

The urban environment of alcohol: a study on the availability, promotion and visibility of its use in the neighborhoods of Barcelona

Entorno urbano de alcohol: un estudio sobre disponibilidad, promoción y visibilidad del consumo en barrios de Barcelona

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Abstract

Introduction. This paper describes the presence of alcohol in the public space, assessing establishments that offer it, its advertising, and signs of consumption, as factors that may influence its consumption.

Method. Descriptive observational study based on cluster sampling with two-step selection. Results are described, and the spatial association between variables is assessed.

Results. In the 20 census tracts studied, 306 premises were identified that offered alcoholic beverages: 204 were on-premises and 102 were off-premises, mainly supermarkets and food retail stores. Their spatial distribution was uneven, concentrated in two central districts. We identified 72 publicity items, mostly sponsorship of musical events. There were many promotional items linked to on-premises, especially in their terraces. Five people were detected promoting consumption or selling alcohol in the Old Town. In each time slot, between 39 and 51 signs of consumption on the public space were observed (mostly abandoned beer cans), more frequent at night and in the Old Town. There is an association between the presence of establishments that offer alcohol and advertising. There is no relationship between these variables and signs of consumption in the public space; these are concentrated in the Old Town, which has greater presence of tourism.

Conclusions. The urban environment is characterized by elements that stimulate alcohol use and its distribution is uneven, with a strong influence of tourism-related activities. Further regulation of alcohol promotion, availability and consumption in the public space may change its social image and decrease its use.

Keywords: Alcoholic beverages; Public policy; Evaluation; Observation; Social environment.

Resumen

Introducción. Se describe la presencia de alcohol en el espacio público, valorando los establecimientos que lo ofrecen, la publicidad, y los indicios de consumo, como factores que pueden inducir el consumo.

Método. Estudio observacional descriptivo basado en un muestreo por conglomerados con selección bietápica. Se describen los resultados, y se valora la asociación espacial entre variables.

Resultados. En las 20 secciones censales estudiadas se identificaron 306 establecimientos que ofrecían bebidas alcohólicas: 204 de venta y consumo y 102 de venta sin consumo, básicamente supermercados y comercio alimentario. Su distribución territorial fue desigual, concentrada en dos distritos céntricos. Se identificaron 72 elementos de promoción y publicidad destacando el patrocinio de actividades musicales. Se observan elementos promocionales vinculados a los locales de venta y consumo, sobre todo en sus terrazas. Se detectaron cinco personas realizando venta ambulante o promoción del consumo en el casco antiguo. En cada franja horaria se apreciaron entre 39 y 51 indicios de consumo en la vía pública (mayoritariamente envases de cerveza abandonados), más frecuentes de noche y en el casco antiguo. Hay una asociación entre la presencia de establecimientos que ofrecen alcohol y la de elementos de publicidad. No se aprecia relación entre estas variables y los indicios de consumo en el espacio público; éstos se concentran en el casco antiguo, con mayor presencia del turismo.

Conclusiones. El medio urbano se caracteriza por elementos que estimulan el consumo de alcohol y su distribución es desigual, muy influida por las actividades orientadas al turismo. Mejorar la regulación de su promoción, disponibilidad y consumo en el espacio público puede contribuir a cambiar su imagen social y disminuir su uso.

Palabras clave: Bebidas alcohólicas; Política pública; Evaluación; Observación; Entorno social.

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Introduction

Perceived social norms influence patterns of alcohol use (Sudhinaraset, Wigglesworth & Takeuchi, 2016). Given that alcohol advertising, availability and the visibility of consumption in public spaces contribute to the creation of an image of social acceptance and are linked to increased use, the regulation of alcohol consumption can have an important preventive value (Ahern, Margerison-Zilko, Hubbard & Galea, 2013; Campbell et al., 2009; de Bruijn et al., 2016). Indeed, European countries with the greatest restrictions on the advertising of alcoholic beverages are shown to have a lower occurrence of high-risk drinkers (Bosque-Prous et al., 2014). In the Catalan context, recent years have seen a documented increase in alcohol poisoning among adolescents and young people, and the health sector is increasingly interested in adopting preventive measures (Pulido et al., 2014; Sánchez-Queija, Moreno, Rivera & Ramos, 2015). However, resistance by groups with vested economic interests has blocked legislative attempts in recent years (Villalbi, Granero & Brugal, 2008).

