Abstract

Purpose: There is evidence that novel psychoactive substances (NPS) are commonly used by people with severe mental illness. The aim of the study was to undertake a scoping survey to explore inpatient mental health workers' perceptions of NPS use by consumers.

Design/methodology: A cross-sectional online survey of mental health professionals. Participants were opportunistically recruited through social media and professional networks.

Findings: A total of 98 participants (of 175 who started the survey) were included in the analysis. All reported that some patients had used NPS prior to admission. Over 90% of participants reported observing at least one adverse event relating to NPS use in the previous month. The majority of participants reported that patients had used NPS during their inpatient admission. Three quarters were not clear if their workplace had a policy about NPS. Most wanted access to specific NPS information and training. Participants reported that they lacked the necessary knowledge and skills to manage NPS use in the patients they worked with.

Research Limitations/Implications: Whilst we are cautious about the generalizability (due to methodological limitations), our findings provide useful insight into the perceptions of inpatient staff regarding the extent and impact of NPS use including concerns regarding impact on mental and physical health, as well as ease of availability and a need for specific training and guidance.

Practical Implications: Mental health professionals require access to reliable and up to date information on changing trends in substance use. Local policies need to include guidance on the safe clinical management of substance use and ensure that NPS information is included.

Background

It is estimated that around a third of people with serious mental health problems also have substance use issues (Menezes et al., 1996, Regier et al., 1990). Co-occurring substance use and mental health have been associated with adverse consequences including suicide and self-harm, homicides, homelessness, offending, poor treatment outcomes and recidivism, poor physical health and social problems (McCrone et al., 2000, Mueser et al., 2000, Wright et al., 2000).

Substance use is a common co-morbidity in people admitted to inpatient mental health. In a study of substance use in inner city mental health units, Phillips and Johnson (2003) found that a significant proportion of inpatients had substance use problems prior to admission, and many were still using substances during their stay. Substance use is an identified risk factor for violence on inpatient mental health wards (Iozzino et al., 2015).

All hospital settings are required by law (for example, in UK, the Misuse of Drugs Act 1971 section 8)[1] to prevent illicit substance use from occurring on the premises and must have local policies and procedures in place in order to minimise this. Substance use has also been identified as a cause of management problems due to the impact of intoxication on a person's mental state, interactions with prescribed medications and the acute physiological consequences of toxicity (Department of Health 2006; Brotto and Lee, 2007). Craving and withdrawal may also exacerbate anxiety and agitation. In addition to this, intoxication and/or

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[1] http://www.legislation.gov.uk/ukpga/1971/38/section/8

withdrawal can lead to physical harm such as head injuries; overdose; aspiration of vomit, and respiratory depression (Independent Expert Working Group, 2017; Department of Health, 2006).

Despite the fact that substance use is a common issue in mental health inpatient facilities, clinicians often lack skills and confidence to effectively manage and intervene. The reason for this may be due to a lack of training and support related to this aspect of health. In the UK and Australia, surveys of mental health inpatient staff relating to working with substance use have consistently highlighted that despite the frequency of encountering substance use, the workforce is under-equipped to deliver effective care (Happell et al., 2002, Howard and Holmshaw, 2010, Hughes et al., 2012, Ryrie and McGowan, 1998, Siegfried et al., 1999).

In the last few years, illicit substance use patterns are changing in the general population. There is an emerging use of a range of novel psychoactive substances (NPS) (also known as "legal highs", "designer drugs" "research chemicals"). NPS can be classified by chemical groupings including phenethylamines, amphetamines, synthetic cathinones, piperazines, pipradrols/piperidines, aminoindanes, benzofurans, tryptamines and synthetic cannabinoids. These are synthetic substances used to obtain psychoactive effects similar to illicit drugs. There are a myriad of substances and according to the latest report from the ECMDDA there are currently over 450 drugs registered in the EU monitoring system (ECMDDA 2015).

