

## QUALITATIVE PAPER

# ‘I’ve never drunk very much water and I still don’t, and I see no reason to do so’: a qualitative study of the views of community-dwelling older people and carers on hydration in later life

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## Abstract

**Background:** dehydration is associated with significant adverse outcomes in older people despite being largely preventable and treatable. Little research has focused on the views of community-dwelling older people on hydration, healthy drinking and the perceived importance of drinking well in later life.

**Objectives:** to understand community-dwelling older people and informal carers’ views on hydration in later life and how older people can be supported to drink well.

**Methods:** qualitative study using interviews and a focus group exploring hydration and nutrition in later life (24 older people at risk of malnutrition and dehydration, 9 informal carers) and thematic analysis.

**Results:** this article presents the findings on hydration alone. Four themes are presented: perceptions of healthy drinking, barriers to and facilitators of drinking in later life and supporting older people to drink well. The perceived importance of adequate hydration in later life was polarised. Concerns about urinary incontinence and knowledge gaps were significant barriers. Consideration of individual taste preference and functional capacity acted as facilitators. Distinct habitual drinking patterns with medications and meals exist within individuals. Many relied on thirst at other times or when fluid demands are greater (such as hot weather), a known unreliable prompt in later life.

**Conclusions:** older people could be supported to drink well by building upon existing habitual drinking patterns. Primary care and public health should consider individual barriers, facilitators and tailored education. A multidisciplinary approach to promote hydration should be incorporated into care for older people with more complex needs.

**Keywords:** *older people, hydration, dehydration, qualitative research, carers*

## Key points

- Knowledge gaps and misconceptions exist regarding healthy fluid intake, drink choices and overreliance on thirst in later life.
- Most older people have distinct habitual drinking patterns around taking medications and meals which can be optimised.
- Consider individual barriers (fear of incontinence, functional status) and facilitators (taste, social factors) to support older people to drink well.
- Multidisciplinary strategies incorporated into existing care may be most effective for complex older adults.

## Introduction

Dehydration is associated with significant adverse outcomes in older people including increased risk of hospital admission, disability, infection, falls, acute ischaemic stroke and mortality [1–6] despite being largely preventable and treatable [1]. Dehydration can result from deficient water intake (low intake dehydration), volume depletion or both [1]. Low-intake dehydration is common in older adults, and the most effective form of prevention is drinking [1]. Older people are particularly vulnerable to dehydration due to age-related changes in renal concentrating ability, total body water content, functional decline, reduced thirst sensation and/or medication side-effects [2, 7], all of which can go unnoticed in later life. In frail older people, the degree of frailty increases dehydration risk [1].

By 2046, the percentage of people aged over 65 is predicted to rise from 18% to almost 25% in the UK [8]. In the context of climate change and rising prevalence of heatwaves, the incidence of dehydration-related deaths is also set to increase [9].

The exact prevalence of dehydration in older people is unknown, but it is common in community settings, and the primary risk factor is poor fluid intake [10]. It is estimated to be more than one third in more frail and vulnerable community-dwelling older adults [1]. Hooper *et al.* [11] found 46% of older people in long-term care had impending or current dehydration. However, dehydration remains under-diagnosed and prevalent [1, 11, 12].

Some oral hydration interventions to prevent dehydration in long-term care and hospital settings have shown positive results in studies [13–16] although methodological limitations have been highlighted [11]. Far less evidence is available for older people living in their own homes [10, 15]. We know there is a heightened risk of malnutrition amongst older people in the UK who do not receive a formal social care package [17]. Dehydration and malnutrition are distinct conditions that are intrinsically linked to poor oral intake and can be challenging to identify in practice [1].

