RESEARCH - PRACTICE RELATIONSHIPS

Inequalities in the Utilization of Psychiatric and Psychological Services in Catalonia: A Multilevel Approach

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Abstract The aim of this study was to analyze individual and contextual inequalities in psychiatrist and psychologist visits in Catalonia. This is a multilevel cross-sectional study using data from the 2006 Catalan Health Interview Survey ($n = 15,554$). 5.3 % of men and 9.0 % of women visited a psychologist and/or psychiatrist in the last 12 months. People aged 65 years or over were less likely to have visited these professionals and those with a supplemental private health insurance had a higher proportion of having visited. Moreover, people living in lower density regions were less likely to have visited, independently of their level of need. There is a need to develop policies for reducing inequalities in access by people with public health insurance and living in lower density areas.

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Introduction

Surveys from around the world suggest that a high proportion of the population with mental disorders remains either untreated or poorly treated, and that access to mental health care is considered insufficient. Between two-thirds and three-quarters of people meeting criteria for a mental health disorder report receiving no treatment (Alonso et al. 2007; Aoun et al. 2004; Fernandez et al. 2007), and this gap is growing (Mojtabai 2005).

Several studies have identified determinants of and barriers to access to mental health care. These determinants include individual, health system and area-level characteristics. Among individual characteristics, psychiatric morbidity and other need for mental health care is the main determinant of mental health services use (Burgess et al. 2009; Codony et al. 2009; Dezetter et al. 2011; Fleury et al. 2012; Parslow and Jorm 2000). Other individual factors positively related with use of mental health services and appropriate care are demographic, social and economic factors. Some of them are being female, youth or middle aged, married, and having a high socioeconomic position (Wang et al. 2007). Furthermore, an important determinant of access to mental health care is having private supplemental insurance coverage (Andrade et al. 2008; McAlpine and Mechanic 2000; Mulvale and Hurley 2008). Finally it is worth mentioning that the use of mental health services is modulated by attitudes toward mental health care such as

embarrassment related to help-seeking for mental illness and negative attitudes toward help-seeking which have been reported to be greater among youth, single people, and people in low socioeconomic position (Jagdeo et al. 2009; ten Have et al. 2010).

Among health systems characteristics, scarcity of available resources for mental health (including policy, infrastructure, human resources and funding), inequities in their distribution, and inefficiency in their use are obstacles to better mental health care and provide international inequalities (Kovess-Masfety et al. 2007; Saxena et al. 2007,2011; Wang et al. 2007). Finally, among area-level characteristics, several studies conducted in different countries have reported worse access to mental health care in deprived areas (Fleury et al. 2012; Tello et al. 2005) and in rural areas (Fernandez et al. 2007; Parslow and Jorm 2000; Roberge et al. 2011; Wang et al. 2005; Ziller et al. 2010), including Spain (Fernandez et al. 2006; Vazquez-Barquero et al. 2003). Also different patterns of use of mental health providers have been observed between urban and rural areas (Ziller et al. 2010; Zulian et al. 2011). Additionally, recent multilevel studies have found regional variation in health care use in Canada related to deprivation (Ngamini Ngui et al. 2012) and health regions resources (Diaz-Granados et al. 2010), after accounting for need for mental health care and individual sociodemographic factors.

Spain has a National Health System since 1986, which is publicly financed mainly through general taxation, provides universal and free health coverage including primary, specialized and hospital care. The system is regionally decentralized, with local region-based organization of health services into health areas and basic health zones (Reverte-Cejudo and Sanchez-Bayle 1999). Even though everyone in Spain has access to the health care system, it is also possible to obtain supplemental private health insurance, which provides services that are not offered by the National Health System (e.g. elective surgery, visits to the dentist) and also provides more personalized care for some low cost services (e.g. greater freedom to choose specialized care, shorter waiting lists, private rooms in private hospitals) (Palència et al. 2011). In Catalonia, a region in the northeast of Spain with seven million inhabitants, around 25 % of the population has supplemental private health insurance. Inequalities in use of specialized health services use have been reported (Borrell et al. 2001, 2011; Fuste et al. 2005). Public specialized psychiatric and mental health care is organized around three basic levels of care: (1) ambulatory specialist care (mental health centers); (2) hospital care; and (3) community psychiatric rehabilitation (day hospital).

