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Unemployment, mental health and health promotion: a realist synthesis of international meta-analyses

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Abstract

Background: Negative effects of unemployment on health have been known since the early stages of industrialisation. However, no adequate health-promoting strategy for coping has been identified to date. Research has developed in phases but remains heterogeneous and complex. This realist synthesis examines the associations between unemployment and mental health and the mechanisms by which health promotion works, with a view to informing policy and practice.

Methods: A literature search was conducted in MEDLINE, PsycINFO, Web of Science and Health Evidence. The realist synthesis included ten systematic reviews with quantitative meta-analysis: seven on associations between unemployment and health and three on health promotion. The quality of the meta-analyses was assessed using the AMSTAR II checklist.

Results: Based on cross-sectional and longitudinal studies, the meta-analyses consistently show that mental health deteriorates significantly following job loss and improves after re-employment. Mental health impairment increases with the duration of unemployment. Moderator analyses indicate that unemployed men are more adversely affected than unemployed women. The evidence also shows that health promotion can produce both health and labour-market effects among unemployed people.

Conclusions: These meta-analyses support the hypothesis of a causal relationship between unemployment and health and have implications for research and health reporting. Health promotion measures can mitigate the downward spiral.

Keywords: Unemployment, Registered unemployment, Health, Mental health, Depression, Well-being, Health promotion

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1. Introduction

1.1 Historical experience of mass unemployment: an example of Germany

Unemployment has historically been closely linked to the Industrial Revolution and emerged as a term during the long depression of the second half of the nineteenth century. The profound changes in economic and working conditions led to severe social disruption. During early industrialisation, the 'social question' remained structurally unresolved. For example, Germany did not yet have a general unemployment insurance scheme. Unemployment was already a concern for leading researchers in public health. The Social Hygiene interpreted unemployment as a 'social disease' [1]. As early as the year 1895, Schanz wrote [2]: 'Unemployment is a terrible scourge for the working population; it exposes them to the danger of material and moral ruin ... For many, becoming dependent on alms as a result of prolonged unemployment has a profoundly numbing effect. Self-esteem and a sense

of shame are often diminished.' Soon afterwards, Uebl [3] and Herzen [4] described workers' destitution following loss of earnings and the associated dramatic deterioration in families' nutrition, housing and health, as well as emerging alcohol problems. These are early accounts of the health burden caused by mass unemployment. According to Schanz, they culminated in well-known cases of suicide: 'Not infrequently, however, ... the family driven to despair by unemployment and hardship meets a shared death amid harrowing scenes' [2].

This prolonged economic depression in Germany was followed by a brief economic upswing until the First World War began in 1914. After Germany lost the war, the Weimar Republic, the country's first democracy, was established. It had to contend with the burdens of war and the onset of hyperinflation. This was followed by the brief flourishing of the 'Golden Twenties'. The Wall Street Crash of 1929 then triggered the first major global economic crisis and a very rapid rise in mass unemployment. Although the Reich Agency for Job Placement and Unemployment Insurance had been founded shortly before, unemployment still meant extreme impoverishment for those affected. In 1931, the physician and parliamentarian Moses published a social-medicine anthology entitled 'Arbeitslosigkeit: Ein Problem der Volksgesundheit' ['Unemployment: a public health problem'] [5]. In 1933, Jahoda, Lazarsfeld and Zeisel published the now world-famous classic 'Die Arbeitslosen von Marienthal' [Marienthal: The Sociography of an Unemployed Community] [6]. Germany's first democracy finally ended in 1933 when the National Socialists seized power. Unemployment played a major role in domestic political agitation. National Socialism soon led to the Second World War and another German defeat. Germany was divided after the Second World War. As a lesson drawn from the collapse of the Weimar Republic, the German Democratic Republic notably enshrined the right to work in its constitution as a state objective. In the Federal Republic of Germany, by contrast, unemployment was initially high as a consequence of the war, then fell rapidly during reconstruction. The 1960s 'economic miracle' was ultimately the only period of full employment in Germany's post-war history. It ended with the 1974 'oil price shock'. Subsequent economic cycles produced a hard core of unemployment, characterised by a high proportion of long-term unemployed. German reunification was achieved in 1989, but the labour market in eastern Germany was, and remains, particularly affected by unemployment as a result of the transformation process. In 2005, unemployment in Germany peaked at around five million people. Germany then experienced a sustained 'employment miracle', interrupted by the 2008 economic crisis and later by the COVID-19 pandemic. Unemployment fell substantially in several phases, but the problem remains unresolved and is currently increasing again. In July 2026, the number of registered unemployed in Germany rose above three million and the unemployment rate was 6.4 % [7].

Key messages

- International meta-analyses of controlled longitudinal studies consistently show that unemployment has a causal adverse effect on health, while health-related selection effects in the labour market can operate in parallel.
- The earliest meta-analyses may have statistically overestimated effect sizes because they included only small numbers of studies.
- Moderator analyses provide practice-relevant evidence on the need to specify target groups in health promotion, particularly unemployed men.
- Health promotion and health reporting for unemployed people should be systematically expanded in Germany.
- Unemployment remains a major public health challenge.

Therefore, unemployment continues to be of major public health relevance. The 2023 Microcensus also confirms this, showing significant health differences between employed and unemployed people in Germany (Figure 1).

