

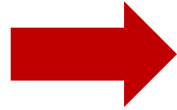
Insights on end user needs, expectations and acceptability issues for service robots

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**ALZHEIMER'S DISEASE
IS A GLOBAL EPIDEMIC**

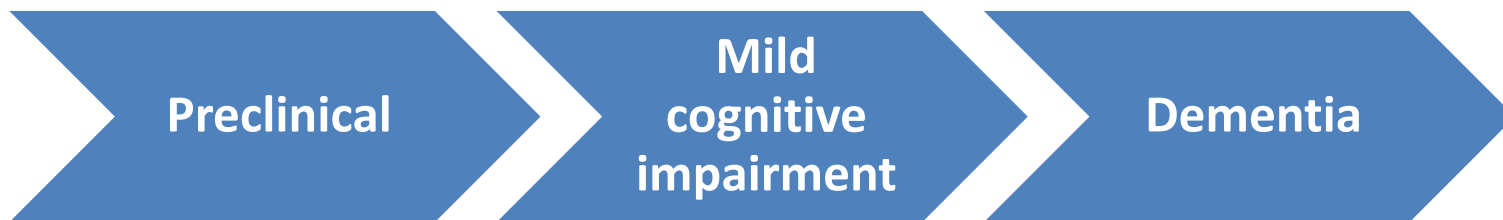
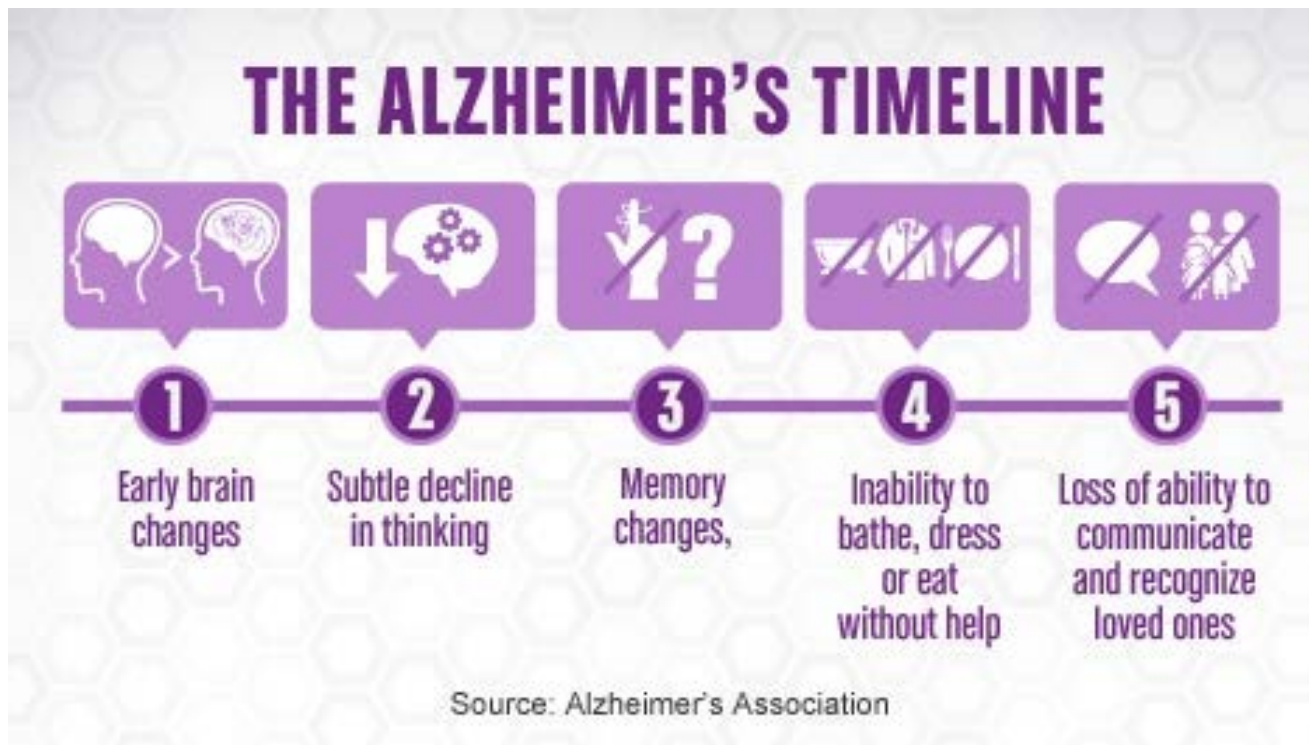


