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Precarious Employment: Understanding an Emerging Social Determinant of Health

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Abstract

Employment precariousness is a social determinant that affects the health of workers, families, and communities. Its recent popularity has been spearheaded by three main developments: the surge in "flexible employment" and its associated erosion of workers' employment and working conditions since the mid-1970s; the growing interest in social determinants of health, including employment conditions; and the availability of new data and information systems. This article identifies the historical, economic, and political factors that link precarious employment to health and health equity; reviews concepts, models, instruments, and findings on precarious employment and health inequalities; summarizes the strengths and weaknesses of this literature; and highlights substantive and methodological challenges that need to be addressed. We identify two crucial future aims: to provide a compelling research program that expands our understanding of employment precariousness and to develop and evaluate policy programs that effectively put an end to its health-related impacts.

INTRODUCTION

The term precarious employment has been broadly used for decades in sociology, economics, and political sciences, as well as in the media (87, 170). Over the past decade, the interest in precarious employment in public health research has grown rapidly (19, 134). For example, searching for the key word term "precarious employment" in PubMed reveals that only four papers were published between 1991 and 2000, and 19 from 2001 to 2005. In contrast, from 2006 through 2010, 30 papers appeared, and from 2011 to September 2013, there have already been 39 new publications.

The recent popularity of precarious employment and health research has been spearheaded by the convergence of three main trends. First, the nature of employment conditions has dramatically changed since the mid-1970s. These changes include the global increase of flexible employment relations and the related trend toward making employment more flexible (19). The latter manifests through new employment forms characterized by higher levels of job insecurity and an overall erosion of workers' employment and working conditions (134, 140). Second, the resurgence of interest on social determinants of health, and in particular, the impact of employment conditions, has underscored the importance of precarious employment as a determinant of population health and health inequalities (25, 22). And third, the availability of new data and information systems has increased the available evidence on the association between precarious employment and poor health (26).

Precarious employment is now considered a social determinant of health and an employment condition affecting the health of workers, families, and communities (22, 25). The nature of prevailing employment conditions is affected by the power relationships between employers and employees (i.e., buyers and sellers of labor in a socially configured labor market). Whereas in wealthy countries, employment conditions are subject to the provisions of labor laws or hiring contracts or both, among low- and middle-income countries (LMICs), most employment agreements are unregulated, resulting in more informal employment that takes place in both informal and formal sectors (25, 123). In this context, the term precarious employment represents a continuum of employment conditions that ranges from the gold standard of the secure full-time, year-round, well-compensated, and socially protected employment contract at one end to a high degree of precariousness in different features of the employment relation at the other (21).

In public health, common concepts related to the erosion of the standard employment relationship are broad, not-very-well-defined terms such as "atypical employment," "contingent employment," "flexible employment," "temporary work," "casual work," and "nonstandard work arrangements" (the latter being a euphemism implying that not all these jobs are of poor quality); and also "underemployment" (employed persons who have not attained their full employment level), "working poor" (workers with incomes below the poverty line), and "informal work" (which addresses aspects of the employment relations such as the lack of a written contract or minimal social protection). Although there is still no full consensus on its definition, precarious employment might be considered a multidimensional construct encompassing dimensions such as employment insecurity, individualized bargaining relations between workers and employers, low wages and economic deprivation, limited workplace rights and social protection, and powerlessness to exercise workplace rights (2, 166, 167).

The recent attention devoted to the study of employment conditions as a health determinant implies an important advancement for occupational health research. It broadens a too-narrow focus on the psychosocial work environment by providing more space for an upstream sociological approach to work and health and less emphasis on social psychology (122). A focus on precarious employment puts workplace social psychology in a contextual perspective where it is seen as a consequence of employment relations rather than as an exogenous determinant of worker health (122).

Nevertheless, many scientific and policy questions remain to be answered for us to fully understand the health effects of precarious employment. The purpose of this review article is fourfold: (*a*) to describe the historical, economic, and political factors that link precarious employment to public health and health equity; (*b*) to review concepts, causal models, instruments, and research findings that explain how precarious employment generates and reproduces health inequalities across time and place; (*c*) to summarize the relative strengths and limitations of the existing literature; and (*d*) to highlight substantive and methodological challenges that need to be addressed in future research. Our ultimate goal is to develop a research and policy agenda that advances scholarship on precarious employment while developing effective policies to avert its effects on health.

THE HISTORICAL EMERGENCE OF PRECARIOUS EMPLOYMENT RELATIONS

The Development of Standard Employment Relationships

During the post–WWII years (i.e., Western capitalism's "golden age" between the 1950s and 1970s), employment relations in wealthy countries were shaped largely by the Fordist model of industrial production and capital accumulation, the Keynesian model of state economic intervention, generous welfare states, strong labor unions, and a strong regulation of employment relations (25, 134, 140). Within a context of economic stability and prosperity, employment relations evolved into a capital-labor accord to guarantee workers stable employment, employment-related rights and protections, and the right to collective representation (35, 138). This model of industrial relations allowed for a decommodification of labor, such that most workers could maintain their livelihood during nonwork periods (123). Mandatory collective protection also empowered workers to avoid being exposed to hazardous work environments and harmful employment conditions (166). This historical context was characterized by the standard employment relationship, defined as permanent (contract of unlimited duration), full-time, year-round employment with relatively generous job-related benefits (77). Moreover, standard employment relations included statutory constraints on hiring and firing and regulations against arbitrary dismissal, the right to collective representation, minimum wages, nonwage benefits, and pensions. However, this ideal type was far from equitable or universal because it applied mostly to male, autochthonous, wage-dependent workers, thus excluding workers employed outside the norm such as self-employed contractors and the majority of part-time workers, most of them women (134, 170).

