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Hydration in Care Homes: A series of focus groups in Nottinghamshire

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East Midlands Research into Ageing Network (EMRAN) is a research collaboration across the East Midlands to facilitate collaborative applied clinical research into ageing and the care of older people. EMRAN was set up with support from NIHR CLAHRC East Midlands.

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Abstract

Introduction

Admission to hospitals due to dehydration is common in older people, especially in older people living in care homes, and is associated with poor health outcomes. The Obli® drink reminding and hydration monitoring device may increase the fluid intake of community dwelling older people. Our aim was to determine if it will be feasible to trial Obli® devices in Nottinghamshire care homes.

Method

Five focus groups were undertaken between May and June 2016 in five Nottinghamshire based care homes with care home managers and care staff. Two researchers (DB and CC) used a prompt sheet to initiate and facilitate conversation about their knowledge and beliefs about hydration and dehydration, current practices in place to prevent dehydration in their homes and what their reactions to the potential introduction of Obli® devices in their care home were.

Results

Numerous positive and negative responses were expressed by participants when Obli® was demonstrated. There was a general concern that residents with dementia would not benefit from using Obli®. However, there was a desire to trial Obli® to see how it would be used and what the benefits might be.

Discussion

Although several barriers to effective implementation were recognised, the information gathered from these focus groups will be able to inform the development of a feasibility study evaluating how Obli® is used by residents and care home staff in care homes.

Introduction

Dehydration of older patients in hospital can bring about greater levels of mortality (1), with older people living in care homes being particularly vulnerable to dehydration (2). However, dehydration is often a cause of admission which can be prevented. Therefore any action which can be taken to ensure older people are effectively hydrated when not in hospital can reduce their chance of being admitted, which is desirable for all involved.

Effective monitoring of fluid intake is important to ensure a care home resident does not become dehydrated. Staff can remind residents to drink and fill in fluid charts which document the resident's intake for the morning, afternoon, day, week etc. Staff will not be able to do this routinely because of competing interests from other residents, which is a problem the Obli® drink reminding and hydration monitoring device is designed to overcome.

Obli® was developed by Mr. Wil Philipsen of Fresh Idea Factory in the Netherlands, see picture 1 or visit www.obli.info/en¹. This was designed in response to a German care organisation which wanted to develop a solution to encourage their service users to drink more and monitor their fluid intake. Obli® measures fluid intake and reminds the user to drink by using a traffic light style system. If a long period of time has passed, the light on Obli® will turn red and emit a small beep, prompting them to drink. If the user consumed fluids from elsewhere, they can register this on Obli® by adding the 'plus cup' button on the device. The same traffic light system is able to show the user's fluid intake progress for that day.

Obli® measures the amount of fluid taken out of the jug, glass or whatever vessel is placed in Obli®. This data is wirelessly relayed to an online web portal, accessible on a computer, laptop, tablet device or smartphone. Warnings to carers can be automatically sent if an insufficient amount of fluid has been consumed.

To date, Obli® has only been demonstrated to be effective in increasing fluid intake in older people living in the community (3), but not in care homes. Five focus groups were conducted with care home staff in EnRICH (Enabling Research in Care Homes) registered care homes in Nottinghamshire with the aim of determining if it will be feasible to trial Obli® devices in Nottinghamshire care homes. This discussion paper presents the findings from those focus groups.

¹ Last accessed July 2017

Methods

After an initial meeting of interested parties in February 2016, it was agreed to demonstrate Obli® in action at the Nottingham EnRICH forum on 31st March 2016. The focus of this forum was on hydration in care homes. The EnRICH initiative aims to improve the lives and health of older people living in care homes by bringing together care home staff, residents and researchers ([http://enrich.nihr.ac.uk/pages/research-ready-care-home-network²](http://enrich.nihr.ac.uk/pages/research-ready-care-home-network2)). After the forum, managers from nine care homes invited DB and CC to conduct focus groups on their care home staff to explore their thoughts on Obli®. One speech and language therapist articulated her thoughts to CC in an e-mail after the forum; her responses are included in the results and discussion session.