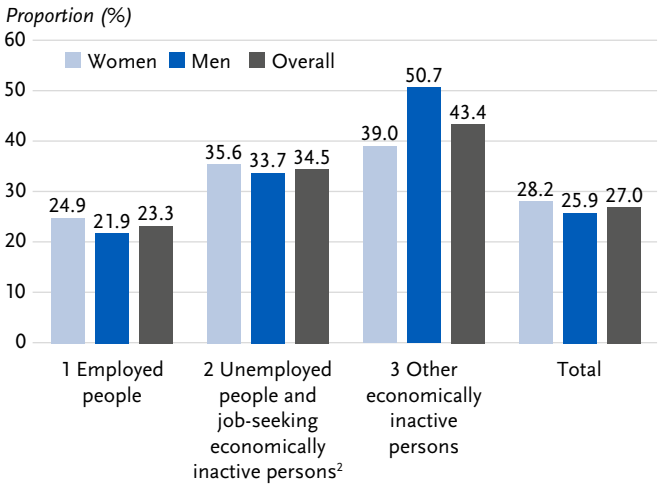


Figure 1: Self-reported chronic illness ('yes' responses[1]) by employment status and gender in the 2023 Microcensus in Germany (aged 18 to 64 years). Source: Research Data Centres of the Federal Statistical Office and the statistical offices of the federal states, 2023 Microcensus, weighted results; author's calculations and presentation (n = 15,543 women, n = 15,224 men)
[1]Question: 'Do you have any chronic illness or long-standing health problem?' (yes/no). Completion guidance: 'This refers to illnesses or health problems that have lasted, or are expected to last, for at least 6 months.'
[2]Economically inactive jobseekers are people who took active steps to seek work in the previous four weeks but were not immediately available for the labour market.

1.2 Theoretical background

From the outset, research on unemployment has shown that work has positive effects on employed people and that job loss therefore burdens health. Recent empirical research also confirms the positive aspects of work [8–10]. However, no consensual theoretical framework explains how unemployment affects health. One of the most prominent theories in unemployment research, developed by Jahoda [11], also focuses on the adverse consequences of job loss. For Jahoda, work is important because of its manifest and latent functions. The manifest function is material security. According to Jahoda, however, the negative psychosocial burden of job loss results from the loss of latent functions, namely: 1. facilitating social contacts, 2. participation in collective goals and a sense of purpose, 3. structuring time, 4. establishing social status and, finally, 5. required activity. The explanatory approach was developed based on the community study 'Die Arbeitslosen von Marienthal' ['Marienthal: The Sociography of an Unemployed Community'] [6]. Jahoda did not negate impoverishment during unemployment, but it plays only a subordinate role in her theory. International research provides empirical support for this deprivation theory. As the recent meta-analyses by Paul et al. [12] and Aitken et al. [13] showed, all five latent functions, as well as the manifest function, are fulfilled to a significantly greater extent among employed than unemployed people. Attainment of these functions is also associated with the mental health of those affected.

Unemployment remains a major driver of poverty. According to Fryer [14], the resulting processes of impoverishment and restrictions on agency during unemployment provide an important explanation for the adverse health consequences. Unemployment leads to a loss of resources and therefore to negative health outcomes for those affected. Over time, a range of other theories have also been applied to unemployment, including stigma concepts [15], stress theories [16] and identity theories [17]. International evidence is correspondingly extensive, but also heterogeneous. The central question of the causal direction between unemployment and health remains unresolved: does unemployment make people ill, or does ill health lead to unemployment?

1.3 Development of research on unemployment and health

Research activities on unemployment and health developed in parallel with the historical trajectory described above. It intensified during periods of high unemployment. The following phases can be distinguished in broad terms:

1. During the early period from 1870 to 1932, individual articles and reports appeared, as described above. They focused on describing the impoverishment of the working population.
2. Following 'Die Arbeitslosen von Marienthal' [6], research on typologies and phase models dominated until the 1950s, although these models could not be scientifically verified.
3. In the 1970s, as unemployment rose worldwide, research activity intensified again in OECD countries. Most studies were cross-sectional, accompanied by narrative reviews.
4. Long-term unemployment increased during the 1980s. As a result, job loss came to be understood not only as a critical life event but also as a process extending across a phase of life. Social-psychological theories were applied to unemployment. 'Differential unemployment research' [18] extensively discussed ways of coping with unemployment. Youth unemployment was a major topic.
5. In the 1990s, research expanded to the periods before and after unemployment and began analysing transitions. Precarious employment and job insecurity received greater attention. Methodologically, longitudinal studies followed, allowing researchers to investigate the processual nature of unemployment and how people cope with it.
6. In the 2000s, the development and evaluation of health-related interventions for unemployed people became particularly notable. These interventions were based especially on social cognitive learning theories [19]. They were supplemented by individual labour market-integrative health promotion programmes [20, 21]. Intervention studies using control-group designs became more common.
7. From 2005 onwards, international meta-analyses using quantitative empirical methods gained markedly in importance. They focused on associations between unemployment and health, increasingly concentrating on methodologically robust longitudinal studies and examining causal relationships. More recently, meta-analyses have also assessed the effects of health promotion measures.

1.4 Definitions: 'arbeitslos' ('without work') or 'erwerbslos' ('unemployed')?

It is important to recognise that 'the unemployed' isn't a single homogeneous group, because labour markets comprise many groups of people in different life situations. Unemployment is also affected by seasonal, cyclical and regional factors. The term 'Arbeitslosigkeit' (registered unemployment/without work) is problematic. Etymologically, the German word 'Arbeit' ('work') derives from the Latin labor and de-

notes regular activity involving effort or exertion. Yet people who are registered as unemployed may still perform work, for example by raising children, caring for relatives or volunteering. In this context, 'Arbeitslosigkeit' refers to paid employment or wage labour. During the Weimar Republic, the paired terms 'Erwerbstätige' (employed people) and 'Erwerbslose' (unemployed people) were therefore used consistently in official language. For these fundamental reasons, the social sciences likewise often prefer the term 'Erwerbslosigkeit' (unemployment), as does this article. However, even the term 'unemployment' inherently risks reducing the problems experienced by those affected to financial aspects or paid work.