The Recommodification of Labor and the Emergence of Flexible Employment

Flexible forms of employment globally expanded as a consequence of the dramatic changes that characterized capitalist economies during the last three decades of the twentieth century (39). In the mid-1970s, the economic "oil shocks," worldwide recession, and a constellation of technological, political, and economic factors (including the shift from Keynesianism toward neoliberal economic policies) halted economic growth and induced transformations in production processes, thus providing the background for transforming the nature of relations between employers and workers (34, 40). In this new context, the main priorities for employers were to obtain wage flexibility, to ease constraints on hiring and firing, and to relax employment protection policies (34, 144). Employers successfully stripped employment of its alleged rigidities. This happened because working-class power had weakened and business, capital, and employers' power positions had been strengthened (140). By 1994, labor-market flexibility was an integral part of the Organization for Economic Co-operation and Development's strategy to reduce unemployment in industrialized

countries (127). Governments pursuing flexibility relaxed labor-market regulations, limited social security benefits, modified collective bargaining regulations while favoring the individualization of employment relations, and deregulated the contractual employment relationship (116, 144). Private and public organizations downsized, restructured, outsourced parts of the productive process, resorted more to temporary workers, and dismantled internal labor markets (75, 133). Large-scale industries became more fragmented and geographically dispersed, creating a variety of production chains and inter- and intrafirm network relations (132). Such industry networks are characterized by subordination and dependency, where smaller firms peripheral to the parent organization absorb greater portions of market risks and offer worse employment conditions. In addition, the internationalization of production allowed organizations to delocalize their productive processes into markets with lower labor costs.

The Impact of the Great Recession of 2008

The current economic recession is not an isolated economic phenomenon but entails important consequences for employment conditions, quality of life, and health that were already apparent in the crises of previous decades. The threat to population health posed by the economic crisis of 2008 is widely recognized in the public health literature, particularly in the context of the European Union (84). Austerity and the implementation of labor-market reforms affect employment conditions with strong negative effects on living conditions and population health (88). First, the impact may take place through direct staff cuts and the rapid increase in unemployment, leading to poverty, social exclusion, and mental health problems. Second, quality jobs are replaced by jobs with lower wages and worse working conditions, accentuating the growth in flexible and precarious employment arrangements. This situation likely affects migrants and foreign guest workers heavily because they are among the most deprived members of any labor market. Third, the economic downturn leads to downsizing and restructuring, as employers respond to falling demands or seek to realign cost pressures (44, 133), increases outsourcing services, and generates temporary jobs even in the previously protected public sector. The myriad of small subcontractors in elaborate supply chains throughout rich and poor countries are also suffering (132). Although subcontracting is a heterogeneous phenomenon not necessarily equivalent to precariousness, in the future, precarious employment in subcontractors is also likely to grow. And fourth, high unemployment limits workers' bargaining power both collectively and individually. Amid a crisis, unions cannot counter, or are pushed to accept, labor-market reforms that tend to increase employment precariousness (25). At the individual level, many labor-market survivors will feel insecure about their own jobs and will accept a decline in employment and working conditions to remain employed (61).

EPIDEMIOLOGICAL RESEARCH ON FLEXIBLE AND PRECARIOUS EMPLOYMENT

The diverse research approaches to employment in flexible labor markets provide a rich source of information regarding the potential health effects of precarious employment. Although flexible employment may be beneficial for some workers (33, 72), for the most part employment flexibility tends to erode employment conditions (36). In this section we review findings from five of the most informative approaches in social epidemiology: (*a*) major organizational restructuring and downsizing, (*b*) perceived job insecurity, (*c*) temporary employment, (*d*) multidimensional approaches to flexible employment and employment precariousness, and (*e*) welfare state regimes and national labor markets. **Table 1** presents a synthesis of the main research findings described below.

Table 1 Summary of main epidemiologic findings for research on flexible and precarious employment

Health outcomes	Remarks on the evidence	Hypothesized pathways	Selected reviews
Major organizational restructuring and downsizing research: anticipation phase and job loss			
Physical health: - Adverse effects on physical health, increased episodes of illness and longstanding illness, and decline in self-reported health status - Increase in cardiovascular risk factors: BMI, blood pressure, total cholesterol, HDL cholesterol - Adverse cardiovascular events: EKG-diagnosed ischemia, cardiovascular mortality - Adverse effects on physiological indicators, e.g., serum cortisol, prolactin **Mental health:** - Association with psychological ill-health, minor psychiatric or psychological morbidity - Increased psychotropic medication prescription **Health-related outcomes:** - Increased use of health services - Sleep disorders **OHS outcomes:** - Longer spells of sickness absence - Presenteeism (working while ill)	Longitudinal evidence (before, during, and after organizational restructuring) Magnitude of effects appears to vary with - perceived severity of job loss (greater health impact for those anticipating unemployment compared with those anticipating retirement with full pay) - number of organizational dimensions subject to change - time elapsed since experience of threat	Strain and stress reaction to uncertainty and lack of control over the work situation	13, 63, 68, 62, 133
Major organizational restructuring and downsizing research: "stayers" or "survivors"			
Physical health: - Increased morbidity, poor self-rated health, and worsening general health - Increased cardiovascular risk (e.g., overweight, hypertension) - Increased cardiovascular mortality **Mental health:** - Adverse effects on psychological health: anxiety, burnout, psychological distress, poor mental health, suicide **OHS outcomes:** - Greater risk of physical hazards - Musculoskeletal complaints - Increased work disability, both temporary (long-term sickness absence) and permanent and early retirement	Longitudinal evidence (before, during, and after organizational restructuring) Magnitude of cardiovascular effects appears to vary with the magnitude of downsizing Possible decrease in effects some years after exposure	Sustained job insecurity Adverse changes in work organization: - Reduced size of workforce and subsequent increased workload - Reduced work control	63, 68, 133

(*Continued*)

Table 1 (*Continued*)

