

**FOLLOW-UP ARTICLE ON THE FUTURE OF WORK**  
**MANAGING PERFORMANCE ENHANCING DRUGS AT THE**  
**WORKPLACE: AN OSH PERSPECTIVE**  
**(EUOSHA/2017/NE/LV/0028/T8)**

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## **Background**

This review article is undertaken on behalf of the European Agency for Safety and Health at Work (EU-OSHA). It stems from the need to identify and understand 'emerging risks' to health and safety within the workplace. The risk posed by the use of performance enhancing drugs in the workplace was identified in the Foresight Report on New and Emerging Risks Associated with New Technologies by 2020 (EU-OSHA, 2014). An initial review article was produced in 2015. This provided a detailed introduction to the main types of drugs associated with performance enhancement; the current state of knowledge about the prevalence of their consumption and the associated methodological difficulties with quantitative measurement of their use; what would be the likely effects on workers; and what issues employers, health and safety experts, and policy makers might consider in approaching the risks of performance enhancing drugs in the workplace. This document is a follow-up to that report. It aims to provide an update on the latest developments related to performance enhancing drugs. It also extends the groundwork provided by the first report by considering the contextual factors that might precipitate or predispose employees toward the use of such drugs, together with the implications for management and policy makers in respect of the relevant health and safety issues. It is hoped that this will stimulate discussion within the occupational health and safety community, and within the broader context of drugs monitoring and policy making.

## **Introduction**

The initial report focused on defining key terms and debates in relation to performance enhancing drugs and discussed three main substances (Ritalin (methylphenidate), Provigil (modafinil) and Adderall (amphetamine salts)) which have been seen as the drugs most commonly associated with enhancement. In this article we extend the consideration of pharmacological enhancers in view of discussions within the scientific community and more widely in the media about a range of other substances. For example: the idea of 'micro-dosing' of hallucinogens such as LSD to increase creativity amongst software developers; the use of substances such as beta-blockers to enhance the presentation of self in the performance of work; and also the use of a wider range of substances such as 'nootpept' and other drugs classified as 'nootropics'<sup>1</sup> seen as improving mental function.

The first report concentrated on providing a factual background for understanding the main drugs used for enhancement, by summarising the scientific evidence on the effects and side-effects of these drugs, and thus the consequent health and safety issues. This is of particular concern as no drugs are medically approved for enhancement purposes. This means that drugs which are tested and prescribed for individuals with specific medical conditions (usually narcolepsy and ADHD) are being taken without medical prescription or supervision by healthy people for performance enhancement.

This current article takes a broader approach to understanding the social and economic context within which enhancement drugs are likely to be taken up within the workplace. In particular, it links the use of such drugs with other concurrent changes in the labour market and workplace organisation. In this way the article complements other work on future risks identified by EU-OSHA<sup>2</sup>, including (a) ‘crowd-sourcing’ and the increase of precarious work; (b) the developments in the field of AI and robotics; and c) the increased monitoring of employees’ health, stress levels, alertness, and fitness-to-perform through physical indicators (e.g. heart rate variability). These trends are now being widely discussed in terms of potential threats to the working lives of many employees, and the consequent health and safety concerns.

In the original report we discussed the difficulty of obtaining a simple quantitative measure of the prevalence of performance enhancement, despite much qualitative evidence, and particularly the known tendency to take such drugs within specific sectors of the population and occupations. In this article we link together the contextual factors which are more likely to ‘trigger’ such drug taking. We also discuss how these factors might be taken into account in future research to ascertain the characteristics and extent of such behaviour. In doing this, we draw upon the concept of drug ‘normalisation’ which is a framework that has been used by social scientists to understand how the use of illegal and recreational drugs can become seen as acceptable within social sub-cultures. We consider how this framework can offer insights into the uptake of performance enhancers in the context of work.

## **Structure of the Report**

The first section of this report examines the latest developments in relation to Performance Enhancing Drugs. This is followed by a section which looks in more detail at the changing conditions of work within which performance enhancers are likely to be used. It also applies the ‘normalisation of drugs thesis’ to performance enhancers in order to better understand the context of their use. The final section outlines the implications for monitoring and policy.

