



European Monitoring Centre
for Drugs and Drug Addiction

TECHNICAL REPORT

**Monitoring drug use in recreational
settings across Europe: conceptual
challenges and methodological
innovations**

November, 2018

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Abbreviations and glossary of terms

BAC: blood alcohol concentration

CAWI: computer-assisted web interview

CSEW: Crime Survey of England and Wales

EMCDDA: European Monitoring Centre for Drugs and Drug Addiction

EU: European Union

EU EWS: EU Early Warning System

GDS: Global Drug Survey

GPS: General population survey

***In situ* targeted population survey:** Data gathered from participants attending recreational settings

NPS: New/novel psychoactive substances

NTE: Night-time economy

PDU: Problematic drug user

Polydrug use: the use of at least two illicit drugs and/or NPS either at the same time (concurrent) or one after the other (sequential)

Polysubstance use: the use of alcohol and at least one illicit drug and/or NPS, again either at the same time (concurrent) or one after the other (sequential)

RDU: recreational drug user

Self-report: survey respondents 'self-reporting' their substance use

TPS: targeted population survey

Executive summary

This report explores how data on drug use are captured through surveys of targeted populations in recreational settings. The benefits and challenges of monitoring drug use in recreational settings are identified, as are emergent data sources and methodological innovations. Annex 1 provides an overview of existing studies on drug use in recreational settings from recent European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) workbooks and national reports. The report draws on cutting-edge debates within social research, sociology and critical drug studies to encourage dialogue between researchers and with monitoring agencies. Key findings include:

- There is a lack of annual national general population surveys (GPSs) on drug use.
- There is a need to include survey questions within national GPS that might capture drug use in recreational settings.
- Standardised and replicable data collection tools are needed, such as repeat surveys, to ensure better comparability despite national differences, for example in relation to night-time economies (NTEs).
- *In situ* self-report targeted population surveys (TPSs) are becoming an ever-more important part of monitoring activities across countries.
- Psychoactive substance use repertoires need to be considered in their entirety when undertaking TPSs in recreational settings. Psychoactive substance use repertoires may include legal drugs such as alcohol and tobacco; emergent or 'novel' psychoactive substances (NPS); 'traditional' illicit drugs such as cannabis and cocaine; and prescription medications such as (the illicit use of) opiate painkillers.
- Online self-report targeted surveys of 'recreational drug users' offer new and exciting opportunities to improve monitoring. There is a related debate around online survey recruitment methods and issues of validity.
- Online self-report targeted surveys can provide an opportunity to follow up respondents to *in situ* surveys, again offering new and exciting ways to improve monitoring.
- Biomedical data, drug-testing and wastewater analyses have emerged as novel data sources for capturing aspects of drug use in specific locales/events. Results should be treated with caution and supplemented with survey research where possible.
- Country-by-country reporting identifies specific national issues, but it also supports cross-cultural (local, regional, national) comparisons, for example on the use of NPS. Qualitative data are as useful in this regard as quantitative data.
- There are clear positive outcomes arising from embedding a 'contextual approach' (EMCDDA, 2017a), whereby the complexities of local, regional and national drug-using cultures are better acknowledged and documented. Again, qualitative data are as useful in this regard as quantitative data.
- Surveys in nightlife settings tend to focus more broadly on 'substance use', rather than simply on (illicit) 'drug use', reflecting the complexity of contemporary patterns of non-medical use of psychoactive substances.

- Clear definitions of both ‘drugs’ and recreational settings are required if research is to be more meaningful and more easily replicated.
- NTE research continues to dominate the field, although other recreational settings are of interest, such as illegal raves and private parties in domestic spaces. Therefore, a wider range of recreational settings should be considered.
- The focus on recreational settings (festivals, nightclubs) where dance music is consumed, while largely justified, may obscure drug use in other recreational settings where different genres of music are played.
- Those using drugs in recreational settings are not a homogeneous group. Typologies of the characteristics of people who use drugs in recreational settings, developed from statistical data, capture this diversity and enable better designed interventions relevant to each of these groups.
- More opportunities are needed for a dialogue between quantitative and qualitative researchers into drug use in recreational settings. This relates to embedding a ‘contextual approach’ for drug monitoring, mentioned above as good practice.
- Innovative methods are emerging, such as sentiment analysis (e.g. Daniulaityte et al., 2016) and drug use event mapping (e.g. Ravn and Duff, 2015), which will enhance future research, monitoring and policy development.
- Interdisciplinary, mixed-methods, cross-national studies of targeted populations with longitudinal aspects, such as the ALAMA-nightlife project, can tackle some of the issues raised in this report.

Learning from past and present best practice in relation to monitoring drug use in recreational settings across the European Union (EU), while looking to the future for emerging trends and new challenges, helps to capture more accurate, timely and meaningful data from countries. Findings from research activities and the best-practice case studies incorporated in this report are crucial to understanding the ‘drug situation’ in a rapidly changing world.

Introduction

This report reviews research on substance use in recreational settings across Europe, using cutting-edge theoretical and empirical advancements within the field of contemporary drug research. Drug researchers and those responsible for monitoring the drug situation in Europe need to know which substances are being consumed, by whom, where, for what effects, and, if possible, under what circumstances. It is important to reflect on how best to measure people's drug-using practices, and the challenges that these efforts may involve.

Drug consumption incorporates the non-medical use of psychoactive substances, including legal drugs such as alcohol and tobacco; emergent or 'novel' psychoactive substances (NPS); 'traditional' illicit drugs such as cannabis and cocaine; and prescription medications such as (the illicit use of) opiate painkillers. Given the multifaceted, complex and highly dynamic nature of the drug situation, the research methods and tools used to gather data for monitoring require constant review and development ⁽¹⁾.

The report begins by considering the role of general population surveys (GPSs) but largely concentrates on targeted population surveys (TPSs), as these are the key research tools for gathering data on substance use in recreational settings across Europe. Additional innovative research practices are also highlighted through case studies. The main empirical data sources for this report are TPSs of drug use among those frequenting recreational settings, EMCDDA national reports from 2013 to 2014, and workbooks from 2015 to 2016 ⁽²⁾. Knowledge gaps are identified and recommendations are made on improving existing monitoring tools 'by integrating new data sources and novel measurement methodologies' (EMCDDA, 2017a:1). Where relevant, other studies are incorporated alongside TPSs, such as work on GPSs, on *in situ* TPSs compared with online TPSs, and on biomedical markers used to supplement self-report surveys. Further information on a sample of studies is provided in Annex 1.

The report draws on social theory as a basis for discussing the definitional and conceptual challenges that researchers of drug use face in considering recreational settings. Key theoretical foundations include critical drug studies, the sociology of scientific knowledge, and sociological research on leisure spaces and times. This report takes a critical yet constructive approach, bearing in mind the power relations that shape the production of 'evidence' on drug use in recreational settings (Moore and Measham, 2012). Classic and contemporary sociological thinking on knowledge production (Bourdieu and Wacquant, 1992; Corbin, 2012) helps to explore how these power relations are implicated in measuring drug use prevalence.

⁽¹⁾ See ongoing EMCDDA projects and programmes at <http://www.emcdda.europa.eu/activities>

⁽²⁾ For more information, please see http://www.emcdda.europa.eu/publications-database?f0=field_series_type%253Aname%3ANational%20reports

The advantages and challenges of general population surveys for monitoring recreational drug use

The prevalence and patterns of drug use as measured by probabilistic surveys of adult and school populations are one of five EMCDDA key indicators ⁽³⁾ used to assess the drug situation in Europe and monitor progress towards EU and country drug policy targets.

The EMCDDA monitoring standards require information to be collected at the national level on the prevalence and patterns of drug use in the general population (adults, including young people, and schoolchildren). For uniformity, such information is expected to be drawn from self-report surveys of representative samples of the general population conducted on a regular basis using consistent survey instruments and methodology. However, it must be acknowledged that the majority of countries do not undertake an annual GPS. One highly effective (yet hard to implement) move towards better monitoring progress towards EU and country drug policy targets would be to standardise the way that all countries gather statistical data by ensuring that they have the means and expertise to conduct national GPSs annually. The frequency with which comparable surveys are conducted within countries will determine how useful these are for monitoring progress towards EU and country policy targets.

The United Kingdom, for example, undertakes an annual self-report GPS on drug use as part of the Crime Survey for England and Wales (CSEW) (e.g. Lader, 2016). The administrations in Scotland and Northern Ireland also undertake similar surveys. As this report will discuss, this allows for a trend analysis at the general population level. 'Lifestyle' questions are also added to the GPS ⁽⁴⁾, which capture data on more specific populations (e.g. nightclub attendees). Despite their usefulness, such GPS-level data have many disadvantages and are best complemented by TPS data and by gathering other relevant information, including biomedical data and drug-testing and wastewater analysis.

Annual national GPSs on drug use such as the United Kingdom's CSEW, when conducted at regular intervals using the same survey instruments and sampling frame of the same defined population, allow trends to be identified over time. However, caution should be used when interpreting such findings, as the usual sampling methods may systematically under-represent substance users who are homeless or are students, or who live in institutions. For this reason, GPS prevalence data should be treated with caution and are best deployed when addressing trends in drug use.

Alongside issues related to inclusion/exclusion criteria (although these are systematic and hence manageable), GPSs are limited in the numbers and types of questions that can be asked, and, because drug use is still a comparatively rare phenomenon, in the number of people using drugs who can be included in the sample. This, in turn, limits the usefulness and richness of the survey data

⁽³⁾ More information on key EMCDDA indicators is available at <http://www.emcdda.europa.eu/activities/key-indicators>

⁽⁴⁾ See the *Recreational settings* section for further discussion of 'lifestyle' questions.

produced. For example, GPSs may ask respondents about the illicit drugs they have ‘ever used’, ‘used in the past year’ or ‘used in the past month’. However, GPSs are generally unable to capture the *amounts* of a drug used in these periods. Nor are they best placed to capture data on polysubstance and polydrug repertoires, combinations of drugs consumed, and whether such use is synchronous/concurrent or asynchronous/sequential. Polysubstance and polydrug use is a longstanding concern both in recreational settings and more broadly (EMCDDA, 2009). Furthermore, when considering the ‘drug situation’ in Europe in its entirety, it is important to capture all forms of substance use, not just illicit drug use, so alcohol use needs to be captured alongside all forms of non-medical drug use (traditional, NPS, pharmaceuticals). Given these considerations, targeted surveys, rather than GPSs, are used within well-defined populations to gather information on drug use patterns in various time frames; for example, surveys of UK club-goers include questions on lifetime, past month, past week, today and ‘planning today/tonight’ drug use (Measham and Moore, 2009; Measham et al., 2011).

Although policies vary between countries, all remain within the global prohibition of specific psychoactive substances, psychoactive substance groups or, most recently, any psychoactive substance unless made exempt by the government (with alcohol, tobacco, caffeine and amyl nitrite, or ‘poppers’, being the best-known examples in the United Kingdom’s Psychoactive Substances Act (PSA) 2016). Given that national GPSs of drug use focus on substances already illicit within the nation state context, the use of emergent substances, such as those NPS that have flooded the European market in recent years, may not be captured sufficiently ⁽⁵⁾.

