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Informal work and common mental disorders

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■ **Abstract** *Background* In many developing countries, a large proportion of people work without the social and legislative protection accorded to those in the “formal” labour market. Formal and informal work are very distinct labour market destinations for those leaving unemployment. From a policy perspective, the value of encouraging unemployed people to take informal work depends both on how quickly individuals can be moved out of unemployment into informal work compared to other destinations, and how well individuals fare once in informal work. This paper investigates the association between informal work and common mental disorders in Northeast Brazil. *Method* A cross-sectional survey of a random sample of private households included 683 adults aged 15 years and over living in area II of Olinda, Recife Metropolitan Region, Pernambuco, Brazil. Informal workers comprised self-employed and underemployed. The self-reporting questionnaire (SRQ) was used to estimate the prevalence of common mental disorders. *Results* Informal workers had a higher prevalence of common mental disorders compared to those in formal employment. This was true before and after adjustment for sex, age, marital status and migration (OR 2.16, 95% CI 1.3–3.7) and for education and household *per capita* monthly income (OR 1.83, 95% CI 1.1–3.1). *Conclusions* Understanding causes of common mental disorders in different societies requires an understanding of the differing socioeconomic circumstances

around the world. Working outside the protection of employment legislation is very common in many poorer countries and may have adverse consequences for psychological health.

■ **Key words** mental health – common mental disorders – informal work – unemployment – social psychiatry

Introduction

It is consistently found that the unemployed and their families have much poorer health when compared with those in work in industrialized societies (Brown and Harris 1978; Bebbington et al. 1981; Bartley et al. 1992; Jenkins et al. 1997). Longitudinal studies of individuals moving between employment and unemployment (Banks and Jackson 1982; Warr and Jackson 1985; Hammarström et al. 1992; Lahelma 1992; Graetz 1993; Morrell et al. 1994) are becoming more common and have supported the causal impact of being involuntarily without a job. Factory closures, causing unselective unemployment, have provided experimental opportunities for examining the effect of redundancy on common mental disorders (Jenkins et al. 1982; Withington and Wybrow 1988; Ferrie et al. 1995).

In the last three decades, becoming self-employed has become an increasingly common escape route from unemployment. In the United Kingdom, for example, since the mid-1970s the number of self-employed has risen by over four-fifths so that, by 1994, they accounted for 13% of those in paid work (Bryson and White 1996). In Brazil, informal workers are a heterogeneous group of non-formally hired employees and self-employed who form an underprivileged category without protection from labour or social regulations. Regarded as typical of Latin American countries (Guimarães and Souza 1984; Oliveira and Roberts 1996), informal work is a major feature of labour placement discrimination that targets migrants (Singer 1983) and women (Machado 1991),

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and is also a common step for entry into the labour market for young individuals. Many of them are children and adolescents who left school to increase the household income (Urani 1995). In 1982, they accounted for 54% of those in paid work in Brazil. Between 1989 and 1992, while the proportion of those formally working in the total workforce decreased by 8%, a steadily growing proportion of the unemployed found a job in the informal sector (Urani 1995).

However, very little is known about the consequences of this growth in the informal sector of the economy to mental health. This paper investigates the association between informal work and common mental disorders (CMD) in an impoverished area of Brazil.

Subjects and methods

■ The study site

Olinda is located in the tropical rain forest region along the coast of Pernambuco State in Northeast Brazil. It belongs to the Recife Metropolitan Region (RMR). Recently, the RMR has been facing the highest unemployment rate in the country, at 9.8% (Fundação Instituto Brasileiro de Geografia e Estatística – IBGE 1993), and 42% of the economically active population were working outside the formal labour market in 1995 (Secretaria de Planejamento do Estado de Pernambuco 1996). Olinda has a population of approximately 341,394 inhabitants. The majority of Olinda's inhabitants (98.5%) live in urban areas. The tertiary sector (leisure, tourism, commercial sales and selling of services) represents 73% of the economic activity in the city, 51% of the economically active population earned up to twice the national minimum wage – which averaged £47 per month in 1993 – with only 6% receiving more than ten times the minimum wage. Olinda is divided into five administrative areas. Area II is the most populated with 103,100 inhabitants (Fundação Instituto Brasileiro de Geografia e Estatística – IBGE 1991).