Following up on this interest, five focus groups were arranged and took place between May and June 2016. These took place in five different care homes in Nottinghamshire. Participants included care home managers and care home staff, with between six and ten participants in each group. For ethical reasons, no care home residents were involved in the focus groups. The groups took no longer than one hour to conduct.

With assistance from Associate Professor Adam Gordon, DB and CC devised a prompt sheet to initiate and facilitate discussion. Participants were encouraged to share any views they had, with DB and CC guiding the discussion to focus on three topics. These were:

- Beliefs and knowledge about effective hydration and dehydration
- Current practices used to prevent dehydration in their residents
- Thoughts about Obli® and if they were amenable to having at least one introduced in their care home for a resident to use

Participants were asked about their beliefs and knowledge of hydration and dehydration, and what current practices are used to prevent dehydration in care home residents to help the research team (DB and CC) gain a greater understanding of the hydration and drinking culture in care homes.

DB and CC collected field notes from each focus group (none were audio recorded) and collated the findings according to these three topics. Because of the preparatory nature of this work, a formal qualitative analysis was not conducted. The findings from these focus groups are descriptive.

² Last accessed July 2017

Results

The results are presented as they were given during the focus groups and represent the care home staff's subjective beliefs according to the three topics stated above. None of the responses below were influenced, or have been omitted, by the researchers (DB and CC) even if physiologically untrue or peripheral to the topic discussed.

Beliefs and knowledge about effective hydration and dehydration

The majority of care staff believed the training they received provided them with a good understanding of the benefits of optimum hydration and the health risks associated with dehydration. Responses from participants as they were mentioned are grouped here:

- Symptoms of dehydration are dry or wrinkly skin and lips, pressure ulcers, dark yellow urine, lack of responsiveness, increased confusion, drowsiness, irritability, dizziness and headaches.
- It's advised to drink between 1500ml and 2000ml each day (about 8 glasses).
- The amount of fluid consumed should be proportionate to their weight, meaning each person's hydration needs are different – someone weighing 50kg will not need to drink as much as someone who weighs 80kg or they might risk flushing out the good nutrients with the bad ones.
- Heavier residents may become distressed when presented with the volume of fluid required to be consumed each day to ensure they are properly hydrated – therefore making servings smaller and more manageable is necessary.
- Optimal hydration is associated with good health. It keeps muscles working properly, flushes out bad toxins and can prevent or remedy incontinence and/or pressure ulcers.
- Light coloured urine indicates someone is well hydrated.
- Drinking alcohol, sugary drinks or other diuretics alone will not adequately hydrate someone. It is important to consume fluids with a good nutritional value.
- It is not just drinking water, tea, coffee, juice, squash or thickened fluids that can help get fluid in to the body. Eating fluid rich foods like watermelon, jelly, ice cream or soup also help to get fluid in to the body.
- Taste buds can change over time
- Ensuring frequent fluid intake is better than occasional, high volume intake.
- Some older people will intentionally not drink enough so they do not need to go to the toilet as frequently, not realising this is detrimental to their health. This is especially true in the evening through fear of having a fall as a consequence of having to get up to go to the toilet in the middle of the night.

- Illnesses associated with dehydration are Acute Kidney Injury (AKI), Urinary Tract Infections (UTIs), and liver or kidney problems.
- In warmer weather, it is important to drink more due to lost fluid through increased perspiration. Care homes are normally kept quite warm, therefore making sure fluid is regularly consumed is necessary.
- A sudden drop in a resident's fluid intake may be indicative of a clinical change, requiring a GP call out.
- One participant relayed an anecdote of one resident living for several days without fluid.
- Fluid intake in end of life care is difficult to do – ensuring comfort above all else is what is most important (maybe just keeping the mouth moist as opposed to giving fluids)
- Specific medications can alter the amount needed to drink, sometimes more is required, sometimes less i.e. dialysis requires restricting the amount of water taken in, being on warfarin means it is not advisable to drink cranberry juice.
- Chronic conditions have more than one way of affecting fluid intake. Those recovering from a stroke may not be able to hold a glass, mug or cup for example. Therefore if no-one is able to physically help them, this will have an effect on their fluid intake.
- There were contrasting beliefs concerning over hydration. Some believed over hydration is just as detrimental to an older person's health as dehydration can be because it flushes the good nutrients out of the body. Others believed it was not possible to over hydrate.
- An indication of over hydration is more frequent trips to the toilet or wet moisture pads.