Advertising and availability play an important role in the onset and maintenance of alcohol use (Anderson, de Bruijn, Angus, Gordon & Hastings, 2009). Some regulations, such as Law 20/1985, which governs prevention and assistance regarding substances that may cause addiction in Catalonia, have limited the promotion of alcoholic beverages. The ban on advertising for highly alcoholic drinks on public thoroughfares was contested in the courts by the industry, but the European Court of Justice ruled in favor of the Government of Catalonia (Ford, 1993), and advertising disappeared from public spaces for a time. However, the industry has since managed to introduce new, more subtle promotional strategies based on sponsorship and indirect advertising (Villalbí & Benavides, 2014). Currently, advertising pressure is noteworthy, as it is in Spain as a whole (López-Sánchez, García del Castillo & Gázquez-Per-tusa, 2013; Sánchez-Pardo, 2012). Similarly, international studies suggest that there is an association between the availability of alcohol and the amount consumed, as well as the harm it causes. (Popova, Giesbrecht, Bekmuradov & Patra, 2009). The retailing of alcoholic beverages in Spain does not require a specific license, so that alcohol can be sold in the great majority of food outlets without being specifically registered. In recent years, the deregulation of opening hours appears to have led to a general increase in the availability of alcoholic beverages at low cost in the urban environment, especially at night and on weekends (Sureda, Villalbí, Espelt & Franco, 2017; Villalbí et al., 2015). Until now, we have lacked objective and empirical data in our context that would enable us to quantify how the exposure to urban factors influences alcohol use. That is why we have proposed the present study. Its aim was to quantify three aspects related to alcoholic beverages in the city of Barcelona: the establishments that sell them, the elements

of advertising and visible promotion, and the evidence of consumption in public spaces, and to explore the possible relationship between them.

Methods

Design and sampling. A descriptive observational study was carried out in the city of Barcelona (Catalonia, Spain) in November 2015. Cluster sampling was used, taking as a sampling unit the census tract, a relatively homogeneous geographical unit in terms of the resident population (an estimated average of 1,600 inhabitants and 1,000 voters per tract) into which the city council divides the city. A two-stage selection process was applied. First, two neighborhoods were selected for each of the ten districts, chosen according to their population (the seven neighborhoods with fewer than five thousand residents were excluded) and their socioeconomic indicators (in each district the two neighborhoods with the highest and lowest number of registered unemployed were included), thus obtaining twenty neighborhoods reflecting the city's variability. Secondly, within each neighborhood, a census tract was randomly selected, and the observers walked all public roads within the limits of the tract, carrying out meticulous observations during each of the following periods from Monday to Friday: mornings (from 11 am to 2 pm), afternoon (from 5 pm to 9 pm), and night (after 11 pm). In this way, data from 60 observation episodes were obtained.

Data gathering instrument and process. The data were recorded in a standardized questionnaire in paper format, developed by the research team after a pilot test (Sureda et al., 2017) and subsequently validated with high percentages of inter and intra observer reliability (Ruiz-Pérez, 2016). Data collection was carried out by a single team of two previously trained observers, who worked simultaneously taking inverse routes in each area and resolving possible discrepancies *in situ*. The observers took photographs of elements they were unsure of how to classify in order to decide on the appropriate classification later with the person supervising data collection. The supervisor reviewed 10% of the 60 observations registered in order to verify accuracy. The final database thus comprises information gathered from three time periods in the 20 zones.