In terms of safety, there have been alerts concerning both non-fatal overdoses and deaths following NPS use. For example, a recent study (Norman and Lee, 2017) suggests that the London Ambulance Service has responded to increasing numbers of NPS related emergency calls over the last 4 years and there were over 1300 Emergency Department presentations associated with NPS in London alone during 2014. However, it is often problematic to

identify all potential NPS emergency presentations due to a lack of information in clinical notes, and consequently there is limited reliable epidemiological evidence relating to levels and type of NPS use.

In the UK (up to 2016), NPS sale and use were not regulated by law and were sold openly on the internet and in high street "head shops". However, due to increasing concerns about the safety and impact of NPS use, the UK government made all "psychoactive substances" illegal in 2016 (excluding tobacco, and caffeine). Other countries in Europe also have introduced legislation to include psychoactive substances not previously covered by their drug laws[2]). Since the change in UK laws, there has been a sharp decline in the numbers of people buying NPS on the high street but an increase in those buying the substances online (Norman and Lee, 2017).

There is some evidence that NPS use is having a disproportionate impact on vulnerable populations that include people who are homeless, those in prison, and the mentally ill (European Monitoring Centre For Drugs and Drug Addiction, 2017). A recent review of the literature concerning impact of NPS on those with mental illness (Gray et al., 2016) reported that very little research has been undertaken in this area. However, several case studies were retrieved and these focused on describing life-threatening and adverse events as a result of NPS use by people using mental health treatment. These included both physical and mental health crises that required emergency medical/psychiatric treatment.

Anecdotally, mental health nurses are reporting an increase in NPS use in patients presenting to psychiatric inpatient units. However, little is known about the nature extent and impact of

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[2] http://www.emcdda.europa.eu/publications/joint-publications/eurojust/nps-legislation-and-prosecution

NPS on those who use mental health services. The aim of this initial exploratory study was to identify the perceptions and concerns of staff that currently work in mental health inpatient facilities. Specifically, the survey focused on 3 areas: the staff observation of NPS use; the impact of use; and their training and support needs. The findings of the survey will be used to inform more robust research plans regarding NPS use in mental health services.

Method

Design: The study design was a cross-sectional online survey using an opportunistic convenience sample.

Participants

Participants were included if they were a professional working in inpatient mental health settings based in any region of the world. As we were sharing the link to the survey via social media, we did not want to exclude any participants or any regions of the world. In addition, to protect anonymity we did not collect information on the names of the services or the locations where participants worked.

Recruitment

We recruited participants by posting on three social media platforms (Facebook[TM], Linkedin[TM] and Twitter[TM]). A number of established email groups (e.g. Mental Health Academics UK, Australian College of Mental Health Nursing (ACMHN) were also contacted. The post or email contained brief details of the study and a link to the survey. Once the link was clicked, the first page provided more detailed information about the survey, why it was being done and how to the data would be used (participant information sheet). Participants provided consent by indicating this on the survey. They were then required to confirm that they were a mental health professional working in an inpatient service (i.e. they met the study inclusion criteria).

Respondents who did not agree to take part and/or were not currently working in inpatient services were thanked for their help and directed away from the survey.

Questionnaire

A draft survey was created in Qualtrics based on a review of the literature and discussions with between the study authors. This initial version was pilot tested and some minor edits were made (regarding the wording of questions, not content). The final questionnaire had 10 items.   A copy is available from the lead author on request.

Questions included:

- Role, type of service and region of the world

- An estimate of the percentage of patients admitted to their ward who had used NPS in the past month

- Whether they perceived that people use NPS during an admission

- Whether they perceived they have adequate information on NPS

- Whether they were aware that NPS featured in their local organisation drug policy

- Their perceptions of the impact of NPS use on the patients on their ward

- Availability and use of interventions to support patients who use NPS.

In addition to the main survey questions, there were two free-response questions inviting participants to comment about their concerns about NPS use, and their training and support needs.

Ethical Approval

The University of Huddersfield School of Human and Health Sciences Research Ethics Panel reviewed the project, and approval to conduct the study was issued on the 19th January 2016.

Sample size

We considered this an exploratory study in order to scope the perceptions and concerns of inpatient staff, in order to inform the development of future research plans and therefore aimed to recruit a convenience sample of a minimum of 100 participants.

