



Residents perceptions of the alcohol environment: A participatory photovoice project in two districts with different socio-economic status in a large city

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ABSTRACT

The purpose of this study was to present the alcohol environment as perceived by its residents in two districts of Madrid using the Photovoice participatory methodology. Secondly, we compared the results according to the socio-economic status of the districts.

The study was conducted in the city of Madrid, Spain, in two districts with different socio-economic status. A total of 26 people participated, who took and discussed photographs about their alcohol environment. They grouped them into 33 final categories, such as the socialising role of alcohol or the alcohol advertising. Co-authors further grouped participants final categories into seven general areas.

The participants in the Photovoice project have helped to deepen the understanding of the alcohol urban environment. These results may help to design more effective policies to prevent hazardous alcohol consumption.

1. Introduction

Europe is the world region with the highest rate of alcohol consumption per person (World Health Organization, 2018). In 2015, 62.1% of the Spanish population between the ages of 15 and 64 admitted having consumed alcohol in the last 30 days (Spanish National Drugs Plan, 2017).

In the recent years, there has been a growing interest in understanding how the urban environment where people live and interact can condition perceptions on the risks of alcohol consumption and influence drinking patterns (Krieg and Kuhl, 2016; Martin et al., 2019). Some of the key defining elements of an urban alcohol environment are alcohol availability and accessibility, as determined principally by the density of

and proximity to off-premise alcohol outlets (e.g. supermarkets) and on-premise alcohol outlets (e.g. bars), as well as pricing policies (Gray-Phillip et al., 2018; Popova et al., 2009). Greater availability of alcohol outlets heightens market competitiveness. This enables the prices of alcoholic beverages to decrease and advertising opportunities to grow (Letsela et al., 2019; Author, 2019a). Lower prices and greater exposure to alcohol advertising has been linked to an increase in alcohol consumption, particularly among the younger population (Casswell et al., 2016; de Bruijn et al., 2016). Lastly, increased visibility of alcohol consumption in public spaces may be contributing to the normalisation and acceptance of such consumption (Author et al., 2016). A recent study addressed the role of the alcohol availability, alcohol promotion and signs of alcohol consumption in the acceptance of alcohol

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consumption (Author et al., 2020).

There is strong evidence that exposure to alcohol in urban environments is conditioned by the socio-economic characteristics of the areas (Romley et al., 2007; Trangenstein et al., 2020). These studies have found greater alcohol availability in socio-economically deprived areas. This distribution in urban areas may be fostering inequalities in alcohol consumption and its effects on health (Katikireddi et al., 2017; Lewer et al., 2016).

Most previous studies on the relationship between the urban alcohol environment and drinking patterns have been conducted on a quantitative basis, relying primarily on secondary databases (Barr, 2018; Leung et al., 2019) and questionnaires (Delker et al., 2016; Sordo et al., 2016). These methodologies, however, fail to capture residents' perceptions of their alcohol environment or even how those perceptions may be conditioning residents' alcohol consumption. Photovoice is a Participatory Action Research methodology that enables participants to document the features they think that are related to a particular community issue, and increase their critical awareness of the issue being researched, using discussion sessions and photography (Pedersen et al., 2017; Wang and Burris, 1997). Several studies have proved Photovoice's potential to capture people's perceptions, heighten their involvement in documenting their community needs and concerns, and to inform social action (Catalani and Minkler, 2010; Hergenrather et al., 2009). Two Photovoice projects have previously been conducted in Madrid to characterise the physical activity and local food environment (Author et al., 2017, Author, 2019b). Other studies have used this methodology to establish how the place where people live, work and socialise may influence alcohol consumption in certain social groups or among people with alcohol dependency problems (Cordova et al., 2015; Letsela et al., 2019; Shortt et al., 2017).

The main goal of this study was to present residents' perceptions of their alcohol urban environment in two districts of Madrid with different socio-economic status and geographical location, using the Photovoice methodology. Secondly, we compared the alcohol urban environment perceptions according to the socioeconomic status of the district.

2. Methodology

2.1. Study design

We conducted a Participatory Action Research Study using the Photovoice methodology. The study took place in two districts of the city of Madrid, Chamberí and Villaverde, with different socio-economic characteristics and urban uses (Table S1). Chamberí is a central district with a high socio-economic status (HSES), a high percentage of people with university education, and a wide range of bars and leisure activities available, that increase its touristic interest. Villaverde is a district located on the outskirts of Madrid, with a low socio-economic status (LSES), a high percentage of foreign population and high rate of unemployment, a lower educational level, mainly residential in use and having fewer leisure activities than Chamberí.

2.2. Participants

The inclusion requirements for the participants were the following: 1) has lived in the district for more than one year; 2) aged between 40 and 75; 3) able to communicate in Spanish; 4) able to use a camera; 5) agrees to attend 5 sessions over 5 consecutive weeks.

The age range was related to the fact that this research is a sub-study of the Heart Healthy Hoods project, which examines how place of residence is related to cardiovascular health in people aged between 40 and 75 (hhh.project.eu).

Contact with the resident population was made via the Social Services Centre in Chamberí and the Municipal Community Health Centre in Villaverde. The participants were recruited through purposive sampling, selection of information-rich cases for the most effective use of

limited resources (Palinkas et al., 2015), based on leaflets distribution and briefings with information about the project and its possible impact in the centres. The synergies that were generated between the technical work groups and the district residents proved essential in this process, as it was the principal channel of sampling.