Variables. The independent variable is the district. The dependent variables are the establishments selling alcoholic beverages, the items advertising alcohol, and the indicators of consumption in public spaces. The time slot is treated as a contextual independent variable. The establishments were classified according to their type, grouped according to whether alcohol is sold and consumed there (on-premises) or merely sold but not consumed (off-premises), i.e. bars, cafeterias or restaurants vs. shops. The items found in the city streets referring to alcoholic beverages or commercial brands of alcoholic beverages were

divided into advertising (direct or indirect advertising, and sponsorship), and other items of alcoholic drinks promotion (such as items naming drink brands in establishments selling alcohol or on their terraces). The signs of consumption were the elements seen in public spaces outside the terraces of the establishments where drinking is allowed, such as people drinking, discarded containers, or other signs of consumption (empty glasses, broken glass bottles, etc.). Subsequently, four synthetic variables were created to compare the territories. Synthetic variable 1 (SV1) combines the supply and availability of alcoholic beverages (combining establishments of any type selling drinks in the two census tracts observed in each district). Synthetic variable 2 (SV2) combines the promotional and advertising items observed in each district. Synthetic variable 3 (SV3) combines the values of SV1 and SV2 in order to reflect the total availability and advertising of alcohol in each neighborhood considered to be a stimulus to consumption. Synthetic variable 4 (SV4) tries to demonstrate the visibility of alcohol use in public spaces, combining the observations of signs of consumption which reflect socially inappropriate practices (people drinking in public spaces outside the on-premises terraces, abandoned containers, remains of glasses and bottles, etc.).

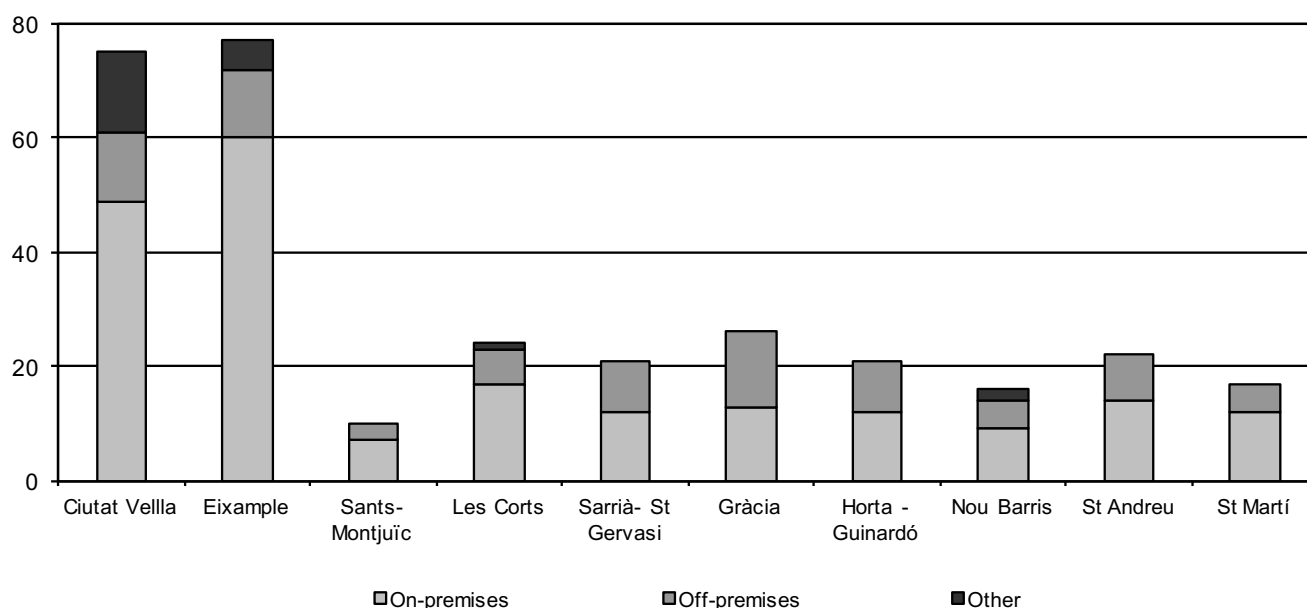
Analysis. Data were analyzed using SPSS 18.0. The unit of analysis was the geographical area (census tract, and neighborhood or district in which it is located). Results are presented descriptively. Two simple linear regressions are employed to analyze the relationships between availability and advertising (VS1 and VS2) with the values of the synthetic variables in the districts ($n = 10$), and then between

the synthetic variable that combines them and the signs of consumption (VS3 and VS4).

