Why you should read this article:

- To understand the association between neuropathic pain and high-risk alcohol use
- To learn how chronic pain can develop on withdrawal from alcohol
- To familiarise yourself with the concept that previous medically assisted detoxification may increase the risk of neuropathic pain

Association between medically assisted detoxification and neuropathic pain

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Abstract

Background High-risk alcohol use is correlated with chronic pain. Chronic pain and alcohol dependence are associated with similar neurological, endocrinological and behavioural patterns, and it has been hypothesised that symptoms of neuropathic pain are exacerbated following alcohol withdrawal.

Aim To investigate the presence of neuropathic pain upon withdrawal from alcohol, in people with high-risk alcohol use with or without a history of medically assisted detoxification.

Method A small observational cross-sectional study investigated the presence of neuropathic pain in two groups of hospitalised adults exhibiting high-risk alcohol use: one group with a history of medically assisted detoxification, the other group with no history of medically assisted detoxification.

Results The results provided some evidence that neuropathic pain is more likely to be experienced by people with high-risk alcohol use who have previously undergone medically assisted detoxification.

Conclusion Understanding that previous medically assisted detoxification may increase the risk of neuropathic pain means that nurses can improve their preparation when assessing, monitoring and managing neuropathic pain in people recovering from high-risk alcohol use. Nurses will be able to direct patients recovering from high-risk alcohol use to available pain management support in a timely manner, for example a local pain clinic, possibly even before detoxification. This is important given the links between pain, relapse into alcohol use and addiction to analgesics.

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Keywords

addiction, chronic pain, clinical, mental health, neuropathic pain, pain, pain management, substance misuse

Background

As many as 10.8 million adults in the UK consume alcohol at levels that pose a risk to health, while 1.6 million 'may have some level' of dependence on alcohol, which means they are likely to experience withdrawal symptoms upon alcohol cessation (Public Health England (PHE) 2016). High-risk alcohol use describes a pattern of alcohol consumption that causes mental or physical damage (National Institute for Health and Clinical Excellence (NICE 2011). High-risk alcohol use is also correlated with chronic pain and suboptimal pain outcomes (Zale et al 2015). Egli et al (2012) hypothesised that chronic pain and alcohol dependence are associated with similar neurological and hormonal profiles and that neuropathic pain symptoms can present in people who withdraw from alcohol.

Relationship between pain and alcohol

According to the International Association for the Study of Pain (IASP), pain is 'an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage' (Raja et al 2020). The IASP adds that 'pain is always a personal experience that is influenced to varying degrees by biological, psychological, and social factors'

(Raja et al 2020). Perceptions of pain are also characterised by factors beyond the pain stimulus itself, such as mood, cognition and culture (Moayedi and Davis 2013). Between one third and one half of the UK population live with chronic pain (Fayaz et al 2016).

The term 'neuropathic pain' describes 'pain caused by a lesion or disease of the somatosensory nervous system' (IASP 2017). People describe neuropathic pain as 'burning', 'tingling', 'numbness' or resembling an 'electric shock' (Callin and Bennett 2008). Neuropathic pain can arise from lesions or diseases that affect the nervous system, such as diabetes mellitus, vasculitis, stroke and certain genetic conditions (IASP 2017). It can also arise from alcohol-related peripheral neuropathy, a potentially significant and debilitating complication of alcohol use thought to be caused by alcohol's toxic effects (Mellion et al 2011).

Although alcohol has some analgesic effect (Thompson et al 2017), high-risk alcohol use is associated with suboptimal pain outcomes (Zale et al 2015), and increases the risk of an individual developing painful peripheral neuropathy (Chopra and Tiwari 2012).

In terms of public health, alcohol causes wide-ranging health, social and/or economic harm (PHE 2018). Alcohol consumption involves direct costs to the health, social care, criminal justice, and unemployment and welfare systems, and incurs indirect social costs through lost productivity due to absenteeism, unemployment, decreased output, reduced earning potential and lost working years. Alcohol consumption also causes intangible personal harm, the cost of which is challenging to estimate, but which includes pain, suboptimal quality of life, and the emotional and financial burden of alcohol misuse on families (PHE 2018).

