



AI-augmented assistive technologies for ageing well at home: a calculated risk

KVAB - September 29, 2026





- ▶ Real-world validation of AI-augmented assistive technologies
- ▶ Going from « fall detection » to « frailty prediction »
(> prevention)



AVIQ





AVIQ



wa@h

Votre assistance digitale à domicile



Jérémi -
Aididom

Assistance
digitale –
CSD Liège

Bien Chez
Moi 2.0 –
Ergo 2.0

 wa@h
Votre assistance digitale à domicile

 cias
Cultivons la vie en autonomie

 Télé
Secours
Vivre l'esprit léger

 vad-bw
Vos soins et services à domicile
Brabant wallon

 vad-h
Vos soins et services à domicile
Hainaut

 OpenHub
Le hub ouvert de l'innovation

 INTER'ACT

 Yuza

 LYAGE
LIVE YOUR AGE

 UPsy SEN
Le centre de référence en psychiatrie

 mani
Le tout partage pour tous

 KWIDEA
Le tout partage pour tous

ADD –
Intercom.
Gabrielle
Passelecq

Digitatel
- PSD



AVIQ





AVIQ



8 011





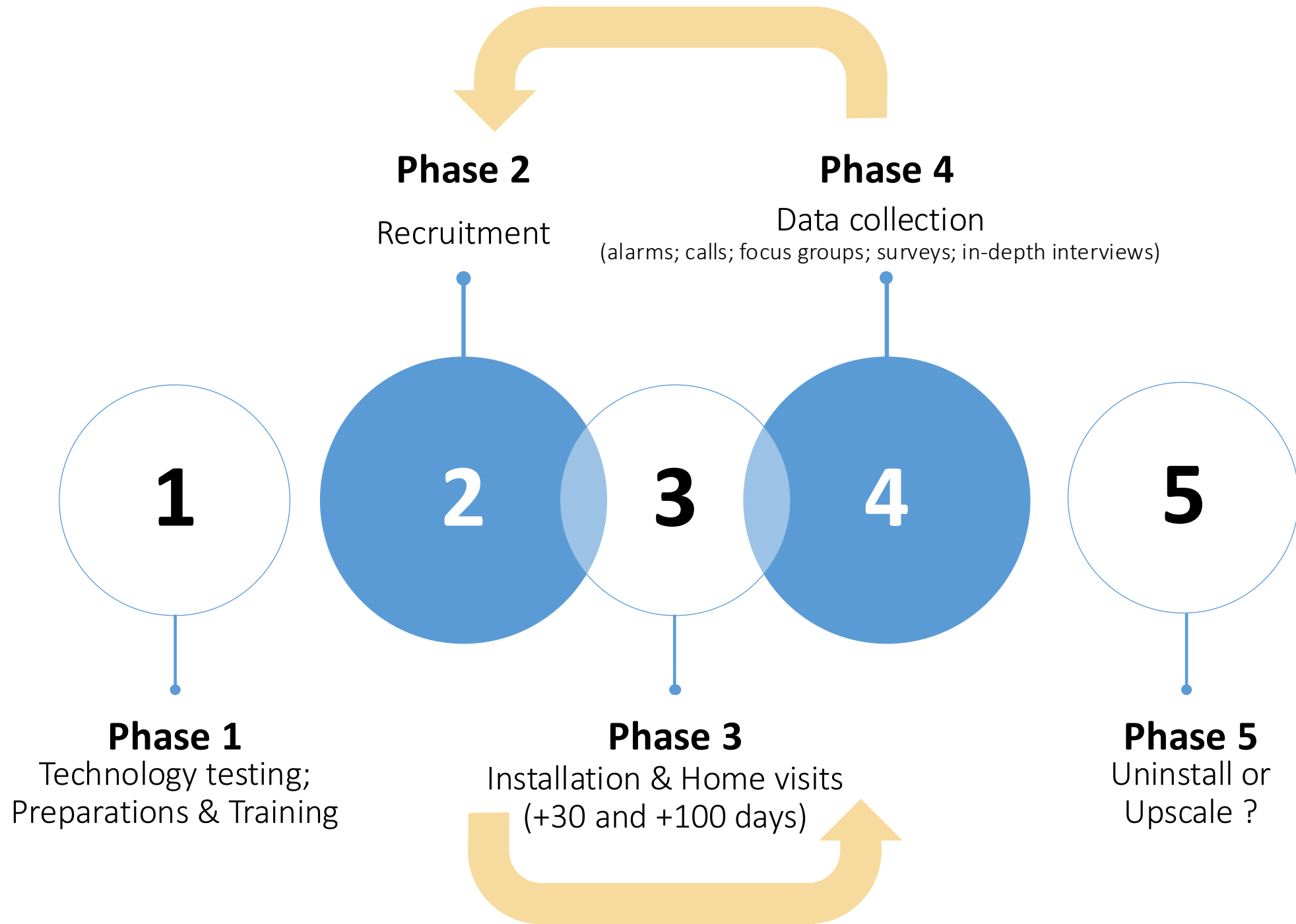
AVIQ

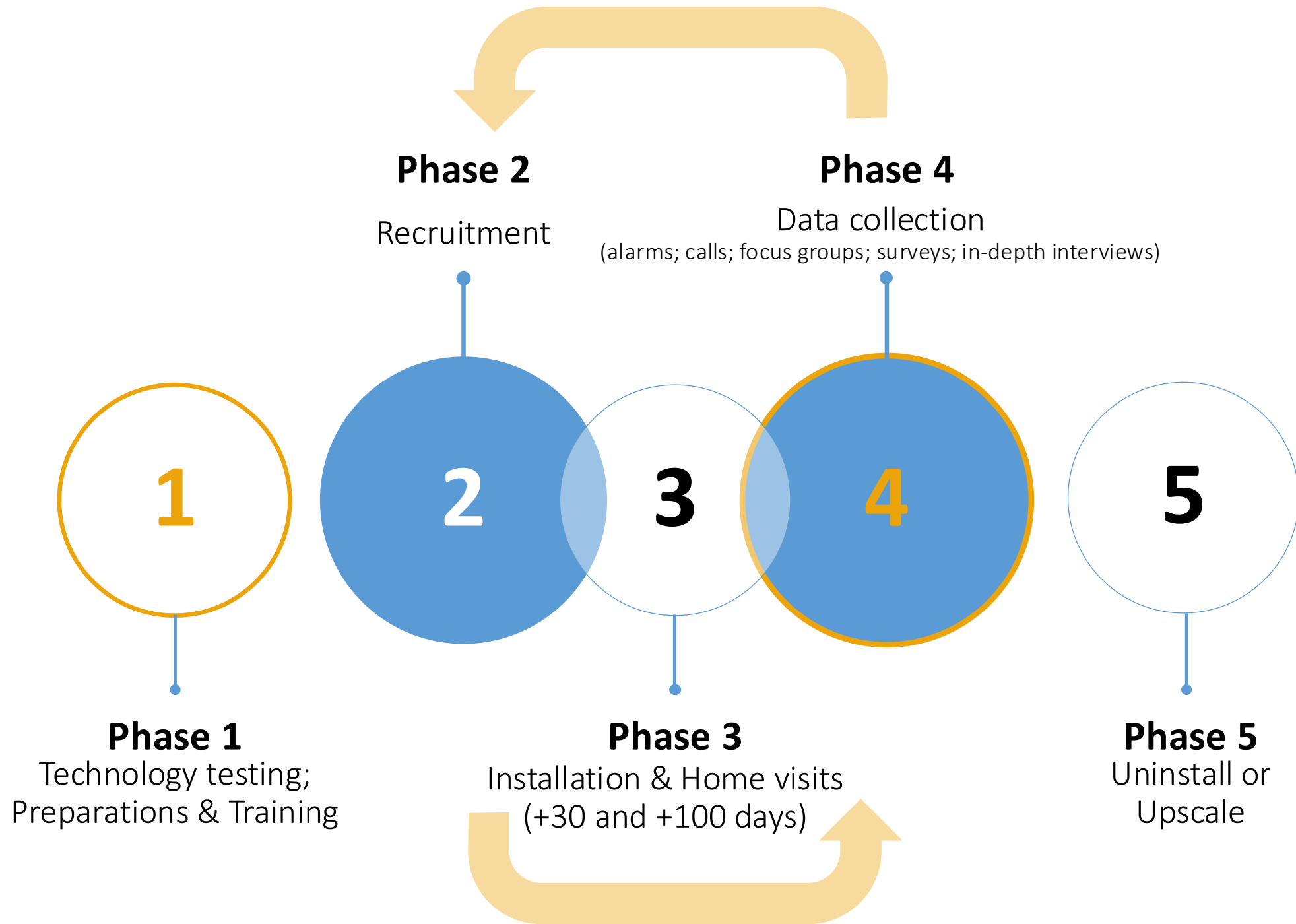


8 011

- 
- ▶ Be 65 y.o. + and receive the Senior Citizen Allowance
 - ▶ Be 65 y.o. + and receive assistance from an Approved Family Assistance Service
 - ▶ Have a disability officially recognized by AVIQ or Federal Social Security







Phase 1 – Technology Preparation & Testing



(Lamirande, Schelings, Daminet & Elsen, under rev.)

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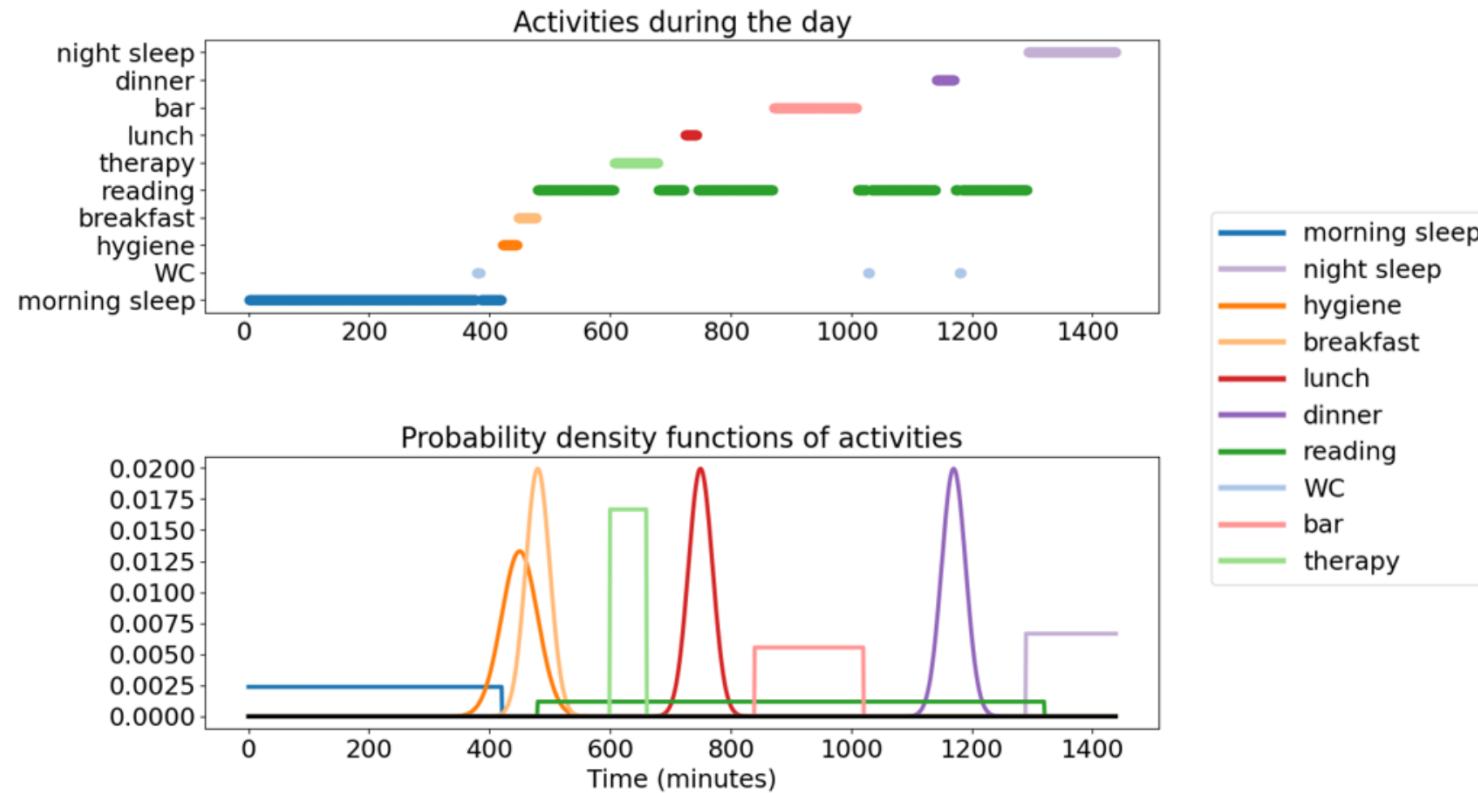
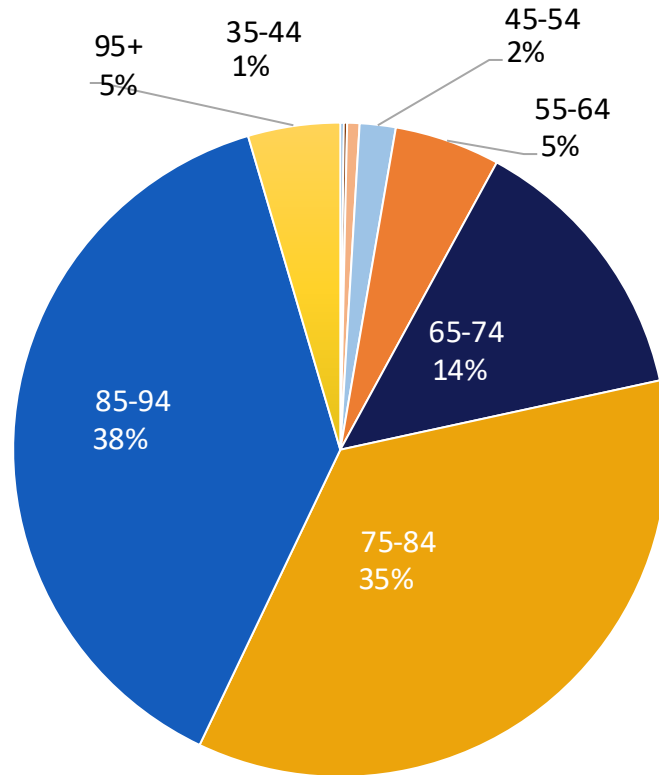