In 2006 the government of Catalonia developed a new Health Map of Catalonia with planning criteria on a territorial level. The territorial scale is that of the 37 areas into which Catalonia has been divided in order to promote a new form of decentralized, combined decision-making, through the Territorial Health Governments (THG). The new territorial health organization responds to the basic functions of management, prioritization and coordination of resources in their territories of reference to ensure the provision of public services. In 2006 the Catalonia Health Survey included a representative sampling by THGs for the first time.

The objective of the present study was to analyze individual and contextual inequalities in psychiatrist and psychologist visits in Catalonia in 2006. The hypothesis of this study is that the scarcity of mental health resources can facilitate the emergence of inequalities associated with socio-economic variables. In addition, a consequence of the high presence of supplemental private health insurance in Catalonia could be that people with a supplemental private health insurance make more use of mental health services than people with only public coverage.

Methods

Design, Sources of Information and Study Population

This is a multilevel cross-sectional design using individual data nested within health areas, from the 2006 Catalan Health Interview Survey. The population-based survey consisted of a multistage probability sample of the non-institutionalized population of Catalonia, Spain. The survey was representative of households and of the 37 THGs. It included self-reported information on socio-demographic data, morbidity, health status, health-related behaviours and utilization of health care services. Data were collected through face-to-face interviews at home by trained interviewers between December 2005 and June 2006 (Mompart et al. 2007). For the present study subjects aged over 15 years were included for analysis (7,658 men and 7,895 women).

Measures

Dependent Variable

The dependent variable was "visit in the last twelve months to a psychiatrist" (yes or no) or "visit to a psychologist in the last twelve months" (yes or no). A preliminary analysis for psychiatrist and psychologist separately did not find significant differences; therefore the analyses reported below are based on the combined measure of visits to a psychiatrist or a psychologist.

Independent Variables

Individual Variables

Socio-economic Characteristics Sex, age, education, social class and type of health insurance coverage were studied. Education was classified into three categories: primary studies or less, secondary and university; social class was assigned according to the highest occupation in the household, using the Spanish adaptation of the British classification grouped into five categories: class I includes managerial and senior technical workers and freelance professionals, class II includes intermediate occupations and managers in commerce, class III comprises skilled non-manual workers, class IV consists of skilled and semiskilled manual workers, and class V comprises unskilled manual workers (Domingo-Salvany et al. 2000). For the analysis we created three groups (I–II high privileged, III moderately privileged, IV–V less privileged). Health insurance coverage was classified using two categories: only National Health System (NHS) or having also supplemental private health insurance.

The Need for Treatment of Mental Health Problems The need for mental health treatment was assessed using the General Health Questionnaire (GHQ-12). This is an extensively used screening instrument to identify current mental disorders; it is more sensitive to common mental disorders, like depression and anxiety. The 12 items of the GHQ-12 are summed and the possible scores vary between 0 and 12. The GHQ scoring with cut-off at 3 or more points has been used as recommended by the author of the instrument (Goldberg et al. 1997; Rocha et al. 2011). The discriminatory ability to detect mental health disorders of the GHQ-12 when using the threshold of 3, measured by the area under the Receiver Operating Characteristic curve is 0.95, which shows a high sensitivity and specificity of the instrument to detect mental health disorders (Goldberg et al. 1998).

Contextual Variables: Health Region Characteristics Each THG was characterized by its population density measured as the number of inhabitants per km^2 (Source of Information: Census, Statistical Institute of Catalonia, 2001), and the percentage of the population with university education, a variable that reflects the area's socio-economic status (SES) (Source of Information: Health map of Catalonia, 2005).

Data Analysis

All analysis included the weights derived from the complex sample design (Carle 2009). Analyses were performed separately for men and women based on gender inequalities described in mental health, health care use and social and economic determinants on health (Montero et al. 2004; Rocha et al. 2010).

Firstly, the characteristics of the population sampled were described. Then, the proportion of population who visited a psychiatrist or a psychologist by individual and contextual characteristics was estimated. Next, an ecological analysis was performed to describe the distribution of contextual variables and the proportion of population who visited a psychiatrist or a psychologist in the 37 health regions. Because of non-normality, outliers and the non-linear relationships between contextual variables, Spearman correlations were used to analyze the strength of association between the dependent variable and the contextual variables.