High-risk alcohol use and chronic pain have been shown to correlate in some of the following ways:

- In terms of neuro-endocrine function, similar changes occur in the hypothalamic-pituitary-adrenal axis and reward pathways (Elman and Borsook 2016).
- Behaviourally, people with chronic pain and high-risk alcohol use tend to exhibit maladaptive behaviours that exacerbate their condition. For example, people with high-risk alcohol use tend to continue to consume alcohol to alleviate negative moods (Baker et al 2004), while people who experience chronic pain tend to exhibit hypervigilant avoidance of pain triggers, for example by adopting unhealthy postures or overusing medicines, which in turn can prolong the experience of chronic pain (Vlaeyen and Linton 2000).
- In terms of co-morbidities, high-risk alcohol use and chronic pain are associated with higher rates of anxiety disorders and post-traumatic stress disorder compared with the general population (Kroenke et al 2013).

Allostatic load

McEwen and Stellar (1993) coined the term 'allostatic load' to describe the accumulated strain experienced by the body in its attempt to maintain homeostasis while exposed to repeated or chronic stress. Exposure to an external stress factor raises the blood pressure; however, following the removal of a stress factor, the blood pressure does not immediately return to baseline and remains elevated for some time. Exposure to chronic stress therefore leads to chronically elevated blood pressure, as well as persistent underlying changes in hormone levels.

Neurological research has proposed that people who are addicted to substances such as alcohol have an elevated allostatic load and a chronic alteration in their neuro-endocrine function due to the stress of repeated substance misuse. This allostatic load is increased further by the stresses involved in withdrawal and relapse (Egli et al 2012), meaning that the individual's normal neuro-endocrine function is dysregulated, resulting in reduced levels of dopamine and elevated levels of corticotropin-releasing hormone. These hormonal imbalances are associated with feelings of depression. In people who are addicted to substances such as alcohol, attempting to relieve the negative feelings caused by these hormonal changes is thought to contribute to the drive to continue consuming alcohol (Koob and Le Moal 2001).

It has also been observed that pain results in an overall long-term decrease in dopamine levels (Taylor et al 2015). In addition, neuropathic pain in rats has been shown to generate hormonal changes, which are hypothesised to also occur in humans (Sagheddu et al 2015). Based on the similarities between chronic pain and alcohol dependence in terms of hormonal activity and behavioural responses, Egli et al (2012) proposed that alcohol dependence should be regarded as a chronic pain disorder. In addition, Egli et al (2012) also postulated that a higher number of episodes of withdrawal from alcohol in the past is likely to produce a greater allostatic load and therefore a higher likelihood of neuropathic pain.

Medically assisted detoxification

People who are dependent on alcohol can develop alcohol withdrawal syndrome if they suddenly stop or reduce their intake. Symptoms include sweats, shakes, anxiety and possibly seizures (NICE 2011). Symptoms known collectively as delirium tremens and which include acute delirium, agitation, hallucinations, autonomic hyperactivity and tachycardia, can occur in approximately 5-10% of those who develop alcohol withdrawal syndrome (American Psychiatric Association 2013). Because of these risks, alcohol withdrawal syndrome must be managed promptly if it develops in hospital, using a process of medically assisted detoxification. Usually, this is done by administering a gradually reducing dose of chlordiazepoxide hydrochloride, a benzodiazepine drug given to effectively 'replace' the alcohol in neuronal receptors throughout the body, thus minimising any withdrawal symptoms. Simultaneously, regular vitamin B infusions should be started in the emergency department (ED) to prevent any alcohol-related

dementias associated with alcohol withdrawal syndrome, followed by a long-term course of oral vitamin B complex to reduce neuropathy over time (Peters et al 2006).

Various studies have been undertaken into the pain experienced by people undergoing detoxification from alcohol (Larson et al 2007, Witkiewitz et al 2015, Jakubczyk et al 2016). However, these studies did not use control groups, did not investigate neuropathic pain symptoms and did not consider participants' history of detoxification. Also, research into the association between alcohol and pain has typically compared people with high-risk alcohol use with those who are not consuming alcohol to similar levels (Kim et al 2013, Larance et al 2016), rather than differentiating between people with high-risk alcohol use according to their history of detoxification. This means that the influence of previous detoxification and relapse on neuropathic pain symptoms has not been isolated as a specific area of study.

This study was inspired by the untested theory that allostatic load increases according to the number of episodes of withdrawal from alcohol experienced by an individual. Therefore, people with a higher number of episodes of withdrawal from alcohol are theorised to be more likely to experience neuropathic pain upon withdrawal, compared to people with fewer or no previous episodes of withdrawal (Egli et al 2012).

Aim

To investigate the presence of neuropathic pain upon withdrawal from alcohol, in people with high-risk alcohol use, with or without a history of medically assisted detoxification.

