

Effectiveness of external factors to reduce dehydration risk in older people living in residential care: a systematic review

D. Bunn, O Jimoh, S. Howard-Wilsher and L. Hooper

Norwich Medical School & School of Allied Health Professionals, University of East Anglia, Norwich, Norfolk. UK

Background

- Dehydration is prevalent in elderly care home residents.
- Elderly residents are vulnerable to dehydration due to physiological effects of aging affecting fluid balance regulation and increasing mental and physical frailty.
- Dehydration is associated with poor health outcomes and increased hospital admissions.



Aim

To identify effective preventative strategies to reduce the risk of dehydration and improve quality of life for this vulnerable group.

Methods

- Protocol registered with PROSPERO, CRD42012003100.
- Inclusion criteria:
 - Participants:** elderly (>65 years) living in residential care.
 - Intervention:** a system of care (administrative, social, educational, behavioural) and/or environmental modification.
 - Outcomes:** a change in fluid intake and/or dehydration status.
 - Study design:** intervention, case-control, cross-sectional, cohort.
- 13 databases searched August 2012; key author searches; hand searches of reference lists and review papers.
- Screening of abstracts and titles; data extraction, quality and validity of studies assessed by two reviewers.
- Results reported as a narrative summary, but meta-analysis not possible due to differences in trial design and quality and variable methods of defining dehydration and fluid intake.



Results

Identification	<p>Number of records identified n=4953</p> <p>Electronic searches, n=4727 Key author searches, n=202 Hand searches, n=24</p>	<ul style="list-style-type: none"> • 4 intervention studies by the same author (USA): increased fluid intake followed an increase in staff time to assist with feeding. • 2 cross-sectional studies (USA): increased fluid intake with increased availability of assistance. One of these studies showed that the lowest fluid intake was associated with either very dependant residents or very independent residents. • 1 cross-sectional study (USA): no association between staffing levels and rates of dehydration. Also, lower rates of dehydration were found in 'for-profit' homes. • 1 large retrospective cohort (Canada): 'for-profit' homes had higher rates of hospital admissions for dehydration than 'not-for-profit' homes. • 1 retrospective cohort study (USA): following implementation of the Resident Assessment Instrument, dehydration prevalence was reduced. • Type of drinking receptacle may be beneficial; 1 USA study found high-contrast coloured cups increased fluid intake; 1 UK study found beakers more beneficial than straws in cartons. • 1 intervention study (USA): fluid intake increased, but no decrease in dehydration indices following increased feeding assistance. • 2 intervention studies (USA): no change in fluid intake or hydration-linked events after the introduction of a care package which included feeding assistance, staff training and an individualised fluid goal. • 5 intervention studies (1 Japan, 1 Germany, 3 USA): increased fluid intake after introduction of a package of care. Care packages varied, but included increasing choice and frequency of drinks; variety of receptacles; feeding assistance; toileting assistance; exercise; education for residents and staff. • 1 intervention study (Canada): increased fluid intake with 5 meals per day v 3 meals per day.
Screening	<p>Number of records screened, n=4163</p> <p>Number of duplicates removed, n=790</p>	
Eligibility	<p>Number of full text papers obtained, n=313</p> <p>Number of records excluded, n=3850</p>	
Included	<p>Number of papers included in review, n=20</p> <p>Intervention, n=15 Cross-sectional, n=3 Cohort, n=2</p>	

Conclusions

Preventing dehydration in elderly care home residents is multi-factorial. Increasing assistance as well as increasing the choice and availability of drinks and the type of receptacles in which they are served seem to be key factors. Further research is required.