Fig.3: Activation function based on probability density functions (on the bottom) for each activity (on top) a persona may undertake during a standard day.[2]

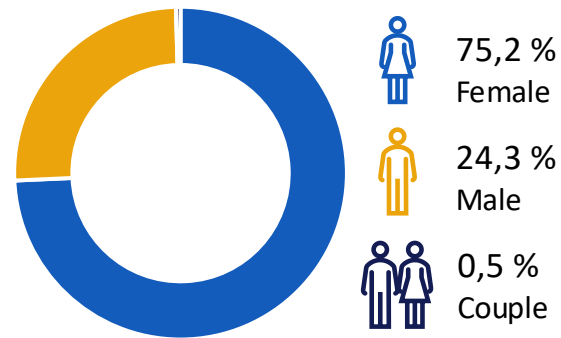
Phase 4 – Data Collection – Sample analysis

Age (N = 1801)

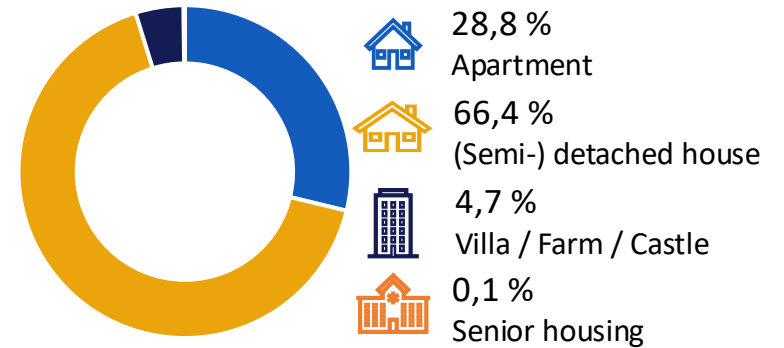


Average Age: 81 y.o. (+/- 10,9 years)
< 65 y.o. : 8%

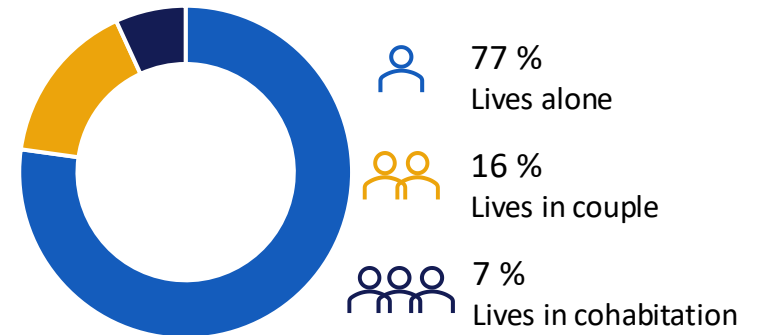
Gender (65+)



Type of residence (65+)

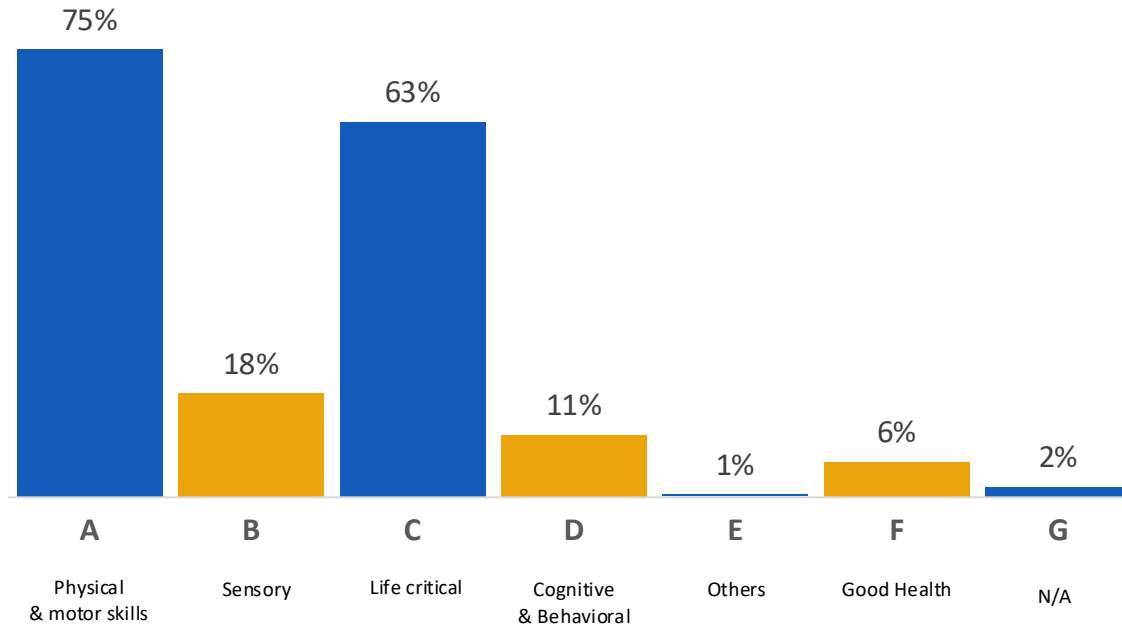


Situation (65+)

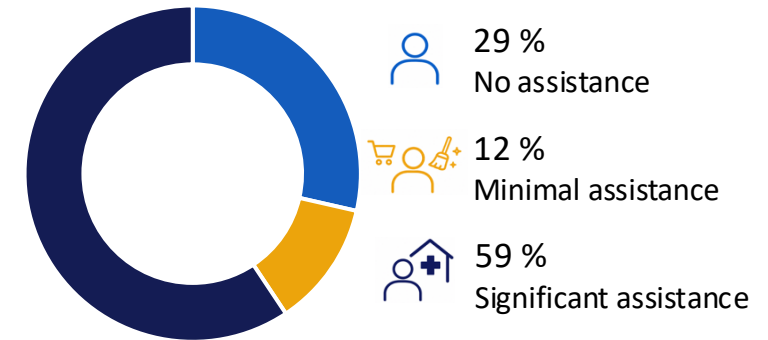


Phase 4 – Data Collection – Sample analysis

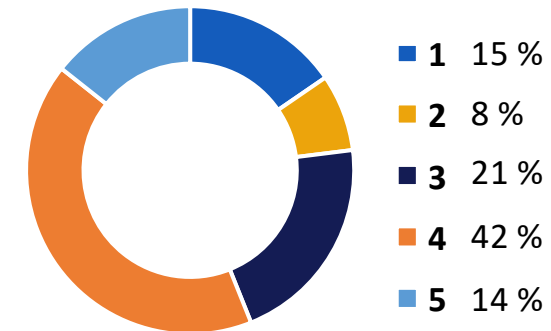
Pathologies (65+)



Type of assistance (65+)



Mobility (65+)

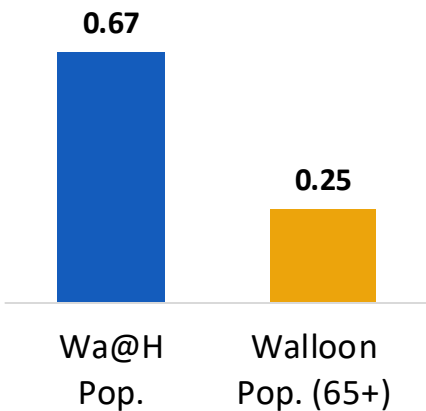


1 = I don't have any problems; I'm very confident; I've never fallen
2 = I sometimes have trouble getting around, but I've never fallen.
3 = I sometimes take little falls or stumble, but I'm not worried.
4 = I often feel anxious and worry about falling, but I stay active.
5 = I don't feel confident leaving the house without assistance; I'm very worried about falling.

