

INTRODUCTION

Cannabis Social Clubs in Spain -CSCs- are non-profit organizations that offer adult access to quality-controlled cannabis and private social premises for its use (Araña & Parés-Franquero, 2020; Belackova et al., 2016). Minimize possible harms related to cannabis use and provide secure, stable, and less harmful access to safer and affordable cannabis are the foundational principles that have driven the CSC movement from its start more than three decades ago (Afuera-Gómez et al., 2020; Jansseune et al., 2019; Parés-Franquero et al., 2015). Despite its expansion and various local attempts to regulate their activity (Urbana & Barcelona, 2016) CSCs in Spain remain unregulated and still criminally prosecuted (Casals & Marks, 2017).

The potential benefits and possible limitations of the so-called Cannabis Social Club Model have been widely discussed in terms of equity, social justice, prevention, and harm reduction (Belackova et al., 2023; Belackova & Wilkins, 2018; Pardal, 2022; Pardal, Decorte, et al., 2020; Parés-Franquero et al., 2019). To contribute into these debates, this research presents a first attempt to overcome the actual lack of consistent data to describe how people interacts with this Cannabis Social Clubs. In other words, to achieve a better understanding about how the CSCs - this apparently more stable and safer option to access cannabis- are being used by its members.

Certainly, a lot has been written about the CSCs in Spain and internationally (Pardal, 2022) but, still very little is known about the member's relationship with their CSC and how are those spaces being used by different sociodemographic groups is a crucial aspect to understand possible impacts of the CSC model in terms of social inclusion and harm reduction. (Pardal et al., 2020).

With this concern, we found that a yet unexplored but cost-effective alternative to study cannabis use quantities in a large sample of users was the data evenly registered by the CSCs themselves when applying the same effective controls to ensure their self-imposed limits to enroll and supply members for personal use (Decorte et al., 2017): to be an adult cannabis user -be above 18 years old and referred by another member- and be able to satisfy the established membership and procurement fees generally requested once a year, and in each interaction where members procure themselves a limited amount of cannabis from the CSC.

We have closely examined the data on the member's activity compiled by five different CSCs in Barcelona between 2017 and 2020. Mapping the demographics of the CSC members -what age, sex, residency or medical versus recreational condition they have-; inform about how often these members interact with the CSC to obtain cannabis, and bring data on the average amounts of cannabis that members procure themselves within the context of the CSCs were the main questions to be answered. Operational data sourced from five CSCs that were using the same registration system for at least three consecutive years within the period 2017-2020 was the base to find some initial responses to this research questions.

The aim of the research we present here was to provide a descriptive analysis to further inform the debate around the role of CSCs as a community-supply model that is been proven to have a high potential to tackle prevention and minimize harms in accessing and using cannabis. From this approach, each interaction with their members the CSCs can be understood as another step towards minimizing possible undesired harms related to cannabis use. Therefore, the membership length and the frequency of interactions between the CSCs and their members, as well as the diversity of such members (in terms of age, gender, medical condition, and place of residence) are most likely related the means, the content and more importantly the achievements of the CSCs in terms of prevention and minimization of possible harms.

METHODS

DESIGN AND DATA SOURCE

An agreement signed in 2016 between the Catalan Federation of Cannabis Social Clubs (CatFAC) and a private company providing the registration software for CSC, permitted the Federation to store over the years a rich collection of anonymized activity data bases equally recorded by multiple CSCs during their own activity, for the sole purpose of future community-based research. Amongst all those data bases, five CSCs were selected applying one basic criteria: to have a minimum of 3-year continuous registration history within the period 2017-2020. That left most of the potential candidates excluded for the present research. All the five cases selected for the study were in Barcelona and in other surrounding towns and cities within the metropolitan area.

PREPARATION OF DATA

The authors received the anonymous data in two separate files. The first one detailed each member's interaction with the corresponding CSC, including: dates and times of the interactions, a member code to identify who was interacting as well as the amount and the type of cannabis product –dry herb, resin and others- members procured each time. The second file contained anonymous self-reported information about these members, including their date of birth, gender, town of residency, and type of membership, i.e., if they were registered with a medical condition related to their use of cannabis, or if they were simply inscribed as recreational user members.

First, we broke down the data on 327,883 procurement interactions between members and the CSCs registered from 2017 to 2020. Most of the cannabis procured in the studied period were for herbs and resins containing THC and we therefore decided to restrict our study to the 261,719 procurements that fell into this general “herbs or resin” category. The excluded products were: 1) other THC-containing products such as oils and pre-rolled joints -that were also excluded from the present analysis as it was impossible to establish an equivalence to determine to how much herbs or resins would they contain in grams-; 2) cannabidiol or CBD products; and 3) other products non containing cannabis such as tobacco, filter tips, rolling papers, vaping devices etc.