Health outcomes	Remarks on the evidence	Hypothesized pathways	Selected reviews
Perceived job insecurity research			
Physical health: - Increased symptom load - Worse self-reported health - Increased use of health services - Increased cardiovascular risk (less physical activity, hypercholesterolemia, hypertension) - Increased nonfatal myocardial infarctions and coronary deaths **Mental health:** - Increased prevalence of depressive symptoms, minor psychiatric morbidity, and generalized anxiety disorder **Health-related outcomes:** - Reduced job satisfaction **OHS outcomes:** - Increase in musculoskeletal complaints	Longitudinal evidence for most effects Evidence of dose-response relationship Effects worse for chronic than single exposure Contradictory evidence on whether associations with outcomes vary by type of contract Inconsistent findings regarding group differences (gender, age, occupation)	Cause of occupational stress in response to threat of job loss and loss of other (financial, social) job-related resources Stress response to sustained uncertainty, unpredictability, and lack of control over the future Overwork in order to keep job	51, 63, 68, 146, 162
Temporary employment research			
Physical health: - Minor health complaints and worse self-reported health - Some evidence of increased mortality for external causes (tobacco and alcohol related) **Mental health:** - Higher probability of reporting fatigue or exhaustion - Greater risk of antidepressant use **Health-related outcomes:** - reduced job satisfaction **OHS outcomes:** - musculoskeletal complaints - increased risk of occupational injuries - reduced sickness absence and greater workplace presenteeism	Cross-sectional evidence and longitudinal evidence for main findings Evidence of a stronger association the more unstable the temporary contract is Mixed results, especially across countries (some show direct association, some no association, and some an inverse association) Self-reported health may vary according to perceived sustainability of the job situation	Stress (uncertainty about the future) Income instability Worse working conditions, including psychosocial work environment (e.g., low control, bullying and harassment) Worse OHS conditions Greater workload; increased work effort in order to keep the job	50, 63, 68, 160
Multidimensional approaches to employment precariousness research			
Physical health: - Worse self-reported health **Mental health:** - Increased prevalence of poor mental health and depressive symptoms **Health-related outcomes:** - Reduced job satisfaction **OHS outcomes:** - Increased risk of occupational injuries - Worse psychosocial work environment - Greater exposure to environmental risks	Still scarce research on health effects Evidence is cross-sectional and qualitative	Indirect and direct effects of workplace power relations Direct effect of - job insecurity - material and social deprivation - hazardous working conditions - stressful psychosocial work environment	NA

(*Continued*)

Table 1 (*Continued*)

Health outcomes	Remarks on the evidence	Hypothesized pathways	Selected reviews
Welfare state and labor-market regimes, flexible employment, and health			
- Flexible-employment workers (i.e., fixed-term, part-time) in Scandinavian welfare states report better or equal health status when compared with their permanent counterparts - Precarious workers in remaining welfare state regimes report various worse health outcomes - Regardless of welfare regime, workers in most precarious work forms are more likely to suffer adverse health outcomes - Association between perceived job insecurity and incident coronary heart disease not modified by welfare state regime	Critical literature review of longitudinal and cross-sectional studies Meta-analysis of modification effect on association between perceived job insecurity and coronary heart disease by welfare regime	Active labor-market policies and "flexicurity" labor markets Social protection policies, access to health care and education Pensions Unemployment insurance OHS Worker's compensation policies Income assistance	75, 162

Abbreviations: BMI, body mass index; EKG, electrocardiogram; HDL, high-density lipoprotein; NA, not applicable; OHS, occupational health and safety.

Major Organizational Restructuring and Downsizing

These studies multiplied in the literature in the context of the restructuring of traditional Fordist workplaces and the privatization of public services (62). This body of research focuses either on the health effects of the anticipation of job loss or on the impact of organizational change for downsizing "stayers" or survivors (i.e., employees that remain in the organization). Anticipation phase research generally also comprises the first years after termination. Anticipation of job loss implies coping with the ambiguity of whether and how events will develop, prolonged uncertainty regarding the outcome of the process, and the future of the job or valuable job features (67, 108), with no clarity about which responses might be most adaptive (78). In fact, early on, the threat of job loss was described to be at least as stressful as actual job loss (15).

A review of 15 longitudinal workplace closure studies (1968–1995) found that nearly all showed adverse effects on physical health, psychological health, and/or physiological indicators during the phases of anticipating and experiencing workplace closure, as well as during the first year of unemployment (62). Similar findings were obtained with data from the British civil service, the Whitehall II cohort study (62). Almost all studies on organizational downsizing have documented an association with psychological ill-health (68). Other reported outcomes are declines in self-reported health status (66); increases in body mass index (BMI), blood pressure, and cholesterol (65, 110); and electrocardiogram (EKG)-diagnosed ischemia (65). Presenteeism (working while ill) has also been described among workers anticipating restructuring and job loss (63), which may be more frequent among those more likely to lose their jobs (16).

Most downsizing research focuses on survivors. For survivors, work organization after downsizing generally implies a greater workload (133), reduced job control, increased job strain, effort-reward imbalances, and sustained job insecurity (68). These effects result in deleterious health effects, including cardiovascular mortality (153). The magnitude of ill-health effects appears to be related to the magnitude of downsizing (97, 152). Adverse health effects only start to diminish after some years past the exposure to major downsizing (13, 60, 153). Moreover, research has

shown that downsizing also tends to affect occupational health and safety (OHS): A review study indicated that out of 86 studies (1990–2010s), 42 of them longitudinal, 85% described negative OHS effects after downsizing or restructuring (133).

Because downsizing produces uncertainty about the continuity of employment, this research program overlaps conceptually with that of job insecurity (133). Along these lines, downsizing research has been characterized as research in which job insecurity is "externally" attributed by researchers as an objective threat of job loss in contrast with perceived job insecurity studies, which are based on workers' reports of their jobs being insecure, without necessarily experiencing objective threats to their job stability (63, 68).

Several major organizational change studies have collected health-related information before and after exposure, providing valuable evidence favoring a causal association between stressful employment situations and health. Consequently, there is sustained concern about the health consequences of organizational change on workers' health (154).