### **1. New Developments**

**1.1** Among the developments worthy of note since our original report is the prominence given to a systematic review of published research into the cognitive effects of modafinil. This review, appearing in the journal *European Neuropsychopharmacology* (Battleday & Brem, 2015), was written by researchers at two prestigious academic establishments - Oxford University and Harvard Medical School – and evaluated some 24 published studies on the cognitive enhancing potential of modafinil. The authors concluded that “modafinil provides some benefit to cognition, in particular executive functions” (p. 1878) but that greater, more rigorous research on healthy subjects was necessary. They also noted that the reporting of side-effects was patchy and needed to be greatly improved in future studies. Moreover, it should be noted that the review by Battleday and Brem provoked a critical response from other researchers (e.g. Repantis & Maier, 2016).

However, what was particularly significant about the report was the way in which it was picked up and reported by the media. For despite the caveats noted in the review, some media outlets suggested that modafinil was, for example, the ‘world’s first safe smart drug’ (*The Guardian*, 2015); and that “‘smart drugs’ really do work’ (*The Mail*, 2015). Though the review received less coverage in non-English language media, one news item carried by *Le Matin* (2016) - ‘La pilule qui repousse les limites’ [The pill that pushes the boundaries] - suggested that modafinil was popular amongst Anglo-Saxon students but not without risks; whilst a headline on the topic in *Die Zeit* (2015) stated ‘Hirn auf Hochtouren’ [Brain at full speed]. The salience of media reporting here is that popularisations of scientific research can pose issues in terms of the representative nature or substance of the information they provide. This is a matter that is particularly important when it comes to matters of health and safety and how such information might circulate amongst groups with a potential interest in using cognitive enhancers or those with a stake in reinforcing existing usage. Whilst we cannot gauge the social impact of such reporting in quantitative terms we would point out that it contributes to the societal debate regarding enhancement making it thinkable and potentially normal (see discussion below on the normalisation of drugs use).

## **1.2 Diversity and extension of the range of drugs and potential users**

When it comes to performance enhancing drugs in the context of work, it is evident that there is a greater diversity of substances, professions and work situations involved than is widely acknowledged. On the one hand, work and professional life can of course pose performance related problems for individuals working in many different environments and who for various reasons may seek recourse to pharmacological solutions in order to cope. For example, there is anecdotal evidence to suggest that individuals who experience strong feelings of nervousness or anxiety when performing in public – such as public speaking, undergoing an interview, or playing a musical instrument – may seek medical help and subsequently be prescribed beta-blocking drugs such as propranolol which serve to alleviate the physiological symptoms of anxiety. Moreover, aside from legitimate prescriptions for individuals facing anxiety provoking work situations, there is the obvious possibility of self-medication providing a source of such drugs is available. To illustrate this behaviour, we can usefully note an article about the use of beta-blockers before musical auditions that was published in a magazine for professional musicians (*The Strad*, 2017). As the article made clear, the area is under-researched and existing evidence largely anecdotal. But of course the absence of evidence is not the same as evidence of absence. Indeed, the topic is a sensitive one with affected professionals hardly likely to openly disclose a problem, much less the pursuit of a pharmacological remedy. However, the article does include evidence from 3 people working in the world of classical music who themselves had decided to use beta-blockers to cope with performance anxiety. As many more occupations require people to have the skills to be able to present themselves and their work, this trend is unlikely to be confined to specifically performance related occupations. Though difficult, it would seem

that further research on the range and uptake of performance enhancing drugs along with the associated occupational situations is called for.

On the other hand, there has been renewed interest in older drugs whilst other substances originally developed for a different medical purpose may come to the fore and be seen as putative agents for performance enhancement. Regarding the former, there have been reports of increasing interest in the phenomenon of micro-dosing with LSD (lysergic acid diethylamide), the illegal drug once popular during the psychedelic era in the 1960s and 1970s. Micro-dosing involves the use of very small doses of the drug, less than would precipitate the sort of hallucinations and other cognitive effects associated with so-called 'acid trips', in the hope of improving work performance, especially creativity. In the main viewed as a trend amongst entrepreneurs and others working in the high tech industries of Silicon Valley in the USA (*Financial Times*, 2017), there has also been some media coverage of British users (*The Times*, 2017).