Statistical methods

Analysis of quantitative data was conducted in SPSS Version 20 (IBM, 2011). Where appropriate, the chi-square test of independence was utilised to examine the relationship between job role (registered mental health nurse vs. 'other' practitioners) and questions surrounding NPS. Cramer's V was also calculated to measure effect size; values of .2 indicate a small effect, .5 a medium effect and .8 a large effect (Cohen, 1988). The text from the free-response questions were cut and pasted into a word document, and read by one of the researchers. The text was then placed under emerging themes. This was a simple process as the data was limited to one word or brief phrases.

Results

Participants

Of the 175 practitioners that started the survey and gave consent, 118 (67.43%) confirmed that they work in an inpatient facility providing care for persons with mental health problems. Twenty participants were excluded from the analysis because the questionnaire was not completed. This gave us a final sample of 98 participants (83.05%).

Most practitioners were working in Europe (n=77; 79%) but there were also a small number from Australasia (n=9; 9%), the Middle East (n=6; 6%), South East Asia (n=4; 4%), North America (n=1; 1%) and Africa (n=1; 1%). Most participants working in Europe (n=31; 40%) and all other geographical regions (n=12; 57%) reported practising in general adult inpatient mental health services, as opposed to other types of inpatient units.

In terms of professional role, most of the respondents identified as nurses. There were 68 (58%) registered mental health nurses; 10 (8%) registered nurses working in mental health; 10 (8%) healthcare assistants or support workers; 7 (6%) psychologists; 9 (8%) were psychiatrists, and 14 (12%) identified as "other allied health professional).

Perceptions of Extent of NPS Use

We asked participants to estimate the proportion of patients that had used NPS in the month prior to admission to their facility. Using the 80 numeric responses to this question, the mean estimate was 28% (S.D.=23.8), the mode was 15% (15 responses), and median was 20. There was a regional difference in this estimate with some European participants reporting use as high as 70-80% of admissions who they perceived had used NPS in the last month (n=7 respondents). The proportion of service users estimated to have used NPS was re-categorised into ≤49% and ≥50% in order to compute the chi square test of independence. The association between region and estimated NPS use was significant and small, X^2 (1, N = 82) = 5.54, p = .019, Cramer's V = .26. Post hoc tests revealed that in 'other' regions fewer practitioners than expected believed that ≥50% of patients had used NPS prior to admission.

Observed Consequences of NPS Use

Participants were asked to indicate whether they had observed any of the following consequences of NPS use: deterioration of mental state; aggression; deterioration of physical health; needed emergency treatment

As displayed in table 1, deterioration of mental state was the most frequently observed consequence, reported by 88 (85.71%) of all practitioners. This was closely followed by aggression, which was observed by 77 (78.57%) of all practitioners. Although fewer participants reported observing deterioration of physical health (n = 65; 66.33%) or the need for emergency treatment (n = 61; 62.24%), these were still reported to be common occurrences.

Practitioners in Europe were more likely to report having observed deterioration of mental and physical health (91.21% and 71.43% respectively) than practitioners in 'other' regions (61.90% and 47.62% respectively). Significant and small associations were found between region and mental health deterioration, X^2 (1, N = 98) = 12.37, p < 0.001, Cramer's V = .36, and physical health deterioration, X^2 (1, N = 98) = 4.18, p = .041, Cramer's V = .21. Post hoc tests revealed that in 'other' regions more participants than expected indicated that they had **not** observed deterioration of mental or physical health.

The difference for needing emergency treatment was more pronounced; 71.43% of practitioners in Europe reported that they had observed this compared to 28.57% of those in 'other regions. The association between region and emergency treatment was significant and small, X^2 (1, N = 98) = 12.90, p < 0.001, Cramer's V = .36. In 'other' regions, fewer participants

than expected reported that they had witnessed patients needing emergency treatment as a result of NPS use.

