

Homecare in the bathroom: work postures and experienced stressors in three different bathroom designs

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Background

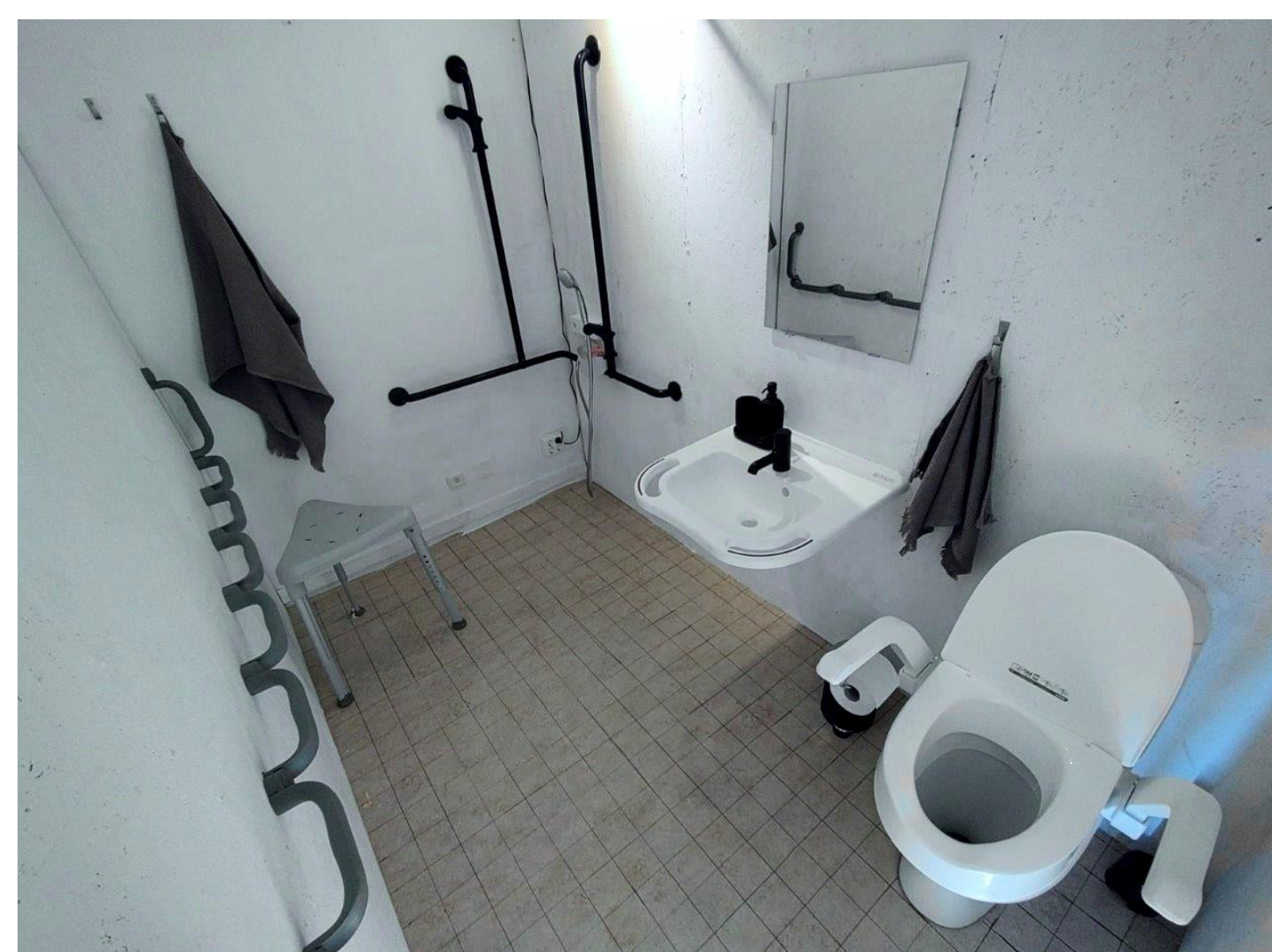
- Hospital and nursing home bathrooms are large, well-equipped, and designed according to specifications that accommodate a range of residents and caregivers, in addition to mobility aids.
- Small home bathrooms without basic assistance equipment are challenging for residents and homecare workers, for example with insufficient support handles, or equipment at inappropriate heights (Gleisner et al. 2022).
- Bathroom layout and equipment may be helpful, but it is unknown if physical and psycho-social loads are affected by these factors.