2.3. Photovoice methodology

Four Photovoice groups were formed, two in each district, with both of them divided between men and women. Groups were divided by gender to avoid that participants from the other gender influenced the discussion, ensuring a gender perspective in the results. Each group met in at least 5 sessions approximately 2 h long over consecutive weeks. The study was carried out in Chamberí (HSES district) in June and July 2017, and in Villaverde (LSES district) in May and June 2018.

All sessions were moderated by a researcher from the team who facilitated discussion among the participants. The other research team professionals attended the sessions as observers.

The structure of the sessions is set out below and in Table 1, and a visual graph is included (Fig. 1). This is a flexible methodology which allows some sessions to be adapted to the needs of the group. All sessions were audio recorded and transcribed for subsequent analysis.

2.3.1. Session 1

The research team introduced the project and the Photovoice methodology to the participants and encouraged them to "photograph everything to do with alcohol in their neighbourhood" so that it could later be the subject of group discussion. The participants then signed an informed consent for the project agreeing to the recording and analysis of the sessions, and to the scientific and/or informative use of any photographs they took. A professional photographer delivered a photography workshop. Each participant was given a certificate of participation in the research project and, if needed, a camera.

2.3.2. Sessions 2 to 4

In Session 2, each participant presented 5 photographs taken during the previous week, using an adapted version of the SHOWED questionnaire (Shaffer and Shaffer, 1984), which included three questions: 1) "What does the photograph show?"; 2) "What is the story behind the photograph?"; 3) "What is the connection between the picture you have taken and alcohol?" The participants engaged in debate and developed

Table 1

Summarised contents of the sessions included in the Photovoice methodology used in this study.

Session	Session contents
Session 1	<ul style="list-style-type: none"> ○ Introduction to Photovoice and the project's purpose ○ Socio-economic questionnaires completed and informed consents signed ○ Photography workshop: "Get your camera!"
Sessions 2 to 4	<ul style="list-style-type: none"> ○ Presentation and analysis of five photographs by each participant ○ Interpretations of the photographs shared and discussed ○ Experiences of taking the photographs discussed ○ Photographs grouped into topics
Session 5 and extra sessions as needed	<ul style="list-style-type: none"> ○ Topics emerging over the entire process synthesised for subsequent grouping into final thematic categories ○ Photographs classified into final thematic categories, with one representative photo selected for every category
Joint meetings (women and men) in both districts	<ul style="list-style-type: none"> ○ Exchange of participants' experiences of the project ○ Mind map designed in each district, laying out the key categories that define the role played by alcohol

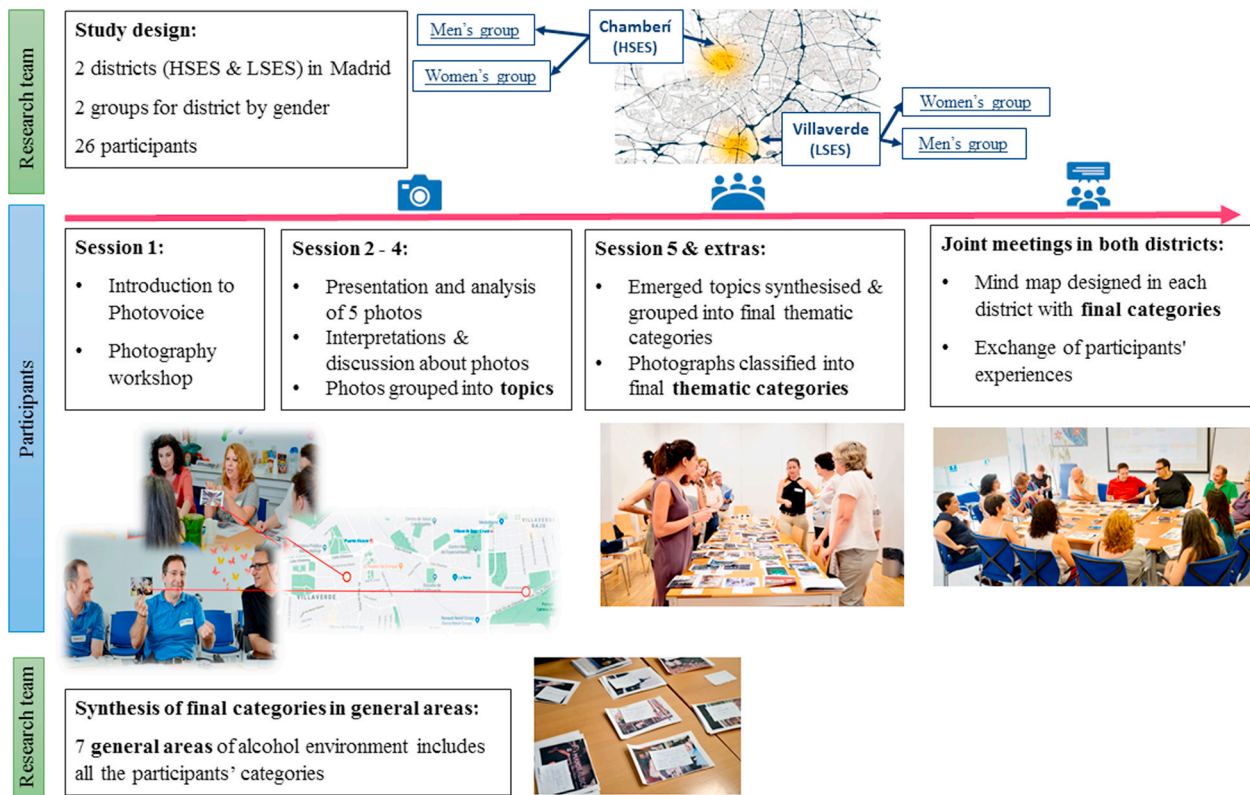


Fig. 1. Visual abstract of Photovoice process. The figure presents the different phases of Photovoice, beginning with the study design and finally with the analysis of the participant's categories by research team. In the middle, as main part, there are the different stages of Participatory Research.

their discourses on the alcohol environment based on the presentations of the photographs.