Guidelines recommend that older people should drink regularly when not thirsty; older women should drink 1600 ml/day, older men 2000 ml/day; fluid intake should increase in people with weight loss, frail older people should be carefully monitored (particularly during heatwaves); water, juices, milk and hot drinks all constitute hydrating fluids [1, 18]. Whilst the solutions seem simple, no studies have ascertained the older person's perspective: what do they typically drink? What does healthy drinking mean to them? What can be done to support older people to drink adequately? A review of the literature explores the issues leading to dehydration in community-dwelling older adults: personal factors (e.g. knowledge of drinking, concerns around urinary incontinence, physical health), social and environmental conditions, social networks and shared experiences of drinking, and systems of support including accessibility [3]. We identified one qualitative study exploring the views of older people in residential

care highlighting the importance of aesthetic experience and social interactions with drinking [19].

To our knowledge, this is the first study to understand the views of older people living in their own homes and carers, on hydration. The study explored nutrition and hydration. The aims were to (i) to explore the views, drinking and dietary practices of older people at risk of malnutrition and dehydration and their carers, (ii) identify factors influencing healthy drinking and eating in later life and (iii) explore potential interventions to support oral intake in the community. The findings on hydration were analysed separately, and this article presents the findings on hydration alone.

## Methods

### Study design

This qualitative study was nested within a wider qualitative study exploring nutrition and hydration in later life.

### Participant selection

Participants were purposively selected across four general practices in urban and suburban areas and a carers' association in North London. Older people were identified through electronic primary care records, screened by a general practitioner (GP) according to the selection criteria detailed below and recruited via postal invitation. If interest were expressed, the older person was contacted by the interviewer, assessed for capacity, and an interview was arranged with consent.

We included 24 community-dwelling people aged  $\geq 75$  years who were malnourished or at risk of malnutrition, see Table 1 (defined as: body mass index [BMI]  $< 20$  or estimated to be low by a clinician; documented weight loss or reduced appetite) and nine informal carers. Informal carer participants were friends or family members assisting the older person with shopping and/or meal preparation at least weekly. They were identified via the older person or the carers' association.

We excluded older people living in nursing homes, receiving treatment for cancer, undergoing investigations for suspected cancer, on the palliative care register, lacking capacity to consent, with advanced dementia, swallowing difficulties, who were unable to feed themselves and those for whom specialist nutrition advice would be appropriate (e.g. chronic kidney disease stages 4 and 5, diabetes on insulin, diabetes diagnosed within the preceding 3 months). We purposively sampled older participants for age, gender, ethnicity and frailty (identifying 'housebound' coding as a proxy for frailty status) using the electronic records. Two older people who were initially recruited later declined due to reasons related to poor health and personal circumstances.

### Setting

One-to-one interviews were conducted at the participant's home in North and Central London or at the university. Older people were interviewed individually (except for one

**Table 1.** Recruitment of older participants to study

| Older participants aged $\geq 75$ years, identified via electronic health records   | Exclusions   |
|---|--|
| Selection criteria<br>.....<br><ul style="list-style-type: none"> <li>• Malnourished or at risk of malnutrition<sup>a</sup></li> <li>• Housebound people with BMI &lt; 20</li> <li>• Documented weight loss</li> <li>• Documented reduced appetite</li> </ul> | <ul style="list-style-type: none"> <li>• Living in a nursing home</li> <li>• Active treatment for cancer</li> <li>• Suspected cancer</li> <li>• On a palliative care register</li> <li>• Lacking capacity to consent or interview considered too burdensome</li> <li>• Advanced dementia and unable to feed themselves</li> <li>• Swallowing difficulties</li> <li>• Conditions requiring specialist dietetic advice<sup>b</sup></li> <li>• Suspected cancer</li> <li>• On a palliative care register</li> </ul> |

<sup>a</sup>BMI < 20 or estimated to be low by a GP

<sup>b</sup>Chronic kidney disease stages 4 and 5, diabetes on insulin, diabetes diagnosed within the 3 preceding months.

older person who was interviewed jointly with their carer). An additional focus group with carers alone was arranged via the carers' association and took place at their premises. A description of the characteristics of the participants is included in [Table 2](#).

