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Differential patterns of mental disorders among the homeless in Madrid (Spain) and Los Angeles (USA)

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Abstract In this paper we compare rates of mental disorders (major depression, dysthymia, cognitive impairment, and schizophrenia) among homeless people in Madrid and Los Angeles (LA) and examine the ordering of the onset of both conditions (i.e., homelessness and mental disorders). In the Madrid study, 262 homeless persons were interviewed using the CIDI. In the LA study, 1563 homeless persons were interviewed with the DIS. To make an item-by-item comparison, we combined the databases from both studies to submit a single database to statistical analyses. Results showed no significant differences in DSM-III-R life-time prevalence rates of mental disorders between both samples. However, the Madrid sample showed higher 12-month prevalence rates of dysthymia and cognitive impairment as compared to the LA sample. Most subjects across both cities first experienced symptoms of their mental disorders before first becoming homeless. The only significant difference was that all of the depressed adults in Madrid experienced depression prior to first becoming homeless, whereas this was the case for only 59.1% of LA depressed homeless people. We discuss the reasons for these cultural differences and their implications for cross-national public health research and intervention.

Introduction

Most of what we know about homelessness is based on studies that have been conducted in the United States,

where researchers have been looking closely at the problem for more than a decade (Burt 1992; Robertson and Greenblatt 1992). By contrast, the issue of homelessness has only recently begun drawing the attention of the European public. Efforts on the part of European scholars to analyze this apparently growing phenomenon in Europe are now increasingly underway (Avramov 1995). The fact remains, however, that little research has been accomplished to date that examines the nature and scope of the problem.

One of the most active research areas within the homelessness field in the United States has been that of the relationship between mental illness and homelessness. Estimates of the prevalence of psychiatric disorders among the homeless have varied widely (Cohen and Thompson 1992; Robertson and Greenblatt 1992), to a large extent because studies attending to this issue have differed in sampling procedures, the selection of subjects, and even in the definition of “mental illness” (Susser et al. 1990; Fischer and Breakey 1991; Koegel and Burnam 1992; Robertson and Greenblatt 1992). Early studies showed extraordinarily high rates of mental illness in the homeless population. However, these rates were likely biased due to, among other factors, inadequate attention to sampling issues (see Manderscheid and Rosenstein 1992). In recent years, studies using more adequate sampling strategies and better diagnostic procedures usually agree that between 25 and 35% of the homeless are seriously mentally ill and between 30 and 50% abuse alcohol or drugs (Koegel and Burnam 1988; Koegel et al. 1988; Robertson and Greenblatt 1992; Lehman and Cordray 1993; Muñoz et al. 1996; Vázquez, et al. 1997). Regarding co-morbid psychiatric and substance abuse disorders, it appears that approximately 50–60% of homeless persons in the United States experience current serious mental illness and/or substance abuse (Manderscheid and Rosenstein 1992). Again, with some exceptions (Herrman et al. 1989; Fichter et al. 1996; Vázquez et al. 1997) reliable data on countries other than the United States are almost nonexistent.

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Differences in the definition of homelessness, diagnostic criteria, and diagnostic tools have made it difficult to compare data from different studies both within and across countries (Honig and Filer 1993). Several studies have compared data on homeless persons' abuse of drugs and alcohol between different US cities (Spinner and Leaf 1992; Kales et al. 1995) and even between US and Canadian cities (Smart and Adlaf 1991; Smart and Walsh 1993). Yet, as far as we know, there are few studies that have rigorously compared data on homeless persons' mental health from a cross-national perspective. Among these is Cohen's (1994) thorough review of public policies on homelessness in New York and London.

