54 to 4.3 for mental problems (excluding addiction & psychosis)   | No clear trend for duration of unemployment: unemployment <1 year: OR = 2.09 (95% CI: 1.75 to 2.50); unemployment >1 year: OR = 1.88 (95% CI: 1.31 to 2.71)   |
| <b>Depression</b>                                    |   |   |  |   |
| Paul und Moser (9)                                   | 6.9% (G)  | Almost twofold increase; estimated at 13% to 14%    | Adjusted effect size: d = 0.55 (95% CI: 0.45 to 0.55)  |   |
| <b>Anxiety</b>                                       |   |   |  |   |
| Paul und Moser (9)                                   | 14.0% (G)   |   | Adjusted effect size: d = 0.45 (95% CI: 0.32 to 0.47)  |   |
| Margraf und Poldrack (16)                            | 8.8% (E)  | 10.8%   | OR = 2.24  | Employed individuals have a significantly lower severity of anxiety than the unemployed, but there is no difference between the unemployed and other professional groups (e.g. students, part-time employees, pensioners) |
| <b>Alcoholism and high-risk alcohol consumption</b>  |   |   |  |   |
| Henkel (17)  | 3.4% (G)<br>0.6% to 31.9% high or high-risk alcohol consumption (E)                 | 2.2% to 42.3% high or high-risk alcohol consumption | 15 studies concerning alcohol consumption only:<br>13 studies: OR = 1.5 to 3.7<br>2 studies: no difference<br>2 studies: differences in men only | Significant percentage of differences in prevalence caused by selection effect: people with alcohol problems are more likely to become unemployed   |
| <b>Schizophrenia/psychoses: no reviews available</b> |   |   |  |   |
| <b>Salutogenetic issues<sup>6</sup></b>              |   |   |  |   |
| McKee-Ryan et al. (10)<br>Life satisfaction          | Not reported  | Not reported  | Adjusted effect size: d = -0.48 (95% CI: -0.68 to -0.25)   | Significant effect of duration of unemployment<br>d = -0.38 (95% CI: 0.60 to 0.16): the longer unemployment lasts, the lower life satisfaction  |
| Paul und Moser (9)<br>Self-esteem                    | Not reported  | Not reported  | Adjusted effect size: d = 0.43 (95% CI: 0.31 to 0.45)  |   |

<sup>1</sup> Meta-analyses, systematic reviews, and representative surveys for the general population only

<sup>2</sup> All figures on employed individuals come from the studies in question

<sup>3</sup> EU figures for the general population, figures indicate 12-month prevalence, all data from (18)

<sup>4</sup> All differences indicate worse values in the unemployed

<sup>5</sup> Effect size: central outcome parameter in meta-analyses comparing groups; according to Cohen (e5) effect size d = 0.2 is low, d = 0.5 medium, and d = 0.8 high; other authors consider a value of d = 0.4 to be high (e6)

<sup>6</sup> Due to differing data collection methods there are almost no large reviews covering salutogenetics.

The concepts of life satisfaction and self-esteem referred to here are the ones that can relatively clearly be distinguished from other concepts in mental health.

OR: Odds ratio; 95% CI: 95% confidence interval

**TABLE 2**

**Depression according to the Patient Health Questionnaire (PHQ) in a sample of older long-term unemployed individuals (n = 104) (frequency of diagnosis, severity of symptoms)**

|   | Men (n = 54) <sup>1</sup> | Women (n = 50) <sup>1</sup> |
|---|---------------------------|-----------------------------|
| <b>Depression diagnosis according to PHQ<sup>2</sup></b>            |                           |                             |
| None  | 51.9% (28)                | 66.0% (33)                  |
| Other depressive syndrome   | 16.7% (9)                 | 14.0% (7)                   |
| Major depressive syndrome   | 31.5% (17)                | 20.0% (10)                  |
| <b>Severity of depression symptoms according to PHQ<sup>3</sup></b> |                           |                             |
| None  | 24.1% (13)                | 24.0% (11)                  |
| Mild  | 27.8% (15)                | 30.0% (15)                  |
| Moderate  | 22.2% (12)                | 30.0% (15)                  |
| Severe  | 14.8% (8)                 | 6.0% (3)                    |
| Most severe   | 11.1% (6)                 | 10.0% (5)                   |

<sup>1</sup> Absolute figures given in parentheses

<sup>2</sup> ICD diagnoses of first-time (F32.0 to F32.2) or recurrent depressive episodes (F33.0 to F33.2) are classified as "major depressive syndrome"; minor depression (F32.9/F33.9) and dysthymia (F34.1) are classified as "other depressive syndrome"

<sup>3</sup> Overall evaluation provides information on severity of depression, or, more accurately, on severity of depressiveness

those who were employed full-time had a significantly lower average severity of anxiety than the unemployed.