Indeed, beyond national GPSs, the emergence of NPS has been a challenge for those conducting targeted surveys among selected groups, given that it is impractical to offer a comprehensive list of the large number of new substances on the market in a standard data collection tool such as a survey. In response to this challenge, the EMCDDA has developed a module to standardise the collection of prevalence data on NPS use at EU level ⁽⁶⁾. The adoption of this module by the national focal points might ensure better comparability of NPS use between countries and produce a more complete picture of the drug situation across the EU.

In summary, statistical data from national GPS undertaken annually by some, but not all, countries offer a broad picture of the drug situation across Europe. However, to produce a more nuanced picture, targeted surveys are conducted among selected populations known to use drugs or known to be more likely than the general population to use drugs. Drug service users experiencing problems are one of these targeted populations. Those frequenting leisure spaces such as bars, nightclubs and festivals are another. These are conceptualised as recreational settings within the research literature relevant to European countries (EMCDDA, 2006, 2012a).

⁽⁵⁾ The emergence of NPS is discussed in more depth in the section ‘What is a drug? Using critical drug studies’.

⁽⁶⁾ Available at <http://tinyurl.com/ychs9a7s>.

Having outlined the role of GPS and TPS in monitoring the drug situation in Europe, attention now turns to specific issues that arise in relation to TPSs on drug use in leisure spaces/times. Defining 'drugs' is the first to be tackled.

What is a drug? Using critical drug studies

How can better research tools be developed to capture robust data on drug use in recreational settings across Europe? One way forward is to understand how definitions and concepts guide research processes, practices and outcomes. So, the first question is what is a drug? 'Drugs' is a central yet contested concept operationalised in surveys of specific populations across leisure spaces/times. Familiar or 'traditional' 'illicit drugs' such as cannabis, cocaine and MDMA (3,4-methylenedioxy-*N*-methylamphetamine)/ecstasy have been the principal focus of TPS, typically with the addition of the two most prevalent legal substances, namely alcohol and tobacco. Indeed, without state-by-state agreement and adherence to the global system of drug classification, with prohibition acting as a form of meta-standardisation, there would be little possibility of comparing prevalence data across time and between countries.

In Germany, as across Europe, cannabis remains a popular substance for people who frequent recreational settings (commonly conceptualised as 'party-goers'). Findings from the Phar-Mon project on new trends in substance use in the party scene show, for example, that among party-goers cannabis was the most commonly used drug in the last 12 months (men: 79.1 %, women: 66.7 %). Within that figure, cannabis was often used in combination with ecstasy (within the 12 months prior to the survey) (men 39.8 %; women 31.8 %), speed (men 28.3 %; women 23.8 %) or psychoactive mushrooms (men 11.5 %; women 8.0 %) (Piontek and Hannemann, 2015). It is interesting that the harm reduction interventions developed for night-time economy (NTE) or nightlife settings concentrate on party drugs such as MDMA and cocaine, alongside alcohol.

TPSs are, therefore, typically focused on familiar or 'traditional' illicit drugs, be they stimulant party drugs or cannabis. For example, in Slovenia, the primary purpose of the study on cocaine use in nightlife, carried out by the DrogArt Association, was to obtain data on the prevalence and characteristics of cocaine use in bars, clubs and discotheques, information about the harmful consequences of cocaine use as perceived by the people who use, the economic aspects of cocaine use, monthly consumption, assessment of quality, impact of the price of cocaine on use, the needs of users for assistance, and additional information related to cocaine use. The study outcomes related to harm reduction can be used to improve current interventions and provide new services for people who use cocaine.

However, the emergence of NPS challenged the status quo on monitoring 'drug use' across Europe. By the end of 2016, the EU Early Warning System (EU EWS) was routinely monitoring over 620 substances in EU Member States, Norway and Turkey. While coordinating the identification of NPS on European drug markets and sharing this information is an important function of supranational

monitoring bodies, difficulties remain in linking the existence of these so-called 'new drugs' (Chatwin et al., 2017) with their purchase and actual use among populations.

The emergence of NPS has proved to be a challenge requiring rapid, agile responses in European research and practice. They pose particular issues for GPSs; for example, their rapid emergence is a challenge to the long lead-in times required for such large national surveys; the transient nature of many of them can disrupt the trend analyses for which they are often used; and the fact that respondents may not know exactly what they are using makes constructing questions problematic. One classic example of this challenge was the rise of mephedrone in the United Kingdom. Schools and colleges, youth workers, families and academics undertaking qualitative research with young people who use drugs and with dance club attendees noted the use of mephedrone (Drone; M-Cat) as early as 2008. In response to increasing concerns, questions about mephedrone use were introduced into the Crime Survey for England and Wales (CSEW), from 2010/11. Questions on other individual NPS have been included in other editions of the CSEW, but these are generally not included in overall headline estimates of drug use (Lader, 2016). An additional issue arises in that, in the United Kingdom, typically the CSEW list of controlled substances is used in the design of survey research instruments (for comparative purposes), so there are few prevalence data on early mephedrone use, even among targeted populations known to be 'early adopters' of new drugs, such as those who attend gay nightclubs (Measham et al., 2011). However, TPSs may be specifically designed to focus on emerging substances or test new questions before they are included in a GPS. For example, in Latvia questions about the use of 'Spice' and other synthetic cannabinoids were first included in a TPS carried out by the Centre for Disease Prevention and Control called 'Use of Drugs at Entertainment Venues 2012'.

The appearance of an apparently distinct group of substances (i.e. NPS) has challenged the status quo in terms of TPS questions. Researchers are faced with the difficulty of capturing the use of NPS in recreational settings. Producing a long list of chemical formulations and ticking off those used by TPS participants is largely impractical. For some researchers, asking TPS participants about NPS as if they were a distinct category from more familiar 'drugs' has been the norm; however, they may then need to request further information on the specific NPS. For Measham and Newcombe (2016), NPS are best subsumed into existing drug categorisation systems, which include stimulants, empathogens, psychedelics, dissociatives, cannabinoids, depressives and opioids. Yet without widespread drug testing, TPS participants (and, indeed, researchers) may not know what is being taken, and, therefore, in which category to place them (which may also be true for all drugs). The practical aspects of survey research, such as keeping surveys to a reasonable length (two sides of A4 paper, or 10-15 minutes when using electronic data capture devices), become cumbersome as *in situ* TPS participants and researchers struggle to categorise potentially unfamiliar NPS.

The low prevalence of NPS in recreational settings, alongside users' ignorance about what they are consuming, makes these substances hard to incorporate into European *in situ* TPSs on substance use. When NPS are included, coverage is rarely comprehensive and depends on the definition of NPS by the country, region and/or research group in question. In Belgium, for example, the target

population of the VAD Nightlife Survey 2015 was Flemish party-goers, including both users and non-users of illicit drugs (Rosiers et al., 2016). Based on the results of the survey, NPS were found to have very low prevalence rates: 88.9 % of the respondents reported that they had never used. Of those indicating lifetime use, 7.7 % reported that they had not taken any NPS in the previous year and 3.4 % reported using them in the last year ($n = 26$). Rosiers et al. (2016) noted that some NPS, such as ketamine and GHB (gamma-hydroxybutyrate), had been present in local nightlife scenes since the 2000s, but that other, newer psychoactive substances, such as synthetic cannabinoid receptor agonists (SCRAs), were not included in TPSs. In Austria, indirect information on substances used in party settings can be obtained from the advice sessions offered by ChEck iT!. Its services include laboratory analyses of psychoactive substances at (music) events (parties, raves, festivals, etc.). In 2015, ChEck iT! offered its services at 17 event days, and registered approximately 5 300 information and advisory contacts; at least 2 400 people were reached through workshops, and 1 000 samples were analysed (SHW, 2015). NPS have tended to play an increasingly less important role. For instance, in 2015, the proportion of e-mail advice contacts in which NPS were mentioned decreased to 4 % (compared with 28 % in 2011). Mephedrone, which was listed as a new psychoactive substance before its classification as a drug, is hardly ever mentioned. From an analysis of the drug-checking results, the ChEck iT! team concludes that deliberate use of NPS in party settings is the exception rather than the rule and that young people tend to use MDMA and amphetamine, as these substances are more easily available (SHW, 2016).

Reflecting on the definitional and conceptual issues around 'drugs' for TPSs generates challenges about which substances should and should not be included in surveys. One example is the inclusion (or otherwise) of pharmaceutical medications. The emergence of benzodiazepines for purchase both on the clear web and on darknet sites, and of a youth-orientated 'Xanax culture', took many European survey researchers by surprise. *In situ* TPSs rarely capture such trends because the drugs asked about in recreational settings research tend not to include pharmaceutical medications.

Beyond academic and policymaker debates about 'drugs', distinctions made between drugs in the minds of users may shape survey data in (perhaps surprising) ways that undermine comparability across time and between countries. One example of this is the distinction between 'ecstasy' and 'MDMA', which appear to hold different symbolic meanings among some users, and which potentially shape their prevalence and use patterns in recreational settings (Edland-Gryt et al., 2017). Greater dialogue between 'traditional' TPS researchers and researchers using primarily qualitative methods to explore meanings of 'drugs' would improve substance use monitoring more generally.

Drug use in recreational settings, or recreational drug use

The emergence of NPS has reinvigorated a longstanding debate about the problems with binary divisions between recreational and problematic drug use. This is because NPS used in recreational settings such as nightclubs and festivals may be 'problematic' in their negative effects on the people who use them, most apparent in the emergence of cathinones such as mephedrone. With little

scientific literature on how these 'new drugs' compare with more 'traditional' substances such as MDMA and cocaine, those on the frontline across Europe, such as medical emergency crews, have struggled to cope with the acute problems experienced by people who use NPS.

Given the hard/soft distinction between substances that forms part of countries' understandings of the drug situation within their borders, it is unsurprising that the use of specific drugs, notably heroin and crack cocaine, is thought to be inherently problematic. However, it must also be remembered that people who use these drugs occasionally, who 'control' their use, may consider themselves to be 'recreational users' and would be defined as such under models of drug use that focus on factors such as frequency of use (e.g. daily use) and disruption of everyday activities and commitments (work, family, personal hygiene).

Historically, the prevalence of opiates and/or crack cocaine use has tended to be low among those frequenting recreational settings, according to data from TPSs of NTEs. By contrast, the social acceptability of some psychoactive substances, notably alcohol and cannabis, can also obscure problematic use patterns, especially in sociocultural contexts in which 'heavy', daily use is normalised. To address this issue, 'problematic' use can be understood as use that in some way interferes with a person's 'normal functioning'. This situates a person's substance use within their own lives, focusing on notions of disruption to their 'normal functioning' and of not being able to fulfil commitments, responsibilities, social roles and so on.