Methods

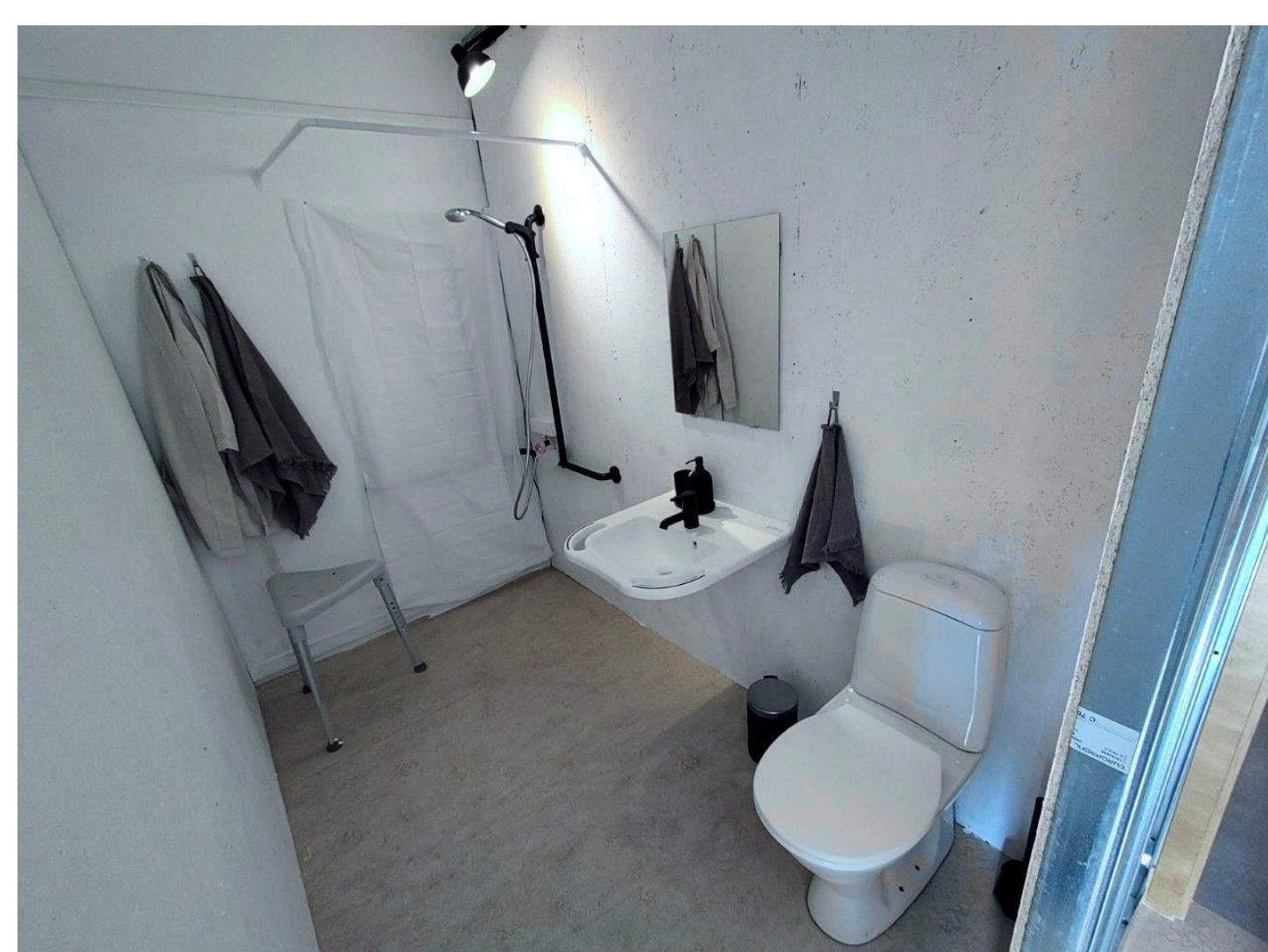
- The experiments involved homecare workers performing standardized patient care tasks using wheelchair and walker in three bathrooms.
- Homecare workers' trunk and arm postures were data-logged using battery-powered Inertial Measurement Unit (IMU) sensors (Lind et al., 2020).
- Interviews held with the homecare workers after each test were analysed using an inductive content analysis approach (Elo and Kyngäs, 2008).



Bathroom 1 "Nursing home" was a large nursing home bathroom equipped with standard assistive devices.



