THE IMPACT OF THE COVID-19 PANDEMIC ON HARM REDUCTION SERVICES IN SPAIN

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LIST OF ABBREVIATIONS

- AIDS: acquired immunodeficiency syndrome
- ART: antiretroviral therapy
- BBV: blood-borne virus
- COVID-19: corona virus disease 2019
- DAA: direct-acting antiviral
- EU: European Union
- HBV: hepatitis B virus
- HCV: hepatitis C virus
- HIS: health information system
- HIV: human immunodeficiency virus
- HRC: harm reduction centres
- NGO: non-governmental organisation
- NSP: needle and syringe programme
- OST: opioid substitution therapy
- PADIB: *Pla d'addiccions i drogodependències de les Illes Balears*
- PEAHC: *Plan Estratégico para el Abordaje del Hepatitis C*
- PPE: personal protective equipment
- PWID: people who inject drugs
- PWUD: people who use drugs
- SARS-CoV-2: severe acute respiratory syndrome coronavirus 2
- SDG: Sustainable Development Goals
- STIs: sexually transmitted infections
- TB: tuberculosis
- UCAs: *Unitats de Conductes Addictives*
- UNAIDS: Joint United Nations Programme on HIV/AIDS
- WHO: World Health Organization

EXECUTIVE SUMMARY

Spain is one of the countries that has been hit hardest by the ongoing COVID-19 pandemic, with severe limitations on the provision of health and social services. In response, since March 2020, a range of public health measures have been implemented to contain and control the spread of SARS-CoV-2. However, these measures have reduced access to some health services and have the potential to even further hinder access to health services to already very vulnerable populations, such as people who use drugs (PWUD) [(1);(2)].

This study investigates the impact of pandemic control measures on harm reduction services in the Balearic Islands, Spain, by determining whether harm reduction centres (HCR) and other related services remained operating during the state of alarm period in 2020 and, if so, which services and to which degree they were affected.

A cross-sectional methodology has been used, surveying 15 different HRC on three of the Balearic Islands. In addition, data were requested from public hospital pharmacies and other governmental institutions. Standard descriptive statistics were used to report key outcomes.

Overall, the findings indicate that the COVID-19 pandemic negatively affected the provision of harm reduction services in the Balearic Islands. While HRC continued to operate and services were adapted by adopting safety measures, most services were affected by public health measures such as mobility restrictions. Additionally, all centres reported an increase in mental health problems as the main issue faced by PWUD during the Spanish state of alarm in 2020. New and more adaptative strategies are urgently needed to maintain these essential services for PWUD.

Collecting data from the HRC under study was a challenging process because no data were available nor offered from the main primary sources. Data are of vital importance to design and implement policies and evaluate their impact. Hence, the systematic collection of data on key issues related to the services offered in HRC is an important exercise in transparency and is needed to mitigate further negative impacts on access to services.

1. BACKGROUND

1.1. Problem statement and literature review

Spain is one of the countries most affected by the ongoing COVID-19 pandemic, with severe limitations on the provision of a range of health and social care services as one of the main consequences, as well as on almost all economic, social and cultural activities. Public health measures have been enacted in response, rapidly adapting strategies to redirect the health system and its activities while implementing waves of mobility restrictions, lockdowns and curfews, all in order to contain and control the spread of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). These measures have often further hindered access to health and social care services to already very vulnerable, marginalized populations, such as people who use drugs (PWUD). The wide range of legal, structural and social obstacles, and the social determinants and intersectional risk factors that trap PWUD into a highly vulnerable environment make them a particularly fragile population [(1);(2)], especially in the context of the COVID-19 pandemic. It is known that people who inject drugs (PWID) are "potentially more vulnerable to SARS-CoV-2 infection (…) than other groups owing to a high prevalence of underlying health conditions and lifestyle risk factors"(3). These high-risk factors include inadequate access to needle and syringe programmes (NSP), prevalent diseases among this population such as infections with the human immunodeficiency virus (HIV), hepatitis C virus (HCV), other sexually transmitted infections (STIs), tuberculosis (TB) [4] and social and economic barriers that impede them to get into therapy programmes or opioid substitution therapy (OST)[5].

In recognition of these challenges, there is strong evidence demonstrating that harm reduction centres (HRC) can play an important role to protect PWUD through service provision that offers a comprehensive package of measures (4). As framed and recommended by the Sustainable Development Goals (SDG) programmes (6) and other European guidelines (7), HRC in Spain are part of an integrated system which provides a safe space for PWUD to access NSP, therapy programmes, mental health and testing services for HIV, HCV, TB and STIs. Nonetheless, early diagnosis and treatment for these infections and mental health issues, as well as direct links to care, are still key challenges in the WHO European Region, in which Spain is included (8). With the COVID-19 pandemic, these challenges have probably not disappeared, but increased and grown over other struggles related to the sensitive, and in some cases, precarious state of some of the national and public health systems in the European Union (EU).

The restrictions and containment measures that followed the state of alarm in Spain to stop the spread of the COVID-19 virus, from March to June and from October to December in 2020, had an impact on most health services in Spain, including the services offered by HRC in the country. This had direct consequences for people who use these services. As some experts have reported, "PWUD living with HIV, HCV or TB may [have had to] face disruptions in access to (...) treatment and therapy, which [in turn], could end up leading to drug resistance and/or treatment failure (...), disruptions in access to timely diagnosis [for these infections] and (...) additional risk of infection with COVID-19 (...) [as well as other] associated poor health outcomes"(1).

In Europe, evidence suggests that the COVID-19 pandemic has had a noticeable impact on testing volume (a service provided in HRC). The results of a survey (9) developed in October and November 2020 by a consortium of partners in the WHO European Region (laboratories, primary care units, secondary level care clinics, community sites and national level public health institutions or ministries of health) show that, between March and May 2020, 95% of the respondents reported decreases in testing as compared with the same period in 2019 and 64% of them reported severe disruptions to testing provision (>50% decline in testing volume), all findings being consistent across all infections surveyed. When asked about testing sites, 79% of the community-based testing sites and 53% of secondary level care reported severe disruption in testing services (≥50% decrease) between March and May 2020 compared with the same period the previous year. The reasons behind the observed decreases included (in order of frequency): testing site closure during lockdown, reductions in staff, reduced attendance and fewer appointments scheduled, fewer serological samples drawn, overburdened laboratories and fewer referrals to the facility.

In Germany, in a context of full lockdown in Spring 2020 which led to the temporary closure of harm reduction services, a survey was developed addressing users and workers of HRC (10). The results showed that clients reported having financial problems and struggled with shortages and increased prices of substances, fines due to violations of social distancing, lacked refuge and suffered isolation and loss of personal contacts. Meanwhile, the workers reported complete or partial closure of services, reduction of seats in consumption rooms, limitation on the number of users, shortened stays within facilities and a strong decrease in counselling services. While there was a notable decrease in number of users in the facilities, an alternative way of keeping in touch with them was found by doing some sort of street work, which allowed to increase the number of clients outdoors (enabling to stay in touch with the local community and keep track on consumption of alcohol and illegal drugs), also experimenting a change in the characteristics

of clients (more homeless people and sex workers). When asked about the impact of the pandemic and lockdown measures on preventive services, HRC responded that an increase in demand of NSP was reported; counselling services turned out to be more challenging but experienced a high demand; and OST referrals increased because financing heroin consumption was not possible anymore for some users. In terms of testing services for HIV, hepatitis and STIs, sever disruptions were reported. In general, HRC found that some public health measures taken (such as lockdown) to prevent the spread of the COVID-19 virus pushed some behaviour changes affecting risk infection: there was more increased risk related to consumption in public under unsafe and unhygienic.

