

Circumstances surrounding 39 cases of bathtub drownings in the elderly

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Introduction

- Bathing is an essential ADL
 - Most problematic self-care activity when aging (Guay *et al.*, 2014; Naik *et al.*, 2004)
 - Influenced by physical capabilities (↓ with age) (Gill *et al.*, 2007)
- Large % of bath-related drowning victims are aged 55+
 - In Québec (Canada) : 49% vs 4% for children < 5 (Tremblay & Turner, 2010)
- Older adults drowning in the bathtub
 - Under-documented + Mostly in Japan (Hayashi *et al.*, 2010; Suzuki *et al.*, 2015)

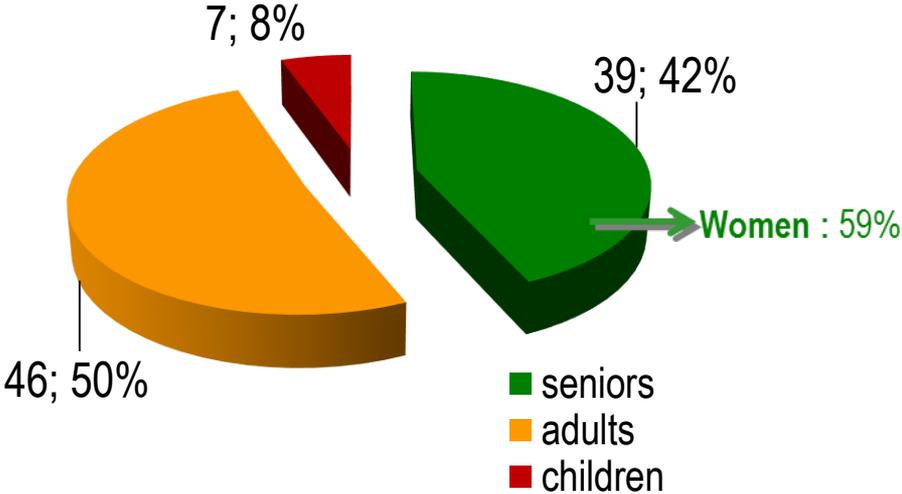
To shed light on the circumstances of bath-related drownings in the elderly

Methods

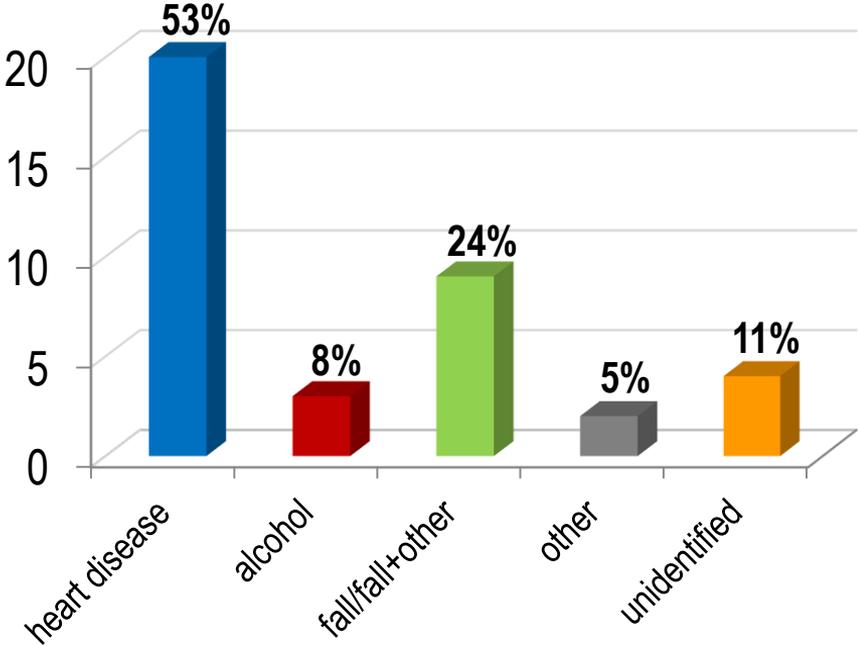
- Census of bath-related drownings
 - Coroner's report 2005-2014 (public data)
 - Province of Quebec (23% of the population of Canada)
 - ICD-10 codes: W65 (Drowning and submersion while in bathtub)
W66 (Drowning and submersion following fall into bathtub)
- Analysis
 - < 65 years old were excluded
 - Content-analysis
 - Grid with factors previously associated with bathtub drownings
 - 2 independent analysts