Bathroom 2 "Equipped" was the same layout as number one, but 'upgraded' with currently available assistive devices: toilet raiser with handles, grab bars mounted on the walls, extra handles in the shower and a sink with inbuilt handles.



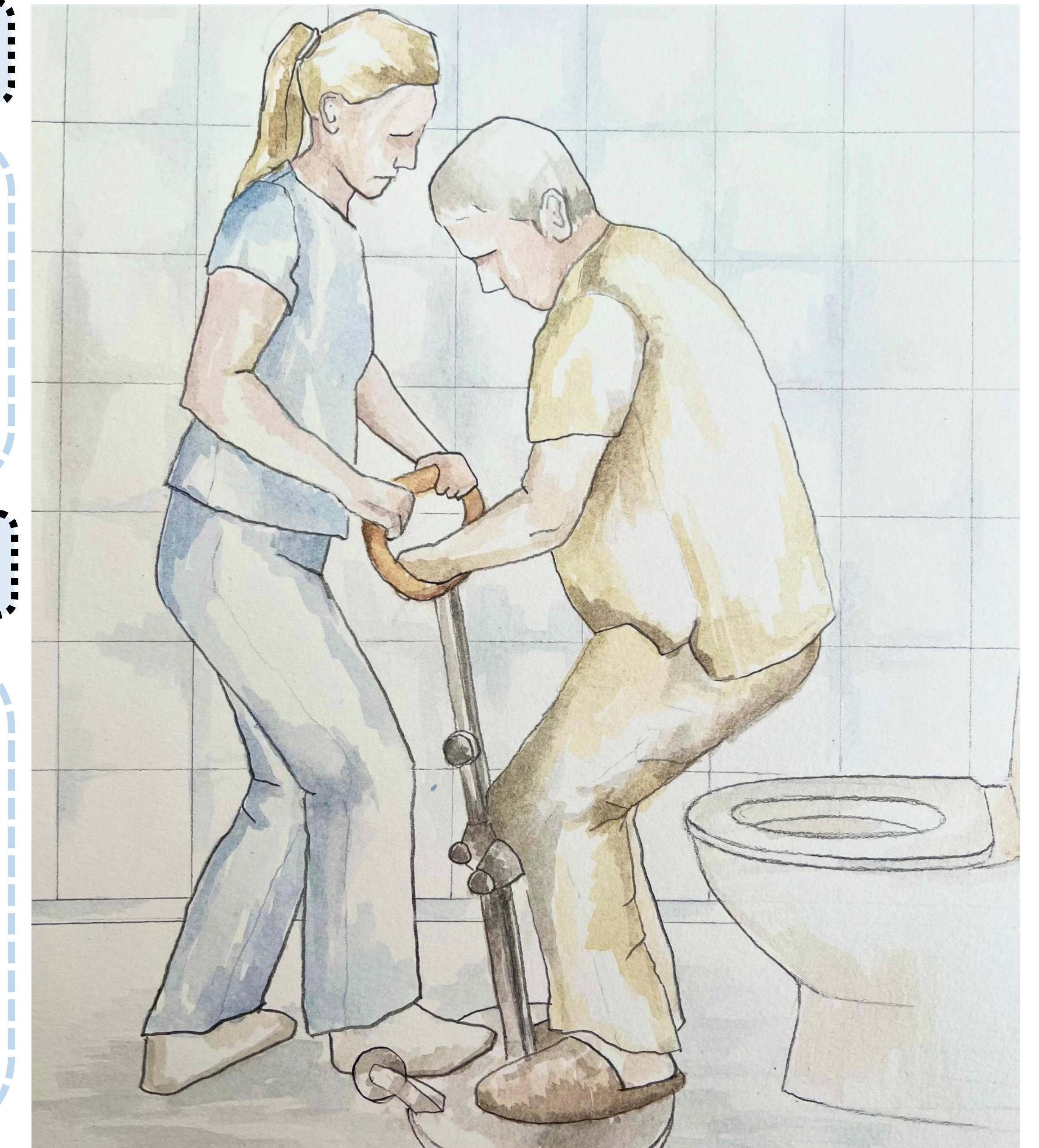
Bathroom 3 "Unequipped" was an apartment-type bathroom typical of much of the current housing stock in urban and suburban Sweden.

Research Question

Does bathroom design impact (A) trunk and upper arm postures and (B) homecare workers' experiences when assisting residents during bathroom tasks?