Another study, in England and Northern Ireland, which collected data between June and October 2020 on the burden of COVID-19, changes in risk behaviours and access to services among PWID (3) suggests that this population "experienced negative impacts on health, behaviours and access to essential harm reduction, testing and treatment services owing to the COVID-19 pandemic". A majority of the respondents (85%) to the questionnaire that was administered reported that the frequency of drug injection had remained the same or even reduced in 2020 compared to the previous year (only 15% injected more frequently). Nevertheless, 23% of the participants admitted to have changed their primary drug or drug combination. When asked about direct sharing of injecting paraphernalia, participants who had injected drugs during the last month increased compared to the previous year (46% vs 37%; the increase was not significant). However, the impact of the pandemic on service access was much more acute: 35% of the participants reported having a more difficult access to drug and alcohol services in 2020 compared to 2019, with almost 20% of the respondents reporting difficulties accessing blood-borne virus (BBV) testing. 26% of PWID respondents reported difficulty accessing equipment for safely using and/or injecting drugs and 22% of the participants reported having difficulties in accessing substitute drug treatment, other medicines and health care (34%) and naloxone (15%). 9% of the PWID participants who needed HCV treatment reported some form of disruption between June and October 2020 (missed doses or treatment not being available.)

1.2. Justification of the study

The aforementioned evidence indicates that national health systems in the WHO European Region were not prepared enough to tackle a large-scale pandemic like COVID-19, and especially those parts of the system that work for extremely vulnerable population such as harm reduction centres and testing services. Emergency preparedness can be defined as "actions taken in

anticipation of an emergency to facilitate rapid, effective and appropriate response to the situation"(11). In order to be able to undertake all these anticipatory action, emergency risk management and public health emergency preparedness are needed. This basically means that a capacity for "multisectoral systematic analysis and management of health risks (…) through a combination of (i) hazard and vulnerability reduction to prevent and mitigate risks, (ii) anticipation, (ii) response and (iv) recovery measures" are vital to give public health, healthcare systems, communities and individuals the possibility and the tools to "prevent, protect against, quickly respond to, and recover from health emergencies, particularly those [which] threatens to overwhelm routine capabilities". This capacity relies on the ability of health systems to "measure performance and take corrective actions" (11). In other words, preparedness requires more than those tools that make it possible for a health system to adapt to a situation of crisis in form of a big disruption by reorganizing services to mitigate the immediate effects of an emergency. It also requires anticipatory action to make the system resilient and adaptable to a crisis, keeping routine and non-emergency services operating at their highest level and capacity with the fewest possible disruptions. For this, a twofold effort is needed: on the one hand, resources and autonomy for this routine services, such as primary and community health care services (in which HRC are included), should be recognized as basic pillars of a health system to tackle major public health issues that persist even in the time of a pandemic. On the other hand, a health information system (HIS) is crucial to collect, categorize, analyse and monitor data and use all the information to continue working with health and social care services that may not be indispensable to fight an emergency but are critical to meet the needs of already marginalized and vulnerable populations, which, in turn, will probably be hit hardest by the crisis.

Data, resources and autonomy are necessary to give "robust responses (…) [through] cohesive health systems and up-to-date information [that] enable proactive decision-making, rapid resource mobilization and effective risk communication strategies"(12). All of these are essential concepts and requirements to hinder the effects and potential impacts of a health crisis on a health system. In addition, "government bodies and decision makers need to address barriers to transparent data collection, analysis and sharing to facilitate action"(12) and effectively implement public health programmes. Not doing so is an obstacle for all actors involved to coordinate essential public health policies and strategies.

This is important and convenient for our research because it leads us to understand that emergency preparedness should be based on two kinds of strategies: one to counteract the effects of a health crisis (the COVID-19 pandemic) and another one to maintain policies,

strategies and services essential to fight other major public health threats. Failing to do so could damage all the progress achieved in matters such as drug addiction, testing and treatment services or policies directed at the elimination of BBV and other infections. As stated before, HRC in Spain are part of an integrated system and network of services that are detrimental to the development of different policies and strategies aligned with the aforementioned public health issues at a national level.

The first one is the National Strategy on Addictions (2014-2024) (13), which aims towards two wide goals, "a healthier and better informed society" and a "more secure society" through different areas of action: prevention and risk reduction; integrated and multidisciplinary care and treatment; harm reduction; social incorporation and labour market integration; supply reduction and control; revision of legislation; national and international judicial and law enforcement cooperation; the use of information systems; etc. Illegal drug use in Spain is still a very concerning issue, a "persistent threat to the health and welfare" of the Spanish society. It is a problem that affects millions of people in the entire country, especially males in the 15-34 age group (13). Substance use and behavioural addictions have a high human and social cost, as well as a high economic impact for the public health system, in form of prevention, healthcare and treatment, public safety and security and a very negative cost for the environment and labour productivity, being these two latest issues most of the times overlooked. Heroin users, although in progressive decline, represent the subpopulation of users with the "greatest socio-health impact" in Spain (social exclusion, infections with HIV and HCV and other BBV) and the highest demand of services and available resources. Despite the fact that from 2009 there has been a considerable reduction of drug-related infections, drug-related deaths have increased since 2009 (767 people died of fatal overdose in Spain in 2015) [13].

Another national policy concerning a troubling public health issue is the Strategic Plan for Tackling Hepatitis C in the Spanish National Health System (known in Spanish as PHEAC) (14). HCV infection is influenced by many different risk factors, being the continued use of intravenous drugs (shared use of injecting paraphernalia) or coinfection with HIV two of them. In Spain, there are 76,839 infected people with HCV (0.22% prevalence among the population in the 20-80 age group). However, there are still 29.4% of people (22.478 individuals) without a diagnose. Among the 54,361 diagnosed individuals, only 50% are getting direct-acting antiviral (DAA) treatment (27,181 people), 17% are not being followed up and 33% are not reporting any kind of information to the Health System (15). With this given information, the PHEAC aims to "reduce the morbi-mortality caused by the HCV among Spain's population by efficiently tackling

the prevention, diagnosis, treatment and follow-up of these patients" through four different kind of actions: "quantifying the magnitude of the problem, describing the epidemiological characteristics of the patients (…) and determining the measures for prevention; defining the scientific-clinical criteria [which makes it] possible to determine the appropriate treatment strategy [for every patient]; establishing the coordination mechanisms for the appropriate implementation of the PHEAC; [and] fostering the advancement of the knowledge of the prevention, diagnosis and treatment of HCV in (…) through specific actions in the field of R&D&I" (14). The final and ultimate goal would be the total elimination of all viral hepatitis in the Spanish National Health System before the end of the decade [(16);(17)].