It must not be assumed that targeting recreational settings is proxy for targeting 'recreational users'. It is desirable, therefore, to gather data where possible on prevalence, use patterns, health harms experienced, visits to emergency departments and so on, to ensure the capture of any (emergent) problematic patterns of use among those frequenting a range of recreational settings. The Netherlands, for example, gathers data on the use of GHB/GBL (gamma-butyrolactone) in Amsterdam among 'nightlifers' or 'clubbers', but also among more marginalised groups of young people (Trimbos Instituut, 2016). For some, GHB/GBL is used 'recreationally', which sometimes leads to acute harms such as losing consciousness. For others, GHB/GBL is used 'problematically', whereby it causes chronic harm as a dependency-forming drug.

Although recreational drug users (RDUs) and problematic drug users (PDUs) are largely different groups with differing needs, there are overlaps that suggest that the two may, in specific recreational situations, be best placed along a continuum of concern⁽⁷⁾. Typologies of the characteristics of drug users in recreational settings, developed from TPS data, capture diversity, identify potentially vulnerable groups, and enable better designed interventions relevant to specific groups, especially those on the continuum of concern (Trimbos Instituut, 2016). TPSs on drug use in recreational settings undertaken in Germany, for example, identified characteristics of those who use drugs to develop user group typologies (Hannemann et al., 2017). The research by Hannemann et al. (2017)

⁽⁷⁾ Research on the use of GHB/GBL amongst men who have sex with men (MSM) who attend gay-friendly nightclubs in London and amongst MSM attending specialist drug clinics is one example of this 'continuum of concern'. Cannabis use amongst some vulnerable young people is another.

focused on dance music events and was linked to existing drug prevention projects in nightlife settings. The study involved 1 571 participants across 37 club nights and music festivals, who filled in questionnaires at the events. This sample was sufficiently large to enable more detailed statistical work, including 2-6 latent class analyses based on 12-month prevalence rates, and compared on 30-day drug use, concurrent drug use, drug sources and consumption of NPS.

The analysis produced four types of drug use patterns within this 'single' population. The smallest group (11 % of users) was profiled as 'unselective', in that they tended to have the riskiest use patterns and were most likely to combine substances. Hanneman et al. (2017) highlight this group as causing the most concern and needing the most support. There is considerable advantage, then, in developing statistical typologies, which can in turn be enhanced by triangulation with qualitative methods (such as in-depth interviews with those who fit differing profiles) to ascertain the meanings, motivations and consequences of these various substance use patterns. Interventions around the risk of polysubstance and polydrug use, for example, would be best aimed at the unselective group, but pill/powder checking services would best be aimed at Hanneman et al.'s 'traditional' user group (37 %), which preferred more familiar illicit drugs such as MDMA.

Broadly speaking, the dearth of data from countries on polysubstance and polydrug use is a key knowledge gap identified in this report. In Belgium, nightlife studies confirm the frequent occurrence of polysubstance and polydrug use (e.g. Rosiers et al., 2016). For example, the combination of MDMA and alcohol has been mentioned as a causal factor of medical interventions at Belgian music events. Since most ecstasy tablets on the current Belgian drug market contain high doses of MDMA (over 250 mg in some cases), the (polydrug) use of MDMA requires attention and additional harm reduction efforts. Although care is needed when interpreting the results of TPS research undertaken in Belgium, as they are not representative of the party scene in its entirety, there are aspects of best practice, which are explored in more depth in case study A. In summary, questions that gather data on polysubstance and polydrug use help to improve the evidence base.

The Netherlands produces high-quality data on drug use in recreational settings, on drug use by 'recreational users' (via targeted web-based surveys) and on problematic use patterns related to recreational settings (e.g. GHB/GBL use in Amsterdam). These last data are crucial, as this section has highlighted, because recreational settings may offer excellent opportunities for prevention, harm reduction and signposting to support and treatment options for those people vulnerable to developing problematic drug use from their recreational practices.

Recreational settings

Given the challenges of defining drugs and recreational users outlined above, it does seem appealing for TPSs to focus on substance use in recreational settings, in which all substance use within specific settings is of interest. This leads to the question of how to define a 'recreational setting'. There are 'common sense' choices about recreational settings that enable a certain degree of comparability

between those countries that undertake TPSs in recreational settings. Surveys of those attending nightclubs within urban centres are most common, and so researchers across Europe are most likely to understand these settings as recreational. Music festivals enjoy the same status. However, it is worth noting that most adults do not frequent nightclubs or music festivals, enjoying their leisure time in other recreational settings such as football stadiums or shopping malls. Hence, as outlined in this section, more coherent definitions of recreational settings are needed, alongside a broader range of recreational settings to be studied.

NTEs were the focus of many of the TPSs across Europe reviewed for this report. Historically, NTE research has focused on large cosmopolitan cities within a given country. The NTEs of small to medium towns feature less frequently. Most crucially, variability between countries' NTEs means that the comparability of TPSs undertaken across Europe may be undermined unless researchers acknowledge such variability. There are ways in which the conceptualisation and measurement of drug use in targeted surveys of specific NTE venues (pubs, bars and nightclubs, but also live music spaces) may be improved. Studies need to adopt common methodologies and be repeated where possible, although rapidly changing NTEs can make repeat studies difficult, as venues change hands, shut down or reopen refurbished for a different use and/or different clientele. Gathering data about the continuity and changes in NTE venues before undertaking TPS would help make the operationalisation of NTEs and NTE venues as recreational settings less opaque and, therefore, make research potentially easier to replicate.

The United Kingdom has one of the most mature nightclub scenes in Europe, steeped in a long history of rave and dance music cultures since the advent of 'acid house' music in the late 1980s. UK researchers, alongside their Danish counterparts (Järvinen et al., 2010), have used quantitative, qualitative and mixed-methods studies on alcohol and illicit drug use in recreational settings. These include pioneering early research by Professor Newcombe's Rave Research Bureau in the late 1980s and early 1990s, which was the first attempt at undertaking *in situ* TPS research in recreational settings where dance music and 'dance drugs' such as MDMA were being consumed (Measham and Moore, 2006). As in other European countries, nightclubs in the United Kingdom are a key 'recreational setting' for TPS. The rationale for focusing on nightclubs comes from qualitative data on the role of substance use, music consumption and sociability in shared night-time leisure spaces, as well as from statistical data on lifestyle factors and drug use ⁽⁸⁾ (Lader, 2016). In Lithuania, for example, the 2008 and 2013 Nightlife setting surveys were conducted in two stages: during the first stage, an online computer-assisted web interview (CAWI) was used to identify the most popular nightclubs in Lithuania and to select those in which the second stage of the research was to be conducted. The second phase consisted of a survey on patterns of drug use (Januševičienė and Jasaitis, 2014).

⁽⁸⁾ From GPS subsections of the CSEW, more frequent attendance at bars and nightclubs is associated with more recent drug use. In England and Wales, recent powder cocaine use was 17 times higher among those who had visited a pub or bar at least 9 times in the last month (10.2%) than among those who had not visited a pub or bar at all in the last month (0.6 %). A similar pattern was also seen with ecstasy (Lader, 2016:17).

Few European drug researchers explicitly define what they understand a 'nightclub' to be or why they choose to target a specific cluster of venues. Crucial definitions of what 'counts' as a nightclub venue may vary greatly across studies. Research is often based on insider or partial-insider knowledge of NTE venues, specific nights being promoted, the clientele attracted, and so on (Measham and Moore, 2006). This definitional uncertainty renders regional- and country-level comparisons potentially problematic. Some researchers focus on music genre and 'main activity', with Järvinen and Ravn (2011) defining nightclubs as 'clubs playing a variety of youth-oriented music (such as dance and pop) with a focus on dancing' (2011:568). Within marketing, tourist studies and hospitality management literature, definitions of nightclubs typically follow that of consumer data organisations such as Mintel (McGrath, 2016). It may be increasingly difficult to distinguish between different types of venue in NTEs. As McGrath states, 'The dividing line between nightclubs and late-night bars continues to be blurred, with no distinction between these different types of outlet by the licensing authorities or, indeed, the industry itself' (2016:n.p.). Clarity where possible around defining 'nightclubs' is crucial to targeted survey research, given the complexity of contemporary NTEs and the enduring importance of the relationship between music and alcohol and drug consumption (Forsyth et al., 1997; Hesmondhalgh, 2013).

Many targeted NTE surveys of those frequenting nightclubs use non-random sampling of venues. This relates to the practicality of choosing an NTE, defining and sampling NTE venues and capturing different survey populations. For example, much of the targeted survey work focuses on those attending 'popular' events in 'spectacular' venues in urban centres (e.g. Hannemann et al., 2016) but not 'normal' venues (bars, pubs, nightclubs) in regional cities and smaller towns. Hence, there remain significant gaps in knowledge about drug use in specific recreational settings, particularly those that are difficult for researchers to access, such as local, small-town NTEs, and private/domestic party spaces. The 'normal nightclubs' frequented by many young people in regional cities and smaller towns across Europe are rarely included in studies of drug use in recreational settings, although some countries such as Slovakia have included wastewater analysis in regional cities and smaller towns in their monitoring activities.

How recreational settings are perceived produces a conundrum for the reflexive researcher. Recreational settings deemed to be risky, involving participants who are assumed to be at risk themselves, are those most likely to be the focus of TPSs. Nordfjaen et al. (2016), for example, understand nightlife settings in Norway as *inherently* high risk. Using *in situ* self-report TPSs and blood alcohol concentration (BAC) data, they further identified high-risk subgroups within 12 popular licensed premises in downtown Oslo. It is not clear why this area of Oslo was chosen, or why the 12 premises were chosen other than for their 'popularity' and perceived riskiness. Recreational settings not judged to be risky, or deemed unlikely to harbour drug-using participants, are least likely to be the focus of TPSs. This brings the report on to consider the specific populations targeted by TPSs in recreational settings across Europe.

Targeting populations

Dance music fans who attend nightclubs are more likely to be prolific polydrug users than those attending other NTE events (Measham and Moore, 2009). There have been many single, dual and multi-sited qualitative studies of drug cultures relating to the consumption of electronic dance music (e.g. house, techno, trance, electronic dance music), alongside decades of TPSs of alcohol and drug use among attendees of dance music events across Europe. These studies consistently highlight that drug use is more common in venues playing dance music than among the general population and/or in other NTE venues. So, ‘committed clubbers’ who are passionate about dance music (Moore, 2004) may be a subgroup distinct from the general population who attend bars, pubs and ‘normal nightclubs’ that do not focus on dance DJs and dance music. Van Havere et al. (2011) noted that TPSs need to include night-time venues playing music genres other than dance.

TPSs of drug use in recreational settings have been broadly critiqued for overconcentrating on a small number of prolific drug users engaging in ‘spectacular’ dance subcultures who feature disproportionately in drug research compared with their ‘actual’ numbers and who, crucially, are drawn from ‘the more privileged sections of dominant cultural groups’ (Shildrick and MacDonald, 2006:133). Worryingly, few targeted surveys of drug use in recreational settings explicitly reflect on the ways in which socioeconomic status, gender and ethnicity shape participation in these settings, with low-income black and minority ethnic groups systematically excluded from many NTE spaces, including nightclubs (Sogaard, 2017). Such systematic exclusion from drugs research in recreational settings is of concern because such inequalities may become reflected in the statistical evidence base (Walby et al., 2017). What a ‘recreational setting’ is depends on multiple intersectional factors such as age, gender, ethnicity, sexuality and socioeconomic status. While not discussed in detail in this report, it is worth noting the growing body of literature on drug use in gay clubs, which draws on TPS data and incorporates other recreational settings popular with gay people (beyond more ‘visible’ leisure spaces) such as private sex parties (‘chemsex’ parties) at which drug use occurs (McCall et al., 2015).