Method

Design

This study used a quasi-experimental observational cross-sectional design to explore the presence of neuropathic pain in two groups of hospitalised patients with high-risk alcohol use: one group with a history of medically assisted detoxification and the other group with no history of medically assisted detoxification. The hypothesis was that a history of detoxification would correlate with neuropathic pain.

Recruitment

The study population comprised a convenience sample recruited from adults in the ED at one hospital in London, England who had been identified as consuming alcohol to high-risk levels. All members of the study population presented to the ED where alcohol screening was routinely practised during triage and clerking. Patients were identified as high-risk consumers of alcohol, by a score of 3 or more on the Fast Alcohol Screening Test (FAST) (Hodgson et al 2002), which is used to identify people who require treatment for alcohol use. It comprises a four-item questionnaire derived from the World Health Organization's alcohol use disorders identification test (AUDIT) questionnaire (Babor et al 2001). A FAST score of 3 or more has been demonstrated to have >90% sensitivity for identifying high-risk alcohol use. Following the FAST screening, eligible patients were referred to the substance misuse team for a brief intervention involving structured feedback and motivational advice, and invited to participate in this study. Only patients who were subsequently admitted to the hospital took part. The reasons for their admission to the hospital were not necessarily linked to high-risk alcohol use and included other conditions such as trauma or sepsis.

Data collection and analysis

With the participants' consent, data were retrieved from their medical notes including their age, gender, ethnicity, daily alcohol consumption, frequency of alcohol use, years of alcohol use, smoking status, use of illicit drugs, use of analgesics, ED attendances in the past 24 months and number of previous medical assisted detoxifications. When the information was missing from the medical notes, the researcher (IW) directly asked participants to provide it.

On day six of their admission to the general hospital, participants were asked to:

- Self-rate their pain on four separate time-specific numerical pain rating scales (British Pain Society 2006).
- Complete the Identification of Pain Questionnaire (IDPQ) (Portenoy 2006).

The four numerical pain rating scales were used to assess the participants' pain intensity 'now', pain intensity 'average over the last week', pain distress 'now', and pain distress 'average over the last week' (British Pain Society 2006). Points on the pain scales ranged from 0 ('absent') to 10 ('extreme') with gradations of 0.5. In line with previous research, a total pain score was calculated by summing the four scores, giving a total score of 0-40 points (Galer et al 2002, Jensen and Karoly 2011). Numerical rating scales have been consistently used in research and clinical practice, since they have high validity and reliability in both literate and illiterate patients (Jensen and Karoly 2011).

The IDPQ is used to identify neuropathic pain specifically (Portenoy 2006). It comprises six questions answered by 'yes' or 'no' regarding the patient's pain experience over the past week. It asks whether the pain feels like 'pins and needles', a hot and/or burning sensation, numbness, and/or an electric shock; whether the sensation of pain is exacerbated by the touch of clothing or bed sheets; and whether pain is limited to the joints (Portenoy 2006). An answer of 'yes' scores one point, with the exception of the question 'Is pain limited to the joints?', in which a response of 'yes' incurs a score of minus one. An IDPQ score of 3 or more suggests the presence of neuropathic pain and people with a score of 3 or more are described as 'IDPQ-positive'.

In this study, participants' IDPQ scores were tested by chi-square and the potential influence of other variables was tested by analysis of variance (ANOVA) or chi-square. For factors where there were statistically significant differences between groups, an ANOVA could not be undertaken so a Kruskal-Wallis H test was undertaken instead.

Participants

Between February and July 2017, 72 people who presented to the ED of one hospital in London and were subsequently admitted to the hospital where the study was conducted were identified as having a FAST score of 3 or more and recruited to the study. The drugs administered during medically assisted alcohol detoxification can have an analgesic effect, as can alcohol itself (Jochum et al 2010, Thompson et al 2017). Therefore, before participating in the study, participants were required to be abstinent from alcohol, while any medical assisted detoxification programme undertaken during their hospital admission was required to be completed.

Among the 72 participants initially recruited, 42 individuals were discharged before day six of their admission, when they would have been asked to complete the four numerical pain rating scales and the IDPQ, or did not complete the scales despite receiving support to do so. The study was therefore conducted using a sample of 30 participants (18 men, 12 women; mean age=51.6 years, standard deviation=10.9).

Patients who were known to have undergone previous medically assisted detoxifications at the hospital, or who described and/or self-reported a previous detoxification, were allocated into the 'history of detoxification' group; the remaining patients were allocated to the 'no history of detoxification' group.