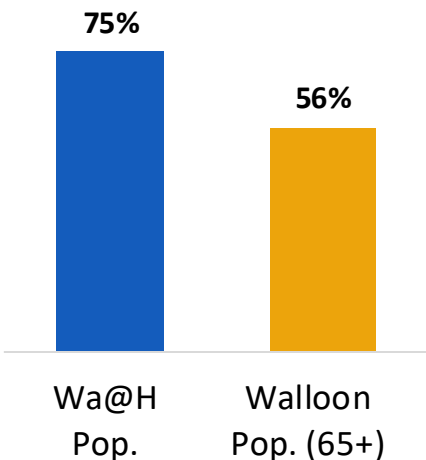
► Older population, particularly vulnerable to certain risks

Phase 4 – Data Collection – Sample analysis

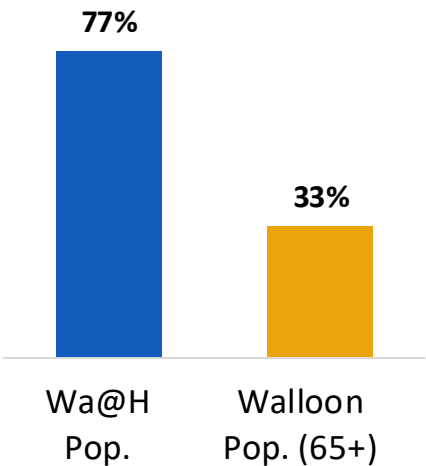
Aging Intensity Index



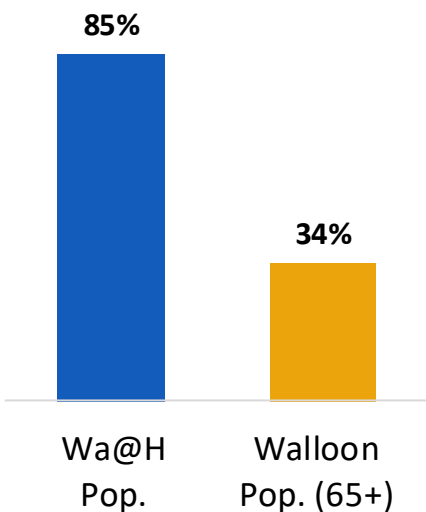
Percentage of women



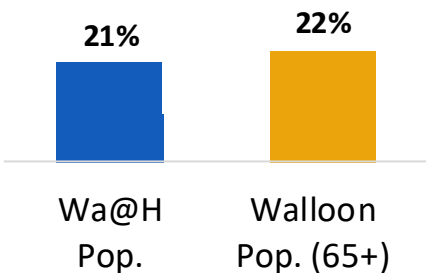
Percentage of people living alone



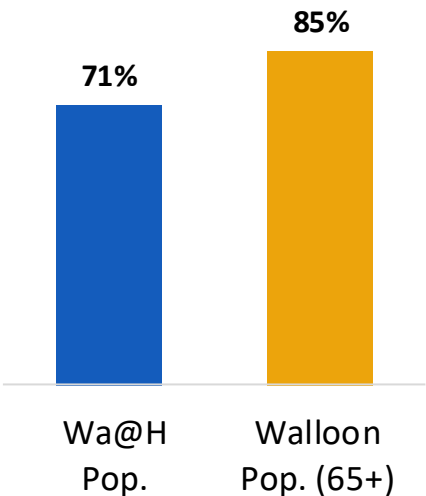
Difficulty walking



Falls (over the past 12 months)



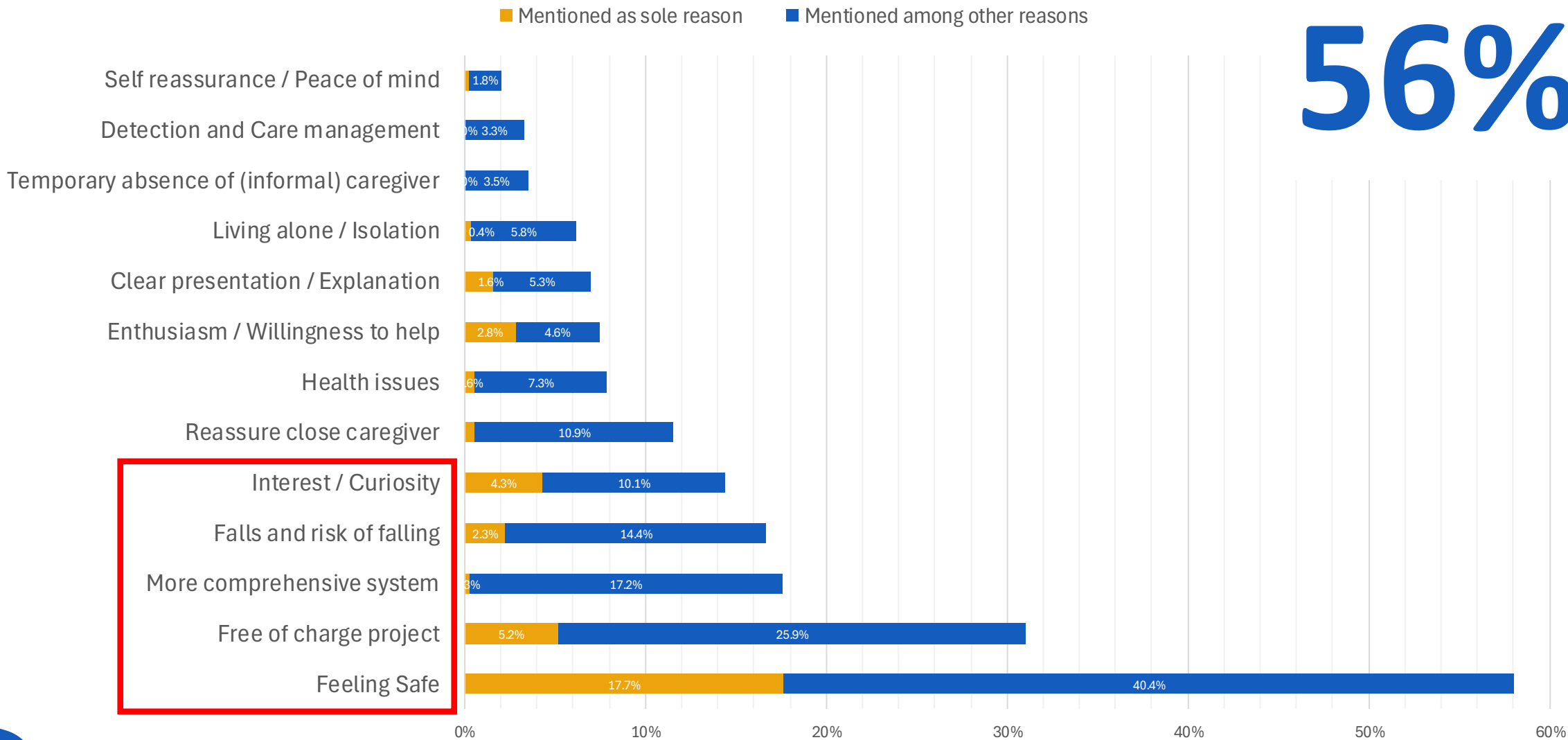
Perc. of people living in a (semi-)detached house