For this initial descriptive approach to the data, we focused exclusively on the principal and main cannabis preparations present in all the studied CSCs: dry herbs or resins. Despite representing a very small percentage in the total amount of products available, further analyses will need to be conducted to explore what is the procurement of this other cannabis preparations and products somehow accessible but not consistently present in all CSCs.

Second, we checked the registered data of 2,325 members of the 5 CSCs and removed 17 members with implausible or missing information on date of birth as well as 301 other members who had never procured any THC-containing products in their interactions with their CSC during the study period.

Finally, we linked the two files of data and performed consistency checks. Any amount that had been procured in an interaction for which no user could be found in the data base was also removed. The total number of these cases was 19,043. The great majority of them were most

likely related with the automatism of the registration system than to possible inconsistencies on the registration protocols of the CSCs. In almost all 19,043 cases found, the information about the procurement was remaining in the database but the membership of the person involved in it was expired and because of that, automatically erased by the system.

Once all data cleaning procedures were applied, our base sample consisted of 242,676 cannabis procurement interactions registered by 2,007 members of five CSC in Barcelona in the four-year period of 2017 to 2020.

DEFINITION OF INDEPENDENT VARIABLES

Gender was classified as a binary variable and age groups were defined using member age as of 1 July on the first year of membership. Member ages were classified as Young (18-29), Adult (30-49) and Older Adult (over 50).

Some members' medical membership given status changed over the years. For this analysis, we considered members to be medical cannabis users if they had been classified as such for at least one year.

The member's place of residence was recodified into two categories: the same or different location as the CSC. We classified members as living in the same town as the CSC if they had been doing so in at least one year.

For some members, both medical status and place of residence varied over time.

DEFINITION OF DEPENDENT VARIABLES

Three variables were used to calculate the findings of our analyses:

First, the "Length of Active Membership" was defined by the number of days between the first and last recorded procurement interaction of each member. Accordingly, members who visited the club only once were assigned 0 days of membership. An "Active Club Membership" was therefore understood as that hold by members who had a minimum of two procurement interactions with the CSC.

Second, the "Amount Procured" was defined as the quantity of cannabis -in grams- procured between the first and penultimate dates of an individual's active membership. Using this variable,

we found useful to derive an indicator of "Daily amounts used by CSC members" by distributing the amount collected on a date by the number of days passed until the next registered procurement interaction. The amount collected on the last visit had to be excluded in this calculation as we would not know for how many days that amount of cannabis would have lasted. These results only pertained to members who had procured cannabis on record a minimum of three times during the term of their membership. This was considered an interesting indicator to approach cannabis use of CSC members despite the data was not informing about how much of the procured cannabis was used on site the same day (and maybe shared with other members); how much of it -if any- was carried away and used in the following days, and if it was used more or less evenly until the next procurement interaction with the CSC.

Finally, "Frequency of Procurement" defined as the number of days with registered procurement interactions in a membership period was the third variable included in the analysis. To account for different lengths of membership amongst members, this variable was divided by the length of the membership in days multiplied by 100. The results indicate how many days out of 100 members had a cannabis procurement interaction with the CSC. This variable is therefore the closest to how often members can be exposed to prevention and harm reduction interactions within the CSC.

STATISTICAL ANALYSES

First, the sample of CSC members was described in terms of gender, age group, medical use, and place of residence as these factors appear to be relevant to approach the use of cannabis CsC members might be doing. Chi² tests were conducted to assess possible differences across CSCs.

Second, the four independent variables were regressed on the three dependent variables. Univariate analyses provided insights into bivariate relationships. Subsequently, multivariate regression models were conducted to examine associations that control for the influence of the other variables. In these multivariate regression models, random intercepts were added to account for possible cluster effects of the CSCs.

Third, we examined the association of the quantity -amount procured- and frequency -number of procurement interactions out of 100 days of membership- by calculating Pearson correlations of

both. Further, a high-quantity and high-frequency indicator was defined as collecting amounts above the 75% of the sample and at the same time collecting cannabis more often than the 75% of the sample. For this indicator, Chi² tests were performed to examine differences to sociodemographic variables.

All analyses were performed in R version 4.1.2.

RESULTS

SOCIODEMOGRAPHIC DESCRIPTION OF CSC MEMBERS

Three clubs (C, D and E) had complete data across the four years of data collection (2017-2020), while two clubs (A and B) had it available for three years (2018-2020).

