#### Midwifery 112 (2022) 103409

Contents lists available at ScienceDirect

# Midwifery

journal homepage: www.elsevier.com/locate/midw

## Problematic substance use in midwives registered with the United Kingdom's Nursing and Midwifery Council: A pragmatic mixed methods study

## Sally Pezaro<sup>a,e,\*</sup>, Karen Maher<sup>b</sup>, Elizabeth Bailey<sup>c</sup>, Gemma Pearce<sup>d</sup>

<sup>a</sup> Centre for Healthcare Research, Centre for Arts, Memory and Communities and Faculty of Health and Life Sciences, Coventry University, UK

<sup>b</sup> Department of Work and Organisation, Aston Business School, Aston University, UK

<sup>c</sup> Centre for Social Care, Health and Related Research, Birmingham City University, UK

<sup>d</sup> Centre for Healthcare Research and School of Psychological, Social and Behavioural Sciences, Coventry University, UK

<sup>e</sup> Adjunct Associate Professor, University of Notre Dame, Australia

#### ARTICLE INFO

Article history: Received 20 December 2021 Revised 17 June 2022 Accepted 19 June 2022

Keywords: Midwives Midwifery Substance use Addiction Impairment Occupational health



*Objective:* Use a pragmatic mixed methods approach to provide a rich understanding of the perceptions of Problematic Substance Use (PSU) and the influences of PSU on the mental and physical health of mid-wives registered with the Nursing and Midwifery Council (NMC).

*Design:* A confidential and anonymous self-administered online survey was employed to encourage wider participation.

Setting: United Kingdom

Participants: Midwives (n=623) registered with the NMC

*Measurements:* Open text responses were invited throughout the survey. Along with the collection of brief demographic data, PSU was also measured using the Tobacco, Alcohol, Prescription Medications, and Substance Use/Misuse (TAPS) Tool whilst mental and physical health was measured via version 2 of the Medical Outcomes Study Short-Form 12-Item Health Survey. All qualitative open text responses were analysed inductively using reflexive thematic analysis. Multiple regression was used to test whether health outcomes in the sample as a whole were predicted by PSU and Mann-Whitney U tests to compare the health dimensions between participants who met the criteria for PSU and those who did not.

*Findings:* PSU significantly predicted poorer general health, physical functioning, and mental functioning. Additionally, those who met criteria for PSU experienced significantly poorer general, mental, and physical health than those who did not. The influence of PSU was captured via 3 themes and 10 subthemes. Though the signs and symptoms of PSU identified remained broadly consistent, approaches to management did not. Many midwives were conflicted in how they might seek support without facing professional, personal and practical reprisal.

*Key conclusions and implications for practice:* PSU in midwifery populations poses professional, personal, and occupational risks. Congruence between policies and approaches to identification and management may reduce risk overall. Future interventions including educational and practitioner health programmes could also be usefully co-created with midwives, policy, and decision makers to reduce stigmatising attitudes and encourage greater awareness, compassion and help seeking to appropriate sources.

© 2022 Elsevier Ltd. All rights reserved.

## Introduction

Problematic substance use (PSU) is increasingly cited as a maladaptive coping strategy used by healthcare professionals in response to the work-related stress and burnout they experience (Sriharan et al., 2021). This is particularly the case in healthcare professions dominated by females (Stageberg et al., 2020). Midwifery is a highly female dominated profession, with midwives experiencing high levels of work-related stress and burnout (Albendín-García et al., 2021; Hunter et al., 2018; Pezaro et al., 2015). Yet evidence collected via an earlier review of the literature in relation to PSU in this population has been sparse (Pezaro et al., 2020). The first study conducted in the United Kingdom (UK) on this topic revealed that within a sample of 623 registered midwives 28% met the diagnostic criteria for PSU, with alcohol







<sup>\*</sup> Corresponding author. *E-mail address:* Sally.Pezaro@coventry.ac.uk (S. Pezaro).

being the most commonly used substance (16%) (Pezaro et al., 2021). Midwives within this study indicated that they engaged with PSU in response to work-related stress and anxiety, bullying, traumatic clinical incidents and maintenance of overall functioning (Pezaro et al., 2021). Further findings from this study highlight how some midwives attend work under the influence of either drugs and/or alcohol and express concern about colleagues' PSU (Pezaro et al., 2021). This is concerning, as those engaged in PSU pose a risk of harm to childbearing women and other people who birth through delayed responses to clinical situations, failure to act, poor clinical judgment and/or the diversion of medications from whom they were intended (Bryson, 2012; Kunyk, 2015). PSU in midwifery populations may also undermine public confidence in the profession, and thus lead to further risks overall. Yet some midwives engaged in PSU do not seek help due to the fear of repercussions, shame, stigma, practicalities (e.g., not being able to attend appointments due to shifts or other responsibilities), and/or a perceived lack of support either available or required (Pezaro et al., 2021). As delays in treatment prolong the risks associated with PSU in this population and do nothing to promote the retention of midwives who are presently in dire need of global investment (World Health Organization, 2021), the influence of PSU on midwives is concerning.

Midwives within the UK must register with the Nursing and Midwifery Council (NMC), the regulator of nurses and midwives in the UK. As part of this process, there is a requirement for midwives to provide a declaration of good health and character, both at the point of registration and every 3 years as they revalidate their registration. This is done in line with the standards of health and character set out in the NMC's code of conduct (Nursing and Midwifery Council, 2018). Still, many cases relating to PSU are referred to the NMC where a midwife's fitness to practise may be impaired (Searle et al., 2017), and thus prompt the requirement for an order to be in place, either for the protection the public, because it is otherwise in the public interest, or it is in the interests of the midwife themselves.

Whilst there is some indication of the level of PSU within front line health professionals (Ross et al., 2018; Vayr et al., 2019; Pezaro et al., 2021; Hichisson and Corkery, 2020), there is little understanding in relation to the wider perceptions and health influences of PSU in healthcare settings, particularly for midwives (Pezaro, et al., 2020). Such understandings may better inform the development of interventions designed to reduce and prevent PSU in midwifery populations, and thus its associated risks. Considering the above, the exploratory objective for our study was to use a pragmatic mixed methods approach to provide a rich understanding of the perceptions of PSU and the influences of PSU on the mental and physical health of midwives registered with the NMC. The humethesce ware:

The hypotheses were;

- Higher PSU predicts poorer physical, mental, and overall health outcomes for midwives.
- Midwives engaged in PSU will have poorer health outcomes than those who are not engaged with PSU.
- Findings for each component will be combined to generate an integrated understanding of PSU in midwifery for the support of workforce wellbeing.