In sessions 3 and 4, the participants were asked to bring a maximum of 5 new pictures and group them into topics as they debated, giving each topic a title to encapsulate its content.

2.3.3. Session 5 and extra sessions (if needed)

In session 5, the topics that emerged in sessions 3 and 4 were classified into more general categories. The participants chose a title and a representative photograph for each category. Where necessary, extra sessions were held after session 5 to complete the process of defining the final thematic categories.

2.3.4. Joint meetings in each district

A joint meeting was held in each district bringing together all the participants, with the following aims: 1) to get to know both groups (men and women in the same district) and exchange experiences of the project; and 2) to share the results of the final thematic categories in order to produce a common "mind map" for each district. The mind map constitutes a summary of the results, showing the resulting categories and the connections between them. It also provides an overview of the alcohol environment and its constituent elements, grouping particular topics into more general final categories.

2.4. Ethics approval

We conducted this study in accordance with the Declaration of Helsinki, and received ethical approval by the Ethics Committee of the Universidad de Alcalá (CEI/HU/2017/09).

2.5. Data analysis

In this study, following Wand and Burris guidelines, the analysis was

performed by the participants themselves through critical discussions over the entire duration of the project (Wang and Burris, 1997).

The participants' participatory analysis included the following: 1) Selecting photographs that were representative of their alcohol environment; 2) Contextualising, discussing and performing a critical analysis of the selected photographs guided by SHOWED questions during the Photovoice discussion sessions; and 3) Categorising the photographs in the last Photovoice sessions into thematic categories based on the discussions that took place during the entire process. They also chose the photographs which represented each final thematic category (Wang and Burris, 1997).

The results presented in this article derived from the community perceptions of their alcohol environment. To ensure that the participants' discourses were rendered as accurately as possible, quotes of participants that summarise or convey the discussion that had taken place in Photovoice sessions were selected and included for each of the categories they created, as representation of their discussions. The analysis is merely descriptive, so that the participants' discourses can be conveyed as truthfully as possible (Sandelowski, 2000). In order to facilitate the results comprehension, co-authors grouped participants' categories into broader areas using a deductive analytical strategy of successive approximation (Mahmood et al., 2012).

3. Results

3.1. Description of the participants and the sessions

A total of 26 people (7 women and 6 men per district) between the ages of 39 and 78 took part in the project (two people were accepted who did not meet the age requirements, in order to have an optimal number of participants). The average age in both districts was approximately 57 (Table S2). Of the 12 participants in Chamberí (HSES district) whose education background was available, 10 had studied at university

and 7 had monthly household incomes of more than 2200 euros. In Villaverde (LSES district), vocational training was the most common level of education among the participants (5 out of 13). Most of the women participants in this district (5 out of 7) had a monthly family income of less than 1200 euros. As for the men, 4 out of 6 had a monthly family income of more than 2200 euros.

The participants took a total of 270 photographs (136 in Chamberí and 134 in Villaverde). As a result of sessions 2 to 4, 50 topics were identified in Chamberí (26 for the women and 24 for the men), and 39 in Villaverde (20 for the women and 19 for the men) (Table 2). During the Photovoice, only one participant dropped out of the study after the 3rd session due to work reasons (one man from HSES District). We adapted the dates of the sessions to ensure that, at least, 5 participants would come. None of the participants missed more than 2 sessions.

These topics were reviewed and discussed until the participants regrouped them into final, more general thematic categories in session 5 and any extra sessions needed in some of the groups. The result was 24 final thematic categories in Chamberí (11 for the women and 13 for the men) and 28 final thematic categories in Villaverde (16 for the women and 12 for the men).

In the joint district sessions, men and women from the same district worked on the common mind maps that were developed on the basis of their final thematic categories arrived by session 5 and any extra when needed. Figs. 2 and 3 show the 19 thematic categories produced by the participants in Chamberí, HSES district (Fig. 2), and the 14 categories produced in Villaverde, LSES district (Fig. 3), in mind maps.

3.2. Results of the residents' perceptions of their alcohol environment

Participants described their alcohol environment with a wide range of diverse topics. This reflects the complexity of the alcohol environment. Co-authors grouped the 33 categories proposed by the participants into seven more general areas representing the main concerns related to the alcohol environment in both districts. These areas were: Alcohol's socialising role; Diversity of alcohol availability (in terms of prices and alcohol outlets); Profitability of the alcohol business; Advertising; Concerns about alcohol consumption and minors; Negative effects of alcohol consumption in public spaces; and Different drinking patterns in different social groups.