Perceived Job Insecurity

Research interest on perceived job insecurity, initially arising out of studies of organizational restructuring and the psychosocial work environment, multiplied in the epidemiological literature during the 1990s (117). Concerning the threat of involuntary job loss, and initially defined as "perceived powerlessness to maintain desired continuity in a threatened job situation" (74, p. 438), job insecurity—anticipating job loss—and actual job loss are described as substantially different experiences (78). In fact, a considerably larger proportion of the workforce is subjected to job insecurity than to actual job loss (137).

Perceived job insecurity is a perceptual phenomenon resulting from "a process of cognitive appraisal of the uncertainty existing for the organization and the employee" (78, p. 134) or the individual's interpretation and evaluation of external signs regarding the continuity of the job or the organization. This interpretation varies according to personal factors or expectations of job security (137) and contextual factors (56, 74, 78). Relevant macrolevel contextual factors are the functioning of the labor market, the economic environment, and the breadth of social security protection (56, 73). Owing to its individual subjective component, job insecurity can arise independent of an objective threat (51), and different individuals can react differently to the same objective threat (74, 81).

Perceived job insecurity constitutes a chronic rather than an acute experience (78). Empirical research on perceived job insecurity consistently shows an association with mental ill-health (51, 68, 147). Both dose-response and longitudinal associations with mental (41, 67, 79) and physical health have been demonstrated (41, 53, 67). A meta-analysis found a small effect size for physical health (mean correlation −0.159) and a medium effect size for mental health (mean correlation: −0.237) (147). A recent meta-analysis found a modest association with incident coronary heart disease (age-adjusted relative risk 1.32 [95%, confidence interval (CI) 1.09–1.59]) (162).

More broadly, job insecurity may be thought of as a multidimensional construct, including the subjectively perceived likelihood of involuntary job loss (146) and the fear of loss of other valued features of the job (11, 67, 74, 108). Nevertheless, the continuity of the job itself (79) and its associated financial insecurity are likely the most important factors for health and health inequalities (103). However, knowledge on how or which organizational characteristics shape the experience of job insecurity is still limited (133). Another limitation of the job insecurity construct is that its approach is more likely to generate findings linked to the individual than to the employment relationship (7, 18).

Temporary Employment

Temporary employment includes all forms of nonpermanent contracts, such as fixed-term, project-specific, on-call, and temporary-help agency jobs (49, 68). One can consider temporary workers to be in an objective state of job insecurity. They generally report perceived job insecurity more frequently than do permanent workers (43, 158, 163), although some studies describe this association to be small (52) or absent (111).

Although findings regarding the psychosocial work environment are contradictory (7, 111, 139), temporary workers, compared with permanent workers, more frequently report worse working conditions (69, 102), the severity of which tends to correlate with instability of the employment situation (5, 7). Temporary workers also report having less information about their work environment and receiving less training for performing their tasks, are seldom represented in health and safety committees, and have less access to safety equipment (70, 134, 133). Correspondingly, temporary workers are more at risk of occupational injuries (4, 29, 134), which is also attributed to their shorter job tenures and resulting lack of experience (29, 76), less OHS training (5, 46, 134), and poorer working conditions (4) as compared with permanent employees. Also, some organizational characteristics of the places where temporary workers are more frequently employed, such as establishment size and economic activity, may be at play (4).

Findings for mental illness, mental health, or psychiatric disorders are mixed (14, 92, 94, 106, 131), but evidence indicates that psychological ill-health increases with a rising degree of employment instability (9, 159, 164). Evidence regarding self-rated health is also mixed; some studies describe negative associations (92, 96, 136) and others describe positive associations (106, 164). One study described a higher overall mortality among temporary employees, especially for alcohol- and tobacco-related causes of death (98). Sickness absence tends to be less frequent among temporary workers (28, 161, 158, 165), possibly reflecting sickness presenteeism (153, 158). Sickness presenteeism, which may impair recovery with possible long-term, negative health consequences (30), is possibly related to job tenure (149) and caused by feelings of job insecurity or fear of job loss (80, 161), lack of pay during sick leave (103), and financial difficulties (6).

A Cochrane review analyzed two studies on temporary employment and found that fixed-term contracts had equivocal or negative effects on health outcomes (86). A meta-analysis on temporary employment (160) found that the literature was most suggestive of a relationship with increased psychiatric morbidity [odds ratio (OR) 1.25, 95% CI 1.14–1.38], reduced sickness absence (OR 0.77, 95% CI 0.65–0.91), and occupational injuries (7 out of 13 studies) and that observed associations with health were stronger as instability of temporary employment increased. The combined risk estimate was positive but nonsignificant for poor physical health (OR 1.08, 95% CI 0.94–1.25) and musculoskeletal disorders (OR 1.24, 95% CI 0.69–2.22). Income instability (67), personal financial circumstances (7, 42), and perceived job insecurity may mediate the relationship between temporary employment and mental ill-health, although the effects of perceived job insecurity have been equally (165) or more (51, 164) problematic for permanent workers.

However, substantial heterogeneity exists between various temporary employment arrangements. Analyses contrasting permanent with (different types of) temporary employment do not coincide with a clear-cut division between precarious and nonprecarious employment (148): Some permanent workers will be precarious, some temporary workers will not, and this may vary within and between countries. Moreover, heterogeneity between countries regarding the levels of social protection and workers' rights (32) limits the generalizability of research findings and cross-national comparisons (28, 49, 136). Both sources of heterogeneity may explain some of the mixed findings described above. Another cause of mixed findings may be the variations in the magnitude of bias introduced by the healthy worker effect (160), which among temporary workers

implies that less healthy workers are selected out of employment and the most healthy workers are transitioned into permanent positions. The final effect on studied associations may vary across studies and countries, contingent on labor-market regulation and labor-market dynamics.