#### Methods

Mixed-methods research provides the opportunity for a deeper level of understanding of complex or novel phenomena and allows for stronger inferences than is afforded by single methods (Creswell and Plano Clark, 2017; Tashakkori and Teddlie, 2010). Reporting was directed by the American Psychological Association's Journal Article Reporting Standards for mixed-methods research in psychology (Levitt et al, 2018).

Due to the limited literature exploring PSU in midwifery and the complexities of studying PSU in this population e.g., disclosure of illegal behaviour, threats to registration/employment, stigma and negative perceptions associated with PSU (Pezaro et al., 2018, 2021), we applied an anonymous mixed methods survey design. Taking a pragmatic approach to find practical explanations of PSU in midwifery (Zhu, 2011), responses to open-ended questions provided the opportunity for a richer interpretation of any health outcomes associated with PSU through participants sharing perceptions and sense-making of PSU which may uncover potential antecedents worthy of further study.

The associated stigma of PSU can act as a barrier to participation (Kunyk, 2015) and exploratory research was needed that allowed disclosure of potentially socially undesirable behaviours (Duncan et al., 2003). Thus, total anonymity and confidentiality for participants was important through the use of an online questionnaire so as to reduce midwives' concerns that by participating they might face negative regulatory and/or legal consequences in disclosure (Foli et al., 2019; Pezaro et al., 2018). The research was ethically approved in 2019 (P99849) with data collected from January-March 2020. Data for this paper were collected in tandem with an initial epidemiological study exploring PSU, where full details of the sampling methods can be found (Pezaro et al., 2021). Participants accessed the survey through a hyperlink leading to study information, consent options and eligibility criteria first, before being granted access to the rest of the study.

Demographic questions were kept to a minimum (age, education, gender, and employment status and type) to protect respondents' identities. To qualitatively explore the perceptions of midwives' PSU, we collected open text responses for the types of substance used, reasons for PSU, type of help sought (if any) for PSU, reasons why help for PSU was not sought and concerns regarding their fellow midwives. To quantitatively measure the influence of PSU upon the mental and physical health of midwives, we used two standardized instruments: Tobacco, Alcohol, Prescription Medications, and Substance Use/Misuse (TAPS) Tool (Wu et al., 2016) and The Medical Outcomes Study Short-Form 12-Item Health Survey, version 2 (SF-12v12) (Ware et al., 1996).

Of all who indicated that they had engaged in PSU, some participants (n=19) opted to respond to the question, 'For what reasons do you typically use substances not as prescribed, illegally or that were not prescribed for you?', and some of those (n=59) who indicated that they thought they should seek help but did not, responded to the question 'Why did you not seek help?'. Some of those who indicated that they had been concerned about a colleague in relation to their use of substances (n=216) optionally responded to the question 'What was the nature of this concern and the substance, circumstances and outcomes associated with it?', and in relation to all participants who were invited to add any further comments on this topic, some (n=78) also chose to offer qualitative contributions. The survey finished with a debrief page signposting to further support.

We analysed qualitative data collectively and inductively via reflexive thematic analysis, as described by Braun and Clarke (2020, 2006). Initially, the first author became familiar with the dataset through the reading and re-reading of participant contributions. Statements aligned with the perceptions of midwives' PSU were then separated into semantic codes. Commensurate codes were then grouped together in an iterative succession of refinements and organised into groups which collectively represented commonly associated meanings and concepts. Themes were then developed around distinct group features, which best represented the dataset. This was done collaboratively, whereby the first and second author reflected upon, revised, discussed, and deliberated upon the data and development of themes iteratively until final themes were named and wholly defined. Independent coding or inter-coder reliability was not relevant for this reflexive approach (Braun and Clarke, 2020). Nevertheless, our analysis was sense checked in partnership with the wider research team to ensure consistency and relevance. Whilst some illustrative quotes are used to represent the overall sentiment of the data within each theme, we have been unable to present others, as they included descriptive accounts of particularly unique events and thus posed a threat to anonymity.

We analysed quantitative responses to the TAPS-2 tool in line with the benchmark for PSU (McNeely et al., 2016). Participants did not complete the questions if negative for PSU and were given a zero score in analysis. Any participant who indicated anything other than a negative response on the TAPS-1 screening tool were then assessed for problematic use via their responses to the TAPS-2 tool. For tobacco and other regulated drugs, a score of 1+ was set as the cut-off. For alcohol, a score of 1 equated to use but not problematic use, therefore a cut off of 2+ was used to identify PSU overall with diagnostic scores used as interval data in analysis (Wu et al., 2016).

The Medical Outcomes Survey total scores equate higher scores to poorer levels of functioning. Three items within the tool are positively worded, i.e., higher scores relate to higher levels of functioning, and so required reverse scoring prior to being included in the analysis (respondents who indicated 1 on the Likert scale becomes 5 and so on). After being reversed scored, items for health survey data from the SF-20 were re-coded and transformed into a 0-100 score (Stewart et al., 1992). Items were then calculated into a total for overall health and subscales of both physical and mental functioning. The distribution of data for each of the health scales within the Medical Outcomes (SF) 12 item health survey (Ware et al., 1996) was significantly skewed towards the positive end of the scale.

To examine the first hypothesis, multiple regression tested whether PSU may be predictive of physical, mental, and overall health outcomes. Age was included as a co-variant in the model as it is expected that self-reported physical and overall health will typically be poorer in older participants whereas self-reported mental functioning is expected to be poorer in younger participants (Sherbourne et al, 1999). Due to the significant skew, we used a non-parametric independent samples Mann-Whitney U test to examine the second hypothesis comparing the health dimensions for those midwives who met the criteria for PSU against those who did not. Given the exploratory nature of the study, we have not corrected for the use of multiple tests as we could miss possible effects worthy of further study (Armstrong, 2014; Perneger, 1998). Effect sizes (r) are reported for tests deemed significant at p < .05 as these provide an unbiased indication of the size of difference without the confounding influence of the sample size, and therefore will be used in the commentary of the analysis (Cumming, 2014). We have synthesised the findings using a mixed methods approach underpinned by pragmatism, with quantitative findings used to reinforce qualitative themes and discussed in relation to the literature embedded within the results (Creswell and Plano Clark, 2017).