### Data collection

Semi-structured interviews with older people or informal carers and a single focus group with carers alone were conducted, each of them lasting approximately 1 hour. These explored what older people currently eat and drink, ideas of a healthy diet and fluid intake, changes in later life and views on how a future community service could support nutrition and hydration, see [Appendix 1](#) for topic guides. All were audio recorded with participants' consent. Data were transcribed verbatim and anonymised. All participants were offered a £20 high street voucher.

We sampled to saturation on main themes (both regarding nutrition and hydration) [20] and concluded data collection when no new themes emerged. In this article, we report on hydration specifically. Findings on nutrition are reported elsewhere [21].

### Data analysis

Each transcript was read by at least three members of the research team, and most transcripts read by five. The findings on hydration were analysed separately. A coding framework based on the topic guide was developed and agreed amongst the team and applied to all transcripts. Nvivo 11 Pro software was used to facilitate data management. Data was coded by Ann Liljas, and three transcripts were double coded by a second coder (Cini Bhanu) to ensure agreement. Thematic analysis was used to identify key emergent themes and their meaning [20]. A series of multi-disciplinary team meetings discussed clustering of codes into provisional higher and lower themes. The analysis took an inductive approach, with themes directly linked to the data. The data within each theme was considered, including searches for disconfirming evidence, and revised iteratively. The final stage of analysis involved moving from thematic description to interpretation

of the data with input from the entire team including researchers (with expertise in qualitative methods, general practice, ageing, frailty and nutrition) and lay members. These themes and sub-themes were grouped into three main categories.

### Research team

Interviews were undertaken, and participant consent was obtained by Christina Avgerinou, Kalpa Kharicha, Cini Bhanu or Yehudit Bauernfreund. Researchers who were less experienced in qualitative research received training and supervision by the more experienced members of the team. Kalpa Kharicha led the focus group using prompts to encourage group interaction; Christina Avgerinou recorded non-verbal communication and asked follow-up questions to clarify discussion points. The research team agreed interviewers should be presented to participants in post-graduate researcher roles since disclosing clinical background may affect interview dynamics [22].

### Ethical approval

The study received favourable opinion by the London Riverside Research Ethics Committee (reference number 17/LO/1490). All participants provided informed consent to participate in the study.

## Results

### Participants

A total of 24 older people aged  $\geq 75$  years and 9 informal carers participated in the study across a range of age groups, socio-demographic and ethnic backgrounds, as shown in [Table 2](#).

### Key findings

We have grouped findings from older people and carers into four main themes: (i) perceptions of healthy drinking, (ii) barriers to drinking, (iii) facilitators of drinking in later life and (iv) supporting older people to drink well. These themes

