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Alcohol misuse disorders in older adults

Introduction

Alcohol Use Disorders (AUDs) carry considerable global morbidity and mortality, being identified by the World Health Organisation as directly responsible for 3.3 million deaths per year worldwide and contributing causally to more than 200 medical conditions including cardiovascular, gastrointestinal, neurological, and psychiatric disorders[1]. Problematic alcohol consumption is classically associated with the younger population[2 3 4]; however, the 2014 National Psychiatric Morbidity Survey found that more than 1 in 6 adults aged 65-74 in England drink at hazardous levels or above, defined as a level of alcohol intake associated with risks of physical or psychological harm to the consumer[5].

Given this alarming statistic, one might hope for a large, robust, and well-validated body of research into how best to prevent problematic drinking, and diagnose and treat AUDs, in the over-65s, but there is relatively little evidence specifically concerning this age group[6 7 8]. Most research has focussed on patients under 65, so that its validity may not extend to older people, and that which *does* concern the geriatric population has mainly studied veterans in the USA, with unknown applicability to our general population of older patients in the UK[9 10]. Recently, the prevalence of hazardous drinking among older adults has begun to receive more academic and media attention, but the available evidence base is still nowhere near as extensive as that concerning the under-65s[11].

In this essay, I discuss the need for further research to understand and help our older patients who consume excessive alcohol. I will first outline the public health and societal burden posed by geriatric alcohol misuse, to demonstrate the need for research from a population perspective. I will then describe the case of a patient whom I met on my Psychiatry attachment, to illustrate the personal impact of an AUD on an older adult. Finally, I will discuss the biopsychosocial aspects specific to older people that mean that much existing research concerning alcohol misuse may not apply to them, and the implications in terms of the need for ongoing study of prevention, diagnosis, and treatment of AUDs in this population.

The public health perspective

The proportion of older people in the UK population is increasing; it is projected that by 2046 approximately 25% of UK residents will be over the age of 65, compared to 18% in 2016[12]. Alcohol-related illness is estimated to cost the NHS around £3.5 billion annually, with the overall social cost being as high as £55 billion[13 14]. Morbidity rates relating to alcohol use are higher in the elderly than in younger populations, given the physiological changes associated with ageing, which increase susceptibility to alcohol-related diseases as well as falls and injuries risks[14 15]. This can be expected to place ever-growing demands on health and social care services, both those exclusively used by older adults, and those open to the general population including general practice, hospital emergency departments, psychiatric services, and specialist substance misuse clinics.

It may further be assumed that the future population of over-65s with AUDs will be comprised both of those currently aged 35-65 who have or will develop chronic AUDs in the next 30 years, and those developing new-onset AUDs only in later life. It may be that patients with longstanding AUDs whose conditions persist into older age are partly responsible for the increase in prevalence to date of AUDs amongst the older population, owing to improved healthcare and management of alcohol-related health problems improving survival.

We can therefore see that alcohol misuse in the older population currently poses a considerable burden in terms of health and social care costs, which may become greater in the future as the proportion of the population comprising older people increases. Consequently, it is imperative that both currently practising clinicians and, perhaps even more so, the doctors of the future understand how to prevent, diagnose, and treat AUDs in the elderly population.

Case illustration - Luke

The distress and disability that alcohol misuse can cause is perhaps best illustrated by the story of an individual patient; the case vignette that follows concerns a gentleman I met on the Older Persons' Mental Health functional ward during my recent Psychiatry attachment.

Luke* is a 72-year-old, white British, retired bricklayer with a history of alcohol misuse and dependence since his teens, who is divorced and lives alone in sheltered accommodation.
Luke presented to the Emergency Department following an overdose of 36 paracetamol tablets while intoxicated. He did not intend to die, and self-rescued, seeking medical attention immediately. He had not planned to harm himself, did not experience suicidal ideation when sober, and did not intend to attempt suicide again. He described his actions as "a cry for help", stating that he had been admitted 2 weeks previously following an almost identical episode, and had been disappointed to find that he was not being admitted to an alcohol recovery facility as he had hoped.