Table 1: Number (%) of practitioners reporting they had observed consequences of NPS use

Consequence of NPS use	Europe N = 77	'Other' regions N = 21	Registered MH nurses N = 56	'Other' practitioners N = 42	Total sample N = 98
Deterioration of mental state	71 (92.21)	13 (61.90)	51 (91.07)	33 (78.57)	84 (85.71)
Aggression	62 (80.52)	15 (71.43)	46 (82.14)	31 (73.81)	77 (78.57)
Deterioration of physical health	55 (71.43)	10 (47.62)	40 (71.43)	25 (59.52)	65 (66.33)
Needed emergency treatment	55 (71.43)	6 (28.57)	35 (62.50)	26 (61.90)	61 (62.24)

Perceptions of Access to NPS During Admission

Most (89%) of the European participants indicated that it was their perception that service users could access and use NPS during admission, compared to half (50%) of those in 'other' regions. This association was statistically significant and had a small effect size, X^2 (1, N = 87) = 13.05, p < .001, Cramer's V = .39. In 'other' regions fewer participants than expected thought that service users could access NPS. The proportion of registered mental health

nurses (82.35%) and 'other' practitioners (80.25%) that thought service users could access NPS did not differ.

When asked whether NPS featured in their local substance use policy, only a quarter of the sample indicated yes.

Table 2: Number (%) of practitioners indicating that NPS featured in substance misuse policy

NPS features in policy	Total sample N = 96
Yes	25 (26.04)
No	43 (44.79)
Don't know	28 (29.17)

Almost a third of participants were uncertain whether NPS featured in their local substance misuse policy at their facility (see table 2).

Interventions for NPS

Participants were presented with a list of nine possible interventions (see Table 7) and were asked to indicate which were used in response to NPS within their setting. Participants were free to tick as many as they required. Although many practitioners indicated that a range of responses were utilised (74.49% ticked ≥4 interventions), there was still a small but

substantial proportion of participants that indicated a limited number of responses were utilised (25.51% endorsed ≤3 interventions). Two thirds of respondents indicated that most of the interventions listed were undertaken in response to drug use in their setting (except segregation/seclusion and urine/blood screening). This included therapeutic approaches such as health education and motivational interventions as well as "policing" interventions such as searching of property and suspension of leave from hospital.

Table 3: Number (%) of practitioners that reported the intervention was available in their setting

Type of interventions	Total sample N = 98
Further assessment	65 (66.33)
Harm reduction and health education advice	66 (67.35)
Motivational work to support the person in choices about their substance misuse	60 (61.22)
Suspending leave from the ward	62 (63.27)
Searching person's property and person	69 (70.41)
Banning certain visitors	60 (61.22)
Seclusion or segregation	32 (35.65)

Detention under mental health act	30 (30.61)
Urine and/or blood tests to detect NPS	50 (51.02)

Free Text Concerns related to NPS

When invited to share their concerns in a free text box in the survey about NPS, 68 (69.39%) practitioners provided comments. Some practitioners made several points and to facilitate analysis these were separated into individual points (N=111).

The main concerns expressed (41% of the comments) related to their perception of the impact or consequences of NPS. These included comments regarding deleterious impact on mental health, as well as physical health:

"Increased Aggression and deterioration of physical health" (mental health nurse, general adult inpatient)

"deterioration of mental health, often resulting in aggressive presentation, loss of leave, unable to take part in therapeutic day, lack of progress in rehabilitation process" (mental health nurse, adult recovery inpatient unit)

"cardiac and respiratory arrest" (mental health nurse, general adult inpatient)

"….we have had 2 service users have a very extremes physical reaction to Spice, requiring emergency treatment.." (mental health nurse, general adult inpatient)

"That it will kill someone whilst in hospital" (mental health nurse nurse, general adult inpatient)

The comments also mentioned concerns regarding NPS use leading to behavioral disturbances including violence and aggression and impact on safety for the whole ward:

"We have no standard way to treat those who have become highly agitated/ aggressive. We need to keeping everyone safe." (mental health nurse, general adult inpatient, Europe)

"responsible for causing violence and aggression." (healthcare assistant, general adult inpatient, Europe)

"…severe affect on the mental state of service users, creating a more dangerous environment and much higher levels of violence and aggression" (mental health nurse, general adult inpatient, Europe)