Another important policy line for public health measures is the one subscribed under the Strategic Plan of Prevention and Control Measures for HIV infections and other STIs (18) that has been in place until 2020. Among all its objectives, the main goals aim to promote and achieve early diagnosis, reduce the incidence of new cases and the transmission of the virus, provide better access for early treatment, guarantee a follow-up procedure for every patient and promote equal access to prevention measures. The latest available report shows how HIV infections and other STIs are still a severe public health concern in Spain because of the multiple morbi-mortality and socio-economic burdens these diseases and infections bring along. The 90-90-90 goal established by international guidelines and programmes like UNAIDS (19) are integrated in the Spanish strategic plan in order to achieve that 90% of all people living with HIV will get effectively diagnosed and know their HIV status; that 90% of those diagnosed with HIV infection will get treatment (sustained antiretroviral therapy); and that 90% of all people receiving antiretroviral therapy will have viral suppression. While the two latter goals have already been achieved by the Spanish National Health System, the first one still needs to be reached. There are an estimated 140,000-145,000 people living with HIV infection in Spain, and around 18% do not know about their HIV status (18). In 2019, 2,698 new cases were diagnosed. Among all these new cases, 85.8% were male and 46.0% were detected at a late stage. PWID represented 3.0% of the new cases detected in 2019 (20). As for STIs, in 2016, almost 9,000 infections were diagnosed (gonococcal infection, syphilis, congenital syphilis, chlamydia and lymphogranuloma venereum)(18)].

All the aforementioned policies and national strategies need the services and programmes that are offered in harm reduction centres in Spain. Their main actions are focused on two approaches: harm and risk reduction and integral attention to addictions (21). Risk reduction is about prevention strategies while harm reduction is related to caring and assistance activities.

All intervention programmes from these areas aim, in the first place, to help all users avoid turn experimental consumption or sporadic consumption of illegal drugs into a usual and continued consumption or use of drugs. In the second place, if that is not a possibility anymore, harm reduction centres offer safe spaces for users to reduce or limit the potential harm of using certain drugs, especially intravenous drugs, and avoid all the subsequent and unwanted social and health side effects related to drug consumption (21). Integral services to attention to addiction are programmes directed at guaranteeing a good quality assistance, adapted to the needs of the users and with good referral systems to therapy and OST programmes, NSP, testing services for HIV and HCV infection, TB, STIs, mental health services, treatment programmes, etc.(22). This highlights how important these services are and why they are services needed to work without interruption, even in the times of a pandemic.

Preliminary results from a study made in Spain which collected data from March to June in 2020 found that HRC in the Autonomous Communities of the Basque Country, Catalonia, Madrid and Valencia could continue working and offering services while adapting their operating hours. However, the number of users fell during the more strict period of the pandemic, with the implementation of the state of alarm and full lockdown preventive measures. Some materials (such as needles) were also scarce during that period of time, which indicates that access to some harm reduction services was hindered, putting PWUD under a more vulnerable and riskier situation for the use of sharing injecting paraphernalia, overdosing, the acquisition of diverse infectious diseases, a reduced access to testing services or the possibility of treatment disruption (1).

Our study expands on these preliminary results found in Spain and reports on whether or not the aforementioned conditions for PWUD have actually been worsened by the COVID-19 containment measures and whether restrictions affected the services offered by HRC and to which degree in the Balearic Islands of Mallorca, Menorca and Ibiza. Being able to detect how the health system responded for this collective is essential to know what aspects might need to improve. Leaving PWUD without access to these necessary services for their protection by testing and/or seeking treatment for BBV, TB, STIs or therapy programmes can be determinant to lower or increase their risk of overdose, check the quality of the drugs they use and obtain medical and mental healthcare when needed (1).

Here is where the value of the purpose of the study lies, as results will enable us to disclose some recommendations and policies to reinforce the services provided by HRC and improve

PWUD's lives in such difficult times. It will also show us if the COVID-19 pandemic can have an effect beyond the partial or complete closure of HRC, as relevant public health programmes and policies depend partially on services offered in these centres. The detection and reduction of HIV infections, the elimination of the HCV through detection and testing services or good referral programmes to get DAA treatments are clear examples of policies that work and operate through a network of integrated services at different levels of the health system.

2. RESEARCH QUESTIONS AND OBJECTIVES

This study aims to explore the impact of the COVID-19 pandemic on the services that the units for addictive behaviours (UCAs hereafter, the acronym used for Unitats de Conductes Addictives in Catalan) (23) and other harm reduction centres or services offered to the population in need on the three main Balearic Islands (Mallorca, Menorca and Ibiza), Spain.

The main objective of the study is to determine whether HRC remained operating and, if so, which specific services, providing data on the entire population under study (PWUD in the Balearic Islands) and describing why an impact of restrictions on the services offered may affect people who use these kind of services as well as those who do not (e.g. spread of infectious disease by sharing injecting paraphernalia). As stated in the first section, this study is a follow-up of an earlier study (1) using data collected from four other autonomous communities (the Basque Country, Catalonia, Madrid and Valencia) in Spain.

The specific objectives of the study are to determine the effect of the COVID-19 pandemic on the following issues:

- Emergency preparedness of harm reduction services and health system
- The greatest challenges faced by PWUD.

Emergency preparedness can be measured by different factors, but our research focuses on the way harm reduction services have been able to maintain service operation and to which degree.

The focus on the challenges faced by PWUD is also necessary, as it gives us an interesting insight of how PWUD have been affected by the COVID-19 restrictions beyond the impact that health measures have had on harm reduction services (mental health, isolation, discrimination, etc.).

Additionally, our investigation also aims to compare results with other studies and surveys from other regions in Spain and the rest of Europe. By doing so, we try to put into some context the observed results from the Balearic health system in comparison to regions in Spain working under the same national health system and other regions in Europe that have implemented similar restrictions and health measures.

3. METHODOLOGY

3.1. Analysis plan and techniques used

This study has employed the same methodology Picchio et al (2020) (1): a cross-sectional study has been conducted employing a structured questionnaire electronically administered to diverse harm reduction centres: UCAs (n=10), a prison (n=1), non-governmental organisations (n=3) and a mobile methadone unit (n=1) in the Balearic Islands (Mallorca, Menorca, Ibiza). Additionally, 6 public hospital pharmacies have been contacted to request data on the number of DAA treatments initiated in 2019 and 2020. Surveys have been followed up to confirm results and resolve uncertainties.

Data from the most affected months by restrictions (from March to December in 2020) during the pandemic have been compared to data from the same period one year earlier. When no monthly data has been available, annual data from 2019 and 2020 was compared. When available, data from 2018 have also been checked to detect any possible anomalies in data collected from 2019. For the analysis, standard descriptive statistics have been used to examine the distribution of key outcome variables (means and ranges for continuous variables; percentages and numbers for categorical variables).