When reflecting on our positionality within the research, we observed that the first author is a midwife registered with the NMC and panellist for the NMC's Investigating Committee who preside over many cases involving PSU (Searle et al., 2017). She had wide ranging knowledge and experience of PSU in midwifery populations prior to this research taking place. The third author is also an NMC registered midwife with experience in conducting midwifery workforce research. In designing this research, we identified that such prior insider knowledge, experience, and awareness can bring a richness to interpretations but may also bring bias. As

such, we sought a diversity of experience through the inclusion of the second and last authors. As Chartered Psychologists and having no clinical midwifery experience, they brought an alternative outsider lens to the analysis. Data interpretation occurred as an iterative process with differences in interpretation resolved through discussions between the research team throughout the analysis to reduce the impact of bias.

### Findings

A total of 623 midwives participated (Table 1). Only a small minority of these indicated being male (n = 3) with the remainder female (n=620) thus any exploration of data with reference to sex has not been possible. A greater proportion of participants reported being in the younger age ranges, with only 19% (n = 118) being over 50 years of age. The full demographic profile of this sample compared to wider populations is provided in an earlier publication alongside the scale of, and reasons for PSU within our sample (Pezaro et al., 2021).

Three themes and ten subthemes were identified in relation to the perceptions of PSU in midwifery populations (Table 2). Quotes used to illustrate findings were anonymised and modified to aid readability.

### Signs and symptoms

Sentiments identified within this theme centred around perceptions of midwifery colleagues' PSU. Within the qualitative data, both physical and behavioural signs and symptoms were perceived. These findings are supported by our quantitative data addressing the influence of PSU on health outcomes.

#### Physical signs and symptoms

The physical symptoms perceived within this subtheme largely reflect those previously seen in nursing populations engaged in PSU which include smelling of alcohol, changes in physical/mental state, increased medication use documented, and verbalized stress (Cares et al., 2015). Here, participants were predominantly and most often concerned about colleague's "shaking" (P118) from alcohol use where they could "smell it" at work (P145). Furthermore, colleagues were perceived as being "often too tired to attend work" (P32) with increased "sickness and lateness" (P70), "falling asleep on the job" (P578) and observed as "slurring words and being unsteady on their feet" (P564). In future, it will be important to identify how these perceptions are acted upon and linked to PSU specifically in the workplace, particularly as participants did not report raising or escalating their concerns. As in other healthcare populations (Cares et al., 2015), through the identification of signs and symptoms, PSU may have been recognised earlier in this sample, either by the midwives themselves, their colleagues, or their employers.

The quantitative data supported the presence of worse overall health and physical symptoms for people engaged in PSU. Overall health was significantly poorer for those midwives who met the criteria for PSU (Mdn = 61.00) than those who did not (Mdn = 76.50) (U = 23085.5, z = -7.81, p < .001, r = -.031). In addition, physical health was also significantly poorer for those midwives who met the criteria for PSU (Mdn = 91.67) to those who did not (Mdn = 100.00) (U = 35523.0, z = -2.08, p = .038, r = -.08). Some of the qualitative responses highlighted the ways in which influence on colleagues' physical and overall health were being attributed to substance use.

"A colleague collapsed in the office after using a cocktail of medications"

	PERCENTAGE OF SAMPLE	
GENDER		
FEMALE	99.5	
MALE	0.5	
AGE		
< 30	25	
31-40	32	
41-50	24	
> 51	19	
EDUCATION		
DIPLOMA	11	
BATCHELORS	66	
MASTERS	18	
DOCTORATE	1	
PROFESSIONAL	.3	
OTHER	3	
EMPLOYMENT		
FULL TIME	64	
PART TIME	32	
AGENCY/BANK	2	
NOT EMPLOYED	2	

Table 1Sample characteristics.

#### Table 2

Themes and related subthemes.

Theme	Subthemes
Theme 1: Signs	Physical signs and symptoms
and Symptoms	Behavioural signs and symptoms
Theme 2:	Naming, blaming, and shaming
Approaches to	Discipline
Management	Compassion and support
-	Turning a blind eye
	Self-management
Theme three:	Professional conflicts
Conflicting	Personal conflicts
Priorities	Practical conflicts

Within the qualitative responses, there was an indication of the ways in which the physical health of colleagues was being attributed to drug use. For example, one participant knew "colleagues that take cocaine, and sometimes due to lack of sleep they appear exhausted on shift." P31

Within the multiple regression the combined variables significantly predicted overall health (F (4,610) = 24.00, p < .001,  $R^2 = .136$ ) where the combined variables explained 13.6% of the model. Age as a control variable did not significantly add to the overall model suggesting age is not a contributing factor to general health in our sample, but small significant relationships were seen for each of the PSU variables; an increase in levels of PSU were related to a small decrease in overall health (Table 3).

In addition, the combined variables significantly predicted physical functioning (F (4,618) = 4.43, p < .002,  $R^2 = .167$ ) where the combined variables explained 16.7% of the model. Age was a significant co-variant (F (1,621) = 4.72, p < .03,  $R^2 = .087$ ) explaining 8.7% of the model alone and remained significant when added to the larger model (t = -2.51, p < .01). As age increased there was a small significant decrease in physical functioning. With age included in the model, an increase in problematic drug use also saw a small significant relationship between problematic alcohol and tobacco use and physical functioning (Table 4).

#### Behavioural signs and symptoms

Participant contributions here perceived colleagues' behavioural signs and symptoms broadly as being **"bad"** (P102), **"abnormal"** (P313), **"strange"** (P551) and **"chaotic"** (P173) in response to PSU.

Behaviours were often perceived as being impulsive and out of character, leaving the witness confused.

Colleagues were also perceived as being **"evasive (lying)**" (P70) and having **"impaired decision making**" (P520) along with **"decreased motivation, commitment and professionalism**" (P601). These reflect similar observations within nursing populations such as changes in mental state repeated absenteeism and/or excessive lateness, decreased reliability, increased wastage/breakage of drugs, unexplained disappearances and working extra shifts (gaining greater access to drugs) (Cares et al., 2015).

"One of our colleagues was caught stealing opiates from work for personal use"

P305

The behaviours expressed by respondents here point towards an influence on psychological functioning for colleagues engaged in PSU and is supported by our quantitative data (Table 5). Wider substance use literature has identified the influence of PSU on psychological functioning through the dysfunction of emotional signals leading to impulsive behaviours (Verdejo-Garcia and Bechara, 2009). Mental functioning was significantly poorer for those midwives who met the criteria for PSU (Mdn = 40.00) than those who did not (Mdn = 60.00) (U = 21481.50, z = -8.841, p < .001, r = -.35).