Finally, a multilevel logistic regression analysis was performed to take into account the clustered structure (individuals at level-1 and health regions at level-2) to obtain accurate estimations of fixed effects (usual regression coefficients or odds ratio [OR]) and the standard errors. Multilevel analysis provides estimations of variability between health regions through the random part of model. A three-step sequential modelling strategy was adopted (Goldstein 2003): (a) *unconditional or empty model* is a model with no predictors at either level, but includes a random intercept to test whether significant variability (τ^2) exists across health regions; (b) *individual model* is a simple extension of the empty model, which includes individual characteristics; (c) *contextual model* expands individual model by including contextual characteristics of regions. In order to measure the variability across health regions, the proportional change in variance τ^2 (PCV) between this three nested models was calculated (Merlo et al. 2005). The estimation method involves Penalized Quasi Likelihood second order approximation procedures. The Statistical analyses were conducted using STATA 10.1 (StataCorp LP 2008) and HLM 6.02 (Raudenbush et al. 2004).

Results

More than half of the respondents were aged between 15 and 44 years (56.2 % in men and 50.5 % in women) and 16.1 % of men and 21.8 % of women were older than 65 years; most have completed secondary education and around 50 % were in a manual social class, and near 30 % had private health care insurance. The presence of mental health disorders using GHQ was 7.5 % among men and 15.5 % among women. It should be noted that the 50 % of people were from high population density areas. Visits to a

Table 1 Characteristics of the study sample ($N = 15,554$, Men and women, Catalonia 2006)

		Men ($N = 7658$)		Women ($N = 7896$)	
		N	%	N	%
Individual variables					
Visit to psychologist*	Yes	218	2.8	424	5.4
	Not	7440	97.2	7472	94.6
Visit to psychiatrist*	Yes	290	3.8	477	4.9
	Not	7368	96.2	7419	94.0
Visit to psychologist/psychiatrist*	Yes	404	5.3	712	9.0
	Not	7254	94.7	7184	91.0
Age*	15–44	4307	56.2	3989	50.5
	45–64	2120	27.7	2187	27.7
	≥65	1231	16.1	1720	21.8
Educational level*	Primary	2442	31.9	2976	37.7
	Secondary	3966	51.8	3567	45.2
	University	1246	16.3	1349	17.1
	Unknown	4	<0.1	3	<0.1
Social class*	I + II	1595	20.8	1816	23.0
	III	1999	26.2	2248	28.5
	IV + V (less privileged)	3969	51.8	3474	44.0
	Unknown	95	1.2	357	4.5
Insurance coverage*	Private	2217	28.9	2072	26.2
	NHS	5404	70.6	5812	73.6
	Unknown	37	0.5	12	0.2
GHQ-12*	Good mental health	6929	90.5	6477	82.0
	Poor mental health	566	7.4	1189	15.1
	Unknown	163	2.1	230	2.9
Contextual variables					
Density population of THG of residence	Q1 (low)	213	2.8	203	2.5
	Q2	998	13.0	994	12.6
	Q3	1062	13.9	1056	13.4
	Q4	1633	21.3	1631	20.7
	Q5 (high)	3752	49.0	4012	50.8
% Population with university education in THG of residence	Q1 (low)	1324	17.3	1335	16.9
	Q2	833	10.9	812	10.3
	Q3	1308	17.0	1332	16.9
	Q4	1668	21.8	1653	20.9
	Q5 (high)	2525	33.0	2764	35.0
Total (%)			100		100

NHS Public National Health Insurance, GHQ-12 General Health Questionnaire, THG Territorial Health Governments

* p value < 0.05

psychologist or a psychiatrist in the last 12 months were made by 5.3 % of men and 9.0 % of women (Table 1).

There proportion of people who visited a psychologist or a psychiatrist varied between regions of Catalonia (THGs). The range was between 0 and 9.1 % among men and between 1.6 and 25.2 % among women, with a median 4.3 and 8.2 % respectively, and with higher variability in men (Table 2). The utilization of psychologists or psychiatrists was associated with population density for women ($r = 0.41$; $p = 0.0116$), but not for men ($r = 0.29$; $p = 0.0845$); no association was found for the proportion of people with university education (men $r = -0.15$; women $r = 0.07$).