Alcohol's socialising role emerged in both districts and it was perceived as positive. This topic was covered in the categories "Drinking on normal days" and "Alcohol-related activities" in Chamberí, and in "Football and alcohol", "Socialising" and "Music and alcohol" in Villaverde. Participants associated alcohol consumption with everyday relaxation and enjoyment and viewed it as a facilitator of social relations: "You go for a drink by yourself, but it is actually a social act because you are looking to contact other people" (Woman, 57, Chamberí). In Villaverde, the participants also described alcohol consumption as a way to avoid isolation (Fig. 4a): "There's a group of them who regularly meet for a few beers ... At least they get together, you can see they support and trust one another" (Woman, 60, Villaverde). In both districts, participants linked alcohol to Spanish culture and traditions under the categories "Recovering the culture of alcohol" in Chamberí and "Old customs and traditions" in Villaverde. Additionally, in

Chamberí, the category "Chamberí classics" included the tradition of going to old bars which are part of the district's history and popular culture (Fig. 4b).

All groups discussed the marked **diversity in the prices** of alcoholic drinks and in the **establishments in which to buy or consume alcohol**. In Chamberí, this subject arose repeatedly. The categories "Alcohol in the shopping basket", "Distribution", "Wide range on offer for purchase and consumption", "Drinking in the food market" and "Long opening hours" related to the widespread accessibility of all alcoholic beverages at any time. Also, in Chamberí, the category "Cheap alcohol" included low-priced alcohol offers aimed at young people (Fig. 5a): "Many young people are attracted by the low prices of alcoholic drinks. It's a big attraction for those who want to drink lots and spend little" (Woman, 57, Chamberí). On the other hand, the category "Gourmet alcohol" touched on high quality alcohol consumption linked to high social status. In Villaverde, accessibility was not covered by any specific category name. Nonetheless, the participants discussed that alcohol is widely available in non-central areas of the city and about the prices of alcohol depending on where you get it.

In close connection with alcohol accessibility, both districts discussed the **profitability of the alcohol business**. In Chamberí, the category "Alcohol as lure" focused on businesses that have been converted to sell alcohol, which is perceived as the most consumed product: "If you're not selling alcohol, it's as if you're not selling anything" (Man, 68, Chamberí). In Villaverde, as well as the general growth in the number of businesses selling alcohol, the category "Business and alcohol" highlighted the fact that alcoholic drinks are sold now in tobacconist shops. The participants mentioned that these establishments sell alcohol in new, easy to carry formats. This formats mainly attract young people, who sneak them into nightclubs, football stadiums and the like, where alcohol is more expensive or not allowed at all: "I had never seen a tobacconist's selling alcohol before. I was struck by the little drink sachets, which you can take to a football match or wherever. They are single-dose alcohol sachets" (Woman, 57, Villaverde) (Fig. 5b).

In the category entitled "**Advertising**", the participants referred to the promotion of alcohol through a number of media within their districts, with different messages and target populations. In Chamberí, they highlighted the permanent presence of alcohol promotion in the streets. A distinction was made between "static advertising", i.e. advertisements for alcoholic beverages placed on permanent media in the city streets (e.g. building fronts, canopies, etc.), and "mobile advertising" placed on delivery vehicles. "Advertising on street furniture" also attracted much attention, referring to the alcohol promotion on the furniture of bar terraces (Fig. 6a): "You don't need to go inside the bar to see alcohol being advertised. All the furniture is alcohol-themed: the sunshades, the chairs, the tables. Bar terraces take up space in the street, and their furniture advertises alcoholic drinks" (Woman, 39, Chamberí). In Villaverde, the point most repeatedly highlighted in connection with advertising was the different strategies deployed by the alcohol industry to attract its target population (Fig. 6b). For example, the strategies used by beer brands to become emblematic for a particular city or region. In both districts, the participants focused on the problem of alcohol advertising aimed at young people and its potential effects on alcohol consumption. Advertising aimed at their own age group, however, was

Table 2
Description of the number of sessions, photographs and categories in each Photovoice group by gender and district.

District	Sex	Nº of Participants	Nº of sessions	Nº of photographs	Topics (sessions 2–4)	Thematic categories (session 5 and extra sessions)	Final categories in mind map (joint session)
Chamberí (HSES)	Female	7	7	86	26	11	19
	Male	6	6	50	24	13	
Villaverde (LSES)	Female	7	5	77	20	16	14
	Male	6	6	57	19	12	
Total	Male and female	26	24	270	89	52	33