- 47 Million worldwide.
- 604 Billion USD per year.
- 2030: 76 Million people

**59% of people worldwide incorrectly
believe that AD is a typical part of ageing**


http://www.alz.org/global/?utm_source=google&utm_medium=search&utm_campaign=google-grants&set.custom.wt=google-grants&gclid=CPq0wJGg7NICFRUTGwodLTgBBQ

Alzheimer's disease



Original Articles

Service innovation through social robot engagement to improve dementia care quality

Mei-Tai Chu , PhD, Rajiv Khosla , PhD, Seyed Mohammad Sadegh Khaksar  , PhD & Khanh Nguyen , PhD

Pages 8-18 | Accepted 15 Mar 2016, Accepted author version posted online: 11 Apr 2016, Published online: 11 Apr 2016

5 year long term interaction between robots and 139 dementia patients:
robots can improve the QoL.

[Front Aging Neurosci](#). 2015 Jul 23;7:141. doi: 10.3389/fnagi.2015.00141. eCollection 2015.

"Are we ready for robots that care for us?" Attitudes and opinions of older adults toward socially assistive robots.

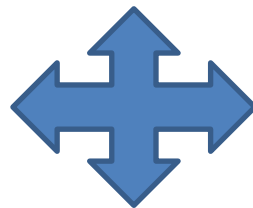
[Pino M](#)¹, [Boulay M](#)¹, [Jouen F](#)², [Rigaud AS](#)¹.

Caregivers and MCI patients: it is important to customize social assistive robots appearance, services, and social capabilities

- Robots improve the capacity of caregivers in performing ADLs.
- Robots improve the quality of social services by assisting caregivers.

What are current expectations and acceptance for service robots in AD potential users?

Focus groups



Surveys

OBJECTIVE

Define a list of ADLs that should be maintained or improved by a robotic assistant.

CAREGIVERS Barcelona, Spain

- 10 Caregivers of potential users

MEDICAL PERSONNEL Lublin, Poland

- 7 doctors and 1 nurse from the Neurology Department, specialized in patients with cognitive impairment

OBJECTIVE

Define a list of ADLs that should be maintained or improved by a robotic assistant.

CAREGIVERS

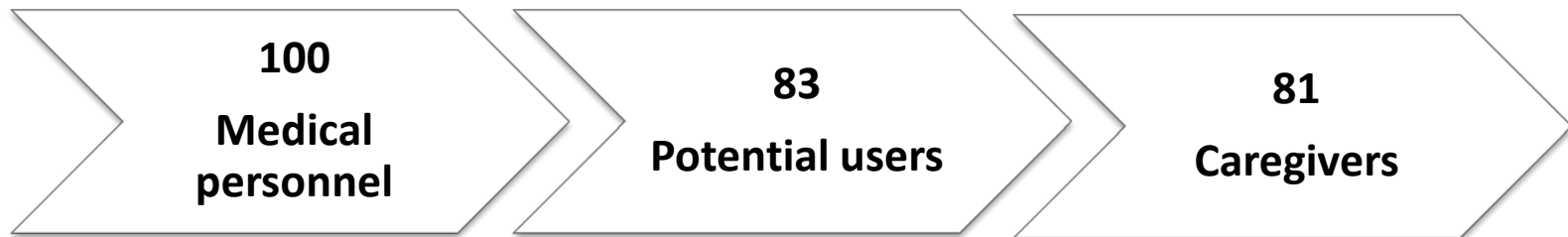
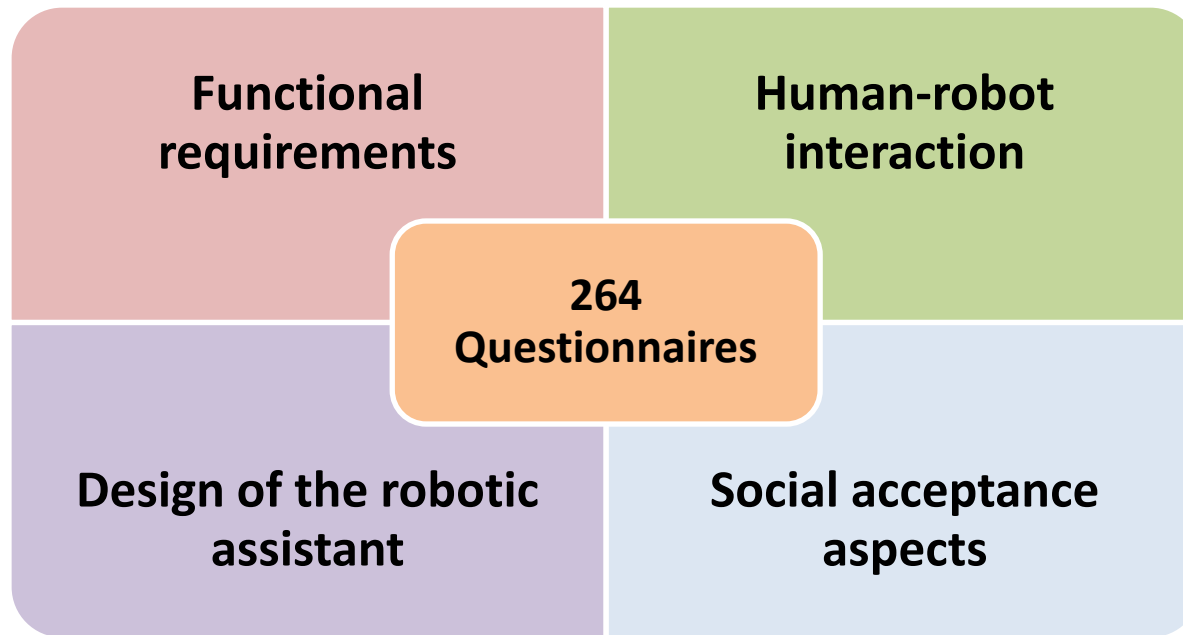
Barcelona, Spain