■ Study design

A cross-sectional study was carried out in area II of Olinda from March to November 1993. The sample frame was based on a detailed and updated list of households, provided by the Brazilian Demographic Census Bureau. A simple random sample of households was selected taking the numbers generated by a scientific calculator. Within selected households, all members aged 15 and over were included in the study. Data collection was community based through interviews and assessment of mental health status by six trained interviewers and two experienced psychiatrists. To ensure the blindness of the study, they did not know the specific objectives being investigated. They were informed that the research was about general living, health and working conditions in Olinda, carried out by the Faculty of Medical Sciences and Olinda Local Government.

■ Measures of common mental disorders (CMD)

CMD includes the following diagnoses from the DSM-III Symptom Checklist:

- A. Affective Disorders: depression and dysthymia
- B. Anxiety Disorders: generalized anxiety, post-traumatic disorder (acute and chronic), atypical anxiety disorder
- C. Phobic Disorders: agoraphobia, social phobia and simple phobia
- D. Somatoform Disorders: somatisation, conversion disorder, psychogenic pain disorder

CMD was assessed using the 20-questions version of the Self-Reporting Questionnaire – SRQ-20 (Harding et al. 1980). The SRQ-20

was developed by Harding et al. (1980) for the World Health Organization, to screen for CMD in primary health care, and is applicable in different cultural settings, especially in developing countries (World Health Organization 1993). The psychometric qualities of the SRQ-20 have been assessed in over 20 studies, with sensitivity figures ranging from 63% to 90% and specificity ranging from 44% to 95% (WHO 1993). Two important reasons encouraged the use of the SRQ-20 in this study. First, it is suitable for use by lay field workers with limited training (WHO 1993), saving research resources, which is of great importance when conducting community surveys in developing countries. Second, it has been tested and validated in Brazilian urban settings (Busnello et al. 1983; Mari 1987). Thus, it offered the advantage of being available in its Portuguese version without the need for field testing the translation. It is composed of 20 “yes-no” questions – 4 on physical symptoms and 16 on psycho-emotional disturbance. Before the validation study (psychiatric interview), non-cases and cases were defined as individuals with scores less than or equal to 7 and equal to or above 8, respectively (based on Mari 1987). ROC (Receiver Operating Characteristic Curves) analysis was used to study the discriminating power of the SRQ-20 across all the possible cut-off points using a Psychiatric Interview based upon the DSM-III Symptom checklist as the criterion. The cut-off point was defined as 5/6, with a sensitivity of 62% and specificity of 78% (Ludermir 1998). Full details of the screening procedure and of the psychiatric interview are reported elsewhere (Ludermir and Lewis 2001).

■ Measures of socioeconomic status

A highly objective, close-ended questionnaire was designed to obtain information on employment status and sex, age, marital status, migration, education, occupation and income.

Employment status

Employment status referred to formal and informal workers, unemployed and inactive. It was categorized according to the classification adopted by the Brazilian Census in 1991 (IBGE 1991) adapted by the authors based on the following questions: What is your employment status? Do you have a signed contract? Are you registered with the Labour Office? How much do you earn per month for your main occupation? If unemployed, the questions were as follows: How long have you been unemployed? How long have you been looking for a job? Do you hope to find a job? Employers were asked the following questions: How many employees (not members of the family) do you have? How many employees are members of your family?

‘Formal worker’ was someone who was formally placed in the labour market and included employers and employees. ‘Employer’ was someone who was responsible for or who assumed the risks of a business or enterprise. ‘Employee’ was someone who was formally employed, received at least the regional minimum wage, had a signed working card and was regularly registered with the Labour Officer.

‘Informal worker’ comprised self-employed and underemployed. ‘Self-employed’ was someone not employed by any person or company, who worked either in isolation or in a family business, with no employer and no waged employees under his/her command. ‘Underemployed’ was a non-formally hired employee who received any type of payment, who did not have a signed working card and was not registered with the Labour Office.

‘Unemployed’ was someone who was not working but had been looking for a job, and ‘economically inactive’ was someone who was neither engaged in a productive activity nor looking for a job. This latter group comprised students, housewives and persons who had retired from employment. ‘Student’ was a person who was attending an educational establishment. ‘Housewife’ was a person engaged entirely in unpaid domestic duties and ‘retired’ referred to a formerly employed person who had ceased working and was no longer seeking further employment.

Education

Education was assessed in terms of years of schooling.

Occupation

Occupation was divided into three categories as follows: non-manual (professional, intermediate and skilled); manual (skilled, partly skilled and unskilled); and other (housewives and students). For those seeking work, disabled or retired, their previous occupation was used.