Because of the importance of knowing whether the European phenomenon mirrors what is going on in the United States or whether it has a distinctive European cast, this paper compares a sample of homeless adults in Spain (Madrid) and the United States (Los Angeles). In order to understand differences and/or similarities in the demographic make-up of a US and European homeless population, the prevalence of psychiatric disorders and patterns of homelessness were analyzed in both cities. Although the studies were independently designed and fielded, close similarities in instrumentation allowed us to combine the databases from each to create a new data set capable of yielding reliable comparisons. The Madrid study, supported by the Third European Program Against Poverty (Poverty III) sought to obtain reliable prevalence rates of mental disorders and drug/alcohol abuse for the Madrid homeless population using the Composite International Diagnostic Interview (CIDI; Wittchen 1994). The Los Angeles data are drawn from RAND's Course of Homelessness Study, a National Institute of Mental Health (NIMH)-funded longitudinal examination of exits from and re-entry into homelessness, that collected psychiatric disorder prevalence data as well, using the Diagnostic Interview Schedule (DIS; Robins et al. 1981). The very close relationship between these two lay-administered structured diagnostic instruments allowed us to advance beyond the gross comparisons that have characterized comparative efforts thus far (e.g., Robertson and Greenblatt 1992) to make more rigorous and fine-grained comparisons (including item-by-item comparisons) than have been possible up to this point.

Methods

Data were gathered in Madrid (Spain) and Los Angeles (California, USA). Madrid, the capital of Spain, is a city of 4 million. Estimates of the size of the homeless population based on field samples and service center statistics range from 900 to 2000 literally homeless people by day, which seems to be significantly lower than in most of big European cities (Vázquez, et al. in press). The Madrid sample was drawn from the center of the city, the area in which the majority of homeless people can be found. Los Angeles County has a population of 9,369,800 million people and a homeless population that has been estimated to be 14,000–30,000 on a given day (Shelter Partnership, 1995). The LA sample was drawn from

the two sites (Downtown and the West Side) that contain the highest concentration of homeless individuals in Los Angeles County.

In each city, face-to-face interviews averaging approximately 90 min in length were conducted with individuals who were eligible for inclusion in the sample. Whereas in Los Angeles interview respondents were paid US \$10, Madrid participants did not receive any compensation. In Madrid, 262 interviews were completed (with an acceptance rate of 88%) between November 1992 and January 1993; in LA 1563 homeless persons completed the interview (with an acceptance rate of 87%) between October 1990 and September 1991.

Participants in the study were, in all cases, literally homeless as defined by the Stewart B. McKinney Homeless Assistance Act (1987). The inclusion criterion, equivalent in both studies, consisted of having spent at least 1 night, in the last 30 days, in (1) a setting either defined as a temporary shelter or not designed for shelter, excluding doubled-up with family or friends; or (2) an institution for homeless individuals providing temporary living accommodation.

Sampling

The Madrid study sampling plan drew upon several principles inherent in Burnam and Koegel's service sector approach to sampling homeless individuals (Burnam and Koegel 1988). We began by creating a list of all existing homeless centers and specific social resources for this population. Then we randomly selected a subset of these centers and service settings, stratified according to the nature of the service. In the end, subjects were drawn from two shelters (which have 355 beds out of 1,000 beds available in all Madrid shelters); two soup kitchens (which provide 300 meals daily out of 1,800 meals available in all Madrid soup kitchens); and one specialized social service – Realidades – which provides case-management services for homeless persons (100 persons attended annually). Our Madrid sample also included street people located by the Mobile Social Emergency Units (a mobile service which attends an average of 150 literally homeless people in the street by year). Subject selection occurred randomly in each of the selected centers (see more details in Vázquez et al. 1997). In total we collected data from approximately 15–20% of the target population.

The LA survey's sampling plan combined elements of Burnam and Koegel's service-setting sampling approach (1988) and Rossi and co-workers' "blitz" sampling approach (1987) to draw a probability sample of homeless adults. Respondents were sampled proportionate to their numbers in the Downtown and West Side areas, as determined by a 1-night enumeration. They were also sampled proportionate to their distribution across three nested sampling strata: the population using shelters, the homeless population using meal facilities but not shelter beds, and the unsheltered population using neither. Respondents were randomly selected at each service facility in proportion to the number of homeless people served by each facility over a 30-day period and across a stratified probability sample of streets in the dead of night. Women, who actually comprise 16% of the homeless population in these areas, were oversampled to represent 26% of the sample (see Koegel et al. 1996 for additional detail).