Ethics

The study was approved by the relevant NHS trust and received approval from the Research Ethics Panel at the Psychology Department of the University of Greenwich, London. Participants' anonymity was preserved by assigning a number to each participant's data, while any details that could have led to identification of the participants were kept in a locked file by the treating healthcare team. Participants received an information sheet detailing the aim of the study and the support available locally for managing high-risk alcohol use and chronic pain. Before completing the pain scales and questionnaire, participants were asked to sign a consent form, which explained that they could withdraw from the study at any point.

Results

Of the 30 participants, 13 were allocated to the 'no history of detoxification' group, and 17 were allocated to the 'history of detoxification' group. There was no significant difference between groups in the number of patients who had required medical assisted detoxification during their latest admission.

Table 1 shows participants' demographic and clinical data, total pain scores and IDPQ status according to history of

Table 1. Participants' demographic and clinical data, total pain score and IDPQ status according to history of detoxification

	No history of detoxification (*n*=13)	History of detoxification (*n*=17)	*P* value*
Mean age	54.5 years (*n*=13, range=30-70 years, SD=10.5)	46.8 years (*n*=17, range=37-64 years, SD=9.0)	0.03 (statistically significant)
Gender	6 women, 7 men (*n*=13)	6 women, 11 men (*n*=17)	0.55
Mean number of daily alcohol units†	18.4 units (*n*=8, SD=6.7)	33.1 units (*n*=13, SD=19.3)	0.05 (statistically significant)
Mean number of years of alcohol use	10.2 years (*n*=8, SD=13.7)	8.9 years (*n*=14, SD=8.3)	0.28
Mean number of ED attendances in the past 24 months	1.8 (*n*=13, SD=1.9)	8.1 (*n*=17, SD=9.3)	0.01 (statistically significant)
Chronic pain diagnosis‡ (yes/no)	3/9 (*n*=12)	5/10 (*n*=15)	0.64
Detoxification undertaken during hospital stay (yes/no)	5/7 (*n*=12)	9/6 (*n*=15)	0.34
Mean total pain score§	16.11 points (*n*=13, SD=8.7)	19.27 points (*n*=17, SD=11.90)	0.43
IDPQ positive (yes/no)‖	1/12 (*n*=13)	8/9 (*n*=17)	0.04 (statistically significant)

ED = emergency department; IDPQ = Identification of Pain Questionnaire; SD = standard deviation

* Threshold for statistical significance: P<0.05

† Unit of alcohol defined as per Drinkaware (2021)

‡ Presence of a diagnosis of chronic pain determined by checking participants' past medical history in their medical notes

§ Total pain score=0-40 points. Calculated by summing participants' scores on four numerical rating scales from 0-10 (assessing pain intensity 'now', pain intensity 'average over the last week', pain distress 'now' and pain distress 'average over the last week', respectively)

‖ IDPQ positive = score of 3 or more on the IDPQ indicating presence of neuropathic pain

detoxification. Participants' medical notes were not always clear and comprehensive, and not all participants were able or willing to answer all questions, which explains the variations in respondent numbers that can be seen in Table 1.

All data were normally distributed. In the 'history of detoxification' group, 47% of participants (eight out of 17) were IDPQ-positive (score of 3 or more on the IDPQ indicating the presence of neuropathic pain), compared with 8% of participants (one out of 13) in the 'no history of detoxification' group. A chi-square test showed that there was a significantly higher likelihood for participants with a history of detoxification to experience neuropathic pain ($x^2(1)=5.44$, $P=0.02$). Given the small sample size, a Fisher's exact test was also undertaken. It also showed a statistically significant association between history of detoxification and presence of neuropathic pain, but was less pronounced than with the chi-square test ($P=0.042$ for the Fisher's exact test versus $P=0.02$ for the chi-square test).

Statistically significant differences between the two groups were found for mean age ($H(1, n=30)=5.22$, $P=0.03$), mean number of daily alcohol units ($H(1, n=21)=3.78$, $P=0.05$) and mean number of ED attendances in the past 24 months ($H(1, n=30)=6.63$, $P=0.01$). Participants in the 'history of detoxification' group were significantly younger, drank significantly more units of alcohol per day and had had significantly more ED attendances in the previous 24 months compared with participants in the 'no history of detoxification' group.

There were no other statistically significant differences between the groups, including no statistically significant difference in total pain scores.