Some of the comments related to concerns that not enough was known about NPS as well as the unpredictability of the effects on indviduals

"The fact that we are currently playing "catch up" and are unaware of the extent of dangers posed" (Psychologist, forensic inpatient setting, Europe)

"Unpredictability of the effects of individual substances as well as the unpredictable nature of how the substances may interact with other substances the person may be taking and the large discrepancies in the effects on different people" (psychologist, Forensic inpatient setting, Europe)

In additon there were a few comments which referred to access to NPS both whilst off the unit (for example, during leave) as well as awareness that NPS were distributed to inpatients by other patients:

Freely available with unknown long-term effects. Little information regarding safety and health effects for patients to access. (mental health nurse, general adult inpatient, Europe)

"The ease of access that service users have when on leave. Recognising NPS if they were brought in to the ward/found in patient belongings" (mental health nurse, general adult inpatient, Europe)

"…users are bring in NPS and distributing it to other service users.." (other Allied health professional, general adult inpatient, Europe)

"….inpatients being able to bring it to other service users/patients." (unknown background of respondent)

There were some concerns that NPS are difficult to detect in routine blood or urine tests available to them:

"A lot of NPS are not detected in our urine drug screening" (registered nurse, general adult inpatient, Australia)

"Difficult to detect" (mental health nurse, child and adolescent inpatient unit, Europe)

"Unable to identify in urine drug tests available" (mental health nurse, general adult inpatient, Europe)

Free Text about Training and Support Needs

A total of 46 (46.94%) of the participants commented on their training and support

needs, resulting in a total of 72 individual points. This included training on spotting

the signs of NPS, and their effects on physical and mental health.

"recognition of what the substances look like and the impact on physical and mental health (mental health nurse, general adult inpatient, Europe)

"Training on what it is, how it formulated, effects on mental health, contra indications of use with psychiatric drugs. Physical effects on patient" (mental health nurse, recovery unit, Europe)

"We need to know what they are, how to look out for them(as they change so fast, we cannot always recognise legal highs when we see them!) , tools for educating service users in the impact of legal highs" (mental health nurse, general adult inpatient, Europe)

"I do not have access to any training or support around NPS from my trust. I would like to have a better understanding of physical and psychological impacts of NPS. I would like am evidence based approach to work from with regard to the short term management of people using NPS in a psychiatric setting. I think that Doctors need further training with regard to this area as they often have to make prescribing decisions" (mental health nurse, general adult inpatient, Europe)

Some stated that there was some substance use provided where they worked, but

others highlighted a lack of training locally. Three comments made suggestions

relating to format of such training, and suggested email briefing notes or informal

discussions, as opposed to more traditional forms of training i.e. classroom based.

Discussion

There is emerging evidence that novel psychoactive substance use (NPS) is becoming

increasingly common in vulnerable populations including the homeless, offenders in

prison and those who use mental health services (European Monitoring Centre for

Drugs and Drug Addiction, 2017). There is a lack of evidence regarding the scale and

impact of this phenomenon, and a recent systematic review into NPS and impact of

mental health revealed limited epidemiological research (Gray et al, 2016). However

the review reported on several single case studies that revealed some serious and

potentially life-threatening consequences of NPS use by people in mental health units.

Substance use is common in people who use inpatient services and it has been established that ward staff lack skills and confidence to address substance use as part of a person's plan of care. With the rise in concern about the use of the "newer" psychoactive drugs, an exploratory survey was devised to scope the current perceptions and concerns of mental health staff who currently work in inpatient mental health settings. A total of 98 people out of 118 who started the survey were included in the analysis. They were mostly from Europe but there was a small proportion who worked in "other regions" including Australasia, Asia and Middle East.

The main findings were that the participants perceived that NPS use is common amongst people who get admitted to mental health inpatient facilities. In addition, there was consensus from the participants that they perceived that people were able to access and use NPS during their admission. This is unsurprising considering that access and use of substance use in inpatient mental health services is well-reported in the literature.