(Statbel, 2026; IWEPS, 2026; SILC 2026; Anfrie et al., 2017; Sciensano, 2025; Janssens et al., 2025; Drieslens et al., 2025)

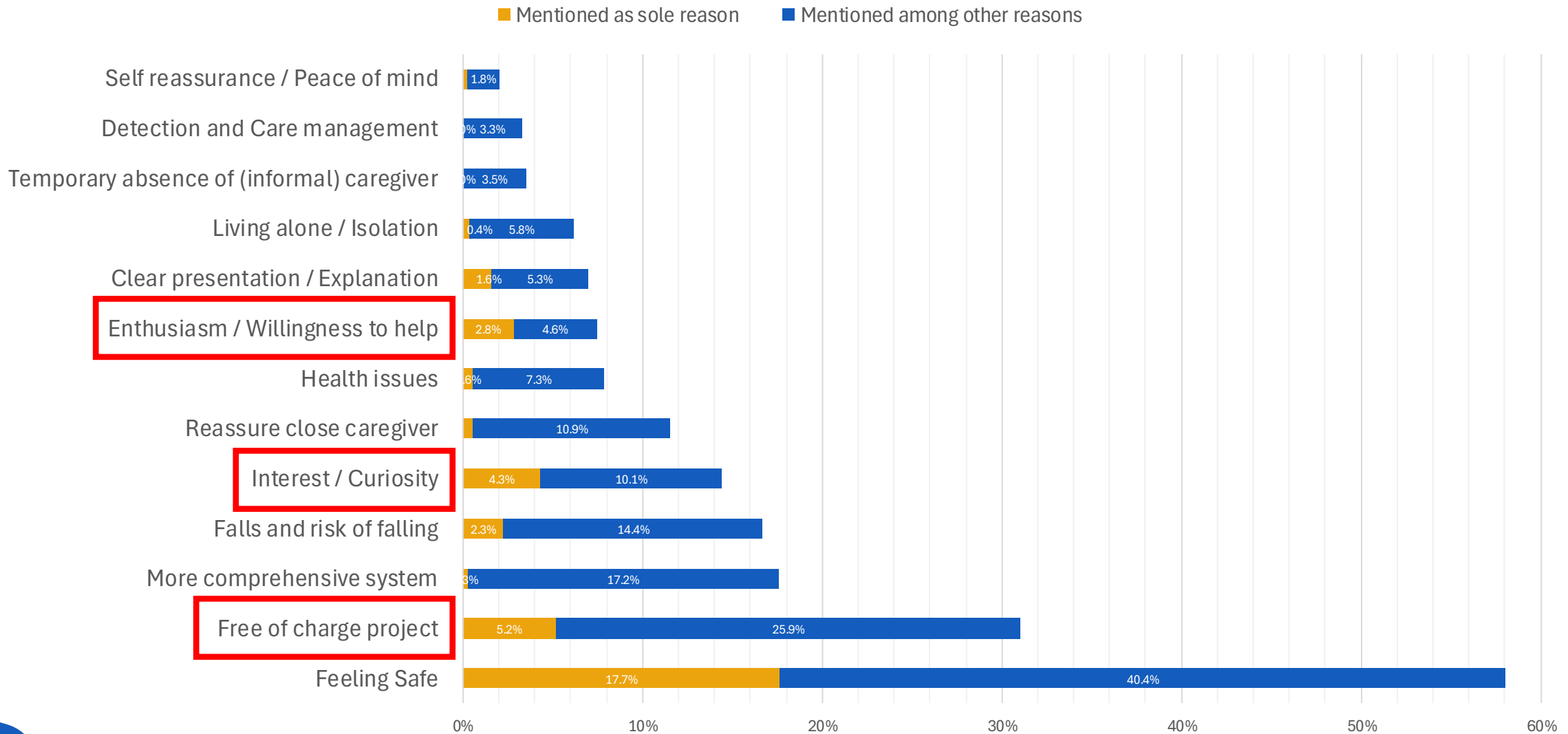
Phase 4 – Data Collection – Factors influencing acceptance

Acceptance factors mentioned during the hiring process (N = 1665)