Discussion

In this study of 30 hospitalised adults with high-risk alcohol use, participants who had previously undergone medically assisted detoxification were more likely to experience neuropathic pain upon withdrawal than those who had not previously undergone medically assisted detoxification. Neuropathic pain has been associated with increasing age (Bouhassira et al 2008); however, in this study, participants in the 'history of detoxification' group were significantly younger than those in the 'no history of detoxification' group.

Participants in the 'no history of detoxification' group drank approximately 50% less alcohol (18.4 daily alcohol units) than participants in the 'history of detoxification' group (33.1 daily alcohol units). However, there was no significant difference in the number of patients who required detoxification during the admission being studied, suggesting that this did not influence the significant relationship between historic detoxifications and neuropathic symptoms. It is possible that the higher daily alcohol intake in the 'history of detoxification' group resulted in a higher occurrence of neuropathic pain, in accordance with recent understanding of the causes of alcohol-related peripheral neuropathy (Mellion et al 2011).

The study results support the authors' hypothesis that allostatic load is increased in people with a higher number of episodes of withdrawal from alcohol, and that they are likely to experience neuropathic pain upon withdrawal. However, the study was not designed to determine whether any potential difference in allostatic load between participants influenced the results, since measuring hormonal activity in the brain was not feasible.

Nursing implications

Pain can trigger relapse following alcohol withdrawal treatment (Jakubczyk et al 2016), and people with a history of alcohol dependence are at increased risk of addiction to analgesics such as opioids (Cragg et al 2019). Nurses should be aware that neuropathic pain may be more likely in people with high-risk alcohol use who have previously undergone medically assisted detoxification. Understanding that previous detoxification may increase the risk of neuropathic pain means that nurses can prepare themselves to assess, discuss and assist in managing neuropathic pain for people recovering from high-risk alcohol use, ultimately enhancing patient experience and potentially improving outcomes.

By discussing neuropathic pain with their patients, nurses can direct those recovering from high-risk alcohol use to available pain management support in a timely manner. An assessment of pain should include questions about the site of the pain, as well as the duration and nature of the pain. Nurses can undertake online training in this type of assessment, which is provided by Health Education England, the Faculty of Pain Medicine of the Royal College of Anaesthetists and the British Pain Society, and which counts towards nurses' revalidation (portal.e-lfh.org.uk/Component/Details/391439).

If a patient describes pain symptoms that have been present for more than three months, they can be referred to a local chronic pain clinic. These clinics often use a multidisciplinary approach incorporating psychology and physiotherapy approaches to set realistic goals and assist the individual to identify coping strategies that do not rely on alcohol. This is important given the links between pain, relapse into alcohol use and addiction to analgesics (Jakubczyk et al 2016, Cragg et al 2019).

When people with high-risk alcohol use and chronic pain are admitted to hospital, nurses should consider this as a 'teachable moment' (Jivraj et al 2020). Outcomes in these patient groups are often based on patients' own self-efficacy of pain, which means that those who have a significant belief in their ability to change will experience improved outcomes compared with those who have less belief in their ability to change (Martinez-Calderon et al 2018). To support self-efficacy, nurses should be prepared to provide the patient with positive affirmation at every opportunity, for example drawing attention to their ability to manage without alcohol. Evidence also suggests that nurses should encourage these patients to 'pace'

FURTHER RESOURCES

Independent website offering tools and resources to clinicians and patients for managing persistent pain
paintoolkit.org

Independent website designed to help clinicians support patients to self-manage long-term pain
livewellwithpain.co.uk

Resources for living with pain from the International Association for the Study of Pain
www.iasp-pain.org/Education/Content.aspx?ItemNumber=1723

activities such as taking exercise, for example, so they do not take on too much, yet at the same time ensuring that they do not avoid activity altogether (McCracken and Samuel 2007).

Nurses should also encourage patients to book a GP appointment following discharge, and this advice should be included in any discharge summaries. GPs are able to refer patients to pain teams in the community so that patients can receive psychological therapy, such as cognitive behavioural therapy, to assist in the management of neuropathic pain. GPs are also able to ensure the ongoing prescription of vitamin B complex for patients with a history of high-risk alcohol use, which will contribute to the management of any neuropathy (Peters et al 2006).

Many common drugs administered for neuropathic pain such as gabapentin and amitriptyline hydrochloride are addictive, yet need to be taken regularly for long periods of time if they are to be effective (NICE 2013, PHE 2019, Taylor et al 2019). If these drugs are prescribed in hospital, it is important for the nurse to ensure that patients understand that they must be reviewed regularly by their GP following discharge.