Results

Supply and availability. In the 20 census tracts studied, a total of 306 establishments were identified that sold alcoholic beverages (an average of 15.3 per tract, ranging from 3 to 51). With an average of 1,600 residents per census tract in the city, this corresponds to 9.6 establishments selling alcoholic beverages per 1,000 inhabitants. On-premises establishments made up 67%, while 33% were off-premises; of these, 27% were supermarkets and food shops, and 7% were other establishments where drinks were sold as a marginal part of the business (such as tourist souvenir shops selling bottled sangria). On-premises establishments were open and busy more frequently in the mornings (85%) and afternoons (77%), but many were also open at night (47%). Of the retail-only outlets, 96% were open in the morning, 79% in the afternoon and 26% at night. Figure 1 shows their distribution by district. As can be seen, their spatial distribution is uneven: almost half (46%) are found in the census tracts of the two most central district neighborhoods (Ciutat Vella and Eixample), in which the density of establishments selling alcohol is as high as 23 and 24 establishments per 1,000 inhabitants.

Advertising and promotion. In the census tracts studied, 72 items of promotion and advertising of alcoholic beverages were identified in public thoroughfares. The sponsorship of music events by drinks companies stands out. On-premises establishments also feature numerous promotional



Note. The 'others' category includes off-premises establishments where the sale of alcohol plays a very minor role in the business (for example bottled sangria in tourist souvenir shops).

Figure 1. Establishments selling alcoholic drinks in the 20 census tracts analyzed, by type and district. Barcelona, 2015.

items. Thus, 61% of premises with terraces have alcohol marketing items (mainly furniture with logos or printed brand names). Additionally, 91% of the businesses that sell alcohol have items on view that can be considered stimuli for the sale or consumption of alcoholic beverages. There is a great deal more advertising and promotional material in Ciutat Vella and Eixample: between them, these two districts combine more than half of all promotional items found in the study. Five people were also seen selling drinks or promoting places to drink, directly approaching pedestrians in the street, all in Ciutat Vella. This information is summarized in Table 1.

Indicators of consumption. In each time slot, between 39 and 51 items considered as signs of drinking in public spaces (excluding the terraces of on-premises establishments) were recorded in the 20 areas studied, totaling 133 signs, as can be seen in Figure 2. Most of these items were discarded containers (80), especially beer cans. Signs of consumption were more frequently seen during the night observation periods and in the tracts of the Ciutat Vella neighborhood studied: of the 27 observations of people consuming in public spaces (outside the terraces), 21 were in this district.

Table 2 shows the distribution by district of the synthetic variables. Ciutat Vella and Eixample districts feature

prominently, combining the bulk of both drink availability and advertising and promotional items, and there is a high correlation between SV1 (reflecting the availability of alcoholic beverages) and SV2 (reflecting alcohol advertising), manifested by a correlation coefficient r of 0.96 ($R^2 = 0.92$). Conversely, SV4 (which reflects inappropriate consumption) is high in only one district Ciutat Vella, whereas there are hardly any signs of inappropriate consumption in Eixample. While in Ciutat Vella there were 50 indications of drinking in public spaces, in most districts this value fluctuates between 9 and 18. There does not seem to be a correlation between VS4 and VS3, which combines the visible stimuli observed ($r = 0.35$, $R^2 = 0.12$).