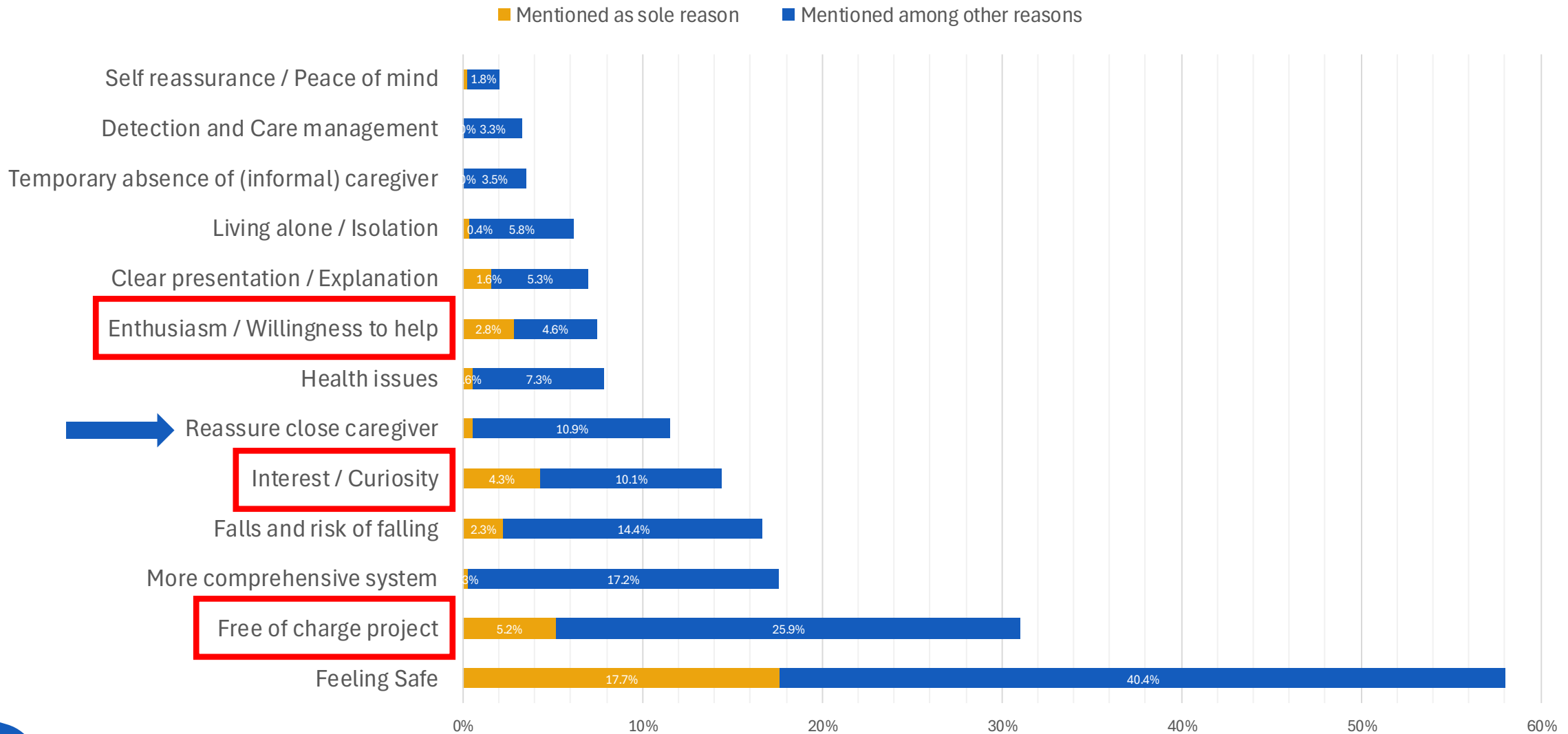
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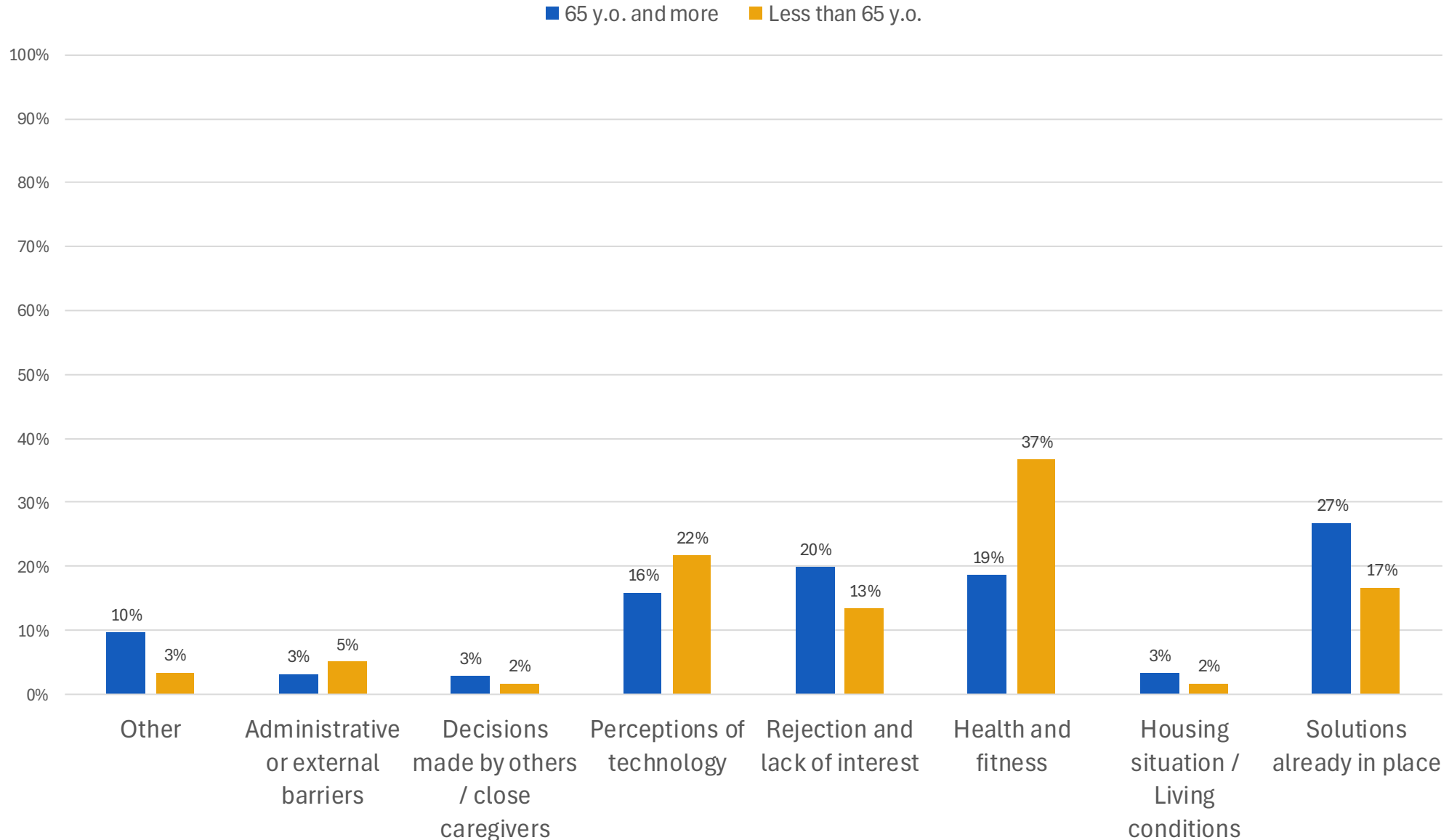


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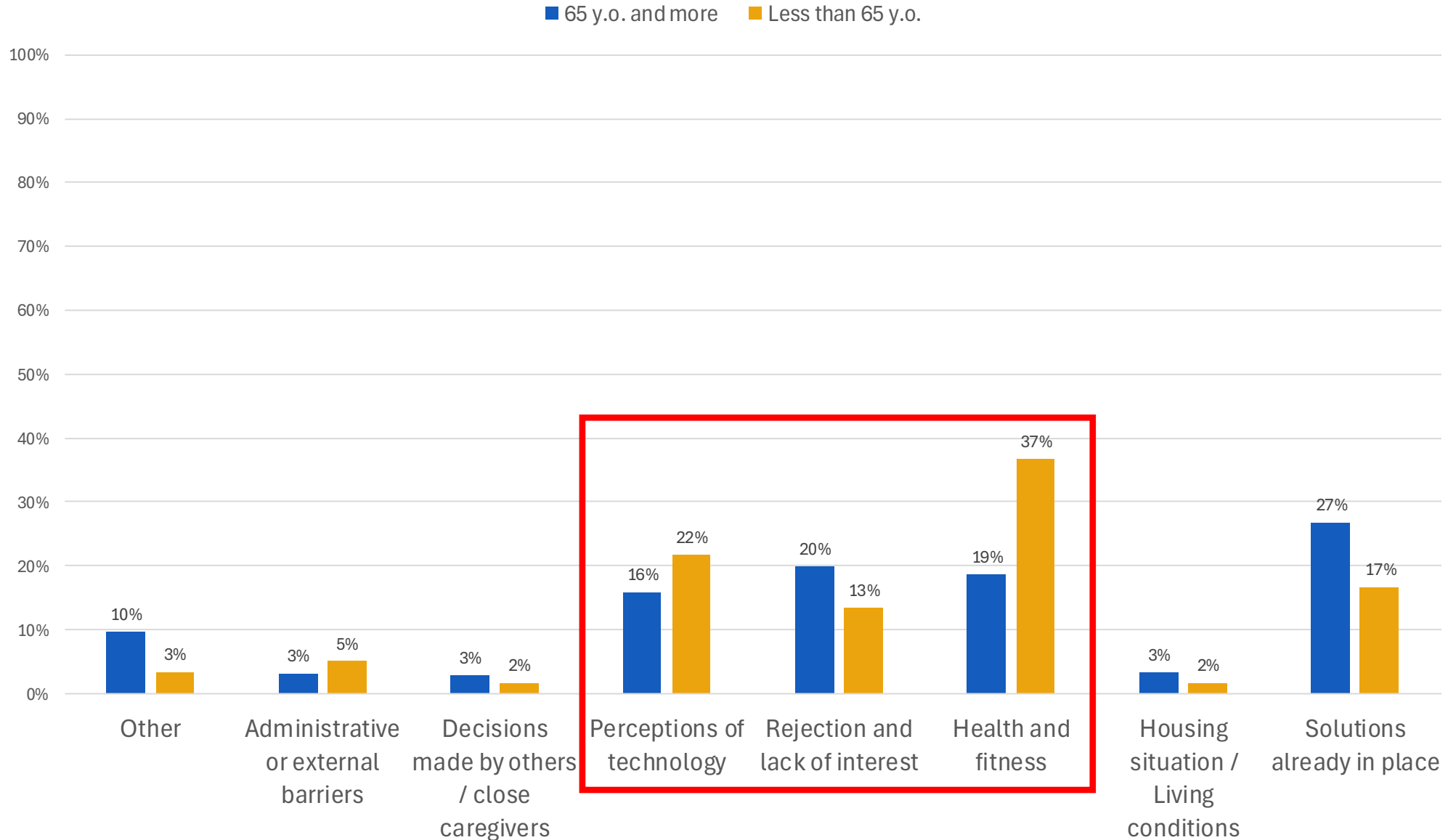
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Phase 4 – Data Collection – Factors influencing refusal