Data were weighted by the reciprocal of an estimated probability of selecting each sampled individual. Probabilities were estimated using two different underlying stochastic models that were conceived as bounds on actual probabilities: one model assumed that individuals repeatedly go to the same facilities and street location over time; the other assumed that individuals choose randomly among geographically available facilities and street locations. Probabilities estimated under each model included two components: the selection of facilities and street locations on any given day (or night) of survey sampling, and the selection of individuals within locations, given the selection of facility/location. Weights used in this paper average the results from these two models.

Instruments

As indicated above, the Madrid study assessed specific psychiatric disorders with the official Spanish adaptation of the Composite International Diagnostic Interview (CIDI-1.1; Rubio-Stipec et al. 1991). The CIDI is a structured interview that yields diagnoses based on the diagnostic criteria of both the DSM-III-R (American Psychiatric Association 1987) and the ICD-10 (World Health Organization 1992), with high validity indices (Janca et al. 1992). The CIDI includes the entire Diagnostic Interview Schedule (DIS; Robins et al. 1981) and the Mini-mental State Examination (Folstein et al. 1975), and, as such, yield data that are comparable to those of studies that have used the DIS. In this study we report DSM-III-R diagnoses for mental disorders excluding substance abuse disorders, as they have been examined in detail elsewhere (Vázquez et al. 1997; Muñoz et al. submitted).

The baseline instrument of the Course of Homelessness relied upon the DIS for DSM-III-R psychiatric diagnoses. Additional questions focused on demographics, current subsistence activities, residential history and family background, homelessness history, past and current service use, and employment and income. Results from the Course of Homelessness Study have been reported elsewhere (Koegel, et al. 1995, 1996, in press; Marshall et al. 1996; Schoeni and Koegel, in press).

Analysis plan

A unique aspect of the present study is that instead of comparing the final results from each study, we combined the data sets from each study and conducted new statistical analyses with this integrated set of data. Toward this end, we followed a procedure that involved first identifying and renaming demographic and life history variables that were assessed using similar wording and a comparable metric; and second, renaming both the item-by-item questions and the derived diagnostic variables associated with the CIDI and DIS sections pertaining to psychotic disorders, affective disorders, and cognitive impairment. This exercise was facilitated by the fact that the CIDI provides, for each item, its corresponding DIS code. Doing this allowed us to compare not only prevalence rates but individual items as well, such as age of onset.

For nominal-level data, the significance of differences between cities was tested using chi-square analyses. For interval- or ordinal-level data, differences between cities were tested using *t*-tests. Prior to calculating the *t*-tests, Levene's tests for equality of variance were computed. If the variances for the two cities were not the same, the separate variance formula was used to calculate the *t*-test;

if the variances were the same, the basic pooled variance formula was employed. To prevent the possibility of an increased rate of type I errors, significance levels were adjusted using the Bonferroni procedure for each group of analyses presented below.

Results

Sociodemographics

Demographic data on both the Madrid and Los Angeles homeless samples are shown in Table 1. Compared to the LA sample, homeless individuals in Madrid were significantly older, had fewer years of schooling, first became homeless at a later age, and were much more likely to be unemployed (however, the question on employment was different in both studies: in the LA study, subjects were asked about working for pay in the last 30 days; in the Madrid study, subjects were asked if they were currently employed). Furthermore, those in the Madrid sample were more likely to have never married and less likely to have been divorced. No significant differences were found between the samples with regard to the percentage of women or their mean number of children.