Emergency preparedness of harm reduction services and the health system has been evaluated by measuring the following factors:

- Impact of the COVID-19 pandemic on harm reduction operating hours and service users
- Impact of the COVID-19 pandemic on needle and syringe programmes and distribution of materials
- Impact of the COVID-19 pandemic on infectious disease testing
- Impact of the COVID-19 pandemic on treatment administration (methadone, DAAs, ART)
- Adoption of telemedicine as an alternative way to contact and follow up patients and users
- Government response to the COVID-19 pandemic
- Use of HIS: determine the capacity of the health system to collect, monitor, categorize, analyse, and share data.

The impact of restrictions and alteration of services on PWUD has been measured by the following issues:

- The impact of the COVID-19 pandemic on overdose and medical emergencies
- Challenges faced by PWUD during the COVID-19 pandemic state of alarm in Spain
- Reduced access to harm reduction services

Comparative results with other regions and countries have been obtained by comparing the results of this study to:

- Results from another study that covered other regions in Spain (1)
- Results from 2 other studies that covered Germany (10) and England and Northern Ireland (3) and another one that analysed the entire WHO European Region (9)

3.2. Variables explored

The main issues under study can be categorized into the following seven key variables:

1. demographic information;
2. provision of services;
3. telemedicine;
4. distributed material and resources;
5. overdose prevalence;
6. difficulties and obstacles to access services by PWUD;
7. and government response.

The main goal of the study is to explore and compare how data collected from these variables changed from 2019 to 2020, before and after the state of the alarm. In this sense, this study amplifies and expands on the variables that were previously explored in the original paper, where only “four key variables were collected”(1). By comparing the same variables with data obtained from 2019 and 2020, the study aims to accomplish its main objective: to identify (specific) alterations in the services provided by HRC that could be attributed to the impact of the COVID-19 pandemic and also determine what effects this could have on the users of these services.

3.3. Target population

The target population studied are the health services offered at HRC and PWUD in the Balearic Islands. This target population answers to two specific needs: the first is to know whether services offered at HRC were affected by the COVID-19 restrictions; the second one responds to the acknowledgement of how PWUD (the users of these services) have been affected by these

disruptions in the services: potential risk of reusing injecting equipment, overdosing, the acquisition of infectious diseases, hindered access to testing and treatment services, etc. This double-fold target is relevant to understand how these potential disturbances in the services and the access to these services can disrupt the progress achieved through different health programmes that go beyond the services offered at HRC, at an individual level, but at also in a systemic sense: policies directed at measures to prevent a HIV, HCV infection or STIs, or strategic programmes to tackle drug addictions are good example of policies that could suffer the consequences and side effects of affectations to services offered at HRC and hindered access for PWUD.

3.4. Description of target population

HRC should include a diverse and wide range of services for their users and should count with a good HIS for and adequate recollection of relevant data. The survey administered to HRC asked about potential disruptions or difficulties encountered for the following services:

- Telemedicine
- OST
- Testing services for HBV, HCV, HIV, TB and other infectious diseases
- DAA therapy
- Education services on overdose prevention
- Mental health services
- NSP
- COVID-19 tests (an adopted service during the pandemic)
- Personal protective equipment (PPE) for workers and users

Demographic information of patients and users and opinion about the level of government response were also part of the survey, as it is data relevant and related to services.

As for PWUD, the most recent available data (24) from 2018 show that approximately 2,000 people initiate drug-dependence therapy or treatment every year in the Balearic Islands (e.g. 2,0177 people in 2018, 2,033 in 2017 and 2,177 in 2016). From all the new patients that are admitted to a drug-dependence treatment or therapy program, almost 80% are men and the rest 20% are women. There are also statistically significant differences among the drugs being consumed by men and women. While the former are admitted due to cocaine consumption (25.58% of men vs. 22.74% of women) and heroin (12.94% vs. 7.95%), the latter are admitted to

therapy due to excessive alcohol consumption (43.71% of women vs. 37.94% of men) and cannabis (20.53% vs. 17.40 %). Although there are no parameters or criteria to delimit PWUD as a population target other than the use of drugs, it must be said that the most vulnerable people among our target population are PWID. This happens because their need to attend and physically use the services and the material offered in UCAs is greater than the one for people who use other non-injected drugs. We assume that the risk for contracting an infectious disease by sharing injecting paraphernalia could be, consequentially, greater. We also assume that people who need to attend the health facilities or UCAs to receive their treatment or do therapy will also be more vulnerable to access barriers.

3.5. Rationale for the methods

A cross-sectional study is an observational, descriptive study that analyses data from a determined population at a specific point in time (25). As explained before, the aim of the study is to collect data from the population and health services under study at a specific point in time (March to December in 2020) and compare it to data collected from the same period the previous year (2019). This should provide us with insightful information about the impact of the COVID-19 pandemic on the services offered by UCAs and other HRC.

The main focus of the analysis is to compare data gathered from 2019 and 2020 and compare them, making a special difference between the data collected before and after the state of alarm and the restrictions that were imposed between March and December in 2020. This has enabled us to clarify how those divisions of the health system not focused on treating COVID-19 patients became resilient, if they did, and whether or not they were able to adapt to the pandemic situation and the restrictions that followed. In this sense, this study allows us to know how these services work, how resilient they are and make some recommendations if evidence shows that other strategies could have been more useful. In other words, the analysis of data has allowed us to determine the level of emergency preparedness for harm reduction services in the Balearic Islands, observing how well HRC were able to cope with the pandemic, in terms of resilience and adoption of adapted services, resource mobilization and autonomy. As a consequence of the research, our analysis also aims at identifying how well and prepared HIS in the Balearic Islands work and collect, categorize, analyse and monitor data. Transparency, analysis and the use of information is crucial for accountability and the evaluation of health programmes which HRC are part of. This knowledge is vital to understand how HRC in the Balearic Island have been able to counteract the effects of the pandemic and protect its users while maintaining services to prevent other major public health threats: drug addiction, infection with BBV, STIs, etc.

4. RESULTS

4.1. Main results

Results were obtained from 33% (5/15) of the centres contacted (2 UCAs, 1 prison, 1 non-governmental organization and 1 mobile methadone unit) and 83% (5/6) of public hospital pharmacies contacted. A governmental institution (PADIB, the Plan on Drug and other Addictions of the Balearic Islands) was also contacted to obtain some additional (and aggregated) data on material distribution and methadone treatment administration.

During the COVID-19 Spanish state of alarm, all centres (n=5) maintained their operating hours but adapted services provided through the use of facemasks, safe distancing, Plexiglas, limited and control access. Telemedicine also proved to be an alternative way to contact and follow up users and patients for 60% (3/5) of centres.

Most centres reported maintaining essential services such as OST (4/5; 80%), NSP (3/5; 60%) and mental health services (3/5; 60%). However, only 40% (2/5) reported keeping overdose prevention education programmes.

Only harm reduction services in the prison (1/5; 20%) continued to offer DAA treatment and also began COVID-19 testing when equipment was available.