Household *per capita* monthly income

This was expressed as multiples of the official minimum wage and was the total household income in the month preceding the interview divided by the number of people in the household.

Data analysis

The SRQ-20 dichotomized scores were taken as the dependent variable. Odds ratios and 95% confidence intervals were calculated to estimate the magnitude of the association between employment status and CMD. Logistic regression analysis, both before and after adjustment for potential confounding, was performed utilizing Huber's weights (Huber 1967), to adjust variance estimates in order to take account of the clustering of respondents within households.

Results

After excluding non-existent addresses, empty or business properties, 226 households participated in the survey, comprising 683 individuals aged 15 and over. Six hundred and twenty-one subjects completed the SRQ-20, 91% of all eligible subjects. Response rate varied by sex, being 96% in females and 85% in males ($p < 0.0001$), though no statistically significant difference was found on household *per capita* monthly income (92% in those with a lower income, 90% in medium income and 95% in those with higher income; $p = 0.14$).

Table 1 presents the distribution of the sample according to sex and employment status. Around 63% of the study population were economically active (formal and informal workers and unemployed). Informal workers represented 38% of the economically active while 21% of them were unemployed. Economic activ-

Table 1 – Distribution of study sample by sex and employment status

Employment Status	Males		Females		Total	
	n	%	n	%	n	%
Formal workers	97	36.5	62	17.5	159	25.6
Informal workers	79	29.7	68	19.1	147	23.7
Unemployed	42	15.8	42	11.8	84	13.5
Inactive	48	18.0	183	51.6	231	37.2

ity varied by sex ($p < 0.0001$). While the majority of males were economically active (formal and informal workers and unemployed), almost 52% of females were inactive.

Table 2 shows the working characteristics for those in paid work. Formal workers had better salaries and a higher proportion of them were qualified. All demographic variables showed an association with employment status and unemployed tended to be younger and more likely to be single and natives from the Recife Metropolitan Region than the others in the sample.

Table 3 displays the distribution of socioeconomic characteristics by employment status. Informal workers and unemployed were less educated and more likely to

Table 2 – Distribution of working characteristics for those in paid work (N = 306)

Paid workers	Formal	Informal	Test of significance*
	(N = 159)	(N = 147)	
Variables	n (%)	n (%)	
Salary**			
< 1/2	0	38 (26.9)	$\chi^2_{(3)} = 63.69$ $p < 0.0001$
1/2–1	28 (17.6)	39 (27.7)	
> 1–2	60 (37.7)	40 (28.4)	
> 2	71 (44.7)	24 (17.0)	
Hours of work			
Full-time	125 (80.1)	102 (73.9)	$\chi^2_{(1)} = 1.61$ $p = 0.20$
Part-time	31 (19.9)	36 (26.1)	
Skills			
Skilled	75 (47.2)	36 (24.5)	$\chi^2_{(1)} = 3.92$ $p = 0.05$
Unskilled	84 (52.8)	111 (75.5)	

* (degrees of freedom)

** minimum wages

Table 3 – Socioeconomic characteristics by employment status

Employment	Formal	Informal	Unemployed	Inactive
Variables	n (%)	n (%)	n (%)	n (%)
Education ^a				
0–7	67 (42.1)	91 (61.9)	44 (52.4)	149 (64.5)
≥8	92 (57.9)	56 (38.1)	40 (47.6)	82 (35.5)
χ^2	21.69			
p	< 0.0001			
Occupation				
Manual	70 (44.0)	97 (66.0)	49 (60.5)	30 (13.0)
Non-manual	89 (56.0)	50 (34.0)	27 (33.3)	6 (2.6)
Other	0	0	5 (6.2)*	194 (84.4)
χ^2	485.86			
P	< 0.0001			
Household per capita income ^b				
0–1	97 (61.8)	118 (81.4)	69 (82.1)	178 (79.2)
> 1	60 (38.2)	27 (18.6)	15 (17.9)	45 (20.2)
χ^2	23.12			
p	< 0.0001			

^a in years of schooling

^b in minimum wage

* four students and one housewife without previous occupation

be manual workers than those placed formally in the labour market. Formal workers had more income, with less of them in the lowest income group.

Table 4 presents the distribution of CMD cases by employment status. Prior to adjustment, formal workers showed significantly better mental health ($\chi^2 = 22.95$, $p < 0.0001$) when compared to informal (OR = 2.09), unemployed (OR = 2.12), and inactive (OR = 2.97).

