CMF analysis of data - 2021 update

Ageing Better in Camden

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Author(s)	James West and Neil Reeder
Quality assurance by	Tim Vanson
Email	tenders@traverse.ltd

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Introduction

Background

The programme

The Ageing Better in Camden (ABC) programme is a seven-year programme that aims to address social isolation and loneliness in older people living in Camden. The programme is investing £4.5m from the National Lottery Community Fund, and is intended to produce the following outcomes:

- Older people at risk from or experiencing social isolation will be more involved in their communities and provide stronger support to each other
- Older people will experience less social isolation as a result of participation in programme activities
- Services which address the social isolation of older people (SIOP) in Camden are more relevant and better co-ordinated, with increased numbers of older people engaged in their design and delivery.

ABC is funding and supporting a range of projects for older people in Camden to form a body of evidence that increases awareness and knowledge in relation to SIOP, both locally and more widely. The following projects have been supported by ABC:

- Digital inclusion (delivered by the Mary Ward Centre)
- Intergenerational activities (delivered by North London Cares)
- Kilburn Community Action Project (CAP) (delivered by Kilburn Older Voices Exchange)
- LGBT+ Connect (delivered by Opening Doors London and Age UK Camden)
- St Pancras and Somers Town CAP (delivered by Origin Housing)
- Regent's Park CAP (delivered by Third Age Project)
- Bangladeshi CAP (delivered by a partnership led by Hopscotch Asian Women's Centre with Bengali Works Association and Kings Cross Brunswick Community Association)
- Gospel Oak and Haverstock CAP (delivered by a partnership led by Kentish Town City Farm with Queens Crescent Community Association and Castlehaven Community Association)
- Abbey Community Centre
- Akash Residents Association
- Community Association for West Hampstead
- Community Connectors

- Covent Garden Dragon Hall
- Fitzrovia Centre
- Henna Asian Women's Centre
- Highgate Newton Community Centre
- Kosmos Centre
- SeeThrough Theatre
- West Hampstead Women's Centre
- London School of Mosaic
- Akademi South Asian Dance UK

The report

This report builds on the 2018 and 2019 analyses of survey data collected over the course of the ABC programme. It analyses demographic data and CMF data[1] up to 28th May 2021 and seeks to explore whether the programme is achieving a reduction in loneliness (one of the key outcomes of the programme as laid out on the previous page). We have included significance testing and regression analysis to better interpret the data and we worked with a statistical modelling specialist to produce this report.

The survey used to capture the data presented in this report is called the Common Measurement Framework (CMF) questionnaire, which is used across all national Ageing Better projects and contains questions to measure **loneliness**, as well as **health, wellbeing and levels of social contact**. This report includes data collected between the start of the project and the cessation of CMF data collection in early 2020 (which occurred as a consequence of the onset of the Covid-19 pandemic). This data was collated and accessed by Traverse on 28th May 2021.

This CMF survey is administered to participants at **two time points**: within three weeks of joining an ABC project and then again six months later. This allows for a mode of comparison to help understand the impact ABC projects are having and whether these are in line with their intended outcomes.

It should be noted that the CMF instrument was regarded by projects as a **lengthy and potentially complex** data collection tool which negatively impacted on response rates and on receiving full completions.

Prior to sending out CMF surveys, demographic data are collected from all participants when they first attend a project. There is no control group to which results can be compared, but this report does highlight key findings which are

[1] The Common Measurement Framework "incorporates measurements which are used widely in the field of social research, ageing, and health and wellbeing studies to collect robust evidence in as streamlined a way as possible". For more detail on the CMF and its measures, see *Ageing Better: Impact Evaluation Report*, Ecorys for the National Lottery Community Fund (December 2021).

notably similar to or different from those in the national impact evaluation report produced by Ecorys for the National Lottery Community Fund.[2]

Loneliness measures

Loneliness is measured within the CMF questionnaire using two scoring methods:

- De Jong Gierveld (DJG) scale: a scale of 0-6 with 6 being the most lonely
- UCLA loneliness scale: a scale of 3-9 with 9 being the most lonely

Within this report, we will be using the UCLA loneliness measure. This is in line with the Government's policy paper *A connected society: a strategy for tackling loneliness* and is the loneliness measure used for designing and reforming policies.