In Germany, Book III of the Social Code defines the formal requirements for being 'arbeitslos' ('being without work'). These include personal enrolment as unemployed, actively seeking work, immediate availability for the labour market and willingness to cooperate. This definition differs from the International Labour Organization (ILO) definition [22]. Under the ILO Labour Force Concept [22], for example, availability within the next 14 days is sufficient and registration with an employment office is not required. Conversely, a person must not have a job involving at least one hour of regular work per week.

1.5 Objectives of the realist synthesis

The number of international meta-analyses is currently increasing. They rank highly in the evidence hierarchy and provide structured syntheses of heterogeneous research. They generate new knowledge across a wide range of topics, but they can also add complexity for policy and practice. Available meta-analyses differ not only in the methods used to construct outcomes but also, for example, in comparison groups, observation periods and regions. Their findings also need to be assessed against questions that are relevant to policy and practice. This realist synthesis therefore aims to explore associations between contextual factors and the health of unemployed people. Its central questions are whether unemployment and health are causally associated, who is particularly adversely affected by unemployment, and which factors moderate the effect of unemployment on health.

To assess the health burden of unemployment, analyses must compare the (mental) health of unemployed people with that of employed people. Knowledge about vulnerable groups informs target group-specific strategies for promoting health and employment. Another central question is whether health promotion measures improve health and labour market integration, according to current research. The realist synthesis aims to broaden the knowledge base for policy and practice. It focuses on systematic reviews with quantitative meta-analyses to provide a comprehensive overview of the current state of research in this field.

2. Methods

2.1 Literature search for primary studies

To identify systematic reviews with meta-analysis, an international literature search was conducted in the following medical and psychological databases:

1. MEDLINE PubMed, US National Library of Medicine, National Institutes of Health (NIH)
2. MEDLINE Medical Literature Analysis and Retrieval System Online (EBSCO)
3. PsycINFO, American Psychological Association
4. Web of Science Core Collection
5. Health Evidence (McMaster University)

The English-language literature search used the following search term in the bibliographic databases: '(((TS = (unemploy* and health)) AND DT = (Meta Analysis OR Systematic Review)) AND (DOP = (1996-01-01/2026-07-31)))' (MEDLINE example). Additional searches were conducted using snowballing based on cited references.

2.2 Selection process

Figure 2 presents the literature selection process for the publication period from 1 January 1996 to 31 July 2026. At the first stage, the reference search yielded 593 records. After duplicates were removed and relevant publications selected, the results were screened, extracted, organised by topic and analysed descriptively. Systematic reviews with quantitative meta-analysis were included. Narrative reviews or systematic reviews without quantitative meta-analysis were therefore excluded.

The research interest centred primarily on meta-analyses of mental health and health promotion among unemployed people. Prioritisation is necessary because of severe space limitation and the research's complexity. Therefore, available meta-analyses of mortality and suicide among unemployed people [23–26] were excluded from this overview. Meta-analyses that primarily focused on health in the workplace and its positive aspects, using unemployment only as a comparator, were likewise not considered in the results section (e.g. [27]). General health or mental health as an outcome was essential to the central research question. Meta-analyses of the association between unemployment and other specific disease groups or biomarkers (e.g. [28]), as well as addictive behaviours (e.g. [29]), were therefore not included. Meta-analytic structural models with other outcome parameters were also excluded [13, 30].

Two reviewers independently screened all titles and abstracts. Both reviewers independently assessed full-text articles for eligibility, conducted quality appraisal, and extracted data for inclusion in the review and analysis.

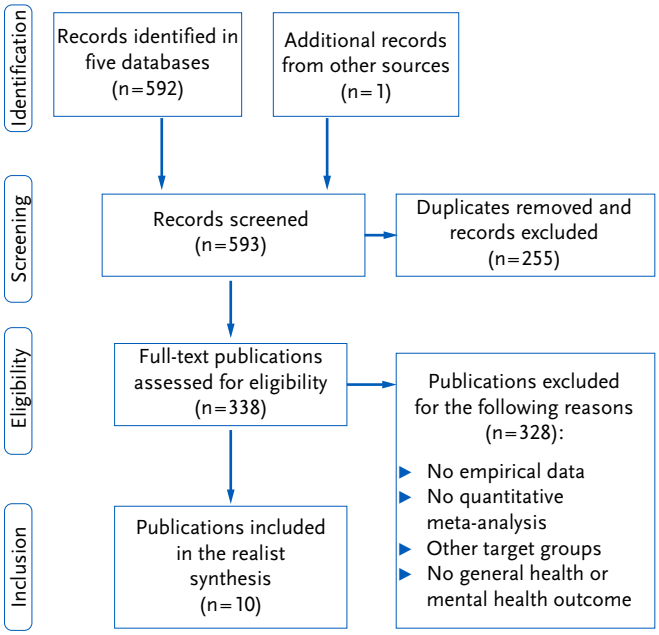


Figure 2: Flow diagram of the literature search and selection process

2.3 Methodology

The AMSTAR II instrument developed by Shea et al. [31] was used to assess the quality of the meta-analyses. It builds on the AMSTAR I checklist [32] and after revision is better suited to systematic reviews of health interventions that include both randomised and non-randomised studies. The AMSTAR II checklist comprises 16 predefined items for assessing systematic reviews; for the present study, six were categorised as critical domains and ten as weaknesses. The following six assessment criteria were treated as critical domains:

1. Adequacy of the literature search
2. Justification for excluding individual studies
3. Assessment of risk of bias in individual studies included in the review
4. Appropriateness of meta-analytic methods
5. Consideration of risk of bias when interpreting the results of the review
6. Assessment of presence and likely impact of publication bias.