Table 3 shows the association of having visited a psychiatrist or a psychologist with individual (age, social class, and coverage) and contextual (density) variables analyzed

Table 2 Distribution of percentage of visits to psychiatrist/psychologist and contextual variables in the 37 Territorial Health Governments (THGs)

	% Visit to psychiatrist/ psychologist (men)	% Visit to psychiatrist/ psychologist (women)	Density (inhab $\times$ km^2)	% Population with university education
Mean	4.1	8.6	1227.5	9.5
Median	4.3	8.2	147.5	9.2
Standard deviation	2.0	3.5	2996.4	2.3
Minimum	0.0	1.6	7.2	6.0
Percentile 20	2.1	6.8	41.4	7.8
Percentile 40	3.6	7.6	96.4	8.3
Percentile 60	4.7	8.9	263.2	9.3
Percentile 80	5.6	10.4	1537.8	11.3
Maximum	9.1	25.2	1622.1	18.5

together in the same model. Men aged 15–44 years and 45–64 were more likely of having visited a psychologist or psychiatrist than those aged 65 years (15–44 years: OR 2.18 CI 1.53–3.10; 45–64 years: OR 1.90 CI 1.22–2.96); Women younger than 65 years were also more likely of having visited a psychologist or a psychiatrist than those aged 65 years, but it was only significant for those aged 45–64 year (OR 1.53 CI 1.06–2.21). People with a supplemental private health insurance were more likely to visit a psychiatrist or a psychologist than people with public health insurance, and this difference is statistically significant for women (women OR 1.35 CI 1.05–1.74; men OR 1.19 CI 0.92–1.54). People who had a positive result in the screening for mental health problems had higher proportion of the visits to the psychiatrist or psychologist (men OR 6.36 CI 4.76–8.49; women OR 4.46 CI 3.76–5.29) than those with negative results. No significant inequalities were observed by social class. Independently of individual characteristics, regional inequalities associated with population density (contextual variable) were observed, since people living in a higher density THG were more likely to visit a psychiatrist or a psychologist. Among men the variability between regions was significant for the empty model ($\tau^2 = 0.09546$), and this variability was less explained by individual characteristics (19.5 %) and full explained when area density was included (PCV = 83.6 %); among women the variability between regions was not significant ($\tau^2 = 0.00957$) and was also explained by the final model (99.9 %).

Discussion

The results of this study show individual and regional inequalities associated with lower mental health service utilization. The main determinant of use of mental health care was need measured through mental health status. After

controlling for need, the sociodemographic variables associated with visits to a psychiatrist or psychologist were being female, aged under 65 years, having supplemental private health insurance, and living in more densely populated areas. Taking both individual and contextual factors into consideration allows better targeting of health service policy and planning and enables more accurate needs-based resource allocation.

As showed in different studies, mental disorders are the main determinant of need of health care (Alonso et al. 2007; Codony et al. 2009), use of mental health services (Andrade et al. 2008; Dezetter et al. 2011; Fleury 2012; Ngamini Ngui et al. 2012; Parslow and Jorm 2000) and treatment adequacy (Fernandez et al. 2006, 2007; Roberge et al. 2011). However, most people with mental disorders remain either untreated or poorly treated (Burgess et al. 2009; Mojtabai 2005; Wang et al. 2005).

Gender inequalities were found in the current study, replicating findings form others studies done in Spain (Palència et al. 2011) and in Catalonia (Borrell et al. 2001, 2011; Fernandez et al. 1999: Sabes-Figuera et al. 2012), which also found that women were more likely to use health services. Higher use of specialized mental health care in women have been also described in other countries (Andrade et al. 2008; Burgess et al. 2009; Codony et al. 2009; Ngamini Ngui et al. 2012; Parslow and Jorm 2000; Wang et al. 2007). Overall, women are more likely than men to seek professional care, and this help-seeking behaviour may reflect not only the cultural values and expectations associated with a specific gender but also those associated with specific social roles endorsed by women and men (Drapeau et al. 2009; ten Have et al. 2010).