The combined variables significantly predicted mental functioning (F (4,618) = 49.27, p < .001,  $R^2 = .492$ ) where they explained 49.2% of the variance in mental functioning. Age was a significant co-variant (F (1,621) = 49.58, p < .001,  $R^2 = .272$ ) explaining 27.2% of the model and remained significant when added to the larger model (t = 6.40, p < .001). As age increased there was a small significant increase in mental functioning therefore younger midwives were more likely to have poorer mental functioning in our sample. Small significant relationships were seen for each of the PSU variables; an increase in levels of PSU were related to a small decrease in mental functioning.

Other potential behavioural symptoms of poor psychological functioning include several accounts of midwives observing **"drink driving"** (P484). One participant specifically recounts how a colleague **"Crashed [a] lease car while drunk"** - P35

Notwithstanding the personal harms associated with such ill health, the influence of PSU in midwifery is concerning as there is strong evidence that poor health, and in particular poor mental health, can impair the quality of care given by UK midwives (and nurses) (Kinman et al., 2020). Whilst there are some health-

## Table 3 Multiple regression for overall health.

	В	SE B	β
Constant	70.16	1.79	
Age	1.02	.66	.06
Problematic	-5.90	1.92	12**
Alcohol Use	-7.06	2.57	10**
Problematic	-16.88	2.30	29***
Tobacco Use			
Problematic Drug			
Use			

#### Table 4

Multiple regression for physical functioning.

	В	SE B	β	
Constant	91.45	2.29		
Age	-2.13	.84	1*	
Problematic	2.89	2.46	.05	
Alcohol Use	-3.27	3.30	04	
Problematic	-9.72	2.96	13**	
Tobacco Use				
Problematic Drug				
Use				

Note: \* p < .05, \*\* p <.01

#### Table 5

Multiple regression for mental functioning.

	В	SE B	β	
Constant	48.89	2.13	.27***	
Age	5.04	.78	21***	
Problematic	-13.54	2.29	11***	
Alcohol Use	-9.78	3.07	28***	
Problematic	-21.34	2.75		
Tobacco Use				
Problematic Drug				
Use				
Note: *** n ~ 001				

Note: \*\*\* p < .001

care professionals previously found to be in a daze or sleepy following PSU, there are others able to function without any suspicious symptoms of PSU (Foli et al., 2020; Braquehais et al., 2021). Yet there are wider and more specific signs and symptoms to note when intravenous drug use and opioid addiction has taken hold (Mayall, 2016). For early identification of those in need of help, both physical and behavioural signs and symptoms could be usefully collated and used to inform future educational interventions, intervention plans and decision making in the midwifery workplace.

## Approaches to management

Broadly, perceived approaches to management related to colleagues and managers naming, blaming, and shaming, resorting to discipline, compassion and support, turning a blind eye and midwives' self-management of PSU. Generally, approaches to management were polarised in that many midwives referred to managing midwives' PSU via disciplinary means, yet others referred to compassionate approaches to management being more constructive in enabling midwives to regain their fitness to practise more effectively. Indeed, there is great public interest in retaining midwives and supporting them to return to work where possible (Nursing and Midwifery Council, 2018). Yet some subthemes were juxtaposed to this and described approaches which may inhibit a safe and effective return to practice, and thus disserve the public interest in this regard.

## Naming, blaming and shaming

Within this subtheme sentiments captured largely relate to breaches of confidentiality where midwives were "named and shamed" (P139), with gossip spread by those telling "as many people as possible" (P381). Such episodes were suggested to deter help seeking as "everyone else looking on learned from that...now nobody asks for help. It's dangerous" (p71). One participant who had experienced naming, blaming, and shaming described how "managers tried to destroy rather than help" them (P103). One particular senior midwife recounted their attempts to "name, blame and shame" a midwife via "local and national newspapers...!" (P381). These acts could be particularly dangerous should they deter future help-seeking, and by doing so, perpetuate the risks associated with PSU. They may also result in a failure to meet the public interest in retaining midwifery staff and damage the reputation of the midwifery profession should the public expect a more compassionate response from within the profession.

The naming, blaming, and shaming culture highlighted by this sample is problematic as it is known to lead to self-judgment, isolation, and burnout which in turn can lead to decreased psychological safety and increased risk of harm in healthcare services (Al'ai Alvarez et al., 2020). In naming the midwife experiencing PSU unnecessarily (e.g., through gossip), confidentialities may also be breached with regards to health. Such breaches pose serious risks, as they can undermine trust and confidence in a profession where confidentiality is a fundamental tenet (Nursing and Midwifery Council, 2018).

"I told my managers and asked for help... they didn't believe I was ill; just thought I was a 'druggie'...they tried to name and shame me... they dragged my name through the mud. They want to see my career end, but I am a fighter. They had me sacked, think I should keep a low profile... they just do not understand that people who use substances in this way are ill!!!!! We are human!"

P103

Whilst the apportioning of blame is merely a response to moral wounding with the aim of fostering greater alignment between the blamer and the wrongdoer's moral understandings, it has no place where the wrongdoing was owed to chance (ill health) rather than fault (Fricker, 2016). Moreover, as addiction has been described as akin to a natural disaster that dominates the will of the addict, it is argued that an addict cannot be blameworthy for their choices (Singh, 2021). Consequently, the episodes of blame reported here may be regarded simply as sanctions of disapproval, and therefore may also be described as pathologies of blame arising from projected guilt or shame, moralistic high-mindedness, vengeance, or the cruelty of seeking satisfaction from making someone feel bad (Fricker, 2016). This ultimately amounts to a failure to 'treat people with kindness, respect and compassion' and thus breaches the NMC's code of conduct (Nursing and Midwifery Council, 2018).

"Frequently the word "Misuse" has been supplanted by "Use" as if this somehow normalizes and excuses this criminal negligence on the part of those midwives who indulge themselves in this manner."

P21

"Midwives who have misused substances always play the mental health card once they have been found out"

(P50)

Ultimately, the goal of recovery is not served by blaming in such ways associated with harsh treatment, punishment, shame and stigma. Moreover, these are incompatible with achieving the public health goals related to addiction (Singh, 2021).

#### Discipline

Participants contributing to this subtheme perceived how midwives engaged in PSU are "disciplined" (P45), "sacked" (P139), and "dismissed" (P162). Other participants describe midwives engaged with PSU as being "suspended from practice - referred to NMC" (P239), and whilst such actions may typically be undertaken to protect the public and the midwife themselves, here participants viewed being "reported" (P503) and "sent home" (P164) as punitive actions. One participant suggested that disciplinary approaches to the management of PSU in midwifery populations may be due to the "reluctance of colleagues to see [PSU] as a symptom of illness (P70). Another proffered that "no one should be dismissed (lose their job) without help first" (P49). Indeed, overwhelmingly, participants did not equate discipline with positive outcomes. Instead, they lamented the perceived injustices of being disciplined for health-related reasons.