Turning to newer drugs associated with enhancement, in 2014 a substantial quantity of a drug going by the popular name 'noopept' was part of a seizure of a variety of 'smart drugs' by the Medicines and Healthcare products Regulatory Agency (MHRA, 2014). Originally synthesized in Russia, noopept has been researched as a treatment for cognitive disorders of vascular origin (Neznamov & Teleshova, 2009). In 2016 noopept received further media coverage in the UK, being regarded amongst the student population as an aid to studying (*The Independent*, 2016). It now comes under the remit of the Psychoactive Substances Act 2016 in the UK, making it illegal to produce, import or distribute. Noopept is just one of a class of substances referred to as nootropics. As with other drugs developed to treat cognitive impairments, such as those prescribed for sufferers of narcolepsy (modafinil), ADHD (methylphenidate) or Alzheimer's (donepezil), the drug may be seen as having a potential to boost the cognition of health subjects not suffering from cognitive deficits. One lesson that might be drawn from the case of noopept is that the interest in and uptake of pharmacological substances in connection with enhancing cognition, or even just coping with mental fatigue, can shift rapidly in a short space of time.

Another important factor to take into account is the role of the internet and social media – both as a source of information about potential enhancement substances and a means of obtaining them. It is worth noting that articles, blogs, responses and discussions about the use of enhancement drugs (both positive and negative) are hosted on the websites of specific professional groups, which may indicate both interest and awareness even if they do not provide a measure of actual user populations. Such examples where discussions about pros and cons of enhancement have been hosted include a forum for nurses ([allnurses.com](http://allnurses.com)<sup>3</sup>); and for medics through the British Medical Journal – the journal of the British Medical Association ([blogs.bmj.com/medical-ethics](http://blogs.bmj.com/medical-ethics) (see: Brassington, 2012); [careers.bmj.com](http://careers.bmj.com) (see: Davies, 2016); [student.bmj.com](http://student.bmj.com) (see: Welford, 2016)).

In this connection it is also worth noting that the problem of illicit online pharmacies selling fake or unlicensed medicines (including drugs used for enhancement purposes) has come to the attention of regulatory authorities and in 2016, for example, the Medicines and Healthcare products Regulatory Agency in the UK reported closing down some 5,000 such websites (MHRA, 2016). A related danger is posed by online doctors who have been found to give prescriptions for powerful drugs, including modafinil, without adequate checks on medical history (*The Times*, 2017, June 27<sup>th</sup>).

In the first report we noted several occupations where accounts suggest that there is more prevalence or at least familiarity with performance enhancers: the military, medical professionals, long distance transport workers, shift workers and other high pressure professions. Ascertaining this in more detail remains difficult and patchy. The few studies that have sought to ascertain the prevalence of cognitive enhancers amongst the working population include Dietz et al (2016) who investigated the readership of a German publication addressing the field of economics and surveys of doctors (e.g. Franke et al, 2013). Each of these commented on the significance of contextual and workplace factors in the prevalence of these drugs. Franke et al noted:

“The present results indicate that about 15% to 20% of surgeons have used drugs for CE [cognitive enhancement] or ME [mood enhancement] at least once during their lifetimes. This may be attributed to high workload and perceived work-related and private stress” (2013: 109).

In summary, in considering the use of performance enhancers in the workplace, and the health and safety implications of these, it is important to bear in mind the diversity of substances which may come under this heading. Thus not only those drugs commonly recognised as cognitive enhancers (modafinil, Ritalin, Adderall), but also a range from illicit drugs such as LSD, common prescription drugs such as beta-blockers, experimental substances being developed for conditions such as Alzheimer’s Disease, and off-the-shelf products such as energy drinks need to be taken into account. Further, drugs which are usually seen as used for recreational purposes are also being taken for performance enhancement (sometimes in different forms or doses) such as cocaine, LSD and amphetamines. This adds complexity to the understanding of the nature of drug use for workplace enhancement. In addressing what work situations or occupational groups are most likely to take performance enhancing drugs, we now turn to consider changing working conditions and the potential for the normalisation of performance enhancement drug use.

## **2. Potential contextual/trigger factors in the uptake of performance enhancing drugs**

### **2.1 Changes in working practices and conditions of employment**

Drug-taking is usually seen as something which takes place outside work, but is likely to have a detrimental effect on work, and managerial solutions are commonly about counselling, treatment or discipline. Everyday explanations of drug-taking tend to focus on the individual user, whether they are seen as an ‘addict’ or a ‘recreational user’. The drug-user may be seen as demonstrating problematic behaviour which is attributed to either personal factors (e.g. propensity to take risks, unable to cope) or social environmental factors (e.g. poverty, dysfunctional family relationships).

