

The C[^]C CareApp Trial in Luxembourg: Results of the Second Wave of Data Collection – Home Care Service Users and Informal Carers (CareApp Test Group)

Schermann, David; Trukeschitz, Birgit

Published: 01/11/2023

Document Version

Publisher's PDF, also known as Version of record

[Link to publication](#)

Citation for published version (APA):

Schermann, D., & Trukeschitz, B. (2023). The C[^]C CareApp Trial in Luxembourg: Results of the Second Wave of Data Collection – Home Care Service Users and Informal Carers (CareApp Test Group): Deliverable 19 of the "Care about Care" Project (part: field trial, CareApp, HCSU/IC LUX), WU Vienna.



The C^C CareApp Trial in Luxembourg: Results for the second wave of data collection – home care service users & informal carers (CareApp test group)

Authors: David Schermann and Birgit Trukeschitz

Organisation: WU Vienna University of Economics and Business (Austria)

Document Number: D19 – part trial, care app – HCSU/IC LUX

Version/Date: November 2023

Document Type: Deliverable

Dissemination Level: public

Checked and released: Ulrike Schneider

Funded by the European Commission and Partner States within the Active and Assisted Living Programme



Table of Contents

List of Abbreviation.....	iii
1 Introduction	1
2 The Care App in Luxembourg	1
3 Methods	2
3.1 Trial design and changes in Luxembourg	2
3.2 Eligibility criteria for clusters (care units) in Luxembourg	2
3.3 Recruitment of participants in Luxembourg	2
3.3.1 Eligibility criteria for HCSU and IC trial participants	2
3.3.2 Recruitment materials for Luxembourg.....	3
3.3.3 Start and end of recruitment.....	4
3.3.4 Process of recruitment	4
3.3.5 Monitoring of recruitment and survey responses	4
3.4 Data collection and methods for statistical analysis	4
4 Results – part 1: care units in Luxembourg	5
5 Results – part 3: responses to the surveys and average completion time	6
6 Results – part 4: sample description for the second wave	7
6.1 Socio-demographic data	7
6.1.1 Socio-demographic data of home care service users	7
6.1.2 Socio-demographic data of informal carers	8
6.1.3 Support filling-in the survey	8
6.1.4 Eligibility check for smartphone or tablet use.....	9
7 Results – part 5: descriptives of the outcome indicators for HCSU and IC in the test group	9
7.1 Exchange of information on care visits in Luxembourg.....	10
7.1.1 Devices used to view care appointments.....	10
7.1.2 Viewing care appointments	11
7.1.3 Knowing when the care appointments will take place	12
7.1.4 Viewing changed care appointments.....	14
7.1.5 Managing care appointments	15
7.2 Contacting the care organisation.....	20

7.3	Information about vital data (Luxembourg only).....	23
7.4	Information about care products.....	25
7.5	Care-related quality of life.....	26
7.5.1	Reconciling care and other activities	26
7.5.2	Meaningful occupation during the day (ASCOT and ASCOT-Carer).....	26
7.5.3	Control over daily life (ASCOT and ASCOT-Carer)	28
7.5.4	Social participation (ASCOT and ASCOT-Carer).....	29
7.5.5	Self-care (informal carers only) (ASCOT-Carer)	30
7.5.6	Having time and space to be yourself (informal carers only) (ASCOT-Carer) ..	30
7.5.7	Feeling supported and encouraged (informal carers only) (ASCOT-Carer)	31
7.6	Digital information	32
8	Results – part 6: assessment of the CareApp by test group participants.....	33
8.1	Useful features of the CareApp	33
8.2	Self-assessed usage of the CareApp	34
8.3	CareApp usability 1: ease of use.....	35
8.4	CareApp usability 2: ability to use.....	36
8.5	CareApp usability 3: learnability	37
8.6	Usefulness of the CareApp for home care service users and informal carers in Luxembourg	38
8.7	Usefulness of the CareApp for staff – the perspective of home care service users/informal carers in Luxembourg.....	41
8.8	Functionality of the CareApp	43
8.9	Acceptance – future use and recommendation of the CareApp.....	44
8.10	Comments on the CareApp by test group participants in Luxembourg	46
9	Discussion.....	48
10	References	49



List of Abbreviation

CG	Control group
CVP	Care Visit Planner
FHWN	University of Applied Science Wiener Neustadt
HCSU	Home Care Service Users
IC	Informal carer
RCAS	Remote Care Assist System
SHD	Stéftung Hëllef Doheem
TG	Test group
WU	Vienna University of Economics and Business

List of Tables

Table 1: CareApp trial: Second survey: CareApp total trial participants, language and response time, Luxembourg.....	6
Table 2: CareApp trial: Second survey: HCSU participants, language and response time, Luxembourg.....	6
Table 3: CareApp trial: Second survey: IC participants, language and response time, Luxembourg.....	6
Table 4: CareApp trial: Second survey: characteristics of home care service user participants in Luxembourg.....	7
Table 5: CareApp trial: Second survey: characteristics of informal carer participants in Luxembourg.....	8

List of Figures

Figure 1: Luxembourg version of the CareApp.	1
Figure 2: Flyer used for recruitment test group (front page).....	3
Figure 3: Flyer used for recruitment test group (back page).....	3
Figure 4: CareApp trial: Map of randomized care units, Luxembourg	5
Figure 5: CareApp trial: ICT-usage of survey participants per group in Luxembourg	9
Figure 6: CareApp test group: How users remember care appointments, Luxembourg	10
Figure 7: CareApp test group: Ability to look up appointments at any time when the care organisation visits, Luxembourg.....	11
Figure 8: CareApp Test group: Ability for ICs to look up when the care organisation had been at their care-dependent relative, Luxembourg	12
Figure 9: CareApp test group: Details on the knowledge of care worker arrivals (in %), Luxembourg.....	12
Figure 10: CareApp test group: Having a sense of when the care worker will arrive (in %), Luxembourg.....	13
Figure 11: CareApp test group: Assessment of changes (within 2 months) in having a good sense of the arrival of care workers (in %), Luxembourg.....	13
Figure 12: CareApp test group: Overview of cancelled or postponed appointments (in %), Luxembourg	14
Figure 13: CareApp test group: Changes of care appointments within the last 3 months by user group, Luxembourg	15
Figure 14: CareApp test group: Frequency of care appointment changes by user group, Luxembourg	15
Figure 15: CareApp test group: Person contacting the care organisation for care appointment changes, Luxembourg	16
Figure 16: CareApp test group: Feasibility of managing appointments with the care organisation (in %), Luxembourg.....	17

Figure 17: CareApp test group: Test group participants’ perceptions of care organisations handling of requests (in %), Luxembourg18

Figure 18: CareApp test group: Perceived changes in the feasibility of managing appointments within 2 months (in %), Luxembourg19

Figure 19: CareApp test group: Modes of contacting the care organisation, Luxembourg20

Figure 20: CareApp test group: Preferred modes of contacting the care organisation (in %), Luxembourg.....21

Figure 21: CareApp test group: Perceived changes in contacting the care organisation (in %), Luxembourg.....22

Figure 22: CareApp test group: Type of vital data, Luxembourg23

Figure 23: CareApp test group: Overview of vital data (in %), Luxembourg24

Figure 24: CareApp test group: Using collected vital data at doctors’ appointments, Luxembourg.....24

Figure 25: CareApp test group: Knowledge of SHD service offers (in %), Luxembourg25

Figure 26: CareApp test group: Knowledge of other SHD product offers. Luxembourg.....25

Figure 27: CareApp test group: Reconcealing care appointments with private life, Luxembourg.....26

Figure 28: CareApp test group: ASCOT occupation (spending time) – HCSU, Luxembourg 27

Figure 29: CareApp test group: ASCOT occupation (spending time) – IC, Luxembourg27

Figure 30: CareApp test group: ASCOT control over daily life – HSCU, Luxembourg.....28

Figure 31: CareApp test group: ASCOT control over daily life – IC, Luxembourg28

Figure 32: CareApp test group: ASCOT social participation – HCSU, Luxembourg.....29

Figure 33: CareApp test group: ASCOT social participation – IC, Luxembourg29

Figure 34: CareApp test group: ASCOT self-care – IC, Luxembourg.....30

Figure 35: CareApp test group: ASCOT space & time – IC, Luxembourg30

Figure 36: CareApp test group: ASCOT feeling supported – IC, SHD31

Figure 37: CareApp test group: If care organisation should provide more digital offers, Luxembourg.....32

Figure 38: CareApp test group: Useful features of the CareApp (in %), Luxembourg33

Figure 39: CareApp test group: Self-assessed frequency of care app usage per group in Luxembourg.....34

Figure 40: CareApp test group: Usability rating of the CareApp per group in Luxembourg ...35

Figure 41: CareApp test group: Assessment of how easy it is to use the CareApp per group in Luxembourg.35

Figure 42: CareApp test group: Assessment of whether users are able to use the CareApp by group in Luxembourg.....36

Figure 43: CareApp test group: Assessment of how easy it was to learn the CareApp per group in Luxembourg, SHD.....37

Figure 44: CareApp test group: Usefulness ratings of the CareApp per group in Luxembourg38

Figure 45: CareApp test group: Speed ratings of the CareApp per group in Luxembourg.....39

Figure 46: CareApp test group: Convenience ratings of the CareApp per group in Luxembourg39

Figure 47: CareApp test group: Ratings whether the CareApp simplifies dealing with care matters per group in Luxembourg40

Figure 48: CareApp test group: Usefulness rating of the CareApp for staff per group in Luxembourg	41
Figure 49: CareApp test group: Support rating of the CareApp for employees by group in Luxembourg	42
Figure 50: CareApp test group: Assessment of whether the CareApp brings benefits for employees per group in Luxembourg.....	42
Figure 51: CareApp test group: Assessment of whether the CareApp is working error free per group in Luxembourg	43
Figure 52: CareApp test group: Reliability rating of the CareApp per group in Luxembourg .	43
Figure 53: CareApp test group: Intention to continue using the CareApp in the future per group in Luxembourg	44
Figure 54: CareApp test group: Intention to continue using the CareApp for future communication with the care organisation per group in Luxembourg	45
Figure 55: CareApp test group: Approval rate for whether the CareApp should be made available by the care organisation in the future per group in Luxembourg.....	45
Figure 56: CareApp test group: Recommendations of the CareApp per group in Luxembourg.....	46

ACKNOWLEDGEMENTS

The project Care about Care (C[^]C) – AAL-JP grant number AAL-2020-7-144-CP – received funding from AAL Programme, cofounded by the European Commission, National Funding Authorities of Austria, Belgium, Luxembourg and Switzerland and the individual project partners. The WU Research Institute of Aging is co-funded by the Vienna Social Fund (FSW) with funds from the City of Vienna (Austria).

The views expressed are not necessarily those of the funders.

Collaborating C[^]C project partners were University of Applied Sciences Wiener Neustadt (lead partner), ilogs mobile software GmbH, Eichenberger-Szenografie, Vienna University of Economics and Business (co-lead), Hilfswerk Niederösterreich, Senior Living Group, St[^]ftung H[^]llef Doheem, Distrac Group. The C[^]C project ran from June 2021 until November 2023.

To cite this paper:

Schermann, David; Trukeschitz, Birgit, (2023): The C[^]C CareApp Trial in Luxembourg: Results of the Second Wave of Data Collection – Home Care Service Users and Informal Carers (CareApp Test Group), Deliverable 19 – part trial, care app, HCSU/IC LUX, WU Vienna University of Economics and Business

This work contains original unpublished work or work to which the author holds all rights except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

1 Introduction

“The CareApp, developed in the C[^]C project by MOCCA Software GmbH in collaboration with the project partners, aimed to support home care service users and their informal carers in managing their care appointments. It should also contribute to facilitate the work of the care organisations’ care visit planners. The CareApp has been piloted (Trukeschitz, Arth, & Schermann, 2022) and pre-tested in Austria (Trukeschitz & Schermann, 2022).

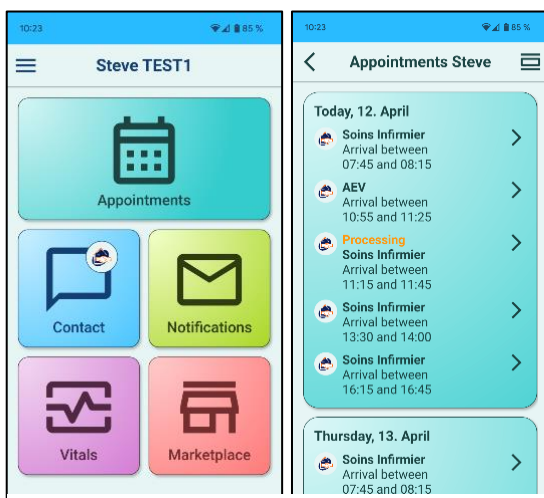
The final trial took place in Austria, Belgium and Luxembourg. Initially, the final trial should provide information on specific outcome indicators to be affected by the Care App. However, due to delays in the recruitment of participants in Luxembourg and Belgium, a detailed analysis of the effects of the care app on the home care service users and their informal carers was no longer within the scope of this project. Instead, a descriptive analysis of main indicators will be provided. These changes in the project’s Description of Work have been approved by the national and European funders.” (Trukeschitz & Schermann, 2023b)

From the perspective of **home care service users and informal carers**, this deliverable aims to report on the results of the second wave of data collection of the **CareApp in Luxembourg**. For the results for Austria see Trukeschitz and Schermann (2023b) and for Belgium see Schermann and Trukeschitz (2023b).

For the care visit planners ratings of the CareApp in Luxembourg see Schermann and Trukeschitz (2023c), for Austria see Trukeschitz and Schermann (2023a) and for Belgium see Schermann and Trukeschitz (2023a).

2 The Care App in Luxembourg

Figure 1: Luxembourg version of the CareApp.



Source: the CareApp was developed by MOCCA (2023), image WU

For a general description of the CareApp features see Trukeschitz and Schermann (2023b)

In addition to the four general features of the CareApp, the Luxembourg version offered a fifth feature, Vitals.

Vitals showed vital parameter, such as the blood pressure, blood sugar, pulse, and the history of body temperature of the user. These values of each measurement were entered by care workers into the database of the care organisation. The data were then displayed in the CareApp.

Another difference in this version are the displayed arrival times of the care workers, which are shown with a 30-minute time span.

For a description of how the CareApp communicated with the care organisation's crew scheduling system see Trukeschitz and Schermann (2023b).

3 Methods

3.1 Trial design and changes in Luxembourg

For the planned study design for the CareApp trial see Trukeschitz, Schermann, and Schneider (2022).

Timeline changes

Due to lengthy approval processes by the Luxembourg Ethics Committee and technical difficulties with the Luxembourg version of the CareApp, the start of the baseline survey had to be postponed several times. On 23 May 2023, the Ethics Committee gave their final approval. The baseline survey for staff members started on the 8th, and for clients on the 13th of June 2023.

Survey changes

Due to data protection guidelines of SHD, no names, no names of the responsible Care Units, telephone numbers or e-mail addresses were collected in both surveys. Instead, anonymised client-IDs and care unit-IDs were collected.

3.2 Eligibility criteria for clusters (care units) in Luxembourg

For a general description of settings and locations for data collection see Trukeschitz and Schermann (2023b).

The care organisation in Luxembourg operates 31 care units (Centre d'Aide et de Soins, short CAS). Ten from these units are so called "Tagesstätten" (day care centers) where the care organisation offers social programs during the day and therefore were considered not appropriate for the trial and excluded. CAS Echternach was assigned to the HoloLens test unit for testing the second technology developed in the C[^]C project.

As in Austria, care units in Luxembourg could either take part of in the CareApp or the RCA system trial, not in both trials. After the care units were selected for the RCA system, the remaining care units were assigned to the CareApp intervention and control groups.

3.3 Recruitment of participants in Luxembourg

3.3.1 Eligibility criteria for HCSU and IC trial participants

For general eligibility criteria for home care service users and informal carers to participate in the final trial see Trukeschitz and Schermann (2023b). Contrary to Austria, in Luxembourg no "Erwachsenenvertretung" (adult representatives) should be included. In addition, any informal

carer (not only those registered with the care organisation “Vertrauensperson”) could be included in the trial in Luxembourg.

3.3.2 Recruitment materials for Luxembourg

For recruiting participants, members of the SHD project team created flyers using the template developed for Austria. Figure 2(front page) and Figure 3 (back page) show the flyers.

Figure 2: Flyer used for recruitment test group (front page).

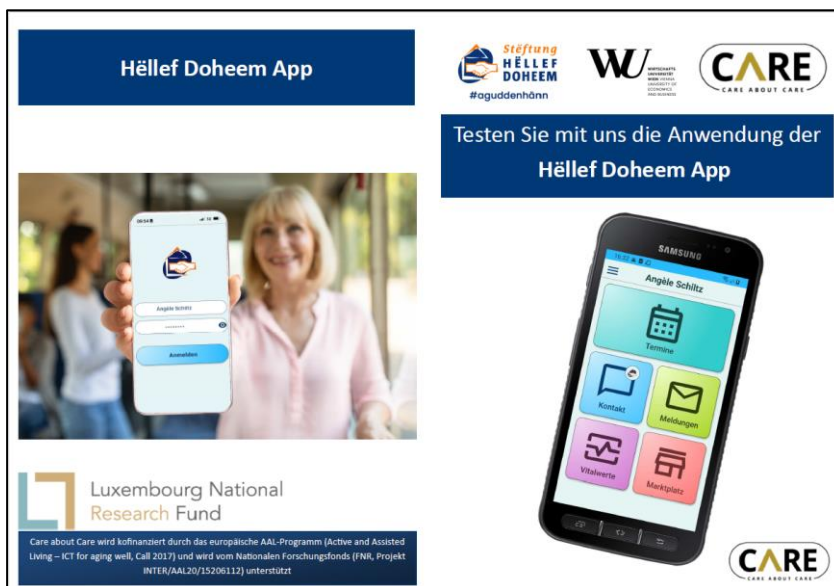


Figure 3: Flyer used for recruitment test group (back page).



Source: SHD 2023

3.3.3 Start and end of recruitment

The recruitment for **staff in charge of care visit planning** started in Luxembourg in June 2023. The recruitment for **HCS users** and their **informal carers** also started in the same month. The recruitment ended on 30/09/2023. The second wave surveys were sent out on 29/09/2023 and ended with 31/10/2023.

3.3.4 Process of recruitment

Home care service users and informal carers:

HCSU's care workers handed a flyer over to their clients. The flyer provided information on the purpose of participation, for the test group information on the CareApp (showed home screen and listed advantages) and information on the sweet thank-you-for-participating. After signing a paper-based informed consent, HCSU/IC could proceed with the registration process. The flyer contained the QR-code and URL to the online survey (Figure 3).

In contrast to Austria, there was no intermediate step with landing pages, instead the participants were taken directly to the survey. As in all countries, at the end of the survey for HCSU, they were asked to pass on the invitation flyer to their informal carer.

Access to the CareApp

After the informed consent form had been collected and the participant of the intervention group had completed the survey, a token was generated. This token was needed to get access to the CareApp. These tokens were either given to the HCSU in person by a care worker, or sent by post or e-mail (if the care organisation deems it appropriate). Informal carers also received their tokens by post or e-mail.

3.3.5 Monitoring of recruitment and survey responses

As for all countries, WU reported the number of participants on a weekly basis and the number of responses to each survey wave (Trukeschitz & Schermann, 2023b).

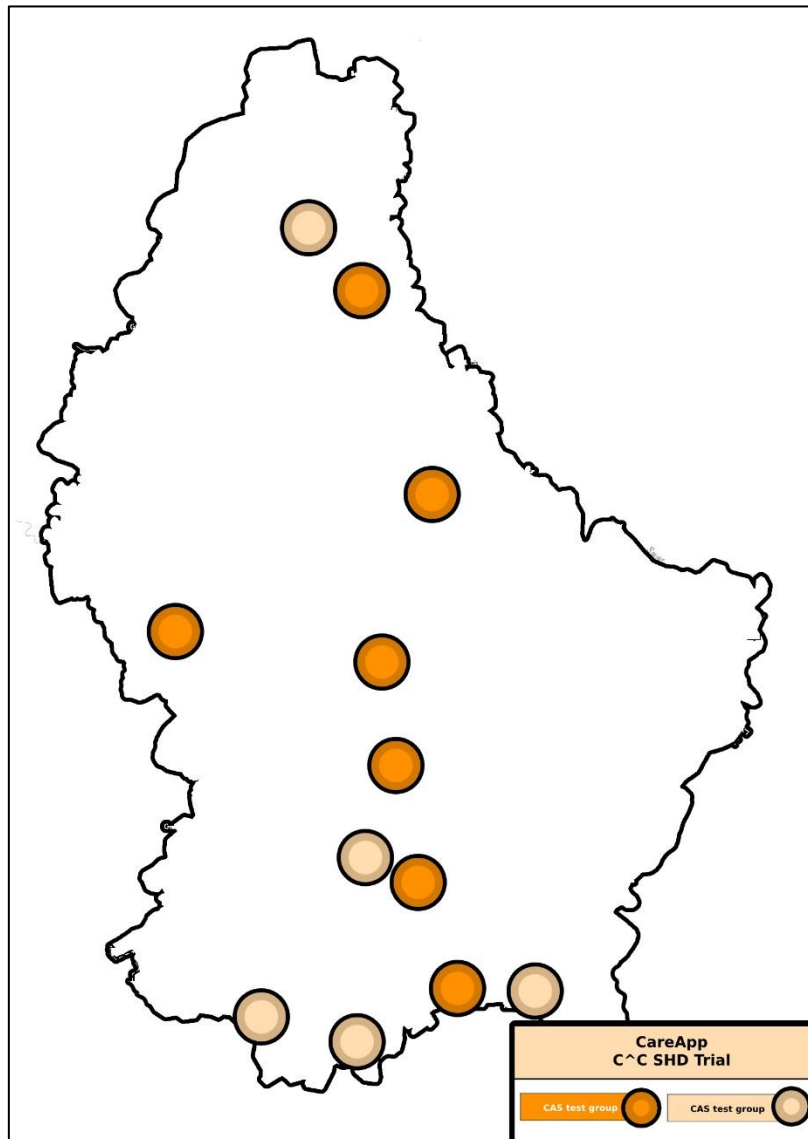
3.4 Data collection and methods for statistical analysis

The collected outcomes were the same for all countries. For a brief description of data collection and methods for statistical analysis see Trukeschitz and Schermann (2023b).