Whilst those with a retributivist position may justify the need for discipline or punishment by arguing that the moral wrongdoer simply deserves it, this approach does not necessarily equate to the increased safety of society or the moral improvement of those being punished (Caruso, 2020). With increased recognition that PSU is an issue relating to health rather than a failure of morals or character, alternative-to-discipline approaches are preferred as effective, more contemporary, evidence-based and non-disciplinary approaches to the management of PSU in healthcare professionals (Russell, 2020; Ross et al., 2018; Strobbe and Crowley, 2017; Goldenberg et al., 2020). Indeed, it has been argued to be morally unfair to punish people with addictions (Singh, 2021). Instead, it is suggested that when, and if confrontation in relation to PSU occurs, it is important to consider confidentiality, listen to those who raise concerns, consider regulatory concerns, and ensure that there is supportive evidence with referrals to treatment available to help in recovery efforts (Foli et al., 2020). Nevertheless, some are "dismissed for stealing and using" P194.

As with other healthcare professionals (Cares et al., 2015), some midwives in our sample obtained medications from their workplace for personal use. Whilst it was challenging for some participants to view this as anything other than an act against probity, in all such cases the act purportedly would not have occurred but for their ill health. Thus, the acts described in our study constitute behavioural symptoms of ill health rather than conscious acts against probity having long been defined as quintessential in cases of addiction (Koob and Le Moal, 1997). Moreover, such acts were identified as being traumatising rather than gratifying for the midwives in question. This may be because they are morally injurious to midwives as they transgress their existing moral framework and result in wide discrepancies between both their professional and personal values and the behaviours they have engaged in due to ill health. Such moral injury associated with this type of act is problematic as it can further perpetuate the cycle of addiction, trauma, and shame (Hartman, 2015).

#### Compassion and support

Here, "compassionate management" (P86) approaches in relation to PSU in midwifery populations were favoured over punitive ones. Many statements categorised under this theme highlighted broadly that "there needs to be more support for midwives" (P222). Overall, more favourable outcomes were reported when midwives who engaged in PSU were "encouraged and sought help" (p155). PSU in midwives was deemed to be "much improved following discussion and support" (P120). Yet it was also recognised that "support in this area is very limited" - (P87).

With regards to the type of support required, compassionate and supportive approaches to the management of PSU included specific calls for access to practitioner health programmes for midwives.

"We need a Practitioner Health Programme (PHP) like they have for GP's"

(P276).

Indeed, such programmes can evoke more favourable treatment outcomes for healthcare professionals than mainstream treatments delivered to members of the general population (Goldenberg et al., 2020). Yet because ignorant, misguided, or ill-informed opinions can get in the way of compassionate responses in such cases there have been calls for re-education in this regard (Singh, 2021). Equally, such education may be beneficial to midwives in recognising both their own and others PSU and support needs where they may otherwise turn a blind eye to episodes of PSU in midwifery populations or turn to less appropriate self-management options as exampled in the themes presented here. Yet ultimately, it was recognised that midwives **"need anonymity to seek help"** (P118). This will be important to consider in the development of any new intervention designed to support midwives engaged in PSU.

## Turning a blind eye

This subtheme encompassed episodes where there was "concern voiced but no outcome" (P383). In one example, a concern was reportedly **"Brushed off"** (P514). Such inaction following concerns raised was seemingly because managers were not **"interested"** (P450), or not doing anything **"because they are friends"** (P564). There was also reported reluctance to raise concerns with regards to a midwife engaging in PSU as **"nobody would support"** them (P369). This is further suggestive of a need to change organisational cultures in this regard and promote conditions where PSU can be highlighted addressed with compassion and in psychologically safe working environments.

Inaction and delayed problem recognition in relation to maternity staff is worryingly analogous to the Morecambe Bay Investigation of maternity services (Kirkup, 2015), where the response to clinical adverse incidents has been found similarly deficient, with a repeated failure identified to investigate properly and learn lessons. Such findings also perhaps emulate the well-documented influence of power and hierarchy (Elliott-Mainwaring, 2021), and group conformity apparent in perinatal services (Grabowska, 2015), where only outliers are labelled as deviant and made the scapegoat. Such organisational cultures may perpetuate the conditions conducive to continued PSU and therefore must be challenged.

## Self-management

Participants contributing to this subtheme recounted episodes where midwives had taken a self-management approach in their PSU or taken personal responsibility for seeking help elsewhere. For example, one midwife resorted to "quitting her job and seeking support externally" (P494), while another experienced "Alcohol abuse. Drinking on every night off. Her family noticed and she ended up in AA. She is sober now" (P496). A further midwife explains how they are "currently working with HR and line manager" to adjust their role so that they "can stop the medication and remain safe at work" and improve their "mental and physical health" (P24).

Whilst all reported self-management strategies were seen as positive and effective, some self-management approaches may not result in a retainment of one's fitness to practise. As an example of this, one participant reported self-managing their PSU by limiting themselves to smoking "one joint a night" to help them sleep (P218), yet they do not equate the use of this illicit substance to being professionally impaired as they go on to state that they "have never ever come to work under the influence" and that it does not affect their "judgement", or "impair" them "in any way". Other healthcare professionals can similarly rationalise their PSU, considering it for example to be justified self-medication (Samuelson and Bryson, 2017). However, this is problematic as such denial can act as another barrier to seeking help from outside sources where required (Vayr et al., 2019). As such, it would be useful to encourage external support where appropriate. Nevertheless, it is important to remember that not all healthcare professionals who engage in PSU will be impaired (Fitzgerald, 2021), particularly those who seek help and manage their recovery safely.

#### Conflicting priorities

Within this theme, participant statements broadly related to professional conflicts, whereby the demands and expectations placed upon midwifery professionals were predominantly described as being unrealistically high. Personal conflicts were also described where midwives outlined how midwifery work was no longer compatible with their personal lives, leading some to make changes to their circumstances, particularly where their concerns had not been addressed by managers. Lastly, participants described practical conflicts in relation to their need to seek help in a system perceived to be punitive, or where no support appeared to be available to access

## Professional conflicts

In relation to professional conflicts, the prioritisation to meet the needs of midwives was described as being disproportionately low in comparison to the prioritisation to meet the needs of service users. Professionally, midwives were conflicted by rhetoric describing the "*privilege of the role*" (P114) when prioritising the needs of women and other people who birth with their own. There were also professional conflicts reported where other factors had been prioritised over the wellbeing of midwives. In answer, participants suggested that "*Managers need to stop thinking we are perfect and treat us with humanity*" (P71) and "*put the midwives before the women for once!*" (P114). This conflict between the prioritisation of providing midwifery care rather than care to oneself presented another professional conflict in relation to preserving future generations of midwifery staff, and thus may also be associated with moral distress (Foster et al, 2021).