As illustrated in Table 1, all the studied CSCs have experienced a decrease in the size of their communities during the period under consideration. Only Club C seems to have had a more stable situation. In 2019, there was a slight increase in the number of members in two out of the five studied cases. Club A had the smallest community for the whole period except for 2020. In that year and probably linked to the general shut-down during the COVID-19 pandemic, Club B lost most of the members of its community while the rest of Clubs had experienced much lower decreasing. Gender distribution was similar across CSCs with 22.1% of members being women. Clubs B and E on average had a lower share of women as members (17.1%) as compared to the other three clubs (26.9%, Chi² test: $p < .001$).

The mean age of CSC members was 36.1 years old (SD: 10.2) in their first year of enrolment, as compared to 37.0 years old for Club A (slightly older); 31.7 years old in Club B and 34.3 years old in Club C (both younger); and 39.2 years old in Club D (older). Results from linear regression were all $p < .001$.

Cross tabulating age groups and gender shows that among the 18–29-year-olds (42% women) and in the 30–49-year-olds (43% women) the gender distribution in younger age groups was far more balanced than amongst older adults (50+ years) where the percentage of women is 14%.

Medical users $n=87$ (4.3%) was defined as CSC members who have been classified as such for the period of at least one year. More than half of the medical users came from the smallest club

A where the share of medical users was 40.1%, while in the other CSCs the number ranged from 0 to 3%.

Moreover, the percentage of medical users was higher amongst women (10.2%) in comparison to men (2.7%, Chi²-test: $p < .001$). It was also higher among older members above age 50 (14%) in comparison to younger and middle-aged adults (3%).

Regarding place of residence, six out of 10 (62.1%) members lived in the same town as the CSC. Only in Club E did a substantial number of people live elsewhere (81.0%). Living in the same town was more common among women (66.8%) as compared to men (60.8%, Chi²-test: $p = .0246$) and it was not dependent on the age group (Chi² test: $p = .3643$).

(Insert Table 1 about here)

VARIABLE OF INTEREST 1: LENGTH OF MEMBERSHIP

Analysing membership of all 2,007 CSC members, we observed that $n = 158$ (7.8%) members collected cannabis only once (length of active membership = 1 day). Such one-time membership was more common for women (11.7%) than men (6.8%; Chi²-test: $p < .001$) and for older users (18-29: 6.7%; 30-49: 7.6%; 50+: 14.4%; Chi²-test: $p = .0018$).

Further analyses were conducted for those Clubs with four years of data (excluding clubs A and B) and their active members ($n = 1,261$) with at least 2 collection dates. Amongst this group, the mean length of membership was 657.3 days: about 1 year and 10 months (out of a maximum length of 4 years; median: 458 days, maximum: 1,460 days).

Univariate analyses found that active membership was longer for men (mean: 679.1 days) than for women (mean: 579.7 days, linear regression: $p = .003$). Membership periods are also longer for age groups 30-49 (mean: 706.7, $p < .001$), and 50+ (682.6; $p = .016$) as compared to age group 18-29 (mean: 566.7 days; p values from linear regression; see also Figure 1); longer for members living in the same town as the club (mean: 706.9 days) as compared to members with other place of residence (mean: 583.7 days, linear regression: $p < .001$); and longer for medical users (mean: 855.5 days) as compared to recreational users (mean: 653.4 days; $p = .043$).

(Insert Figure 1 about here)

Multivariate linear regression analysis accounting for club clustering confirmed longer active membership among men, older members, and same town residents, but the overall explained variance was low (<10%, see Table 2). For the length of membership, the variation explained by club affiliation was extremely low (ICC = 0.02).

(Insert Table 2 about here)

VARIABLE OF INTEREST 2: QUANTITY OF CANNABIS PROCURED BY CSC MEMBERS

The registered average quantity of cannabis that CSC members procured for themselves – expressed in grams/day – could be determined for a total n=1,756 CSC members from all five studied cases.

On average, members collected 0.44 grams/day, however, this variable was very skewed, with more members collecting smaller amounts and fewer members collecting larger amounts than the average (median: 0.30 grams/day; 5% of members collected more than 1.41 grams/day; maximum: 4.76 grams/day). Figure 2 illustrates the skewness of this studied variable, which portrays outliers outside the upper limit of the interquartile range.

(Insert Figure 2 about here)

Univariate analyses found that the daily cannabis quantities were not correlated with the length of membership ($p=.992$). However, mean quantities were larger for men (mean: 0.46 grams/day) than for women (mean: 0.37 grams/day, Poisson regression: $p=.003$; see also Figure 2), while no differences could be found considering age, medical status, or place of residence (Poisson regressions: all $p>0.1$).