Paid workers were analysed separately according to hours of work. The prevalence of CMD was 27% in full-time compared to 31% in part-time workers. As the difference (OR = 1.21; 95% CI 0.7–2.1) did not reach statistical significance ($p = 0.52$), for the remainder of the analysis paid workers were grouped as formal and informal without taking into account whether in full- or part-time jobs. Males and females were also analysed separately as they presented different patterns of employment. Although the association between employment status and CMD was stronger among females than among males, the interaction term added to the logistic regression model was not statistically significant ($\chi^2 = 4.63$, 3 degrees of freedom, $p = 0.20$), so there was no modification by sex of the association between employment status and CMD.

Adjustment for demographic and socioeconomic variables showed that small changes only took place in the association between employment status and CMD. The odds ratios for informal workers and unemployed were even higher when sex and age were included in the models. In contrast, the adjusted odds ratios became smaller after including socioeconomic variables in the models.

Discussion

Unemployment has been acknowledged as an important determinant of CMD for males and females in both developed and developing countries. Nevertheless, certain aspects of jobs may also create an increased risk for CMD among workers (Warr 1987; Graetz 1993). Research concerned with the relationship between employment and health has focused on the experience of relatively affluent countries, where welfare provision is securely in place and most people who work do so in officially recognized employment. One of the significant

differences between employment status in developed and developing countries is that a large proportion of people work outside the formal labour market in the latter.

In this study, informal workers represented 38% of the economically active and 48% among those in paid work. It may be that some of them were not particularly inclined to enter self-employment and underemployment, but did so because the informality had been a relatively easy way to secure some income while continuing the search for formal work.

One of the strengths of this study was the collection of information on a large number of demographic and socioeconomic variables. The possibility cannot be excluded, however, that the differences in the prevalence of CMD may have been confounded by unknown factors. We did not assess longstanding or disabling conditions, which have been found to be associated with unemployment, early retirement (Bartley and Owen 1996) and CMD (Bartley et al. 1992). Reverse causality could be an explanation for the link between informal work and the high prevalence of CMD. Formal workers have more strict health selection criteria than informal workers and those with psychological problems may have their admission to formal jobs denied or previously healthy individuals may be more often discharged from their jobs at the onset of CMD.

Formal and informal work are very distinct labour market destinations for those leaving unemployment. From a policy perspective, the value of encouraging unemployed people to take informal work depends both on how quickly individuals can be moved out of unemployment into informal work compared to other destinations, and how well individuals fare once in informal work. However, the results of the present study suggest that informal work may have adverse consequences for psychological health. The low level of organization of the Brazilian labour market and the huge reserve workforce may cause pessimism about the future, thus increasing anxiety. Informal workers have lower status than formal workers, lack security of employment and have less control over their salaries and working conditions, all determined by labour market demands and by the convenience of employers. This uncertainty about their work situation (Lemkow 1987) together with low earnings and lack of fringe benefits may increase stress

Table 4 – Prevalence of common mental disorders, unadjusted and adjusted odds ratios (OR) for being a case of common mental disorders by employment status, confidence intervals (95% CI) and likelihood ratio statistics (LRS)

Employment Status	n	Prevalence (%)	Unadjusted	Adjusted	
			OR (95% CI)	OR (95% CI)*	OR (95% CI)**
Formal workers	33	20.7	1.00	1.00	1.00
Informal workers	52	35.4	2.09 (1.3–3.5)	2.16 (1.3–3.7)	1.83 (1.1–3.1)
Unemployed	30	35.7	2.12 (1.3–3.6)	2.49 (1.4–4.4)	1.97 (1.1–3.4)
Inactive	101	43.7	2.97 (1.8–4.8)	2.48 (1.4–4.3)	2.48 (1.5–4.1)
LRS χ^2			22.95	15.12	14.38
P			< 0.0001	0.002	0.002

* Adjusted by sex, age, marital status and migration

** Adjusted by education and household per capita monthly income

and risk of CMD. Future longitudinal studies could help to establish whether it is such characteristics of informal work that might increase the risk of CMD.

Understanding causes of CMD in different societies requires an understanding of the differing socioeconomic circumstances around the world. Working outside the protection of employment legislation is very common in many poorer countries. It is an aspect of socioeconomic inequalities that has a particular meaning in a society like Brazil and that may have important consequences for mental health.

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