To understand the use of performance enhancing drugs poses several challenges to these assumptions, since people use enhancers in order to *improve* their work, or to cope better with the demands of work. Both small-scale qualitative studies and informal accounts of the use of enhancers suggest that the social context is key to individuals’ decisions to take these drugs or not. In the first report we suggested that the likelihood of individuals choosing to take performance enhancing drugs needs to be understood in relation to social and organisational factors such as the organisation of work, company culture and occupational characteristics (see OSHA, 2015: s.6). In particular we noted the work of Sonnenstuhl and Trice (1987, quoted in Cook et al 1996: 323) which suggests factors likely to contribute to workplace substance abuse problems include: i) workplace culture; ii) social control, iii) alienation, iv) occupational stress, and v) availability of drugs. In addition, given that drugs such as modafinil increase wakefulness and focus, we noted that shift working is also a key factor.

This article extends the discussion of the significance of the social and economic context, and considers the potential ‘trigger’ factors within the workplace and wider changes within working conditions more generally. In doing this, the article makes a connection with other future challenges and ‘emerging risks’ that EU-OSHA identified and discussed within its earlier Foresight and other reports.

In relation to the broader social and economic context within which performance enhancers are used, the increase of precarious work is significant. Precarious work<sup>4</sup> can be broadly described as that which is carried out under non-standard conditions of employment and is thus more insecure, often not protected under standard labour rights and legislation, often poorly paid, sometimes under a high degree of surveillance and monitoring. The ILO describe precarious work as including: “uncertainty as to the duration of employment, multiple possible employers or a disguised or ambiguous employment relationship, a lack of access to social protection and benefits usually associated with employment” (ILO, 2012: 27). Precarious working has been long associated with certain categories of worker such as migrants, disabled workers, and women workers (part-time, homeworking).

Recent research provides an insight into the changing nature of working conditions, particularly those associated with the co-called 'gig economy' which is characterised by digital/algorithmic control of fragmented work tasks across multiple workers who are not held to have a continuing contractual relationship with an employing organisation (Huws et al 2017, <http://www.feps-europe.eu/en/publications/details/579>).

Although no studies have been carried out into the direct relationship between performance enhancers and changing conditions of work, there is some indication from a large scale study in Italy that where workers experience a move to more precarious working conditions this is associated with poorer mental health and the increase in prescription of psychotropic drugs (Moscone et al., 2016). It would be useful to see similar studies in relation to performance enhancing drugs.

It is useful here to highlight some of the main aspects of fragmentation and precarity involved and how they relate to the potential use of performance enhancers. The factors discussed below are often found together (particularly in jobs in the so-called gig economy/platform working):

- a) Lack of social/individual control over work conditions. Traditionally associated with machine-paced factory work, or more recently routine white-collar occupations such as call centre agents, and currently by those working in the digitalized economy. In the latter, workers may have to wait without pay until they are allocated jobs; they are subject to customer rating which determines whether they will continue to be allocated work; and they have no opportunity to voice their own experiences (Huws et al, 2017). The use of performance enhancers may be perceived by workers as a way to deal with monotony or to keep up with the demands of machine/electronically paced work.
- b) Fragmentation of working times and spaces. In competitive markets, companies may seek to minimise their employee costs through the use of outsourcing, the reduction of working hours, and requiring employees to work flexibly. Employees may only be paid for the core tasks rather than for the time it takes them to do the work. For example, care workers in the UK have been found to be paid only for the time they spend caring for their clients, but not for the time to travel from one client to the next (Richards, 2016, March 17). The consequences for workers have been fragmented working hours, or having to take on a multiplicity of jobs in order to make a living. Recent years have seen an increase in 'in-work poverty'. At the moment there is only anecdotal evidence for those who need to take on multiple employment taking performance enhancers in order to be able to manage this. It would be informative to include issues about the use of performance enhancers in studies of work under these conditions.
- c) Overlapping, blurring or difficulty in achieving a balance between paid work and other aspects of life. This is a problem particularly experienced by women

attempting to balance the 'second shift' of employment and domestic work (Hochschild, 1989). An example of women turning to performance enhancers to cope with the competing demands of stressful jobs and commitments outside employment is discussed in a UK national newspaper (*Mail Online*, 2013, January 6<sup>th</sup>). As noted in the first report, shift-working is a wide-spread and key area where work-life balance is often problematic. In the US the producers of modafinil specifically target their advertisements to those suffering from 'shift-work sleep disorder'. In many other areas of work the use of electronic information and communication devices – the mobile 'electronic envelope' (Felstead et al, 2005) that individuals tend now to carry on them – mean that there is a tendency to be 'always on' or connected to work. Those whose work is allocated through an online platform report that they are worried about obtaining sufficient work, so they stay continually connected.