Multivariate Poisson regression analysis accounting for club clustering confirmed larger average amounts among men and among medical users (for full results, see Table 3). The overall explained variance was again low (~10%) and the differences between clubs did not contribute to explain the variance either (ICC = 0.07).

(Insert Table 3 about here)

VARIABLE OF INTEREST 3: FREQUENCY OF PROCUREMENT

The frequency of procurement – expressed in number of days out of 100 membership days on which an amount of cannabis was collected – could be determined for n=1,849 CSC members from all five CSC that had at least two days with a registered cannabis procurement interaction with the CSC (where the minimum membership length = one day).

On average, members collected cannabis on 14.6 out of 100 membership days, i.e., once a week. Again, this variable was skewed (see Figure 3), with a majority of members procuring themselves cannabis less frequently, and a smaller group of members doing it much more frequently than the average. In other words, while the median was a procurement every 9.3 days, there was a 5% of members procuring themselves cannabis more than 48 days out of 100: every second day.

(Insert Figure 3 about here)

Univariate analyses found no correlation between the frequency of cannabis procurement and the length of membership ($p=.121$). However, men reported a higher frequency of procurements than women (15.4 vs 11.6 days; Poisson regression: $p<.001$; see also Figure 2).

Further, there appeared to be an age gradient: as ages rose, fewer procurements were reported (18-29: 16.2 days; 30-49: 14.2 days; 50+: 9.6 days; $p<.001$ for both comparisons to youngest age group).

Finally, Medical users (9.4 vs. 14.8 days; $p<.001$) and members not living in the same town (13.0 vs. 15.5 days; $p<.001$) collected cannabis less frequently than those registered as recreational users or having their residence in the same town as the CSC.

Multivariate linear regression analysis accounting for club clustering confirmed higher procurement frequencies among men, younger members, and same town residents, but the overall explained variance was low (10%, see Table 4). Also, the variation explained by club affiliation was low (ICC = 0.08).

ASSOCIATION OF FREQUENCY AND QUANTITIES OF CANNABIS PROCURED

Lastly, we examined how the frequency of cannabis procurement was associated with the cannabis quantities. As shown in Figure 4, the two variables were positively correlated, with an increasing frequency of procurement when the amounts registered were also higher. (Pearson

correlation: $r = .72$). This association was consistent across all gender- and age-group combinations ($p < .001$ from regression analyses).

(Insert Figure 4 about here)

Classifying all members into three categories according to distributional thresholds was useful to note that an 18% of the CSCs members were in the high-frequency and high-quantity group. People in this group were more likely to be men (18.9%) than women (13.8%, Chi² test: $p < .001$), younger more often than older (18-29: 20.3%; 30-49: 18.0%; 50+: 6.0%; Chi² test: $p = .001$) recreational rather than medical users (18.3% vs. 9.0%, Chi² test: $p = .019$), and generally residents of the same town (19.8% vs. 14.5%, Chi² test: $p = .018$).

DISCUSSION

What are the demographics of the CSCs members and what relationships these establish with the CSCs -how much cannabis they procure from there, how often they do it and for how long they maintain their affiliation- have been the main points of this first exploration of new data sets sourced from the registration systems that CSCs use to monitor their activity.

Such exploration was considered relevant to improve the current understanding of the CSCs and, specifically the role they seem to be playing as safer cannabis supply for different groups of people and, therefore, obtain new data to discuss their potential as preventors and harm minimizers over these populations using cannabis (Belackova et al., 2016; Obradors-Pineda et al., 2021).

First, it is fundamental to highlight how the legal uncertainty and unstable status of the CSCs in Spain has a direct impact on the life course of this entities. Being a stable CSC in terms of activity but also hold on to the same registration system to be able to provide consistent data for a long period of time –more than 3 years- is not a common place for most CSCs in Spain. That explains why we had only 3 out of 5 CSCs having 4-year data while the other two filled just the 3-year data selection criteria previously exposed.

Looking at the amount of members in the study cases provided by the Catalan Federation, it seems contradictory that CSCs are experiencing a decrease of membership while data from the Spanish National Survey reports an small increase in the prevalence of daily cannabis use for the period

2017-2019 -rising from 2,1% to 2.9% amongst users aged 16 to 64- (Observatorio Español de las Drogas y las Adicciones, 2020). Certainly, while cannabis use seems to be increasing in Spain, the data explored for the period 2017-2020 indicates that the CSCs have slightly decreased their number of members. This apparent contradiction might be related to the legal restrictions imposed by Spanish Supreme Court ruling the threshold of 200 members as a central element to distinguish personal consumption -which is not criminalized- from drug trafficking (Marks, 2019). On the other side, the overall membership loss observed for 2020 was more likely related to the Covid lockdown than to the mentioned restriction.