4 Results – part 1: care units in Luxembourg

Figure 4 shows the care units (CAS) selected to participate in the CareApp trial in Luxembourg.

Figure 4: CareApp trial: Map of randomized care units, Luxembourg



Source: WU 2023 based on data of SHD

5 Results – part 3: responses to the surveys and average completion time

Compared to the first wave of data collection (prior to the access to the CareApp), in Luxembourg, the number of participants completing the second survey declined by 23 persons in the test group (-38.3%) and 18 in the control group (-22.2%).

Table 1 to Table 3 show the number of completed second wave surveys, the language of the completed surveys and the time to complete the surveys. In Luxembourg, 37 surveys were completed in the test group and 69 in the control group. 15 surveys were not completed in the TG and 10 in the CG. In addition, one survey was completed twice in the TG. The average completion time was 20.4 minutes in the TG (including additional questions on acceptance, usability and usage behaviour) and 14.3 minutes in the CG. In the TG, 36 of the completed surveys were in German, 1 in French. In the CG 42 were completed in German and 27 in French.

Table 1: CareApp trial: Second survey: CareApp total trial participants, language and response time, Luxembourg

	COMPLETED SURVEYS	NON-ELIGIBLE	CANCELLED SURVEYS	DUPLICATE SURVEYS	TOTAL	German	French	AVERAGE TIME TO COMPLETE
TG	37	0	15*	0*	52*	36	1	20.4 min
CG	63	0	10*	0*	79*	42	27	14.3 min
TOTAL	100	0	25*	0*	131*	63	43	

Note: *information on participant group not available

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, TG/CG, 2023

Table 2: CareApp trial: Second survey: HCSU participants, language and response time, Luxembourg

	COMPLETED SURVEYS	NON-ELIGIBLE	CANCELLED SURVEYS	DUPLICATE SURVEYS	TOTAL	German	French	AVERAGE TIME TO COMPLETE
TG	15	0	15*	0*	30*	15	0	19.6 min
CG	30	0	10*	0	40*	18	12	14.1 min
TOTAL	45	0	25*	0*	70*	33	12	

Note: *information on participant group not available

Source: WU C^C care app trial data LUX, HCSU 2nd survey, TG/CG, 2023

Table 3: CareApp trial: Second survey: IC participants, language and response time, Luxembourg

	COMPLETED SURVEYS	NON-ELIGIBLE	CANCELLED SURVEYS	DUPLICATE SURVEYS	TOTAL	German	French	AVERAGE TIME TO COMPLETE
TG	22	0	15*	0*	37*	21	1	20.9 min
CG	33	0	10*	0*	43*	21	12	16.6 min
TOTAL	55	0	25*	0*	80*	42	13	

Note: *information on participant group not available

Source: WU C^C care app trial data LUX, IC 2nd survey, TG/CG, 2023

6 Results – part 4: sample description for the second wave

6.1 Socio-demographic data

6.1.1 Socio-demographic data of home care service users

Table 4 shows the main characteristics of participating home care service users of SHD.

Table 4: CareApp trial: Second survey: characteristics of home care service user participants in Luxembourg

Characteristics	LUX- TG		LUX-CG		TOTAL	
	Freq	%	Freq	%	Freq	%
Number of HCSU	15	40.5%	30	47.6%	45	45.0%
Sex						
Women	11	73.3%	18	60.0%	29	64.4%
Men	4	26.7%	12	40.0%	16	35.6%
Age						
Mean age (SD) in years	61.5 (19.8)		73.8 (11.3)		69.7 (15.6)	
Range (min-max) in years	24 - 83		44 - 90		24 – 90	
Living alone						
yes	5	33.3%	12	40.0%	17	37.8%
no	10	66.7%	18	60.0%	28	62.2%
Frequency of care visits						
daily	10	66.7%	17	56.7%	27	60.0%
Several times a week	4	26.7%	10	33.3%	14	31.1%
Once a week	1	6.7%	1	3.3%	2	4.4%
Less often than once a week	0	0	2	6.7%	2	4.4%
Health						
Very good	0	0.0%	2	6.7%	2	4.4%
good	8	53.3%	6	20.0%	14	31.1%
fair	5	33.3%	19	63.3%	24	53.3%
Not good	2	13.3%	3	10.0%	5	11.1%
bad	0	0.0%	0	0.0%	0	0.0%

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, TG/CG, 2023, n_{HCSU}=45

6.1.2 Socio-demographic data of informal carers

Table 5 shows the main characteristics of participating informal carers of SHD.

Table 5: CareApp trial: Second survey: characteristics of informal carer participants in Luxembourg

Characteristics	LUX- TG		LUX-CG		TOTAL	
	Freq	%	Freq	%	Freq	%
Number of IC	22	59.5%	33	52.4%	55	55%
Sex						
Women	17	77.3%	18	54.6%	35	63.6%
Men	5	22.7%	15	45.5%	20	36.4%
Age						
Mean age (SD) in years	58.09(10.14)		62.21(10.14)		60.56(10.25)	
Range (min-max) in years	34 – 72		46 – 88		34 – 88	
Employed						
Part-time	5	22.7%	2	6.0%	7	12.7%
Full-time	4	18.2%	10	30.3%	14	25.5%
Not employed	13	59.0%	21	63.6%	34	61.8%
In education						
yes	0	0	0	0	0	0
no	22	100%	33	100%	55	100%
Lives with HCSU						
yes	11	50%	16	48.5%	27	49.0%
no	11	50%	17	51.5%	28	50.9%
Relationship to HCSU						
Spouse	6	27.3%	11	33.3%	17	30.9%
Daughter	7	31.8%	8	24.2%	15	27.3%
Son	3	13.6%	8	24.2%	11	20%
Daughter in law	1	4.6%	2	6.0%	3	5.5%
Son in law	0	0	0	0	0	0
Sister	0	0	2	6.0%	2	3.6%
Brother	0	0	0	0	0	0
Mother	2	9.1%	0	0	2	3.6%
Father	0	0	0	0	0	0
Health						
Very good	3	13.6%	5	15.2%	8	14.6%
good	14	63.6%	17	51.5%	31	56.4%
fair	2	9.0%	9	27.3%	11	20%
Not good	3	13.6%	2	6.0%	5	9.1%
bad	0	0	0	0	0	0

Source: WU C^C care app trial data LUX, IC 2nd survey, TG/CG, 2023, n_{IC}=55

6.1.3 Support filling-in the survey

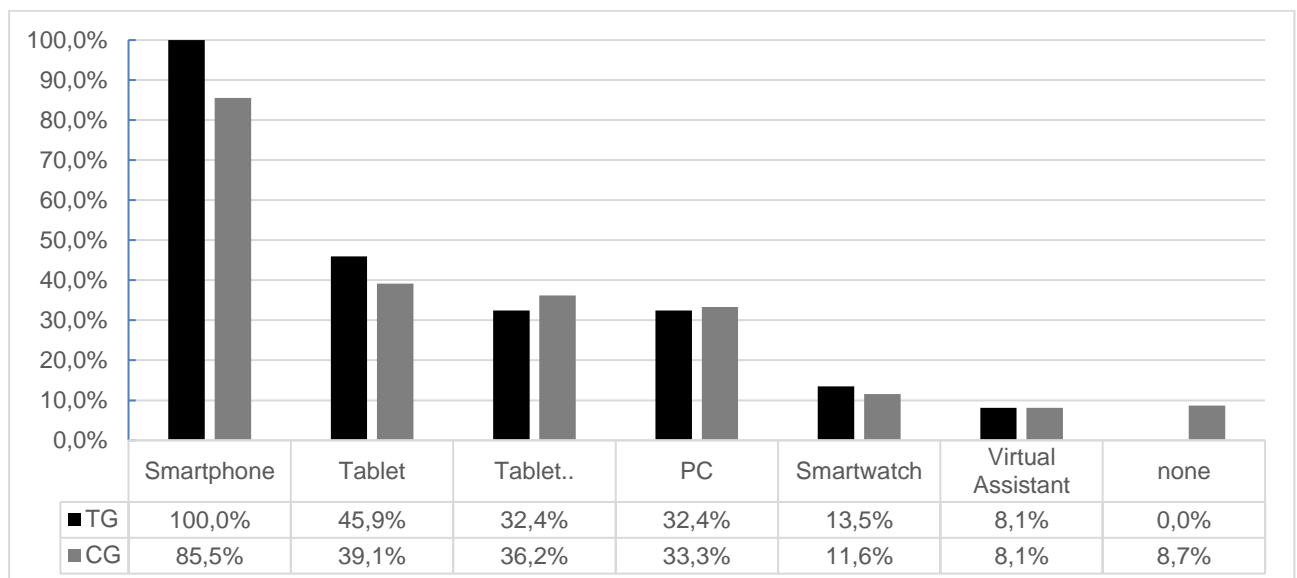
In the TG in Luxembourg, 7 of 15 HCSU stated to have received help from staff members for filling out the survey. The remaining 8 stated to have filled out the survey on their own. In the CG, 26 of 30 reported needing help, 4 HCSU from their relatives, 22 from staff members. 4 HCSU stated not to have needed any help.

6.1.4 Eligibility check for smartphone or tablet use

Figure 5 provides an overview of the use of ICT-devices in TG and CG in Luxembourg. In the TG, all participants stated to use a smartphone (n = 37, 100%). 17 participants also reported using a tablet. Furthermore, 12 people stated to use laptops and PCs. 5 people use smartwatches and 3 use a virtual assistant.

In the CG in Luxembourg, 59 people reported using a smartphone and 27 a tablet. Laptops were used by 25 and PCs by 23 participants. 8 people use a smartwatch and 6 people use a virtual assistant. 6 people did not use any of these technologies.

Figure 5: CareApp trial: ICT-usage of survey participants per group in Luxembourg



Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

7 Results – part 5: descriptives of the outcome indicators for HCSU and IC in the test group

“In this section, we report on descriptive results of potential outcomes identified prior to the trial start. The descriptives solely **reflect the users’ assessments of their situation**. The findings **may not be interpreted as effects** of the CareApp. For a solid effectiveness analysis, sufficient data on pre- and post-intervention assessments across two groups (with and without the CareApp) would be needed.” (Trukeschitz & Schermann, 2023b)

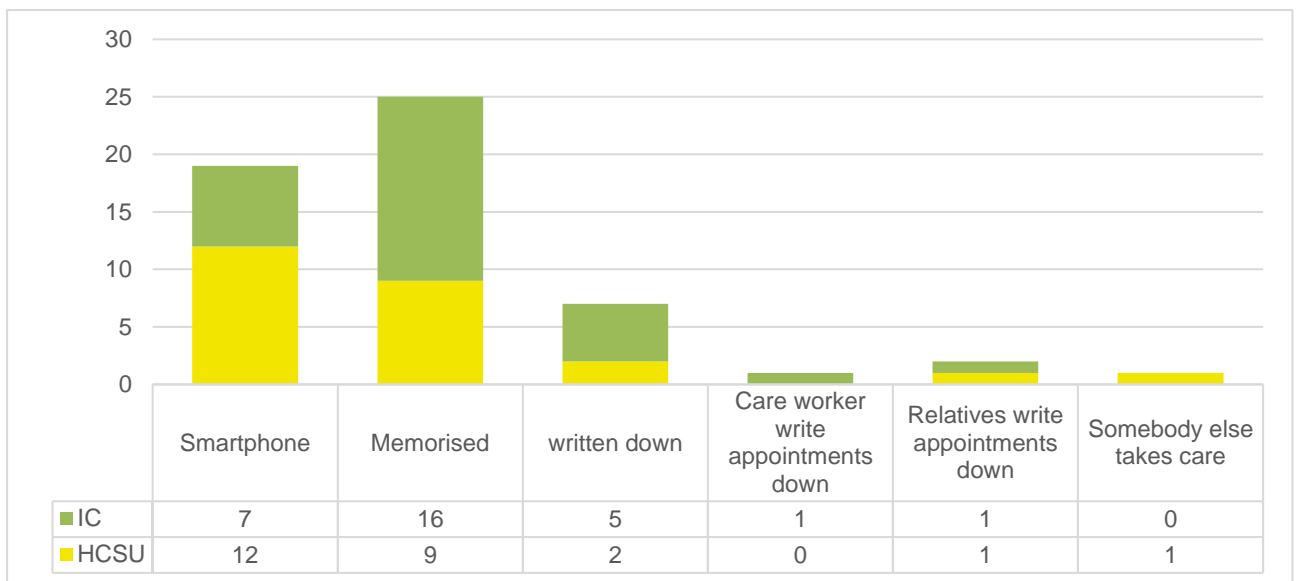
In the following subsections, we report on the descriptive results for Luxembourg that reflect the perceptions of home care service users and informal carers who got access to the CareApp.

7.1 Exchange of information on care visits in Luxembourg

7.1.1 Devices used to view care appointments

In Luxembourg, a higher share of HCSU than IC reported to use a smartphone to remember appointments (Figure 6). Most IC stated that they memorised appointments, without any additional aids.

Figure 6: CareApp test group: How users remember care appointments, Luxembourg



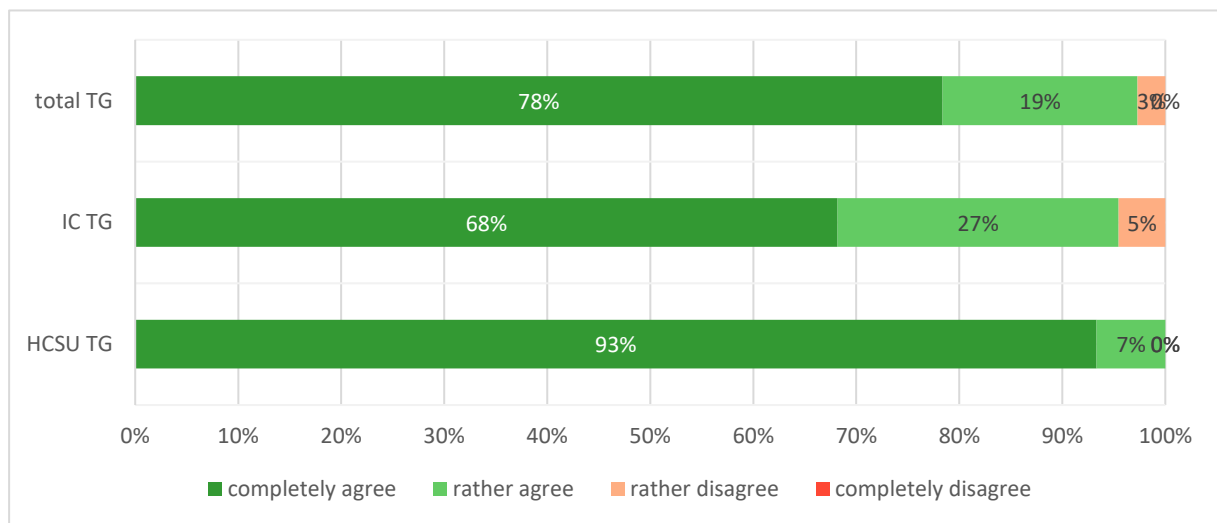
Notes: IC=informal carers, HCSU= home care service users

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

7.1.2 Viewing care appointments

In Luxembourg, the majority of HCSU and IC who had access to the CareApp completely agreed that they can always check when the care organisation is coming to visit (Figure 7).

Figure 7: CareApp test group: Ability to look up appointments at any time when the care organisation visits, Luxembourg

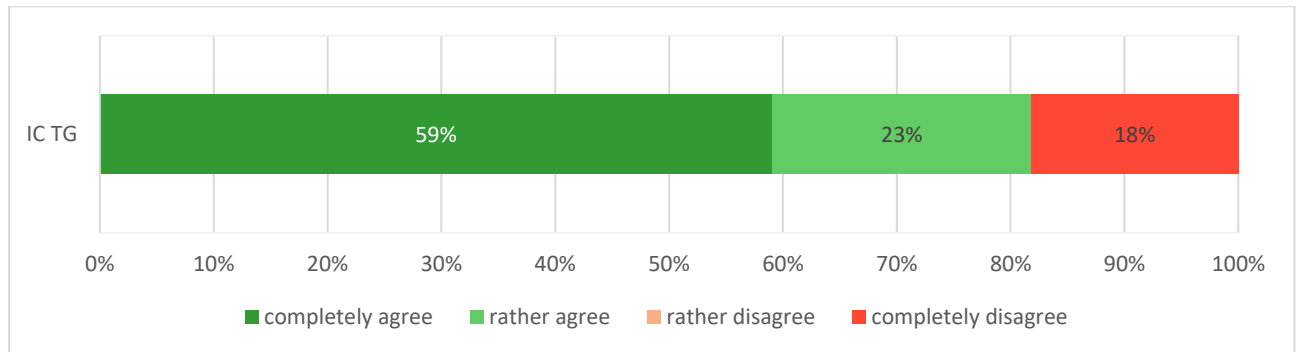


Notes: IC=informal carers, HCSU= home care service users

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

In Luxembourg, 59% of the ICs in the test group **completely agreed to be able to check on which day the care organisation was with their family member** (Figure 8).

Figure 8: CareApp Test group: Ability for ICs to look up when the care organisation had been at their care-dependent relative, Luxembourg



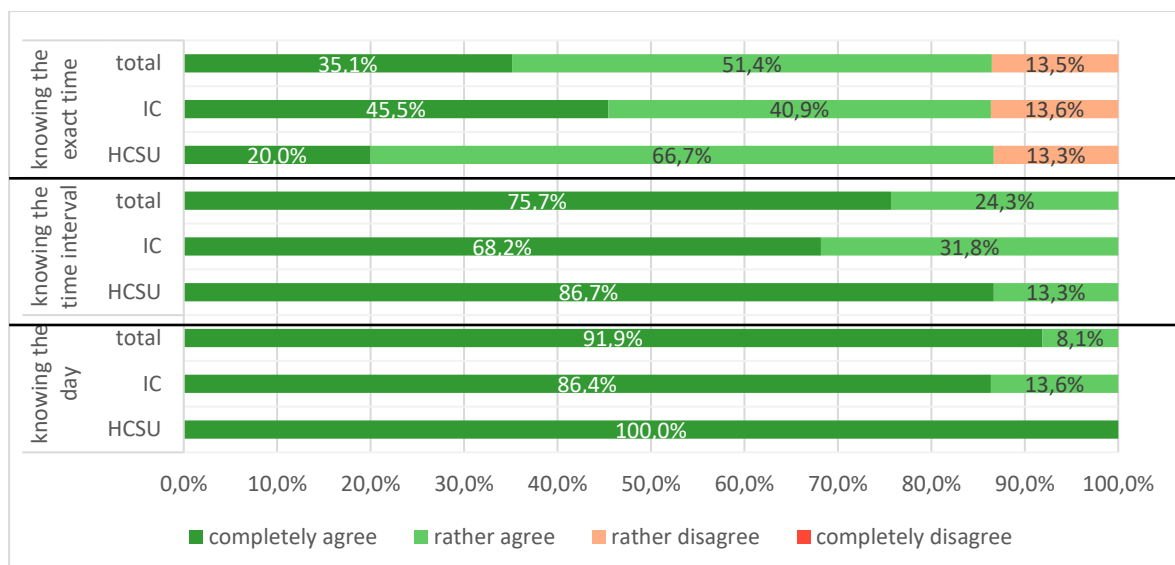
Notes: IC=informal carers, HCSU= home care service users

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

7.1.3 Knowing when the care appointments will take place

In Luxembourg, the **CareApp function “appointments”** displayed days and time intervals of planned care visits within the next 7 days. **All HCSU and most IC** who had access to the CareApp completely agreed on the statement that they **know the date** (Figure 9 – panel 3). Most of them also know **the time interval** (Figure 9 – panel 2) the care worker will arrive at the households. Only a bit more than a third in total, completely agreed that they also know the exact time of care worker arrival (Figure 9 - panel 1).

Figure 9: CareApp test group: Details on the knowledge of care worker arrivals (in %), Luxembourg

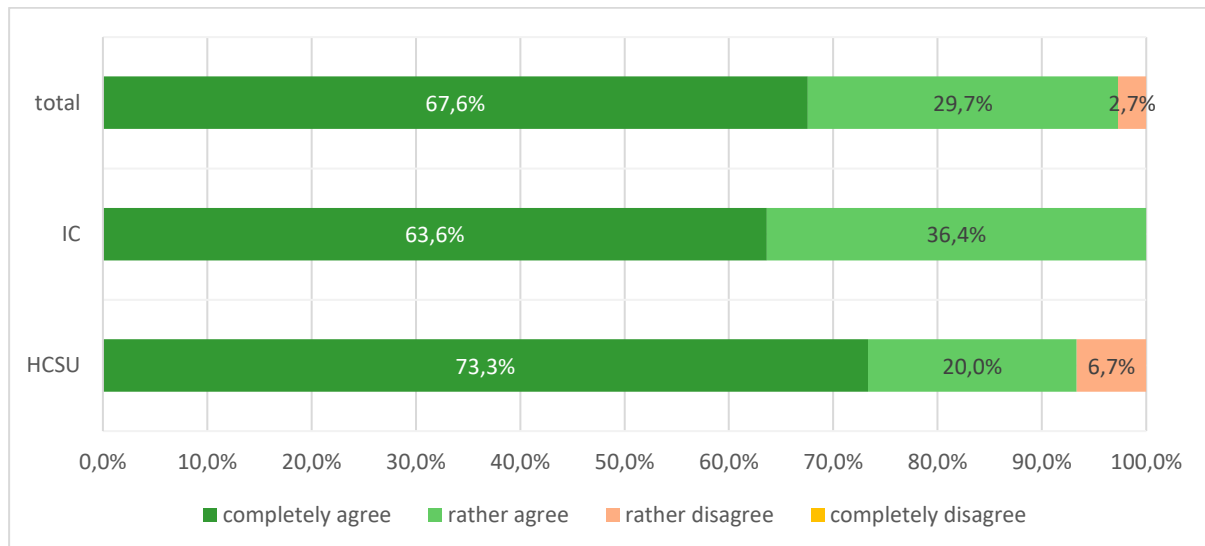


Notes: IC=informal carers, HCSU= home care service users

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

Figure 10 shows that about **two third** of the CareApp test participants in Luxembourg completely agreed to have a **good sense of when the care workers will arrive at the household**.