**Table 2.** Demographics of older people and informal carers

|                     | Older people                  |           | Informal carers |                                |                |   |      |
|---------------------|-------------------------------|-----------|-----------------|--------------------------------|----------------|---|------|
|                     |                               | <i>N</i>  | %               |                                | <i>N</i>       | % |      |
| Age                 | 75–79 years                   | 9         | 37.5            | Age                            | 50–59          | 4 | 44.4 |
|                     | 80–84 years                   | 6         | 25.0            |                                | 60–69          | 2 | 22.2 |
|                     | 85–89 years                   | 4         | 16.7            |                                | 70–79          | 2 | 22.2 |
|                     | 90+ years                     | 5         | 20.8            |                                | 80–89          | 1 | 11.1 |
| Gender              | Female                        | 17        | 70.8            | Gender                         | Female         | 6 | 66.7 |
|                     | Male                          | 7         | 29.2            |                                | Male           | 3 | 33.3 |
| Ethnicity           | British, Irish or White other | 18        | 75.0            | Relationship with older person | Daughter       | 4 | 44.4 |
|                     | Indian/Asian                  | 2         | 8.3             |                                | Spouse/partner | 3 | 33.3 |
|                     | African/Caribbean             | 2         | 8.3             |                                | Granddaughter  | 1 | 11.1 |
|                     | Missing                       | 2         | 8.3             |                                | Friend         | 1 | 11.1 |
| Living arrangements | Lives alone                   | 15        | 62.5            | <b>Total</b>                   | <b>9</b>       |   |      |
|                     | Lives with spouse/partner     | 8         | 33.3            |                                |                |   |      |
|                     | Lives with other family       | 1         | 4.2             |                                |                |   |      |
| Marital status      | Single                        | 4         | 16.7            |                                |                |   |      |
|                     | Married                       | 7         | 29.2            |                                |                |   |      |
|                     | Divorced                      | 6         | 25.0            |                                |                |   |      |
|                     | Widowed                       | 6         | 25.0            |                                |                |   |      |
|                     | Missing                       | 1         | 4.2             |                                |                |   |      |
| Housing             | Owner-occupied                | 10        | 41.7            |                                |                |   |      |
|                     | Council rented                | 6         | 25.0            |                                |                |   |      |
|                     | Housing association rented    | 4         | 16.7            |                                |                |   |      |
|                     | Private rented                | 2         | 8.3             |                                |                |   |      |
|                     | Sheltered housing             | 1         | 4.2             |                                |                |   |      |
|                     | Missing                       | 1         | 4.2             |                                |                |   |      |
| Education completed | <15 years                     | 9         | 37.5            |                                |                |   |      |
|                     | 15–16 years                   | 5         | 20.8            |                                |                |   |      |
|                     | 17–20 years                   | 3         | 12.5            |                                |                |   |      |
|                     | 21+ years                     | 7         | 29.2            |                                |                |   |      |
| <b>Total</b>        |                               | <b>24</b> |                 |                                |                |   |      |

and sub-themes are presented in [Appendix 2](#), together with further illustrative quotes.

*Perceptions of healthy drinking*

Self-reported drinking patterns varied amongst older people, some drinking little or infrequently in their daily routine. Many older people felt they were not drinking as much as they considered they were expected to.

‘Not a lot, probably not more than a pint glass, [in a day] I don’t know how that rates, but I know that I really ought to drink more water’. (OP15, Female, 75–79)

OP: I should drink more. I should drink more.

Int: Why do you say that?

OP: ‘Because they all tell me so and I know I’m not . . . Everybody tells me I should drink more. But to tell you the truth, I can’t say I have a need to . . . sometimes I force myself. Apart from taking my tablets this morning, I’ve had two black coffees, I haven’t had any more drinks’ (OP18, Female, 90+)

Perceptions of the importance of hydration were polarised. Some older people considered hydration as important and were able to recognise the potential risks of dehydration.

‘But it is good for flushing the system. Flushing the system, your kidneys, your liver and so on. I drink as much as I can’ (OP7, Male, 75–79)

In contrast, other people did not perceive hydration as important, could not appreciate the risks of dehydration and did not feel it was relevant to them.

‘. . . there’s this big thing about how many litres of water you should drink. I’ve never drunk very much water and I still don’t, and I see no reason to do so, if I don’t feel that I need it’. (OP3, Female, 90+)

Most carers were knowledgeable of the consequences of poor fluid intake (citing urinary tract infections, delirium and dehydration) and felt hydration to be a priority when caring for the older person.

‘one of the signs [of poor hydration] is the apparent dementia gets extreme, you know, they go really odd with it. So we’re always on the lookout for that’. (Carer 7, Female, 60–69)

Despite this heterogeneity, all participants were somewhat aware of overarching public health messages related to hydration (whether they perceived this to be important or not). Main sources of information were family, internet and the

## I've never drunk very much water and I still don't, and I see no reason to do so

media. Many felt that advice was not directed at or relevant to them.

'I have heard many people say (slight laugh) you should be drinking more but in a sort of context where they're talking to several people' (OP11, Female, 75–79)

Knowledge gaps were widespread. Many older people and carers were unsure how much fluid was appropriate. Ideas of a healthy intake ranged considerably from 'seven cups' to 'three litres of water' a day. Older people and carers often judged recommendations to be unachievable or inconsistent. Only one participant had received advice from their doctor and was confident about how much to drink.