- d) Conditions of competition, shortage of work, threat to livelihood. On the one hand this can apply to the highly competitive environment experienced in professional and higher level occupations, with awareness of the need to continually perform at an exceptional level in order to retain one's position. Examples of this are reported by the work of the drug and alcohol abuse centre in The City of London (Square Mile Health, 2017), as well as media accounts of the lifestyle of high flying women workers (*Cosmopolitan*, 2016, October; *London Evening Standard*, 2016, March 23<sup>rd</sup>). At the other end of the spectrum, this can relate to the constant uncertainty experienced by those obtaining work through on-line platforms as to whether they will have responded to a job request quickly enough or have received good enough feedback for further job allocations. The potential for jobs to be replaced through outsourcing, off-shoring and technology is experienced as a risk by many employees. Contemporary media reports about the use of AI and robotics to make human work redundant – attended as they often are in the press by exaggeration, scare-mongering and myth – will be likely to exacerbate this condition.
- e) Monitoring of employees. Surveillance and monitoring of employees has a long history. However, electronic means of monitoring are likely to see an increase in the stresses on workers, although they also have the potential to be used to increase wellbeing. These forms of monitoring often combine biometric measurements of the employee's physiological state, which are then 'read' as signs of commitment, fitness to work, stress and so on. This type of data surveillance is at a highly individual and personal bodily level. It is possible to foresee that employees under this level of scrutiny may turn to various pharmacological means to allow some control over or manipulation of biometric readings.

## **2.2 Normalisation**

Another way of approaching the uptake of performance enhancing drugs is to consider how they might become a cultural norm in particular social contexts. The 'normalisation of drugs'

thesis was originally developed to explain the apparent rise in the use of illicit drugs amongst young people as shown in a large scale longitudinal survey in the UK (Parker, Aldridge & Measham, 1998; Price, 2000; Williams, 2016). The normalisation of drug behaviours arises from the idea that the use of drugs becomes incorporated in and accommodated within various aspects of everyday life. This counters the idea of drug use as an abnormality – as an activity which is exceptional and stigmatised. In turn, the degree of normalisation would suggest that there are less social and practical barriers to the use of such drugs, and therefore can be an indication of increasing prevalence. Whilst traditional studies of drug use concentrated on the causes of risky and deviant behaviour (such as individual tendency towards ‘problem’ behaviours and social environment), in contrast the normalisation thesis recognises that drug users could be “well-adjusted and successful goal oriented, non-risk taking young persons” (Parker 1997: 25). Those who choose to use performance enhancers also show goal-directed behaviour, since studies indicate that their motivation is aimed at improving their focus for study and work purposes (Dietz et al, 2016; Eikenhorst et al, 2012; Majori et al, 2017).

The normalisation thesis<sup>5</sup> views illicit drug taking as “an unremarkable feature of young people’s lives; part of the broader search for pleasure, excitement and enjoyment framed within consumption-oriented leisure lifestyles” (Measham and Shiner, 2009: 502). In other words, the normalisation thesis seeks to locate drug taking patterns and choices within their social context. Considering normalisation in respect of the use of performance enhancing drugs within a workplace setting similarly requires us to consider the social context of their uptake. But significantly in this case, the important contextual factors are not about pleasure and consumption, but the impetus to be a productive and successful person, as these are qualities valued both within work and wider society. Moreover, in the contemporary context of employment relations, there is an expectation that employees will work on themselves and take responsibility for their own personal development, to reach their potential or simply match their capabilities to occupational demands and the labour market. We have indicated in 2.1 above that there may be certain workplace contexts or conditions under which the use of performance enhancers may be more likely to be triggered. These are also potential social contexts in which their use may then become normalised.

We believe that the dimensions of normalisation that researchers have identified with regard to illicit drugs can be applied to achieve greater understanding of the use of performance enhancing drugs. We also believe that the approach of these studies has implications for research on performance enhancers; perhaps especially through the addition of relevant questions into existing longitudinal studies on the drug use patterns of young people.