Multidimensional Approaches to Flexible Employment and Employment Precariousness

Flexible contractual forms may share many characteristics that make jobs precarious. However, they cannot account for the diverse dimensions of employment precariousness. Multidimensional approaches typically address several dimensions of the quality of employment. Some of them, however, do not use "precariousness" as the central concept. The PDR model (pressures, disorganization, and regulatory failure model) was developed to explain how precarious employment undermines OHS (151). Economic and reward pressures constrain safe work practices; disorganization refers to the lack of employer commitment to stable employment, resulting in less experienced workers and lower training and supervision; and regulatory failure refers to the weakening of and limited access to worker rights. Research has described associations between the PDR model and job insecurity, low control over the work process and working hours, poor social protection and benefits, low income, and the decoupling of the worker-employer relationship (134).

The employment strain model (105) describes employment arrangements characterized by a combination of (*a*) employment relationship uncertainty, or uncertainty over work schedules and the continuity, terms, and conditions of future employment; (*b*) employment relationship effort, or effort in finding and keeping employment or balancing the demands of multiple jobs; and (*c*) poor employment relationship support, support from formal organizations such as unions, from coworkers, and from friends and family (104). Employment strain, as well as the strain resulting from the separate dimensions, is related to several health indicators (104).

Another multidimensional approach consists of creating mutually exclusive combinations between different legal types of contracts: for example, permanent full-time, permanent part-time, casual full-time, casual part-time (48). Some combinations are considered more or less precarious because of their limited legal entitlements. In Australia, these types have shown consistent differences in sociodemographics, employment characteristics, and perceived job insecurity (107).

Other multidimensional empirical approaches draw from Rodgers's (135) study of precarious employment defined as jobs of limited duration with limited protection from labor-market uncertainties and unacceptable treatment at work, low wages, and limited worker control over factors such as wages and working hours. One approach developed an eight-dimensional model of precarious employment (148), including Rodgers's four dimensions plus other related dimensions such as work-role status uncertainty, risk of exposure to physical hazards, social support at work, and training and career-advancement opportunities. This approach acknowledges that some dimensions of standard jobs may also be precarious. Moreover, findings show a stress-related pathway to ill-health and relations with poor self-reported health and functional limitations for some of the dimensions (141).

Another approach is the GREDS-EMCONET (Health Inequalities Research Group, Employment Conditions Knowledge Network) employment precariousness validated construct and scale (EPRES) (2, 167). By incorporating other relevant dimensions, EPRES overcomes the limitations of one-dimensional indicators, which address only employment insecurity or instability. In particular, EPRES acknowledges the unequal power relations underlying flexible employment relations (21, 38). On the basis of Rodgers's four dimensions (135) and qualitative research performed in Spain (3), the construct comprises the following dimensions: temporariness (employment instability), powerlessness or disempowerment (individualized versus collective

bargaining), vulnerability (worker defenselessness to unacceptable workplace practices), low or insufficient wages, limited rights (suboptimal entitlement to social security benefits and worker rights); and incapacity to exercise rights (powerlessness, in practice, to exercise workplace rights and entitlements). Studies of the distribution of employment precariousness in Spain and Catalonia have shown that precariousness, as a whole and in its separate dimensions, is consistently higher among younger workers, immigrants, manual workers, and women (17, 169). Mental health is probably the most sensitive health outcome and the most rapidly responsive to precarious employment conditions (109). To date, survey research has shown an association between the employment precariousness construct and poor mental health (168). Preliminary results in Chile also show an association between employment precariousness and other outcomes such as poor self-rated health, job dissatisfaction, and presenteeism (A. Vives, unpublished information). Qualitative evidence gathered in Spain among Spanish (3) and immigrant workers (128) supports this finding. This pattern has also been described in Canada (46). The use of a multidimensional concept of employment precariousness allows us to assess the precarization of employment and its association with health among both permanent and temporary workers (166), as well as to capture the impact of employment relationships (18).

A model related to employment precariousness is the employment quality model, which shares the theoretical and conceptual starting points of the EPRES and incorporates two additional dimensions: lack of training and employability opportunities, and exposure to unpredictable or intensive working hours (155). Measured with proxy data from the European Working Conditions Survey, this model has also shown a clear pattern of social distribution: Younger workers, women, migrants, and lower-skilled and lower-educated workers are most affected by low employment quality (130). The employment quality model is also related to other work characteristics such as exposure to adverse physical risk factors, less job control, and less support (155). Approaches to analyzing the health impact of precarious employment may vary. Critical to the experience of employment precariousness and its adverse consequences for health and well-being are the (possibly cumulative) duration and intensity of exposure, as well as the number of dimensions to which one is exposed (148). This latter approach implies analyzing the diverse dimensions separately and evaluating their interactions. Another approach is the construction of a summary scale in which all dimensions contribute jointly to the measured experience of precariousness and its health impact (168). A third approach is to assume that precarious employment experiences vary qualitatively depending on the specific pattern of dimensions to which one is exposed. Cluster analysis with European data using the quality of employment construct appears to confirm this assumption (155), showing differences in the working conditions and general living conditions across these clusters (101, 155).

Welfare State Regimes and National Labor Markets

In recent years, two major streams of research on welfare states, labor markets, employment relations, and population health have emerged in the literature. One stream of research has explored the differential effects of welfare regimes on flexible employment. Guided by a six-category welfare state typology (Scandinavian, Bismarckian, Southern European, Anglo-Saxon, Eastern European, and East Asian), a synthesis of 104 original articles (from 1980 to 2010) (95) found that (*a*) welfare regimes may be an important determinant of employment-related health, (*b*) precarious workers in Scandinavian welfare states reported better or equal health status when compared with their permanent counterparts, and (*c*) precarious work in the remaining welfare state regimes was associated with various adverse health outcomes. This emerging body of work underscores the value of integrating macroeconomic processes, country-level welfare state factors, and individual

employment histories and environments to understand and reduce employment-related health inequalities. Existing welfare state (59) and labor-market (45, 93, 118) typologies of European countries may, however, not always be the most appropriate. Regarding the analysis of gender, for example, the typology of countries needs to be based on both general welfare state arrangements and work and family arrangements, thus considering domestic and family labor as well as the interaction between job and family life (10).