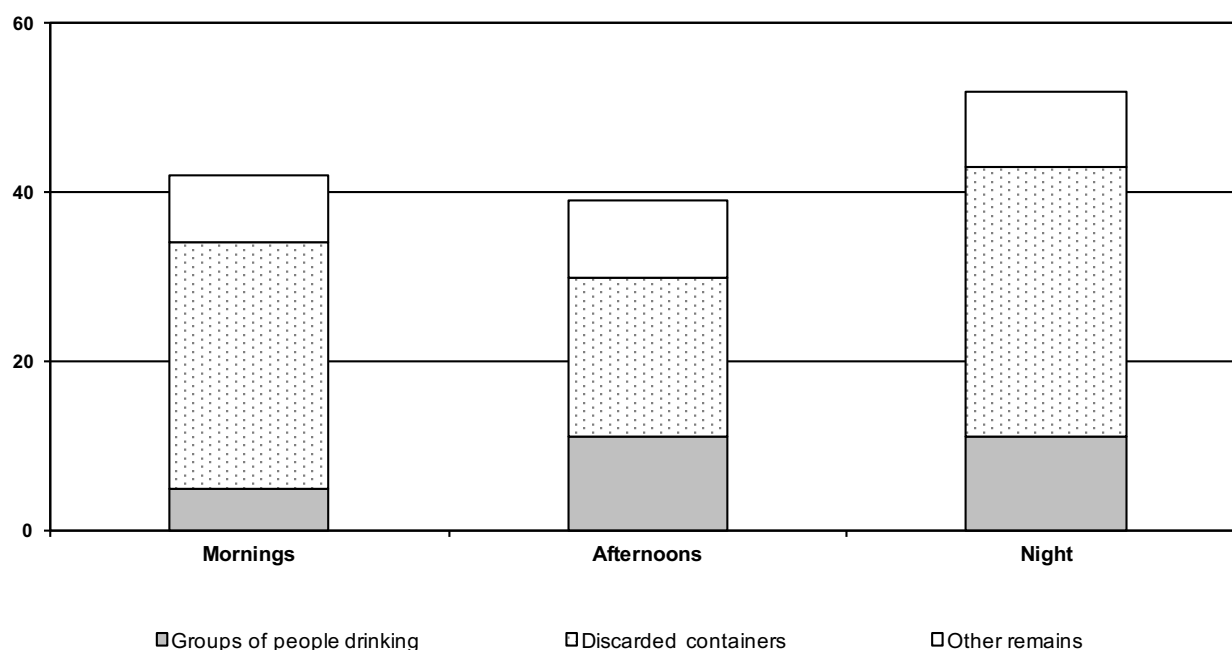
Discussion

The results of this empirical study demonstrate that our urban environment is characterized by high availability of alcohol, even at night, and particularly in the most central neighborhoods. Promotional and advertising elements are ubiquitous. Signs of inappropriate consumption in public spaces are highly noticeable and especially concentrated in certain areas. Many of these reflect violations of municipal ordinance measures to encourage and guarantee the

Table 1. Advertising and promotional items on public thoroughfares relating to alcoholic drinks. Barcelona, 2015.

District	Advertising on public thoroughfares (1)	Promotional items in drinking establishments			Promotional elements in off-premises establishments		Total promotional elements	
		Terraces with promotional items	Other promotional items	Total drinking establishments	Elements in establishments	Total off-premises establishments	Elements	%
Ciutat Vella	13	8	18	49	12	75	51	19.8%
Eixample	26	14	15	60	10	76	65	25.2%
Sants- Montjuïc	3	3	2	7	3	10	11	4.3%
Les Corts	13	4	6	17	6	24	29	11.2%
Sarrià- St Gervasi	1	2	4	12	9	21	16	6.2%
Gràcia	3	4	0	13	8	25	15	5.8%
Horta- Guinardó	4	3	1	12	9	21	17	6.6%
Nou Barris	3	5	5	9	5	15	18	7.0%
Sant Andreu	4	5	4	14	8	22	21	8.1%
Sant Martí	2	6	3	12	4	17	15	5.8%
Barcelona	72	54	58	205	74	306	258	100%

Note 1. Includes direct and indirect advertising and sponsorship.



Note. Terraces and other on-premises establishments are excluded. The ‘other waste’ category includes elements such as broken glass bottles, discarded plastic cups and other signs of drinking.

Figure 2. Visible signs of alcohol consumption in public spaces in the census tracts analyzed, by time slot. Barcelona, 2015.

Table 2. Distribution of synthetic variables (SV) linked to the presence of alcohol in public spaces, by district. Barcelona, 2015.