Focused in daily care activities and hygienic procedures: dressing and changing clothes, proper nutrition, bathroom usage, cooking, shopping and laundry.

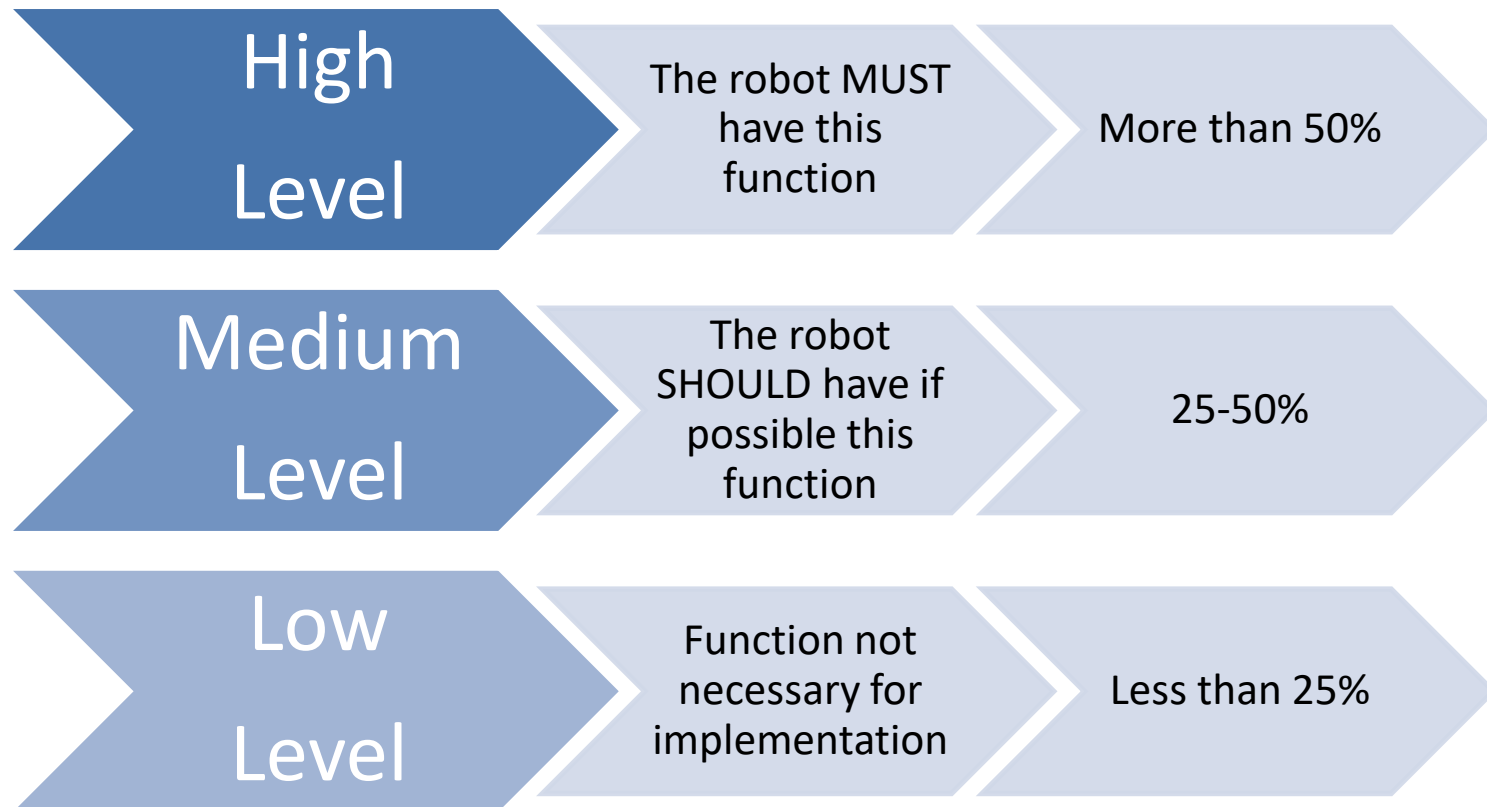
MEDICAL PERSONNEL

Lublin, Poland

Emphasized problems with medication intake, task accomplishment and the need of frequent reminders as a result of the memory impairment.



Based on the frequency of answers in %
we prioritized the user's requirements



- Calls for help, if something happens to the patient.
- Detection of obstacles on the floor to prevent falls.
- Reminds the patient about boiling water, turning off the gas.
- Monitors the correctness of the patient's medication intake.
- Reminds the patient that it is time for him/her to take his/her medication.
- Provides cognitive exercise to the patient.
- Detects unknown persons/strangers before entering the house, and recognizes when can or cannot open the house door.

- Finds things the patient is looking for.
- Is able to reach medication which is difficult to reach for the patient.
- Reminds the patient that it is time to eat or drink.
- Stimulates the patient to keep in touch with family and friends.
- Reaches for fallen utensils and hands them over to the patient, in order to prevent the patient from bending over. Grasps things from the floor/shelves.
- Provides physical exercise to the patient.
- Reminds about important dates such as birthdays and medical appointments.
- Helps the patient to prepare food.
- Helps the patient to put on clothes.
- Helps the patient to take on/off his/her shoes.