On average, the enrollment age for CSC members -36.5 years old- was found significantly higher than the general age for first-time use of cannabis amongst the 77% of the Spanish population that has used cannabis at least once in their lifetime –that was 25 years old- (Observatorio Español de las Drogas y las Adicciones, 2020).

Further research will need to be conducted to explore if there are factors related to risk awareness, financial capacity and/or the search for cannabis-tolerant / non-profit socializing spaces that can explain the tendency of having more older adults affiliated in CSCs compared with the general population of cannabis users in Spain, where the presence of this age group is much lower while younger ages are the majority.

To support the hypothesis about other factors influencing the higher presence of older ages in CSCs compared to the general population using cannabis, we also found that while people over 50 represent only a small part of CSC memberships, at the same time, some of them were amongst the group of most frequent members that procure higher amounts of cannabis from the CSCs. Also, we found that woman tended to hold longer memberships than the average of members, despite having with lower rates of frequency and amounts procured if we compare them with men in the same age group.

A higher perception of harm is typically the main reason given to explain the decrease in cannabis use among people as they age (Observatorio Español de las Drogas y las Adicciones, 2020) and it may also explain the enrollment of older adults in CSCs, where safer and stable supplies minimize the risk of harm. Moreover, CSCs provide cannabis users with a space to socialize,

making them more than simply cannabis procurement points, facts that are germane to the current discussion of the potential harm-reduction role of CSCs.

All these observations seem to add evidence to the fact that, regardless of the quantities -larger in men than women- cannabis use in older ages for recreation, relaxation or as an alternative therapeutic treatment is becoming more widespread (Lehmann & Fingerhood, 2018). Additionally, for a good portion of older members but probably also for many women, the opportunities to socialize within a CSC are a primary draw and might be the principal appeal to people in that demographic that become a specific group at the CSCs where males and younger ages are prevalent.

The number of men using cannabis in Spain triples the amount of woman and the studied CSCs show a similar tendency (Observatorio Español de las Drogas y las Adicciones, 2020). Men were representing around an 80% of the CSC's members. This division in membership was more balanced in younger age groups -42% for women aged 18-29; and 43% for women aged 30-49 - while among members over 50, women represented 14%.

Overall, it seems that age can be confirmed as a very relevant factor in describing women's activities at the CSC. While younger women, have longer membership periods than men, they tend to use less cannabis and less frequently than them, and the amounts used as well as their procurement interactions decrease substantially in the 30 to 50 years old group, to increase again amongst women members over 50. If we also consider that also woman dominate amongst the 7.8% of one-time collecting members found in the studies cases (n=2,007) it is possible to think that beyond stigma and invisibility (Llort-Suárez, 2017) in the male-dominated social setting of CSCs, women are using the CSCs in a different manner than men, and this might be related to their different use of cannabis but also to different patterns of socialising within the CSC.

Finally, since only one of the five studied cases had a significant percentage of medical users (almost 40% compared to 0-3% in the other cases) it seems that patients are not choosing CSCs to access their cannabis, except when the CSC has specific and dedicated projects, peer to peer spaces, or specialists to assist them. Also, the low presence of medical users among CSC members might be explained by the recreationally dominated atmosphere of CSCs, which might stop them

from enrolling there or using them to access cannabis. Their presence in certain CSCs could also be explained from the perspective of looking for an environment for socializing that also provides a safe supply of cannabis, thereby fostering harm reduction.

On the other hand, most CSC members out of a sample of 1,261 had a temporary relationship with the CSC. The mean length of membership was 22 months out of the four-year period studied. Variability prevails in the frequency of procurement among these members, seeming to indicate that for a significant number of members the CSC is being used at least as much for social interactions as for procuring cannabis, if not more. However, the data explored visits for cannabis procurement only, and did not contain any information on visits where nothing was procured, although they seem to be similarly relevant. In this regard is important to note that members can choose to use their own cannabis on the CSCs premises and avoid the fees for procurement on site, that might be not affordable always for all members in a context where domestic growing or illicit sourcing can be cheaper alternatives than the CSCs (Manthey & Obradors-Pineda, 2023). Also, other members might just be there as non-using cannabis members socializing with their peers who use cannabis.

Among the members with at least two registered cannabis procurements from three of the five studied CSCs with four complete years of data, men were found to have slightly longer terms of membership than women (out of 100 days). The longest membership periods were found among the older age groups living in the same town where the CSC is located as well as among members registered as medical users. These findings could be based on economic factors and accessibility to other sources of procurement as well as to the elements of harm reduction already mentioned. Younger members, with wider, more diversified recreational opportunities than the adult groups, had shorter periods of membership and, despite a high frequency of use, the quantities were generally much lower.