We have also found inequalities by age, with people aged over 65 years old having less probability of visiting a psychologist or a psychiatrist, a result which has previously been reported in the literature (Burgess et al. 2009; Diaz-Granados et al. 2010; Parslow and Jorm 2000; Wang

Table 3 Association between having visited the psychiatrist/psychologist and individual and contextual characteristics (men and women Catalonia, 2006)

	Men				Women			
	N	%	OR	CI 95 %	N	%	OR	CI 95 %
Fixed effects								
Individual variables								
Age								
15–44	239	5.5	2.18*	1.53–3.10	335	8.4	1.25	0.93–1.68
45–64	112	5.3	1.90*	1.22–2.96	234	10.7	1.53*	1.06–2.21
≥65	54	4.3	1.00		142	8.3	1.00	
Education								
University	74	6.0	1.02	0.66–1.57	121	9.0	0.89	0.63–1.26
Secondary	197	5.0	0.83	0.65–1.06	300	8.4	0.83	0.67–1.03
Primary or less	132	5.4	1.00		291	9.8	1.00	
Social class								
I + II	86	5.2	1.06	0.69–1.64	166	8.8	1.08	0.77–1.52
III	100	4.5	1.03	0.77–1.38	197	8.8	1.00	0.87–1.15
IV + V (less privileged)	209	5.4	1.00		326	9.3	1.00	
Insurance coverage								
Private	123	5.5	1.19	0.92–1.54	212	10.2	1.35*	1.05–1.74
NHS	279	5.2	1.00		500	8.6	1.00	
GHQ-12								
Good mental health	258	3.7	1.00		411	6.3	1.00	
Poor mental health	110	19.4	6.36*	4.76–8.49	272	22.9	4.46*	3.76–5.29
Contextual variables								
Density population of THG of residence								
Q1 (low)	8	3.6	0.63*	0.45–0.89	13	6.3	0.65*	0.51–0.83
Q2	45	4.6	0.73	0.52–1.04	69	6.9	0.69*	0.60–0.80
Q3	39	3.7	0.59*	0.36–0.96	97	9.2	0.98	0.82–1.16
Q4	66	4.0	0.65*	0.48–0.88	136	8.4	0.82	0.66–1.02
Q5 (high)	246	6.6	1.00		397	9.9	1.00	
Random intercept								
Unconditional model								
τ^2			0.09546*				0.00957	
Individual model								
τ^2 (PCV)			0.07686*(19.5 %)				0.00409 (57.3 %)	
Contextual model								
τ^2 (PCV)			0.01564 (83.6 %)				0.00001 (99.9 %)	

NHS Public National Health Insurance, *GHQ-12* General Health Questionnaire, *THG* Territorial Health Governments

Number of cases (*N*), proportion (%), Odds Ratio (OR) and confidence interval 95 % (CI) for fixed effects; and for random intercept the variance (τ^2) and proportional change in variance (PCV) using unconditional model as reference

* *p* value < 0.05

et al. 2007). The results found in our study are similar to other studies reporting that this vulnerable group has the highest need for mental health treatment, but the lowest access to it (Codony et al. 2009; Fleury et al. 2012; Roberge et al. 2011). In this sense, it is necessary the

development of specific policies to improve the attention of mental health problems among elderly people (Knight 2011).

The study also found that people with supplemental private health insurance were more likely to visit a

psychologist or psychiatrist. In Catalonia, although there is universal access to health services through the National Health System, almost a third of the population has supplemental private health insurance, which provides more access to health services, mainly in specialized care (Borrell et al. 2001, 2011; Palència et al. 2011). Health insurance has been reported in previous studies as a determinant of mental health care use. Financial barriers to care determine the level of mental health care seeking, including mental health services use (Andrade et al., 2008; McAlpine and Mechanic 2000; Roberge et al. 2011), prescription of medication (Mulvale and Hurley 2008) and also the unmet need for mental health care (Wang et al. 2005).

Access to specialized mental health care, appropriate treatment and having positive attitudes toward help-seeking has been found to increase with economic (Andrade et al. 2008; Wang et al. 2005) and educational status (Codony et al. 2009; Diaz-Granados et al. 2010; Parslow and Jorm 2000). However, in Catalonia, we did not find social class or education inequalities in use of specialist mental care. It should be noted that the level of income has not played a main role in other European studies (Alonso et al. 2007; Wang et al. 2007).