According to Shea et al. [31], confidence in the results of systematic reviews is rated 'high' if there are no weaknesses or only one weakness that does not constitute a critical flaw. Weaknesses include, for example, the absence of a study protocol or failure to conduct study selection and data extraction in duplicate. Quality is rated 'moderate' if the systematic review has more than one weakness but no critical flaw. If one critical flaw is identified (with or without non-critical weaknesses), confidence is rated 'low'. The quality of a systematic review is rated 'critically low' if more than one critical flaw is identified. Two reviewers independently assessed the quality of the meta-analyses according to this scheme [32] and then discussed any differences. For each included study, data were extracted and ratings against the 16 predefined AMSTAR II items were carried out and documented (protocol available from the author). Disagreements between reviewers were resolved through discussion and consensus. The summary quality ratings are presented in Table 1 and Table 2.

The structure and approach of the realist synthesis that follows were guided by the RAMESES checklist [33]. Realist synthesis is a theory-based publication standard and approach to evidence synthesis for policy-relevant areas. According to Wong et al. [33], it aims to investigate relationships between context, mechanisms and outcomes. This approach was preferred for the present study because, in the lived reality of those affected, social law constructs unemployment, raising the question of whether health promotion realistically works, for whom, and under what circumstances.

3. Results

3.1 Sample

The ten included meta-analyses were used to assess the available evidence, summarise the findings objectively and integrate them into the wider research literature. A central question when examining the health of unemployed people is whether labour-market selection effects or causal effects of unemployment are at work. Cross-sectional studies with control-group designs indicate only the correlation between health and unemployment. Determining the direction of effect between employment status and health requires longitudinal studies with multiple measurement points. As Table 1 illustrates by publication year, two periods of meta-analytic research can be distinguished:

1. The three meta-analyses by Murphy and Athanasou (1999) [34], McKee-Ryan et al. (2005) [35] and Paul and Moser (2009) [36] marked a milestone in the field because they were the first systematic reviews with quantitative meta-analyses. They covered primary studies published between 1963 and 2004. The meta-analysis by Murphy and Athanasou [34] still included relatively few primary studies. While McKee-Ryan et al. [35] mainly analysed cross-sectional studies, Paul and Moser [36] additionally examined controlled longitudinal studies. For a long period afterwards, no new meta-analyses of this kind were published on the topic.
2. In the past five years, four further quantitative meta-analyses have been published: Amiri (2021) [37], Gedikli et al. (2023) [38], Picchio and Ubaldi (2024) [39], and Sterud et al. (2025) [40]. They sought not only to update the evidence base but also to establish new areas of emphasis. Because longitudinal studies with as many

measurement points as possible are more informative than cross-sectional studies, two meta-analyses focused exclusively on this study type [38, 40]. Table 1 shows that the meta-analyses from this second period include more recent primary studies, although they partly overlap with the first period.

Table 1 shows that the health and well-being outcomes in the meta-analyses were conceptualised very differently. Health was generally defined broadly. Assessment of mental health, and classically depression within it, is integral to the meta-analyses. Interestingly, no more recent meta-analysis has matched the large body of research of Paul and Moser [36], which comprised 237 cross-sectional and 87 longitudinal studies. Geographically, the research is concentrated mainly in Europe and English-speaking countries. The primary studies fully cover phases 3 to 7 of unemployment research described above.

Using the AMSTAR II checklist, these meta-analyses are rated high or moderate, except for the first meta-analysis by Murphy and Athanasou [34] (Table 1).

Table 1: Systematic reviews with quantitative meta-analysis of unemployment and health

No.	Authors (publication year)	Focus	Period of primary studies	Countries/ continents	Number of studies (including longitudinal)	Main findings among unemployed people (direction)	Quality (AMSTAR II checklist)
1.	Murphy & Athanasou (1999) [34]	General health, mental health	1986–1996	Europe, USA, Australia	16 (16)	↓ Mental health deteriorates among unemployed people compared with employed people. ↑ Mental health improves after re-employment compared with those who remain unemployed.	Critically low
2.	McKee-Ryan et al. (2005) [35]	Mental and physical well-being (well-being, life satisfaction, mental health, subjective and objective health status)	1980–2002	Europe, the Americas, Asia, Australia	104 (15)	↓ Mental health deteriorates among unemployed people compared with employed people. ↑ Mental health improves after re-employment compared with those who remain unemployed.	High
3.	Paul & Moser (2009) [36]	Mental health (distress, depression, anxiety, subjective well-being, psychosomatic symptoms, self-esteem)	1963–2004	Europe, the Americas, Australia, Asia	324 (87)	↓ Mental health deteriorates among unemployed people compared with employed people. ↓ Mental health deteriorates among pupils who become unemployed. ↑ Mental health improves after re-employment compared with those who remain unemployed. ↓ Selection effects: people with impaired mental health lose their jobs more often and are less likely to become re-employed.	Moderate
4.	Amiri (2021) [37]	Major depression and depressive symptoms	1999–2020	Europe, the Americas, Asia, Australia, Africa	89 (n.s.)	Compared with employed people, unemployed people have odds ratios that are approximately twice as high for ↑ depression and ↑ depressive symptoms.	Moderate
5.	Gedikli et al. (2023) [38]	Well-being (subjective well-being, life satisfaction), mental health (distress, depression, anxiety)	1990–2020	EU-15 countries, United Kingdom, USA, Australia	29 (29)	Compared with employed people, unemployed people have poorer ↓ well-being, ↓ life satisfaction and ↓ mental health. Unemployment and well-being have a reciprocal relationship.	High
6.	Picchio & Ubaldi (2024) [39]	Well-being, self-reported health, mental and physical health, health behaviour, health care	1990–2021	Europe, USA, Australia, multiple countries	65 (n.s.)	Compared with employed people, people who are currently unemployed have slightly poorer ↓ well-being and ↓ mental health.	Moderate
7.	Sterud et al. (2025) [40]	Mental health (distress, depression, anxiety)	1990–2024	Europe, Australia, USA, Asia	38 (38)	↓ Mental health deteriorates among unemployed people compared with employed people. ↑ Mental health improves after re-employment compared with those who remain unemployed.	High