- Helps the patient to do the shopping list.
- Reminds the patient about TV programs.
- Helps the patient to clean the house.
- Helps the patient to put his/her feet on the footrest.

- The preferred mode for interaction was assigned to **voice-operated system**.
- Capabilities of a robotic assistant in HRI:
 - Can reply to simple questions.
 - Can listen and respond to simple commands.
 - Can comprehend and respond to simple gestures.
 - Can take part in dialogues.
 - Should continuously listen to the user for commands.
 - Can talk back to the user regarding its current task/state.
 - Can understand the psychological state of the user and provide positive affective impact.

- **Anthropomorphic** appearance (woman or neutral).
- Has a **face** that shows **positive** emotional **expressions**.
- Should be **shorter** than the user:
 - Best height: approx. chest height.

- > 80% think that **having a robot is a good idea** to replace a human caregiver.
- > 75% of caregivers agreed **to leave the potential user alone with the robot.**
- > 60% would like **to treat robotic assistants as friends:** personalize and show it to family/friends.

- 73,5% wish that the robot was **able to call for help**.
- 53% **would move furniture** to let a robotic assistant move everywhere.
- 83,5% of caregivers + 69,88% potential users:
 - Will need minimum 3-4 training sessions.

Caregiving
activities in
AD patients

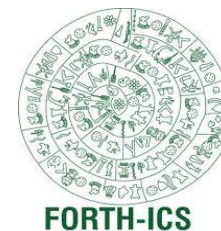
User's
requirements

Functional
requirements

Thanks for your attention



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