Research to Practice Statement

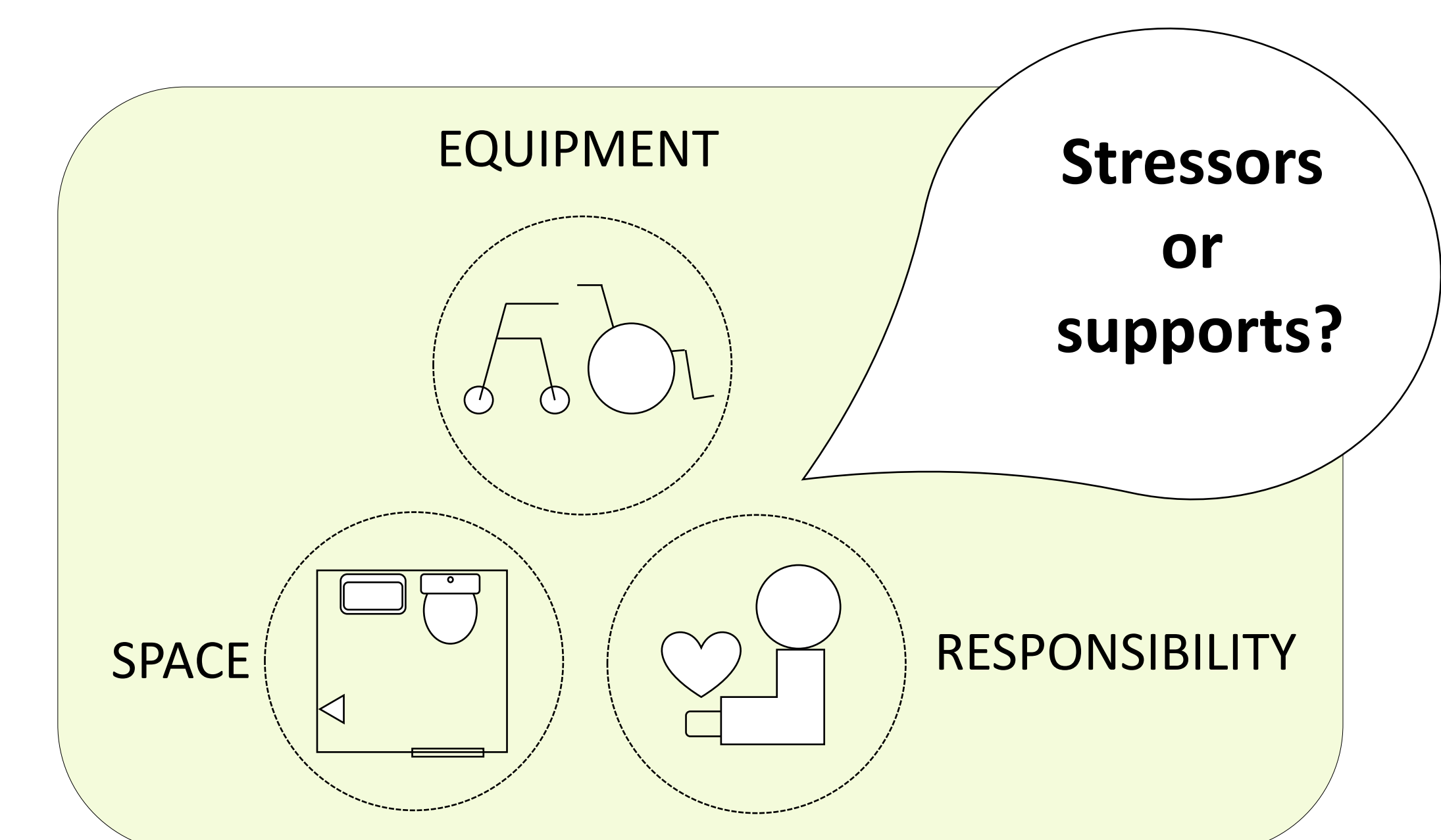
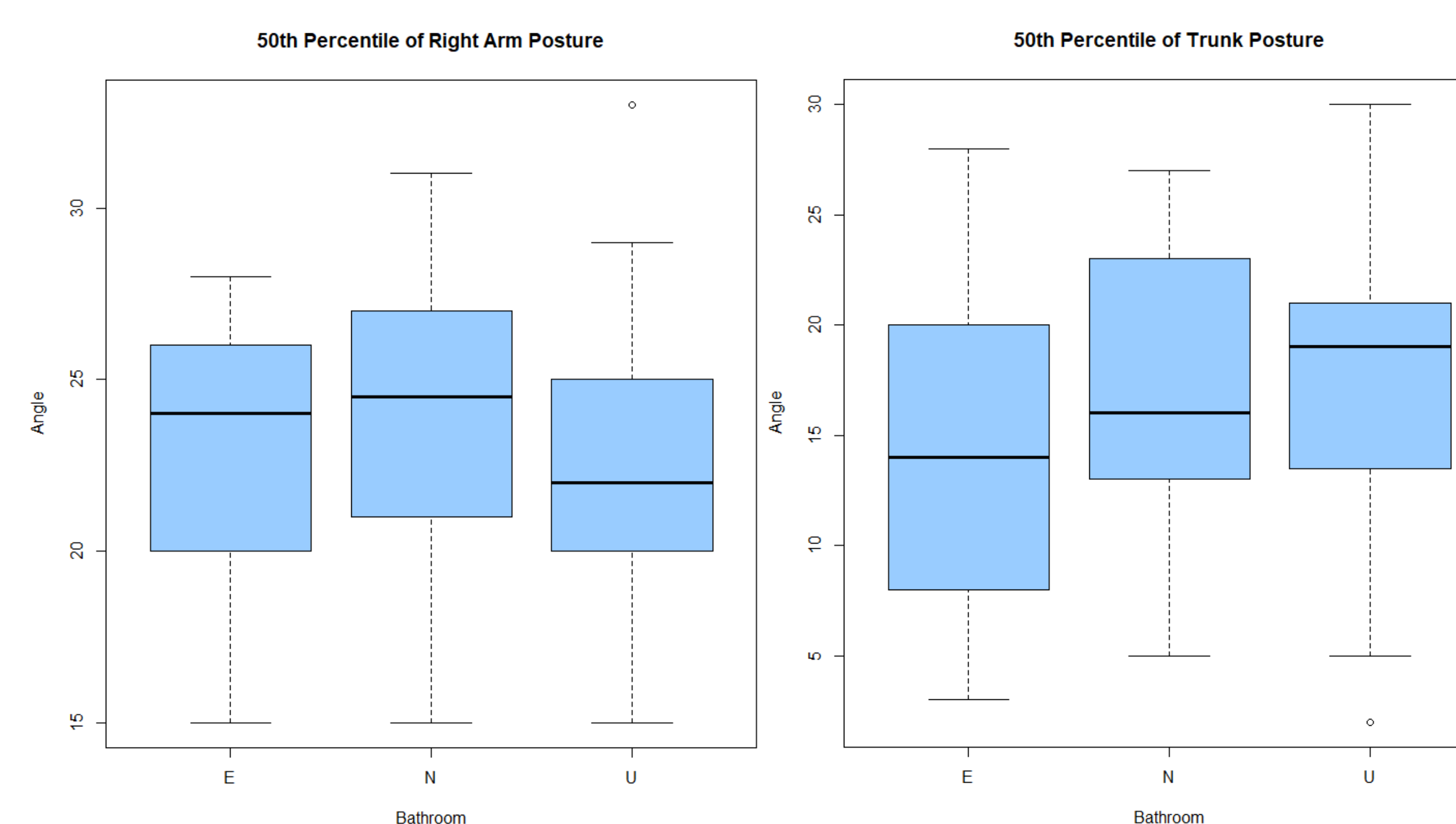
- Trunk posture is not different between bathrooms. Average upper arm posture and velocity were larger and faster in the nursing home.
- Perceived workload is affected by space, equipment and responsibility.



Results

- No significant differences in Trunk posture between bathroom designs.
- 50th & 90th percentile right arm posture was significantly higher in the nursing home bathroom than in the unequipped bathroom.
- 50th & 90th percentile left arm angular velocity was significantly higher in the nursing home bathroom than in the equipped and unequipped bathrooms.

- Interviews revealed a distinct difference in homecare worker experiences when conducting the work tasks in the three bathrooms.
- Factors such as **space**, **equipment** and **responsibility** were considered as challenges in the smaller bathrooms.
- These factors may become **stressors** or **supports** depending on context and could hinder safe task completion.



Discussion

The preliminary posture results of this study are surprising, given our hypothesis of increased awkward posture exposures in the small, non-equipped, bathroom as opposed to the larger, equipped nursing home bathroom. Meanwhile, the interviews revealed a perceived stress among all participants conducting the bathroom tasks in the smaller bathrooms, especially in the wheelchair tests where two homecare workers assisted. Assessing physical exposures such as force and energy expenditure provide an important future opportunity.