Current Hydration Practices in Care Homes

The second line of enquiry in the care homes we visited looked at how care home staff ensure their residents take on enough fluid each day in order to prevent them from becoming dehydrated. Staff spoke at length about their commitment to keeping residents hydrated. Hydration was pinpointed as a priority area covered in initial training and refresher courses. It is apparent that the lessons they learn from their training are routinely practiced. In one case, the care home training company ACC

(<http://www.acctv.co/uk/>)³ were sub-contracted to provide an in-depth course. We compiled the findings below:

- Several residents, although not all, have their fluid intake recorded on paper charts. Although some are quite self-sufficient, they still feel it is important to document this in case they require medical attention. If a resident drinks nothing, this is not documented as well.
- Fluid intake charts are normally kept in each resident's room.
- Monitoring those at risk of dehydration allows them to work more proactively so they can take necessary action before a resident becomes dehydrated.
- All homes calculated the amount each monitored resident was required to consume in a 24 hour period by using their weight as a guideline. Methods differed between homes (see picture 2 for an example). Others use online calculation tools or use a guideline of 30ml for every kilogram in weight.
- There are national directives, including the recent Think Kidneys initiative, which are incorporated in to their training and refresher courses.
- To encourage residents to look after their own hydration needs, one home provided a handbook including information on effective ways to stay hydrated.
- Consistent with the beliefs participants had about residents not wanting to drink in the evening through fear of toileting in the night, they will try to increase fluid uptake at other times in the day to compensate for this.
- If a resident is not meeting their target consistently, this will be reviewed with a GP's input and a new target suggested if appropriate.
- Because several residents in the homes we visited had dementia, there will be times when any attempt at personal care are resisted. This includes hydration.
- Not all residents appreciate the need to take on sufficient amount of fluids, therefore they need a lot of prompting and reminding. Those on dialysis need their fluids monitored closely to ensure they are not over hydrating.
- In addition to drinks rounds which take place every 2 hours roughly, there are communal drinks trays mainly with water, squash or juice on for residents and visitors to help themselves to between meal times.
- Tea is probably the most popular drink, even when it is warm.
- If a resident requests a drink, staff will always oblige in making them one.

³ Last accessed July 2017

- In some homes, specially coloured mugs or glasses are used in residents who are risk of under-hydration such as those with dementia to encourage staff to pay particular attention to their fluid intake.
- There are glasses, mugs, beakers and cups of different sizes residents choose to drink from (see picture 3 for an example).
- Vessels with spouts, spill proof beakers or other drinking aids, including the Hydrant from Hydrate for Life, are used to facilitate increased fluid consumption.
- Staff incorporate drinking into social elements for residents. They will also sit with them and share a drink as well.
- Because most residents like hot drinks (tea or coffee), staff usually have to prepare this for them to ensure they do not scald themselves by accident.
- Because a lot of residents have dementia, they might forget if they have had something to drink, therefore they require constant intervention by staff.
- There is a fine line between encouraging a resident to drink and making them feel as though they are being forced. Out of stubbornness, residents might not drink which is detrimental to their health.
- Although not a routine part of care, some homes monitor residents' fluid output.
- Residents who have difficulty swallowing (dysphagia) will have special thickened fluids to ensure they are still consuming appropriate levels of fluids.
- There are times when staff feel dehydrated because they do not get the time to think about having something to drink, despite frequently prompting residents to drink.
- Foods with a high water content such as watermelon, trifle, jelly, ice cream or soup are offered to help ensure more fluid is consumed.
- In all homes, there were no reported instances in recent history where a resident required hospitalisation as a result of dehydration.
- One anecdote stated that when one resident came in to the care home, the amount they consumed increased significantly because there was always an offer of a drink provided by staff. Having lived by herself before, the only time she had something to drink was when a formal or informal carer or community nurse visited and made her one.