Despite having stable access to it, CSCs members tend to procure small amounts of cannabis -an average of 0.44 grams a day- for themselves once per week, or week and a half. The data indicate that overall, most CSC members use the CSCs to access very moderate amounts of cannabis over a limited period. On the other hand, a small percentage of members (5%) use between 1.41 and

4.76 grams a day. Within this group, younger members (18-30) represented 18%; male adults, older woman and members with a medical condition were the ones using higher amounts. These data are in contrast with the Spanish National Survey where the amount of cannabis used appears to be decreasing with age (Observatorio Español de las Drogas y las Adicciones, 2020). Nevertheless, as mentioned before, is not possible to assume that all cannabis procured at the CSC is used exclusively by the procuring member, as well as not all the cannabis used in the CSCs has been procured from it.

Our indicator of CSCs members daily use of cannabis is an interesting estimate since members do commit to this personal use principle when enrolling the CSC. Nevertheless, it is likely that at least part of what is procured at the CSCs is shared with other members and, in some cases, with other people outside the CSCs premises. Also, since members could be supplying themselves from more than one CSC at the same time or even have access to other sources of cannabis products, it is likely that these members could be using more cannabis than the amounts obtained within the CSC.

Regardless of that, our data supports the fact that an extended availability of cannabis over time does not imply an increase in its use, at least among those CSCs members linked to the five CSCs included in this study (n=1,849). The lack of correlation between these variables indicates that, in general, being a member of a CSC for a long period of time does not imply an increase in the amount of cannabis procured from it. A good example of this can be found among most women in CSCs, who generally tend to hold longer memberships than their male peers and, at the same time, have lower frequencies and amounts of cannabis procurement in comparison to men. In fact, the length of the membership increases with age while the frequency of procurements descends. The findings of this initial research also showed that a higher frequency of procurement corresponded to a higher amount procured, for men, for women and for all the considered age groups. While most CSC members had a moderate use of cannabis, 18% had a high frequency of procurement of large quantities at the same time. These members tended more often to be recreational male users in the younger age group who live in the same town or area where the CSC is located. These patterns appear to be very similar in all the studied CSCs, reinforcing the

idea of the role played by the social dimension of the CSCs for their most active members (in terms of amounts procured and visits frequency) but also for all those specific -and minoritarian- member categories such as women, older members and those registered as medical users.

CONCLUSION

Linked to the legal status of CSCs in Spain, uncertainty and instability have been the major obstacles for the study of this community-based initiatives. This research was a first attempt to partially overcome the lack of data by using for the first time self-recorded administrative data of the CSCs themselves. The aim has been to better understand, if not the use of cannabis within the CSCs, what people is using them and how are they doing it: how often do they interact with them and how much cannabis they obtain in such interactions.

Gathering new evidence about how people use Cannabis Social Clubs -who is in the CSCs, for how long, how often they interact with it and what are the amounts procured in such interactions- we expected to make a significant contribution to the current understanding of the Cannabis Social Club model, specifically in its limitations and potentialities as harm minimizers. If the opportunities for prevention and risk reduction are affected by the relationship users establish with the CSCs, stable, durable, and frequent interactions between people who use cannabis and Cannabis Social Clubs might be understood as something positive in terms of increased opportunities to inform, follow up, council or at least monitor cannabis use. To study a new source of evidence about the interactions of cannabis users with these innovative community-based systems to access to cannabis, might be the best complementary approach to the classic self-report on the amounts being used over time (Rhodes, 2009).

The capacity of CSCs to prevent and minimize possible harms comes from their capacity to establish limits, monitor access, provide information and tools for safer use along with all kinds of resources to their members. In this regard, longer and more frequent relationships with CSCs diversify the social options for their members; instead of raising the amounts of cannabis procured for themselves, they experience greater exposure to prevention and resources to minimize harm. A shifting perspective is required, therefore, to better understand the dynamics of CSCs and how

they can foster harm reduction, community cohesion and well-being, like the way that anthropologists study the traditional pubs in Britain or Ireland (Cabras & Mount, 2017; MacGregor, 2021; Miller, 2019).

The approach to the CSCs' registration data reveals how CSC members use them, not only to obtain moderate amounts of cannabis but, more importantly, as social platforms (Miller, 2019). In other words, our research provides evidence that CSCs cannot be considered only in terms of their cannabis-procurement function but, more importantly, as communities that provide care for their members and wherein significant relationships can develop (Thelen, 2015).