A second related body of literature examines the impact of national labor markets on population health using a comparative approach that groups countries into typologies according to characteristics of their labor markets. Among wealthy countries (e.g., core nations), this work has focused on the health impact of power relations, or workers' bargaining power, measured by collective bargaining coverage and union density (121). The underlying argument is that when union power and prolabor parties are strong, welfare states tend to be more universal and generous, which in turn improves health and narrows health inequalities (57, 58, 83, 85, 99, 121, 145). Among low- and middle-income countries (LMICs) (e.g., semiperipheral and peripheral nations), similar union and employment-protection data are often not available. Instead, researchers have tested the association between population health and labor-market regulations along two important dimensions: inequality (between workers and genders) and poverty (derived from wages) (118). Less research has explored the health consequences of employment conditions in LMICs, although workers are more likely to earn poverty wages, be employed in precarious and hazardous working environments, and work in agriculture and production of primary goods.

RESEARCH CHALLENGES

Information Systems and Monitoring

The current lack of agreement on standardized definitions of precarious employment has important consequences for developing information systems necessary for surveillance and for making cross-national comparisons. Thus, most information systems collect employment data typically designed for purposes other than the analysis and monitoring of precarious employment and its impact on quality of life, health, and equity. The World Health Organization Commission on Social Determinants of Health strongly recommended the development of health equity systems, which routinely collect data on social determinants, including employment and working conditions (47). To date, no large-scale (cross-national) surveys exist that incorporate items on the basis of a theoretical conceptualization of employment precariousness beyond conceptually limited standard indicators such as temporary employment. Yet, precarious employment may already be measured with a validated multidimensional scale such as the EPRES tool (2, 166–169). The development of global employment-related health inequalities surveillance systems, focusing on LMICs, must overcome the difficulties inherent in cross-country comparisons, which arise from diverse labor markets and employment and working conditions, the ensuing barriers to reaching universally standardized definitions and the lack of available data (45, 118, 129).

Contexts and Social Distribution

Employment conditions, and precarious employment in particular, are determined to a large extent by macrolevel structures and processes (25, 54, 119), including macrolevel power relations. Yet, existing research on global labor markets and population health remains in its infancy. However, early studies support the idea that formal labor markets that have high levels of union density, collective bargaining coverage, and greater investments in active labor-market policies are strong indicators of better population health. Recent studies (45, 118) have shown that

(*a*) the labor markets of countries tend to cluster along geographical, historical, and developmental lines; (*b*) among wealthy nations, more egalitarian labor institutions have better population health outcomes; (*c*) among LMICs, labor-market poverty and population health are correlated, but association between labor-market inequality and health is significant only in low-income countries; and (*d*) among LMICs, the "emerging" (e.g., East Asian and Eastern European countries) and "insecure" (e.g., sub-Saharan African nations) clusters are the most advantaged and disadvantaged, respectively. The implications of these findings are twofold. First, the world system can be divided according to different types of labor markets that are predictive of population health outcomes at each level of economic development. As is true for health and social policies, variability in labor-market characteristics likely reflects, in part, the relative strength of a country's political actors. Second, the labor-market regulations of LMICs appear to be important social determinants of population health, and there is heuristic value to focusing on the labor markets of LMICs and their health effects using exploratory taxonomy approaches.

Moreover, the study of employment precariousness across social groups may help us understand its role as a social determinant of health inequalities (155, 157). Even though between one-half and three-fourths of the labor force in wealthy capitalist countries work for somebody else, research shows important socioeconomic differences in the conditions under which they are employed (123). For example, the prevalence of total employment precariousness was the lowest among older male Spanish nonmanual workers (19.4%) and highest among young female immigrant manual workers (88.6%) (169). Likewise, socioeconomic characteristics such as individuals' class location, immigrant and ethnic minority status, age, and gender may interact with attributes of precariousness to produce differential health effects (25, 92, 94, 112). We need to consider similar approaches to understand the influence of precarious employment on workers' material living conditions and families.

Developing a Conceptual Model

An important step toward understanding the potential causal links and pathways between employment precariousness and health is to develop a theoretical model. This model would serve three main purposes: to organize scientific data and understand the complex links between precarious employment and health, to encourage further observation and testing of hypothetical causal pathways, and finally, to identify potential main entry points through which to implement policies and interventions to improve health outcomes and reduce health inequalities (**Figure 1**). This conceptual model is not yet a confirmed theory, but here it is presented as a heuristic device to point out the most important potential pathways and mechanisms that link employment precariousness and health (further detailed in the next section, Pathways and Mechanisms). Finally, it is also worthwhile to consider that this model is static even though, ideally, it should be considered from a more complex perspective, both from a historical point of view and a dynamic life course perspective (further developed in another section, Methods and Complexity).

Pathways and Mechanisms

Improving our understanding of the pathways and mechanisms linking precarious employment to adverse health is a central challenge. Three main pathways are assumed to link precarious employment to adverse health consequences and poor quality of life.

First, precarious workers experience higher exposures to working conditions with harmful health consequences. Research comparing standard and nonstandard employment contracts clearly indicates that employees in nonstandard employment contracts experience more adverse health-related physical (e.g., physically demanding workloads, toxic exposures) and psychosocial