n.s. = not specified

3.2 Associations between unemployment and health

As Table 1 shows, the main findings of previous systematic reviews with quantitative meta-analysis are highly consistent across both cross-sectional and longitudinal studies and across all periods. All meta-analyses in Table 1 found significantly poorer mental health among unemployed people than among employed people. These health differences can be demonstrated using several indicators, including well-being and life satisfaction.

Of particular relevance are meta-analyses of controlled longitudinal studies across labour-market transitions, which examined the direction of effect between employment status and health. Most recently, the international meta-analysis by Sterud et al. [40] assessed the association between unemployment and mental health using 38 prospective longitudinal studies with multiple measurement points. A key finding was that transitioning from unemployment to employment produced a clear average improvement in mental health ($d=0.27$). By contrast, job loss negatively affected mental health, with a small effect size ($d=-0.19$).

Gedikli et al. [38] examined the effect of unemployment on mental health in 29 longitudinal studies and reported similar findings. Their meta-analysis confirmed that unemployed people have significantly poorer overall well-being than employed people. In addition, Gedikli et al. [38] verified a reciprocal relationship between unemployment and overall well-being using a structural model.

Another longstanding research question is whether unemployment affects physical and/or mental health. A recent meta-analysis by Picchio and Ubaldi [39] found that unemployment affects mental health more strongly than physical health.

Amiri's meta-analysis [37] focused exclusively on depression and depressive symptoms as outcomes. Compared with employed people, unemployed people had significantly higher odds ratios of 1.88 for depression and 2.06 for depressive symptoms. This is consistent with the other meta-analyses, which subsumed these indicators under mental health or reported them separately in some analyses.

The main findings of these four recent meta-analyses by Gedikli et al. [38], Sterud et al. [40], Picchio and Ubaldi [39], and Amiri [37] are highly consistent with the meta-analysis by Paul and Moser [36], which included earlier cross-sectional and longitudinal studies. Paul and Moser [36] showed that unemployment is associated with impaired mental health. The overall effect was of moderate magnitude and statistically significant.

Figure 3 illustrates not only the direction of the effects of job loss and re-employment on mental health but also the effect sizes calculated in international meta-analyses of longitudinal studies from different periods, insofar as the methods allow direct comparison.

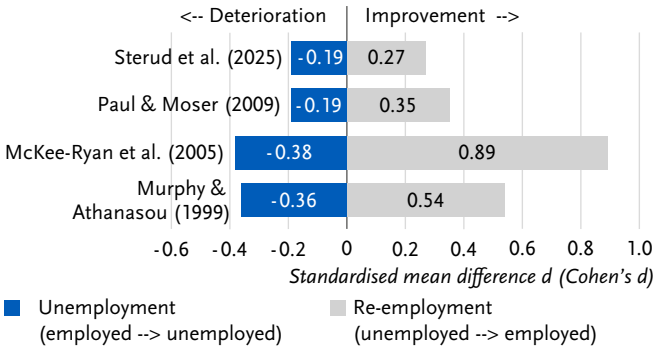


Figure 3: Changes in mental health with effect sizes from meta-analyses of controlled longitudinal studies

Paul and Moser [36] meta-analysed the largest number of studies to date, comprising 87 longitudinal studies. They found a small but significant effect of job loss on health burden ($d=-0.19$). In contrast, mental health improved significantly among people who found a new job between the two measurement points ($d=0.35$). This is almost identical to Sterud et al. [40], who also reported higher symptom burden during unemployment and lower health burden after re-employment (see above).

As Figure 3 shows, however, the effect sizes in these two more recent meta-analyses are substantially smaller than those reported by McKee-Ryan et al. [35] and Murphy and Athanasou [34]. This may reflect their smaller numbers of studies and the greater statistical uncertainty associated with them (Table 1). Moreover, the methodological quality of Murphy and Athanasou's meta-analysis [34], measured using the AMSTAR II checklist, is critically low (Table 1), so its findings should generally be interpreted with caution.

Across all four meta-analyses in Figure 3, mental health improved more on average following re-employment than it had deteriorated following job loss. This may be most likely attributable to a selection effect during unemployment. If mental health limitations reduce the chances of re-employment, unemployed people with poorer health will tend to remain unemployed (for longer). Paul and Moser [36] separately calculated a selection effect for the transition from unemployment into the labour market relative to people who remained unemployed. The standardised mean difference d was 0.15, approximately the gap between the two effect sizes in Figure 3. Paul and Moser [36] also identified another selection effect: employed people with poorer mental health at the first measurement point were more likely to become unemployed ($d=0.23$). This suggests that unemployment causally impairs health while selection effects operate in parallel. A 'vicious circle' of unemployment and health [21] is apparent. This is also supported by a more recent meta-analysis by Gedikli et al. [38], which finds that impaired well-being likewise increases the future risk of unemployment.