Thoughts, opinions and reactions to the Obli® drink reminding and hydration monitoring device

The final part of focus groups looked to elicit thoughts, opinions and reactions towards Obli®. A short video of Obli® in action was showed to participants (<https://vimeo.com/794000034>). An Obli® was taken along and plugged in to show participants how it worked as well. This was passed around for participants to see and feel. Rather than ask specific questions about Obli®, participants were encouraged to give their responses, which we have categorised in to positive reactions, negative reactions and general comments below.

Prior to introducing Obli® in one care home, participants were asked if they would welcome something to remind residents to drink and if so, what would it look like? One participant stated they would like something small, colourful and with a small alarm. These elements are incorporated in to Obli® so it was interesting to hear that, even before participants were introduced to Obli®, someone suggested having a device like Obli®.

Positive reactions:

- Obli® is an objective indicator of fluid consumption. In a time when there is scrutiny on care staff due to the publicised abuse of care home residents by a minority, Obli® was welcomed because it represents an objective marker to monitoring fluid intake versus potentially subjective paper charts – a commitment to transparency in the care they provide.
- The traffic light system Obli® employs was welcomed as aesthetically pleasing and would be easy for residents and staff to understand.
- It was widely liked carers could see at a glance if a resident needed to drink as opposed to checking paper charts.
- Although care staff are very active in verbally prompting and physically helping residents to drink, anything else to help would be welcomed in case they forget due to competing interests.
- It would work well for residents who are still fairly independent in their daily functioning.
- It would be empowering for residents who wanted to remain independent in their daily functioning, rather than being constantly reminded by staff to drink

⁴ Last accessed July 2017

something. Using Obli[®] encourages a user to incorporate regular drinking in to their daily routine through self-management so this could mean one less thing for carers to have to worry about.

- Carers frequently reported forgetting to have a drink due to the intense nature of their job. Therefore having a visual prompt to remind them to drink, benefitting them as well as the residents using an Obli[®].
- As a one off cost (£89 for the basic model and £149 for the internet enabled model), this was not considered too much especially if the user may get several months or years use from it. It was queried who would cover this cost if adopted in to care homes, however.
- All participants were able to identify at least two residents who they believed would benefit from using an Obli[®].
- The fact the data is automatically backed up on the web portal was liked.
- Although Obli[®] has to be plugged in, this might not be a problem as there are several plug points in residents' rooms which is where an Obli[®] would be kept.
- The fact the internet model can be customised to a specific amount was liked and was consistent with the belief that each resident's hydration needs should be tailored according to their weight, medications and other health issues.

Negative reactions to Obli[®]:

- Obli[®] only measures what is taken out of the vessel and not what is consumed. If a resident intentionally tips some water out, accidentally spills some or inappropriately uses the 'plus cup' button, this will be registered incorrectly as consumed fluid.
- Although Obli[®] encourages the user to become self-sufficient in their hydration needs, because of the number of older people living with dementia in care homes, residents still need verbally prompting and physical assistance. Therefore Obli[®] might be superfluous to requirement if staff are still having to prompt and assist them in drinking.
- Placing a jug of water or other drink with the amount they need to drink that day in an Obli[®] might intimidate a resident, although it was affirmed that smaller glasses/vessels can be used or frequently topped up.
- Several care home residents have dementia (more so in some than others) or some form of cognitive impairment meaning they might not understand even very basic things. Therefore, will not be able to comprehend what Obli[®] is and what the lights are for which could distress them.