Beyond night-time economy research: other recreational settings of interest for targeted population surveys

Within the academic research community, there is a long history of targeting surveys at those frequenting a range of recreational settings. Although work on NTEs has dominated in recent years, NTEs are but one ‘type’ of recreational setting. Others include music festivals, holiday resorts, illegal raves, and private parties, all of which will be discussed below.

Music festivals and substance use across Europe

Music festivals — particularly dance music festivals — have become a key recreational setting in which to locate research on psychoactive substance use. Music festivals can be loosely defined as

public music-based leisure events involving substantial numbers of people congregating outdoors and consuming a range of psychoactive substances. Indeed, research has demonstrated that many people attending music festivals — which have grown in number and size over the last decade or so throughout Europe — understand these recreational settings as spaces/times in which to experiment with NPS and/or consume a greater amount of those more ‘traditional drugs’ with which they are already familiar (Bennett et al., 2014). This relates to the notion that, for many participants, festivals are ‘time out’ from ‘normal’ life and a chance to ‘escape’ from the ‘real world’. Music festivals attract people whose patterns of substance use may range from experimental use and occasional recreational use to regular recreational use. The notion of a ‘binge’ is also relevant here. Alcohol, NPS and illicit drug use may be compressed into a relatively short period, so occasional ‘recreational use’ becomes daily use for the duration of the festival or holiday.

Innovations in research on drug use in recreational settings has come from work that combines scientific data gathered *in situ* with TPS data. These more indirect means of monitoring drug use in recreational settings have emerged from the need to supplement self-report survey data, as self-report brings, for example, issues of participant recall reliability. Robust data from *in situ* self-report targeted surveys, medical data such as breath, urine and hair samples, drug amnesty bins and on-site drug testing facilities may help improve the health and well-being of people who use drugs in recreational settings by developing bespoke harm reduction interventions that are timely and relevant to specific audiences. Using such a range of data also ensures that research can feed directly into drug policy, as in the case with this study of Belgium’s largest dance music festival (Gremeaux and Plettinckx, 2017; see also Trimbos Instituut, 2016).

Case study A: Measuring drug use in recreational settings and developing related interventions with stakeholders

In the framework of the EU EWS, the Belgian national focal point to the EMCDDA initiated and coordinated a research project during a large dance festival in 2015 (Plettinckx et al., 2016). The primary goal of the study was to gain more insight into the composition of drugs circulating in Belgium at the user level, with an emphasis on NPS, and to estimate adverse events related to their use. To this end, several analytical research strategies were combined.

Drug samples were collected from drug seizures by police enforcement, amnesty bins, and substances obtained from patients admitted to emergency services. Toxicological analysis by gas chromatography and mass spectrometry was performed on blood and urine samples obtained from patients admitted to the emergency medical services and presenting with unusual or worrying drug intoxication symptoms. All sewage water at the scene was gathered in large containers. This allowed the collection of sewage water and urine for wastewater analysis, retrieved at several time points and locations during the festival.

The analysis of seized drugs revealed that the MDMA content in ecstasy tablets was remarkably high: many ecstasy tablets contained more than 200 mg of MDMA (expressed as MDMA base). The analytical screening of bioclinical samples collected through the emergency services revealed that the concurrent use of drugs and alcohol (i.e. polydrug use) was very common and responsible for a large number of admissions to emergency services. The most common combinations were MDMA and/or cocaine and ethanol (alcohol).

Very high MDMA concentrations were also observed in blood or urine samples of patients with MDMA intoxications. This is potentially a direct result of the high MDMA content that is currently observed in ecstasy tablets circulating on the Belgian drug market. The analysis of sewage water and pooled-urine samples detected most substances through seizures or bioclinical samples, including their metabolites. The results indicated that α -PVP, DOB, 2C-B, ethylone, PMA/PMMA, 4-FA, CMA, GHB and ketamine were actively used. The data point to ketamine as the upcoming trend, as it was detected in much larger proportions than ever before by any monitoring or research activity.

These findings show the benefits of embracing new developments in monitoring activities, such as wastewater analysis and online analysis, to ensure the most accurate picture of drug use in recreational settings.

It is worth noting that (often more affluent) young people are able and willing to travel to party destinations that include European music festivals (Amsterdam Dance Event, Boom Festival, Creamfields, Tomorrowland) but also specific nightclubs in European cities (Amsterdam, Bruges, London) and European holiday resorts (see below). This is termed 'experience tourism'. The nationality of targeted survey participants cannot then be assumed simply by their presence in a locale. In a TPS of gay-friendly clubs in London, for example, multiple national identities of participants were recorded (Measham et al., 2011). Nationality should be included in TPS research where possible alongside age, gender, ethnicity, sexuality, disability and socioeconomic status (i.e. occupation, income bracket). Furthermore, there is a presumption, within the growing use of wastewater analysis to capture drug trends, that the people contributing to 'wastewater' are native to the country and/or resident in the cities chosen for analysis (EMCDDA, 2017b). Given the crucial role of experience tourism across Europe, this may be an incorrect assumption.

Finally, there has been a trend towards researchers and harm reduction charities working with the police to enable drug-checking at commercial (dance) music festivals with a view to gathering data about the purity of and adulterants in drug samples seized, left in amnesty bins, or given by festival attendees voluntarily (see case study A for an example). This differs from research in which breath, oral fluid, hair or urine samples — biomedical data — are collected from TPS participants (e.g. Gjerde et al., 2016) and typically used to 'verify' the match between self-report data and what people have 'actually' taken. Such drug-testing and biomedical data gathered at European music festivals (and in some urban NTEs) are available only partially if countries report them in workbooks in aggregated form. This may constitute a missed opportunity to improve the European knowledge base about drug use at music festivals and in other recreational settings.

Holiday resorts as recreational settings for drug use

As with music festivals, in recent years a growing body of both quantitative and qualitative research has emerged on the alcohol and drug use of Europeans who attend holiday resorts known for their 'party scenes', such as San Antonio and Playa d'en Bossa in Ibiza (Bellis et al., 2009; Bhardwa, 2013) and Sunny Beach in Bulgaria (Tutenges and Sandberg, 2013). The increased mobility of young people alongside the globalisation of the entertainment industry demands a broader range and scope

of TPS, specifically but not exclusively in popular tourist destinations in southern Europe (EMCDDA, 2012b).

Illegal raves/unlicensed dance events

Another type of recreational setting in which drug use occurs are ‘illegal raves’, which, for example under the United Kingdom’s Criminal Justice Act 1994, are defined as unlicensed gatherings of more than 10 people dancing to a series of amplified ‘repetitive beats’. Although many thought that the growth of licensed dance music nightclubs and commercial dance music events drawing on (warehouse) rave aesthetics would signal the end of the illegal rave, this is far from the case. Qualitative researchers across Europe point to the continued existence of thriving local ‘illegal rave’ or ‘free party’ scenes (Fernández-Calderón et al., 2011; Griffin et al., 2016) and note the continued use of drugs at such events. Again, unlicensed dance events are not included in the TPSs that feed into the EU’s monitoring activities. As with drug use at parties in domestic settings (afterparties, student parties, dinner parties), the main barrier to the inclusion of these events is access. Unlicensed event organisers are wary of engaging with researchers understood to be part of the ‘establishment’, meaning that the need for tacit insider knowledge about such events is even greater than for those researchers who concentrate on licensed events in NTEs. Furthermore, there is no agreed working definition of a ‘rave’ beyond the legalist definition offered above, which in turn makes it harder to standardise research instruments within and across countries.

Parties in domestic/private settings

One of the most ‘hidden’ populations of drug users within recreational settings is those who attend parties in domestic settings. Some people frequent leisure spaces (bars, nightclubs, festivals) and choose to continue to use drugs at what are known as afterparties. Afterparties — often associated with dance music culture — typically consist of groups of friends and/or acquaintances listening to music, socialising and using drugs for hours or sometimes even days after they have left the ‘main event’. Given the difficulties of accessing these hard-to-reach populations and the ethics of undertaking drug research in private domestic settings, these recreational settings are unlikely to be surveyed in any systematic way. Qualitative research using innovative ethnographic methods is likely to prove more fruitful in understanding how domestic settings may also be ‘recreational settings’ for drug use across Europe (Ravn and Duff, 2015; O’Neill, 2017). The same applies to other types of party that occur in private/domestic settings, including student parties (in university housing or privately rented accommodation) and dinner parties at which friendship groups gather to eat food, drink alcohol and use drugs.

Thinking about ‘what happens before, during and after’ attending a nightlife venue is increasingly considered an important part of studies exploring drug use in recreational settings. For example, research has been conducted on the ‘before’ phase around ‘preloading, back-loading and side-loading’ alcohol and drugs (O’Rourke et al., 2015). The interdisciplinary, pan-European ALAMA-nightlife project team notes that, ‘Previous studies have failed to capture the dynamic aspects of

nightlife drug use, in both the short term (before, during and after the club) and the longer term (changes over time)' (Trimbos Instituut, 2016:n.p.). This project (2016-2019), part of the European Research Area Network for Illicit Drugs (ERANID), addresses some of the issues raised in this section (and in this report more generally) by using interdisciplinary techniques (momentary or 'real time', long term, subjective and biological) and comparative perspectives. The ALAMA-nightlife project aims to improve understanding of the fluid and dynamic nature of European clubland, inform policy decisions around nightlife licensing, drug prevention and harm reduction, and ultimately contribute to the development of well-evidenced interventions in recreational settings, which in turn must be evaluated for effectiveness⁽⁹⁾.

The places, spaces and times of European elites at play

It has been noted that those in the lowest socioeconomic groups, such as homeless people living on the street, are most likely to experience problems with drugs and least likely to be captured by either national GPSs or TPSs in recreational settings. Furthermore, those at the very top of society are also unlikely to be captured by TPSs in recreational settings, primarily because of difficulties accessing leisure spaces in which European elites socialise. The City of London for example, historically a key global financial centre drawing workers from across the EU, is renowned for its workers' use of cocaine (Quinn, 2017). London was ranked first in wastewater analyses for weekday cocaine use (EMCDDA, 2016)⁽¹⁰⁾.

Little, if any, survey research has targeted such locales and/or populations. The dearth of data on European elites adds to the concern that existing TPS reinforce assumptions about drug use within and across countries and among their citizens. This is because certain recreational settings are deemed more 'problematic' than others by authorities and researchers alike, most obviously illegal raves/free parties, music festivals, (some) nightclubs and dance music events. As those working in certain locales frequent specific configurations of bars, pubs and clubs, which are often situated in central business districts and are sometimes more popular during the working week, it is here suggested that they be targeted as important recreational settings for the most privileged.