"This situation is leading to newly qualified midwives burning out and medicating due to stress and anxiety."

P60

Such professional conflicts may further inhibit help seeking and the prioritisation of midwives' health. Coupled with low levels of help-seeking (Pezaro et al., 2021), there is also the potential for increased sickness absence rates within the sector, thus placing increased demands on an already stretched workforce (RCM, 2017). Yet there is an interplay between individual, regulatory, organisational, mental health/medical and potentially criminal actors to consider when understanding and reacting to PSU in this context (Foli et al., 2019). Responding to these to prevent PSU, encourage help seeking and aid recovery may prevent a loss of highly skilled midwives.

### Personal conflicts

In this subtheme, midwives' conflicts in relation to their personal life, health and family were described, as midwives grappled with both PSU and the prioritisation of work alongside their personal lives.

Whilst this is often done with a sense of forbearance, it is often juxtaposed with a sense of resentment where concerns had been raised and left unanswered. For example, one midwife "felt let down, unheard and unsupported" in this sense and is "now looking at changing health boards" and moving their "family elsewhere to work in midwifery elsewhere in the UK or abroad" (P32). Another was "looking to leave midwifery after 19 years" (P38).

"I personally use sedative antihistamines to sleep between night shifts. The choice is that, or 2-4 hours of broken sleep. It is a tough environment with an attitude of "that's how it is, get on with it" from managers.

P38

Whilst some may argue that midwives engaged with PSU are at personal fault because at some point, they made a personal cognisant decision to do so, it is important to consider that such decisions are reportedly made whilst under considerable stress (Pezaro et al., 2021). Such stress can exacerbate risk-taking and have a negative impact upon one's decision-making abilities and cognitive functioning (Dixit and Ghosh, 2019). The fact that such impairments in decision-making can be both the cause of substance use, and the cause of repeated use of substances in the face of negative consequences is further suggestive of dysfunction in the cognitive mechanisms underpinning effective decision-making in this context (Verdejo-Garcia et al., 2018). Therefore, any personal conflicts in relation to decision making and PSU may only be resolved by the development of new and collective understandings in this regard.

## Practical conflicts

Participants seemingly grappled with how they might realistically escape the perceived entrapment of PSU without losing their job, professional registration and/or freedom. In many cases, the price was too high to pay, thus furthering risks to midwives, service users and the public as health conditions remained ineffectively managed or unreported.

For example, some midwives reflected on how they might balance the practical conflicts between the prioritisation of help seeking for their PSU when they **"would lose [their] job!"** (P114), **"lose [their] career"** (p118), **"lose everything"** (P498) or face criminal proceedings as they were largely **"breaking the law"** (P165). Practically, they perceived great losses in whichever direction they were headed, and thus in such cases always remained in a state of conflict.

One midwife captures the overall sentiment of this subtheme by saying **"I wish I could get help but as a registered midwife I just can't"** (P212). Some midwives simply describe feeling **"utterly trapped"** (P393) by this, and practically speaking, the price of seeking help is simply **"too high to pay"** (P276). For those in need of support, there is also reportedly practically **"Nowhere to turn"** (P114). Consequently, it will be important to offer tangible and non-punitive avenues for disclosure in future.

## "I am doing illegal drugs... there is no option for me as a professional to seek help"

P253

The very real prospect of criminal sanctions for those midwives who divert medications from whom they were intended in the workplace can be complex to navigate. Some courts are divided on whether an individual with an addiction who commits an unlawful act is beyond the reach of criminal law because the act is then considered to be involuntary (Sidhu, 2020). Yet ultimately, there is a need to pursue individualised approaches to investigations. Thus, before engaging law enforcement, employers and policy makers may usefully decipher between acts against probity (e.g., intent to supply) and behavioural symptoms of ill health, such as those presented in this sample (Pezaro et al., 2021). Equally, the unnecessary involvement of law enforcement may be avoided by ensuring that there is congruence between policies which relate to theft/dishonesty and policies which relate to drug, alcohol, and substance use.

## Discussion

Our novel study explores the perceptions of PSU among midwives registered with the NMC and measures the influence of PSU upon their mental and physical health. Higher levels of PSU significantly predicted poorer general health and mental functioning. Midwives who met criteria for PSU experienced significantly poorer general, mental and physical health than those who did not. Qualitative findings highlight how the nature of midwifery along with professional and organisational cultures create conditions currently conducive to continued PSU.

The findings should be interpreted in light of disproportionately young sample and the positive skew for health outcomes, which may represent a healthy worker effect (Li and Sung, 1999). The power of any sexed-based analysis in this study would have been limited as only 3 respondents were male. Therefore, these particular data were not included as a covariate. The inclusion of age as a co-variant within the multiple regressions however has identified the relationship between age and PSU on the health outcomes and, although the correlations are only weak, there is an indication that younger midwives meeting the criteria for PSU may report significantly poorer general and psychological health. The potential impact of this may be higher levels of sickness absence or presenteeism for those younger midwives which may have a knock-on effect on resourcing and quality of maternity care. There is the possibility that employment status may also act as a co-variant in the multiple regression analysis, particularly as older midwives may be more likely to work part-time or have roles which take them away from the demands of front-line care. Unfortunately, due to the way data was collected it was not possible to run a meaningful analysis to test whether this was the case. Future work may wish to uncover the influence that job role and the number of hours worked per week has on PSU and health status.

Our study does not attempt to prescribe prevalence of PSU but rather understand the perceptions and influence of PSU in those who responded. It is important to note that the survey ended earlier than planned in March 2020 to prevent skewed results associated with the COVID-19 pandemic. There is now evidence to suggest that the COVID-19 pandemic has exacerbated levels of stress and anxiety in maternity staff (Erin and Bayoğlu Tekin, 2021), along with levels of PSU in healthcare professionals (McKay and Asmundson, 2020). Thus, it is reasonable to suppose that rates of PSU may have also now increased in midwifery populations. As well as the risks posed to the public, employers and users of perinatal services, there are significant health risks associated with PSU, particularly following the COVID-19 pandemic (McKay and Asmundson, 2020). Further research is now needed to examine the impact that COVID-19 may have had on PSU in midwives, as well as nurses, because they may have increased their PSU to cope with the demands and pressures associated with working through the pandemic (Foli et al., 2021).