Five key dimensions are associated with normalisation:

- i) Availability/access;
- ii) A degree of cultural accommodation of illegal drug use;
- iii) Accommodating attitudes to 'sensible' recreational drug use especially by non-users;
- iv) Usage rates;
- v) Rates of experimentation with drugs ('drug-trying') (Parker et al, 2002).

Below we discuss these dimensions and relate them to the potential uptake of performance enhancers. Through this we can start to identify potential 'trigger factors' which indicate the contexts within which individuals may be more likely to use these drugs:

i) Availability includes how easily people can access these drugs. In the case of performance enhancers, this would include those occupations which have more physical access to the substances (e.g. a range of medical and healthcare personnel) as well as the growing potential for buying the drugs via the internet. Ease of access is an important issue therefore. Accessibility can also include economic accessibility – the price at which the drugs can be obtained, and which groups this then brings into the scope of using the drug (and this includes continuing use not just a one-off trial). In relation to the normalisation of illicit drugs, one of the measures looked at is the extent of seizures of such substances. In relation to performance enhancers, for example, the seizure in the UK October 2014 (mentioned above), included 'smart drugs' with a street value of £200,000 (approximately Euro 240,000 at 2014 exchange rates) (MHRA, 2014). Another indicator of the growing availability of these drugs in the UK is that both government bodies and educational institutions have taken them seriously enough to take responsibility for preventative action. For example, the warnings to first year university students issued by the Medicines and Healthcare Products Regulatory Authority (GOV.UK, 2016), as well as 'smart drug' awareness workshops run by Oxford University. Networks of access are also important – the rise in illicit drug use saw an increase in substances being obtained and passed through friendship and acquaintance networks rather than specifically 'drug-dealing'.

ii) Cultural acceptance and exposure to knowledge and the idea of using drugs. Sociological studies of the normalisation of illicit drug use include the awareness of drugs through references to and images of them in a wide range of aspects of popular culture (including fashion, humour, music) as well as advertisements which use images associated with drug use or users (e.g. 'heroin chic', a fashion look popular in the 1990s with very pale skin, dark circles under the eyes, and extremely thin models). In the case of cognitive enhancement use, there is a very wide prevalence of discussion of them within everyday media – physical and online newspapers and websites, blogs and YouTube. For instance, taking a snapshot of

coverage in UK national newspapers in 2016 revealed 20 unique reports on the topic of modafinil or smart drugs and the brain, of which 18 referred to enhancement (positively or negatively) in the context of performance in study or work.<sup>6</sup>

iii) Accommodating attitudes to the use of such drugs, including by those who do not take them, is another factor in the growth of normalisation. Thus, along with the internet and other media, the likelihood of meeting others who have access and knowledge of use is important. The more that people know and are aware of other people who are or have taken enhancement drugs, the more they are likely to try them themselves as well as to tolerate them being taken by others around them. This has been observed in the case of students passing on knowledge and the drugs themselves (*The Guardian*, 2017) but might also be expected in the other work situations where there are similar social connections or relationships between employees. A relevant concrete example here is the study of the use of cognitive enhancers amongst medical students in Lithuania which found that there was greater prevalence amongst those who knew other people who used them (Lengvenyte et al, 2016). Of course medical students typically go on to become practicing clinicians who obviously gain familiarity with pharmacological substances as well as having greater access to them compared to other professional or occupational groups.

iv) and v) Usage rates and rates of experimentation. In the surveys which inform the normalisation thesis, a distinction is made between those who report an ongoing use of a particular drug, and those who have experimented or tried a drug. The latter may include those who have only tried a drug once or a few times, but may not go on to be regular users. However, the increased rates of experimentation with illicit drugs also tends to suggest that the more people try the drugs, the more likely drug use is to become normalised within a particular age group or population. In relation to the use of performance enhancing drugs, we discussed in detail in the first report the methodological reasons why it is difficult to obtain quantitative measures of the prevalence of use. However, with the data which is available some suggestions can be made about the normalisation of performance enhancers along with other drugs in certain situations. In this connection, we would note the finding of one survey of 1,324 German university students that those participants who used cognitive enhancers were more likely also to consume lifestyle drugs compared to those who did not use enhancers (Eickenhorst et al, 2012). It is noted in the scientific literature that the majority of surveys on the use of performance enhancing drugs have been conducted amongst university students (Dietz et al, 2016; Majori et al, 2017). Given that university life might provide a social context where individuals are more exposed to certain lifestyle drugs it is perhaps not surprising that cognitive enhancers might be more prevalent compared to the rest of the population. That

said, two key points are relevant here. First, the various studies indicate the role of enhancers in studying, as opposed to 'getting high' for recreation; and second, there is the possibility that the normalisation of cognitive enhancement might be carried forward into individuals' post-university working lives where the pressures to perform may prove equally if not more significant.