District	Establishments selling drinks (SV1)	Promotional items (SV2)	Total stimuli (SV3)	Stimuli / 1000 pop.	Signs of consumption (SV4)	Signs of consumption/ 1000 pop.
Ciutat Vella	75	51	126	39.37	50	15.63
Eixample	76	65	141	44.06	1	0.313
Sants- Montju�c	10	11	21	6.56	15	4.69
Les Corts	24	29	53	16.56	15	4.69
Sarri�- St Gervasi	21	16	37	11.56	0	0
Gr�cia	25	15	40	12.5	9	2.81
Horta- Guinard�	21	17	38	11.87	5	1.56
Nou Barris	15	18	33	10.31	18	5.62
Sant Andreu	22	21	43	13.44	11	3.44
Sant Mart�	17	15	32	10	14	4.37
Barcelona	306	258	564	17.63	138	4.31

coexistence of citizens, prohibiting drinking from cans or glass containers in public spaces, as well as the discarding of drink containers on public thoroughfares (Ordenanza de medidas para fomentar y garantizar la convivencia ciudadana en el espacio público de Barcelona, 2005). Both the availability of alcohol and the exposure to promotional items have been linked to alcohol use in studies carried out in other media (Ahern et al., 2013; Bryden, Roberts, McKee & Petticrew, 2012; Ellickson, Collins, Hambarsoomians & McCaffrey, 2005; Hurtz, Henriksen, Wang, Feighery & Fortmann, 2007). We believe that quantifying the presence and distribution of alcohol in our urban context provides elements can serve to improve its control.

Among the study's limitations, the fact that it is based on a relatively small area sample stands out, although having two census tracts per district guarantees minimal variability. It must also be borne in mind that the observations were made at one particular time (autumn 2015) and could be different at another time. In the summer of 2015, for instance, some aspects of the municipal ordinance governing the city's terraces began to be applied, which reduced the advertising elements linked to these (Castan, 2014). Additionally, the weather plays a seasonal role in outdoor activities and may have influenced some of the phenomena studied. Indeed, the autumn of 2015 featured particularly mild weather without rain. Among the strengths of the study, the careful creation of the standard form can be highlighted, as can the precautions to optimize the validity of data collection, and the realization of observations in three time periods in each zone.

The results suggest a strong concentration of both the availability of alcoholic beverages and their promotion in the center of the city, with a strong association between the two. Other neighborhoods have far more limited availability, and fewer visible items of alcohol promotion. Nevertheless, the signs of inappropriate consumption seem to be much more common in a specific part of the city center, since they are concentrated in the historic center while not seeming to affect the Eixample district, nor do they appear to affect other districts associated in the public imagination with young people's leisure activities (such as the Gracia district). Perhaps this is due to the sampling limitations, although it could also be that tourism and related night-time leisure activities, relatively concentrated in the historic center (Ciutat Vella), are the biggest drivers of visible inappropriate consumption. Other studies have shown that a greater density of premises and longer opening hours are associated with greater alcohol consumption and greater impact (Popova et al., 2009).

There are estimates of the density of establishments by population in the Nordic and Baltic countries (although territorially greater in scope than the municipal level) that show far lower availability than that found in our study of the city (Orro, Martens, Lepane, Josing & Reiman, 2015).

The findings in the city of Barcelona cannot be compared with other cities in our environment because comparative data are lacking, so we do not know if this situation is better or worse in other regional capitals. Certain legal aspects (such as the current municipal ordinances governing terraces and citizen coexistence, or the Catalan legislation on the sale of alcohol) (Villalbí et al., 2015), may have some influence in the city, in which, on the other hand, large scale binge drinking phenomena like those described in other Spanish regional capitals have never been reported. Currently, the regional diversity in Spain of regulations covering this area is remarkable (Martín, Simó & García, 2009). We believe that after this pilot study in a single city it should be possible to undertake more ambitious studies which allow the comparison of several places subject to different public policies governing alcohol. Furthermore, we propose to analyze the relationship between these variables and the alcohol consumption of adolescents, for which we have self-reported data through representative surveys (Santamariña-Rubio, Serral-Cano & Ariza, 2017). This has not been studied before in our context. More rigorous regulation of the promotion, availability and consumption of alcohol, and actions that guarantee compliance, could reduce the number of visual stimuli associated with alcoholic beverages. This could change the current social image of alcohol, which seems to favor greater consumption by the population as a whole, and especially by young people and minors (Babor, 2010; Bryden et al., 2012; Luty, 2016). In this connection, local policies have demonstrated important potential for reducing the harm caused by alcohol, especially among young people (de Goeij et al., 2016).

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Conflicts of interest

The authors declare no conflicts of interest.

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