The training in neuropathic pain or high-risk alcohol use available to nurses can vary, but many trusts will have acute pain teams and alcohol teams with specialist nurses who can be 'shadowed'. There is also accredited training available online for brief alcohol interventions, which provide techniques for motivational conversations with this client group (www.e-lfh.org.uk/programmes/alcohol). In addition, the organisation Live Well with Pain provides pain management advice for clinicians, including resources for patient self-management (livewellwithpain.co.uk/resources/resources-for-your-patients).

In this study, there was no statistically significant difference between the two groups in terms of the likelihood of patients requiring medically assisted detoxification during their hospital stay, so the implications of the study are also valid in settings that do not provide detoxification. This also means that nurses can assess, discuss, monitor and manage neuropathic pain in patients before they undergo potential detoxification.

Limitations and further research

There were limitations to this study. The opportunistic nature of recruitment may have contributed to the fact that members of one of the two groups drank significantly less alcohol than the other. Also, the sample size was small, particularly in terms of conducting a chi-square test. It is acknowledged that participants had been admitted to various wards at various times and for different conditions, so there may have been variations in treatment and care that could have influenced the results. Caution is therefore required when interpreting the results.

To control for variations in treatment and care, further research could be conducted in a sample of participants recruited from a substance misuse service or inpatient detoxification unit. Further research in a larger sample would provide more reliable results. A longer study with a follow-up period would be valuable to determine whether and to what extent neuropathic pain persists after alcohol withdrawal over time. However, drop-out rates tend to be high and effective follow up can be an issue in people with high-risk alcohol use (Gill et al 2016).

Conclusion

It had been hypothesised that a higher number of episodes of medically assisted detoxification increased the likelihood of people who engaged in high-risk alcohol use experiencing neuropathic pain. This study provides evidence that neuropathic pain is more likely in those who have undergone previous detoxification compared with those who have not. It also provides guidance for nurses on pain assessment, brief interventions and referral to specialists when caring for people with high-risk alcohol use. These measures mean that nurses can be better prepared to assess, discuss and manage neuropathic pain before patients undergo potential detoxification, ultimately enhancing patient experience and improving potential outcomes.

IMPLICATIONS FOR PRACTICE

- Further research with a larger sample and a longer study period would be valuable to determine whether and to what extent neuropathic pain persists after alcohol withdrawal over time
- Nurses are well placed to detect symptoms of neuropathic pain in patients who have a history of high-risk alcohol use
- By discussing neuropathic pain with their patients, nurses can direct those recovering from high-risk alcohol use to available pain management support in a timely manner, possibly even before detoxification. This is important given the links between pain, relapse into alcohol use and addiction to analgesics

References

American Psychiatric Association (2013) Diagnostic and Statistical Manual of Mental Disorders (DSM-5). Fifth edition. APA, Washington DC.

Babor TF, Higgins-Biddle JC, Saunders JB et al (2001) AUDIT: The Alcohol Use Disorders Identification Test: Guidelines for Use in Primary Care. Second Edition. apps.who.int/iris/bitstream/10665/67205/1/WHO_MSD_MSB_01.6a.pdf (Last accessed: 2 June 2021.)

Baker TB, Piper ME, McCarthy DE et al (2004) Addiction motivation reformulated: an affective processing model of negative reinforcement. Psychological Review. 111, 1, 33-51. doi: 10.1037/0033-295X.111.1.33

Bouhassira D, Lantéri-Minet M, Attal N et al (2008) Prevalence of chronic pain with neuropathic characteristics in the general population. Pain. 136, 3, 380-387. doi: 10.1016/j.pain.2007.08.013

British Pain Society (2006) Pain Rating Scale. britishpainsociety.org/static/uploads/resources/files/pain_scales_eng.pdf (Last accessed: 2 June 2021.)

Callin S, Bennett MI (2008) Assessment of neuropathic pain. Continuing Education in Anaesthesia, Critical Care & Pain. 8, 6, 210-213. doi: 10.1093/bjaceaccp/mkn037

Chopra K, Tiwari V (2012) Alcoholic neuropathy: possible mechanisms and future treatment possibilities. British Journal of Clinical Pharmacology. 73, 3, 348-362. doi: 10.1111/j.1365-2125.2011.04111.x

Cragg A, Hau JP, Woo SA et al (2019) Risk factors for misuse of prescribed opioids: a systematic review and meta-analysis. Annals of Emergency Medicine. 74, 5, 634-646. doi: 10.1016/j.annemergmed.2019.04.019

Drinkaware (2021) What is an Alcohol Unit? drinkaware.co.uk/facts/alcoholic-drinks-and-units/what-is-an-alcohol-unit (Last accessed: 2 June 2021.)