In this section we have outlined the contextual factors which are likely to impact on the uptake of performance enhancing drugs. We have focused on two aspects: the changing conditions of work, particularly for some groups of workers; and a broader picture where the idea and the use of enhancement drugs becomes more common and prevalent, that is, more normalised.

### **3. Concluding Remarks: Monitoring and Policy Implications**

**3.1** Consideration of the pressures arising from contemporary changes in working practices together with the trigger factors that might impact the take-up of performance enhancing drugs presents a complex picture against which management and policy developments need to be considered. What follows are some considerations for monitoring and policy development with regard to the implications of performance enhancing drugs for health and safety in the workplace.

#### **3.2 Monitoring of Performance Enhancement Use:**

**3.2.1** Whilst it is difficult to measure the prevalence of the use of cognitive enhancement drugs, it is important not to let this become a reason that is given for not addressing the need for awareness of their existing use. Looking at the likelihood of growing normalisation of the use of enhancement drugs enables us to consider what are most likely to be potential 'trigger' factors where individuals are more likely to consume these drugs.

**3.2.2** It would be extremely useful to have the same sort of large-scale data of both usage and experimentation which has been used in the case of illicit/recreational drugs, and which has been incorporated into studies of the normalisation of this sort of drug use (Parker et al 2002).

**3.2.3** If suitable questions were to be incorporated into existing surveys of the drug use of e.g. young people (EMCDDA), then this would help to establish an understanding of the patterns of and attitudes towards enhancement drug use. Some of the existing evidence produced through small scale qualitative studies (e.g. Vrecko, 2013; Vargo & Petroczi, 2016; Coveney, 2011) suggests that young people may rationalise or justify their use of enhancement drugs for a variety of reasons. In particular: a) the drugs may not be categorised as illegal; and b) their use may not be perceived or defined by individuals as 'drug use' as such because they are for the purposes of working harder and longer rather than for 'getting high' and pleasure/entertainment. Such rationales point to the

normalisation of performance enhancement drugs as discussed here and have important implications in terms of the framing of suitable questions for survey use.

**3.2.4** Issues to consider in respect of the surveying of the use of performance enhancing drugs include:

- An awareness of the diversity of motivations and situations for which individuals seek recourse to drugs that can help them enhance their performance in the context of work (fatigue; focus; coping; competing; working for longer);
- The range of drugs which might be used for purposes of performance enhancement (e.g. beta-blockers; drugs that are usually seen as illicit/recreational but might be taken for performance enhancement purposes (LSD, amphetamines); those drugs which are most associated with enhancement (Ritalin, modafinil, Adderall);
- An awareness of what sources individuals may use to obtain information about the drugs and their use (including social media, the internet, online fora, word-of-mouth, official sources);
- As a corollary of the above, the diversity of motivations, situations and pharmacological substances points to the need for appropriate survey questions that might serve to maximise the capture of relevant and robust data from potential users.

### **3.3 Policy Implications:**

**3.3.1** Traditional approaches to the prevention of drugs use in the workplace are based upon looking at the individual drug-user as a problem in isolation to be treated. However, in policy terms, the use of a normalisation perspective moves away from this individual perspective and emphasises the social context within which drug use is more likely to be taken up. Accordingly, attempts to ban or make drugs illegal are ineffective, partially because these attempts ignore the social context in which drug use may be normalised or the working conditions under which individuals make what are, for them, rational decisions to take performance enhancers. For these reasons a harm reduction approach is to be recommended. Specifically in relation to performance enhancers, traditional preventative approaches such as prohibition and related drug testing regimes are unlikely to effect a change, for reasons including:

- a) Some performance enhancement drugs and substances are not explicitly illegal to consume, even in the absence of a prescription (although supplying them to others might be illegal);
- b) The ease of access to drugs via the internet has significantly changed the landscape;
- c) In many circumstances individuals may see use of these drugs as legitimate and acceptable because it aids work and helps them to cope (as compared to recreational drug use for pleasure which might be perceived as less acceptable, risky or deviant behaviour).