The UCLA loneliness measure asks the following questions:

- How often do you feel you lack companionship?
- How often do you feel left out?
- How often do you feel isolated from others?

Answers are scored as follows:

- Hardly ever: 1
- Some of the time: 2
- Often: 3

Answering all 3 questions corresponds to a score from 3-9, with 3 being the least lonely and 9 being the most lonely.

Following Ecorys' groupings for ULCA loneliness scores, to present a streamlined picture we have on occasion grouped UCLA scores as follows:

- 3/4/5 as not lonely
- 6/7 as moderately lonely
- 8/9 as most lonely

Regression analysis

In addition to UCLA data, we also have data on membership of social groups, involvement in social initiatives, and giving unpaid help to society. On the basis of this data, we have used regression analysis to assess if there has been a statistically significant change:

- In the average score of the cohort between the baseline and the follow-up
- In the proportions of the cohort who have a very high level of loneliness (a UCLA score of 8 or 9) between the baseline and the follow-up

[2] *Ageing Better: Impact Evaluation Report*, Ecorys for the National Lottery Community Fund (December 2021).

The analysis from each of these points is briefly summarised in Chapter 5 (Assessment of change in levels of loneliness). The full regression analysis with data tables is available in Appendix 3, including details of an updated methodology for calculating the age of participants and the implications of using this methodology.

Terminology

The table below clarifies or explains some of the terminology used in the course of this report. For a list of measures used in this CMF analysis please see Appendix 2.

Phrase	Explanation	Measure (if applicable)
'Social groups'	Participants were asked whether they took part in any of the following group activities: • Political parties, trade unions or environmental groups • Tenants groups, neighbourhood groups, Neighbourhood Watch • Church or religious groups • Charitable organisations • Education, arts or music groups or evening classes • Social clubs • Sports clubs, gyms or exercise classes • Any other organisations, clubs or societies The above are what are referred to in this report as 'social groups'.	Social participation (Social)
'Being involved'	Participants were asked whether they took part in the following activities: • Sharing ideas to help plan a new activity • Deciding how an activity will be delivered • Helping to run an activity for other people • Gathering information to see if an activity is making a difference for people • Been consulted about policies and services Participants who have taken part in the above activities are described in this report as 'being involved'.	Co-design (Involved)
'Volunteering' or 'helping'	Participants were asked whether they had given unpaid help in any of the following ways: • Raising or handling money / taking part in sponsored events • Leading a group / member of a committee • Organising or helping to run an activity or event • Visiting people • Befriending or mentoring people	Volunteering (Help)

	• Giving advice / information / counselling • Secretarial, admin or clerical work • Providing transport / driving • Representing • Campaigning • Other practical help (eg. helping out at school, shopping) • Any other help Participants who had done the above are described as 'providing help' or 'volunteering'.	
'Group-based activity'	The projects funded by ABC and listed in 'The Programme' above were each categorised as either 'Group based' or 'Mixed delivery model'. In this report the phrase 'group-based activity' will refer to projects placed in the former category. It does not refer to activities which participants may take part in outside of the programme. This is distinct from 'social groups' because group-based activities can only be ABC funded project, whereas someone could participate in groups which are not ABC funded projects.	n/a

Summary of key findings

This analysis suggests that the Ageing Better Camden initiative has reduced levels of loneliness in its cohort – partly directly through the activities and projects which have been funded by ABC, and partly indirectly through simply encouraging participants to undertake an increased level of social engagement more generally[3].