Figure 10: CareApp test group: Having a sense of when the care worker will arrive (in %), Luxembourg

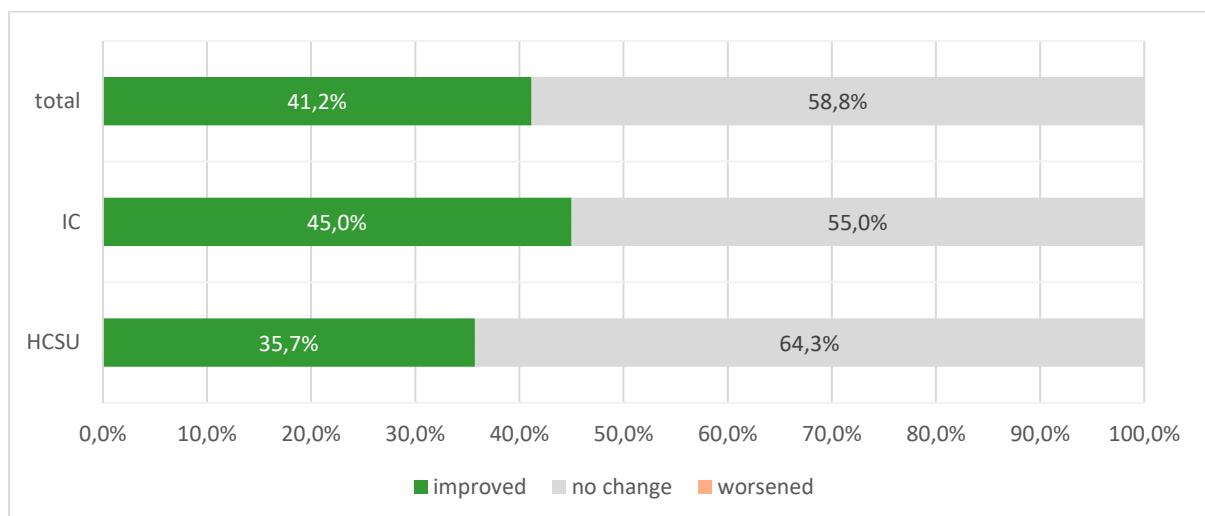


Notes: IC=informal carers, HCSU= home care service users

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

In the test group in Luxembourg, **more than a third of** participating **home care service users** and **almost half of** the participating **caring relatives** stated that their sense of care worker arrival times has **improved** over the last two months (Figure 11).

Figure 11: CareApp test group: Assessment of changes (within 2 months) in having a good sense of the arrival of care workers (in %), Luxembourg



Notes: IC=informal carers, HCSU= home care service users

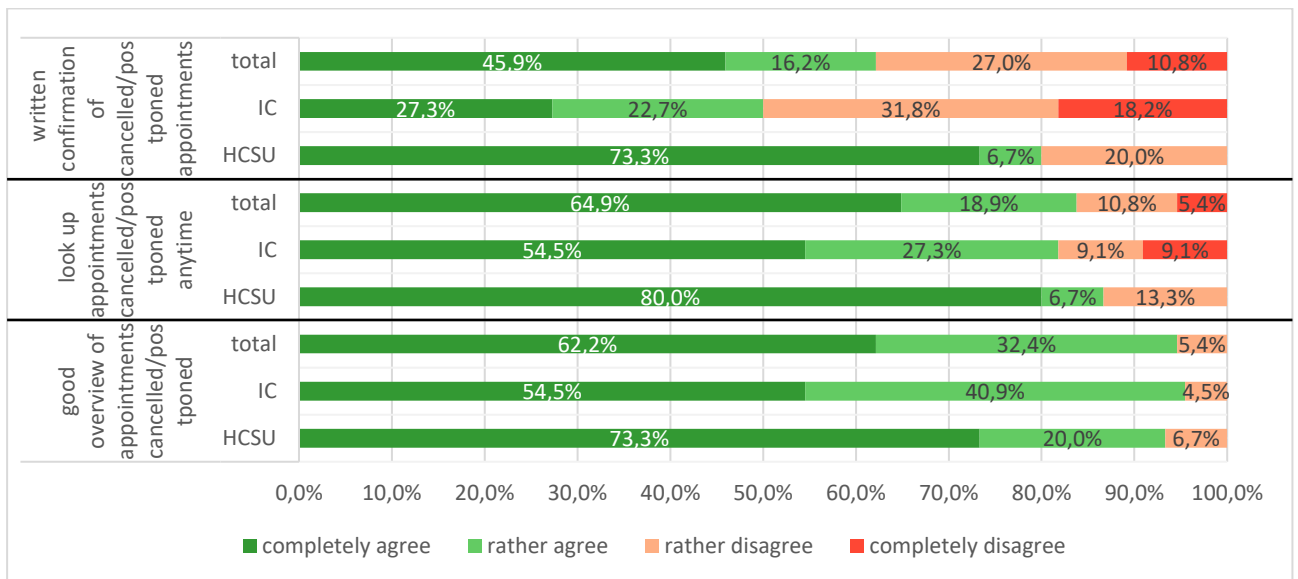
Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=34* (n_{IC}=20, n_{HCSU}=14)

*3 users (1 HCSU & 2 IC) did not answer the question because they have only been with the care organisation for less than 2 months.

7.1.4 Viewing changed care appointments

The **majority** of participants in the test group in Luxembourg strongly agreed to have a **good overview of changed appointments** (Figure 12 – panel 3) and to be **able to look up changed appointments** anytime (Figure 12 – panel 2). Compared to HCSU, IC reported lower levels of agreement, with most differences for written confirmation of changed appointments (Figure 12 – panel 1).

Figure 12: CareApp test group: Overview of cancelled or postponed appointments (in %), Luxembourg



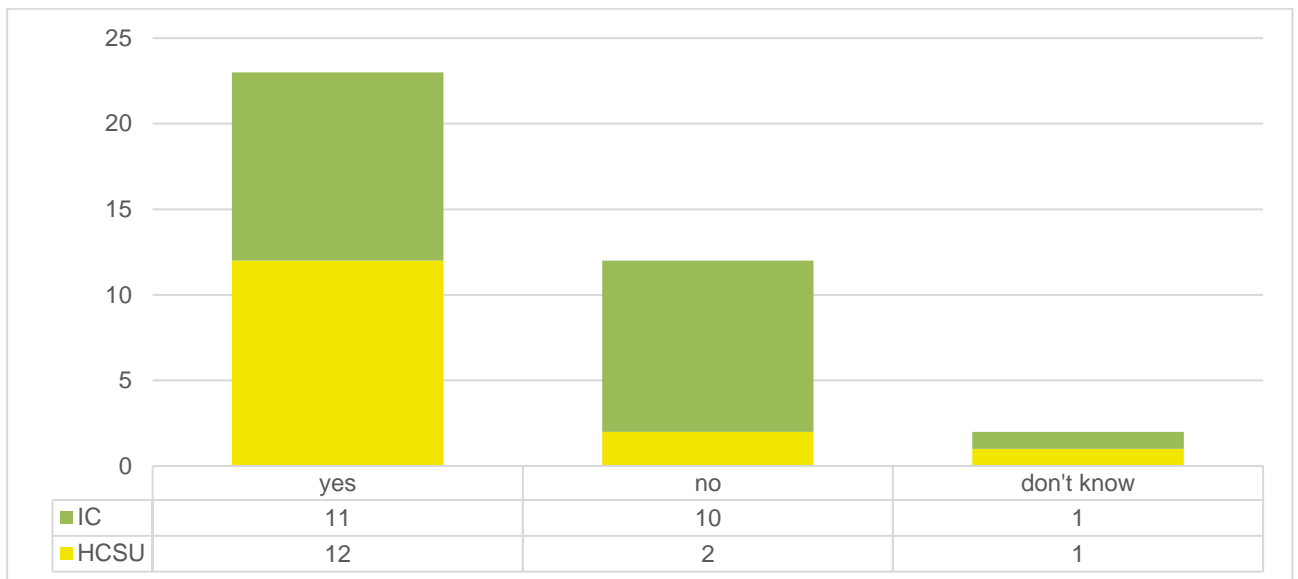
Notes: IC=informal carers, HCSU= home care service users

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

7.1.5 Managing care appointments

Figure 13 shows if there were appointment changes in the last 3 months and Figure 14 shows the frequencies of appointment changes in Luxembourg.

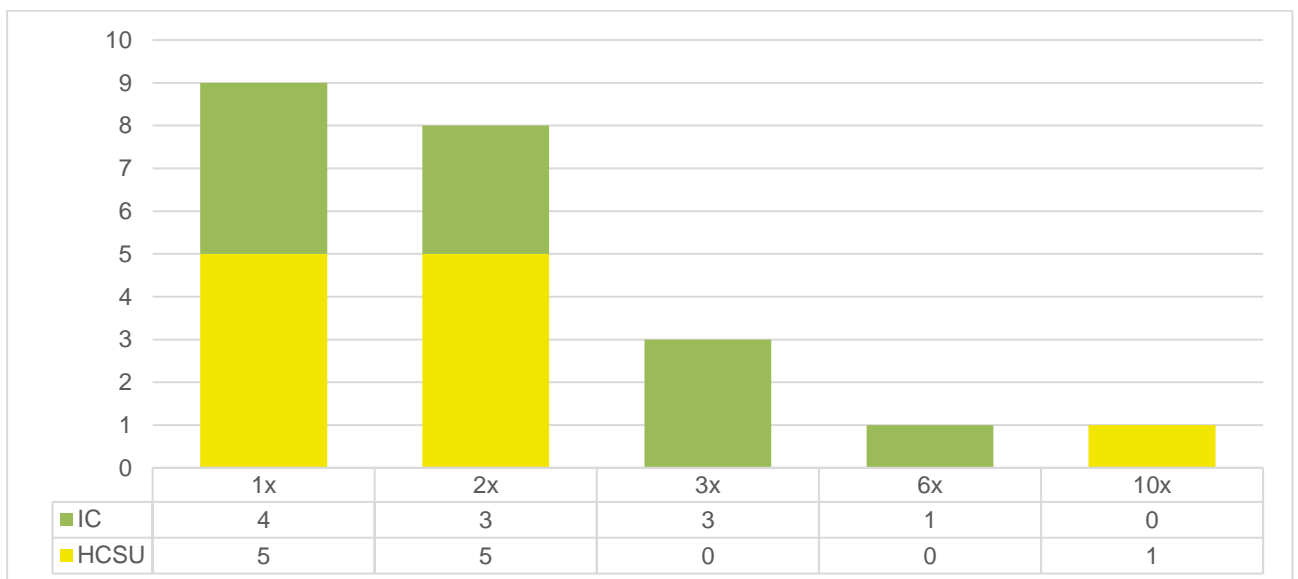
Figure 13: CareApp test group: Changes of care appointments within the last 3 months by user group, Luxembourg



Notes: IC=informal carers, HCSU= home care service users

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

Figure 14: CareApp test group: Frequency of care appointment changes by user group, Luxembourg



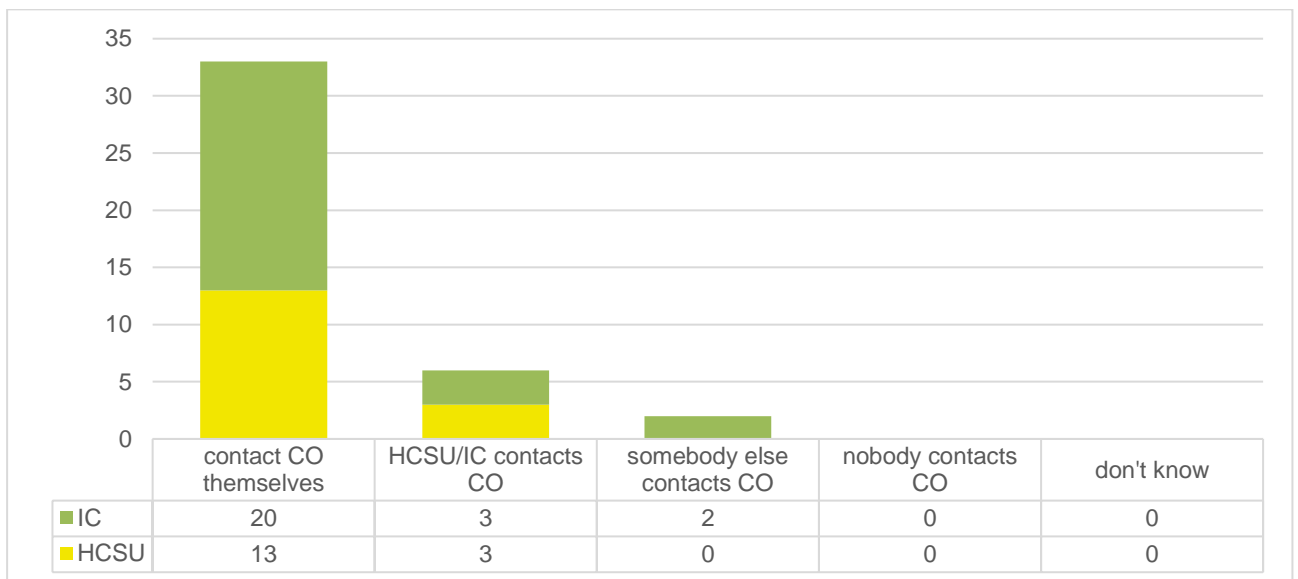
Notes: IC=informal carers, HCSU= home care service users

14 users (3 HCSU & 11 IC) users did not answer this question because they stated in the previous question that there had been no changes of appointments in the last month. 1 HCSU was excluded because of an inconclusive answer

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=22* (n_{IC}=11, n_{HCSU}=11)

In our sample of **HCSU and IC** in the CareApp test group in Luxembourg, both target groups contacted the care organisation **to announce care appointment changes** (Figure 15). This indicates that both groups are important target groups for the CareApp and should get access to digital tools for managing care appointments.

Figure 15: CareApp test group: Person contacting the care organisation for care appointment changes, Luxembourg

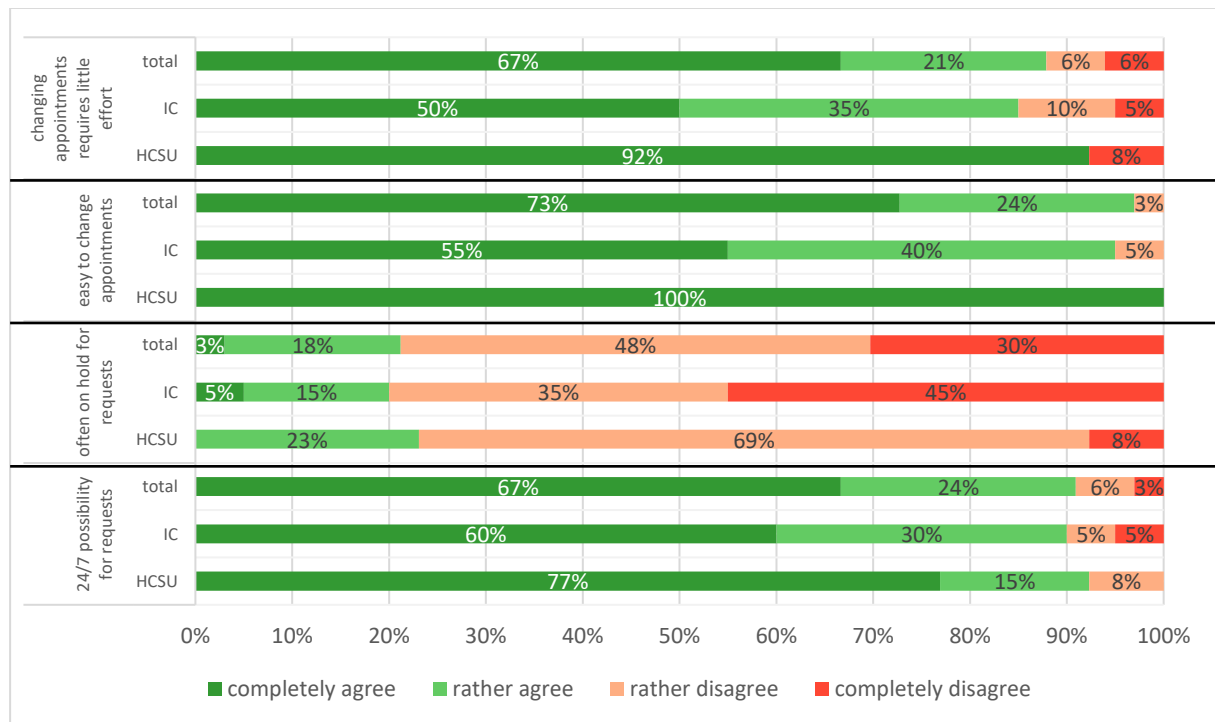


Notes: IC=informal carers, HCSU= home care service users

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

Figure 16 comprises the general assessments of care appointment management by HCSU and IC. **Two thirds** of test group participants strongly agreed that **changing care appointments require little effort** (Figure 16 – panel 1), almost **75 %** strongly agreed that changes were **easy to make** (Figure 16 – panel 2) and **two thirds** strongly agreed that changes were **possible 24/7** (Figure 16 – panel 4). **A third strongly disagreed** that they were **put on hold** when calling the care organisation (Figure 16 – panel 3).

Figure 16: CareApp test group: Feasibility of managing appointments with the care organisation (in %), Luxembourg



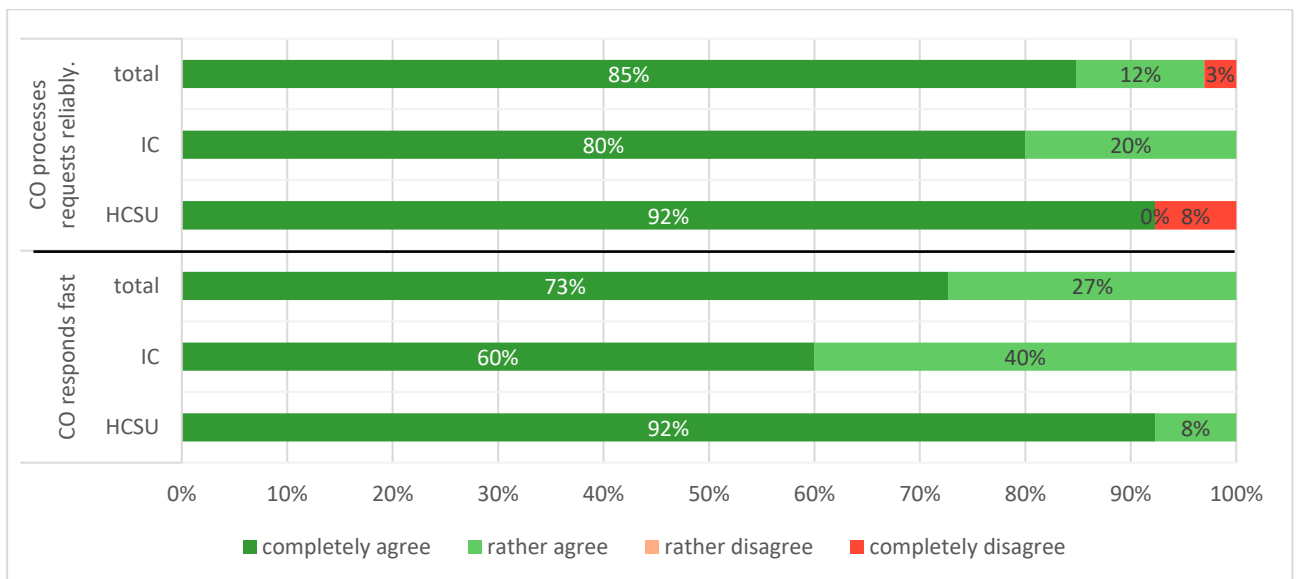
Notes: IC=informal carers, HCSU= home care service users

4 users (2 HCSU & 2 IC) did not answer the question because they stated in a previous question that they do not manage the appointments themselves.

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=20, n_{HCSU}=13)

The **vast majority** of Luxembourgish CareApp test group participants **strongly agreed** that **SHD responded quickly** to requests related to care appointments (Figure 17 – panel 2), and also that the care organisation **processed requested changes** to appointment requests **reliably** (Figure 17– panel 1). For the latter, IC were less convinced than the HCSU ratings.

Figure 17: CareApp test group: Test group participants’ perceptions of care organisations handling of requests (in %), Luxembourg



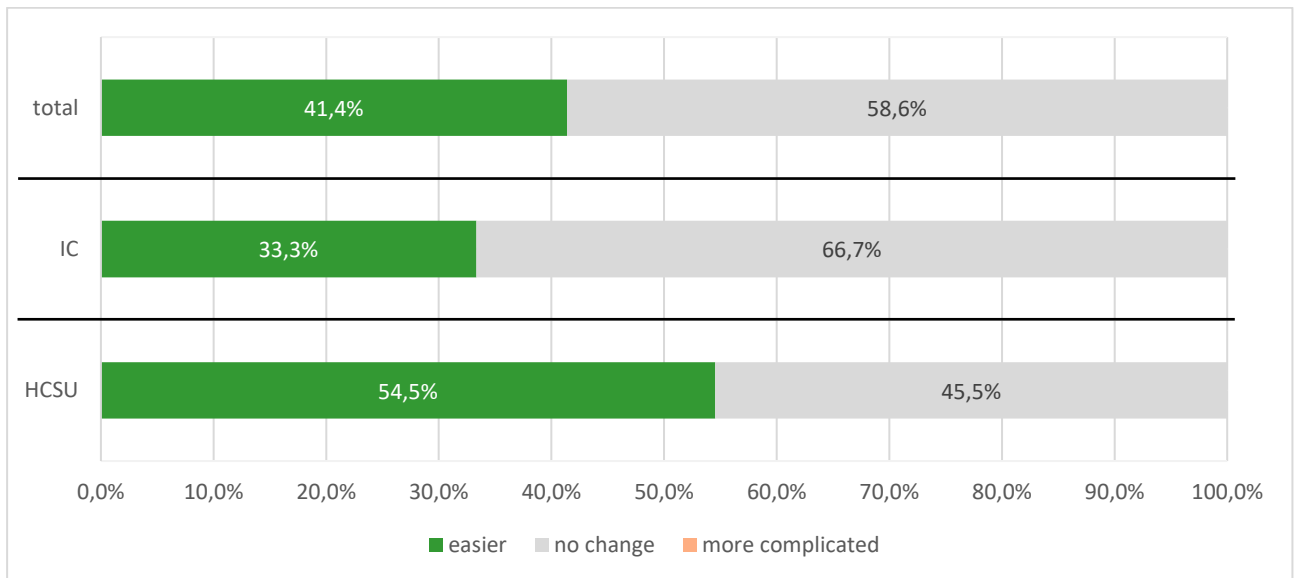
Notes: IC=informal carers, HCSU= home care service users

4 users (2 HCSU & 2 IC) did not answer the question because they stated in a previous question that they do not manage the appointments themselves.