**3.3.2** The question of familiarity with or knowledge of enhancement drugs brings up the problem of how to increase awareness of the potential dangers of the use of enhancement drugs whilst not contributing to their normalisation through the increase in the number of discussions about them. Thus how information about performance enhancement drugs is communicated requires careful consideration. Even where media accounts provide a 'balance' of both positive and negative aspects of use, it remains the case that the potential attraction of the substances may be reinforced.

### **3.4 Concluding reflections**

In the previous report we concluded that the area of performance enhancement drugs in the workplace is complex and dynamic. We suggested that the future picture would depend on a) the more common acceptance of such drugs; b) the development of new drugs and existing substances becoming perceived as 'safe'; and c) economic and employment relations which lead to high-pressure, highly competitive workplaces and/or high-stress, low employee control workplaces. In updating the discussion in this report, we have seen that the presentation of modafinil in some sections of the media as 'the world's first safe smart drug' creates a particular picture of its use and possibilities, also indicating a growing cultural acceptance of its use. Media discussions of a wider range of enhancement substances emphasises this, especially where some of the drugs discussed have a 'past life' as illicit substances associated with certain sub-culture use (e.g. LSD). These developments also take place at a time of change within working conditions, with the growth of precarious work (including in previously secure occupations) and the associated decline of standard contractual relations with their greater health and safety protections; electronic surveillance and monitoring; the spectre of jobs being replaced by robotics and AI; greater competitive relations at work along with the expectation that each employee will maximise their own fitness to work.

This article aims to stimulate discussion of the use of performance enhancing drugs in the workplace and the associated health and safety implications. In order to better understand the pervasiveness of enhancement drugs as well as the motivations and situations of users, it advocates the inclusion of performance substances within the remit of European survey research on drug use. The article has also sought to shed light on some of the trigger factors which should be taken into consideration in further qualitative empirical research on the topic. The greater our understanding of performance drugs in the workplace the more informed and appropriate policy responses might be.

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## Notes

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<sup>1</sup> Nootropics – drugs, supplements, nutritional products which improve aspects of mental function (e.g. memory, motivation, attention). Coined in 1972 by Corneliu Giurgea from Greek words meaning ‘mind’ and ‘to bend or turn’.

<sup>2</sup> <http://osha.europa.eu/en/emerging-risks>; <https://osha.europa.eu/en/tools-and-publications/publications/future-work-crowdsourcing/view>; <https://osha.europa.eu/en/tools-and-publications/publications/future-work-robotics/view>; EU-OSHA – European Agency for Safety and Health at Work, ‘New forms of contractual relationships and the implications for occupational safety and health’, Office for Official Publications of the European Communities, Luxembourg, 2002; <https://osha.europa.eu/en/tools-and-publications/publications/monitoring-technology-workplace/view>

<sup>3</sup> <http://allnurses.com/general-nursing-discussion/does-anyone-working-343034.html>  
<http://allnurses.com/general-nursing-discussion/provigil-for-shift-231166-page3.html>

<sup>4</sup> For more discussion of the health and safety consequences, see [https://oshwiki.eu/wiki/Precarious\\_work:\\_definitions,\\_workers\\_affected\\_and\\_OSH\\_consequences](https://oshwiki.eu/wiki/Precarious_work:_definitions,_workers_affected_and_OSH_consequences)

<sup>5</sup> The normalisation thesis has also been criticised and revised over the 2 decades since it was first proposed (e.g. Shiner and Newburn, 1997; Measham & Shiner, 2009). There are a number of the features of its initial presentation that we would not agree with nor see relevant for performance enhancing drugs. However, it does have much to offer to the understanding of the tendencies towards performance enhancing drugs which we are currently witnessing.

<sup>6</sup> The articles were identified by utilising the Nexis database of news publications, our search terms included ‘modafinil’ or ‘smart drugs’ coupled with ‘brain’. The sample included the following publications: *The Guardian* (London), *The Times* (London), *The Sunday Times* (London), *The Independent* (United Kingdom), *The Daily Telegraph* (London), *Daily Mail* and *Mail on Sunday*, *The Observer* (London), *The Sun* (England), *The Sunday Telegraph* (London), *The Mirror* and *The Sunday Mirror*, *The Express Newspapers*, *i* - Independent Print Ltd, *Daily Star*.