Online surveys of people who use drugs across the EU

In recent years there has been an increase in drug researchers using online surveys. In addition, online 'mega-surveys' have emerged, such as the Global Drug Survey (GDS) (see Winstock et al., 2016). The GDS utilises non-random, opportunistic sampling methods to recruit large numbers of people who use drugs. The recruitment window is brief, with the survey active for six weeks. The

⁽⁹⁾ Other projects include Club Health (see www.club-health.eu) and Safer Night Life (see www.safernightlife.org).

⁽¹⁰⁾ Further details on wastewater analysis in Europe are available at <http://www.emcdda.europa.eu/topics/pods/waste-water-analysis#panel2>

sample's representativeness is limited by response bias, meaning that there will be inherent differences between those who participate and those who do not. This survey is available online only and so is likely to miss those without easy online access and/or those with lower levels of traditional and digital literacy.

The development and success of online mega-surveys such as the GDS and other large-scale European online surveys signals a positive step in gathering data on drug use in recreational settings, or rather in gathering data online from people across Europe who may be defined as 'recreational users'. However, the lack of access to aggregated data (and disaggregated or 'raw' data) means that the EMCDDA is unable to use insights from these mega-surveys. To address this and other issues, the European Web Survey on Drugs ⁽¹¹⁾ has been launched. This aims to develop and test a web survey tool to collect information on the amounts of drugs used by different groups of people, which can be offered to national focal points to increase the information available on the amounts of drugs used to enhance market size estimation at both national and European levels and for use in policy development more widely. This topic was chosen, as there is no routine data collection and only limited data are available.

Issues around the concept of 'recreational use' discussed in earlier sections of this report mean that online surveys targeted specifically at 'recreational users' may not necessarily capture those who experiment with drugs in recreational settings, those who use 'drugs' only occasionally in recreational settings, or those who experience problems with the drugs they take in recreational settings (GHB/GBL being one example). These three groups might not consider themselves to be 'recreational drug users' and so might not self-select to take part in surveys online. With that in mind, it remains helpful to gather *in situ* self-report TPS data and other (biomedical) data about drug use in recreational settings. This can then be complemented by web-based surveys asking research participants about their drug use as it occurs in specific leisure spaces/times (as with the NPS-t project below).

An example of innovation using web-based surveys is the NPS-t project ⁽¹²⁾, a transnational study into NPS working 'to support the implementation of EU legislation on new psychoactive substances by monitoring the extent and patterns of use of such substances, and by sharing best practices on prevention'. Alongside expert interviews, web-based surveys were undertaken to determine the extent and patterns of NPS use among three different groups, including nightlife attendees. The research took place in six EU Member States: Germany, Ireland, Hungary, the Netherlands, Poland and Portugal.

Unusually, the NPS-t project captured data on the recreational settings in which NPS are consumed, as well as on the routes of administration (Dąbrowska et al. 2017). Across the six Member States sampled, most survey participants used NPS with friends outside the home (35.4 %). NPS were also consumed with friends at home (29.9 %) as well as alone (10.7 %). The study found that across all

⁽¹¹⁾ <http://www.emcdda.europa.eu/activities/european-web-survey-on-drugs>

⁽¹²⁾ <https://npstransnational.org>

survey participants the most popular places to take NPS outside the home were nightclubs and pubs/bars. Participants reported using NPS in these places with friends (17.1 %).

The NPS-t project highlights the range of recreational settings and national differences in the use of NPS. It also demonstrates the need to look *beyond* NTEs and other (typically) public recreational settings such as festivals. Indeed, web-based surveys may be the only means by which to capture quantitative data on drug use in private/domestic spaces (often by young people). These spaces include afterparties, student parties, dinner parties and gay sex parties, all of which, by their very nature, are 'hidden' from view.

Good-quality online research on drug use in recreational settings incorporates technological and methodological innovation, most recently with debates emerging around sampling 'hidden populations' (e.g. Barrett et al., 2015). An emerging body of literature demonstrates that people openly discuss drugs and (their) drug use in 'virtual spaces' such as closed Facebook groups and drug forums. One example is the closed Facebook group 'Sesh Safety', which gives members harm reduction tips about 'drug use sessions'. Such virtual spaces are where the fashions of today become the drug trends of tomorrow, captured 'further down the line' by GPSs and *in situ* and online TPSs. Other exciting research innovations are emerging in the drugs field. 'Sentiment analysis', for example, automatically captures data from drug forums and social media sites such as Twitter and Facebook to explore how users discuss drugs (Daniulaityte et al., 2016). Media analysts are paying attention to how emergent recreational settings such as cannabis social clubs are represented by media (Pardal and Tieberghein, 2017). Such representations may shape public perceptions of the acceptability (or otherwise) of certain drug-taking practices and drug policies across Europe.

Standardised tools: positives and negatives

Constructing research on drug use in recreational settings has implications in terms of the positives and negatives of deploying standardised tools. Carefully designing questionnaires for TPSs is a case in point. Designing data collection tools involves making decisions about how best to reflect the underlying construct researchers want to measure, as discussed here in relation to defining drugs, choosing which psychoactive substances might be added to a questionnaire, defining recreational settings, and deciding which recreational settings to include in the sample.

Existing standardised tools can help to produce comparable data. Drug use mapping both from national GPSs and among those frequenting recreational settings using standardised data collection tools helps capture similarities and differences between countries. The data generated from both types of survey are aggregated, rather than case level. This allows descriptive statistical reporting that is easily accessible to non-specialists. Standardisation also enables trend analysis to identify key changes in the drug situation, such as increases or decreases in drug use prevalence among specific gender and age groups within countries, or across the entire EU population.

Aggregated data gathered using standardised tools enable a drug-by-drug trend analysis. In the *European Drug Report* (EMCDDA, 2017c), for example, the rise in MDMA use is documented using GPS and other monitoring data such as those from a multi-city analysis of wastewater (2017b:49). This is also an example of how GPS can and should be combined with other data sources. Where data exist for a statistical analysis of trends in drug use, differences between countries can usefully be highlighted. For example, after a long period of stability in 'last year use' of MDMA among young adults, both France and Finland reported large increases in 2014 (EMCDDA, 2017c:48). Since aggregated data do not lend themselves to more complex statistical analysis, or to the testing of models, they are best combined with other data sources (Mounteney et al., 2016).

Case study B: Measuring drug use in recreational settings — using an integrated monitoring system

Amsterdam Antenne has been reporting on trends in the city's drugs markets since 1993. Analysing a combination of qualitative and quantitative data collected each year, it documents the use of recreational substances by adolescents and young adults. The mixed-methods research review has three main components: the panel study, the annual survey and the prevention indicators. Altogether, the data obtained from the various components of Antenne paint a diverse picture of the trends and patterns in Amsterdam's world of 'recreational drug use' across times/spaces.

The panel study traces the latest developments by conducting individual, semi-annual interviews with a panel of insiders from various scenes. The main emphasis is on nightlife, with a special focus on trendsetters who experiment with new music, venues or drugs. The panel study reports few exact figures but highlights dynamic processes. Another focus of the panel study is disadvantaged young people who hang out in city neighbourhoods, with information provided by professionals who work with the young people in the neighbourhood.

Quantitative data are collected via an annual survey that concentrates on substance use in specific social groups: school-aged adolescents, young clients of youth services, cannabis coffeeshop customers, pub-goers, and clubbers and ravers. In 2014, pub-goers were in focus once again, as they were in 2000, 2005 and 2010. Comparing the 2014 data with those from the previous surveys can shed light on longer term trends in substance use in Amsterdam over a 15-year period. The substance use prevention indicators provide information on the alcohol and drugs markets in the form of quantitative data deriving from information or advice requests received by prevention workers and from the test results of voluntarily submitted drug samples.

More specifically, for surveys of drug use in recreational settings to achieve their real value, they should be repeated at regular intervals with similar methodology (series of surveys). Such repeat surveys allow the changes in prevalence and patterns of use to be identified (Monshouwer et al., 2016; see also case study B). In Belgium, regular studies on psychoactive substance use in recreational and nightlife settings have been conducted in both the Flemish and the French communities. The regularity of such studies greatly enhances drug monitoring in Belgium, notably in terms of trend data. In the most recent study, cannabis remains by far the most popular illicit substance. The use of stimulants — especially MDMA — is gaining popularity in these settings, as

confirmed through repeat TPSs and applied research methods, such as wastewater analysis and bioclinical case studies (Rosiers et al., 2016).

Sample sizes must be large enough to allow for changes in the more relevant subgroups of the population. Furthermore, longitudinal follow-up studies allow the exploration of causal factors in the development of problematic drug use patterns (Trimbos Instituut, 2016). However, such studies entail greater resources, a range of expertise and, most importantly, greater continuity of research funding than the cross-sectional or 'snapshot' surveys more typical of research on drug use in recreational settings across Europe.

While existing standardised tools are available for measuring constructs in the field of drug research, some may not be easily transferable to different cultural contexts. The question, then, is whether, and to what degree, researchers move away from standardised tools without undermining their positives and while ensuring that the data produced remain viable and useful to the overarching aim of monitoring Europe's drug situation. Indeed, modifying existing research instruments to accommodate cultural specificities is limited if data from countries are to be meaningfully compared. This is where the previously mentioned adjunct collection of qualitative data, for example through research using in-depth interviews or open text boxes on (online) survey sheets, may compensate for the inherent limitations of statistical survey data (Soussan et al., 2017). Ethnographic studies (as a form of qualitative research) are a key way of addressing such issues, with triangulation increasing the robustness of data produced and, subsequently, any ensuing findings, conclusions and implications for practice.

Conclusions: building a better picture of substance use in recreational settings across Europe

The principal aim of this report has been to encourage debate around the definition, conceptualisation, collection and deployment of data on drug use, or more broadly substance use, in recreational settings across Europe. The need for this debate is ever more urgent given the emergence of NPS and related academic and policy responses (Chatwin et al., 2017), alongside a rapidly changing political, social and cultural landscape across Europe and beyond. Through dialogue between those directly charged with monitoring the drugs situation across Europe and researchers using both quantitative and qualitative methods, positive change becomes possible. Improved monitoring of substance use in recreational settings can help build a better evidence base for more balanced, proportionate drug policies aimed at prevention and harm reduction. 'Effective and lasting policy change,' Miller et al. (2017) note well, 'is dependent upon independent research from an active and collaborative community of scientists which constructively support, critique and expand the evidence base' (2017:36).

TPS data are presented as evidence to be used, co-opted or ignored in building drug policy responses, and so contribute to the production of the 'drug problem'. In turn, specific representations of the drug problem shape the statistical and other data collected by TPS (¹³). The report has shown how specific drugs, drug-using populations and recreational settings dominate investigations, while others are largely ignored. This may be countered by adopting a critical and reflexive approach to the way in which TPS define and conceptualise 'drugs', drug users, and drug use settings (Moore and Matias, 2018).