Analysis of the CMF data also suggests that:

- Loneliness of participants in the ABC programme reduced between baselines and follow-up.
- This was also seen in participants in the national programme. However, the national evaluation found that loneliness also reduced over the same time period in the comparator group. In the absence of a comparator group for this analysis it is not possible to conclusively demonstrate a positive impact of participation in the overall programme, but the analysis does indicate that participation in social groups is a key variable.
- Those who were loneliest at baseline were least likely to go on to return follow-up UCLA data. However, those who were loneliest at baseline and **did** go on to provide follow-up UCLA data saw a greater improvement on average than those who were less lonely.
- There continue to be twice as many females as males participating in ABC. This is in line with participation in the national Ageing Better programme.[4]
- ABC participants are in relatively poor health for their age when compared to the national average and those with better health typically registered lower UCLA baselines scores. This indicates a clear link between health and loneliness and supports the findings of the national evaluation.[5]
- Participants who live with their partner were less likely to have a high UCLA score at baseline than those who live on their own, with family or in residential accommodation. Meanwhile, participants who live with their family saw the greatest average improvement in their UCLA score at follow-up.

[3] It should be noted, however, that there is substantial skewing in some of the characteristics of those that returned follow-up data, and so the results should be treated with caution.
[4] *Ageing Better: Impact Evaluation*, Ecorys (2021), p. 38.
[5] Ibid., p. 57.

Who are ABC participants?

Participation

Overall, **5,014 participants** have been recorded in the participant database, including:

- 1195 who reported some kind of UCLA data (though not necessarily complete)
- 1137 for whom it was possible to calculate a baseline UCLA score
- 1036 who provided reliable information on categories of interest and for whom it was possible to calculate a baseline UCLA score and
- 434 who provided completed data including follow-up UCLA scores.

Demographics

Table 1 (on page 12) shows the demographic profile of the whole dataset, those providing baseline UCLA data, those providing follow-up UCLA data, and (where available) the demographic profile of Camden as a whole for comparison.

The demographic profile of ABC participants continues to be broadly in line with previous years. Most notably, there are still almost two females for every one male participating in ABC programmes, which is in line with those participating in the national Ageing Better programme.[6] There are also a greater proportion of Asian participants in each of the samples than in the wider Camden population owing to targeted interventions.

However, there were some variations in the demographic data compared to previous years. For example:

- Less than half of respondents now identify as Christian (down to 44% from 50% in 2019)
- The proportion of respondents who are of no religion is also down on previous years (to 19% from 22% in 2019 and 25% in 2018)
- The proportion of participants from ethnic minorities is up from 31% in 2018 to 36% in 2021, whilst the number of white participants (63%) is down on 2018 (69%) though largely unchanged from 2019 (64%). This is a higher proportion of individuals from ethnic minorities than took part in the national Ageing Better programme.[7]
- Since 2019, the proportion of respondents from mixed ethnic backgrounds is down (from 6% to 2%) and from 'other' ethnic groups is up (from 2% to 6%)

[6] Ibid., p. 38.
[7] Ibid., p. 38.

- Since 2018, the proportion of gay or lesbian participants has dropped (from 19% to 13%) and the proportion of heterosexual participants has increased (from 79% to 84%) which can be explained in part by a reduced proportion of participants having been involved in the LGBT Connect programme compared to previous years. However, the proportion of gay or lesbian participants remains significantly higher than the proportion of either those taking part in the national Ageing Better Programme (4%) or in England as a whole in the 50+ age range (1%).[8]

For charts illustrating the demographic breakdowns of participants and comparing these breakdowns to those from previous reports in 2018 and 2019, see Appendix 4.

Loneliness

On average, participants scored 5.3 on the UCLA scale at baseline, with 548 (48%) being scored as lonely and 173 (15%) as very or the most lonely. This is comparable to the national evaluation, where the average UCLA score was 5.45 and 50% of people starting an Ageing Better project were lonely. However, comparative data from a survey of people aged 63 and over in England showed that just 17% were lonely. This shows that the Camden programme has, like the national programme, been effective in engaging people who were more lonely than the wider population.[9]

Representativeness of follow-up data

Logistic regression analysis was used to assess what would affect the likelihood that participants would provide follow-up data. Table 6 in Appendix 3 shows the full results of this analysis.