Life-time and 12-month prevalence of serious mental disorders

Lifetime and 12-month DSM-III-R rates of serious mental disorders for the homeless samples in each city are shown in Table 2. Lifetime prevalence of schizophrenia, major depression, and dysthymia were very similar in both cities. In fact, there were no significant differences between the Madrid and LA samples in the lifetime prevalence of any of those disorders. Significant differences in 12-month prevalence rates were found for

Table 1 Sociodemographic pattern of Madrid and Los Angeles (LA) homeless. (LA data are weighted. Statistical differences are based only on the weighted subset)

	Madrid (<i>n</i> = 262)	Los Angeles (<i>n</i> = 1563)	Statistical difference
Gender (% females)	21.5	17.3	$\chi^2(1, n = 1824) = 2.66$
Age (%)**			$\chi^2(2, n = 1822) = 22.94$
18–30 years	23.6	27.8	
31–40 years	29.0	39.8	
> 41 years	47.5	32.4	
Mean age (SD)**	42.0 (12.8)	36.8 (9.8)	$t(309.98) = 6.27$
Mean number of children (SD)	1.4 (6.3)	1.6 (2.0)	$t(1786) = -1.09$
Mean years of school (SD)**	8.4 (9.1)	11.5 (2.8)	$t(268.36) = 5.38$
Mean age first homeless (SD)**	34.9 (12.2)	28.9 (11.0)	$t(1729) = 7.72$
Marital status (%)**			$\chi^2(3, n = 1789) = 22.72$
Married	6.5	7.3	
Widowed	4.6	2.8	
Divorced/separated	24.5	38.9	
Never married	64.4	50.9	
Actually married or living like married (%)	6.7	9.5	$\chi^2(1, n = 1830) = 2.14$
Currently employed**	7.4	29.8	$\chi^2(1, n = 1671) = 24.85$

* $P < 0.05$; ** $P < 0.01$ (based on chi-square analyses or *t*-tests; significant levels adjusted by Bonferroni procedure)

Table 2 Prevalence of DSM-III-R mental disorders in Madrid ($n=262$) and Los Angeles (weighted data) ($n=1563$)

	12-Month prevalence (%)		Lifetime prevalence (%)	
	Madrid	Los Angeles	Madrid	Los Angeles
Schizophrenia	2.4	5.5	4.5	6.8
Cognitive impairment ^a	6.3	2.0**	–	–
Major depression	14.9	17.5	21.0	21.2
Dysthymia	13.3	7.8*	17.7	14.8

* $P < 0.05$; ** $P < 0.01$ (based on chi-square analyses; significant levels adjusted by Bonferroni procedure)

^aCognitive impairment refers to *current* cognitive impairment as measured by the Mini-Mental State Examination

two disorders: those in the Madrid sample were more likely to be severely cognitively impaired (6.3% vs 2.0%, $\chi^2 = 253.58$, $df = 1$, $n = 1793$, $P < 0.0001$) as measured by the Mini-Mental State Examination, and more likely to be dysthymic (13.3% vs 7.8%, $\chi^2 = 6.48$, $df = 1$, $n = 1794$, $P < 0.05$). No significant differences in 12-month prevalence were found for schizophrenia or major depression.

Temporal relationships between mental disorders and homelessness

Our Madrid and Los Angeles databases also included common information on onset of disorder and onset of first episode of homelessness. Using these data, it was possible to examine the temporal relationship between age at onset of homelessness and age at onset of mental disorders – a gross measure of the extent to which observed psychiatric problems are a function, rather than a precursor, of homelessness. Table 3 provides data on the extent to which homeless people with mental disorders experienced their first episode of homelessness before, during the same year as, or after experiencing serious mental health problems. For each of the disorders examined (schizophrenia, major depression, and dysthymia), most subjects across both cities suffered their mental disorders *before* becoming homeless. A minority (on average less than one-quarter) experienced their first serious mental health problems *after* experiencing their first episode of homelessness. Only one significant difference was found between homeless samples in the two cities: whereas 59.1% of those in the LA homeless sample who experienced major depression ($n = 315$) did so before becoming homeless, 100% of the Madrid sample with lifetime major depression ($n = 47$) experi-

enced their first depressive episode before becoming homeless [$\chi^2 = 25.8$ ($df = 2$, $n = 362$), $P < 0.01$].