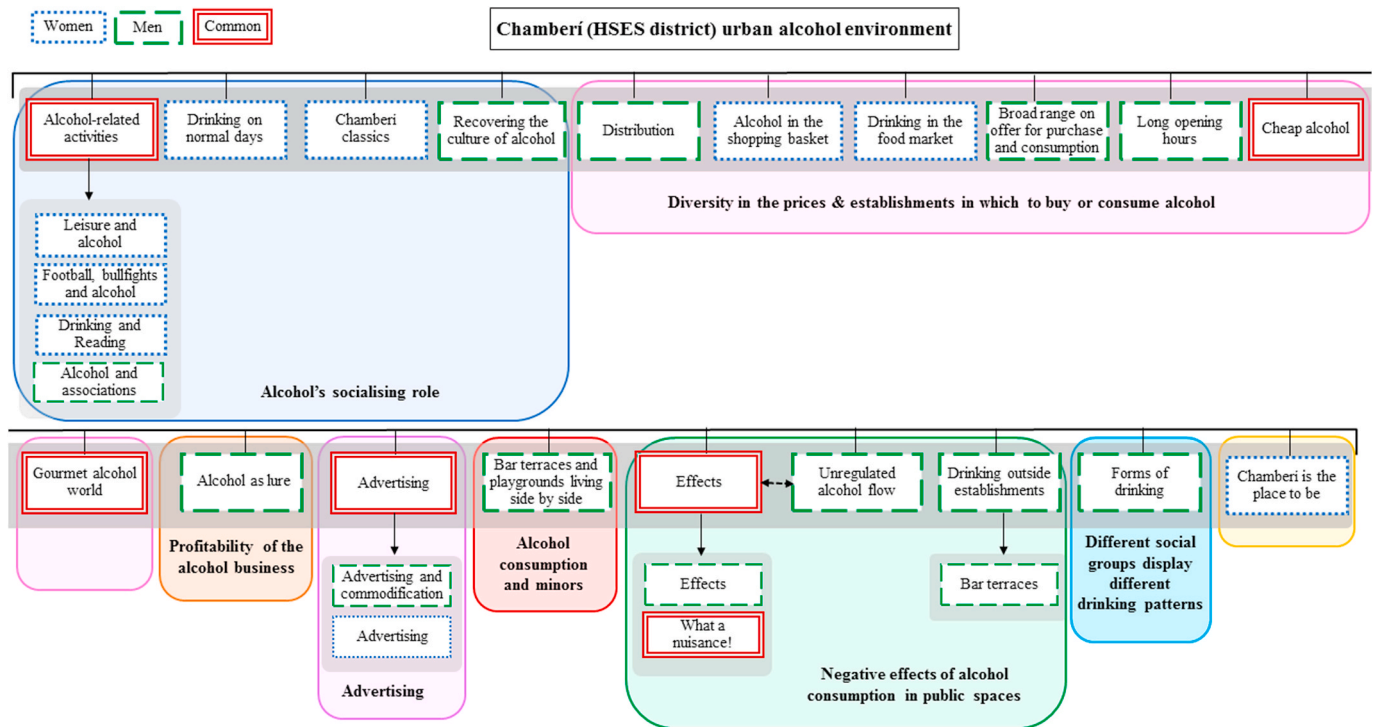


Fig. 2. Mind map of the final categories for women and men in Chamberí (HSES district) grouped by the final general areas created by co-authors. The figure presents the final categories arisen during Photovoice process in squares. The edge of the text box indicates if the category was unique for women's or men's group or if it was common for both groups. Thematic categories, grouped into final categories during the joint session, were showed in a grey box under its final category. Participants' final categories were summarised into general areas by co-authors, these areas are represented by boxes with different colours.