This report has outlined how important the appropriate definition and sampling of recreational settings is to ensuring good-quality data from quantitative studies. Sampling a range of towns and cities, a range of NTEs, a range of NTE venues and recreational settings beyond NTEs helps ensure greater inclusivity of those using alcohol/tobacco, illicit drugs, NPS and pharmaceutical medications. Standardisation, although much needed, tends to reinforce the inclusion of some drug-using populations and the possible exclusion of others. With a focus on NTEs and on dance music events within NTEs, those frequenting other kinds of venues in NTEs, as well as those using drugs in other recreational settings, tend to be ignored. This points to a need to foster greater critical debate about the assumptions on which standardisation is built.

This report has identified a significant gap in knowledge about drug use across Europe in those recreational settings not previously considered for inclusion in monitoring activities. This gap has yet to be fully explored simply because targeted surveys in recreational settings tend to add to the existing knowledge base. *In situ* TPS in recreational settings tend to target those people (and those drugs) that are already 'known' from previous GPSs and TPSs. Yet it cannot be ignored that there are people who use drugs who are captured neither by GPSs nor by TPSs in recreational settings across the EU *as they are undertaken now*. This compounds the fact that certain people who use drugs are 'invisible', notably those whose preferred recreational settings are difficult to access (such as illegal raves) and those who are not typically assumed to be drug users given that they are otherwise seen to be generally law abiding.

Targeted surveys need to focus on more diverse — and previously hidden — populations (such as European elites) to include hitherto under-researched relevant spaces, places and times across Europe. People who do not frequent *public* recreational settings (such as festivals) are one cohort who do use drugs, sometimes 'to excess', but in the *private* recreational settings of their own homes or those of their friends. This group of drug users, who may fall anywhere on the recreational-problematic drug use spectrum, are less often taken into consideration by European researchers and by those who report their monitoring activities.

Possible gaps in knowledge may not be apparent without taking a more critical approach to survey data on substance use. More coherent definitions of recreational settings, more specific definitions of NTE venues, and a broader range of recreational settings are needed to move forward. Having a

(¹³) This process is discussed in relation to NPS in the 'What is a drug? Using critical drug studies' section of this report.

clearer sense of the units of analysis (e.g. nightclubs) that concern researchers across Europe means that potential nuances in terms of substance use may be captured, while there may be greater possibilities for comparison and synthesis across what is currently a (geographically) dispersed field of study.

Although there is a multitude of high-quality TPSs from which to monitor drug use prevalence and patterns in recreational settings, the scope of this exercise remains limited unless different types of data from a broader range of sources can be linked explicitly. These sources include online TPSs, on-site drug checking, TPS biomedical markers gathered *in situ*, wastewater analysis and social media (gathered from drug discussion forums). The analogy here is 'building a better picture of substance use across Europe'. Specifically, the potential of qualitative data (such as interviews with festival-goers) to contribute to this 'better picture' is increasingly being recognised in considerations of improving EU monitoring tools.

Researchers and practitioners use mixed-methods, holistic approaches to obtain rich data. This use of TPS data and complementary data sources ensures that health interventions that aim to reduce harm to substance users in recreational settings are well evidenced and highly relevant. Better monitoring of substance use in recreational settings using credible and timely data can help build a balanced, more proportionate set of drug policy tools. Furthermore, interventions may prove more effective at reducing substance-related risks and harms when they are built on solid understanding and operationalisation of 'recreational setting' concepts, including spaces, times, populations, music consumption, polysubstance and polydrug repertoires, user group practices, and the meanings, motivations and consequences of psychoactive substance use.

Looking to the future, there are positive signs that the complexity of studying drug use in recreational settings across Europe is being recognised. ERANID, for example, focuses on improving cross-border research in the EU around various aspects of the 'drugs problem'. Cross-European collaborations and interdisciplinary research teams with a remit for longer term, multi-faceted studies have been established to deal with some of this complexity. The ALAMA-nightlife project (2016-2019) ⁽¹⁴⁾, for example, is tasked with addressing some of the issues raised in this report by using interdisciplinary techniques (momentary or 'real time', long-term, subjective and biological) and comparative perspectives in relation to drug use among young adults in Europe's nightlife scene. The ALAMA-nightlife project aims to improve understandings of the fluid and dynamic nature of European clubland, which in turn can feed into policy decisions for nightlife licensing, drug prevention and harm reduction (Trimbos Institute, 2016).

This report has highlighted exciting examples of collaborative research and best practice models that bode well for the future. Several of these projects are described in Annex 1. The European drugs research community is becoming attuned to the nuances of substance use in a range of recreational settings where many of Europe's citizens want to spend their leisure time safely. Many of the

⁽¹⁴⁾ Details can be found at <https://www.eranid.eu/projects/alama-nightlife/>. For other related projects, see www.clubhealth.eu and www.safernightlife.org.

questions emerging from this report require further investigation and the development of evidence-based studies. It is hoped that this report has helped to critically document existing studies and shed some light on the forthcoming surveys targeting recreational drug use or people who use drugs in a 'recreational' way.

References

Barrett, M. J., Ferris, J. A. and Lenton, S. (2015), 'Hidden populations, online purposive sampling and external validity: taking off the blindfold', *Field Methods* 27, pp. 3-21.

Bellis, M. A., Hughes, K., Calafat, A., Juan, M. and Schnitzer, S. (2009), 'Relative contributions of holiday location and nationality to changes in recreational drug taking behaviour: a natural experiment in the Balearic Islands', *European Addiction Research* 15, pp. 78-86.

Bennett, A. Woodward, I. and Taylor, J. (eds) (2014), *The festivalisation of culture: celebration, identity and politics*, Taylor & Francis, London.

Bhardwa, B. (2013), 'Alone, Asian and female: the unspoken challenges of conducting fieldwork in dance settings', *Dancecult: Journal of Electronic Dance Music* 5, n.p.

Bourdieu, P. and Wacquant, L. (1992), *An invitation to reflexive sociology*, University of Chicago Press, Chicago.

Chatwin, C., Measham, F., O'Brien, K. and Sumnall, H. (2017), 'New drugs, new directions? Research priorities for new psychoactive substances and human enhancement drugs', *International Journal of Drug Policy* 40, pp. 1-5.

Corbin, M. (2012), 'Tactics of legitimation in the psychedelic sciences: lessons for feminist sociology of knowledge', *American Behavioral Scientist* 56, pp. 1413-1433.

Dąbrowska, K., Bujalski, M. and Wieczorek, L. (2017), *Country report on new psychoactive substances in Poland*, NPS-transnational Project, Warsaw.

Daniulaityte, R., Chen, L., Lany, F. R., Carlson, R. G., Thirunarayan, K. and Sheth, A. (2016), 'When 'bad' is 'good': identifying personal communication and sentiment in drug-related tweets', *JMIR Public Health Surveillance* 2016, 2, e162, doi:10.2196/publichealth.6327.

Edland-Gryt, M. Sandberg, S. and Pedersen, W. (2017), 'From ecstasy to MDMA: recreational drug use, symbolic boundaries and drug trends', *International Journal of Drug Policy* 50, pp. 1-8.

EMCDDA (European Monitoring Centre for Drugs and Drug Addiction) (2006), *Drug use in recreational settings*, Selected Issue, Publications Office of the European Union, Luxembourg.

EMCDDA (2009), *Polydrug use: patterns and responses*, Selected Issue, Publications Office of the European Union, Luxembourg (available at http://www.emcdda.europa.eu/publications/selected-issues/polydrug-use-patterns-and-responses_en).

EMCDDA (2012a), *Responding to drug use and related problems in recreational settings*, Thematic Papers, EMCDDA, Lisbon (available at http://www.emcdda.europa.eu/system/files/publications/679/Recreational_settings_WEB_382468.pdf)

EMCDDA (2012b), *Travel and drug use in Europe: a short review*, Thematic Papers, EMCDDA, Lisbon (available at http://www.emcdda.europa.eu/system/files/publications/677/Travel_and_drug_use_394352.pdf).

EMCDDA (2014), *National report 2013 Slovakia*, EMCDDA, Lisbon.

EMCDDA (2016), *European Drug Report 2016: Trends and Developments*, EMCDDA, Lisbon (available at <http://www.emcdda.europa.eu/edr2016>).

EMCDDA (2017a), *Developing drug supply monitoring in Europe: current concepts*, EMCDDA Papers, Publications Office of the European Union, Luxembourg (available at http://www.emcdda.europa.eu/publications/emcdda-papers/developing-drug-supply-monitoring_en).

EMCDDA (2017b), *High risk drug use and new psychoactive substances: results from an EMCDDA trendspotter study*, EMCDDA Rapid Communication, Publications Office of the European Union, Luxembourg.

EMCDDA (2017c), *European Drug Report 2017: Trends and Developments*, EMCDDA, Lisbon (available at http://www.emcdda.europa.eu/edr2017_en).

Fernández-Calderón, F., Bienestar, A., Josefa, D., Ortega, G., Vergara, E., González-Sáiz, F. and Bilbao, I. (2011), 'Polysubstance use patterns in underground rave attendees: a latent class analysis', *Journal of Drug Education* 41, pp. 183-202.

Forsyth, A. J. M., Barnard, M. and McKeganey, N. P. (1997), 'Musical preference as an indicator of adolescent drug use', *Addiction* 92, pp. 1317-1325.

Gjerde, H., Nordfjaern, T., Bretteville-Jensen, A. L., Edland-Gryt, M., Furuhaugen, H., Karinen, R. and Oiestad, E.L. (2016), 'Comparison of drugs used by nightclub patrons and criminal offenders in Oslo, Norway', *Forensic Science International* 265, pp. 1-5.

Gremeaux, L. and Plettinckx, E. (2017), *Substance use at music festivals: what is burning up the dance floor?*, WIV-ISP, Brussels.

Griffin, C., Bengry-Howell, A., Riley, S., Morey, Y. and Szmigin, I. (2016), "'We achieve the impossible": Discourses of freedom and escape at music festivals and free parties', *Journal of Consumer Culture* 18(4), pp. 477-496. doi:[10.1177/1469540516684187](https://doi.org/10.1177/1469540516684187).

Hannemann, T.-V., Piontek, D. and Gomes de Matos, E. (2016), 'Consumption patterns in German nightlife: a latent class analysis', IST and University of Hilgesheim, Germany, presented at the Annual Expert Meeting 2016, 19-20 September, Lisbon.

Hannemann, T.-V., Kraus, L. and Piontek, D. (2017), 'Consumption patterns of nightlife attendees in Munich: a latent-class analysis', *Substance Use & Misuse* 52, pp. 1532-2491.

Hesmondhalgh, D. (2013), *Why music matters*, Wiley-Blackwell, Chichester.

Januševičienė, E. and Jasaitis, E. (2014), *Prevalence of use of narcotic and psychotropic substances among night clubbers in Lithuania, 2013*, Drug, Tobacco and Alcohol Control Department of Lithuania (available at http://old.ntakd.lt/files/informacine_medzega/2014/Klubai.pdf).