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=20, n_{HCSU}=13)

More than half of HCSU participating in the CareApp test group and a third of informal carers reported improvements in managing care appointments (Figure 18).

Figure 18: CareApp test group: Perceived changes in the feasibility of managing appointments within 2 months (in %), Luxemburg



Notes: IC=informal carers, HCSU= home care service users

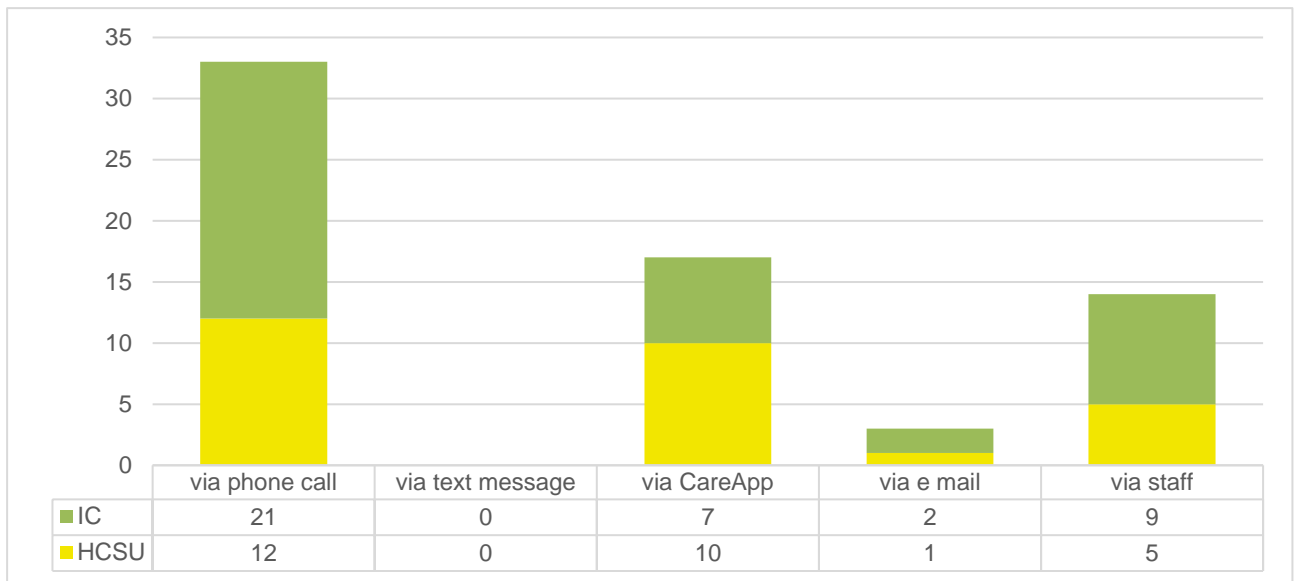
Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=34* (n_{IC}=18, n_{HCSU}=11)

*8 users (4 HCSU & 4 IC) did not answer the question because they have only been with the care organisation for less than 2 months.

7.2 Contacting the care organisation

Out of five options, test participants in Luxembourg reported to contact the care organisation mainly via phone call, followed by CareApp and staff. Digital solutions, such as via e-mails remained exceptions. In Luxembourg, calling staff still is an important mode for getting into contact (Figure 19).

Figure 19: CareApp test group: Modes of contacting the care organisation, Luxembourg

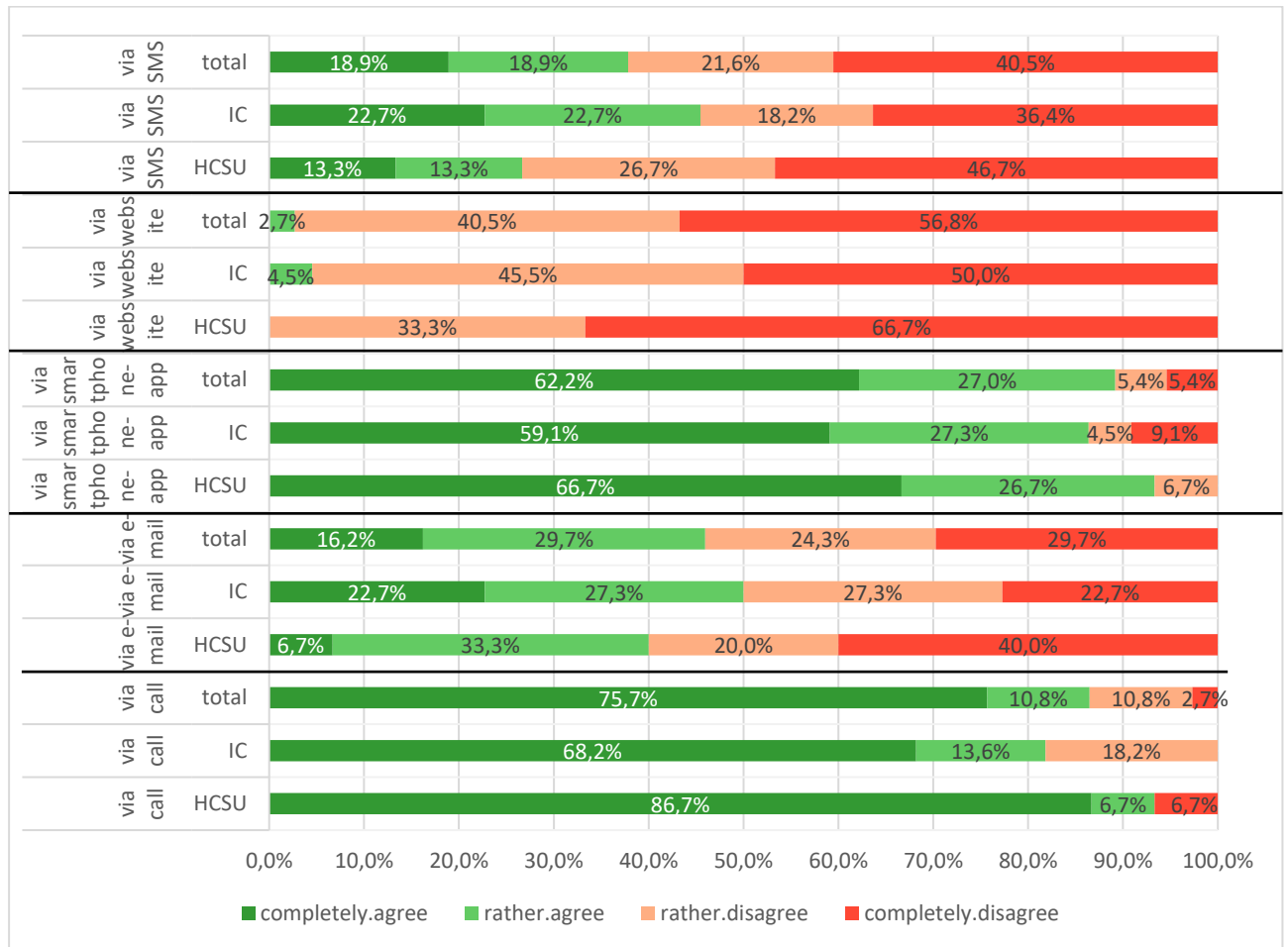


Notes: IC=informal carers, HCSU= home care service users

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

Figure 20 contains the CareApp test participants' preferences for contacting the care organisation in Luxembourg. Participants in Luxembourg **highly prefer phone calls** (Figure 20– panel 5). However, **more than half** of the CareApp test participants also **strongly prefer** contacting the care organisation via **smartphone app**. (Figure 20– panel 3).

Figure 20: CareApp test group: Preferred modes of contacting the care organisation (in %), Luxembourg

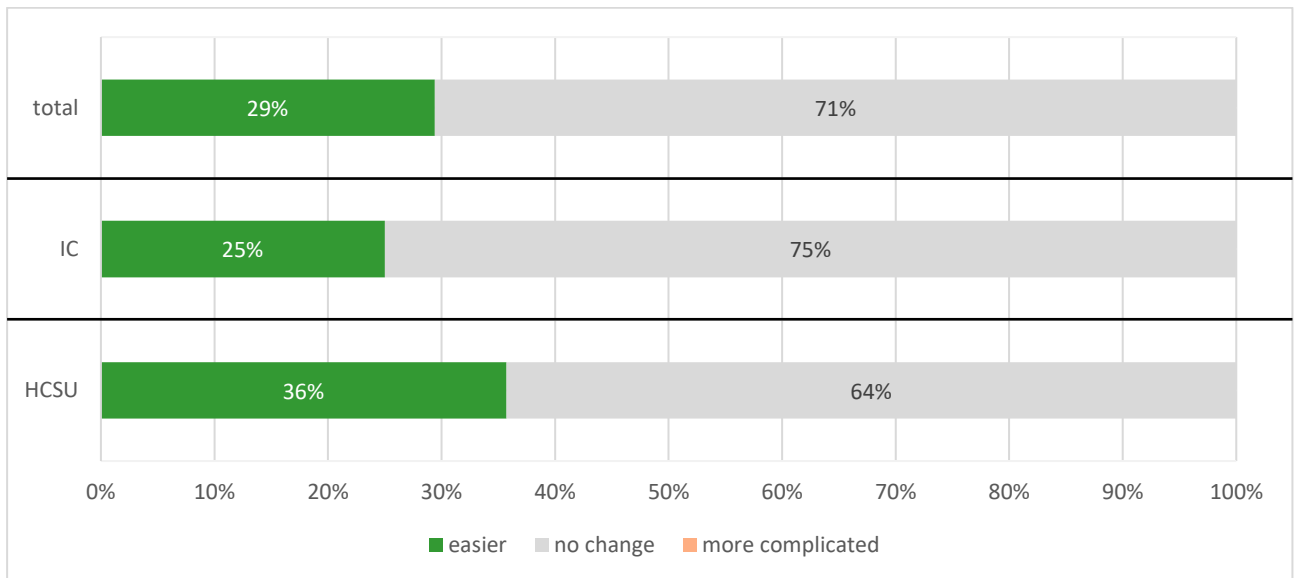


Notes: IC=informal carers, HCSU= home care service users

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

A fourth of IC and a third of HCSU in the CareApp test group in Luxembourg reported changes in the mode of contacting the care organisation (Figure 21).

Figure 21: CareApp test group: Perceived changes in contacting the care organisation (in %), Luxembourg



Notes: IC=informal carers, HCSU= home care service users

3 users (1 HCSU & 2 IC) did not answer the question because they have only been with the care organisation for less than 2 months.

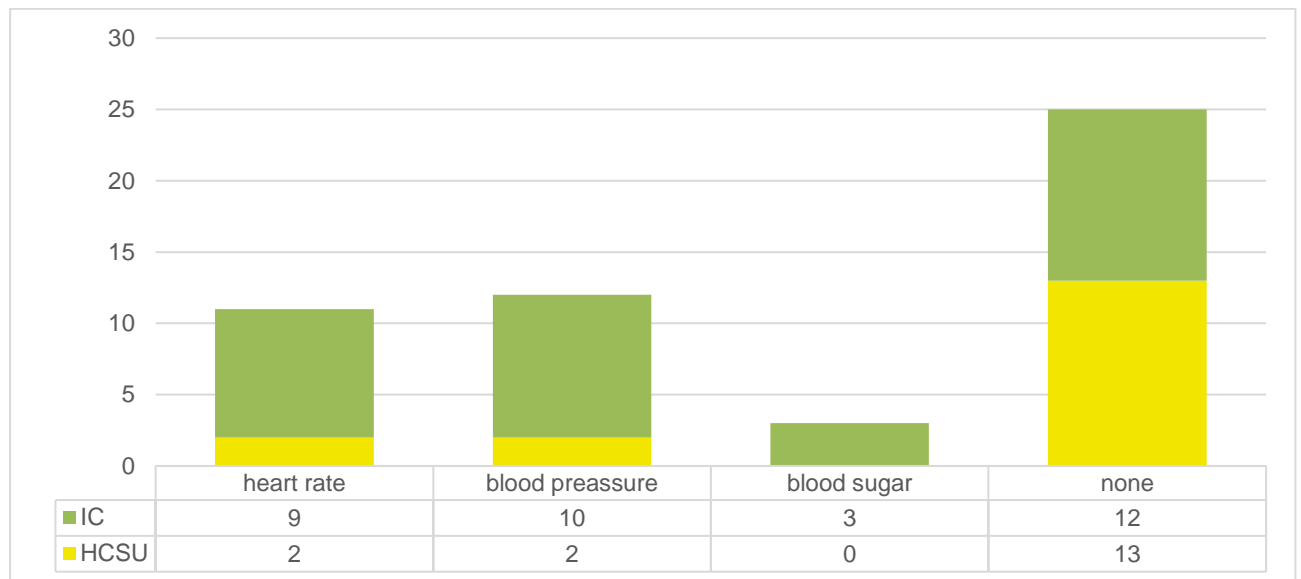
Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=34* (n_{IC}=14, n_{HCSU}=20)

7.3 Information about vital data (Luxembourg only)

A specific function of the Luxembourg-version of the CareApp was the option to collect and display vital information, such as blood pressure.

Figure 22 shows that the vital data function was **relevant for a third of participants**. For these people, **most frequently blood pressure and heart rate** were measured.

Figure 22: CareApp test group: Type of vital data, Luxembourg

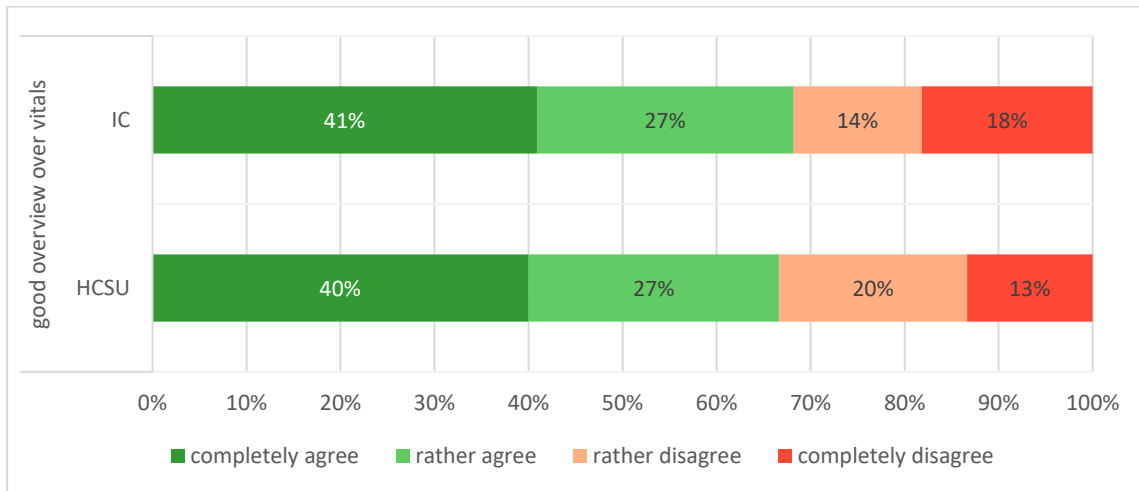


Notes: IC=informal carers, HCSU= home care service users

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

Less than half of the CareApp test group participants in Luxembourg strongly agreed that they have a **good overview of vital data** (Figure 23). This may indicate that the display of vital data in the CareApp has room for improvement but also could indicate that respondents would like to have (better) information about their vital data in general.

Figure 23: CareApp test group: Overview of vital data (in %), Luxembourg

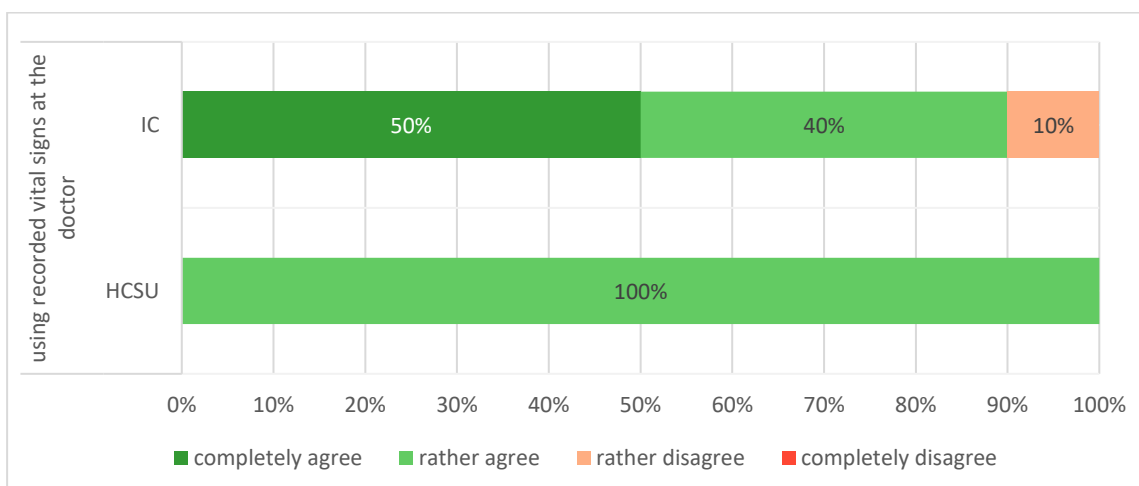


Notes: IC=informal carers, HCSU= home care service users

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

Half of IC participating in the CareApp test group in Luxembourg responded to **strongly agree** to the statement that **vital data** recorded by the care organisation **can easily be shown at doctors' appointments**. None of the HCSU agreed to this statement that strongly (Figure 24).

Figure 24: CareApp test group: Using collected vital data at doctors' appointments, Luxembourg



Notes: IC=informal carers, HCSU= home care service users

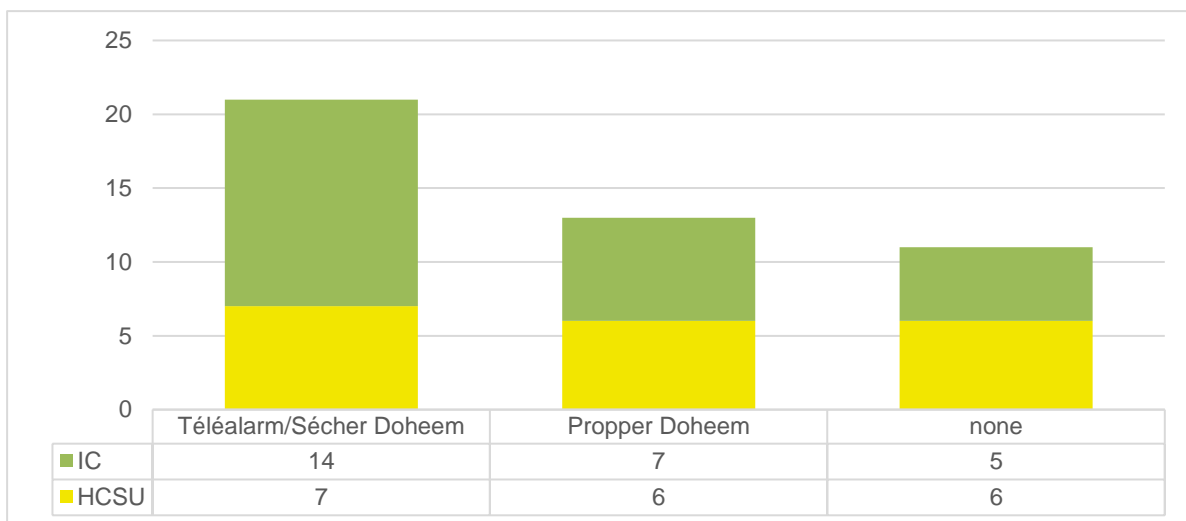
25 users (13 HCSU & 12 IC) did not answer the question because they stated in a previous question that no vital data had been collected.

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=12* (n_{IC}=10, n_{HCSU}=2)

7.4 Information about care products

Figure 25 provides an overview of the number of CareApp test participants knowing different SHD offers. In Luxembourg, **most participants** responded to **know Téléalarm/Sécher Doheem**. **About a quarter**, knew “Propper Doheem”. Also, about a quarter knew **none of the offered services**.