Egli M, Koob GF, Edwards S (2012) Alcohol dependence as a chronic pain disorder. Neuroscience & Biobehavioral Reviews. 36, 10, 2179-2192. doi: 10.1016/j.neubiorev.2012.07.010

Elman I, Borsook D (2016) Common brain mechanisms of chronic pain and addiction. Neuron. 89, 1, 11-36. doi: 10.1016/j.neuron.2015.11.027

Fayaz A, Croft P, Langford RM et al (2016) Prevalence of chronic pain in the UK: a systematic review and meta-analysis of population studies. BMJ Open. 6, 6, e010364. doi: 10.1136/bmjopen-2015-010364

Galer BS, Jensen MP, Ma T et al (2002) The lidocaine patch 5% effectively treats all neuropathic pain qualities: results of a randomized, double-blind, vehicle-controlled, 3-week efficacy study with use of the neuropathic pain scale. Clinical Journal of Pain. 18, 5, 297-301. doi: 10.1097/00002508-200209000-00004

Gill J, Black H, O'May F et al (2016) Follow-up study of people who misuse alcohol: reflections on methodology. Nurse Researcher. 24, 2, 10-17. doi: 10.7748/nr.2016.e1414

Hodgson R, Alwyn T, John B et al (2002) The FAST alcohol screening test. Alcohol and Alcoholism. 37, 1, 61-66. doi: 10.1093/alcalc/37.1.61

International Association for the Study of Pain (2017) Neuropathic Pain. www.iasp-pain.org/Education/Content.aspx?ItemNumber=1698#Neuropathicpain (Last accessed: 2 June 2021.)

Jakubczyk A, Ilgen MA, Kopera M (2016) Reductions in physical pain predict lower risk of relapse following alcohol treatment. Drug and Alcohol Dependence. 158, 167-171. doi: 10.1016/j.drugalcdep.2015.11.020

Jensen MP, Karoly P (2011) Self-report scales and procedures for assessing pain in adults. In Turk DC, Melzack R (Eds) Handbook of Pain Assessment. Guilford Press, New York NY, 15-34.

Jivraj NK, Scales DC, Gomes T et al (2020) Evaluation of opioid discontinuation after non-orthopaedic surgery among chronic opioid users: a population-based cohort study. British Journal of Anaesthesia. 124, 3, 281-291. doi: 10.1016/j.bja.2019.12.006

Jochum T, Boettger MK, Burkhardt C et al (2010) Increased pain sensitivity in alcohol withdrawal syndrome. European Journal of Pain. 14, 7, 713-718. doi: 10.1016/j.ejpain.2009.11.008

Kim CH, Vincent A, Clauw DJ et al (2013) Association between alcohol consumption and symptom severity and quality of life in patients with fibromyalgia. Arthritis Research & Therapy. 15, 2, R42. doi: 10.1186/ar4200

Koob GF, Le Moal M (2001) Drug addiction, dysregulation of reward, and allostasis. Neuropsychopharmacology. 24, 2, 97-129. doi: 10.1016/S0893-133X(00)00195-0

Kroenke K, Outcalt S, Krebs E et al (2013) Association between anxiety, health-related quality of life and functional impairment in primary care patients with chronic pain. General Hospital Psychiatry. 35, 4, 359-365. doi: 10.1016/j.genhosppsych.2013.03.020

Larance B, Campbell G, Peacock A et al (2016) Pain, alcohol use disorders and risky patterns of drinking among people with chronic non-cancer pain receiving long-term opioid therapy. Drug and Alcohol Dependence. 162, 79-87. doi: 10.1016/j.drugalcdep.2016.02.048

Larson MJ, Paasche-Orlow M, Cheng DM et al (2007) Persistent pain is associated with substance use after detoxification: a prospective cohort analysis. Addiction. 102, 5, 752-760. doi: 10.1111/j.1360-0443.2007.01759.x

McCracken LM, Samuel VM (2007) The role of avoidance, pacing, and other activity patterns in chronic pain. Pain. 130, 1-2, 119-125. doi: 10.1016/j.pain.2006.11.016.