'Quite frankly, I don't know. I know that everything has changed: sometimes it's three or four . . . er, to begin . . . at one stage we were told we ought to drink three litres of water a day or something like that. We'd be peeing all the time!' (OP13, Male, 80–84)

The importance of increasing fluid intake during periods of hot weather and acute illness was appreciated by most (even if they did not feel it to be relevant at other times). Carers were acutely aware of this and encouraged the older person to proactively drink more under such circumstances.

'I remind her, because I'm not always there, so I ring her in very hot weather' (Carer 6, Female, 50–59)

However, many older people themselves relied on their thirst increasing during such high-risk periods to facilitate drinking more.

'A slightly dry mouth is the usual one [prompt to drink], I think'. (OP7, Male, 75–79)

Interestingly, most participants associated the term 'hydration' with water alone. Information on consumption of juices, hot beverages and soft drinks required further probing.

'Well, they tell you so many pints of water you're supposed to drink a day! (slight laugh) But I don't do that; if I get a thirst, I'll have a cup of tea or a cup of coffee'. (OP5, Male, 85–89)

Attitudes to drink choices varied. Some were mindful of the risks associated with sugary, caffeinated and carbonated drinks, restricting their fluid options.

'Too much Coca-Cola, I shouldn't . . . You shouldn't drink it because it's got caffeine in it, hasn't it?' (OP4, Female, 75–79)

Though not a primary focus of this study, many older people discussed enjoying alcohol. Older people expressed a nonchalant attitude to alcohol consumption, considering social benefit as an important factor and less worry about potential health risks. None of the older participants had discussed alcohol with their doctor.

'All this panic about alcohol; all right, I've drunk like a fish all my life and I'm not stopping!' (slight laugh) (OP10, Female, 90+)

Int: Do you talk about how much beer you drink when you see your doctor?

OP: Very wisely, they don't ask I think (OP10, Female, 90+)

### Barriers to drinking in later life

Concerns about urinary incontinence were a significant barrier to drinking, acknowledged by older people and carers. Many older people experienced fear of incontinence leading to a highly restrictive pattern of fluid consumption. This was compounded by lack of access to public toilets, and many older people avoided caffeinated drinks for this reason.

'Her generation has a chronic panic about not managing to get to the loo quickly enough because she moves slowly, that's the thing, although she is completely continent . . .' (Carer 7, Female, 60–69)

Overreliance on thirst as a prompt to drink was described by many older people.

'I'm not conscious of it because it's not something which I do as a matter of need, it is purely to satisfy, to quench thirst . . . And you will find that people generally will do that . . .' (OP22, Male, 85–89)

Most were able to recognise that their fluid intake had decreased as they were aged, often alongside a reduced food intake, but could not describe the reason for this. With probing, most identified that their appetite had reduced as a cause for their reduced food intake but did not make the same link for diminished thirst and fluid intake.

'On the whole, I never do that. I see people, I know they walk with a bottle of water and drink it . . . But water really, I don't know for what reason I don't' (OP1, Female, 80–84)

Older people with accumulating functional and cognitive impairments experienced greater challenges with drinking. Some described reduced mobility affecting their motivation to drink at home.

'I've got a lot of stairs to get up; that deters me. It shouldn't really, I know it's good for me' (OP24, Male, 90+)

Carers' perspectives echoed these challenges. Many carers had noted gradual changes over time affecting the older persons' functional capacity or swallowing, eventually impairing their ability to continue using the same kitchen equipment and receptacles.

'she can't make herself tea (that was one of the first signs she couldn't prepare food for herself, by the way) . . .' (Carer 6, Female, 50–59)

Carers for older people with cognitive impairments experienced difficulties monitoring their fluid intake. They found that offering regular prompts to drink were valuable but not always practical if they could not be presented for extended periods of time.