Figure 25: CareApp test group: Knowledge of SHD service offers (in %), Luxembourg

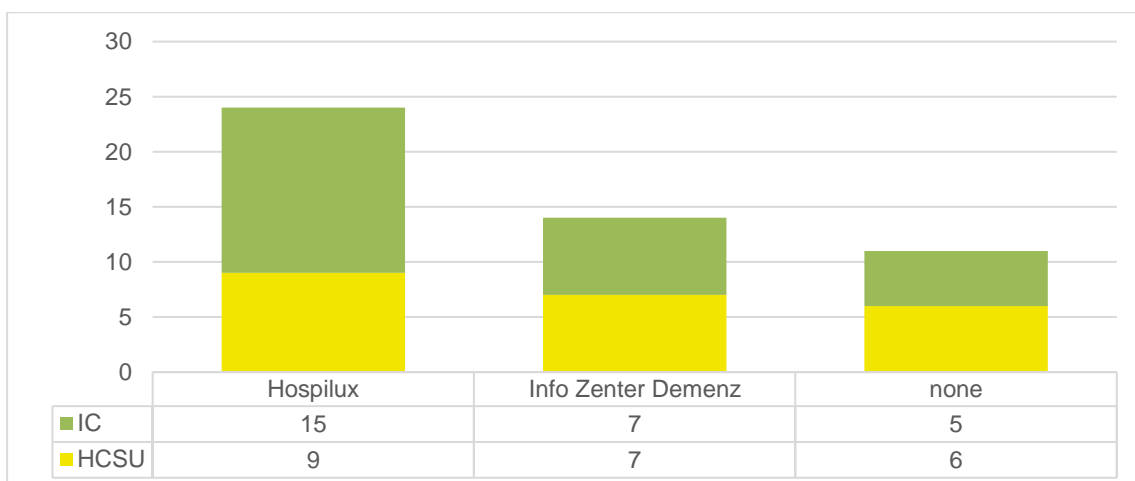


Notes: IC=informal carers, HCSU= home care service users

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

Figure 26 provides an overview of products offered by SHD. **Most** participants **knew Hospilux**. **About a quarter** knew **none** of the two listed products-

Figure 26: CareApp test group: Knowledge of other SHD product offers. Luxembourg



Notes: IC=informal carers, HCSU= home care service users

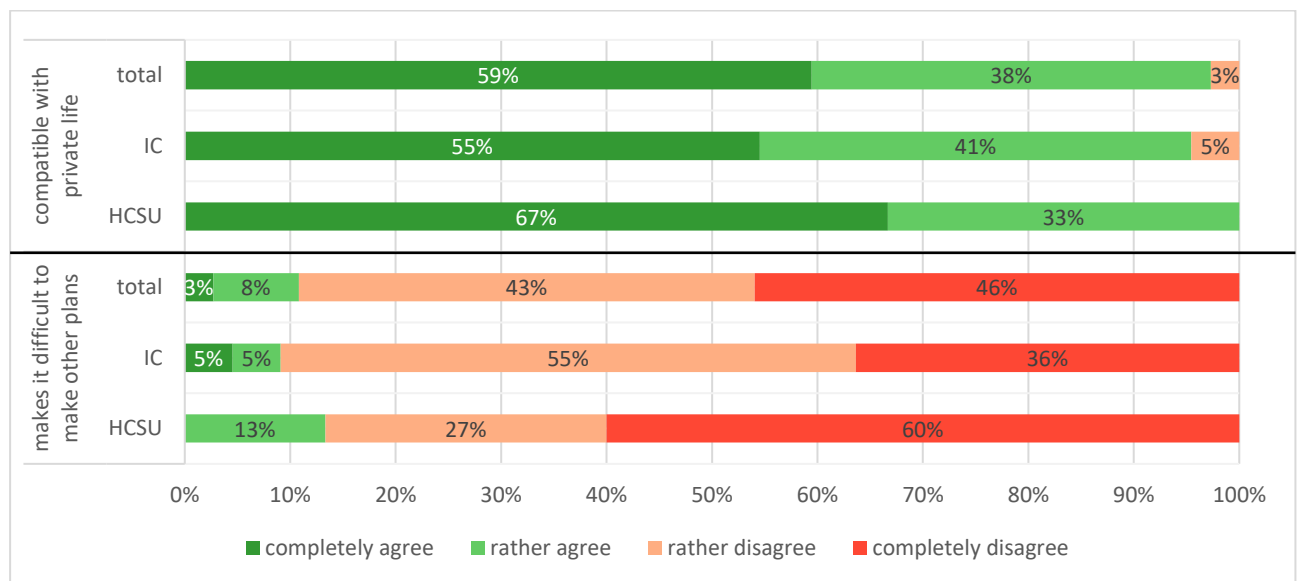
Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

7.5 Care-related quality of life

7.5.1 Reconciling care and other activities

Figure 27 shows that **more than a half of IC** in Luxembourg and about **two thirds of HCSU** strongly agree that the times of the care appointments a **very compatible with private life**.

Figure 27: CareApp test group: Reconciling care appointments with private life, Luxembourg



Notes: IC=informal carers, HCSU= home care service users

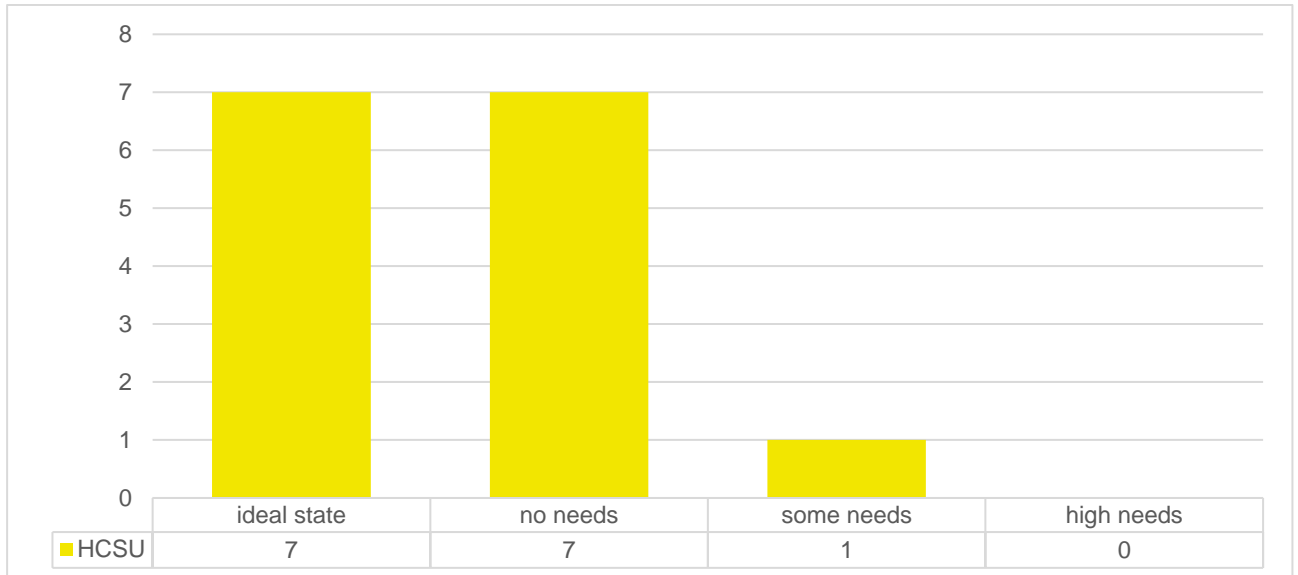
Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

7.5.2 Meaningful occupation during the day (ASCOT and ASCOT-Carer)

For the next subsections on selected quality-of-life domains, we used a research-driven French translation of the ASCOT (Adult Care Outcomes Toolkit) instruments for service users and for informal carers. Both translations were authorised by the ASCOT development team at the University of Kent. ASCOT was developed to gain insights into quality-of-life effects of care service provision (Netten et al., 2012).

In Luxembourg, hardly any HCSU indicated **“some needs”** related to **meaningful occupation during the day** (Figure 28), however, 6 of 22 IC indicated “some needs” (Figure 29).

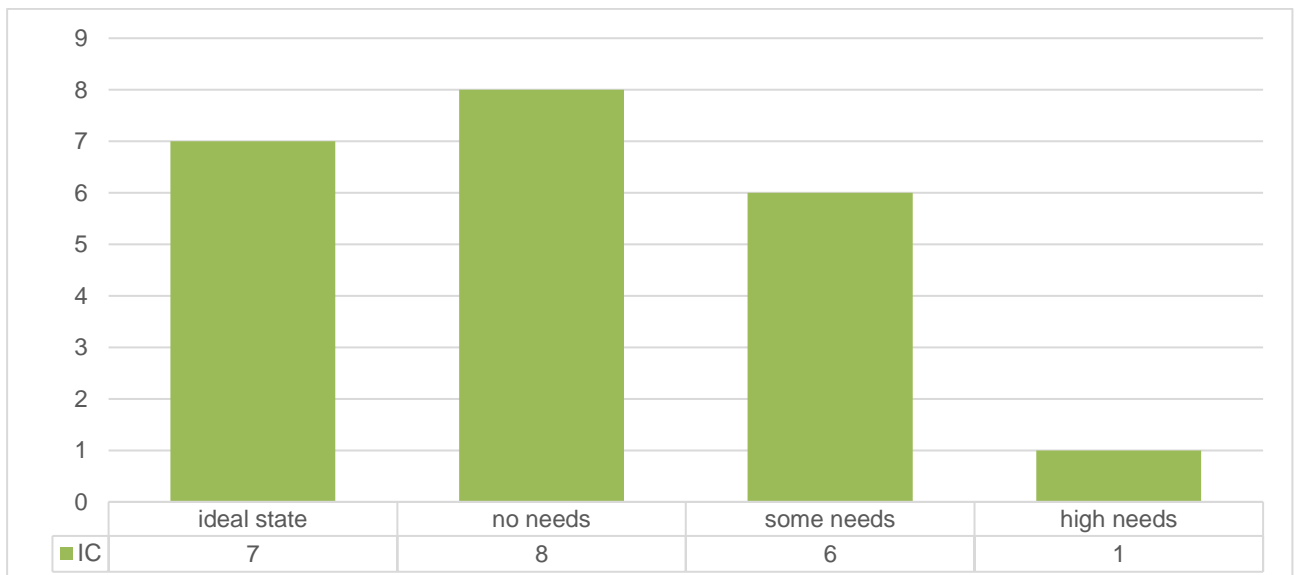
Figure 28: CareApp test group: ASCOT occupation (spending time) – HCSU, Luxembourg



Notes: HCSU= home care service users

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=15 (n_{HCSU}=15)

Figure 29: CareApp test group: ASCOT occupation (spending time) – IC, Luxembourg



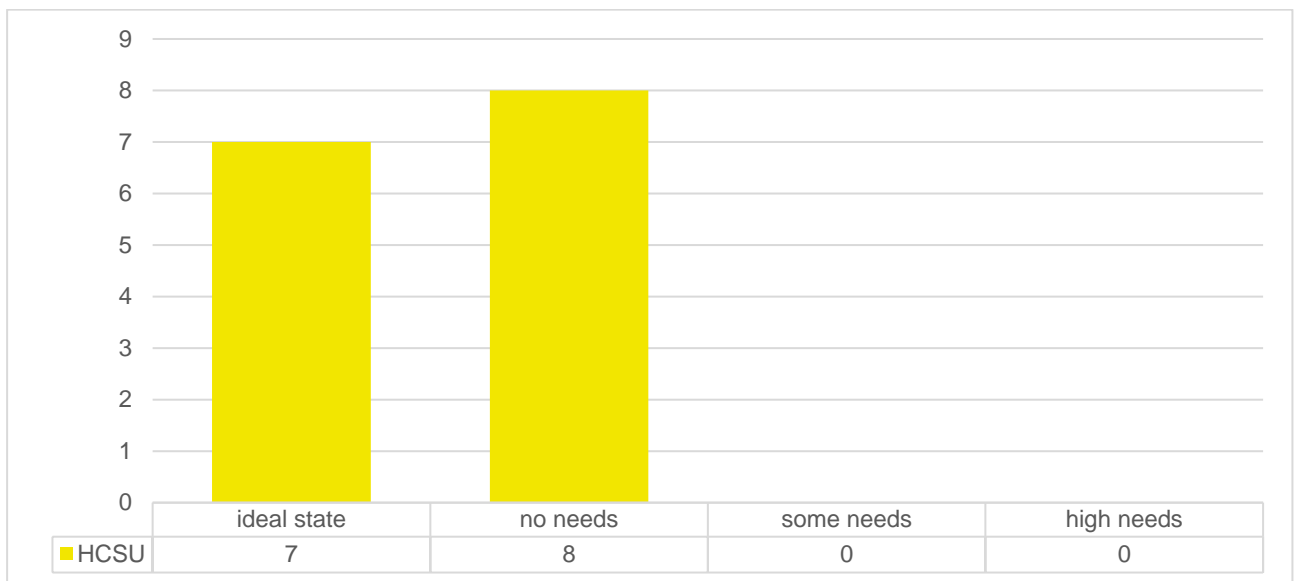
Notes: IC= informal carers

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=22 (n_{IC}=22)

7.5.3 Control over daily life (ASCOT and ASCOT-Carer)

With respect to **control over daily life**, the **majority** of HCSU in Luxembourg indicated **no needs**, meaning a “must not grumble”, but not ideal state, but no one expressed “some needs” in Luxembourg. (Figure 30). **Informal carers** in Luxembourg, however, indicated hardly ideal states and **expressed “some needs”**. (Figure 31)

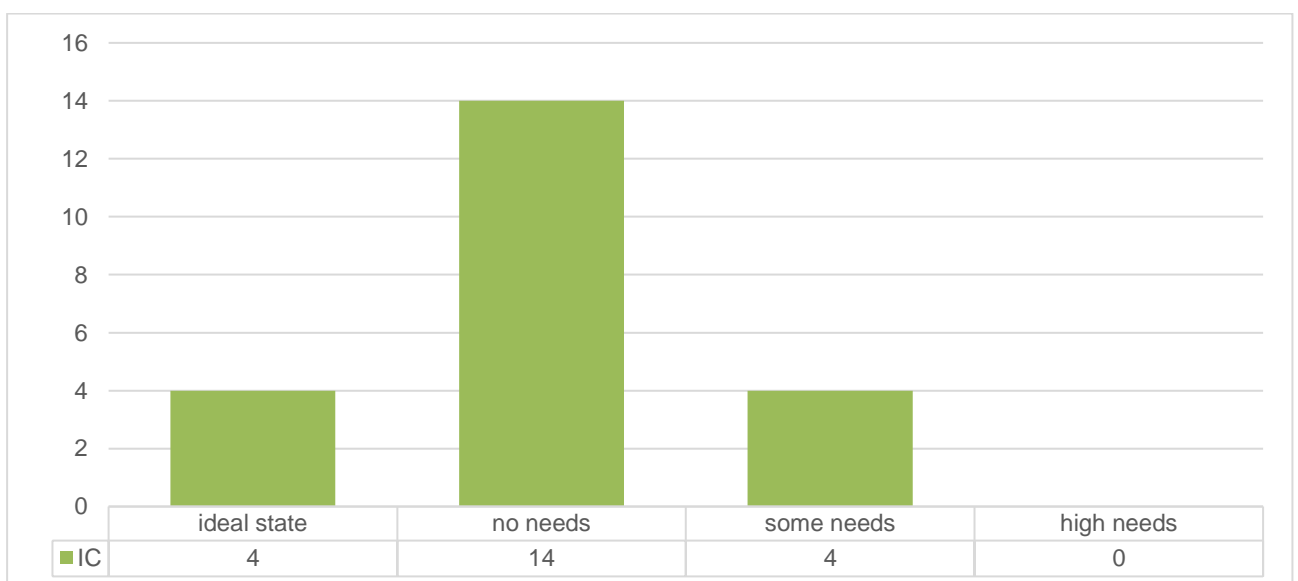
Figure 30: CareApp test group: ASCOT control over daily life – HCSU, Luxembourg



Notes: HCSU= home care service users

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=15 (n_{HCSU}=15)

Figure 31: CareApp test group: ASCOT control over daily life – IC, Luxembourg



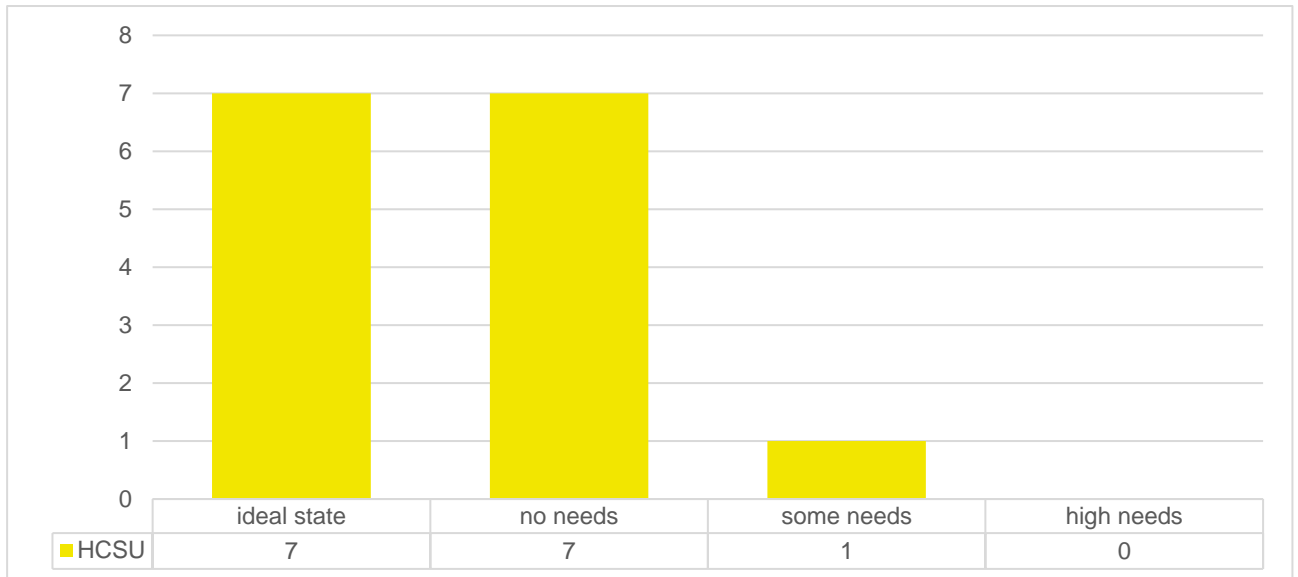
Notes: IC= informal carers

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=22 (n_{IC}=22)

7.5.4 Social participation (ASCOT and ASCOT-Carer)

For the ASCOT domain “social participation”, as many respondents in the IC sample expressed “some needs” as for no needs and the ideal state each (Figure 32).

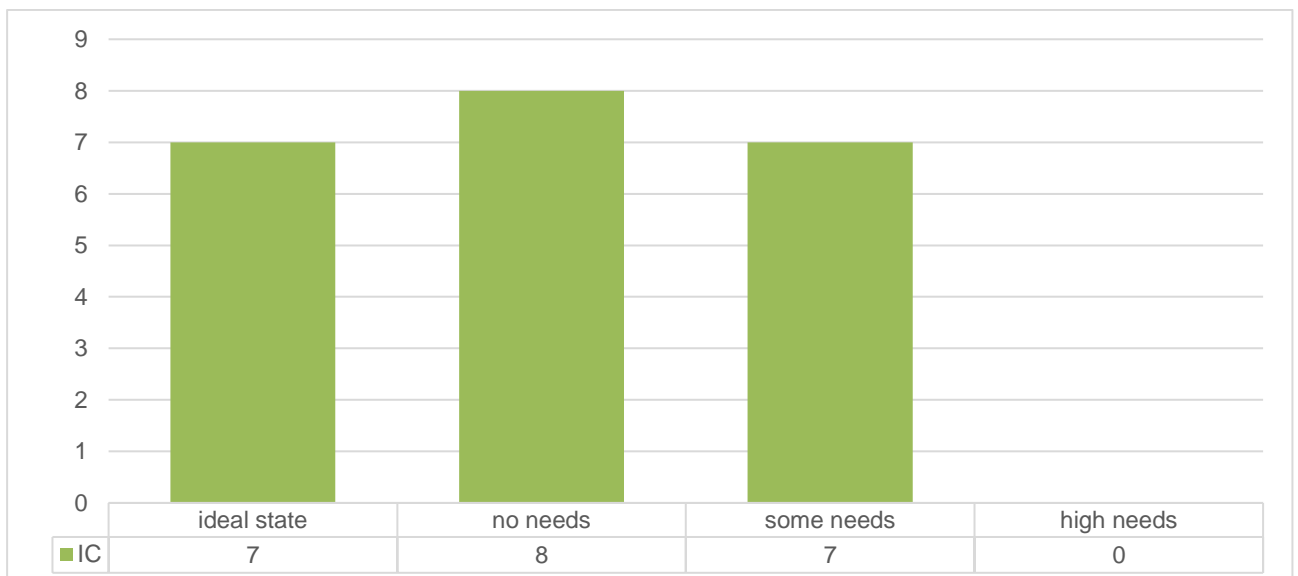
Figure 32: CareApp test group: ASCOT social participation – HCSU, Luxembourg



Notes: HCSU= home care service users

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=15 (n_{HCSU}=15)

Figure 33: CareApp test group: ASCOT social participation – IC, Luxembourg



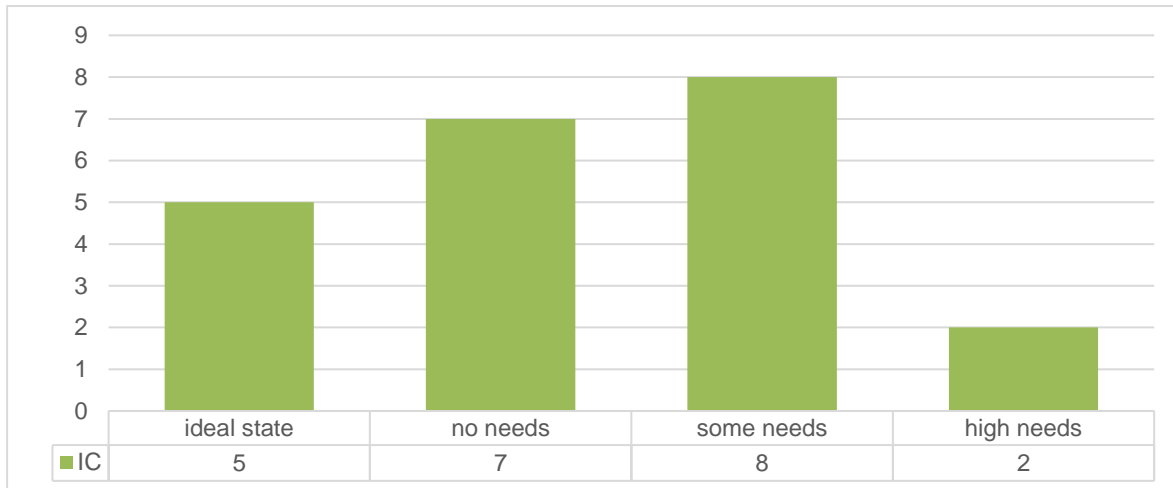
Notes: IC= informal carers

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=22 (n_{IC}=22)

7.5.5 Self-care (informal carers only) (ASCOT-Carer)

For **self-care**, half of the IC respondents in the Luxembourgish CareApp test group reported **some or high needs** (Figure 34).