New research should probably include analyses over member expenses within the CSCs. In this equation, finances might appear as a limiting factor for cannabis procurement, but not in terms of using the CSC as a space for socializing. Also, qualitative approaches should be able to reveal the factors modelling women and medical members' uses of CSCs.

Last, but not least, the diversity of products procured, including those that are THC free or non-cannabis related, needs to be considered in future analyses as a way of adding evidence as to the potential of CSCs as harm minimizers in comparison with other forms of regulating cannabis that may underestimate the positive impact of their social dimension in terms of community care, harm reduction and general well-being.

REFERENCES

- Afuera-Gómez, A., Afuera-Gómez, J., Kohek, M., Kòzar, G., Parés-Franquero, Ò., & Et.al. (2020). Guidelines European Cannabis Social Clubs. A Regulatory Model for Cannabis Acces. In *European Coalition for Just and Effective Drug Policies*. European Coalition for Just and Effective Drug Policies (ENCOD).
- Araña, X., & Parés-Franquero, Ò. (2020). Cannabis social clubs in Spain. In T. Decorte, S. Lenton, & C. Wilkins (Eds.), *Legalizing Cannabis* (pp. 307–322). Routledge.
- <https://doi.org/10.4324/9780429427794-18>

- Belackova, V., Rychert, M., Wilkins, C., & Pardal, M. (2023). Cannabis Social Clubs in Contemporary Legalization Reforms: Talking Consumption Sites and Social Justice. *Clinical Therapeutics*, 45(6), 551–559. <https://doi.org/10.1016/J.CLINTHERA.2023.03.017>
- Belackova, V., Tomkova, A., & Zabransky, T. (2016). Qualitative research in Spanish cannabis social clubs: “The moment you enter the door, you are minimising the risks.” *International Journal of Drug Policy*, 34, 49–57. <https://doi.org/10.1016/j.drugpo.2016.04.009>
- Belackova, V., & Wilkins, C. (2018). Consumer agency in cannabis supply – Exploring auto-regulatory documents of the cannabis social clubs in Spain. *International Journal of Drug Policy*, 54, 26–34. <https://doi.org/10.1016/j.drugpo.2017.12.018>
- Cabras, I., & Mount, M. P. (2017). Assessing the impact of pubs on community cohesion and wellbeing in the English countryside: A longitudinal study. *International Journal of Contemporary Hospitality Management*, 29(1), 489–506. <https://doi.org/10.1108/IJCHM-12-2015-0717>
- Casals, O., & Marks, A. (2017). La rosa verda. El florecer de los derechos fundamentales en el debate sobre las drogas en España. In Fundación Renovatio (Ed.), *Las sendas de la regulación del cannabis en España* (pp. 479–496).
- Decorte, T., Pardal, M., Queirolo, R., Boidi, M. F., Sánchez-Avilés, C., & Parés-Franquero, Ò. (2017). Regulating Cannabis Social Clubs: A comparative analysis of legal and self-regulatory practices in Spain, Belgium and Uruguay. *International Journal of Drug Policy*. <https://doi.org/10.1016/j.drugpo.2016.12.020>
- Jansseune, L., Pardal, M., Decorte, T., Parés-Franquero, Ò., & Parés Franquero, Ò. (2019). Revisiting the Birthplace of the Cannabis Social Club Model and the Role Played by Cannabis Social Club Federations. *Journal of Drug Issues*, 49(2), 338–354. <https://doi.org/10.1177/0022042618815690>

- Kroon, E., Kuhns, L., Hoch, E., & Cousijn, J. (2020). Heavy cannabis use, dependence and the brain: a clinical perspective. *Addiction*, *115*(3), 559–572.
<https://doi.org/10.1111/add.14776>
- Lehmann, S. W., & Fingerhood, M. (2018). Substance-Use Disorders in Later Life. *New England Journal of Medicine*, *379*(24), 2351–2360.
<https://doi.org/10.1056/nejmra1805981>
- Looby, A., & Earleywine, M. (2007). Negative consequences associated with dependence in daily cannabis users. *Substance Abuse: Treatment, Prevention, and Policy*, *2*(1), 3.
<https://doi.org/10.1186/1747-597X-2-3>
- MacGregor, S. (2021). The Pub and the People. A Worktown Study by Mass Observation. *Addiction*, *116*(2), 407–411. <https://doi.org/10.1111/add.15220>
- Manthey, J., Freeman, T. P., Kilian, C., López-Pelayo, H., & Rehm, J. (2021). Public health monitoring of cannabis use in Europe: prevalence of use, cannabis potency, and treatment rates. *The Lancet Regional Health - Europe*, *10*.
<https://doi.org/10.1016/j.lanepe.2021.100227>
- Manthey, J., & Obradors-Pineda, A. (2023). Prices of flower and resin in cannabis social clubs: Analyses of register data from 220,000 collections. *Drug and Alcohol Review*, *42*(5).
<https://doi.org/10.1111/dar.13680>
- Marks, A. (2019). DEFINING “PERSONAL CONSUMPTION” IN DRUG LEGISLATION AND Spanish CANNABIS CLUBS. In *International and Comparative Law Quarterly* (Vol. 68, Issue 1, pp. 193–223). <https://doi.org/10.1017/S0020589318000404>
- Miller, D. (2019). Of pubs and platforms. *Journal of the Royal Anthropological Institute*, *25*(4), 793–809. <https://doi.org/10.1111/1467-9655.13132>