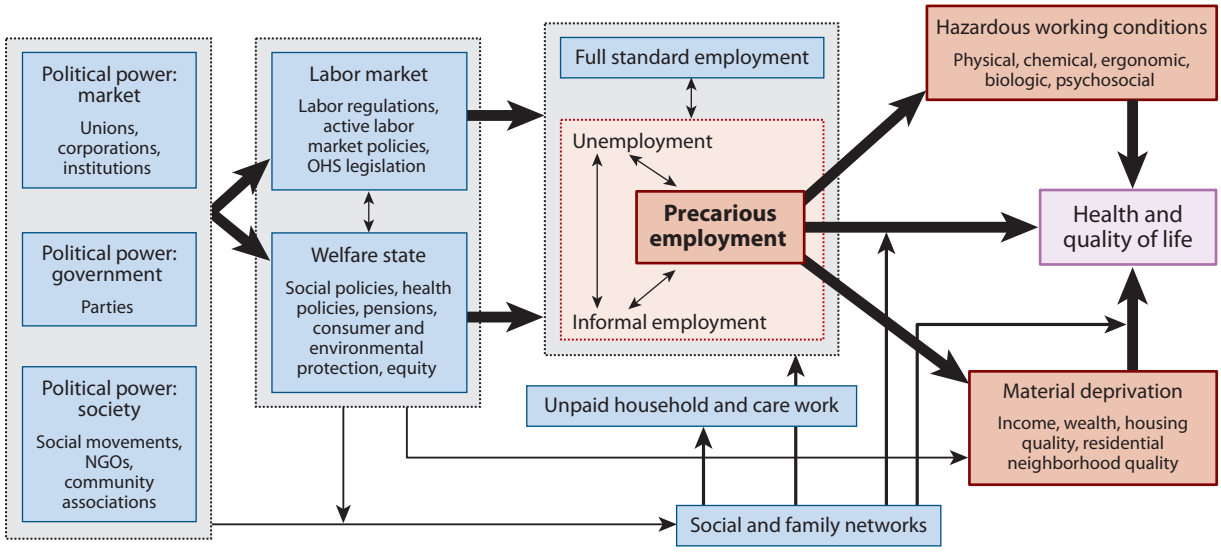


Figure 1

Conceptual model linking precarious employment and health and quality of life (main potential pathways are shown; increasing arrow thickness indicates greater importance). Abbreviations: NGOs, nongovernmental organizations; OHS, occupational health and safety.

(low control, low social support, sometimes work intensity) working conditions (20, 71, 102, 134). Another repeatedly reported health risk in precarious workers concerns suboptimal OHS prevention, including less qualitative protective gear or lack of training about occupational risks and necessary precautions to decrease those risks (102). Moreover, precarious workers tend to experience less-advantageous social relations and lack of support at work in their relations with both superiors and permanent coworkers (2, 46, 55, 103, 170). These adverse social experiences can be explicitly linked to the precarious employment status itself (2). In addition, experiences of social isolation (115) and lack of support (143) are known to be powerful psychosocial stressors and thus predictors of adverse health.

Second, precarious jobs may limit workers' control over their professional and personal lives, leading to psychosocial stress. Precarious employment can be related to experiences of job insecurity, feelings of betrayal and injustice as a consequence of breaches in the psychological contract with the employer, feelings of powerlessness and being out of control, lack of future opportunities, or denial of a professional identity, which is an essential social role (46, 50, 104, 146). These experiences have been identified as powerful social stressors (115), which in turn can be linked to outcomes of adverse health and well-being (123).

Finally, some of the most important consequences of precarious employment are situated outside the productive sphere and relate to the social and material consequences of precariousness. Precarious employment hampers workers' ability to make key decisions relative to personal life and family formation (31, 73, 101) and also causes economic costs for families who bear some of the financial burden of precariously employed family members (73, 99). Precarious employment is clearly related to absolute and relative social deprivation. Underemployment and discontinuity in employment may produce incomes below the subsistence level, which in turn may affect various social determinants of health outside the immediate sphere of production (e.g., access to health care, adverse lifestyles, unhealthy housing conditions) (2, 104, 170). Moreover, many precarious forms of employment result in underprotection from the main social risks:

unemployment, incapacity to work, and, later, retirement age (23). A lack of social protection in turn may create another leap toward material deprivation and its associated health consequences. Previous research indeed showed strong links between precarious employment situations and wider situations of "social precariousness" or poverty (18, 31, 37). Precarious employment may also imply a loss of other latent functions of employment, such as the development of adult identity or the provision of a time structure to one's day (58).

To understand under which circumstances precarious employment occurs, and how and why it may affect health, many research questions need to be addressed. Understanding the differences across social groups and the pathways listed above in the context of other employment characteristics may shed light on the mechanisms linking precarious employment and health, many of which remain to be studied (25, 123, 134, 148). The cumulative vulnerability of some groups of workers, combining precarious employment conditions with harmful physical and psychosocial working conditions, needs to be a main public health concern (155).

Methods and Complexity

Much research on employment conditions such as precarious employment (or their related indicators) is based on static approaches, which cannot account for the extent to which individuals change employment status. However, in most countries the labor market shows remarkable labor mobility. Therefore, different conditions of employment cannot be considered in isolation. Different employment trajectories combine across a worker's lifetime, from unemployment to informal, precarious, and standard formal employment. Therefore, a key issue on the research agenda concerns the importance of incorporating a dynamic perspective into the study of precarious employment relations to account for the complexity of diverse individual trajectories. This approach would allow investigators to study the health impacts of different employment trajectories, taking into account the interaction between precarious employment, unemployment, and informal employment throughout the working life. Additionally, it would illuminate the extent to which the toxic effects of precariousness are cumulative over time, whether they are persistent or transitory, and whether they are modified over the life course or with changing contextual (social, economic, political, and historical) conditions. It would also account for differences in health impact when employment precariousness is sustained over time, acting as a chronic stressor, possibly affecting mental health more severely, as compared with shorter time periods, as well as metabolic, cardiovascular, or immunological functioning (114, 125, 142). Accounting for this labor mobility and dynamism can also help us understand how employment policies aimed at a particular employment condition may affect other conditions indirectly.

Understanding the links between precarious employment, other related employment conditions, and health will also help answer key questions regarding the benefits of employment over unemployment (166), and whether precarious employment is, in fact, a better option for workers' well-being than unemployment is and, if so, under which circumstances. This issue is relevant particularly for groups disproportionately affected by unemployment, such as youth, who are generally thought to benefit from certain flexibilization strategies to escape unemployment (58). Benefit will necessarily depend on the level of financial protection unemployed workers are given, as demonstrated in previous studies (8). Precarious employment may also be considered a stepping stone toward better-quality employment. If so, however, does it imply that workers "on-a-path" (or social class trajectory) (120) are immune to employment precariousness given their expectations concerning the future? Does this tolerance have a limit? Research indicates that nonprecarious stepping-stone jobs are well tolerated but that precarious stepping-stone jobs negatively affect health and that stepping-stone jobs are better tolerated by workers who have a supportive family

to cover needs not met by the job (46). A longitudinal type of study, especially one using a mixed-methods transdisciplinary approach, would be the ideal research design to address these issues.