In terms of how they reported they responded to the use of NPS, the most common response checked on the survey in Europe was the searching of property and suspension of leave, and in other regions it was the use of blood and urine testing. However, encouragingly, around 2/3 of respondents indicated that they implemented a range of treatment responses to NPS use such as motivational interviewing and

harm reduction/health educational approaches. Half responded that that they had access to specific NPS urine and/or blood screening tests.

A third of respondents reported that NPS specifically featured in their local organisation substance use policy. There was also a reported training and education need. Whilst some respondants reported that they had access to training and information, many comments related to having a lack of substance use training. In terms of content, most respondents wanted access to more information about NPS including what they looked like, how they worked, and the potential impact on mental state. In terms of the format, it was suggested that email briefings and opportunities to discuss with peers would be prefered to formal classroom-based training. They also commented on a lack of information aimed at service users about NPS. A possible solution to this would be to create an online toolkit that offered knowledge of NPS, the types, what they look like, as well as the effects and impact on on mental health. There is also a need to create some resources on NPS aimed at people who have mental health problems themselves.

The findings suggests that NPS are being used by people with mental health problems and that staff are observing negative consequences of that use in mental health inpatient settings (including deterioration of mental state and violence). Of concern was how few respondents were sure that NPS featured in their local policy. The most likely response to NPS use was a search of property and suspension of leave. This suggests that the role of the mental health professional in inpatient settings with regards to substance use continues to be one of "policing" of substance use rather

than the use of therapeutic approaches such as motivational interviewing and health education.

Inpatient mental health admissions can be seen as a "golden opportunity" to undertake some key psychosocial work on substance use, the impact on mental health and develop a plan to address this post-discharge. Pilot studies that utilize brief motivational interviewing in inpatient settings have shown some promise in reducing substance use and increasing engagement with substance use treatment settings but these have mainly focused on cannabis and alcohol (Bagoien et al., 2013, Baker et al., 2002, Graham et al., 2016) .

Given that such a significant proportion of people in mental health units have substance use problems, it is imperative that staff have the right skills and knowledge to undertake this work, especially when faced with new and less well-understood NPS drugs. Their work should be guided by national and local (up to date) policies and protocols. This attention to "dual diagnosis" requires leadership by a clinical expert such as an advanced practitioner or consultant nurse. As patterns of substance use change, there needs to be a clear mechanism by which to feed this information (in a usable format) to front-line practitioners. Mental health staff who responded to the survey are clearly anxious about NPS, and some of this may be because of lack of knowledge.

However, the survey was exploratory in nature and designed as an initial scope into perceptions of inpatient staff and so the findings should be taken with some caution.

Firstly, the method limites the generalisability as it was a convenience sample drawn from social media posts and via local email networks. It is possible that only people who had concerns about NPS chose to respond to the survey invitation and therefore may not represent the views of the mental health inpatient workforce. It was also limited by the method of distribution, possibly excluding people who are not able to access emails, computers or smart mobile devices. It would be useful to replicate this with an appropriately calculated sample size with a more representative sample of inpatient mental health staff. The findings that relate to the estimate of use of NPS must also be taken with some caution as this is not independently verified data. A more robust way of estimating prevalence of NPS would be through a robustly conducted prevalence study using a representative sample and verifying self-report with objective evidence such as urine or blood tests.

In conclusion, the scoping survey revealed that the respondants had concerns about the use of NPS in terms of both mental health and physical health effects. Not everyone was aware of whether their local organisation substance use policy included procedures related to NPS use. In the free text, people expressed their need for more specific information on NPS, as well as educational resources for others. It was encouraging to see that as well as the "policing" interventions such as searching for drugs, that the respondants also reported therapetic approaches were also used including assessment, motivational approaches and harm reduction/ health education.

In order to provide front line staff with the information they need to inform good clinical practice, we need to understand much more about NPS and mental health. As there is currently no reliable prevalence data on the levels and types of use of NPS in this population, there is a clear need to undertake such an exercise. In addition, there is a need to develop inpatient mental health staff skills in working effectively with substance use in general, and NPS in particular. Appropriate health education tools should be developed to support this work.

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