“... I make a cup of tea when I arrive and then she'll perhaps start eating the cake. And then I'll have to go, 'Oh, mum, have you remembered, you've got a cup of tea there?' 'Oh, yes,' she says, 'Oh, I forgot about it.' And it's sitting right in front of her” (Carer 7, Female, 60–69)

### *Facilitators of drinking in later life*

Whilst self-reported drinking patterns between individuals varied in terms of regularity, prompts and amounts, there were distinct habitual drinking patterns identified within individuals. Medications and mealtimes acted as the most consistent prompts. Two older people used these times to drink as much as they could, and many would not drink outside of these set times.

‘I mean obviously I drink water when I have to take my medication, so I try and drink as much as I can stomach’ (OP17, Female, 75–79)

Personal taste preference and variety were important to older people and carers to facilitate drinking well. Of the few older people who did report drinking regularly, many opted for juices and hot drinks in preference to water and enjoyed having options.

‘And if we went out, I always bought them the largest coffee with a glass of water... she didn't drink the water’. (Carer 6, Female, 50–59)

### *Supporting older people to drink well*

Few older people reported discussing fluid intake with a doctor. Of those who did receive medical advice about hydration, this advice was perceived as important, followed closely and led to greater awareness of the benefits of drinking well. However, this advice was only ever delivered in the context of being prescribed diuretic medication or whilst being treated for an acute illness related to dehydration in hospital.

‘... because I've got these water tablets, so they said to take a good glass of water every time you go to the toilet’. (OP19, Female, 90+)

Insights from carers highlighted the value of tailored home adaptations to support older people to drink. They felt that simple changes to support the older person's independence were most appropriate although this topic should be approached sensitively.

‘I want to get her a small travel kettle, because there's only her, so she can lift it up really lightly. I'm not going to tell her, I'm just going to buy it, plug it in and say, “Ooh, lift that!” and then I'll leave the other one on the side; she may still use it.’ (Carer 6, Female, 50–59)

Given the lack of professional information that older people receive, almost all participants were open to receiving support with maintaining their fluid intake. Primary care was viewed as an acceptable setting although many were concerned the GP would not have time. Most older people would accept advice from any trained healthcare professional. Follow-up and resources to reinforce advice

were deemed important. Carers emphasised the need for support at home. Some felt the greatest challenge would be the difficulty of changing deeply engrained habits, together with inherent reservations on whether increasing fluid intake would have clear physical health benefits.

‘I try something, but not necessarily am I a slave to what they say, because if it doesn't work with me...’ (OP12, Female, 80–84)

## **Discussion**

### **Summary**

This study identifies key perceptions of healthy drinking and factors influencing fluid intake in community-dwelling older people. Older people and carers feel there is an unachievable expectation around healthy drinking, misconceptions about drinking and the importance of hydration exist. Barriers include fear of urinary incontinence and functional decline. Distinct habitual drinking patterns with medications and meals exist within individuals (regardless of age, disability or social background). Acknowledgement of individual factors (e.g. taste preference) and receiving medical advice, which was rare, facilitated drinking well. Most were open to a community intervention to support drinking.

### **Strengths and limitations**

The consistent patterns across participants amongst a diverse range of gender, age group, social deprivation, ethnicity and functional mobility, using a rigorous approach, represent this study's strength as a detailed representation of older people and carers' perceptions of hydration in later life. Participants for this study were identified using malnutrition as a proxy, which is strongly linked with hydration [1].

We acknowledge the limitation that this study recruited a limited number of carers, and further research may be needed to fully understand the experience of informal caregivers. This was a nested study exploring both hydration and nutrition; this may have affected how participants expressed their views around drinking, and some findings could have been taken out of context.

### **Comparison with existing literature**

To our knowledge, this is the first study to explore views of a high-risk community-dwelling older population in their own homes and carers, on hydration. The studies that are available for comparison include a review by Hooper *et al.* [13] in all community settings which explores helping older people to prevent dehydration by describing the problems experienced by older people and interventions to prevent dehydration; a US study by Abdallah *et al.* [10] using a survey and four focus groups including 36 community healthcare providers' views (those delivering care to older people in their own homes); a qualitative study by Godfrey *et al.* [19] with 21 older people



in residential care and hospital using data from interviews, focus groups and observation of hydration practice. Therefore, whilst informative, they may not be wholly transferable to our setting.