Prior to his admission Luke had been consuming 15 pints of cider daily, sometimes with extra whisky. He would start drinking in the early morning, having taken a glass of cider to bed in place of water, and continue drinking all day to avoid withdrawal symptoms. He described his life as having revolved largely around alcohol since he was 14, when, having missed 2 years of school due to illness, he was so far behind academically that he dropped out without qualifications. He has had several periods of abstinence in the past, the longest being 14 months ending 5 months prior to this admission, when he started drinking again while on holiday; this was subsequently exacerbated by the breakdown of a 3-year relationship.

Luke did not describe any biological or psychological symptoms of depression and was not felt to be depressed, but given this being his second recent suicide attempt he was admitted under Section 2 of the Mental Health Act for assessment. Luke's risk to himself was deemed to be low in hospital, but moderate-to-high in the community due to his repeated overdoses while intoxicated. He was not considered to pose a significant risk to, or be at risk from, others. Luke had good insight into his condition and was optimistic about change, intending to engage with his local substance misuse service after assisted withdrawal in hospital.

Luke had never previously received psychiatric treatment; he had attended Alcoholics Anonymous before, but found it did not suit him. He had made two historical suicide attempts, one aged 22 when he cut his wrists with a knife, and one in 2016 with alcohol and tablets, for which he was treated in hospital but did not have contact with mental health services. His medical history included GORD, diverticulosis, hypertension, and ischaemic heart disease.

Luke worked intermittently as a bricklayer, before retiring aged 60 and developing a social life revolving around local pubs. He commented that the people he drank with were not 'real' friends he could rely on, but saw him as no more than a 'drinking mate'. He is now socially quite isolated due to having been excluded from this social group during the 14 months in which he abstained from alcohol. In terms of family, Luke had been married and had two daughters, but divorced in 1981, largely due to his drinking, and has since had no contact with his ex-wife or children.

Luke's case – significant points

Luke is typical of the demographic most often affected by later-life AUDs, who tend to be White British and male (women with later-life substance misuse problems are more likely to abuse medication than alcohol)[16]. Luke is also representative of the majority in terms of the age of onset of his AUD. It has been estimated that, depending on the age cut-off used to define 'late-onset', those with late-onset alcohol misuse represent about one third of elderly people with AUDs, while the other two thirds, like Luke, have a longer history of problematic drinking[17]. There are also broad differences in aetiology between these two groups; while the predisposing and precipitating factors for earlier-onset problems have been well-studied

* Personal details have been changed in order to maintain the patient's confidentiality.

and are known to include genetics and early life events, late-onset AUDs seem to have a less strong genetic component, and to be more likely to be precipitated by stressful life events (e.g. retirement)[18]. Although Luke's history of alcohol problems is longstanding, he did describe episodes of relapse being associated with his retirement, when he developed a social life revolving entirely around drinking, and also with the end of his relationship, which he commented meant that he had nothing to focus on in life except alcohol. This suggests that boredom and loneliness may be contributing factors to Luke's worse periods of alcohol abuse in his older age, and indeed these have been shown to be common precipitants for later-onset alcohol problems[17 18]. Similarly, those with earlier-onset difficulties may also suffer depression and loneliness following decades of alienating partners and social exclusion due to drinking[17], as illustrated by Luke's lack of contact with his children, and his comment regarding the nature of his friendships with other pub-goers.

The mode of Luke's particular presentation – to the Emergency Department, following a paracetamol overdose – is itself illustrative of a point that must not be ignored: many of the risk factors for alcohol misuse in the elderly are also risk factors for suicide[10]. The chronic use of and intoxication with depressant drugs such as alcohol can cause symptoms mimicking depressive mood disorders, including suicidal ideation, especially in elderly patients[19 20]. Luke's case demonstrates this starkly – Luke was considered not to be depressed and was not suicidal when sober, however, his symptoms when intoxicated led to repeated impulsive overdoses. This alone should illustrate that AUDs are a serious problem in the elderly population and deserve our utmost attention to prevent needless suffering and, at worst, suicides.