When comparing the findings across themes, there appears to be a discord between the evidence-based need for compassionate approaches to the management of PSU alternative to discipline and the perceptions of midwives. Therefore, we would recommend the co-creation of evidence-based guidelines and decision-making tools along with educational and practitioner health programmes for application in this area. Further research could usefully explore what differences may be apparent for midwives as opposed to other healthcare professionals to identify optimal and evidencedbased ways to best protect the public whilst assisting midwives to recover their fitness to practise and ideally return to the workforce. In this task, co-creation with midwives, policy and decision makers will also be key.

#### Funding

None declared.

## **Ethical approval**

Ethical Approval was granted by Coventry University (Project reference P99849).

## **Declaration of Competing Interest**

The lead author acts as a panellist for the Nursing and Midwifery Council's Investigating Committee, presiding over cases brought before the council, including those related to problematic substance use.

## **CRediT** authorship contribution statement

**Sally Pezaro:** Conceptualization, Methodology, Formal analysis, Writing – original draft. **Karen Maher:** Methodology, Data curation,

Formal analysis, Writing – review & editing. **Elizabeth Bailey:** Formal analysis, Writing – review & editing. **Gemma Pearce:** Formal analysis, Writing – review & editing.

#### Acknowledgments

The team would sincerely like to thank everyone who took part in this research. We would also like to thank the 'Make Birth Better' Network, the British Journal of Midwifery and the Royal College of Midwives for supporting our recruitment efforts.

#### References

- Al'ai Alvarez, M., Lam, R., Faaem, M., 2020. Gratitude and Appreciation Amidst Chaos and Uncertainty: Awaken Humanity at Work.
- Albendín-García, L., Suleiman-Martos, N., Cañadas-De la Fuente, G.A., Ramírez-Baena, L., Gómez-Urquiza, J.L., De la, F.-S., Emilia, I, 2021. Prevalence, related factors, and levels of burnout among midwives: a systematic review. J. Midwifery Women's Health 66, 24–44.
- Armstrong, R., 2014. Ophthalmic and physiological optics. When to use the Bonferroni correction, 34(2014), pp.502-508.
- Braquehais, M.D., Bruguera, E., Casas, M., 2021. Addictions in physicians: an overview. In: Textbook of Addiction Treatment, pp. 1451–1461.
- Braun, V., Clarke, V., 2006. Using thematic analysis in psychology. Qual. Res. Psychol. 3, 77–101.
- Braun, V., Clarke, V., 2020. One size fits all? What counts as quality practice in (reflexive) thematic analysis? Qual. Res. Psychol. 18 (3), 328–352.
- Bryson, E.O., 2012. Addicted Healers: 5 Key Signs your Healthcare Professional may be Drug Impaired. New Horizon Press.
- Cares, A., Pace, E., Denious, J., Crane, L.A., 2015. Substance use and mental illness among nurses: workplace warning signs and barriers to seeking assistance. Substance Abuse 36, 59–66.
- Caruso, G.D., 2020. Justice without retribution: An epistemic argument against retributive criminal punishment. Neuroethics 13 (1), 13–28. Harvard.
- Creswell, J.W., Clark, V.L.P., 2017. Designing and Conducting Mixed Methods Research. Sage Publications.
- Cumming, G., 2014. The new statistics: why and how. Psychol. Sci. 25 (1), 7-29.
- Dixit, V., Ghosh, S., 2019. Analyze impact of occupational stress in healthcare professionals: a critical review. Invertis J. Manage. 11, 30–37.
- Duncan, D.F., White, J.B., Nicholson, T., 2003. Using Internet-based surveys to reach hidden populations: case of non-abusive illicit drug users. Am. J. Health Behav. 27, 208–218.
- Elliott-Mainwaring, H., 2021. How do power and hierarchy influence staff safety in maternity services? Br. J. Midwifery 29, 430–439.
   Erin, R., Bayoğlu Tekin, Y., 2021. Psychosocial outcomes of COVID-19 pandemic on
- Erin, R., Bayoğlu Tekin, Y., 2021. Psychosocial outcomes of COVID-19 pandemic on healthcare workers in maternity services. J. Psychosom. Obstetr. Gynaecol. 1–7. doi:10.1080/0167482X.2021.1940944.
- Fitzgerald, R.M., 2021. Caring for the physician affected by substance use disorder. Am. Fam. Phys. 103, 302–304.
- Foli, K.J., Reddick, B., Zhang, L., Edwards, N., 2019. Substance use in registered nurses: where legal, medical, and personal collide. J. Nurs. Regul. 10, 45–54.
- Foli, K.J., Reddick, B., Zhang, L., Krcelich, K., 2020. Substance use in registered nurses: "I heard about a nurse who...". J. Am. Psychiatr. Nurses Assoc. 26, 65–76.
- Foli, K.J., Zhang, L., Reddick, B., 2021. Predictors of substance use in registered nurses: the role of psychological trauma. West. J. Nurs. Res. 43 (11), 1023–1033. Foster, W., McKellar, L., Fleet, J., Sweet, L., 2021. Moral distress in midwifery practice:
- a concept analysis. Nurs. Ethics, 09697330211023983. Fricker, M., 2016. What's the point of blame? A paradigm-based explanation. Noûs
- 50, 165–183.
- Goldenberg, M., Miotto, K., Skipper, G.E., Sanford, J., 2020. Outcomes of physicians with substance use disorders in state physician health programs: a narrative review. J. Psychoact. Drugs 52, 195–202.
- Grabowska, C., 2015. Conformity and conflict in maternity services. In: Anonymous Introducing the Social Sciences for Midwifery Practice, Routledge, pp. 71–86.
- Hartman, J.S., 2015. The Implications of Moral Injury among African American Females with a History of Substance Abuse: a Preliminary Study. Pepperdine University.
- Hichisson, A.D., Corkery, J.M., 2020. Alcohol/substance use and occupational/post-traumatic stress in paramedics. J. Paramed. Pract. 12, 388–396.
- Hunter, B., Henley, J., Fenwick, J., Sidebotham, M., Pallant, J., 2018. Work, Health and Emotional Lives of Midwives in the United Kingdom: The UK WHELM Study. Royal College of Midwives.
- Kinman, G., Teoh, k., Harriss, A., 2020. The Mental Health and Wellbeing of Nurses and Midwives in the United Kingdom.
- Kirkup, B., 2015. The Report of the Morecambe Bay Investigation.
- Koob, G.F., Le Moal, M., 1997. Drug abuse: hedonic homeostatic dysregulation. Science 278, 52–58 New York, N.Y..
- Kunyk, D., 2015. Substance use disorders among registered nurses: prevalence, risks and perceptions in a disciplinary jurisdiction. J. Nurs. Manage. 23 (1), 54–64.