**Alcoholism**

Alcoholism is known to be a cause of job loss, but very little research has been conducted into unemployment as a cause of alcoholism—although this also seems plausible—and the extent to which this may be true is difficult to estimate. Henkel (17) shows high dispersion in prevalence and odds ratios, as well as significant selection effects (Table 1). Indirectly, the results of Eliason and Storrie (21) also indicate a causal relationship: They found an increased risk of hospital treatment resulting from alcohol-related illnesses in the 12 years following loss of employment caused by company closures.

**Psychoses**

Psychoses are a cause of unemployment, indicating selection, but the finding that psychosocial risk factors might foster the manifestation of these disorders, indicating causality, is new: An 18-year-long study (22) shows that the incidence of schizophrenia in individuals with psychosocial risk factors (including unemployment) is nearly twice the incidence for the population without such risk factors.

**Psychological mechanisms**

Social inequality can lead to health problems in various ways (see e7 for examples). For unemployment in particular, Wanberg (23) provides an overview of potential mechanisms:

**Direct effects:** These can be directly related to the manifest function of work as defined by Jahodas (e3). For instance, loss of income triggers stress reactions and can make it difficult to lead a healthy lifestyle. Direct effects are naturally more severe in countries without social welfare systems, or where these are ineffective.

**Indirect effects:** Those closely associated with the latent functions of employment (social contact and bonds, activity or activation, feeling of purpose, structured time, feeling of control, personal status, identity) can essentially be explained using the cognitive stress model according to Lazarus and Folkman (24). The more central the role played by work, the more threatening is unemployment (10). The cognitive stress model can also explain the counterintuitive finding that more intense job application activities are associated with worse psychological findings (25): Repeat experiences of failure or coping efforts with no visible success lead to feelings of helplessness and loss of control, which in turn cause passivity and negative effects on health.

**Physical illness**

**Disease-specific mortality**

A large cohort study (26) investigated disease-specific mortality in individuals who initially had paid jobs and became unemployed during the recession in Sweden (1992 to 1996). Overall, mortality rose with the duration of unemployment, more markedly in men than in women. In women, the main cause of increased mortality was an increase in alcohol-related diseases and external causes (e.g. accidents, excluding suicide and traffic accidents). In men, mortality resulting from cancers, cardiovascular diseases (heart attack, stroke), and alcohol-related diseases rose until the end of the third year of unemployment and then fell. Other causes of death rose markedly at the beginning and again at the end of the observation period, after four and five years; mortality resulting from suicide and traffic accidents increased less markedly but continuously (26).

**The prevalence of various diseases**

According to the 1998/1999 German National Health Survey, a higher percentage of unemployed men than employed men suffered from bronchial asthma (OR: 2.58), diabetes (OR: 2.48), and arterial hypertension (OR: 1.53). In women, these relations were less consistent and insignificant. In the 2003 telephone National Health Survey, long-term unemployed men reported chronic bronchitis, back pain, high blood pressure, and dizziness. In women, the short-term unemployed in particular fell ill more often (27). 34% of employed men and 49% of unemployed men reported smoking every day at the time of the survey. The differences in women were smaller: 28% versus 31% (2).

**Cancer**

A meta-analysis including data gathered all over the world (particularly in the USA and Europe) on cancer

and unemployment found an increased risk of unemployment in cancer survivors (relative risk [RR]: 1.37; 95% CI: 1.21 to 1.55). Women with malignant tumors of the breast or reproductive organs, and both men and women with gastrointestinal tumors, were at increased risk of becoming unemployed. Blood, prostate, or testicular cancer, on the other hand, did not increase the risk (28).