On the other hand, the results of our study show the existence of inequalities in utilization of psychiatrists or psychologists across health areas, after adjusting by individual factors, explained by population density, with lower utilization among people living in lower density THGs. Several studies have found regional inequalities in levels of utilization of mental health services finding a greater need of mental care (Fernandez et al. 2007; Roberge et al. 2011; Wang et al. 2005) and a lower specialized mental health services use in rural areas (Parslow and Jorm 2000; Vazquez-Barquero et al. 2003; Ziller et al. 2010). However, no rural–urban differences in expenditure for mental health services have been found (Ziller et al. 2010). The main explanation is that rural areas appear to be poorly served by mental health care resources, and this availability (Diaz-Granados et al. 2010) and accessibility (Zulian et al. 2011) determine the use of mental health services. Additionally, some studies have described a low mental health services use in socioeconomically deprived areas (Fleury et al. 2012; Ngamini Ngui et al. 2012; Tello et al. 2005).

It is worth to highlighting that our results are based on specialized mental health care, but it is known that the general practitioners are the professionals more frequently visited (Kovess-Masfety et al. 2007). In Spain, the proportion of the cost of the treatment for depression in primary care in relation to specialized mental health care was 5.1. Moreover, it has been reported that 65 % of the direct health costs related to depression were expenditure on pharmacological treatment (Salvador-Carulla et al. 2006). The improvement of the response in the treatment for depression with different types of psychotherapy, could help to correct the current imbalance.

Limitations and Strengths

A limitation of this study is that it includes only people not institutionalized and those able to answer the interview. Therefore, individuals with serious mental illnesses could have been excluded. In addition people with mental disorders can have a higher survey refusal rate than those without disorders. But, if those populations had been included, the results probably would have been in the same direction as we have presented. Underreporting of visits to mental health services due to social desirability or recall bias is another potential source of bias (Drapeau et al. 2011; Sevilla-Dedieu et al. 2011). Another limitation refers to the fact that the GHQ-12 assessed the current mental health problems in last 4 weeks but visits to the psychiatrist or psychologist were assessed in the last 12 months. It would have been also useful to know the proportion of people with mental health problems treated at primary care and if people were or not referred by their primary care providers to mental health care services.

Other issues that should be analyzed in future studies are the rationality of the use of the mental health services, the severity of the mental health problem, the frequency or intensity of these services, and the adequacy or quality of the treatment received. It is worth noting that the source of information used is the Health Survey of Catalonia. This survey is not a specific survey of mental health, but it includes variables of health and of mental health, but not specific aspects on mental health service utilization.

On the other hand, the strengths of this study are that health surveys have representativeness by population and territory. They are developed periodically and they are an useful tool to identify inequalities and to plan policies. Including questions about mental health services utilization can help to identify inequalities and to evaluate the impact of the policies developed to decrease these inequalities.

Another strength of this study is the possibility to jointly analyze individual and contextual inequalities in visits to psychiatrist or psychologist using multilevel analysis. The possibility to analyze a sample which is representative of small areas allowed the identification of inequalities at contextual level, and highlighted inequalities associated with population density of the residential area. In the future, studies with other contextual variables could be developed in order to identify other inequalities in the distribution of health resources.

Conclusions and Recommendations

This study has shown a low proportion of psychiatrist or psychologist use and the individual and contextual characteristics related with this use in Catalonia. The results of this study highlight that it is necessary to develop policies to decrease inequalities in the access of mental health services between rural and urban areas, to reduce difficulties in access by people with only public coverage and those aged over 65 years. To achieve these objectives, more public resources for specialized mental health care are necessary. Another aspect that could facilitate access to psychologist or psychiatrist would be a greater integration between primary care and specialized mental health care, taking into account that primary health care will continue to treat the majority of mental problems. In this sense, the mental health plan of Catalonia has as objective that the mental health specialists participate in the daily tasks of the primary care facilities (PD 2006). Different strategies could be developed to prevent such inequalities in access between urban and rural areas. One example of good policy is described in the study developed in Norway that found that differences between urban and rural areas in help seeking disappeared after the introduction of decentralized well-staffed psychiatric centers in rural towns that achieved a proximity to or close working alliance with a local community. This allowed rapid intervention in mental health problems characterized by good cooperation with the general practitioners (Svensson et al. 2009).

Competing interests The authors declare that they have no competing interests.

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