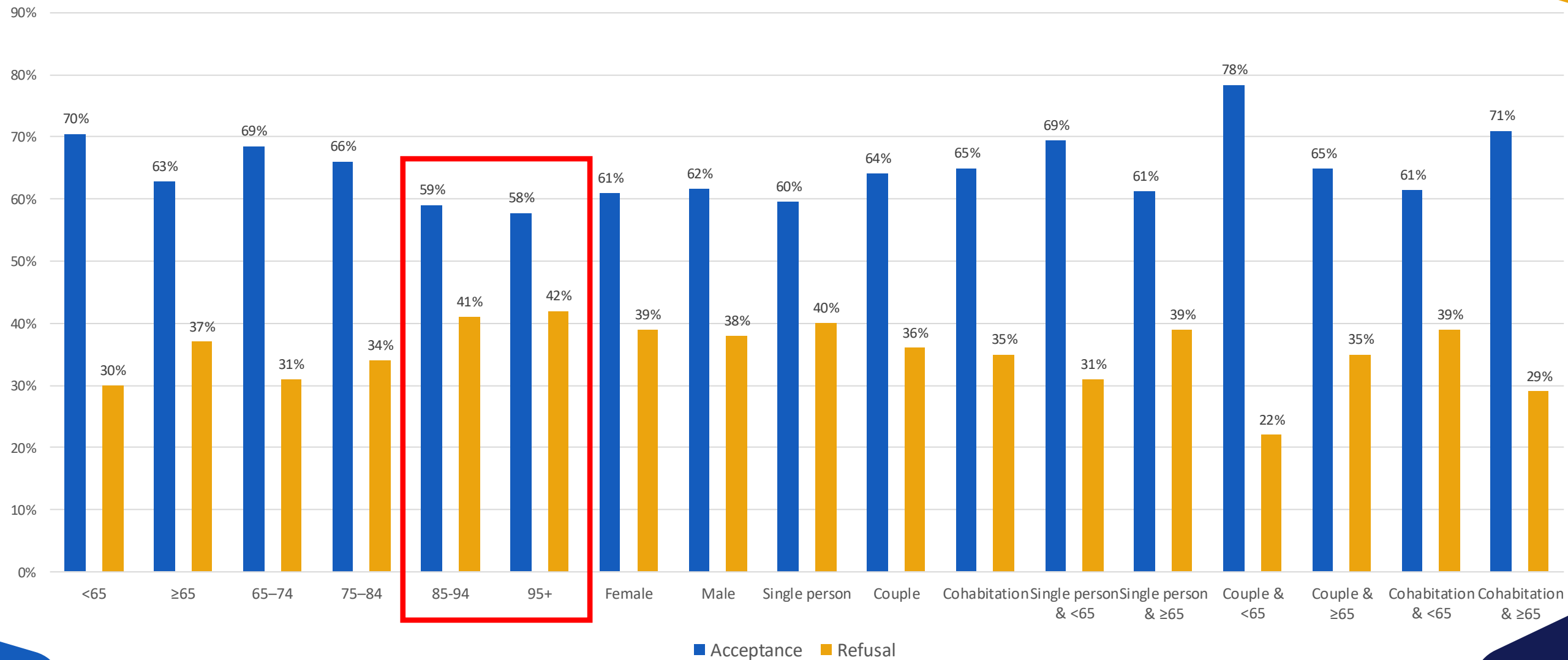


Phase 4 – Data Collection – Factors influencing refusal



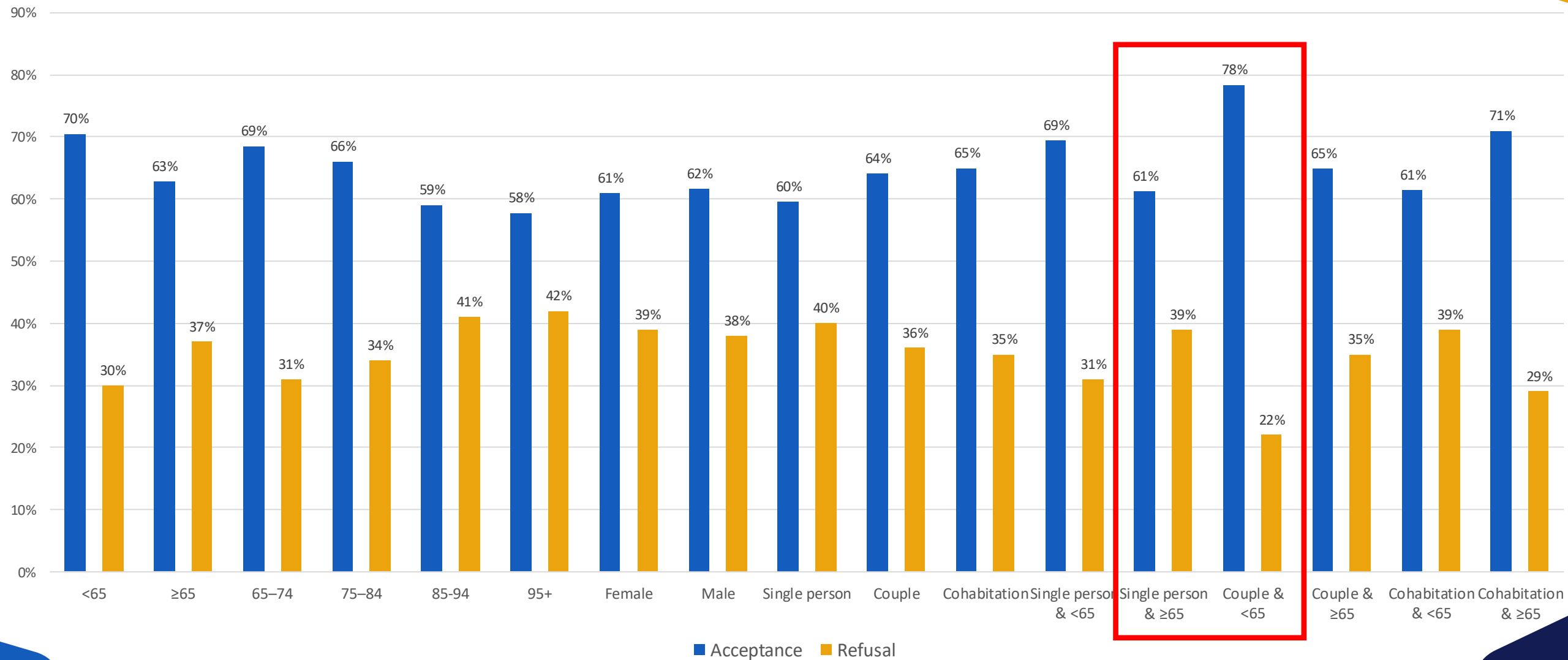
Phase 4 – Data Collection – acceptance / refusal