One of the findings of our demographic data was that the Madrid sample was not only older than the LA sample, but it also experienced first episode of homelessness significantly later than the LA sample [34.9 vs 28.9 years old; $-t(1729) = 7.72$, $P < 0.01$]. In order to rule out the possibility that the findings on the temporal relationship between the onset of mental disorders and the first episode of homelessness might be affected by these differences, we compared the age of onset for each mental disorder in both cities. As it can be seen in Table 4, there were no significant differences in the age of onset of any mental disorder between LA and Madrid. Therefore, the data shown in Table 3 do not seem to be affected by differences in the subjects' age at onset of their mental disorders.

Discussion

With homelessness increasingly on the rise in European cities, the question of whether and how homelessness in Europe differs from homelessness in the United States has become extremely topical but very hard to address empirically, given the dearth of comparable data. Because of their similarities in design and instrumentation, our parallel research efforts in Madrid and Los Angeles offered a unique opportunity to begin addressing this important issue.

Our comparisons of the demographic and mental health profile of homeless adults in Madrid and Los Angeles suggest both commonalities and differences between these two homeless populations that warrant comment and further investigation. With regard to demographic characteristics, our findings suggest clear

Table 3 Proportion of homeless in Madrid (MA) and Los Angeles (LA) who experienced their first episode of mental disorder before, after or in the same year as experiencing their first episode of homelessness. (Statistical analyses are based on LA weighted data)

	Before		Same year		After		n (Number of subjects)	
	LA	MA	LA	MA	LA	MA	LA	MA
Schizophrenia	75.6	63.6	5.3	9.1	19.1	27.3	94	11
Major depression**	59.1	100.0	8.0	0.0	32.9	0.0	315	47
Dysthymia	58.0	73.8	5.9	0.0	36.1	26.2	227	42

* $P < 0.05$; ** $P < 0.01$ (chi-square analyses; significant levels adjusted by Bonferroni procedure)

Table 4 Differences among homeless with mental disorders by the age at first onset for those disorders (LA data are weighted)

Disorder	Mean age (SD) at first onset		
	Madrid	Los Angeles	
Schizophrenia	26.1 (13.3)	19.8 (11.8)	$t(111) = 1.64$
Major depression	27.7 (12.6)	23.1 (10.7)	$t(362) = 2.51$
Dysthymia	22.3 (14.1)	23.7 (11.5)	$t(269) = -0.73$

* $P < 0.05$; ** $P < 0.01$ (based on t -tests; significant levels adjusted by Bonferroni procedure)

differences: the Madrid sample is older, less well-educated, first homeless at a later age, more likely never to have married, less likely to be divorced, and less likely to be employed. Eyeing these differences, it is tempting to draw the conclusion that the homeless in Madrid more closely resemble the stereotypical “Skid Row” population of homeless men prominent in most major North American cities during the 1960s than they do the contemporary North American homeless population. Descriptions of the contemporary homeless population in the United States consistently cite their younger age, minority (non-white) status, and higher levels of education – a portrait that does not fit the Madrid sample. Moreover, descriptions of the contemporary homeless population in the United States consistently note the changing experience of homelessness itself – a portrait that is similarly inconsistent with the experience of the Madrid homeless. In the United States, continuous, long-term homelessness has largely been replaced, or at least surpassed, by episodic homelessness – a pattern of rotating in and out of homelessness over time with episodes that tend to be brief (Rossi et al. 1987; Rossi 1990) and with an enormously high turnover in the population (Culhane 1992; Link et al. 1995). This is not true for the homeless in Madrid, for whom homelessness tends to be more continuous and long term (Muñoz et al. 1995). For instance, whereas Rossi estimates, based on a meta-analysis of the US American literature, that only 23% of the US homeless have been homeless for more than 1 year (Rossi 1990), fully 80% of the Madrid homeless could be characterized as such. Homelessness in Madrid, then, seems strikingly similar to homelessness in the United States prior to the more recent growth and change in the population, a fact that raises the important policy question of whether, in a manner that parallels the US experience, the current homelessness situation in Madrid will soon experience a similar shift toward greater numbers and broader inclusion of such groups as women with children and younger men.