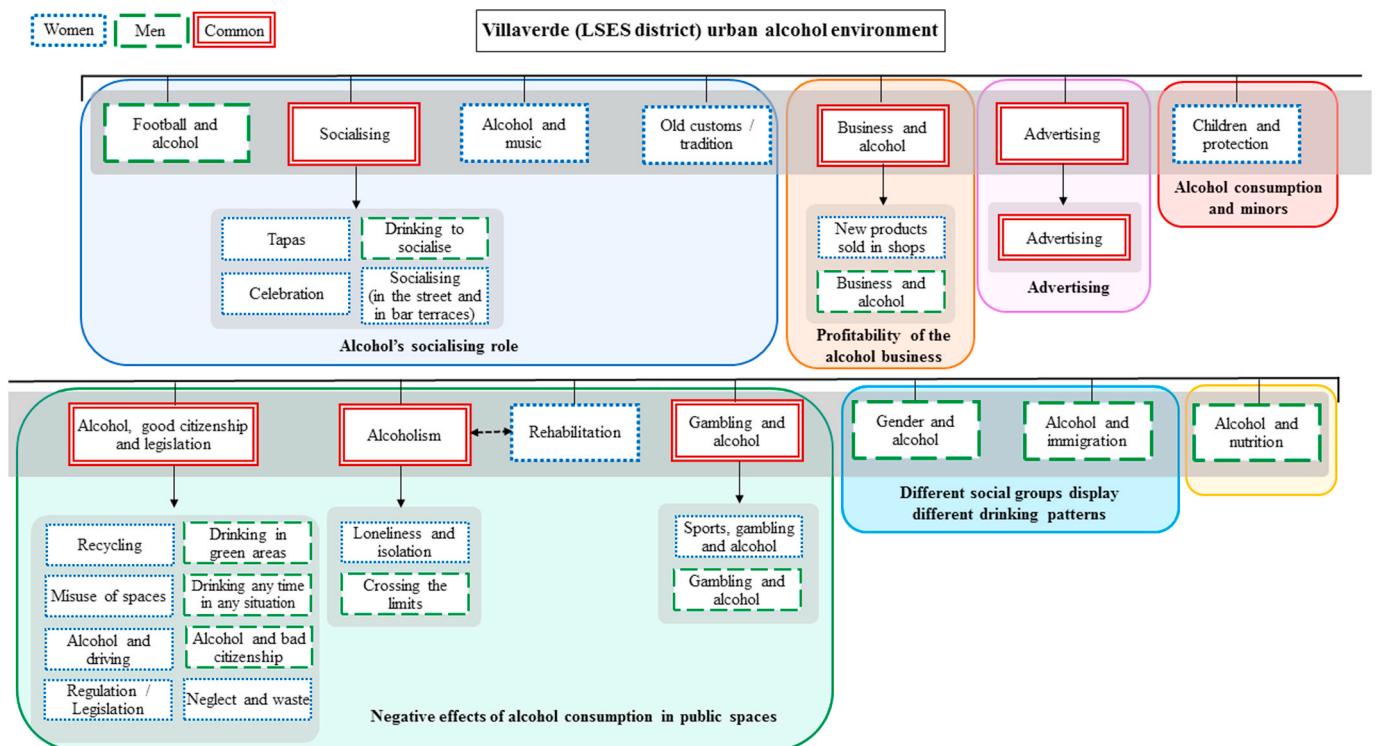


Fig. 3. Mind map of the final categories for women and men in Villaverde (LSES district) grouped by the final general areas created by co-authors. The figure presents the final categories arisen during Photovoice process in squares. The edge of the text box indicates if the category was unique for women's or men's group or if it was common for both groups. Thematic categories, grouped into final categories during the joint session, were showed in a grey box under its final category. Participants' final categories were summarised into general areas by co-authors, these areas are represented by boxes with different colours.



Fig. 4. Photographs on the social role of alcohol.



Fig. 5. Photographs on alcohol accessibility and the profitability of alcohol as a business.

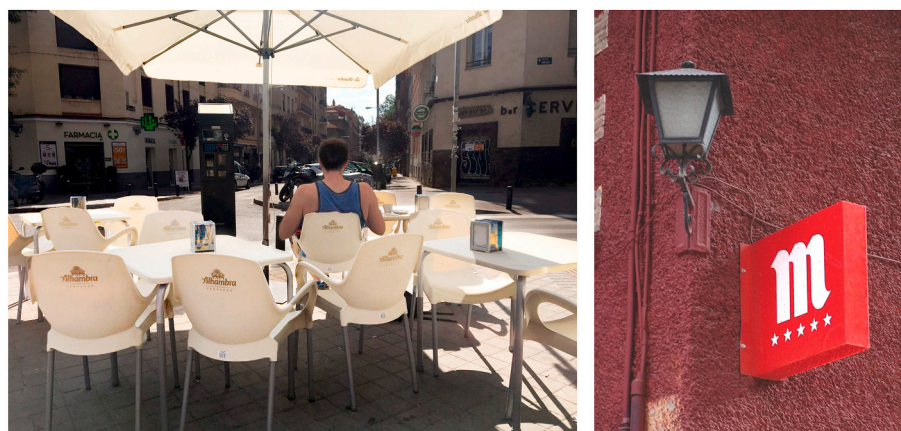


Fig. 6. Photographs on alcohol advertising and promotion.

deemed hardly relevant.

Participants also reflected **concerns about alcohol consumption and minors** in discussions surrounding the categories “Bar terraces and playgrounds living side by side” in Chamberí, and “Children and protection” in Villaverde. In Chamberí, the participants highlighted family drinking (especially by parents) in front of minors, and minors’ high

exposure to alcohol in the district (Fig. 7a): “A child in this district is more heavily bombarded with alcohol than in other districts. It’s not normal for a park to be right next to a bar terrace, but it’s become normalised” (Man, 42, Chamberí). In Villaverde, the participants discussed the marketing strategies used to drive the normalisation of underage drinking, such as selling products that mimic the appearance of



Fig. 7. Photographs on children's exposure to alcohol.

alcoholic beverages (Fig. 7b). Another issue raised in this district was alcohol consumption by parents in front of their children: "Every time I go to watch my son play football, I usually drink beer with other parents I'm friends with" (Man, 53 Villaverde).

The **negative effects of alcohol consumption in public spaces** were discussed in both districts. In Chamberí, the participants discussed that they eventually saw young people who still get together on the street to drink, although it is illegal-under the category "Unregulated alcohol flow" (Fig. 8a). They also discussed about alcohol dependence-which they viewed as a real problem, but one that has no impact on the district's residents – under the categories "Effects". They said that the most salient problem of consumption in the street today was the noise generated by people drinking outside establishments: "Littering is now more under control. But noise has been creating a lot of discomfort and unpleasantness" (Woman, 50, Chamberí). A further negative effect in their view was the fact that bar terraces invade public spaces as they grow in size and number: "The trouble with terraces is the ones that are on the pavement taking up more than half of it. They're the ones people complain about" (Man, 78, Chamberí).

In Villaverde, the issue of alcohol consumption in public spaces was discussed more recurrently and viewed as a significant cause of concern by the participants. With the category "Alcohol, good citizenship and legislation" they referred to the misuse of public spaces and the litter generated by alcohol consumption, which they identified as the chief problems resulting from street drinking. They stressed the need to expand public cleaning services, which were insufficient in their district. The category "Alcoholism" covered issues caused by alcohol addiction and the marginalisation of people with alcohol dependence problems

who gather in certain areas of the district (e.g. public parks). Alongside this, they included the category "Rehabilitation" in reference to the need to increase support for the treatment and rehabilitation of these people. This category reflected the community's involvement in the wellbeing of the district's residents. They also discussed how alcohol relates to other addictions, focusing on the link between alcohol and betting. In the category "Gambling and alcohol" they expressed their concern about the rising number of gambling establishments in the district and the increasingly frequent sight of young people drinking alcohol outside them (Fig. 8b).