- Levitt, H.M., Bamberg, M., Creswell, J.W., Frost, D.M., Josselson, R., Suárez-Orozco, C., 2018. Journal article reporting standards for qualitative primary, qualitative meta-analytic, and mixed methods research in psychology: the APA Publications and Communications Board task force report. Am. Psychol. 73 (1), 26–46. doi:10.1037/amp0000151.
- Li, C.Y., Sung, F.C., 1999. A review of the healthy worker effect in occupational epidemiology. Occup. Med. 49 (4), 225–229.
- Mayall, R., 2016. Substance abuse in anaesthetists. BJA Educ. 16, 236-241.
- McKay, D., Asmundson, G.J., 2020. Substance use and abuse associated with the behavioral immune system during COVID-19: the special case of healthcare workers and essential workers. Addict. Behav. 110, 106522.
- McNeely, J., Wu, L., Subramaniam, G., Sharma, G., Cathers, L.A., Svikis, D., Sleiter, L., Russell, L., Nordeck, C., Sharma, A., 2016. Performance of the tobacco, alcohol, prescription medication, and other substance use (TAPS) tool for substance use screening in primary care patients. Ann. Intern. Med. 165, 690–699.
- Nursing and Midwifery Council, 2018. NMC Code.
- Perneger, T.V., 1998. What's wrong with Bonferroni adjustments. BMJ 316 (7139), 1236-1238.
- Pezaro, S., Clyne, W., Gerada, C., 2018. Confidentiality, anonymity and amnesty for midwives in distress seeking online support–Ethical? Nurs. Ethics 25 (4), 481–504.
- Pezaro, S., Clyne, W., Turner, A., Fulton, E.A., Gerada, C., 2015. Midwives Overboard!' Inside their hearts are breaking, their makeup may be flaking but their smile still stays on. Women Birth 29, 59–66.
- Pezaro, S., Maher, K., Bailey, E., Pearce, G., 2021. Problematic substance use: an assessment of workplace implications in midwifery. Occup. Med. 71 (9), 460–466 Oxford, England.
- Pezaro, S., Patterson, J., Moncrieff, G., Ghai, I., 2020. A systematic integrative review of the literature on midwives and student midwives engaged in problematic substance use. Midwifery 89, 102785.
- Ross, C.A., Berry, N.S., Smye, V., Goldner, E.M., 2018. A critical review of knowledge on nurses with problematic substance use: the need to move from individual blame to awareness of structural factors. Nurs. Inq. 25, e12215.
- Royal College of Midwives, 2017. The gathering storm: England's midwifery workforce challenges.
- Russell, K., 2020. Components of nurse substance use disorder monitoring programs. J. Nurs. Regul. 11, 20–27.
- Samuelson, S.T., Bryson, E.O., 2017. The impaired anesthesiologist: what you should know about substance abuse. Can. J. Anesth. 64, 219–235.
- Searle, R.H., Rice, C., McConnell, A.A. and Dawson, J., 2017. Bad apples? Bad barrels? Or bad cellars? Antecedents and processes of professional misconduct in UK Health and Social Care: insights into sexual misconduct and dishonesty. Professional Standards Authority.
- Sherbourne, C., Keeler, E., Unutzer, J., Lemert, L., Wells, K., 1999. Relationship between age and patients' current health state preferences. Gerontologist 39 (3), 271–278.
- Sidhu, D.S., 2020. Criminal law x addiction. NCL Rev. 99, 1083.
- Singh, P., 2021. Blame without punishment for addicts. Philosophia 50, 1-11.
- Sriharan, A., Ratnapalan, S., Tricco, A.C. and Lupea, D., 2021. Women in health care experiencing occupational stress and burnout during COVID-19: a review. medRxiv.
- Stageberg, E.L., Stark, A.L., Moore, K.M., 2020. Rates of burnout, depression, suicide, and substance use disorders. In: Anonymous Burnout in Women Physicians. Springer, pp. 39–67.
- Stewart, A.L., Sherbourne, C., Hays, R., Wells, K.B., Nelson, E.C., Kamberg, C.J., 1992. Summary and discussion of MOS Measures. In: Stewart, A.L. (Ed.), Measuring Functioning and Wellbeing, the Medical Outcome Study Approach. Duke University Press, Durham, NC, pp. 345–371.
- Strobbe, S., Crowley, M., 2017. Substance use among nurses and nursing students: a joint position statement of the Emergency Nurses Association and the International Nurses Society on Addictions. J. Addict. Nurs. 28, 104–106.
- Tashakkori, A., Teddlie, C., 2010. Putting the human back in "human research methodology": The researcher in mixed methods research. J. Mix. Methods Res. 4 (4), 271–277.
- Vayr, F., Herin, F., Jullian, B., Soulat, J.M., Franchitto, N., 2019. Barriers to seeking help for physicians with substance use disorder: a review. Drug Alcohol Depend. 199, 116–121.
- Verdejo-Garcia, A, Bechara, A., 2009. A somatic marker theory of addiction. Neuropharmacology 56 (1), 48–62.
- Verdejo-Garcia, A., Chong, T.T., Stout, J.C., Yücel, M., London, E.D., 2018. Stages of dysfunctional decision-making in addiction. Pharmacol. Biochem. Behav. 164, 99–105.
- Ware Jr, J.E., Kosinski, M., Keller, S.D., 1996. A 12-item short-form health survey: construction of scales and preliminary tests of reliability and validity. Med. Care 220–233.
- World Health Organization, 2021. Global strategic directions for nursing and midwifery 2021-2025.
- Wu, L., McNeely, J., Subramaniam, G.A., Sharma, G., VanVeldhuisen, P., Schwartz, R.P., 2016. Design of the NIDA clinical trials network validation study of tobacco, alcohol, prescription medications, and substance use/misuse (TAPS) tool. Contemp. Clin. Trials 50, 90–97.
- Zhu, Z., 2011. After paradim: why mixing-methodology theorising fails and how to make it work again. J. Oper. Res. Soc. 62 (4), 784–798.