3.3 Duration of unemployment and health

The assumption that unemployment acts as an exposure that causally harms health is also consistently supported by evidence on duration of exposure. Paul and Moser [36], McKee-Ryan et al. [35], Gedikli et al. [38], and Picchio and Ubaldi [39] all conducted moderator analyses in cross-sectional data and consistently found that long-term unemployment places a substantially greater burden on health than short-term unemployment. In separate meta-analyses, Paul and Moser [36] calculated that mental health symptoms increased strongly during the first year of unemployment and peaked in the ninth month. Mental health stabilised at an intermediate level during the second year, with some fluctuation, and appeared to deteriorate again in the third year.

Gedikli et al. [38] also found meta-analytic evidence of a negative association between unemployment duration and both well-being and life satisfaction. The effects were very large.

These empirical findings support the theoretical perspective described above (phase 4), which conceptualises unemployment as a prolonged critical phase of life.

3.4 Unemployment and sociodemographic factors

In addition to the duration of unemployment, the literature has examined many potential factors that may amplify or mitigate the direct effect of unemployment on an individual's health. The available meta-analyses calculated moderating effects for some of these factors. Taken together, however, the moderator analyses show agreement for only a relatively small number of factors, which are discussed below.

There has long been debate about the extent to which differences in labour force participation between men and women as well as traditional gender roles moderate the adverse health effects of unemployment [41]. One historical explanation for men has been the role of 'breadwinner' and the associated obligations towards dependent family members. For women, by contrast, housekeeping and childcare were historically viewed as alternative roles that might buffer the effects of unemployment. Over time, however, women's labour-force participation has risen substantially, traditional gender roles have changed, and employment biographies have partly converged. Interestingly, meta-analyses from both the first and second periods continue to show gender differences in health responses to unemployment, including in more recent publications.

First period: Based on the largest set of 302 samples in cross-sectional analyses, the meta-analysis by Paul and Moser [36] found that the adverse effects of unemployment on men's mental health were significantly greater than those observed among women. By contrast, the earlier meta-analysis by Murphy and Athanasou [34] found that gender did not affect the effect sizes of unemployment on health. As noted above, however, this meta-analysis had critically low methodological quality (Table 1), and its small number of studies resulted in low statistical power.

Second period: Sterud et al. [40] likewise had only a very small number of studies available for this moderator analysis. The findings were inconsistent and may have been confounded by differences between countries. The evidence included a German panel analysis by Unger et al. [42], which observed that job loss had a particularly negative effect on the mental health of older men.

The other three meta-analyses show substantial agreement. Gedikli et al. [38] found that the adverse effects of unemployment on well-being and life satisfaction were considerably greater for men than for women. Picchio and Ubaldi [39] likewise reported that the health effects of unemployment were more severe for men than for women. Amiri [23] calculated a significantly higher odds ratio for depression among unemployed men than among unemployed women (OR 2.27 vs OR 1.62), although not for depressive symptoms. These meta-analyses therefore align with Paul and Moser's findings [36].

Paul and Moser [36] also identified a moderating trend by social class. Unemployed people from working-class backgrounds were more strongly affected in terms of mental health than white-collar employees.

Contrary to expectations, previous moderator analyses [36, 38, 39] did not support the hypothesis that unemployment affects health differently across ages. The educational level of unemployed people likewise had no demonstrable influence on the effects of unemployment on mental health in the meta-analyses [34–36, 38]. The same applied to ethnicity and nationality [35, 36]. This suggests that these groups and subgroups appear to be affected similarly by unemployment.

3.5 Country-level factors

The literature has debated the influence of the labour market on the psychological burden of unemployment. On the one hand, high unemployment rates are associated with fewer vacancies and poorer employment prospects and could therefore increase future-related anxiety and pressure during job searches among unemployed people. On the other hand, economic crises may also burden employed people, who serve as the comparison group, through greater job insecurity [27]. Contrary to expectations, the meta-analyses by Paul and Moser [36] and McKee-Ryan et al. [35] found no significant moderating effect of the local unemployment rate reported in the primary studies. By contrast, Picchio and Ubaldi [39]

recently identified a significant negative effect of the unemployment rate on the health of unemployed people.

A major advantage of international reviews is that they can use meta-analysis to test whether differences in the health effects of unemployment relate to country-level differences. According to the meta-analyses, several country-level factors can systematically influence the health consequences of unemployment. Paul and Moser [36] identified income equality as an important moderator in international comparisons. The adverse health effects of unemployment are greater in countries with high income inequality (Gini coefficient) than in countries with low inequality.

Paul and Moser [36] identified the generosity of a country's social security system as another important factor. Generosity is reflected in the level and duration of benefit payments or in the percentage of unemployed people receiving benefits. Unemployed people's financial situation generally depends on the support system. However, this moderator was not confirmed in the meta-analysis by McKee-Ryan et al. [35] and was only partly confirmed by Gedikli et al. [38].

Paul and Moser [36] also found that a country's level of economic development affects the health of unemployed people. According to their findings, the adverse effects of unemployment are greater in poorer countries than in wealthier ones. However, this macroeconomic moderator was not statistically significant in the more recent meta-analyses by Gedikli et al. [38] and Picchio and Ubaldi [39].

Gedikli et al. [38] also found that the well-being of unemployed people was more strongly impaired in countries with stricter social norms regarding work orientation. This aligns with Paul and Moser's incongruence theory [30].

Taken together, the meta-analyses provide varied but inconsistent findings on country-level factors. Paul and Moser [36] meta-analysed the largest number of primary studies, but not all moderators were confirmed in the other meta-analyses. Such country differences may become detectable only when a larger number of studies provides sufficient statistical power. They may also have changed over time. The findings should therefore be interpreted cautiously.