Järvinen, M., Demant, J. and Østergaard, J. (eds) (2010), *Stoffer og natteliv [Drugs and nightlife]*, Hans Reitzels Forlag, Copenhagen.

Järvinen, M. and Ravn, S. (2011), 'From recreational to regular drug use: qualitative interviews with young clubbers', *Sociology of Health & Illness* 33, pp. 554-569.

Lader, D. (2016), *Drug misuse: findings from the 2015/16 Crime Survey for England and Wales*, Home Office, London.

McCall, H., Adams, N., Mason, D. and Willis, J. (2015), 'What is chemsex and why does it matter?', *British Medical Journal* 351.

McGrath, R. (2016), *UK Nightclubs market report*, Mintel, London.

Measham, F. and Moore, K. (2006), 'Reluctant reflexivity, implicit insider knowledge and the development of club studies', in Sanders, B. (ed), *Drugs, clubs and young people: sociological and public health perspectives*, pp. 13-25, Ashgate, Aldershot, UK.

Measham, F. and Moore, K. (2009), 'Repertoires of distinction: exploring patterns of weekend polydrug use within local leisure scenes across the English night time economy', *Criminology and Criminal Justice* 9, pp. 437-464.

Measham, F. and Newcombe, R. (2016), 'What's so new about new psychoactive substances? Definitions, prevalence, motivations, user groups, and a proposed new taxonomy', pp. 576-596, in Kolind, T., Thom. B., and Hunt. G. (eds.), *The Sage handbook of drug and alcohol studies*, Sage Publications, London.

Measham, F., Wood, D.M., Dargan, P. I. and Moore, K. (2011), 'The rise in legal highs: prevalence and patterns in the use of illegal drugs and first and second generation "legal highs" in South London gay dance clubs', *Journal of Substance Use* 16, pp. 263-272.

Miller, P. G., Chikritzhs, T., Droste, N., Pennay, A. and Tomsen, S. (2017), 'Commentary: The need for accuracy and validity in research on nightlife and drinking: a commentary on Devilly et al. and recommendations for future research', *International Journal of Drug Policy* 50, pp. 36-40.

Monshouwer, K., van der Pol, P., Drost, Y. C. and van Laar, M. W. (2016), *The Comprehensive Nightlife Study 2016: the use of resources and preventive measures among nightlife-attending young adults*, Timbos Instituut, Utrecht.

Moore, K. (2004), 'A commitment to clubbing', *Peace Review: A Journal of Social Justice* 16, pp. 459-465.

Moore, K. and Matias, J. (2018), 'Targeted population surveys on drug use in recreational settings', in Potter, G., Fountain, J. and Korf, D. (eds), *Place, space and time in European drug use, markets and policy*, pp. 97-113, Pabst Science Publishers, Lengerich.

Moore, K. and Measham, F. (2012), 'GBL: the forgotten legal high', *Contemporary Drug Problems* 39, pp. 565-590.

Mounteney, J. Griffiths, P. Cunningham, A., Evans-Brown, M., Ferri, M., Hedrich, D. and Noor, A. (2016), 'Continued signs of resilience in the European drug market: highlights from the EMCDDA's 2016 Drug Report', *Drugs: Education, Prevention and Policy* 23, pp. 492-495.

Nordfjaen, T. Bretteville-Jensen, A. L. Edland-Gryt, M. and Gripenberg, J. (2016), 'Risky substance use among young adults in the nightlife arena: an underused setting for risk-reducing interventions?', *Scandinavian Journal of Public Health* 44, pp. 638-645.

O'Neill, C. (2017), 'Behind closed doors: risk and recreational drug use in rural Northern Ireland', *Journal of Rural Mental Health* 41, pp. 97-109.

O'Rourke, S., Ferris, J. and Devaney, M. (2015), 'Beyond pre-loading: understanding the associations between pre-, side- and back-loading drinking behavior and risky drinking', *Addictive Behaviors* 53, pp. 146-154.

Pardal, M., and Tieberghien, J. (2017), 'An analysis of media framing of and by cannabis social clubs in Belgium: making the news?', *Drugs: Education, Prevention and Policy* 24, pp. 348-358.

Piontek, D. and Hannemann, T.-V. (2015), *Substanzkonsum in der jungen Ausgehsszene*, IFT Institut für Therapieforschung, München.

Plettinckx, E., Antoine, J., Blanckaert, P., De Ridder, K., Vander Laeren Laudens, F., Casero, L. and Gremeaux, L. (2016), *Developments and trends on drugs 2015: synthesis report by the Belgian Reitox national focal point*, WIV-ISP, Brussels.

Quinn, B. (2017), 'Confessions from the City: why firms are failing to tackle the cocaine crisis', *The Guardian*, 10/09/2017 (available at <https://www.theguardian.com/society/2017/sep/09/city-firms-failing-to-tackle-cocaine-crisis>).

Ravn, S. and Duff, C. (2015), 'Putting the party down on paper: a novel method for mapping youth drug use in private settings', *Health and Place* 31, pp. 124-132.

Rosiers, J., Möbius, D. and Schrooten, J. (2016), [*Uitgaansonderzoek 2015: Report on substance use in nightlife in Flanders*](#), VAD, Belgium.

Shildrick, T. and MacDonald, R. (2006), 'In defence of subculture: young people, leisure and social divisions', *Journal of Youth Studies* 9, pp. 125-140.

SHW (2015), *checkit! Tätigkeitsbericht 2014*, Suchthilfe Wien gGmbH, Vienna.

SHW (2016), *checkit! Tätigkeitsbericht 2015*, Suchthilfe Wien gGmbH, Vienna.

Sogaard, T. F. (2017), 'Ethnicity and the policing of nightclub accessibility in the Danish night-time economy', *Drugs: Education, Prevention and Policy* 24, pp. 256-264.

Soussan, C., Andersson, M. and Kjellgren, A. (2017), 'The diverse reasons for using novel psychoactive substances — a qualitative study of the users' own perspectives', *International Journal of Drug Policy* 52, pp. 71-78.

Trimbos Instituut (2016), *The dynamics and consequences of young adult substance pathways*, ALAMA Project, Trimbos Insituut, Utrecht.

Tutenges, S. and Sandberg, S. (2013), 'Intoxicating stories: the characteristics, contexts and implications of drinking stories among Danish youth', *International Journal of Drug Policy* 24, pp. 538-544.

Van Havere, T., Vanderplasschen, W., Lammertyn, J., Broekaert, E. and Bellis, M. (2011), 'Drug use and nightlife: more than just dance music', *Substance Abuse Treatment, Prevention and Policy* 6, 18.

Walby, S., Towers, J., Balderston, S., Corradi, C., Francis, B., Heiskanen, M., Helweg-Larsen, K., et al. (2017), *The concept and measurement of violence against men and women*, Policy Press (Shorts), Bristol.

Winstock, A., Barrett, M., Ferris, J. and Mair, A. (2016), *What we learned from GDS 2016: an overview of our key findings*, Global Drugs Survey 2016 (available at <https://www.globaldrugsurvey.com/wp-content/uploads/2016/06/TASTER-KEY-FINDINGS-FROM-GDS2016.pdf>).

Annex 1: Studies of drug use in recreational settings across European countries

Across Europe, considerable effort is put into research that seeks to capture drug use in recreational settings. However, as Figure A1 below highlights, there is a clear geographical spread of studies being undertaken in western European countries as compared with other European regions.

The picture of studies is relatively inclusive, and can be broadly summarised as:

- studies drawing on GPS data;
- studies specifically on nightlife settings assessing drug use levels;
- studies on drug use that highlight use in nightlife settings although not studies carried out in nightlife settings;
- studies not specifically on quantifying how many use drugs but that find high levels of use in (or in the vicinity of) recreational settings (e.g. wastewater-based epidemiology);
- studies that are part of an integrated approach (e.g. Amsterdam Antenne, Netherlands)

FIGURE A1

Countries conducting studies of drug use in recreational settings

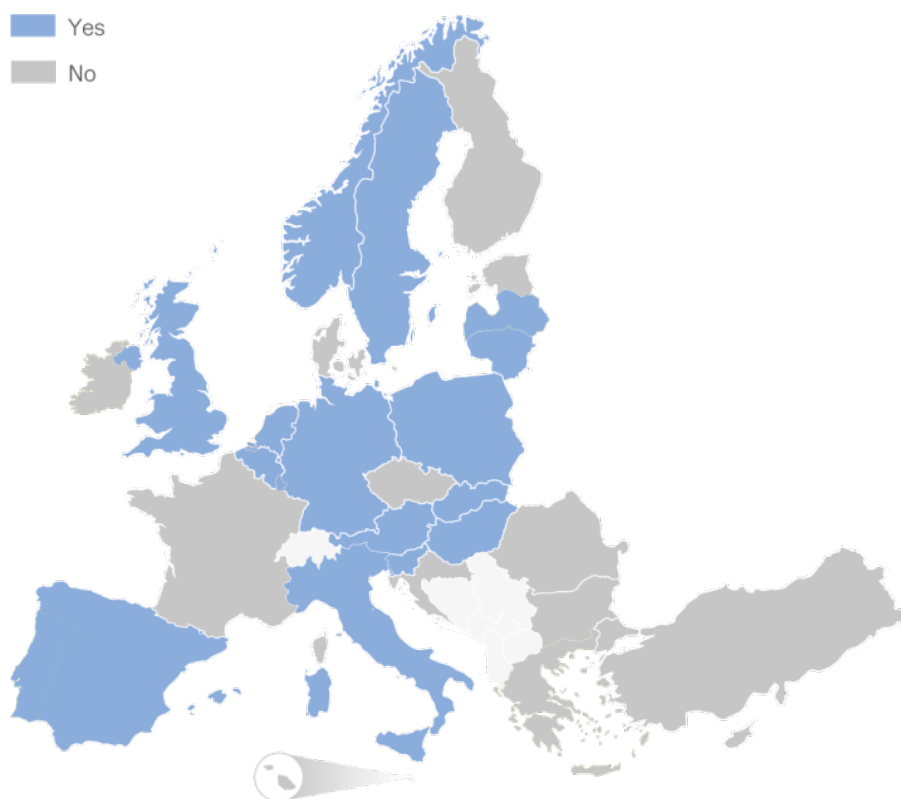


Table A1

Examples of national and international studies/projects on drug use in recreational settings across Europe

Country	Project	Brief description	References
Austria	<i>ChEck iT!</i>	Collaborative project run by Suchthilfe Wien (SHW) and the Clinical Institute of Medical and Chemical Laboratory Diagnoses at the Medical University of Vienna. Services include laboratory analyses of psychoactive substances at (music) events (parties, raves, festivals, etc.).	Reports available at http://www.suchthilfe.wien/publikationen/jahresberichte/
	<i>VAD Nightlife Survey 2015</i>	Target population: Flemish party-goers — both users and non-users of illicit drugs. Respondents are selected at Flemish dance and music events and in clubs. Probabilistic sampling: in a time window of two to four hours, every fifth person passing by is asked to participate in the survey.	Rosiers, J., Möbius, D. and Schrooten, J. (2016), <i>Uitgaansonderzoek 2015</i> , VAD, Brussels.
Belgium	<i>Drugs risk less (Drogues Risquer Moins)</i>	Risk reduction project. Partnership between Modus Vivendi and local prevention services in the French community to intervene as a joint action in more than 30 harm reduction/prevention organisations active in recreational settings. Professionals and peers provide information and advice to people who use drugs and those who are interested. The accompanying survey verifies whether the harm reduction activities are well matched to the targeted audience. The survey is thus not representative of the whole party scene and it is not interpretable as prevalence data because there is no sampling method. The results can be interpreted as a first indication of specific (new) issues of substance use among the targeted group.	Hogge, M. and Denoiseux, D. (2014), <i>L'usage de drogues en Fédération Wallonie-Bruxelles. Rapport 2013-2014</i> , Eurotox ASBL, Brussels.