Concerning treatment, it is important to note how despite Luke's AUD having dominated the course of his life, he remains hopeful that he can recover, and has demonstrated real willingness and effort by achieving 14 months of abstinence immediately prior to his current relapse. Policymakers and practitioners alike can dismiss the utility of treating older patients with longstanding AUDs as trying to "teach an old dog new tricks[21]," but this is a misconception; both early-onset and late-onset older drinkers can recover[22]. Surely, then, we owe it to patients like Luke, who themselves remain hopeful of recovery, to help them to live as well as possible in older age, regardless of their history.

Biopsychosocial considerations

We have seen how problematic alcohol consumption by older people constitutes a significant public health issue that is set only to worsen as the population ages, as well as the destructive effects that alcohol abuse may have in the lives of the affected individuals. As already mentioned, most research that has been used in the development of guidelines and protocols for the prevention, identification, and treatment of AUDs has been carried out with subjects under the age of 65, and therefore will not necessarily be applicable to the older population we are concerned with. In this section I will explain which characteristics of older patients with AUDs are likely to mean that this current evidence may not be valid for these patients, and hence highlight the gaps in the current literature that should be filled as a matter of priority. Given the inherent nature of AUDs as reaching far beyond physiological mechanisms and into patients' cognitions, emotions, and functioning in society, I will consider specific issues pertaining to the older population in three sets corresponding to the three components of the biopsychosocial model[23 24].

Biological aspects

Older adults tend to have relatively less lean body mass, more adipose tissue, and a smaller total body water volume than younger people[25 26]. Since ethanol is hydrophilic, the volume of distribution for alcohol is therefore smaller in the elderly. This results in higher blood alcohol levels from the same ingested dose in an older individual than an equivalent younger person[27]. Government guidelines advising consumption of at most 14 units per week have been determined using data pertaining to a younger population, so older adults may be drinking hazardously even when observing recommended limits. In the USA, a lower limit is recommended for over-65s, but no such recommendations exist in the UK[10]. Indeed, reducing limits for older people to the US level would increase hazardous drinking rates amongst the elderly population to higher than the 16-24 age group, who have received so much attention regarding problematic alcohol use[19].

Millions of our older patients may therefore inadvertently be drinking hazardously while believing themselves to be within safe limits, implying a need for further research, for how are we to know what

level of alcohol consumption may put our elderly patients at significant risk, while their data (or sufficiently representative others') have not been used to inform guidelines? Furthermore, if guidelines need to be revised downwards for the older population, it may also be the case that screening tools using the quantity of alcohol consumed in their assessment of drinking behaviour, such as the AUDIT[28], should have correspondingly lower cut-offs for indicating further investigations when used to screen older people. This again highlights a need for ongoing research – while screening tools for alcohol misuse have been evaluated previously with respect to geriatric populations[29 30 31], no questionnaire has performed consistently well, and adjusting cut-offs in this way could be a first step towards increasing screening sensitivity.

A further point that deserves attention here is the high rate of physical comorbidities and corresponding medication use amongst the older population. It is estimated that up to 78% of older adults in the US who consume alcohol are taking medications that interact with alcohol[32]. The UK figure is unknown, but an immediate example of such a patient is Luke, who has ischaemic heart disease and would usually be prescribed a statin – but five statins (atorvastatin, fluvastatin, pravastatin, rosuvastatin, and simvastatin) are included on the BNF's list of 280 medications that interact with alcohol, where they are stated to increase the risk of hepatotoxicity (which is worse given that liver function is already a concern for these patients)[33]. While the frequency and quantity of alcohol consumption alone may provide a reasonable estimate of an individual's risk from their drinking in younger age groups, for older people coexisting health conditions and potential medication interactions make it more complicated to define what might constitute hazardous alcohol use[34]. This implies that development of screening methods that are able to account for these factors might be necessary, which in the past has been problematic owing to the complexity involved. However, as computing becomes ever more ubiquitous, screening based on complex algorithms could be administered easily in a computer-based form (in a similar way as is done with, e.g., the QRISK score for calculating cardiovascular risk for primary and secondary prevention purposes[35]), a possibility that has only just begun to be explored in research[36].