3.6 Meta-analyses of health promotion for unemployed people

Labour market-integrative health promotion primarily aims to prevent illness and strengthen the health of unemployed people. A secondary aim is to improve labour market integration. Paul and Hollederer (2023) [43] and Arena et al. (2023) [44] published the first systematic reviews with quantitative meta-analysis of health effects. A meta-analysis by Hult et al. (2020) [45] examined labour-market effects.

Table 2 informs that all three meta-analyses were of high quality according to the AMSTAR II checklist.

Paul and Hollederer's international meta-analysis [43] built on an earlier systematic review [20]. It included intervention studies among unemployed people with at least two measurement points and a control group. Its main finding was that health-oriented interventions and health promotion significantly improved mental health. Average meta-analytic effects were small both immediately after the intervention ($d=0.22$) and at follow-up ($d=0.11$). Promoting physical activity was also significantly effective and increased activity levels ($d=0.30$). Contrary to expectations, the sociodemographic characteristics tested did not moderate the effects of health interventions.

Voluntary participation in health measures emerged as an important moderator. Mandatory health measures, for

Table 2: Systematic reviews with quantitative meta-analysis of health promotion for unemployed people

No.	Authors (publication year)	Focus	Period of primary studies	Countries/ continents	Number of studies	Main findings among unemployed people (direction)	Quality (AMSTAR II checklist)
1.	Hult et al. (2020) [45]	Health measures for re-employment (cognitive behavioural therapy, physical exercise, health counselling), with and without job-search training	1989–2018	Europe, the Americas, Australia, Israel	15	Health measures without job-search training significantly improve ↑ re-employment. Health measures with job-search training slightly improve ↑ re-employment.	High
2.	Paul and Hollederer (2023) [43]	Health-oriented interventions and health promotion (cognitive behavioural techniques, relaxation, stress management, social support, physical activity, health counselling, job-search training)	1989–2020	Europe, Australia, the Americas	34	Following a health intervention, ↑ mental health and ↑ physical activity improved significantly, but → physical health did not, compared with the control group.	High
3.	Arena et al. (2023) [44]	Mental health interventions (depression, anxiety)	1989–2022	USA, Australia	39	Both prevention and treatment significantly reduced ↓ depression, ↓ anxiety and ↓ stress scores compared with the control group. Averaged overall effects tended to be positive.	High

example those required by job centres, were not effective. Voluntariness is one of the principles for action set out in the WHO's Ottawa Charter for Health Promotion [46].

In addition, Paul and Hollederer's meta-analysis [43] found a significant negative moderating effect on physical health when health interventions were combined with job-search training. Among measures intended to promote physical health, only those without job-search training were effective.

The meta-analysis by Paul and Hollederer [43] also comprised evaluated intervention approaches developed in Germany. These included the JobFit programme, which developed its own prevention course and uses motivational interviewing [47, 48], as well as the AktivA [49] and AmigA [50] programmes.

The main findings are consistent with another meta-analysis by Arena et al. [44], which focused on depression and anxiety as endpoints. It found that the averaged overall effects of both prevention and treatment studies were positive for depression, anxiety and stress. Evidence was comparatively robust for cognitive (behavioural) therapy-based approaches. The strongest evidence concerned distress, although the aggregated effect size was small.

The meta-analysis by Hult et al. [45] examined re-employment as the primary outcome among job seekers who took part in health promotion measures. In seven of 15 randomised controlled intervention studies, the health measure was combined with job-search training. Compared with a control group receiving no intervention, health measures without job-search training produced a small but significant improvement in the chances of re-employment (although certainty of the evidence was very low). Hult et al. [45] reported that health interventions that included job-search training did not achieve improvements in re-employment of the same magnitude.

Taken together, these meta-analyses provide evidence that the interventions are effective for both health and re-employment, albeit with small effect sizes. There are tentative indications that combining a health intervention with job-search training has not proved beneficial in terms of either labour market effects or health effects.

4. Discussion

4.1 Discussion of findings

In summary, the international meta-analyses published to date cover a heterogeneous body of evidence on the health of unemployed people spanning an entire era and show a high degree of consistency in their core findings. They consistently found that entry into unemployment is associated with an increase in psychological symptoms, while re-employment is associated with improvements in mental health. Changes in mental health and well-being can be demonstrated across several indicators. Unemployment affects mental health more strongly than physical health. Meta-analyses of longitudinal data support the assumption that unemployment not only correlates with impaired mental health but also contributes causally to it (causation hypothesis). On average, the longer people remained unemployed, the stronger the adverse effects on mental health. Causation and selection are not mutually exclusive, however, and the reciprocal relationships suggest a 'vicious circle' of unemployment and health [21].

Most of the meta-analyses achieved a high level of methodological quality. When interpreting AMSTAR II quality ratings, it should be noted that the assessment incorporates both methodological quality and formal aspects such as the absence of a study protocol or a statement on conflicts of interest, and the rating system is relatively strict. This weighting is particularly relevant to the meta-analyses of health interventions (Table 2).

One limitation is that the underlying primary studies often do not meet high-quality standards. Sterud et al. [40] reported that all studies included in their meta-analysis received low ratings under the GRADE approach. Moreover, few suitable longitudinal studies exist. Many were only cross-sectional studies. A strength of this overview is that it considers the quality and number of primary studies in the overall assessment. The evidence increasingly suggests that previous meta-analyses may have statistically overestimated the effect sizes of unemployment and re-employment on mental health because of low study quality or small numbers of studies (see Figure 3).