Public hospital pharmacies (n=5) provided data on DAA treatment. A substantial decrease (45%) in the number of DAA treatments initiated in 2020 has been observed compared to 2019, especially in Mallorca and Ibiza during the COVID-19 state of alarm period.

No demographic data of users and patients was available, collected or shared from primary sources contacted.

4.2. Results on Emergency Preparedness

4.2.1. Impact of the COVID-19 pandemic on harm reduction operating hours and service users

All centres (5/5; 100%) reported maintaining their operating hours during the Spanish state of alarm and adapted the way they provided their services to protect workers and users through the use of masks, safe distancing, Plexiglas and limited and control access. None of the centres reported denying access to their services (such as DAA treatment) during full lockdown period nor reported any limitations or shortages on harm reduction equipment (needles, syringes or

sterilization equipment). None of them reported a reduction on time, distributed material or number of workers to attend and take care of users either. However, only one centre (1/5; 20%) reported being able to offer COVID-19 tests to users (the prison); 40% of centres (2/5) reported having limited access to PPE (masks and sanitizers) for workers and users and 20% of centres (1/5) claimed having limited access to PPE only for users.

4.2.2. Impact of the COVID-19 pandemic on NSP and distributed material

Not too much data has been reported for distribution of material and NSP by HRC. 3 centres (3/5; 60%) reported offering a needle and syringe exchange program in their facilities and none of them (0/5; 0%) reported any limitations on the supply on harm reduction equipment. However, detailed data on NSP states otherwise. Only one HRC (1/5; 20%), the prison, provided information on the number of distributed needles and syringes: during the period between March and December 2020, 76.0% less needles and syringes were distributed in comparison to the same period in 2019. On average, the number of distributed syringes in 2019 during that period for every month was 51, while in 2020 was 12.25.

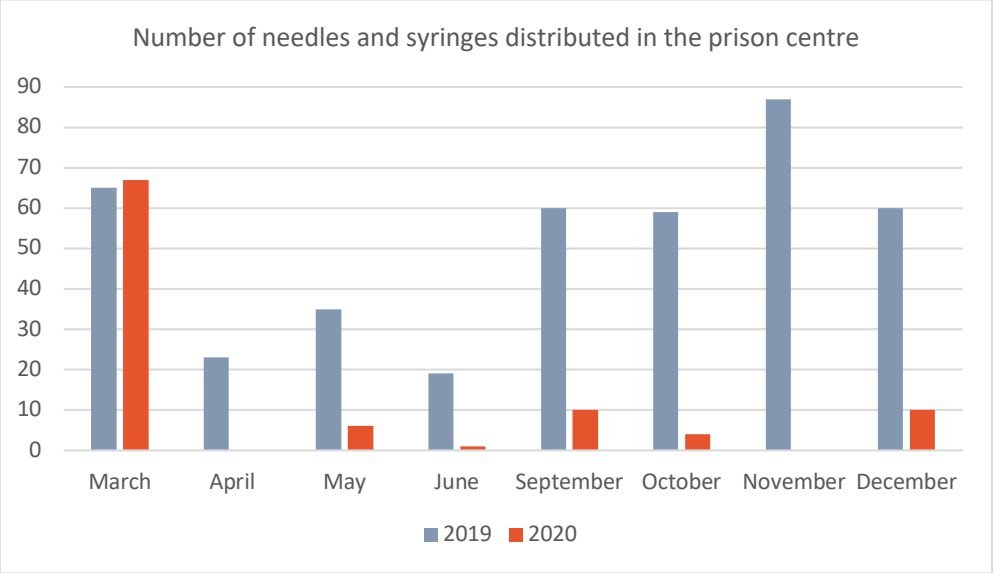

Figure 1. Number of monthly distributed needles and syringes in the prison in 2019 and 2020

As no other HRC was able to offer data on NSP or the number of distributed needles, we asked PADIB for data and they were able to offer annual data on Mallorca for 2019 and 2020. The difference is also very significant between the two years, as a severe disruption in the distribution of injecting paraphernalia (74,3% decrease) can be noticed (see *table 1*).

	2019	2020	Difference 2019-2020
Mallorca	1363	350	**-74.3%**
Prison	408	98	**-76.0%**

Table 1. Difference in the number of distributed needles and syringes in 2019 and 2020

4.2.3. Impact of the COVID-19 pandemic on infectious disease testing

Only one centre (1/5; 20%) reported testing for HBV, HCV, HIV, TB and Syphilis (the prison). The centre only reported data on the number of HCV positive tests, and on the number of Mantoux tests (TB) made and read.

The number of HCV positive tests was not significantly different between 2019 and 2020 (23 vs. 27), except for the months of May, June and December, where greater differences can be found. Although there is not a clear tendency observed between 2020 or 2019, the average number of HCV positive tests in 2019 is lower than in 2020 (2.88 vs. 3.38). The increase in HCV positive tests in 2020 compared to 2019 is 17.4%.

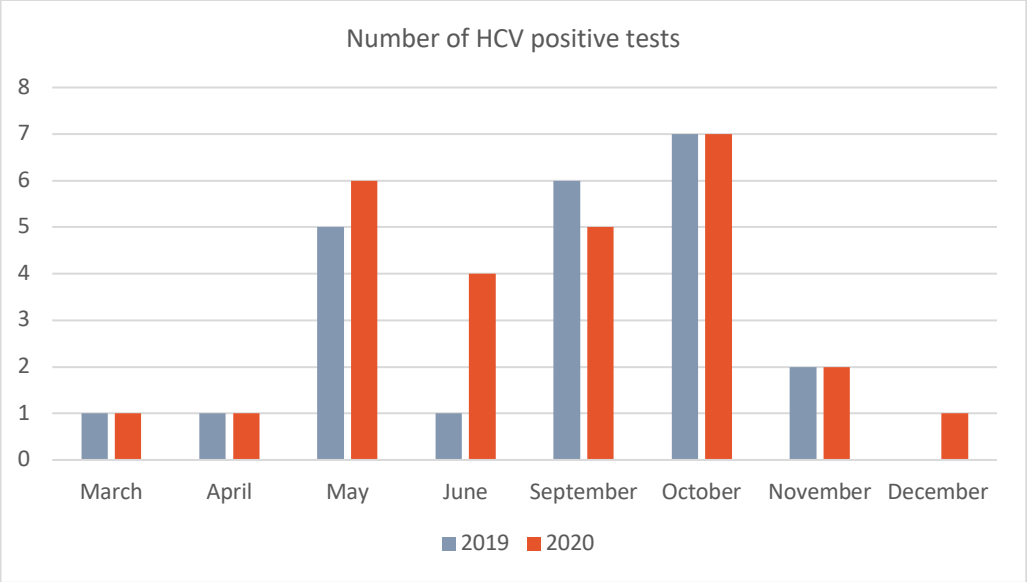

Figure 2. Number of monthly HCV positive tests detected in the prison in 2019 and 2020

As for Mantoux tests, the number of tests was greater in 2019 in all months, except for March 2020, when the number of tests was slightly higher than in March 2019 *(figure 3).* In total, an 83% decrease was reported. The same results were given for number of read tests, which means

that all tests that were made were also read. The differences between 2019 and 2020 are very significant, especially because average number of tests performed and read in 2020 is lower than 1, while in 2019 was 5.13.