All groups made reference to the fact that **different social groups display different drinking patterns**. In Chamberí, the category "Forms of consumption" set out the different consumption patterns according to age. The participants pointed out that young people tend to consume large amounts of poor quality alcohol, whereas they themselves identified with a more select form of consumption that prioritises quality drinking (Fig. 9a): "There are two different kinds of drinking, one by younger people, which is the population these beer deals are aimed at, and then a more elitist wine consumption by older people" (Man, 65, Chamberí). In Villaverde, the different types of consumption by nationalities were included under the category "Alcohol and immigration". The residents recognised Villaverde as a multicultural district where immigrants are more likely to drink in the street: "Villaverde is now characterised by having a mix of many cultures. I think Spanish people tend to drink in bar terraces, whereas immigrants more often drink from cans in the street" (Man, 73, Villaverde). The category "Gender and alcohol" emerged in Villaverde in reference to differences in alcohol consumption between men and women, and how these differences have



Fig. 8. Photographs on the negative effects of alcohol consumption linked to drinking in public spaces.



Fig. 9. Photographs on forms of consumption by different social groups.

narrowed over time. They highlighted the increase in alcohol consumption among young women in recent years and the normalisation of women's drinking in public places, either in groups or alone (Fig. 9b): "In our society, the belief that alcohol is a men's thing is still deeply rooted, but women are joining in more and more" (Man, 61, Villaverde). This debate also arose in the Chamberí women's group, although it did not materialise as a category in itself. In both districts, participants also pointed out that the tendency to associate alcohol consumption with masculinity still exists: "A couple comes in and they order an alcoholic drink and a non-alcoholic drink, and the waiter will usually give the alcohol to the man" (Woman, 57, Chamberí).

Both districts had two unique categories each. In Chamberí, the category "Chamberí is the place to be" referred to the district's social and leisure appeal for residents, tourists and people from other districts. In Villaverde, the participants mentioned the presence of alcohol in people's diet, not only as a drink but also in food recipes and, consequently, in daily shopping, under the category "Alcohol and nutrition".

4. Discussion

The use of the Photovoice methodology in this study made it possible to capture community perceptions of their urban alcohol environment as provided by the residents of two districts with different socio-economic status and geographical characteristics in Madrid. A wide variety of topics were observed, reflecting the complexity of the alcohol environment in modern cities. The differences showed between groups from different districts could be influenced by the urban characteristics of the district as well as by the socio-economic status (Clews et al., 2016; Author et al., 2017a).

The link between social and cultural life and alcohol consumption was brought to the fore by all groups taking part in the research process. Alcohol consumption is viewed as a social activity (Meier et al., 2018). Some previous studies have noted the widespread belief that drinkers are more socially active than non-drinkers (Knox et al., 2019; Nesi et al., 2017; Rinker et al., 2016). Yet there is evidence that non-drinkers, both young and adult, feel less socially excluded and have a greater potential to develop healthy habits (Balestrieri et al., 2018; Kim et al., 2018). The industry uses advertising to encourage an association between social relations and alcohol consumption, which promotes a positive image of drinking and lowers risk perceptions (Suárez-Relinque et al., 2017). It would be advisable to introduce increased public health action to debunk the belief that alcohol is a necessary part of socialising.

Another element of the environment that residents described in both districts was **alcohol accessibility**. The participants referred to the large number of establishments selling alcohol, their diversity, long opening hours and range of prices. A high density of establishments selling alcoholic drinks combined with low prices has been linked to higher alcohol consumption (Blecher et al., 2018; Popova et al., 2009). Previous studies carried out in the cities of Madrid and Barcelona found a higher density of establishments in which to buy or consume alcohol

than in other European countries (Author et al., 2017a, 2018, Author, 2019a). In addition, Spain's taxation of alcoholic beverages is among the lowest in Europe (Blecher et al., 2018). The participants in this study pointed to this alcohol availability as a facilitator for consumption, particularly among the younger population. They also believed that high exposure to **alcohol advertising** in their districts is a further facilitator of alcohol consumption and its acceptance in this population, an association that has already been observed in other studies (Esser and Jernigan, 2018; Westberg et al., 2018). The results obtained suggest that the regulations on the advertising of alcoholic beverages are insufficient and ineffective. The alcohol industry uses a number of strategies for its promotion, creating urban environments where alcohol is ubiquitous (Smith and Foxcroft, 2009; Author et al., 2017b). This form of advertising, which is integrated in the urban environment, was not perceived by the participants in the first few sessions. This can be explained by the theory of Social Cognitive Theory (SCT), which is based on the premise that when elements associated with alcohol are replicated, they become integrated into the environment as one more of its constituents, diminishing perception of the element itself and its associated risk (Bargh et al., 1996).

Adult consumption of alcohol in front of minors, low-price offers of alcohol and advertising targeted at young people have been associated with **early drinking** in previous studies (Davis et al., 2019; Suárez-Relinque et al., 2017). Participants in this study described all these elements as part of their alcohol environment. A further aspect that may favour alcohol consumption among the younger population is how easy it is to purchase alcohol and consume it in public spaces. 33.6% of students living in Spain aged between 14 and 18 admitted having consumed alcohol in public spaces at some time (Spanish National Drugs Plan, 2017). The sight of people drinking alcohol or traces of consumption (e.g., waste cups, bottles, etc.), stimulates consumption among the young population, particularly in vulnerable areas (Forsyth and Davidson, 2010). This is consistent with our results showing that residents of the most socio-economically deprived area expressed stronger concerns about such exposure.