To conclude the discussion of biological factors relevant to alcohol misuse in the elderly, we will turn to pharmacological issues. The physiological changes that come with aging can affect pharmacokinetics, as outlined above regarding the effect of the shift in body composition on the distribution of alcohol. Additionally, decreasing hepatic metabolism and GFR may reduce drug clearance, and lower albumin levels can increase free drug concentrations[37]. Combined, these factors can mean that older adults are at a higher risk of adverse effects and toxicity from standard doses of medications than younger people. An additional consideration is the issue of polypharmacy; it has been estimated that almost 50% of older adults are regularly taking more than one prescribed medication[38]. The interplay of the different combinations of medications that an individual patient is usually not well-understood, but polypharmacy is known to increase risks in elderly patients, particularly the risk of falls[39]. The bulk of evidence from pharmacological trials concerning the safety and efficacy of drugs is derived from the study of younger subjects without the aforementioned array of comorbidities that older people may have, due in general to exclusion criteria for trials, and consequently much of the existing research may not apply to the older patient population. This is relevant to the treatment of geriatric alcohol misuse in two ways: firstly, regarding the management of dependence and avoidance of acute withdrawal, generally using chlordiazepoxide, and secondly, concerning medications used for maintenance and relapse prevention.

Chlordiazepoxide is a benzodiazepine, which prevents the effects of alcohol withdrawal. In older people, alcohol withdrawal may be more severe and thus require *higher* doses of chlordiazepoxide[40]; however, owing to the differences in pharmacokinetics, these patients may be more sensitive to the CNS depressant effects of benzodiazepines and hence doses may need to be *lower*[41]. The NICE guidelines on alcohol misuse currently advise that benzodiazepine doses may need to be reduced for older people; on the other hand, the research that has informed the equivalent SIGN guideline concludes that there is usually no need, although this evidence is only of moderate quality[42]. Evidence is therefore conflicting and in order to optimally understand and manage alcohol detoxification in the elderly, more research would be helpful.

Acamprosate, naltrexone, and disulfiram are all medications recommended by NICE to aid alcohol use reduction and prevent relapse[9]. Each of these drugs works in a different manner. Acamprosate is used to reduce cravings; its mechanism of action is not clear, but it is thought to work essentially as a glutamate antagonist[43], hence reducing the glutamate-mediated acute reinforcing effects of alcohol[44]. Naltrexone is a

competitive μ-opioid receptor antagonist and therefore reduces the reward from alcohol-induced release of endogenous opioids[45], making it less likely that one drink will become many. Disulfiram is otherwise known as Antabuse, and is generally used third-line since it works as a deterrent to drinking, by inhibiting the metabolism by hepatic aldehyde dehydrogenase of acetaldehyde, which is produced by the metabolism of alcohol, and the accumulation of which results in unpleasant effects such as flushing, palpitations, and vomiting[46]. With regard to the use of these drugs in the elderly, each has its own considerations related to comorbidities and polypharmacy. Acamprosate is usually recommended first-line due to its favourable safety profile, but it is specifically not licensed for use in the over-65s, presumably due to the lack of representation of this age group in trials[47]. It should not be used in patients with significant renal impairment since it is primarily renally excreted; this will restrict its use in elderly patients given the high prevalence of Chronic Kidney Disease in the older population[48]. Naltrexone may be safe to use in elderly patients, but as an opioid antagonist is contraindicated for use by patients taking opioids, and elderly patients are more likely than the general population to be prescribed opioids in primary care, again due in part to the increased prevalence of comorbid conditions requiring chronic pain relief[49 50]. Disulfiram is particularly problematic in that it is contraindicated where there is a history of stroke, heart disease, or hypertension, all of which are common in the elderly population[51]. It therefore seems that of the recommended pharmacological options, acamprosate and naltrexone are the most feasible medications for use, but there is a significant paucity of research studies regarding their safety and efficacy in this specific population[52], and therefore further trials are needed before we can be reassured that we will indeed be benefitting older patients by prescribing these drugs.

Psychological aspects

Suggestions as to why older people engage in hazardous drinking have included using alcohol as a means of coping with physical and mental health problems[53 54]. We have already discussed the high prevalence of chronic physical conditions in this population group, but comorbid psychiatric conditions such as depression and anxiety are equally relevant, being more common in older patients who misuse alcohol than in younger age groups, and with its often being unclear whether a mental health problem precipitates the drinking or vice versa[11].