Our findings suggest there is little awareness of basic healthy drinking principles. Abdallah *et al.* also cite a lack of awareness about what kinds of fluids to drink and how much to drink amongst community-dwelling older people. The misconception that intentional avoidance of fluids minimises risk of urinary incontinence (and an overriding fear of this); however, it is shared by older people in the community and care homes [3, 10, 19].

Views on the perceived importance of adequate hydration in this study were polarised. This is in contrast with the study by Godfrey *et al.* [19] study citing a good understanding of the importance of hydration amongst older people in care settings and Abdallah *et al.* [10] reporting great concern about the lack of awareness of risks of dehydration amongst community-dwelling older adults and their families. The perceived importance of hydration is likely influenced by numerous factors, including level of care support and social factors.

Our study found alcohol contributes a significant proportion of fluid intake for some, reflecting the reality of health priorities in this group. Beer and lager are hydrating and may be appropriate for some older adults (not needing to restrict alcohol for medical reasons) [1]. Our participants' perceptions are consistent with a review by Bareham *et al.* on community-dwelling older adults living in higher income countries concluding that risks associated with alcohol may not be recognised, but many appreciate its role in sustaining social activities as a component of wellbeing [23].

We identified distinct habitual drinking patterns with medications and meals. Godfrey *et al.* [19] also report these times as key opportunities for older people to drink, but that these were often overlooked or used ineffectively in residential care. Our findings that taste preference, variety and social factors are important and consistent with narratives across all settings for older people, highlighting the importance of drinking as a pleasurable experience [19].

### Implications for research and practice

Our study highlights the need for better education on healthy drinking for community-dwelling older people. Education should target what fluids count, the poor reliability of thirst perception in later life and when fluid intake may need to be deliberately increased (e.g. acute illness) and how this can be achieved. Health messages in the media are often only targeted during high risk periods such as heat waves, which could be improved [18]. For older people with complex needs such as frailty and dementia, this could be incorporated into existing multi-disciplinary care models to support carers. Attempts to overcome fear of urinary incontinence with any intervention needs to address deeper stigma related to incontinence [24] and neglected public facility access.

We recommend advice on hydration should build on distinct habitual patterns (such as medication and meal-times) incrementally, in manageable steps. Tailored to the individual, this should incorporate consideration of their barriers (e.g. continence) and facilitators (e.g. taste). Simply recommending 1.5–2 l of fluid a day is unlikely to bring about change, supported by cases in a US study [25]. This could be achieved with a targeted brief primary care intervention: a short fluid history and identifying habitual times at which drinking more is possible. Such an approach could be based on behaviour change techniques (BCTs). These short interventions build upon a person's existing habitual factors and can take as little as 8 weeks to result in habit formation [26]. BCTs have been successful in improving dietary habits in older people [27]. This could potentially be delivered by community pharmacists taking on increasingly significant clinical roles and medication reviews in primary care [28].

Future research is needed to explore educational models of intervention in public health and primary care to promote healthy drinking for older people. This could include exploring the role of community allied health professionals, BCTs and understanding older peoples' perceptions of public health information in the media.

### Conclusion

Ideas of healthy drinking and perceptions of the importance of hydration vary. However, knowledge gaps and misconceptions are evident, including how much to drink, which fluids count and an overreliance on thirst as a driver. Fear of urinary incontinence and functional impairment are barriers; acknowledging taste preference and individual factors facilitate drinking well. Distinct habitual drinking patterns with medications and meals exist within individuals. Older people and carers could be better supported to drink well. Building upon habitual factors using BCTs may be most promising, alongside tailored public health education. Multidisciplinary strategies may be most effective for complex older adults.

**Supplementary data:** Supplementary data mentioned in the text are available to subscribers in *Age and Ageing* online.

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