A longitudinal perspective is critically valuable for controlling for the healthy worker effect and distinguishing causal from selection effects. The interplay between precarious employment and unemployment may be generating vicious cycles animated by causation and health selection: Both may be a cause and consequence of poor health and are causally linked to each other. This complex relationship is difficult to unravel and requires an understanding of employment trajectories. Studies on employment trajectories and health (91) have shown, for example, that frequent job changes may be related to increased tobacco and alcohol consumption (113) and to worse self-rated health, whereas stable trajectories are associated with less psychological distress (160).

Drawing a global picture of the effects of labor-market policies on health and health inequalities is not possible within a single discipline and with a unique methodological approach (24). Analyses with different theories, data, and methodologies drawn from different disciplines need to be performed to integrate the various pieces of information. These pieces of knowledge might be integrated, in a further step, into a global picture using the conceptual framework as a starting point. First, a scoping or realist review may provide information on the linkages and effects between policies, the labor market, and precarious employment conditions, and it may indicate which are the most affected social groups (12, 126). In a second step, case studies, quantitative studies, and also a scoping/realist review can demonstrate the effects of precarious employment on health inequalities (126). Integrating both steps may provide an integrated view of the whole process: from employment-related policies to health inequalities (25, 23, 124).

MAKING KNOWLEDGE MATTER

The increasing reliance on neoliberal and austerity policies together with the weakening of unions and labor-market regulations in many countries has changed industrial relations worldwide (150). Political decisions made by governments, international institutions, and corporations have transformed labor standards, resulting in rising levels of precarious employment (170). The claim that labor flexibility is the only way to grow in a global economy (31) is plainly deterministic and ahistorical because work arrangements such as precarious employment, informal employment, and child labor have been successfully improved in the past (170). Precarious employment has negative cascading effects on work, housing quality, nutrition, the education of children, and social interactions (170). Indeed, because of the "contagious" nature of employment precariousness and its snowball effect on all sectors of society, the impact of precarious employment may be devastating not only to workers' health but also to the well-being and quality of life of their families and communities (21, 25). An overall reduction in the population levels of precariousness may therefore contribute to a large improvement in community health and well-being.

Public health researchers must study the linkages between precarious employment and health not only because it represents an interesting line of inquiry, but also because ill-health causes avoidable human suffering and new knowledge has the potential to inform prevention or intervention strategies (23, 103, 170). Although policies and interventions to reduce precarious employment need to be conducted at the organizational and job level, upstream action on employment conditions (especially welfare state policies through labor-market regulations, active labor-market policies, social policies, and workplace standards pursued by the state and the political power of social actors) is expected to be more effective in improving health and health equity. Development of these policies should be a priority for public health action (25). Leaving the

health consequences of employment conditions as an afterthought, or downstream consideration in trade, business practices, or public health interventions (31), will likely perpetuate the existing health inequalities caused by unfair employment and a lack of decent working conditions (82).

To achieve better employment conditions and reduce precariousness, public economic, social, and health policies require the implementation of integrated intersectoral actions and programs by actively engaged policy makers, governments, workers, and community organizations. Ideally, efforts to improve health and health equity should be understood both in general, as a part of broad globally and locally integrated economic and social policies, and in particular, in specific public health and occupational programs and interventions (82, 124).

To face such challenges, a crucial issue to consider is the need to expand worker participation (1). Promoting fair employment and quality work must be a central policy objective for international institutions, governments and political parties, unions, and civil society associations. Work plays a central role within communities, and the provision of meaningful and healthy work will not occur if left entirely to the market, especially given the influence exerted by large corporations within it. Effective action needs to be taken to minimize if not eliminate precarious employment and other harmful work arrangements (e.g., informal employment) through devices such as legislation, income transfers, and empowerment of groups that represent deprived worker populations.

FINAL REMARKS

For the past quarter-century, employment precariousness has gradually become an issue of scientific, political, and social attention. The emerging research on precarious employment as a social determinant of health requires developing appropriate constructs and indicators (25), better data, and improved surveillance systems (26), as well advancing our understanding of the pathways and mechanisms that link precarious employment and health under different contexts (123). More than 30 years of research on work organization (89, 90, 100, 156) has brought solid information on the proximal psychosocial determinants of health in the workplace. Workers under situations of precarious employment may face greater demands or have lower control over the work process, two factors that have been associated with higher levels of stress, higher levels of dissatisfaction, and more adverse health outcomes as compared with workers in more secure work environments. Yet, this approach alone does not capture the effects of employment conditions on both psychosocial environments and health (122). Similarly, job insecurity or temporary arrangements need to be understood simply as indicators of a more complex determinant such as precarious employment.

Employment precariousness is a social determinant of health encompassing both employment and working conditions (22, 25, 27). Employment arrangements need to be understood as part of a progressive continuum from extreme forms of precariousness toward more secure forms such as permanent full-time employment. Investigators need to generate conceptual models that specify how the macrolevel structures of welfare regimes, among other country-level and regional factors, and individual employment conditions are connected with workers' health. Models should include variables that identify diverse labor-market realities between and within countries. Research should also incorporate a dynamic complex perspective. To date, most studies are based on static approaches, which mainly analyze the behavior and evolution of employment, implicitly assuming that individuals do not change employment status and, in particular, that the employed, underemployed, and inactive are nonoverlapping populations. Two crucial future aims are to provide a compelling research program moving in these directions and to develop and evaluate policy programs that effectively end employment precariousness and its health-related impacts.

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Erratum

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