#### Coronary heart disease and other cardiovascular diseases

Evaluations of statutory health insurers' data on individuals who became unemployed showed that hospital admissions due to heart attacks increased with the duration of unemployment: The relative risk was 1.49 in the first 8 months (95% CI: 1.04 to 2.13), 1.82 after 8 to 16 months (95% CI: 1.21 to 2.74), and 3.08 after more than 16 months (95% CI: 1.84 to 5.17) (29). A US study investigated several thousand people aged over 50 years over a 10-year period. It showed that when other cardiovascular risk factors were controlled for, the risk of a heart attack (HR: 2.48; 95% CI: 1.49 to 4.14) and stroke (HR: 2.43; 95% CI: 1.18 to 4.98) increased more than twofold after involuntary job loss when compared to those still employed (30). In contrast, a Swedish study that investigated the impact of job loss as a result of company closures found no increase in hospital admissions due to heart attacks or strokes (21). In summary, the picture for these events is somewhat unclear; this may be partly a result of cultural differences between Germany, the USA, and Sweden.

#### Macroeconomic issues, social policy, health of the unemployed

Turning to societal correlations, a review by Falagas et al. (31) includes some studies that show that the mortality rate increases at times of rising unemployment, and others that record countercyclical trends, i.e. an increase in unemployment associated with falling mortality. However, these results do not necessarily contradict each other. Differing effects can be explained by, among other factors, the fact that some welfare systems are able to compensate for short-term fluctuations. It is also possible that effects on health do not occur immediately, so health-related consequences of economic crises may not become visible until after the labor market has recovered.

For suicide, the available results are consistent: There was an increase in suicides during the global economic crisis in 1929 (32). This is being repeated in a similar fashion during the current European financial crisis, as shown by figures from Greece, Italy, the UK, and Europe as a whole (e8–e11). In an analysis of the mortality trend in the 26 EU countries for the period between 1970 and 2007, Stuckler et al. (33) calculated that a 1% increase in unemployment was associated with a 0.79% increase in the suicide rate.

There is also evidence of an increase in cause-specific mortality at times of high unemployment for cardiovascular diseases (34), infectious diseases (35),

#### BOX

#### Important information for medical practice

- The unemployed are a heterogeneous group; knowledge of an individual's social history is important to understanding his/her situation.
- The long-term unemployed are at increased risk of mental and cardiovascular illness.
- The situation is often complicated by low levels of social support, life satisfaction, and self-esteem.
- Repeated failure to find work may represent an additional burden.

and homicide rates (33). In contrast, the total number of accidents often seems to fall when fewer people are employed (32).

Stuckler et al. (33) investigated whether societal effects of unemployment could be reduced by governmental regulations. They showed that the relationship between unemployment and suicide is weaker when there is public investment in active labor market programs. The effect of the type of welfare state system is also confirmed by Bambra and Eikemo (36).

#### Summary

While the correlations between unemployment, overall mortality, and mental illness are well documented in meta-analyses, there is less available information on the association between unemployment and physical illnesses. In addition, many studies do not allow conclusions to be drawn as to whether health problems are caused by short- or long-term unemployment.

Unemployed individuals seek health care less frequently, although they do require it; this effect remains even when results are adjusted for sociodemographic variables, social support, and personal finances (37).

The implications of this for the health care system are set out in the *Box*.

Regarding qualifications to aid reintegration into the labor market, this information means that the promotion of good health must be an integral part of such reintegration. Interventional studies by the authors show that although individual guidance is well received it has little effect on health (19). In contrast, participatory, group-based activities in individuals' own environment were successful in changing health-related behavior and in terms of mental health (20, 38).

From the point of view of policy, an important conclusion is that the unemployed are a high-risk group for health problems. Successful employment exchange and the protection or preservation of jobs promote health. Improving the health and wellbeing of individuals who have already been unemployed for a long time

promises to yield benefits for both promoting their health and improving their chances on the labor market.

Better health care and targeted promotion of health for the long-term unemployed seem to be urgently required in terms of both individual suffering and social and economic goals.

**Conflict of interest statement**

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**KEY MESSAGES**

- Unemployment is both a consequence and a cause of illness.
- Unemployed individuals have a markedly increased risk of mortality resulting from mental and physical illness.
- Depression and anxiety disorders are more than twice as frequent in the unemployed as in the employed.
- The long-term unemployed are more affected by illnesses than the short-term unemployed.
- Supportive social policy can mitigate the undesirable correlations between unemployment and illness.

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 For eReferences please refer to:  
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## REVIEW ARTICLE

# Health in the Long-Term Unemployed

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