Figure 34: CareApp test group: ASCOT self-care – IC, Luxembourg



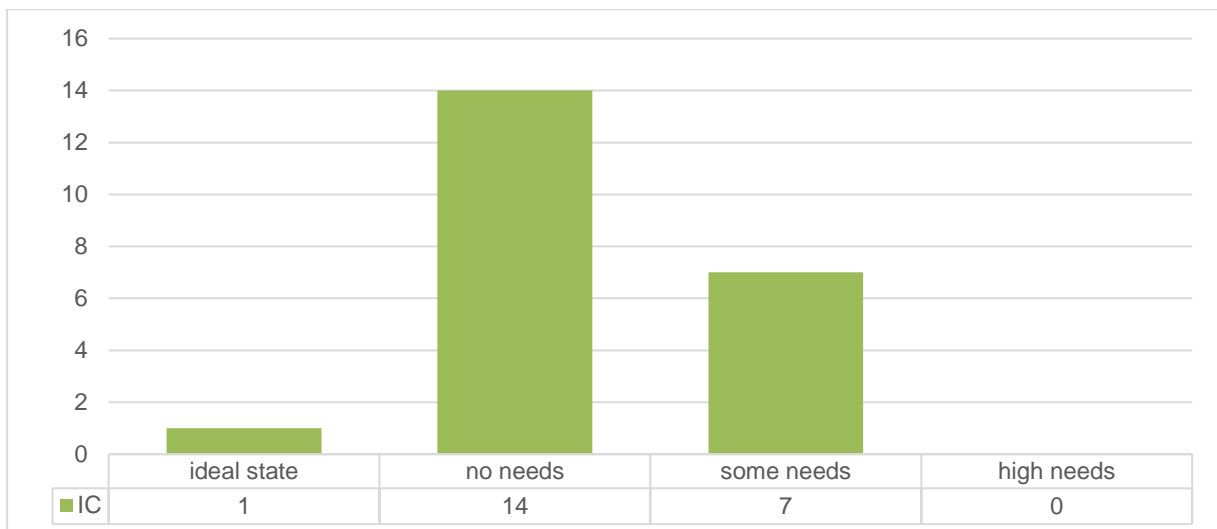
Notes: IC= informal carers

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=22 (n_{ic}=22)

7.5.6 Having time and space to be yourself (informal carers only) (ASCOT-Carer)

Also **“some needs”** are responded by a **third of the participating IC** for the ASCOT domain **“having time and space to yourself”** (Figure 35).

Figure 35: CareApp test group: ASCOT space & time – IC, Luxembourg



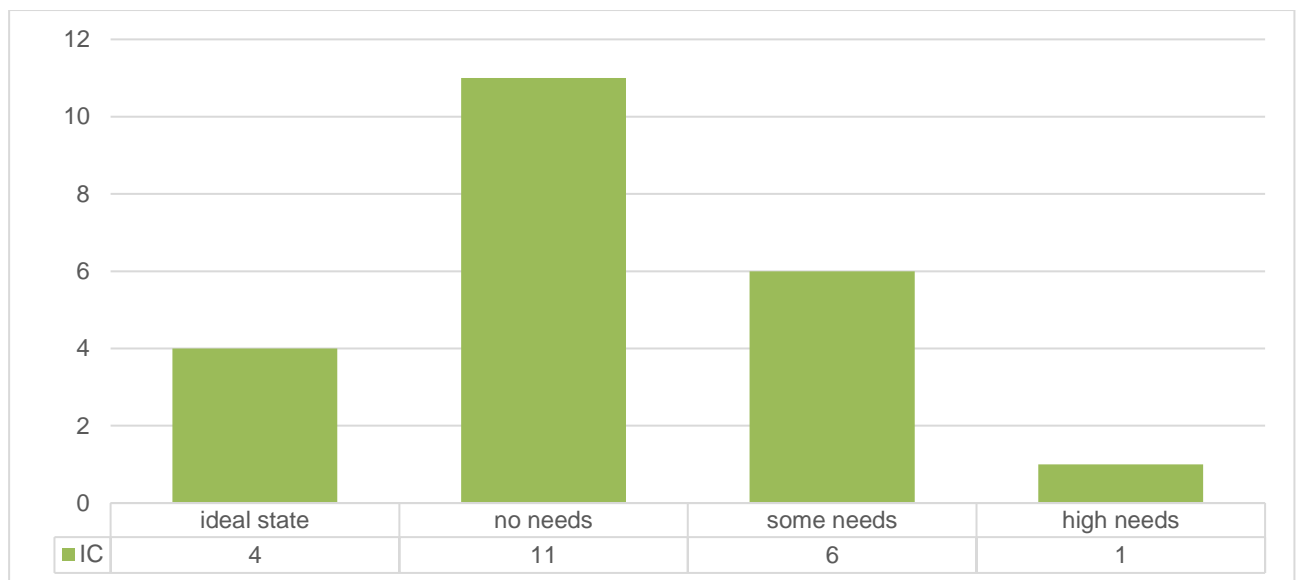
Notes: IC= informal carers

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=22 (n_{ic}=22)

7.5.7 Feeling supported and encouraged (informal carers only) (ASCOT-Carer)

For the ASCOT domain on feeling supported, the **majority of IC** reported **some or no needs** (Figure 36).

Figure 36: CareApp test group: ASCOT feeling supported – IC, Luxembourg



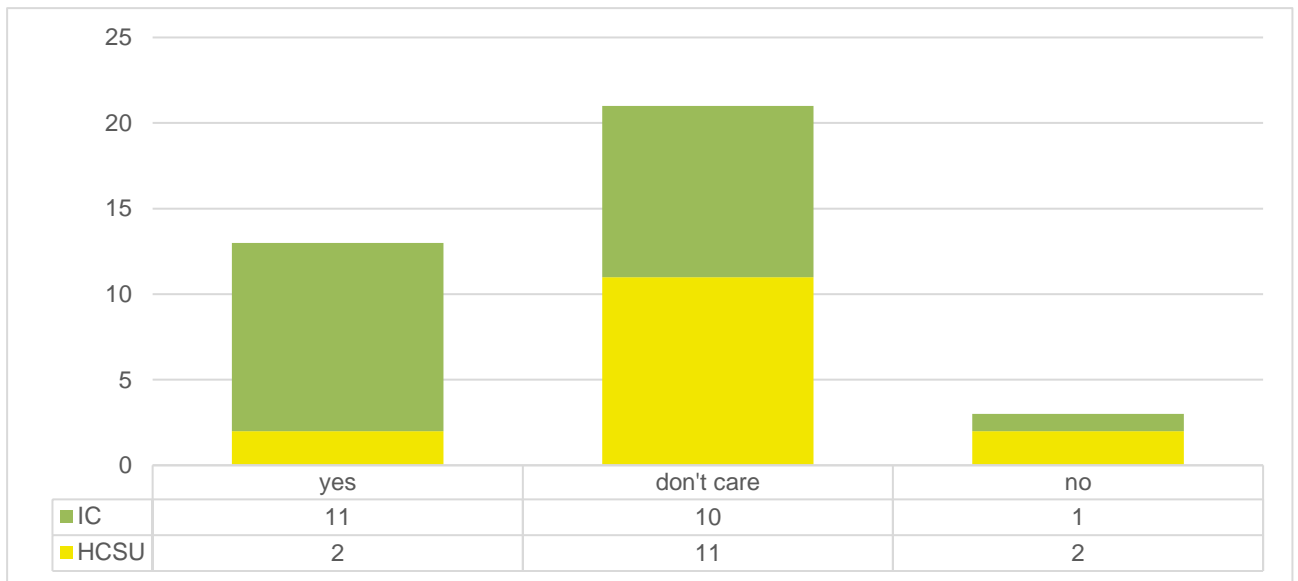
Notes: IC= informal carers

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=22 (n_{ic}=22)

7.6 Digital information

About half of IC in Luxembourg believed that the **care organisation should provide more digital services** for them. Overall, however, two thirds of the participants in Luxembourg do not care whether new digital offers are created for them. Hardly any respondent refused digital solutions in Luxembourg (Figure 37).

Figure 37: CareApp test group: If care organisation should provide more digital offers, Luxembourg



Notes: IC=informal carers, HCSU= home care service users

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

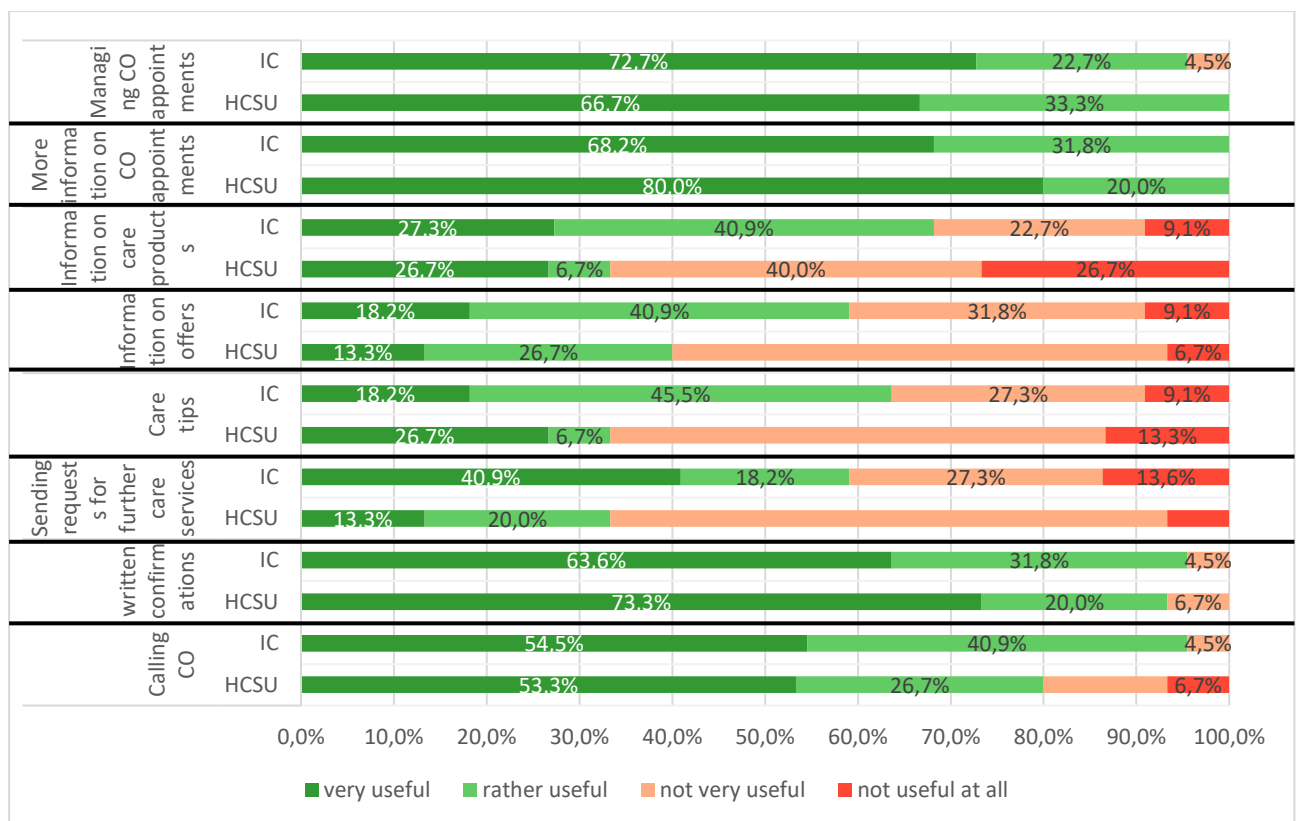
8 Results – part 6: assessment of the CareApp by test group participants

8.1 Useful features of the CareApp

Eight characteristics of the CareApp could be rated according to their perceived usefulness. Respondents could select as many characteristics as wanted from a list that was offered in a randomised order to all participants to prevent positioning effects.

As Figure 38 shows, all or almost all test group participants in Luxembourg rated “**information on**” and “**managing care appointments**” and “**written confirmation**” of care appointment changes as useful features. Also “**calling the care organisation**” was a CareApp function almost all test group participants in Luxembourg perceived as very useful.

Figure 38: CareApp test group: Useful features of the CareApp (in %), Luxembourg



Notes: IC=informal carers, HCSU= home care service users

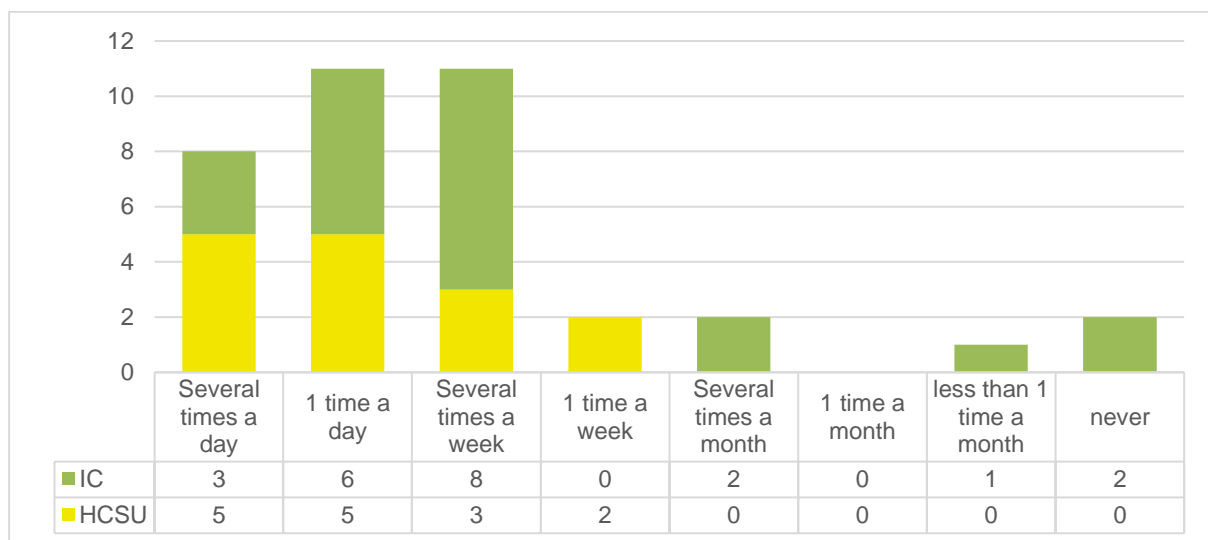
100% - all survey respondents would have picked this CareApp feature

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

8.2 Self-assessed usage of the CareApp

Figure 39 gives an overview of the self-assessed usage of the CareApp in Luxembourg. **30 of 37 participants** in Luxembourg stated to use the CareApp **at least several times a week**. 29 of 37 participants in Luxembourg responded to use the CareApp **at least daily**. Thereof, eight participants reported to use the CareApp several times a day. There does not seem to be much difference in the frequency of use between IC and HCSU. The small sample size, however, does not allow a detailed analysis.

Figure 39: CareApp test group: Self-assessed frequency of care app usage per group in Luxembourg



Notes: IC=informal carers, HCSU= home care service users

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

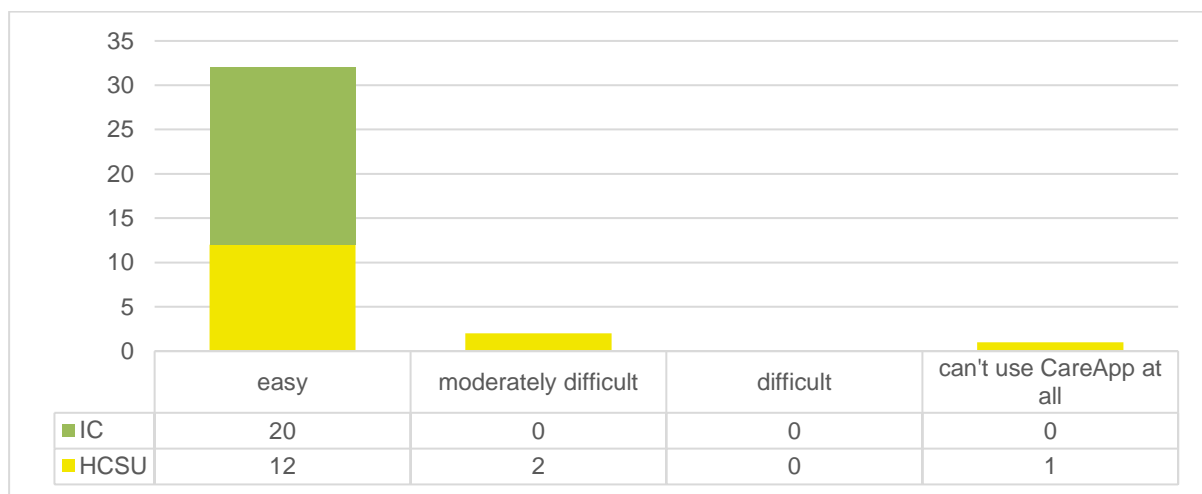
As two participants stated to have never used the CareApp, the **findings** in the following sections **refer to participants having used the CareApp less than once a month or more often**.

8.3 CareApp usability 1: ease of use

Figure 40 shows that **almost all test group participants** in Luxembourg found the CareApp **easy to use**, with all IC reporting the ease of use. Only 2 HCSU in Luxembourg found the CareApp moderately difficult and one HCSU reported not to be able to use the CareApp at all.

This result is also reflected in Figure 41. **29 of 37 test group participants** in Luxembourg completely agreed that the CareApp is **easy to use**.

Figure 40: CareApp test group: Usability rating of the CareApp per group in Luxembourg

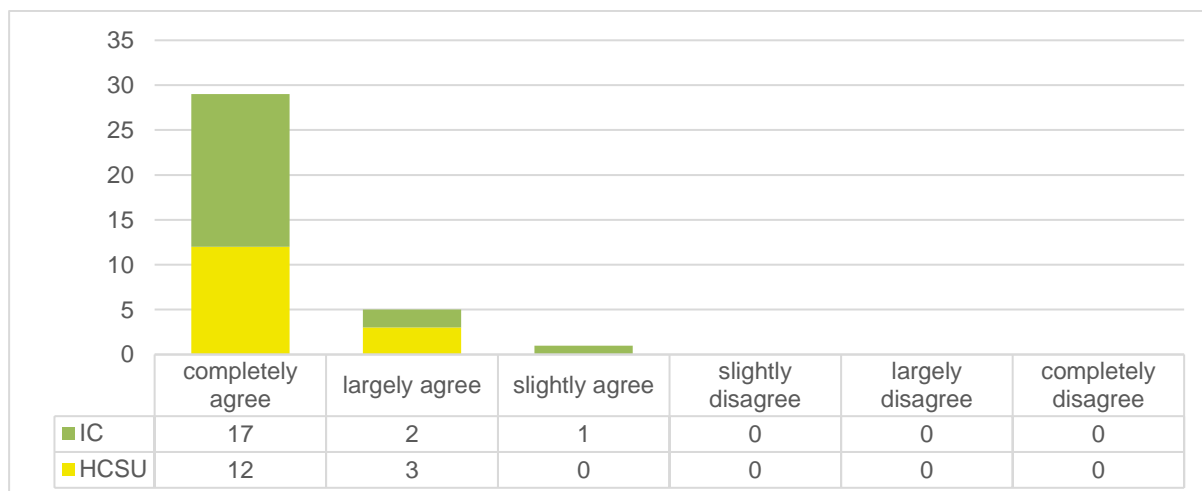


Notes: IC=informal carers, HCSU= home care service users

2 ICs did not answer this question as they stated that they had never used the CareApp.

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=35 (n_{IC}=20, n_{HCSU}=15)

Figure 41: CareApp test group: Assessment of how easy it is to use the CareApp per group in Luxembourg



Notes: IC=informal carers, HCSU= home care service users

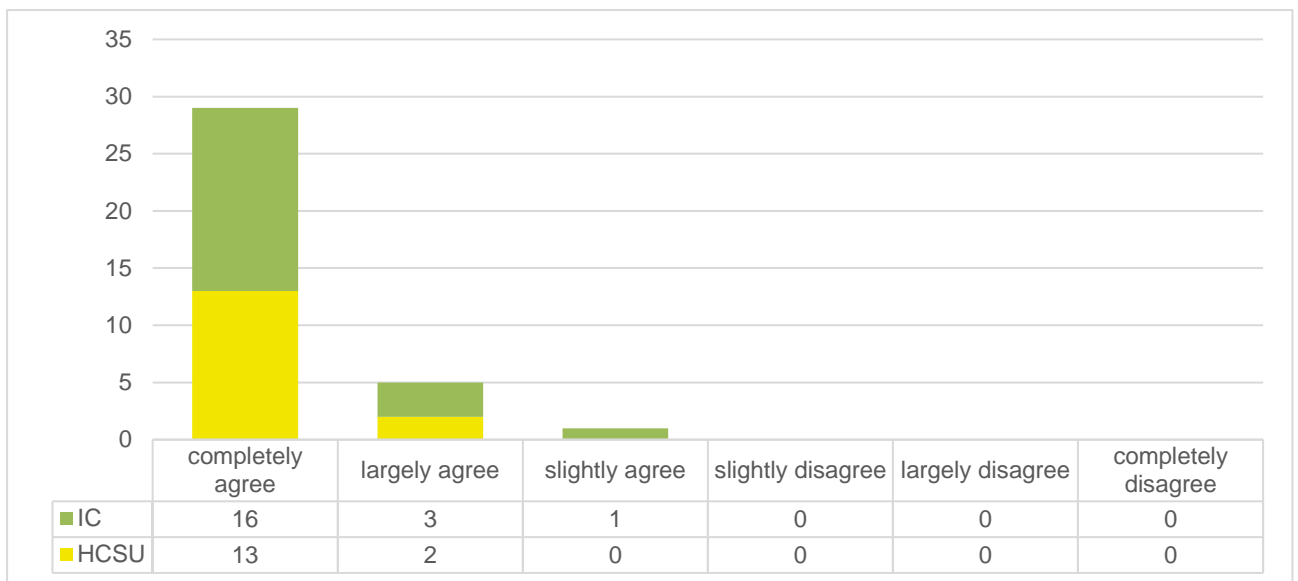
2 ICs did not answer this question as they stated that they had never used the CareApp.