Results

Bath-related drownings (2005-2014; n=92)



Probable cause of drowning



Circumstances surrounding bath-related drownings

Categories	Circumstances	%
Event-related components		
Who found the victim (n=37)	Family member (including spouse)	43.2
	Residence staff	35.1
First on the scene (n=31)	911 team	96.8
Medical circumstances		
External exam (n=33)	Absence/no traumatic/anatomical injury marks	54.5
Autopsy (n=34)	Heart disease	61.8
Medical background (n=31)	Blood pressure problems	45.2
Spatiotemporal circumstances		
Place of drowning (n=39)	At the victim's home	97.4
Living situation (n=37)	Alone	89.2
Event situation (n=38)	Alone	94.7
Dwelling type (n=32)	Seniors residence	43.8
	Apartment	40.6
Physical environment		
Bathtub assistive technology (n=6)	Emergency button/call bell	66.6
	Bath seat	16.7
	Both	16.7

Discussion

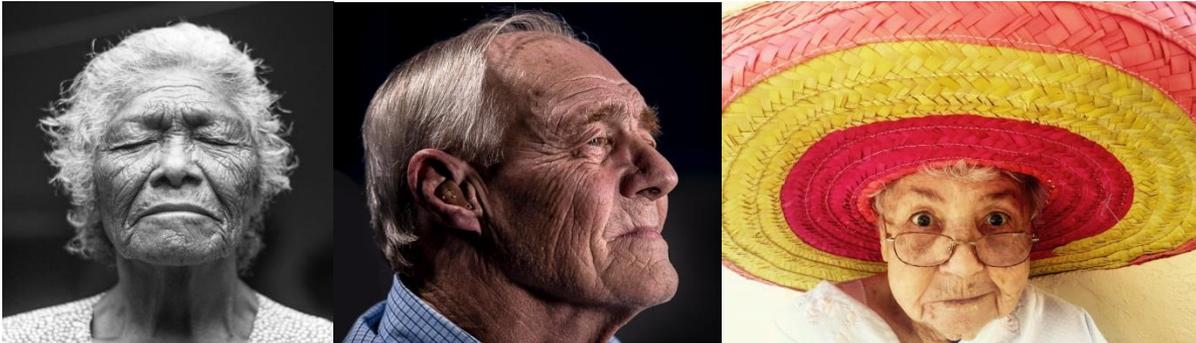
- Largest proportion of women expected
 - Represent 56% of the population aged 65+ (Ministère de la Famille et des Aînés, 2012)
 - Drowning in their bathtub more often than men (Wu and Cheng, 2015)
 - Bathtubs + spa: only places where more women drowned (Queiroga & Peden, 2013)
- Victims lived alone and were alone
 - Localization of an emergency bell
 - Wearable emergency button or cell phone

Study limitations

- Reporting bias (Yoshioka *et al.*, 1998, Kurosaki *et al.*, 2002 both cited by Lin *et al.*, 2015)

Conclusion

- 39 seniors drowned in their bathtub (Quebec; 10 years)
 - Causes: heart disease > falls or alcohol
 - Few victims with medical background = heart disease
 - Bathing may induce cardiac distress in older population (Yoshioka *et al.*, 2003)
- Could simple home adaptation reduce physical demands?





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Methods – sections of the analysis grid

victim's
sociodemographic
profile

- age
- sex

event-related
components

- probable cause of drowning
- person who found the victim
- first person on the scene

drowning circumstances

- **spatiotemporal** circumstances (living situation, dwelling type, place, time, day, etc.)
- **medical** circumstances (external, internal + toxicological analysis)
- **physical environment** (bath equipment + accessibility)