Martinez-Calderon J, Zamora-Campos C, Navarro-Ledesma S et al (2018) The role of self-efficacy on the prognosis of chronic musculoskeletal pain: a systematic review. The Journal of Pain. 19, 1, 10-34. doi: 10.1016/j.jpain.2017.08.00

McEwen BS, Stellar E (1993) Stress and the individual. Mechanisms leading to disease. Archives of Internal Medicine. 153, 18, 2093-2101.

Mellion M, Gilchrist JM, De La Monte S (2011) Alcohol-related peripheral neuropathy: nutritional, toxic, or both? Muscle & Nerve. 43, 3, 309-316. doi: 10.1002/mus.21946

Moayedi M, Davis KD (2013) Theories of pain: from specificity to gate control. Journal of Neurophysiology. 109, 1, 5-12. doi: 10.1152/jn.00457.2012

National Institute for Health and Clinical Excellence (2011) Alcohol-Use Disorders: Diagnosis, Assessment and Management of Harmful Drinking (High-Risk Drinking) and Alcohol Dependence. Clinical guideline No.115. NICE, London.

National Institute for Health and Clinical Excellence (2013) Neuropathic Pain in Adults: Pharmacological Management in Non-Specialist Settings. Clinical guideline No.173. NICE, London.

Peters TJ, Kotowicz J, Nyka W et al (2006) Treatment of alcoholic polyneuropathy with vitamin B complex: a randomised controlled trial. Alcohol and Alcoholism. 41, 6, 636-642. doi: 10.1093/alcalc/agl058

Portenoy R (2006) Development and testing of a neuropathic pain screening questionnaire: ID Pain. Current Medical Research and Opinion. 22, 8, 1555-1565. doi: 10.1185/030079906X115702

Public Health England (2016) Health Matters: Harmful Drinking and Alcohol Dependence. www.gov.uk/government/publications/health-matters-harmful-drinking-and-alcohol-dependence/health-matters-harmful-drinking-and-alcohol-dependence (Last accessed: 2 June 2021.)

Public Health England (2018) The Public Health Burden of Alcohol and the Effectiveness and Cost-effectiveness of Alcohol Control Policies: An Evidence Review. assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/733108/alcohol_public_health_burden_evidence_review_update_2018.pdf (Last accessed: 2 June 2021.)

Public Health England (2019) Prescribed Medicines Review: Report. www.gov.uk/government/publications/prescribed-medicines-review-report (Last accessed: 2 June 2021.)

Raja SN, Carr DB, Cohen M et al (2020) The revised International Association for the Study of Pain definition of pain: concepts, challenges, and compromises. Pain. 161, 9, 1976-1982. doi: 10.1097/j.pain.0000000000001939

Sagheddu C, Aroni S, De Felice M et al (2015) Enhanced serotonin and mesolimbic dopamine transmissions in a rat model of neuropathic pain. Neuropharmacology. 97, 383-393. doi: 10.1016/j.neuropharm.2015.06.003

Taylor S, Annand F, Burkinshaw P et al (2019) Dependence and Withdrawal Associated with Some Prescribed Medicines: An Evidence Review. assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/940255/PHE_PMR_report_Dec2020.pdf (Last accessed: 2 June 2021.)

Taylor AM, Castonguay A, Taylor AJ et al (2015) Microglia disrupt mesolimbic reward circuitry in chronic pain. Journal of Neuroscience. 35, 22, 8442-8450. doi: 10.1523/JNEUROSCI.4036-14.2015

Thompson T, Oram C, Correll CU et al (2017) Analgesic effects of alcohol: a systematic review and meta-analysis of controlled experimental studies in healthy participants. Journal of Pain. 18, 5, 499-510. doi: 10.1016/j.jpain.2016.11.009

Vlaeyen JW, Linton SJ (2000) Fear-avoidance and its consequences in chronic musculoskeletal pain: a state of the art. Pain. 85, 3, 317-332. doi: 10.1016/S0304-3959(99)00242-0

Witkiewitz K, Vowles KE, McCallion E et al (2015) Pain as a predictor of heavy drinking and any drinking lapses in the COMBINE study and the UK Alcohol Treatment Trial. Addiction. 110, 8, 1262-1271. doi: 10.1111/add.12964

Zale EL, Maisto SA, Ditre JW (2015) Interrelations between pain and alcohol: an integrative review. Clinical Psychology Review. 37, 57-71. doi: 10.1016/j.cpr.2015.02.005