Part of acceptance / refusal according to several parameters

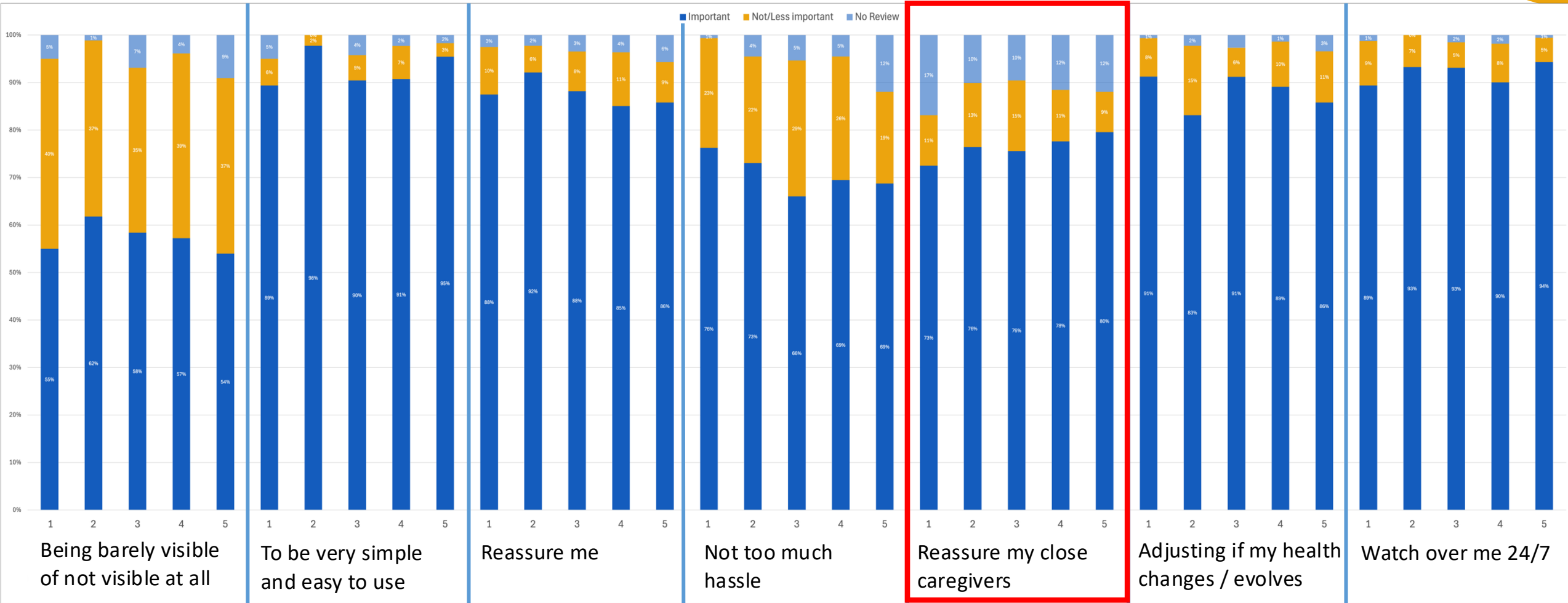


Phase 4 – Data Collection – acceptance / refusal

Part of acceptance / refusal according to several parameters



Phase 4 – Data Collection – Acceptability factors vs. Mobility levels



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Key learning points – about the beneficiaries

“You don’t think about everything right away. [...] They explain it to you, you get into it for the first time, and then, little by little, you start to take it all in.”

(Beneficiary, focus group 1)

- ▶ Understanding and acceptability evolve with time...

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(Beneficiary, focus group 1)

► Understanding and acceptability evolve with time...

“There’s a plate under my mattress. I picked up the mattress and dropped it. Boom! I said, ‘They’re going to call me.’ I picked up the mattress again and dropped it. [...] I did that at 10 a.m., so that’s a time when I’m not in bed. [...] That’s why I’m here today (Editor’s note: at the focus group). Because I didn’t believe it. I still don’t believe it.”

(Beneficiary, focus group 2)

► ... and delayed mistrust might appear.

Key learning points – about the technology

- ▶ Only 1,5 alarms out of 5 reveal to be « true positives »

		Detected Event	
		Fall	Not a Fall
Real Event	Fall	True positives	False positives
	Not a Fall	False negatives	True negatives

Key learning points – about the technology

- ▶ Only 1,5 alarm out of 5 reveals to be a « true positive »
- ▶ Several key triggers are being tested

(main door not opened for the last 5 days; no kitchen use in the last 48 hours; 2 « light falls » within the last month; variation in access to restrooms; no signal from bed sensor...)

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- ▶ After trigger detection:
 - 28% agree to be put in touch with home care & services (40% in case of fall)
 - 50% agree to receive some awareness flyer

Key learning points – about the overall system

- ▶ It's not just a technology, it's a platform involving a **multiplicity of workers** (that need to be trained), which jobs are fundamentally evolving:

“You know, what makes sense in my job is to save people. Someone pushes the alert button, I’m there: « what can I do to help ?? ». And it feels good to be helpful. And now, suddenly, with the Wa@h project, I’m turning into a data analyst. And I don’t like it. I’m not trained for that. It took away some of the meaning my job used to have for me.”

(Remote monitoring worker , working group)

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- ▶ The **human component of assistance** remains essential > requires continued engagement of the beneficiaires + a huge network of carers (in/formal)
- ▶ Each installation **involves hidden costs** > only viable if up-scaled

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- ▶ Which impact on self-determination ?

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- ▶ What should we do when facing beneficiaries unable to hold informed consent ?
- ▶ Which impact on self-determination ?
- ▶ What should we do after trigger detection ? Ethical questions raised !
- ▶ Does AI-assistance have any unexpected side effects on the beneficiaries ?



Thank you !

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