While the data we present do provide tentative support for this hypothesis, we cannot emphasize strongly enough that cross-national comparisons should be interpreted cautiously and only in a context that accounts for the myriad of potentially confounding factors better than we have been able to do here. Doing so suggests alternative hypotheses that cannot be discounted. For instance, differences in age of first homelessness and in

the mean ages of the homeless samples may very well reflect cultural differences between the United States and Spain, which is a southern European society in which the meaning and experience of family may serve as a protective buffer that keeps vulnerable people from experiencing homelessness. Likewise, differences in how families cope with adversity and their less functional members, or in the age at which adult emancipation and independence is expected, and a host of related variables may better account for the different demographic profiles of these homeless populations (Vázquez et al., in press). Similarly, differences in educational level and employment likely reflect systematic differences between the general population of the United States and Spain, rather than factors related to homelessness per se. Clearly, far more research – research designed specifically to address cross-national questions – is needed before the diverging demographic profiles of the LA and Madrid homeless populations can be fully understood.

The similarities between the Madrid and Los Angeles homeless populations are as interesting as their differences. Overall, rates of serious mental disorders in these two samples tended to mirror one another (with the exception of cognitive impairment, where differences may very well be explained by the fact that the Spanish sample was older). As was the case in Los Angeles, the Madrid sample evidenced rates of schizophrenia that, by general population standards, are high (see also similar data on Munich, Fichter et al. 1996). As was also the case in Los Angeles, however, it was overwhelmingly apparent that those with psychotic disorders among the Madrid homeless represent only a small fraction of the homeless population. Moreover, in both samples, mood disorders were far more common than psychotic disorder, which is consistent with patterns in the general population (Kessler et al. 1994). The very high rates of clinical depression and dysthymia in these samples, however understandable depressive symptomatology may be under the devastating circumstances of homelessness, point to the presence of a considerable barrier that may prevent homeless persons from seeking help or interfere with their ability to cope with their situations. In any event, rates of disorder in these two populations suggest that, relative to other individuals vulnerable to homelessness, seriously mentally ill adults are not any better or worse protected from homelessness in Madrid than they are in Los Angeles.

Homeless adults in Los Angeles and Madrid were similar not only in terms of rates of serious mental disorder, but in the sequencing of mental disorder and homelessness: in both cities, homelessness was far more likely to follow the emergence of mental health problems than to precede it (North et al. 1993; Sullivan et al. 1995). This should not be taken to imply that serious mental illness *causes* homelessness. In reality, whether a person becomes homeless is a function of a host of structural factors that set a context in which pervasive homelessness is likely and a combination of interrelated risk factors – demographic characteristics, disabilities,

childhood histories, access to family and friends, personalities, and situational precipitants – that define an individual's vulnerability to becoming homeless given that context (Koegel et al. 1996). Similarities along this sequencing dimension between Los Angeles (where, as in the rest of the United States, the complex interaction between structural factors and individual vulnerabilities is increasingly recognized) and Madrid should give pause to those Europeans who are mistakenly reassured by the Madrid data that homelessness is simply a problem related to mental health.

Although reports obtained from homeless people are reliable (Calsyn et al. 1993), there are still some unsolved problems with the instruments used in our study. For instance, the rates of current cognitive impairment must be interpreted with caution, as the Mini-Mental State Examination is a very broad test (Kessler et al. 1994) and does not provide diagnosis of specific syndromes. Similarly, the CIDI probably has a high number of false-negatives of schizophrenic disorders (Kessler et al. 1994; Wittchen 1994).

Finally, we conclude by emphasizing the critical importance of systematically comparing samples of homeless individuals in the United States and Europe in ways that incorporate the strengths of the comparison we present here, but that improve on its limitations as well, i.e., that have a richer set of questions asked in common and that are able to draw more uniformly on comparable household population data in order to tease out differences between homeless populations that exist independent of differences in national populations. Perhaps Europe has yet to experience the level of homelessness that has become commonplace in the United States. It would do well to take advantage of this unique opportunity to understand how best to contain this devastating social ill.

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