- Obradors-Pineda, A., Bouso, J.-C. C., Parés-Franquero, Ò., & Romani, J.-O. O. (2021). Harm reduction and cannabis social clubs: Exploring their true potential. *International Journal of Drug Policy*, 97, 103358. <https://doi.org/10.1016/j.drugpo.2021.103358>
- Observatorio Español de las Drogas y las Adicciones. (2020). *Encuesta EDADES 2019/2020*. 1–26. https://pnsd.sanidad.gob.es/profesionales/sistemasInformacion/sistemaInformacion/pdf/EDADES_2019-2020_resumenweb.pdf
- Pardal, M. (2022). The Cannabis Social Club. In *The Cannabis Social Club*. Routledge. <https://doi.org/10.4324/9781003055679>
- Pardal, M., Bone, M., Decorte, T., Queirolo, R., Parés, Ò., Johansson, J., Álvarez, E., & Repetto, L. (2020). *Hidden and uninterested populations : Methodological insights and unresolved issues from the study of Cannabis Social Clubs*. <https://doi.org/10.1177/2059799120976963>
- Pardal, M., Decorte, T., Bone, M., Parés-Franquero, Ò., Johansson, J., Parés-Franquero, Ò., Johansson, J., Parés, Ò., & Johansson, J. (2020). Mapping Cannabis Social Clubs in Europe. *European Journal of Criminology*. <https://doi.org/10.1177/1477370820941392>
- Parés-Franquero, Ò., Bouso, J. C., & Bouso-Saiz, J. C. (2015). *Innovation Born of Necessity: Pioneering Drug Policy in Catalonia*. Open Society Foundations. <http://www.opensocietyfoundations.org/sites/default/files/innovation-born-necessity-pioneering-drug-policy-catalonia-20150428.pdf> <http://www.opensocietyfoundations.org/reports/innovation-born-necessity-pioneering-drug-policy-catalonia>
- Parés-Franquero, Ò., Jubert-Cortiella, X., Olivares-Gálvez, S., Díaz-Castellano, A., Jiménez-Garrido, D. F., & Bouso, J. C. (2019). Use and Habits of the Protagonists of the Story: Cannabis Social Clubs in Barcelona. *Journal of Drug Issues*, 49(4), 607–624. <https://doi.org/10.1177/0022042619852780>

Perkonig, A., Goodwin, R. D., Fiedler, A., Behrendt, S., Beesdo, K., Lieb, R., & Wittchen, H.-U. (2008). The natural course of cannabis use, abuse and dependence during the first decades of life [Article]. *Addiction (Abingdon, England)*, *103*(3), 439–449.

<https://doi.org/10.1111/j.1360-0443.2007.02064.x>

Rhodes, T. (2009). Risk environments and drug harms: A social science for harm reduction approach. *International Journal of Drug Policy*, *20*(3), 193–201.

<https://doi.org/10.1016/j.drugpo.2008.10.003>

Steger, C. M., Hitchcock, L. N., Bryan, A. D., Hutchison, K. E., Hill, K. G., & Bidwell, L. C. (2021). Associations between self-reported cannabis use frequency, potency, and cannabis/health metrics. *International Journal of Drug Policy*, *97*.

<https://doi.org/10.1016/j.drugpo.2021.103278>

Thelen, T. (2015). Care as social organization: Creating, maintaining and dissolving significant relations [Article]. *Anthropological Theory*, *15*(4), 497–515.

<https://doi.org/10.1177/1463499615600893>

Urbana, G. d'Ecologia, & Barcelona, A. de. (2016). *Pla especial urbanístic per a l'ordenació territorial dels clubs i associacions de consumidors de cànnabis a la ciutat de Barcelona [2016]*. <https://bcnroc.ajuntament.barcelona.cat/jspui/handle/11703/97427>