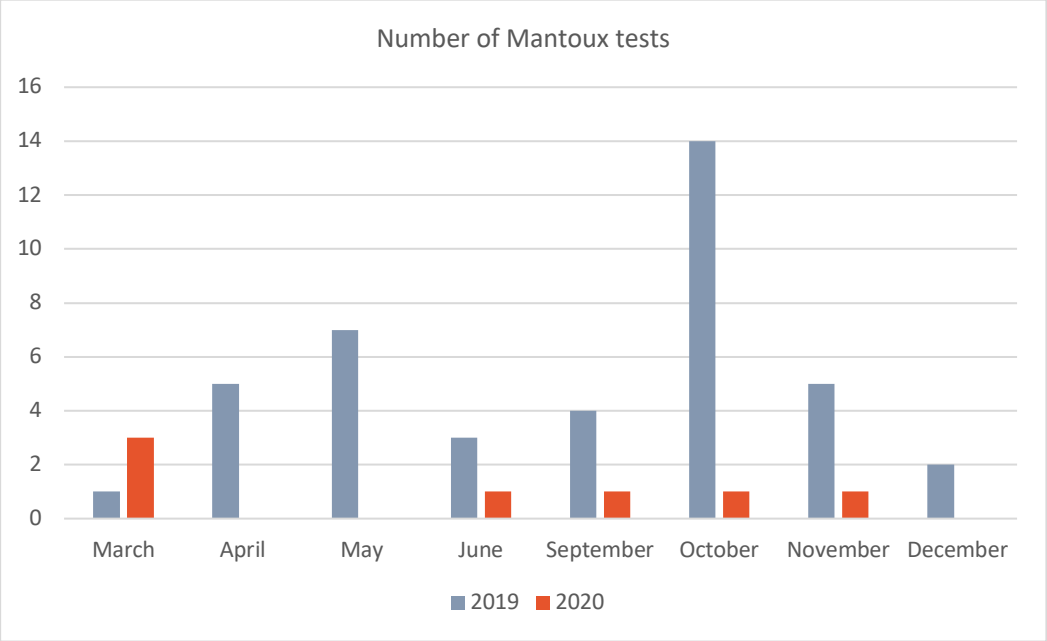

Figure 3. Number of monthly Mantoux tests done in the prison in 2019 and 2020

4.2.4. Impact of the COVID-19 pandemic on treatment administration

2 centres (2/5; 40%) reported data on methadone treatment, the prison and the NGO. We asked PADIB for extra information or data on the issue and they were able to provide annual data for Mallorca, Menorca and Ibiza in 2019 and 2020. As shown in *table 2*, results show that less people were in methadone treatment in 2020 compared with the same period the previous year, especially if we take into account the data from the prison and the NGO, which presented data from March to December, the most affected months during the pandemic.

	2019	2020	Difference 2019-2020
Prison	861	648	**-24.7%**
NGO	120	57	**-52.5%**
Mallorca	915	874	**-4.5%**
Menorca	120	103	**-14.2%**
Ibiza	212	185	**-12.7%**

Table 2. Difference in the number of patients on methadone treatment

As for DAA therapy, data were only offered from the harm reduction services of the prison (1/5;20%) from March to December in 2019 and 2020. As only their data were available, we asked public pharma hospitals. 5/6 pharma hospitals provided annual data on DAA therapy. A very significant decrease (47.7%, excluding the data of the prison; 44.9% including the prison) in the number of DAA therapies initiated in 2020 has been observed compared to 2019, especially in Mallorca and Ibiza (see *table 3*).

		2019	2020	Difference 2019-2020
Mallorca	Prison	44	35	**-20.5%**
	Son Llàtzer	129	83	**-35.7%**
	Inca	44	20	**-54.5%**
	Manacor	53	25	**-52.8%**
Menorca	Mateu Orfila	24	15	**-37.5%**
Ibiza	Can Misses	138	60	**-56.5%**
TOTAL		432	238	**-44.9%**

Table 3. Difference in the number of patients that initiated DAA therapy in 2019 and 2020

4.2.5. Impact of the COVID-19 pandemic on overdose and medical emergency

3 centres (3/5; 60%) explicitly reported not noticing an increase on overdose prevalence during the state of alarm period (March-June 2020) nor later on. The other two centres did not report either noticing or not noticing a substantial change on overdose prevalence during that same period of time.

No other medical emergencies were reported for the majority of the centres, except for the NGO, which described recounting a total of 17 emergencies between the months of June to December in 2020 (epileptic seizures, psychiatric decompensations and faints and/or falls).

4.2.6. Use of telemedicine

Telemedicine also proved to be a good alternative way to contact and follow up users and patients of centres. 4 centres (4/5; 80%) reported being able to provide telemedicine services for their users or patients. The only centre which reported not providing these services was the prison. However, only 3 centres (3/5; 60%; 2 UCAs and the NGO) reported using telemedicine as an alternative way to contact their beneficiaries, mainly via telephone, but also through email, text messaging and videocalls.

One UCA reported using the telephone as the main way to contact their users and patients during the COVID-19 pandemic, reducing face-to-face visits in exchange. 4 out of the 4 centres who were able to provide telemedicine services described them as useful to treat and keep in touch with their beneficiaries.

4.2.7. Difficulties and challenges faced by PWUD

PWUD encountered difficulties mostly on issues related to restrictions on mobility and social distancing. 3 centres (3/5; 60%) reported that users experienced difficulties reaching the HRC, two of them explicitly describing it as "problematic". 4 centres (4/5; 80%) reported that users struggled with mental health issues, 2 of them describing these difficulties as "problematic" or "very problematic". 4 centres (4/5; 80%) also recounted that users faced many obstacles to find a place of refuge, residence or night shelter, 2 of them describing the access to these services as "problematic" or "very problematic". 3 centres (3/5; 60%) also informed that users had limited access to social workers and social services, describing it as "problematic". 2 centres (2/5; 40%) claimed having a limited access to infectious disease testing.

In addition, 2 centres (2/5; 40%) reported that drugs were usually more contaminated or of low quality. 2 centres (2/5; 40%) also reported having limited access to drugs. However, 2 centres claimed that increases on drug prices were neither "problematic or unproblematic".

On a more positive note, no centre (0/5; 0%) reported users having hindered access to services such as injection rooms or drug checking.

4.2.8. Government response

4 centres (4/5; 80%) reported on their insight about the level of government response in terms of prevention and risk mitigation for PWUD during the pandemic. 2 centres, the UCAs (harm reduction services that directly depend on the public health system), reported that the response was "under the average" or under what could be expected. However, the 2 other centres, the NGO and the prison (which depends on the legal and judiciary system) considered that the level of government response was "good".