Another strength is the synthesis of moderator factors highly relevant to policy and practice, though they are only partly consistent across studies. Health responses to unemployment are not homogeneous; various factors moderate the effects. A strength of this realist synthesis is that it identifies evidence across studies while also taking research periods into account. Moderator analyses are also important for health promotion because interventions can potentially address factors such as resources and burdens.

4.2 Implications for health promotion

The international meta-analyses contribute to the evidence base for labour market-integrative health promotion among unemployed people. They reveal positive effects, particularly on mental health, although effect sizes are small. They also provide evidence of small but significant effects on re-employment. Health promotion can therefore mitigate the downward spiral associated with unemployment.

The meta-analytic findings on the increase in adverse health effects with longer duration of unemployment are par-

ticularly relevant. Long-term unemployed people are substantially more affected than those experiencing short-term unemployment. In Germany, prevention and health promotion practice largely targets this group [51]. Yet 'prae-venire' means 'to come before', and the first peak in health burden was identified after nine months of unemployment [36]. Suitable health interventions might therefore be beneficial even for people experiencing short-term unemployment. The international JOBS Program, for example, was originally designed for this target group and has since received a positive evaluation in Germany [52].

Moderator analyses provide important information about vulnerable groups. It is relevant, however, to distinguish the question of health risk from that of an individual's risk of becoming unemployed. This distinction matters in practice because unemployment risks are socially unequal. In Germany on average in 2025, for example, the unemployment rate among people with foreign nationality was almost three times higher than among Germans, according to the Federal Employment Agency [53]. The available meta-analyses nevertheless indicate that the health of both groups is affected to a similar extent when they lose their jobs.

The pattern differs when men and women are considered. In 2025, men had a higher average registered unemployment rate than women in Germany (6.6% vs 6.0%) [53]. The effects of unemployment on mental health are also greater among men than among women in the meta-analyses. This provides a clear indication for target group-specific prevention and health promotion. Section 20 (1) of Book V of the German Social Code, which governs statutory health insurance, stipulates that primary prevention and health promotion services 'should contribute in particular to reducing socially determined and gender-related inequalities in health opportunities'. However, in health promotion practice, reach among registered unemployed men is low, and male-specific prevention approaches remain underdeveloped. There is also a gender-specific need in addiction prevention. A systematic review by Nolte-Troha et al. [54] reported higher prevalence rates of substance use disorders and higher rates of alcohol and tobacco consumption among unemployed than employed people. These differences were more pronounced among unemployed men than unemployed women.

The meta-analyses also provide noteworthy results on combining health promotion with job-search training. They suggest that this combination has not proved beneficial. It may be preferable to implement the two approaches separately within established health promotion and employment promotion structures.

4.3 Implications for health research

Research requires health data on both unemployed and employed people. A major structural limitation is the lack of open access to routine data held by the social insurance systems for independent research in Germany. High-quality comparative studies with as many measurement points as possible are needed to determine more precisely how causation and selection effects interact in unemployment; such studies remain rare. It should also be noted that the available studies do not yet allow all known indicators of the association between health and unemployment to be meta-analysed, and that the spectrum of mental disorders is broader [55].

International meta-analyses vary considerably in how broadly they define health outcomes and in the analytical methods. This substantially complicates synthesis of the findings. Notably, none of the more recent meta-analyses matched the large number of cross-sectional and longitudinal studies included by Paul and Moser [36], even though their primary-study coverage extended only to 2004. Lower statistical power affects both findings and the interpretation of trends. Therefore, an update of Paul and Moser's meta-analysis [36] using the same methodology is recommended.

Meta-analyses of labour market-integrative health promotion for unemployed people show both qualitative and quantitative developments in the field. Evidence exists, but the current body of studies provides only limited certainty. The meta-analyses also show small effect sizes and limited sustainability. More prevention research is therefore needed on the effects of measures on the health and labour market integration of unemployed people.

4.4 Implications for health reporting on unemployed people in Germany

Germany lacks regular monitoring of the health of unemployed people. In health reporting, unemployment is primarily treated as a macro level contextual variable.

Because all social insurance schemes in Germany record members' official registered unemployment status for billing purposes, systematic reporting is feasible because the data are available. One positive exception with potential as a model is the annual health report of the BKK umbrella organisation. Using routine data on BKK-insured unemployed people, it regularly reports hospital cases and diagnoses, sickness absence, outpatient care and pharmaceutical prescriptions [56]. However, most registered unemployed people in Germany are insured by the Allgemeine Ortskrankenkassen (AOK), which do not report registered unemployed people separately. Corresponding analyses of unemployed people are also lacking in other social insurance schemes, including

statutory pension insurance, statutory accident insurance, and private health insurance.

Representative adult population surveys provide an alternative to social-insurance reporting. Some progress has been made in the national health surveys of the Robert Koch Institute [57–60]. Methodologically, however, the small number of unemployed people in standard sample sizes limits comparative analyses. The Panel Study Labour Market and Social Security (PASS) [61] also has potential for health reporting because it oversamples unemployed people, as demonstrated by analyses of their self-reported health [42] and of specific target groups such as people with disabilities [62]. The Microcensus [63, 64], conducted regularly in Germany by the Federal Statistical Office, is another data source with scope for expansion in health reporting on unemployed people. It generates representative results not only for Germany as a whole but also for the federal states and municipalities in North Rhine-Westphalia.

Research and reporting can only provide the knowledge base for informed decisions in policy and practice. Breaking the 'vicious circle' of unemployment and health requires cross-sectoral policy cooperation and a health-promoting approach across all policies that serves the interests of the people affected.

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