Country	Project	Brief description	References
	<i>Substance use at music festivals</i>	In the framework of the EU EWS, the Belgian national focal point to the EMCDDA initiated and coordinated a research project during a large dance festival in 2015. The primary goal of the study was to gain more insight into the composition of drugs circulating in Belgium at the user level, with an emphasis on NPS, and to estimate adverse events related to their use.	Gremeaux, L. and Plettinckx, E. (2017), <i>Substance use at music festivals: what is burning up the dance floor?</i> , WIV-ISP, Brussels.
Germany	<i>Consumption patterns of nightlife attendees in Munich: a latent-class analysis</i>	The detection of subgroups of consumers in the electronic dance music scene of a major German metropolitan city, describing the consumption patterns of these subgroups, and exploring the prevalence and type of NPS consumption in this population at nightlife events in Munich.	Hannemann, T-V., Kraus, L. and Piontek, D. (2017), 'Consumption patterns of nightlife attendees in Munich: a latent-class analysis', <i>Substance Use & Misuse</i> 52:11, pp. 1511-1521.
Latvia	<i>Drug use in places of entertainment</i>	Targeted population survey in recreational settings.	Koroļeva, I., Trapencieris, M., Sniķere, S., Kārklīņa, I., Jankovskis, M. and Kriekē, L. (2012), <i>Drug use in places of entertainment in 2012</i> , Disease Prevention and Control Centre, Riga.
Lithuania	<i>Prevalence of use of narcotic and psychotropic substances among night clubbers in Lithuania</i>	Nightlife settings surveys with targeted populations were implemented in Lithuania in 2008 and again in 2013. Both surveys were conducted in two stages: the first used an online CAWI to identify the most popular nightclubs in Lithuania and to select nightclubs for the second stage, in which people were interviewed about their drug patterns in recreational settings.	Januševičienė, E. and Jasaitis, E. (2014), <i>Prevalence of use of narcotic and psychotropic substances among night clubbers in Lithuania, 2013.</i> , Drug, Tobacco and Alcohol Control Department of Lithuania (available at

Country	Project	Brief description	References
			http://old.ntakd.lt/files/informacine_medz_ega/2014/Klubai.pdf .
Luxembourg	<i>Party MAG-Net. Enquête auprès du public festif au Grand-Duché de Luxembourg</i>	The CePT Addiction Prevention Centre regularly assesses drug use in recreational settings to understand drug use in party-goers and to improve prevention methods 'in festive settings'. To this end, a brief questionnaire was distributed to respondents at parties and festivals, including questions on gender, age, country of living, languages spoken, travel mode, and drugs that have been used in the previous two weeks.	Both, L., Duscherer, K., Greiveldinger, C. and Paulos, C. (2014), <i>Consommation récréative. Collecte de données 2013</i> , Centre de prévention des toxicomanies, Luxembourg. Duscherer, K. and Paulos, C. (2016), <i>Party MAG-Net. Enquête auprès du public festif au Grand-Duché de Luxembourg</i> , Centre de prévention des toxicomanies, Luxembourg.
The Netherlands	The <i>Comprehensive Nightlife Study 2016</i>	Target group: adolescents and young adults aged between 15 and 35 years who attended a party or festival, or visited a club or discotheque at one time in the past year. Recruitment took place via social media such as Facebook, where nightlifers search for information on nightlife areas, festivals or events. Over a 20-day period, 6 866 completed questionnaires were submitted, of which 4 905 met the inclusion criteria and were used in the study. Note that this is a convenience sample, which is self-selected and may not be representative of all young people attending the nightlife scene. A similar study was conducted in 2013.	Monshouwer, K., van der Pol, P., Drost, Y. C. and van aar, M. W. (2016), <i>The Comprehensive Nightlife Study 2016: the use of resources and preventive measures among nightlife-attending young adults</i> , Timbos Instituut, Utrecht.
	<i>Antenne</i>	Since 1993, the Amsterdam Antenne has combined qualitative and	Antenne 2017 (available at

Country	Project	Brief description	References
		quantitative research methods to monitor drug use in Amsterdam among adolescents and young adults. The Antenne uses a mixed-methods monitoring scheme, consisting of a panel study, a survey (among yearly varying groups in nightlife), and prevention indicators. Mixed-methods studies offer a more comprehensive approach to researching drug use in recreational settings.	https://www.jellinek.nl/wp-content/uploads/2018/07/Antenne-Amsterdam-2017.pdf).
Norway	<i>Risky substance use among young adults in the nightlife arena</i>	This study identified nightlife settings in Norway as 'high-risk'. Using an <i>in situ</i> self-report survey and blood alcohol concentration (BAC) data, it sought to identify high-risk subgroups within 12 'popular licensed premises in downtown Oslo'.	Nordfjaen, T., Bretteville-Jensen, A. L., Edland-Gryt, M. and Gripenberg, J. (2016), 'Risky substance use among young adults in the nightlife arena: an underused setting for risk-reducing interventions?', <i>Scandinavian Journal of Public Health</i> 44, pp. 638-645.
Portugal	<i>Consumption and lifestyles in higher education at Lisbon University</i>	In 2013, this study evaluated the lifestyles of students at Lisbon University, in health and wellness, sports and leisure practices, diet, and use of alcohol and other psychoactive substances. Online data collection drew on a sample of 3 327 students.	Alcântara da Silva, P., Borrego, R., Ferreira, V. S., Lavado, E., Melo, Rowland, J. and Truninger, M. (2015), <i>Consumos e Estilos de Vida no Ensino Superior: o caso dos estudantes da ULisboa-2012</i> , Serviço de Intervenção nos Comportamentos Aditivos e Dependências, Lisbon.
	<i>New psychoactive substances and</i>	A previous and tested methodology for similar contexts was used, which consisted of applying a semi-open questionnaire to the public	Calado, V., Lavado, E. and Dias, L. (2017), <i>Novas substâncias psicoativas</i>

Country	Project	Brief description	References
	<i>other drugs: NOS Alive Festival 2017 Drug Use Survey</i>	about to enter the precinct of a summer music festival in Lisbon.	<i>e outras drogas. Inquérito ao público do festival NOS Alive — 2017 SINOPSE</i> , SICAD, Lisbon (English version available at http://www.sicad.pt/BK/EstatisticaInvestigacao/EstudosConcluidos/Lists/SICAD_ESTUDOS/Attachments/187/NPS-EN.pdf)
	<i>The social representation of drugs and drug addiction. A survey to youth attending Rock in Rio</i>	Targeted population survey at the entrance to a music festival in Lisbon.	Calado, V. and Lavado, E. (2016). <i>Representações sociais da droga e da toxicodependência. Inquérito ao público jovem presente no Rock in Rio — Lisboa 2016</i> , SICAD, Lisbon.
	<i>CHECK!N</i>	Drug checking services available at recreational settings.	http://www.apdes.pt/servi%C3%A7os/saude-reducao-riscos-direitos-humanos/check!n.html
	<i>Kosmicare</i>	Drug-checking services available at recreational settings.	https://www.facebook.com/akosmicare/
Slovakia	<i>Prevalence and trends in NPS use: recreational settings in</i>	Targeted online population survey of recreational settings.	NMCD: Online surveys on NPS use

Country	Project	Brief description	References
	<i>Slovakia</i>		
Slovenia	<i>Studying the use of cocaine in nightlife</i>	Study on the use of cocaine in nightlife, carried out by the DrogArt Association, to obtain data on the prevalence and characteristics of cocaine use in bars, clubs and discotheques in Slovenia, information about the harmful consequences related to cocaine use as perceived by users, the economic aspects of cocaine use, monthly consumption, assessment of quality, impact of the price of cocaine on use, the needs of users for assistance, and additional information related to cocaine use. Outcomes of the study related to harm reduction can be used to improve current interventions and provide new services for people who use cocaine.	Sande, M. (2012), <i>Uporaba kokaina v nočnem življenju v Sloveniji</i> , Združenje DrogArt, Ljubljana.
Spain	<i>Energy Control</i>	Drug-checking services available at recreational settings, aiming to achieve a better understanding of current patterns of drug use in order to influence the design and implementation of interventions.	https://energycontrol.org/
United Kingdom	<i>The Loop</i>	On-site drug safety testing at nightclubs and festivals to help identify trends in the drug market and drug use.	https://wearetheloop.org/
International Belgium, Italy, Netherlands Sweden and United Kingdom	<i>ALAMA</i>	The ALAMA project aims to better understand the fluid and dynamic nature of European clubland, inform policy decisions around nightlife licensing, drug prevention and harm reduction, and ultimately contribute to the development of well-evidenced interventions in recreational settings. Among others, one of the objectives is to identify the substance use profiles of young adults regularly attending electronic dance events.	Trimbos Instituut (2016), <i>The dynamics and consequences of young adult substance pathways</i> , ALAMA Project, Trimbos Insituut, Utrecht (available at https://www.eranid.eu/projects/alama-nightlife/).

Country	Project	Brief description	References
International Germany, Italy, Portugal and Slovenia	<i>BAONPS project</i>	Objectives of BAONPS — Be Aware On Night Pleasure Safety project: <ul style="list-style-type: none"> • early identification of NPS by implementing drug checking in nightlife contexts and outside them; • to inform national and European EWS about NPS detected; • to combine drug checking with prevention actions and outreach interventions to make people who use drugs aware about the risks and effects of drugs, especially those related to NPS; • to identify NPS consumption patterns, related meanings and cross-cultural differences and spread this information to professionals and service providers. 	BAONPS (2017), <i>Drug checking: recommendations for a pilot implementation and technique update — Raman spectroscopy</i> (retrieved from http://coopalice.net/baonps/wp-content/uploads/2017/10/BAONPS-DRUG-CHECKING-Reccomendation-for-pilot-implementation-and-RAMAN-Spectroscopy-technique-update.pdf).
International Germany, Ireland, Hungary, Netherlands, Poland and Portugal	<i>NPS-t project</i>	An example of innovation using online surveys, the NPS-t project is a transnational study into NPS. Alongside expert interviews, online surveys were undertaken to determine the extent and patterns of NPS use within three different groups, including nightlife attendees. The research took place in six EU Member States: Germany, Ireland, Hungary, the Netherlands, Poland and Portugal.	https://npstransnational.org