- Even residents without dementia wander around the home and might take a drink from a jug in an Obli® which doesn't belong to them. It is difficult to monitor events like this therefore a false reading could be documented, especially if there are numerous Oblis for staff to monitor.
- Obli® needs to be plugged in which may limit the places it can be placed. Having a longer cable, being able to be charged up or battery operated would be more conducive to the way they operate in a care home. This might present a trip hazard.
- Because most residents spend time in the communal area and an Obli® would be kept in a resident's room, it might be more beneficial for a resident who spends most of their time in their room. However, these residents tend to drink quite well anyway and would welcome prompting by staff as it is human interaction.
- If Obli® is in a resident's room and they spend most of their time in the communal area, there is no way of remotely pressing the 'add cup' button, carers would have to do this manually.
- If there was a power cut, the full potential of Obli® wouldn't be able to be recognised as it needs to be connected to the mains. They like to have a fluid chart ready immediately as opposed to logging in to the portal and downloading the user's fluid intake.
- Staff questioned what the advantage of Obli® is compared to methods used in hospitals, such as using visible red cups to encourage an older inpatient to drink more or monitoring a patient's fluid intake/output on a fluid chart.
- Some felt they might become task orientated if they have to oversee a resident use of Obli®.
- Using an Obli® device to monitor an older resident's fluid intake when they are receiving end of life care is inappropriate. The emphasis in end of life care is on making the resident more comfortable, not monitoring their intake.
- Several participants believed older people living in the community or older inpatients could benefit more from using Obli®, as opposed to those in care homes.
- Not all care homes have wireless internet, a requirement for the Obli® internet model. However, there are small 'MiFi' devices which can create small mobile hotspots to remedy this problem.
- Because it is warm in care homes, residents frequently have their water refreshed. There was a question in Obli® would be able to register this frequent topping up of a vessel placed in the device.

- There is a small lip on the Obli® which might be a problem for residents with dexterity or upper body strength problems. When removing the glass, cup, mug or other drinking vessel, it might get caught on the lip increasing the risk of spilling or scalding if a hot drink is in it.
- An older person might not want to be seen having to use an Obli® to remind them to drink. Preserving their dignity was an interesting issue raised, several people do not want people to know they are having to receive additional care for an everyday function such as drinking.

Discussion

Focus groups were conducted with the aim of determining if it will be feasible to trial Obli® devices in Nottinghamshire care homes. Questions on knowledge and belief about hydration and dehydration, and what current practices are used to prevent dehydration in care home residents were asked to gain further understanding of the hydration and drinking culture in care homes. Barring a few misunderstandings, those who took part in the focus groups had a good knowledge of hydration and are well versed in how to prevent dehydration in the residents for whom they care.

Most negative responses to Obli® concentrated on practical and technical issues, especially in residents who are living with dementia (recent estimates suggest approximately 70% of care home residents have dementia or severe memory problems (4)). A minority also questioned if Obli® would benefit care home residents at all or whether it would be more useful for clinicians to monitor the fluid intake in older inpatients on acute or long-term wards.

There were also no reports in recent history of any care home residents being admitted to hospital as a result of dehydration. However, it is worth noting that due to the self-selecting nature of these focus groups, it is possible the residents in these homes are not reflective of care home residents from other homes in the region. There is evidence that care home residents are vulnerable to dehydration (2) so it is worthy to remember this viewpoint in a wider context.

However, there were several positive reactions to Obli®. Staff particularly liked the simplicity of Obli® (particularly the 'traffic light' interface) and that it is an objective marker of fluid intake. Peripheral benefits were cited, including reminding care staff to ensure they regularly take on fluids and allowing residents to take responsibility for their own fluid intake. Staff in all care homes we conducted focus groups in identified at least

one resident who they believed would benefit from using an Obli[®]. All care homes expressed a desire to trial at least one Obli[®].

This is the first study which has explored the potential for exploring the use of Obli[®] devices in UK care homes. There are initiatives such as the Think Kidneys campaign from the UK Renal Registry which provides educational training on hydration and the risks associated with dehydration (<https://www.thinkkidneys.nhs.uk/campaign/>⁵), the NHS England Guidance document on Commissioning Excellent Nutrition and Hydration (5) and devices such as 'Hydrate for Health' which all aim to increase awareness of the dangers of dehydration in older people and facilitate greater fluid consumption. However, none of these methods consider monitoring fluid intake in a user-friendly way and systematic way.

Technology is seen as a silver bullet in tackling problems such as dehydration in health care of older people (6). While there are a plethora of mobile based apps which can monitor fluid intake and remind someone to drink, these may be inappropriate for older people because a smart phone will be required to make use of these apps which not all older people have.