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=35 (n_{IC}=20, n_{HCSU}=15)

8.4 CareApp usability 2: ability to use

Almost all participants in the Luxembourgish CareApp test group **completely agreed** that they were **able to use the CareApp**. There was no difference between HCSU and IC (Figure 42).

Figure 42: CareApp test group: Assessment of whether users are able to use the CareApp by group in Luxembourg



Notes: IC=informal carers, HCSU= home care service users

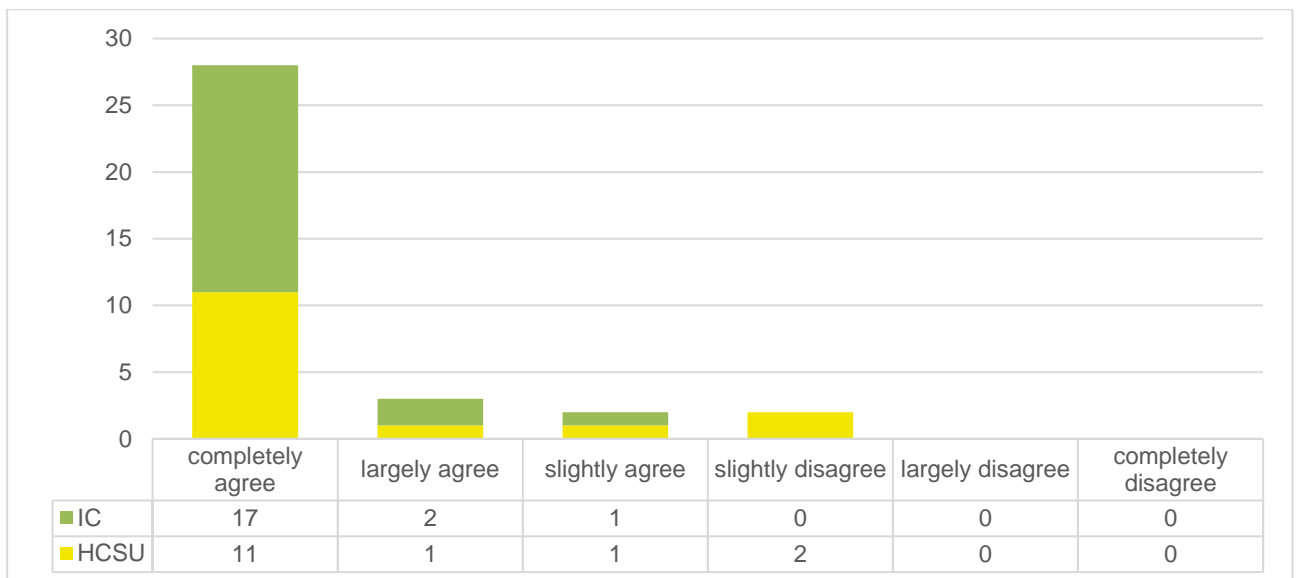
2 ICs did not answer this question as they stated that they had never used the CareApp.

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=35 (n_{IC}=20, n_{HCSU}=15)

8.5 CareApp usability 3: learnability

Similarly, **almost all** test group participants in Luxembourg completely agreed that it was **easy to learn** how to use the CareApp (Figure 43).

Figure 43: CareApp test group: Assessment of how easy it was to learn the CareApp per group in Luxembourg



Notes: IC=informal carers, HCSU= home care service users

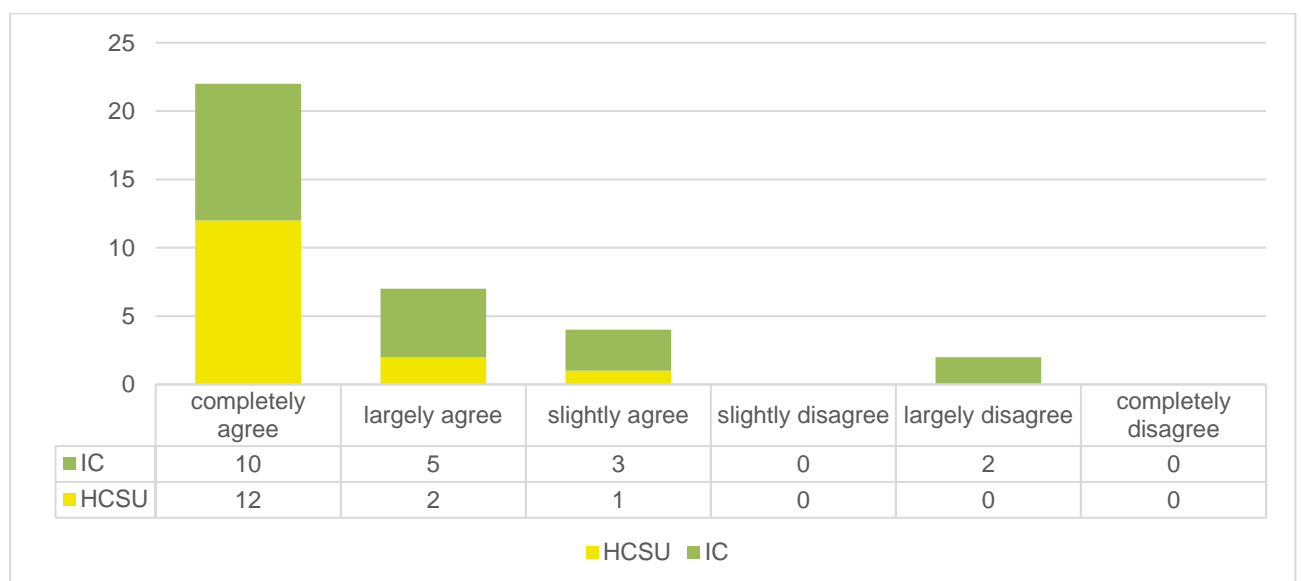
2 ICs did not answer this question as they stated that they had never used the CareApp.

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=35 (n_{IC}=20, n_{HCSU}=15)

8.6 Usefulness of the CareApp for home care service users and informal carers in Luxembourg

The majority of CareApp test group participants in Luxembourg completely agreed that the CareApp as **useful** (Figure 44). About two thirds of the test group participants stated that they **(completely) agree** that the CareApp helped them to **deal with matters related to care more quickly** (Figure 45) and **more conveniently** (Figure 46) and that the CareApp **simplifies dealing with care matters** (Figure 47).

Figure 44: CareApp test group: Usefulness ratings of the CareApp per group in Luxembourg

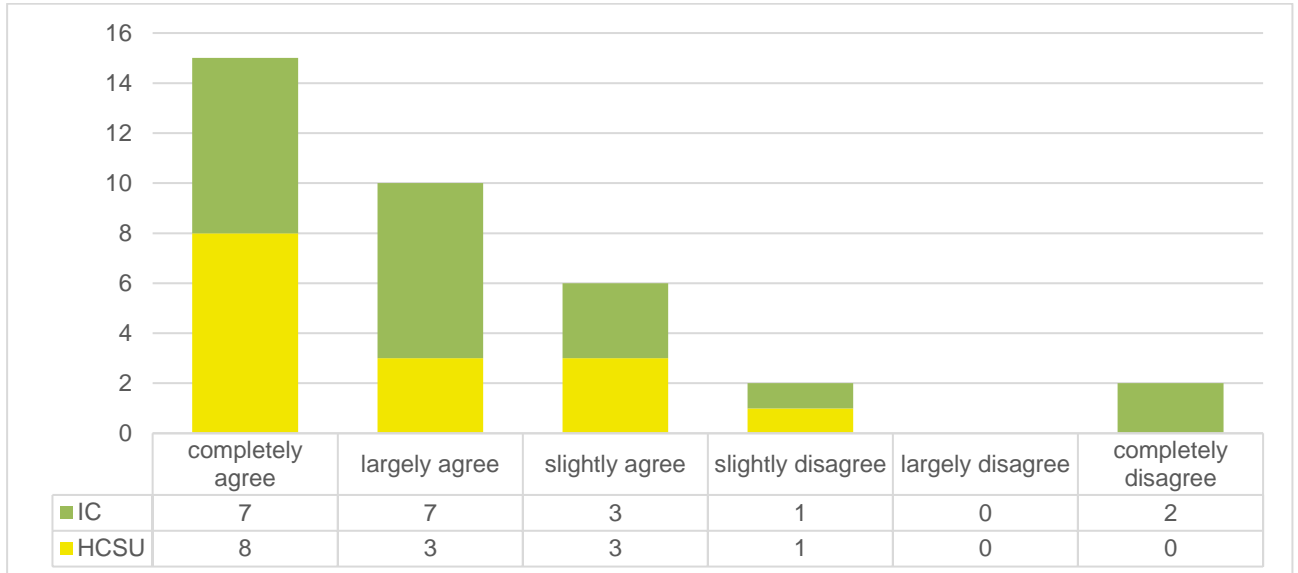


Notes: IC=informal carers, HCSU= home care service users

2 ICs did not answer this question as they stated that they had never used the CareApp.

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=35 (n_{IC}=20, n_{HCSU}=15)

Figure 45: CareApp test group: Speed ratings of the CareApp per group in Luxembourg

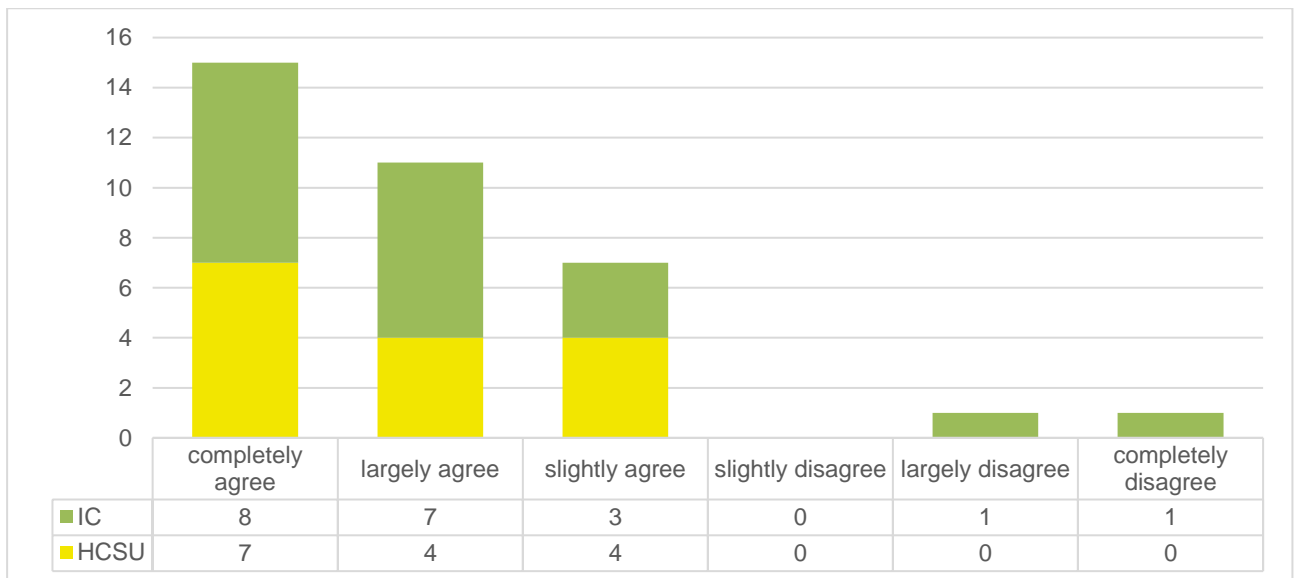


Notes: IC=informal carers, HCSU= home care service users

2 ICs did not answer this question as they stated that they had never used the CareApp.

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=35 (n_{IC}=20, n_{HCSU}=15)

Figure 46: CareApp test group: Convenience ratings of the CareApp per group in Luxembourg

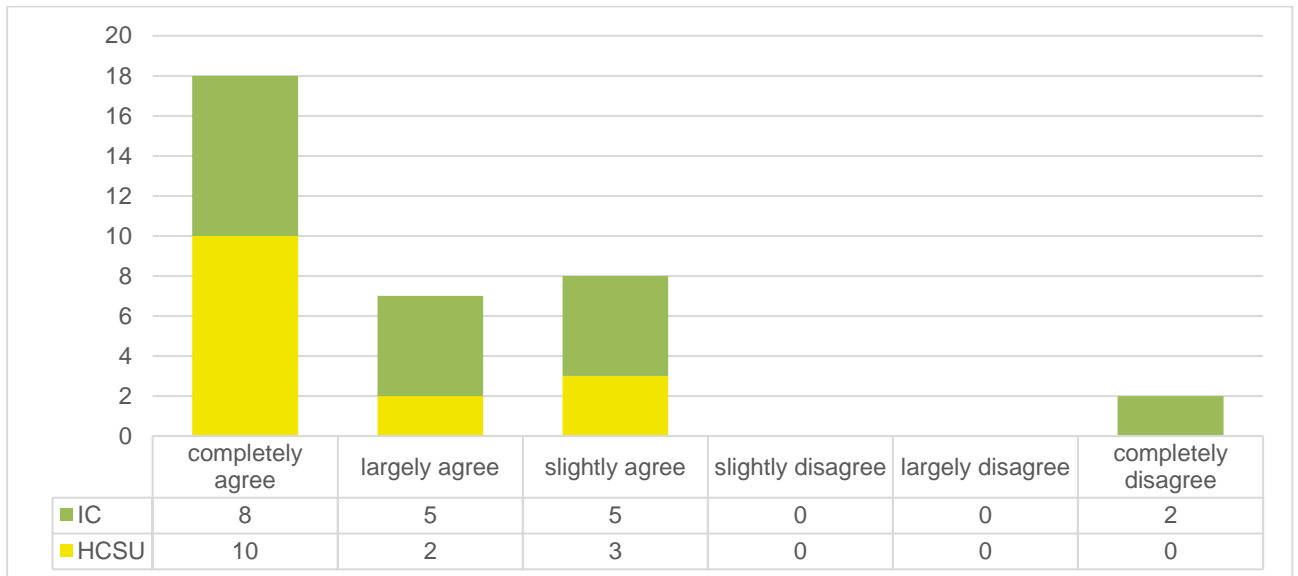


Notes: IC=informal carers, HCSU= home care service users

2 ICs did not answer this question as they stated that they had never used the CareApp.

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=35 (n_{IC}=20, n_{HCSU}=15)

Figure 47: CareApp test group: Ratings whether the CareApp simplifies dealing with care matters per group in Luxembourg



Notes: IC=informal carers, HCSU= home care service users

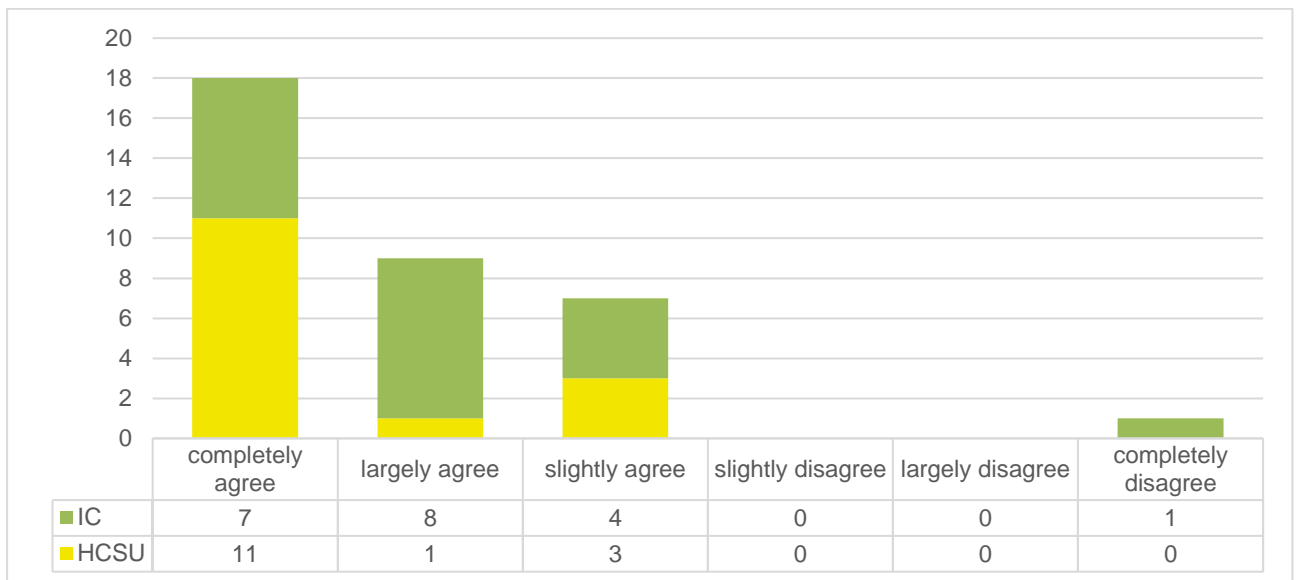
2 ICs did not answer this question as they stated that they had never used the CareApp.

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=35 (n_{IC}=20, n_{HCSU}=15)

8.7 Usefulness of the CareApp for staff – the perspective of home care service users/informal carers in Luxembourg

The majority of HCSU and IC CareApp test group participants in Luxembourg agreed that the **CareApp is useful for themselves** (Figure 48). They were also agreed that the CareApp is **also useful for SHD staff** (Figure 49 & Figure 50).

Figure 48: CareApp test group: Usefulness rating of the CareApp for staff per group in Luxembourg



Notes: IC=informal carers, HCSU= home care service users

2 ICs did not answer this question as they stated that they had never used the CareApp.

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=35 (n_{IC}=20, n_{HCSU}=15)

Figure 49: CareApp test group: Support rating of the CareApp for employees by group in Luxembourg

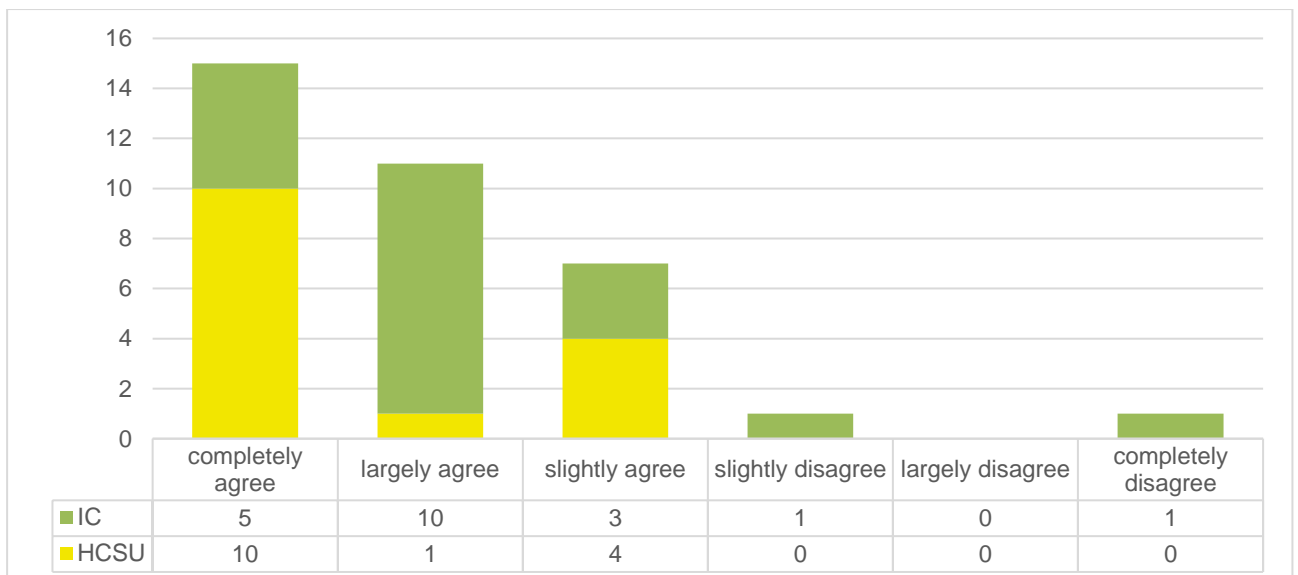


Notes: IC=informal carers, HCSU= home care service users

2 ICs did not answer this question as they stated that they had never used the CareApp.

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=35 (n_{IC}=20, n_{HCSU}=15)

Figure 50: CareApp test group: Assessment of whether the CareApp brings benefits for employees per group in Luxembourg



Notes: IC=informal carers, HCSU= home care service users

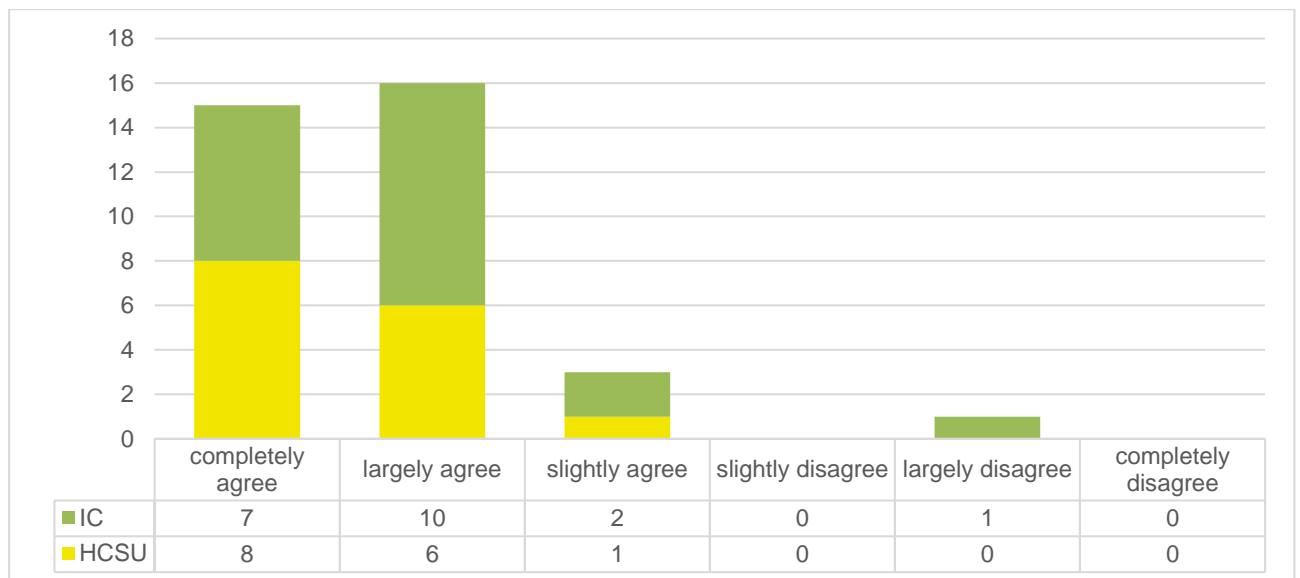
2 ICs did not answer this question as they stated that they had never used the CareApp.