Additionally, several causes of psychological distress that are either specific to or particularly common in the elderly population have been suggested to contribute to the development of geriatric AUDs. A systematic review published last year identified retirement, the death of a spouse, chronic stress, and the loss of previously-held roles or identities, as common themes[7]. However, the authors point out that these factors are those identified in a foundational narrative review in 1978[55], and the subsequent studies may reflect researchers looking to confirm these themes rather than considering alternative possibilities. The evidence is at best inconclusive as there have been relatively few studies performed, with varying results. Studies have generally not included women, and the authors of the review recommend more exploratory, qualitative research involving both men and women to be conducted to investigate other reasons why older people might develop problematic drinking behaviour. This would enable screening to be targeted towards the patients most likely to be at risk of harmful drinking. Furthermore, better understanding would allow patients experiencing psychological problems or difficult life events that put them at higher risk of misusing alcohol could be offered relevant support or directed to sources of information and help, potentially negating the need to use alcohol to cope.

A discussion of psychological factors relevant to alcohol misuse by the elderly would be incomplete without mentioning cognitive impairment. Prolonged, heavy drinking is well-recognised as a risk factor for cardiovascular disease and hence vascular dementia, as well as thiamine deficiency resulting in Wernicke-Korsakoff syndrome; yet beyond this evidence is mixed as to whether heavy drinking itself *causes* long-term cognitive impairment[10 47 56]. A discussion of the evidence is beyond the scope of this essay, but if such an effect were to be found there would be additional public health implications given the ageing population of drinkers and issues related to dementia care. Regardless of the cause, mild cognitive impairment affects 5-20% of over 65s in the UK, with an additional 7.1% having dementia[57]. Cognitive impairment will therefore almost inevitably affect some older people who misuse alcohol; however, the evidence pertaining to cognitively impaired patients who misuse alcohol is virtually non-existent, with implications for the identification and treatment of their problems. For example: screening tools used to detect problematic alcohol use may not be suitable in patients with cognitive

impairment, as they are often excluded from studies concerning screening development[35,58]. The same effect applies to research concerning treatment. A pessimist might argue that there is little point addressing problematic drinking in such patients, as they will still have cognitive impairment and the associated morbidity regardless of alcohol consumption – but this itself illustrates an important issue relating to society's perception and treatment of older people: ageism.

Social aspects

The term 'ageism', coined by Butler in 1969, denotes discrimination against a group on the basis of their age[59]. There is ample evidence that ageism towards the elderly is pervasive in our society, with healthcare being no exception; it can be found from the population level (for example, the exclusion of elderly patients from trials and thus the lack of applicable research discussed herein) to interactions with individual patients (where older people may be asked fewer questions in consultations and receive less information and support)[60]. This issue has been recognised by the British Medical Association, which in 2016 published a briefing paper entitled "The perception of ageing and age discrimination" aiming to draw attention to the vulnerability of older patients to age-related prejudice, and to encourage questioning of age-based assumptions[61]. There are several general societal perceptions of older people that may contribute to ageism in healthcare[62]. The first is that AUDs are characteristic only of a younger demographic, which can make misdiagnosis of older adults likely, particularly since harmful drinking can mimic other physical or mental conditions[11 63]. Older patients with mental health problems are particularly prone to being misdiagnosed with dementia and consequently denied appropriate treatment[64]. Further misconceptions related to the care of older adults with problematic drinking are that older people do not benefit from treatment, that there is no point trying to change long-held habits, or that prognosis for older adults who misuse alcohol is poor[10 65]. However, older people are just as likely to benefit from treatment for alcohol misuse, particularly in the case of late-onset disorders, for whom prognosis may be better than for younger patients[66 67].