There are other technologies which can monitor and remind an older person to drink; however these are conceptual. Opportunity Knocks document alludes to a workshop where a 'smart water bottle' could be designed to monitor hydration (6). North East Hampshire and Farnham CCG are working with a company called Frazer Nash, who have developed a prototype coaster and jug which gives an audio and visual alarm two to four times per hour to remind an older person to drink (<https://www.fnc.co.uk/markets/government/healthcare/dementia-innovative-jug-case-study.aspx>⁶). A search to uncover similar technologies was undertaken, but this was not exhaustive so it is possible there are other technologies which we have not uncovered.

Obli[®] has already has evidence of its effectiveness with community dwelling older people and has been designed alongside service users to ensure it is user friendly. In addition to the thoughts we have sought from those who work in care homes, we plan to use these findings as a blueprint for informing further exploratory work. This has been the aim of this discussion paper.

⁵ Last accessed July 2017

⁶ Last accessed July 2017

Limitations

There are some limitations to this study. First, it should be noted that this study is descriptive, seeking only to determine how feasible it is to trial Obli[®] devices in subsequent studies. We did not aim to understand in more detail how dehydration adversely affects older people living in care homes. Two researchers (DB and CC) reviewed field notes and noted down responses without formally analysing emerging themes. There were only five focus groups conducted and a formal qualitative analysis was not undertaken, we did not seek to establish when the data became saturated, so the responses forthcoming in this paper should not be deemed a comprehensive overview of hydration knowledge and current hydration practices in UK care homes.

Those who took part were self-selecting and from care homes who are particularly interested in research topics such as optimal hydration. By their nature, EnRICH registered care homes are open to having research conducted in their care homes, therefore the responses forthcoming may not be generalizable beyond EnRICH registered care homes.

Acknowledgements

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Conflicts of Interest

The authors report no conflict of interests. The relationship with Fresh Idea Factory arose after an invitation to collaborate was circulated by the National Institute for Health Research Office for Clinical Research Infrastructure (NOCRI) on Fresh Idea Factory's behalf. This invitation was circulated to the interested members of the East Midlands Research into Ageing Network (EMRAN), a CLAHRC funded network created to facilitate collaborative applied research in to ageing and older people.

Pictures

1: Obli® drink reminding and hydration monitoring device with online portal (Copyright Fresh Idea Factory)



2: Fluid intake matrix (kindly published with permission of Alexandra Lodge Care Home)

FLUID MATRIX
Patients Weight Suggested intake over 24 hours

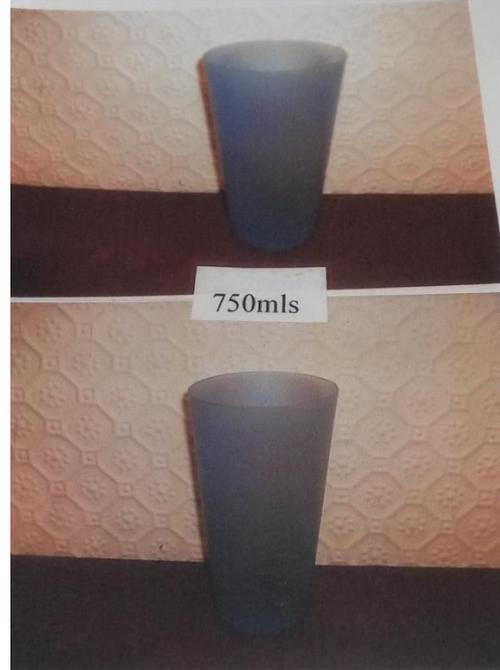
STONE	KG	MLS	MUGS
6	38	1,190	4
7	45	1,275	4/5
8	51	1,446	5
9	57	1,786	6
10	64	1,981	7
11	70	2,179	7/8
12	76	2,377	8
13	83	2,575	9
14	89	2,773	10

Abrams & Klevmar 1996.

3: Drinking cups and their dimensions (kindly published with permission of Alexandra Lodge Care Home)

Alexandra Lodge Hydration Tools

In order to monitor and encourage good hydration of our service users, we felt we needed to know the amount of millilitres in each of our hydration tools. This is the reason for the catalogue of all cups that service users use.



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