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=35 (n_{IC}=20, n_{HCSU}=15)

8.8 Functionality of the CareApp

The majority of CareApp participants in Luxembourg (completely) agreed that the CareApp **was free of errors** (Figure 51) and **worked reliably** (Figure 52).

Figure 51: CareApp test group: Assessment of whether the CareApp is working error free per group in Luxembourg

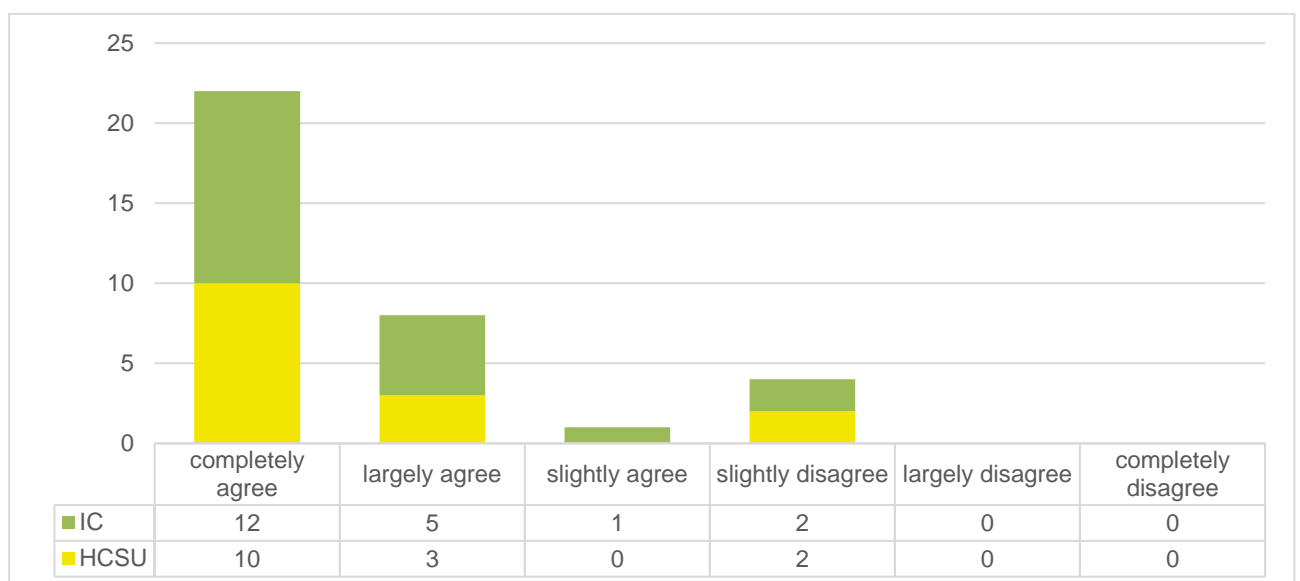


Notes: IC=informal carers, HCSU= home care service users

2 ICs did not answer this question as they stated that they had never used the CareApp.

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

Figure 52: CareApp test group: Reliability rating of the CareApp per group in Luxembourg



Notes: IC=informal carers, HCSU= home care service users

2 ICs did not answer this question as they stated that they had never used the CareApp.

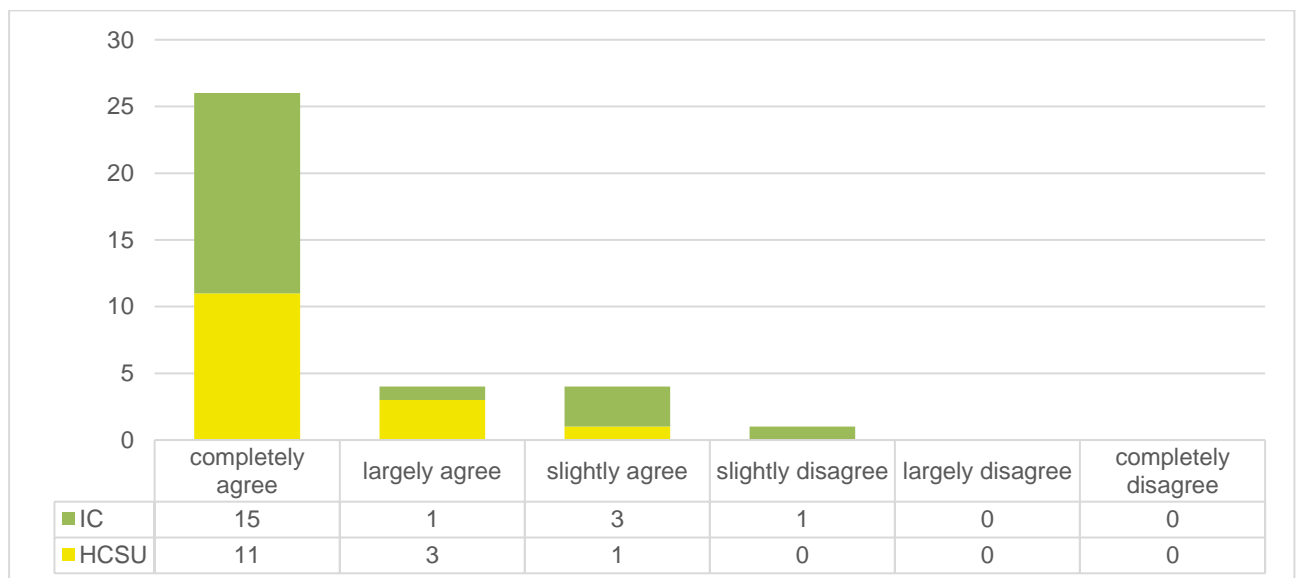
Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

In Luxembourg, CareApp users reported almost **no problem using the CareApp**. In total, only 2 problems were reported by IC, one could be solved quickly, in the other case, a problem occurred but was not reported to staff. HCSU did not report any problems.

8.9 Acceptance – future use and recommendation of the CareApp

In Luxembourg, the vast **majority** of HCSU and IC in the test group of the CareApp completely agreed that they **would like to continue using** the CareApp (Figure 53). This applies also to using the CareApp as **a tool of communication with the care organization** (Figure 54), whether the care organization should make the CareApp available in the future (Figure 55).

Figure 53: CareApp test group: Intention to continue using the CareApp in the future per group in Luxembourg

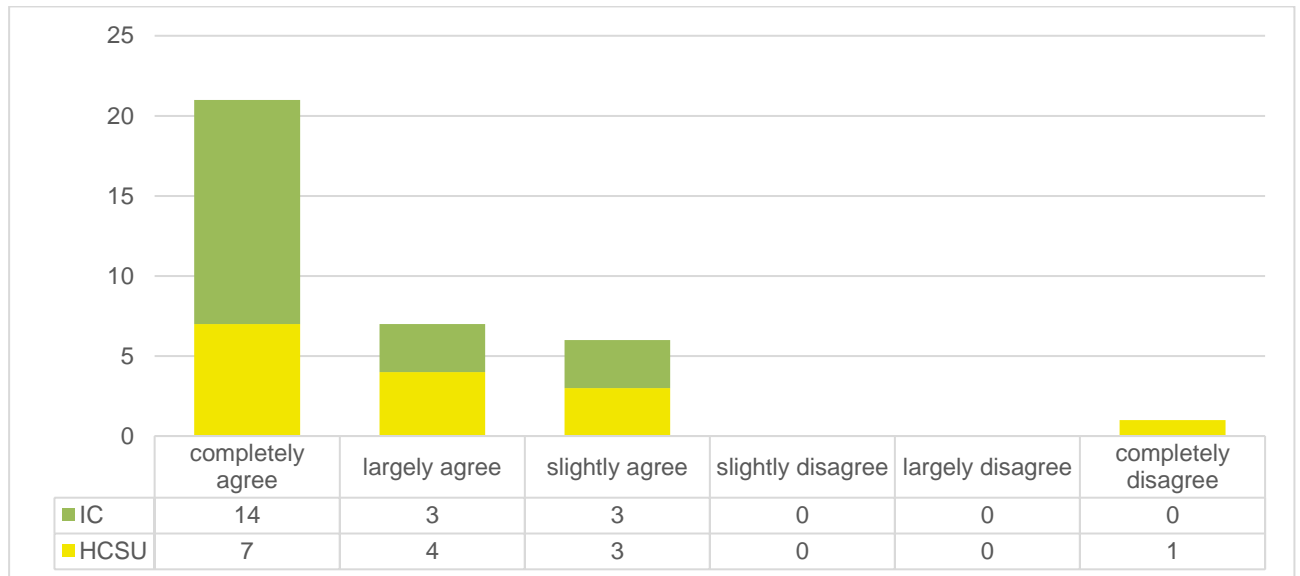


Notes: IC=informal carers, HCSU= home care service users

2 ICs did not answer this question as they stated that they had never used the CareApp.

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

Figure 54: CareApp test group: Intention to continue using the CareApp for future communication with the care organisation per group in Luxemburg

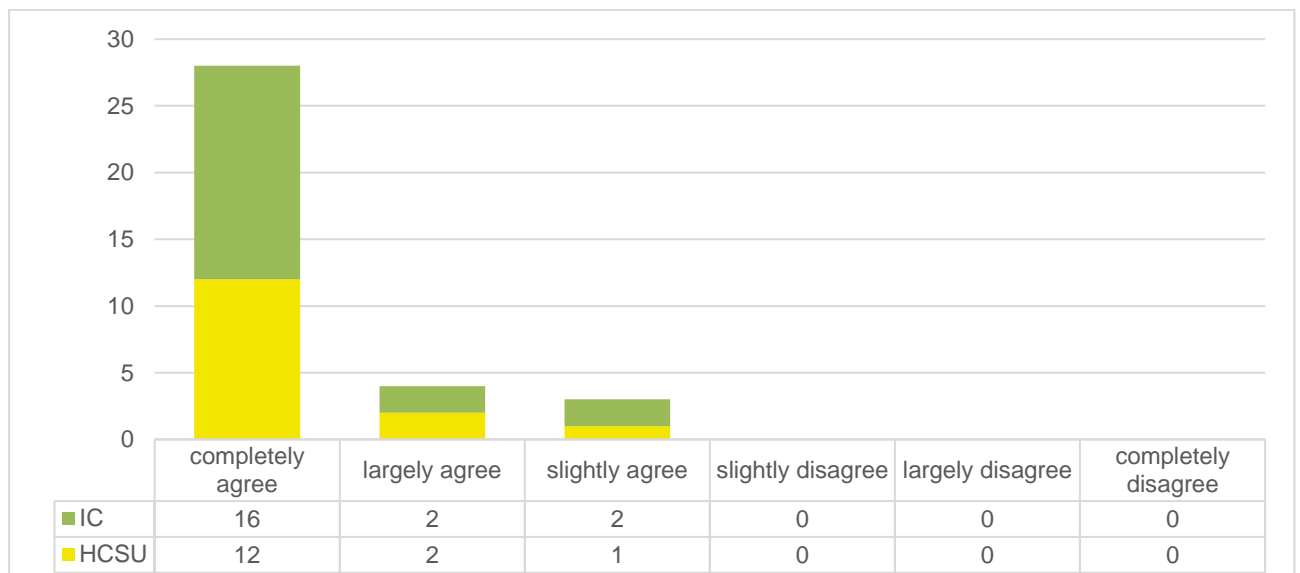


Notes: IC=informal carers, HCSU= home care service users

2 ICs did not answer this question as they stated that they had never used the CareApp.

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

Figure 55: CareApp test group: Approval rate for whether the CareApp should be made available by the care organisation in the future per group in Luxembourg.



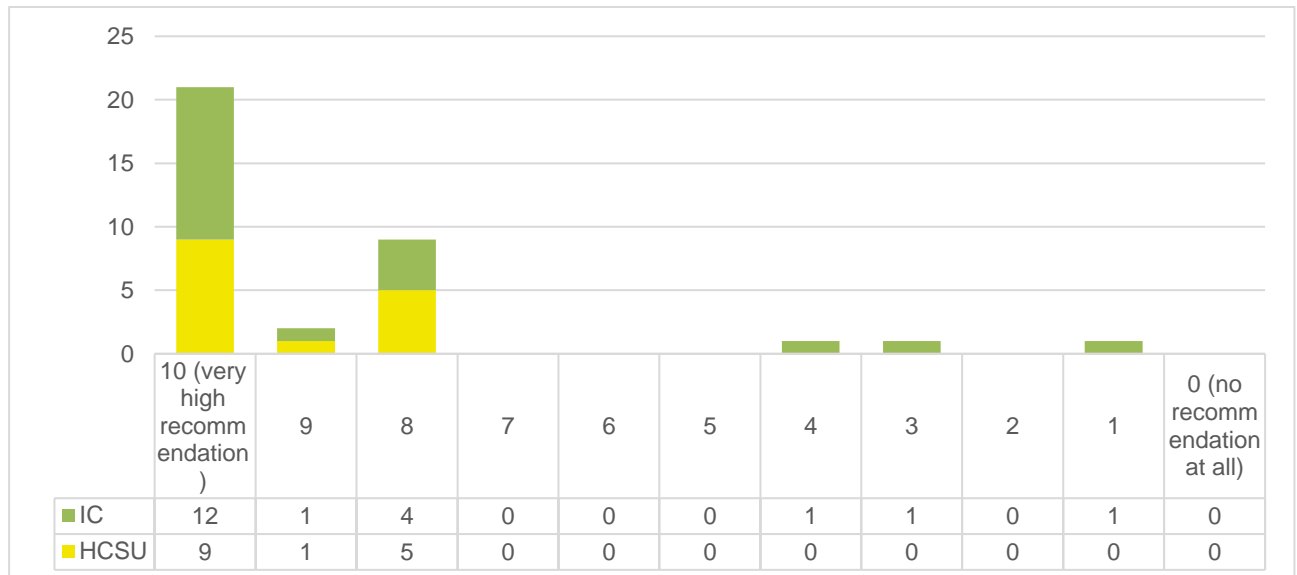
Notes: IC=informal carers, HCSU= home care service users

2 ICs did not answer this question as they stated that they had never used the CareApp.

Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

Also, the net promotor rating was excellent, with **23 of 37 participants** in Luxembourg **very highly recommending the CareApp** (Figure 56).

Figure 56: CareApp test group: Recommendations of the CareApp per group in Luxembourg.



Notes: IC=informal carers, HCSU= home care service users
 2 ICs did not answer this question as they stated that they had never used the CareApp.
 Source: WU C^C care app trial data LUX, HCSU/IC 2nd survey, 2023, n=37 (n_{IC}=22, n_{HCSU}=15)

8.10 Comments on the CareApp by test group participants in Luxembourg

A total of 20 participants in the Luxembourgish trial used the comment function. The comments were grouped into the eight categories.

Appointments

Participants in Luxembourg expressed the **wish for more information** regarding the viewing of care appointments. It should be possible to **view appointments** that **occurred a longer time ago** and to **view appointments** that are **more than a week in the future** in the CareApp.

“Visits should also be able to be viewed retrospectively and over a longer period than 7 days (e.g. 1 month back and ahead).”

With regard to arrival times, users in Luxembourg would also like to **see the exact time** instead of the currently used time ranges. And in the event of changes (e.g. delays), that these **changes are indicated** and that users are **notified of the change**.

“If a change is made, it should be displayed [...]. I never write down the original time and don't notice when there is a spontaneous change.”

It also bothers users in Luxembourg that the **time window for changing or cancelling appointments is too short**.

“Although the app was supposed to make it easier to change or cancel passages at short notice, this was unfortunately not the case.”

In addition, users in Luxembourg expressed the wish that the **type of care should be described in more detail** (e.g. when hair is washed or administrative appointments).

Know which employee is coming to visit

A recurring wish of the participants in Luxembourg was to **know the name of the employee** who is coming to the appointment.

“It would be nice to know which employee is coming, not just which qualification.”

Vital signs

Participants in Luxembourg expressed the wish to be **able to enter and edit vital signs** in the CareApp themselves. In addition, it should be possible to add other important things, such as a medication list.

Contact with care organisation

There should be options in the CareApp to leave comments and notes for the care organization. For example, it should be possible to enter a text when ordering additional services.

In addition, the wish was expressed in Luxembourg that there should be a button where users can write an e-mail directly to the care organization.

In Luxembourg, criticism was also expressed that the contact option in the CareApp is not sufficient when there is no direct access to the person in charge.

“No direct access to those responsible persons. Then you can also use a normal telephone to make contact.”

Notifications

Participants in Luxembourg expressed the wish to be able to **delete notifications**.

Acceptance of the CareApp

Users in Luxembourg expressed the wish that the **CareApp should continue to exist**. Another expressed their satisfaction with the app, as they now always know when someone from the care organization is coming to the visit.

Room for improvement

A user in Luxembourg said that the app still had a **lot of room for improvement**, as there were repeated connection problems.

Additional features and wording

Wishes that did not fit into the above categories are summarized here:

Users in Luxembourg expressed the wish to be able to **view the daily care report in the CareApp**. In addition, users would like there to be a **notification, including an acoustic signal**, when changes have been made in the app.

It was also noted by an Luxembourgish test group participant that it would look more respectful if in the CareApp used the term "patient" instead of "client".

9 Discussion

In this Deliverable of the European AAL-project “Care about Care”, we provide the results of the second survey for CareApp test group participants in Luxembourg, i.e., the Stéftung Hëllef Doheem (SHD) home care service users (HCSU) and informal carers (IC). The second survey was the survey sent to participants after a couple of weeks of having access to the CareApp in real life settings.

HCSU and IC CareApp test groups participants in Luxembourg rated the CareApp as useful for themselves but also for care workers and reported that the CareApp was easy to learn and use. The CareApp was assessed by these participants to work almost errorfree. Test group participants also reported a very regular intense use of the CareApp. CareApp test group participants in Luxembourg expressed their wishes to further use the CareApp and highly recommended the CareApp for future use to others.

Regarding potential effects of the CareApp on their users, data available do not allow such a detailed analysis for Luxembourg. However, responses to the questions on experienced changes over the last 2 months may indicate some possible impact, such as improvements in having a good sense of when care workers will arrive and in managing care appointments. A sound effectiveness analysis for Luxembourg using pre- and post-measurement in test and control groups requires – as laid out in the project proposal - a higher number of participants and more time for analysis.

This Deliverable has some limitations: To begin with, testing of the CareApp started in Luxembourg substantially delayed, which had implications on the duration of the trial (shorter period of testing than in Austria). Also, a much lower number of participants could be involved in the trial by SHD than originally planned. Both changes to the study design had implications of the type of the analysis as the number of respondents were too low to conduct a different type of analysis. In addition, there was only time left for providing a descriptive analysis of the second survey results. Second, a lower number of participants responded to the second survey

than to the first survey. Some dropout of participants is to be expected, given the weak health conditions of HCSU, and given that also IC drop out when HCSU no longer receive home care services.

The results in Luxembourg indicate that CareApp developed in the European AAL-project “Care about Care” project seems to be a promising technological innovation for home care settings.

10 References

- Netten, A., Burge, P., Malley, J., Potoglou, D., Towers, A. M., Brazier, J., . . . Wall, B. (2012). Outcomes of social care for adults: developing a preference-weighted measure. *Health Technology Assessment, 16*(16), 1-166. doi:10.3310/hta16160
- Schermann, D., & Trukeschitz, B. (2023a). *The C^C CareApp Trial in Belgium: Results of the Second Wave of Data Collection – Care Visit Planners (CareApp test group), Deliverable 19 – part trial, care app, CVP BEL, WU Vienna University of Economics and Business.*
- Schermann, D., & Trukeschitz, B. (2023b). *The C^C CareApp Trial in Belgium: Results of the Second Wave of Data Collection – Home Care Service Users and Informal Carers (CareApp Test Group), Deliverable 19 – part trial, care app, HCSU/IC BEL, WU Vienna University of Economics and Business.*
- Schermann, D., & Trukeschitz, B. (2023c). *The C^C CareApp Trial in Luxembourg: Results of the Second Wave of Data Collection – Care Visit Planners (CareApp test group), Deliverable 19 – part trial, care app, CVP LUX, WU Vienna University of Economics and Business.*
- Trukeschitz, B., Arth, L., & Schermann, D. (2022). The C^C CareApp Pilot: Results, Deliverable D19-part pilot CareApp of the “Care about Care” Project, WU Vienna University of Economics and Business.
- Trukeschitz, B., & Schermann, D. (2022). *The C^C CareApp Pre-Trial in Austria, Results, Deliverable D19-part pre-trial Care App of the “Care about Care” Project, WU Vienna University of Economics and Business.*
- Trukeschitz, B., & Schermann, D. (2023a). *The C^C CareApp Trial in Austria: Results of the Second Wave of Data Collection – Care Visit Planners (CareApp test group), Deliverable 19 – part trial, care app, CVP AUT, WU Vienna University of Economics and Business.*
- Trukeschitz, B., & Schermann, D. (2023b). *The C^C CareApp Trial in Austria: Results of the Second Wave of Data Collection – Home Care Service Users and Informal Carers (CareApp test group), Deliverable 19 – part trial, care app, HCSU/IC AT, WU Vienna University of Economics and Business.*
- Trukeschitz, B., Schermann, D., & Schneider, C. (2022). *Field trial of the C^C CareApp. Study design & guidelines for recruitment & trial execution, Deliverable D17_v6 & D18_v6 of the “Care about Care” Project, WU Vienna University of Economics and Business.*