These misconceptions resulting in under-diagnosis and the relative absence of older people from treatment services may contribute to the effect already discussed of older people being excluded from relevant research studies, so perpetuating the lack of applicable evidence for their care. More generally, the perception that older people are less worth treating for health conditions than their younger counterparts is implicit in the use by NICE of Quality-Adjusted Life Years (QALYs)[†] to assess the cost-effectiveness of potential treatments for provision by the NHS[68 69]. Older people can be systematically disadvantaged by this use of QALYs to determine treatment provision, owing to having fewer estimated years of life remaining. Some might argue this to be economically and ethically justifiable today, given the need for some method of distributing the limited resources of our healthcare system. However, as already discussed, the older population is burgeoning; a third of babies born in 2013 are expected to live to be 100[70], and so live out significant periods of their adult lives aged over 65, so that possibly the biggest gains in QALYs will stand to be made by improving the quality of those later years than of likely relatively-healthier earlier life. It is thus surely important that we challenge and work against these assumptions relating to older people, and gain the necessary evidence and experience from practice, to be able to provide the best care to our patients; quite how and if this can be done effectively and within the constraints of the current NHS remains to be explored, but raising awareness through documents such as the BMA report is hopefully a step in the right direction.

Finally, a crucial social issue relevant not only to the treatment of older people with AUDs, but of patients with substance misuse disorders in general, is that of stigma. Stigma is defined as prejudice and discrimination that occur because of stereotypes and beliefs associated with a particular group that society applies to individuals belonging to that group[71]. Mental illness is associated with considerable stigma in our society, and people suffering from AUDs and other substance misuse disorders are particularly heavily stigmatised and subject to enormous negative attitudes and social rejection. There is often a view that their condition is self-induced; more than 50% of the UK population believe that people with AUDs are to

[†] The QALY is defined by NICE as "*A measure of the state of health of a person or group in which the benefits, in terms of length of life, are adjusted to reflect the quality of life […] calculated by estimating the years of life remaining for a patient following a particular treatment or intervention and weighting each year with a quality-of-life score (on a 0 to 1 scale). It is often measured in terms of the person's ability to carry out the activities of daily life, and freedom from pain and mental disturbance.*"

blame for their problem[72]. These attitudes can influence the views of healthcare staff towards patients with AUDs, particularly in primary care as opposed to general psychiatry or specialist addiction services, which negatively affects the likelihood of patients seeking help, of their receiving a correct diagnosis, and of their accessing suitable treatment[73]. Older people are thus subject to a 'double barrier' to having their AUDs identified and treated: that created by their age as outlined above, combined with the more general stigma attached to substance misuse disorders. Again, this has a knock-on effect on the evidence available to inform the care of older people with AUDs; we need these patients to seek and to receive help in order to be able to obtain the evidence in the first place. (Perhaps this is also reflected by much evidence concerning AUDs in the older population having been obtained from studies of veterans in the USA; these patients may be viewed as having a 'good reason' to have developed their problem, having witnessed the horrors of war, and thus be subject to less stigma than non-veterans with AUDs.) Concerning the reduction of healthcare professionals' unhelpful attitudes towards patients with substance misuse disorders, education and training certainly have some part to play[‡], but may not be enough[73 74]; therefore, as well as study focussed on the diagnosis and treatment of alcohol misuse in older adults, further work is also needed more broadly, at a societal level, on reducing the stigma towards individuals with substance misuse disorders.

Conclusions

As I have outlined in this essay, problematic drinking in the older population is a significant public health issue, which is likely to become more prevalent and hence more relevant to today's medical students as we progress through our working lives. Traditionally, alcohol misuse has been considered a younger people's problem, and there has also been the perception that older people do not or cannot benefit from treatment for AUDs. However, these attitudes risk condemning our older patients to distress and disability throughout later life when improvement with intervention would in fact be possible. Existing evidence surrounding the prevention, identification, and management of alcohol misuse can give us a useful starting point, but the particular biological, psychological, and social factors relevant to the elderly mean that to be able to best serve these patients, more research is essential. I would urge my fellow medical students to look to the future and bear this in mind as we embark on our clinical careers.

(***Word count: 4875***)

[‡] See, for example, the Health Innovation Network's 'Alcohol Stigma' programme, an educational resource available through Health Education England's 'e-learning for Healthcare portal': https://www.e-lfh.org.uk/programmes/alcohol-stigma/

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