The issue of **alcohol dependence** emerged in Villaverde, where it was viewed as a major problem for the district. While regular consumption of alcohol in small amounts is more prevalent among people with higher socio-economic status (Beard et al., 2019; Degerud et al., 2018; Suárez and Ichaso, 2011), hazardous and harmful alcohol consumption is more associated with marginalised and socio-economically deprived populations (Barr, 2018; Collins, 2016; Panadero et al., 2016). This would explain the higher perceived risk of alcohol consumption in Villaverde, the more vulnerable district.

Alcohol dependence was also associated with other addictions, such as gambling. These results are consistent with studies that have found that the risk of alcohol dependence increases when other addictions are present in vulnerable areas (Sudhinaraset et al., 2016). Betting is associated with hazardous and harmful alcohol consumption, so a greater presence of bookmakers may encourage this form of drinking (Markham et al., 2012; Tobias-Webb et al., 2019). An increasing exposure to

bookmaker establishments and to alcohol in their urban environment encouraging addictive behaviours raised concerns among the residents of Villaverde. Public policies regulating the density of bookmaker establishments would have a positive effect on alcohol consumption, particularly in vulnerable districts where the combination of these two addictions has more conspicuous effects.

The participants in this study discussed **differences in alcohol consumption among social groups** and identified higher, and more frequent consumption in men than in women, a pattern that is reproduced globally (World Health Organization, 2018). Lower alcohol consumption in women is associated with established social roles and the fact that hazardous and harmful drinking has more severe consequences for women, both in medical and in social terms (Erol and Karpyak, 2015; Foster et al., 2018). These gender differences in alcohol consumption are diminishing, nonetheless, particularly among the younger population. This could be due to changes in gender roles or to a lower perception of the risks associated with alcohol consumption (Nicholls, 2019; Perrotte et al., 2018).

The participants from the district with a lower socio-economic status also observed differences in alcohol consumption by nationalities. Participants perceived that residents from other nationalities used public spaces to drink alcohol while socialising more than Spanish population. Participants related this greater use of public spaces by these residents with their culture and traditions. Some studies indicate that immigrants with a lower socio-economical status, are at greater risk of developing hazardous and harmful drinking as a result of their social marginalisation and vulnerability (Glass et al., 2017; Witbrodt et al., 2014). Public health policies should include a gender-based approach and consider ethnic differences to ensure effectiveness in all populations and prevent health inequalities (Ahmed, 2018; Arana-Chicas et al., 2019; Morgan et al., 2018).

4.1. Limitations and strengths of the study

This study has a limitation in the absence of immigrant participants, who are a significant population in the district of Villaverde. This explains why their discourse has not been included. Also, these results may not be representative of the districts due to the small sample size. However, small groups are also effective for Photovoice methodology (Catalani and Minkler, 2010). In addition, participation was limited to people over 40 years old, owing to the fact that this research is a sub-study of the Heart Healthy Hoods project, which examines how place of residence relates to cardiovascular health in people aged between 40 and 75 (hhhproject.eu). Although, we did not include people at younger ages, participants also discussed about their concerns related to alcohol exposure in their district and its relation to alcohol consumption among the younger population. It would be interesting in the future to carry out this same study with populations from other age groups, especially young people, and people of other nationalities living in the districts.

As far we know, this is the first study that characterises the urban alcohol environment from a community perspective using the Photovoice methodology on the general adult population. The Photovoice methodology has three key objectives: 1) to give people in the community the opportunity to present and reflect their concerns and common needs; 2) to promote and encourage dialogue and critical discussions on a topic of interest; and 3) to disseminate the results of the study among the scientific community, the general public, local government and policymakers, with the ultimate aim of helping to shape public policies (Murray and Nash, 2017).

The use of photographs has helped the participants to reflect on and express their views. This methodology enriches alcohol environment research showing results that would not have been revealed with other methodologies (Freedman et al., 2014; Kowitt et al., 2015; Liebenberg, 2018). In Photovoice, the participants are included in all stages of the analysis process, ensuring that the results are an accurate reflection of

their social reality (Evans-Agnew and Rosemberg, 2016).

5. Conclusions

This Photovoice study made possible to identify residents' perceptions of the alcohol environment in two districts of Madrid with different socio-economic and urban characteristics. Participants highlighted the social role of alcohol consumption, which favours its normalisation. They pointed out that alcohol is highly accessible and underscored the impact of alcohol advertising, making alcohol ubiquitous in the environment. The participants discussed the negative effects of drinking in public spaces and expressed concern about the consequences of underage exposure to alcohol consumption and alcohol dependence. Lastly, a further highlighted aspect was the difference in alcohol drinking patterns by gender, country of origin and age. The differences observed between the two districts suggest that policies should be adjusted to social priorities, which may vary according to the socio-economic, urban and demographic area characteristics. Participatory methodologies such as Photovoice can help designing more efficient policies and actions to reduce the normalisation of alcohol consumption and prevent and protect all social groups from the hazardous and harmful drinking.

Author contributions

X.S. and I.M. conceive the original idea. I.M., P.C., A.P., M.S., C.R and X.S. conducted the Photovoice sessions. I.M., P.C., and X.S reviewed the transcriptions of the Photovoice sessions, and prepared and interpreted the results obtained by the participants. X.S. and I.M. drafted the manuscript. All authors contributed substantially to the manuscript review and approved its final version. X.S. and M.F. are the guarantors.

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Ethics approval

We conducted this study in accordance with the Declaration of Helsinki, and received ethical approval by the Ethics Committee of the Universidad de Alcalá (CEI/HU/2017/09).

Declaration of competing interest

None.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.healthplace.2021.102566>.

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