4.2.9. Results on HIS and collection of data

Only 33% of all centres surveyed responded and, when they did, just a limited set of data was offered. In fact, HRC were more predisposed to respond questions that did not demand the

collection and sharing of numerical, precise and detailed data on the services and activities developed and provided in their facilities.

Only one HRC, the prison, was able to provide accurate and detailed data on the impact of the pandemic on distributed material, services offered, infectious disease testing and operating hours and services.

That is why public hospital pharmacies were contacted in order to get data on the impact of the pandemic on treatment administration. In this case, 5/6 centres (83%) responded and they were actually able to inform and give very detailed data, showing a good predisposition and monitoring on the follow-up process of their patients.

4.3. Comparative results

4.3.1. Comparative results with other countries from the WHO European region

In comparison with other European countries, the Balearic Islands seem to be far behind when it comes to the recollection, monitoring and sharing of data. For example, the Eurosurveillance study (9) was able to recollect data from 53 countries of the WHO European Region on testing services for HIV, HBV, HCV, and STIs. Our study was only able to recollect data from one centre, and results were given only for HCV positive tests and Mantoux testing. From the results that we were able to obtain, data on testing services was notably similar to those from the WHO European Region (9), where a great decline (> 50% decrease) in testing volume was reported for testing services (>50% decrease). The same took place in countries such as Germany (10) and England and Northern Ireland (3), were hindered access to BBV testing was also reported. However, no explanation was given for such results in the Balearic Islands, while the Eurosurveillance pointed at factors like site closure, reductions in staff, reduced attendance or overburdened laboratories. The preliminary results in Germany also reported PWUD struggling with social distancing and lack of refuge and shelter, as it has been reported in the Balearic Islands.

Nonetheless, the HRC in the Balearic Island differ from results in other European countries when it comes the closure of sites, shortages and increased prices of substances or partial closure of services. HRC in the Balearic Islands continued operating full time and none of the centres reported any limitations to access their facilities during full lockdown period other than mobility restrictions, nor reported any limitations or shortages on harm reduction equipment (needles,

syringes or sterilization equipment), contrary to the experience of harm reduction services in Germany or England and Northern Ireland.

4.3.2. Comparative results with other Autonomous Communities in Spain

Other Autonomous Communities in Spain also do a much better recollection, monitoring and sharing of data than the Balearic Islands, as evidence shows in the previous study made in Catalonia, the Basque Country, Madrid and Valencia (1).

In the case of the first study made in Spain, 65% of the centres returned the completed survey and most of them provided detailed data on the impact of the COVID-19 pandemic on operating hours and service users (demographic data), NSP and distribution of materials, infectious disease testing, treatment administrations, overdose and medical emergencies, the challenges faced by PWUD and the level of government response. However, the overall results are very similar to the ones obtained in the Balearic Islands: in general, HRC continued operating in all autonomous communities. The number of overall distributed material, such as needles, decreased during the Spanish state of alarm lockdown period, indicating some limitations on accessing harm reduction services for PWUD.

5. DISCUSSION

The COVID-19 pandemic has had a hard and negative effect on the harm reduction services in the Balearic Islands. The pandemic has tested the capacity of the health system to work under extreme circumstances, responding to the situation by adapting activities and services and, ultimately, trying to protect already vulnerable and marginalized populations. This study set out to determine what and how harm reduction services have been altered in the Balearic Islands because of the COVID-19 pandemic and to which degree or extent. Results have shown that keeping HRC and services open and working is not enough to ensure that they remain running at an adequate and appropriate level to protect the quality of the services they provide to their beneficiaries. Just because health services managed to keep on working does not mean they were able to reach their target populations as they did before the pandemic.

As evidence supports in other countries and regions, PWUD (and vulnerable populations in general) have already suffered and felt the largest impact and worst consequences of the pandemic (26,27). As we have already seen, health services, also those related to harm reduction services, have been (temporarily) closed or suffered different kinds of disruptions in the WHO European regions and in specific countries or regions such as Germany and England: shortages on equipment, treatment interruptions, limitations on and hindered access to services, lack of staff, overburdened laboratories, etc. are all struggles that PWUD have faced during the worst stages of the pandemic. Studies show that service closures have also been experienced everywhere else: the United States, sub-Saharan Africa or Latin America and the Caribbean are some regions that could be used as an example too (28–31). Overall, a negative impact has also been reported in many of the different services provided by harm reduction centres in the Balearic region. PWUD have been challenged by many difficulties and access to harm reduction services has been hindered by lockdown and mobility restrictions imposed by the pandemic circumstances. Although harm reduction services in the Balearic Islands have proofed being capable of continuing to operate and work by adopting some safety measures (protecting staff workers and beneficiaries) and telehealth services, the system was not immune to the effects, the stress and the difficulties that the pandemic imposed everywhere else.

The decrease on NSP coverage (distribution of injecting paraphernalia) that was reported by the harm reduction services in the prison and in Mallorca by the PADIB (>70% in both cases) could be an indication for a potential increased risk for needle reuse or sharing injecting paraphernalia, which in turn could lead to an increase in the incidence of BBV. More research should be

prioritized on this topic, as it is too soon to attribute the impact on incidence to a reduction in NSP coverage.

Despite the fact that not much data was offered on infectious disease testing, which is per se very alarming, data available from the prison reported a great decline in testing services for TB and an increase in HCV positive testing. It is probable that other HRC experienced the same decrease. Notwithstanding the fact that it is too early to determine the impact of the reduction in testing on a potential increase in BBV incidence, research should also be developed on this issue to evaluate the real impact of this decrease in testing and its consequences, as it could very possibly be not the only contributing factor to an increase in the incidence of BBV. It is important to keep in mind that harm reduction services are aimed at PWUD and especially PWID, who suffer from underlying health conditions that make HIV, HBV, HCV, TB all prevalent infectious diseases among them. Early detection and diagnostic are critical key steps to detect and stop the spread of viruses and diseases that could potentially become a threat for public health, as well as offer continued treatment and DAA therapy without interruptions. Cancelling or disrupting these services could harm all the progress made until now to reach important goals and SDG targets by 2030, such as eliminating viral hepatitis or AIDS (32). Not having data could jeopardize the analysis of the progress made in the Balearic Islands and would make it impossible to know how far institutions and health services are from reaching those goals.

In addition, the lack of access to harm reduction services and programmes because of the mobility and lockdown restrictions could become triggers for isolation and might be linked to an increase in overdoses, related medical emergencies or interruptions on DAA therapy, methadone treatment, OST and ART (2). Our study did not find this has become a major issue in the Balearic Islands (except for interruptions on treatment administration), but a more detailed recollection of data should be done as well in order to develop a more thorough research and impact evaluation.

For all this further research that is needed, the recollection, monitoring, analysis and sharing of data is basic and detrimental. There is a lot of room for improvement in this sense for harm reduction services and the PADIB in the Balearic Islands, especially in comparison to other regions in Spain or other countries in Europe, which were able to offer much more detailed, precise and informative data on exactly the same topics our research has focused on.

For example, neither of the two UCAs that responded the survey offered data on the distribution of needles, the number of people on methadone treatment, the number of medical emergencies, viral hepatitis, HIV and TB testing, the number of users that initiated DAA treatment or ART (antiretroviral therapy), or any kind of demographic information from the beneficiaries of the services. The harm reduction services in the prison had available data only on HCV positive testing, DAA and methadone treatment and on the distributions of needles. Probably because of the legal and institutional nature of penitentiary centres, there is much more data available from prisons than UCAs or NGOs, as well as more comprehensive services offered, such as OST, BBV testing, COVID-19 testing, HCV treatment or integrated mental health services.

Nevertheless, more data should be collected by harm reduction services overall if health services and institutions want to be able to evaluate the impact their services have on their beneficiaries. In order to comprehend how the policies implemented on drug addiction and harm reduction work and benefit the populations they are directed at, research and impact evaluation need the data to link health programmes with results. The implementation of good and appropriate HIS is necessary to adequately collect, save and monitor data. Emergency preparedness and the resilience of a health system in a moment of crisis depend both on HIS implementation and data collection because they allow to develop response interventions at all levels of the health system. "Up-to-date information enables proactive decision-making, rapid resource mobilization and effective risk communication strategies" (33). Having robust data is a fundamental element for effective policy-making, impact evaluation, effective allocation and distribution of resources, a strong response capacity according to patient's needs and anticipation to challenges during a pandemic or health crisis. Lacking systemic screening or testing, as it is the case for the UCAs, can become problematic for users of harm reduction services, as it can lead to late detection and diagnosis and greatly affect treatment options for patients who already got a disease (33).

Harm reduction centres provide essential health services to already very vulnerable populations. The fact that HRC kept on operating and working during the hardest period of the COVID-19 pandemic is a great sign of resilience and capacity for adaptation in times of stress and difficulties. However, that is not enough if harm reduction services and the overall of the Balearic health system aspire to be at the level of response capacity of other regions in Spain and the rest of the WHO European Region. A better coordination and preparation of the health system is needed to develop more mature and comprehensive emergency preparedness strategies.

Pandemics threaten with disruptions on essential health services and keeping HRC operating is not enough to ensure the full continuation of services, especially those that aim to protect vulnerable people. These comprehensive emergency preparedness strategies demand a more people-centred health system (34), improve the level of engagement and communication with all actors involved and a much better HIS and recollection of data. That is detrimental to provide information that will allow better impact evaluation and evidence-based decision-making (35). All of these could lead to a better allocation of the resources needed to implement good screening and testing systems for infectious disease, better treatment administration and better distribution of materials and implement strategies that could overcome the challenges faced by PWUD during the pandemic. All of these are issues that our study found to have suffered a negative impact because of pandemic restrictions and limitations. Additionally, a recent study suggests that the public's perception of the level of government response during the COVID-19 pandemic was low in Spain (it ranked 44 points out of 100) (36). This is an indicator for Spanish institutions and its health system to better communicate their efforts as well as stepping up when needed, especially when the most vulnerable populations are threatened (35).

6. STUDY LIMITATIONS

A cross-sectional methodology was best suited for our study because it allowed us to gather important information about the outcomes of a particular intervention with the purpose to establish some conclusions about the relationship between these outcomes and the determinants that lead to them (37). However, it is important to know that such relationship between those determinants and its outcomes needs to be taken with caution, as it can be difficult to ascertain whether there is a causal relationship from a cross-sectional study. This is because cross-sectional studies gather information at a given point in time, it is a one-time measurement of exposure and outcome, hence making it difficult to infer causality between the exposure and the outcome (37).

Nevertheless, for our study this method served to understand to what extent the restrictions that followed the state of alarm in Spain in 2020 had an effect on the services offered by UCAs and other harm reduction services and the evolution of the most prevalent infectious diseases among PWUD.

A second limitation for our study is the availability of data for some of the variables that we wanted to explore, especially those that required the recollection of numerical and detailed data on:

- Distributed material and resources (NSP coverage, distribution of needles)
- Provision of services (testing services and infectious disease incidence)
- Demographic information of beneficiaries of harm reduction services

Harm reduction services that were contacted at the beginning of the study (UCAs, NGOs and a mobile unit) did not provide an extensive set of data. Therefore, other institutions were contacted (PADIB and public hospital pharmacies), which were able to provide some of the lacking data (distribution of needles, patients with methadone treatment and in DAA therapy). Nevertheless, not all variables were covered with this additional information. This means that the results presented need to be taken with caution. Even though they resemble other studies' results from other regions in Spain and Europe, which gives an indication that they all point in the right direction, the lack of data could be hiding or misrepresenting a part of the reality of HRC and PWUD in the Balearic Islands for some of the variables explored for this study.

7. CONCLUSIONS AND RECOMMENDATIONS

Harm reduction services in the Balearic Islands have been able to keep their centres open and running, while adjusting their services with safety measures that could guarantee the continuation of their main activities. None of the centres reported shutting down their services nor changed their operating hours. Despite that fact, not all HRC or services were able to keep running or working at the same level before the pandemic. For example, the number of distributed needles or testing services fell during the state of alarm period; fewer users of harm reduction centres accessed their services because of lockdown and mobility restriction; disruptions or severe decreases on methadone treatment administration and DAA therapy were also reported.

The decrease in distribution of material or testing services can lead to a greater risk of reusing and sharing injecting paraphernalia for PWID, overdosing and an increase in the incidence of infectious diseases. A decrease or lack of access to testing services (some results from the prison already evidenced an increase in HCV positive testing) and interrupted treatments with methadone, DAA therapy, HCV treatment or ART could also risk an increase in the incidence of infectious diseases, its spread through vulnerable and exposed populations and drug resistance. Hence, in the future, an effort by harm reduction services, the health system and governmental institutions should be made to allocate more resources on testing, NSP coverage and outdoor work (mobile units) to provide services to users who cannot physically attend HRC (either for mobility restrictions or other reasons).

Another lesson learnt from the study is that the lack of more substantial data indicates that either a good and adequate recollection of data and information is missing or that accountability, transparency and sharing mechanisms for data need to improve. For that, an appropriate HIS or better communications and accountability systems to share data and provide transparent information are needed. Monitoring, analysing and sharing data is essential to evaluate the impact of policies and health programmes put in place by the health system and institutions.

Overall, harm reduction services that were able to report to our study proved to be somehow resilient and adaptative in the worst scenarios of the pandemic, but more comprehensive measures and emergency preparedness strategies are needed to provide more quality services and the evaluation of the programmes. Without accountability and impact evaluation, there is no possible improvement with evidence-based information from robust data collected by the

health services at different levels of the system. Reporting no disruptions of the services without data supporting such statements, as it is the case for some of the answers we got from surveyed centres, should not be a possibility within the Spanish health systems. Knowledge and information are powerful tools for improvement to build resilience and emergency preparedness strategies not only for the future, but also the present needs of PWUD in the Balearic Islands. This is especially important and relevant for those more vulnerable and at-risk populations in times of a health crisis and extreme circumstances such as the one we all experienced with the COVID-19 pandemic.

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