Three characteristics increased the likelihood of follow-up data being available:

- Being white
- Participating in social activity
- Providing unpaid help

Meanwhile, three characteristics decreased the likelihood of follow-up data being available:

- Providing no response in relation to gender
- Being heterosexual
- Involvement in organising or running activities

It should be noted that as part of the LGBT Connect project, participants received follow-up communications and telephone assistance with questionnaire completion. This was not offered by any other project and explains why being heterosexual appears as a characteristic that reduces the likelihood of follow-up data being available.

[8] Ibid., p. 39.
[9] Ibid., p. 36 and Table 8 of the accompanying methods note.

There are signs that the characteristics of those returning follow-up data are skewed and therefore caution should be applied when interpreting the results.

Table 1: Demographic breakdown for the overall data set, for baseline, follow-up, and for Camden as a whole.

	Overall Participants (n=5014)	Baseline with initial UCLA data (n=1137)	Follow-up with full before and after UCLA data (n=434)	Camden residents (2011 census)[10]
Ethnicity				
Sample size	3458	998	415	
Asian	20%	20%	19%	16%
Black / African / Caribbean	8%	7%	5%	8%
Mixed ethnic background	2%	2%	2%	6%
Other ethnic group	6%	6%	2%	4%
White	63%	65%	71%	66%
Gender				
Sample size	4029	1057	422	
Female	66%	68%	64%	51%
Male	34%	32%	36%	49%
Age[11]				
Sample size	4008	1036	421	

[10] See https://opendata.camden.gov.uk/w/hkvy-6gcw/7xcc-ae6v. Data not included for age as activities are deliberately targeted at older residents. Data for sexuality was not available for Camden from the 2011 census.

[11] Two values given as two methodologies have been used to calculate participant age. Participants provided their year of birth rather than their age, so the first method (before the slash) uses their ages at the time of reporting (2021). The second method (the number after the slash) uses the participants' ages at the point in time when they took part in an activity. See Appendix 4 for further details.

<60		6% / 9%	4% / 9%	3% / 7%	-
60-64		8% / 13%	8% / 13%	6% / 13%	-
65-69		13% / 17%	14% / 17%	13% / 19%	-
70-74		18% / 18%	20% / 21%	22% / 22%	-
75-79		17% / 16%	19% / 16%	24% / 18%	-
80-84		15% / 13%	15% / 12%	15% / 12%	-
85+		22% / 14%	20% / 12%	17% / 9%	-
Religion					
Sample size	3068	917	377		
Buddhist		2%	3%	4%	1%
Christian		44%	48%	47%	39%
Hindu		2%	3%	3%	2%
Jewish		3%	3%	2%	5%
Muslim		12%	11%	7%	14%
Sikh		0%	0%	0%	0%
No religion		19%	20%	23%	29%
Other		6%	6%	6%	1%
Sexuality					
Sample size	2284	735	295		
Bisexual		2%	3%	4%	-
Gay/Lesbian		13%	17%	25%	-
Heterosexual		84%	80%	70%	-

Variables impacting loneliness

Demographics and loneliness scores

Table 2 (on the following page) shows the average UCLA scores at baseline and follow-up for a range of different demographic groups. It also shows:

- 'Difference' – The difference between the average UCLA score at baseline and the average UCLA score at follow-up. Not every participant returned data for both, so this comparison is made between two different cohorts.
- 'Improvement' – The average difference between UCLA score at baseline and UCLA score at follow-up only for participants who returned both sets of data.

In line with the findings of the 2019 report, this shows that, in general, men are slightly lonelier than women, but regression analysis shows that this difference is not statistically significant.[12] Indeed, regression analysis has also shown that care should be taken when interpreting the follow-up results.[13] This is reinforced by the finding in the evaluation of the national Ageing Better programme that, though loneliness did reduce amongst participants, it also reduced in the comparator group. It appears to not necessarily be the case that any improvement is linked to participation in the programme itself,[14] though our analysis does find some evidence of the beneficial impact of participation in social groups.[15]

[12] See Table 6 in Appendix 3 for more detail.
[13] See Table 5 in Appendix 3 for more on the skewed characteristics of follow-up participants.
[14] *Ageing Better: Impact Evaluation*, Ecorys (2021), pp. 55-6.
[15] See 'Assessment of change in levels of loneliness'.

Table 2: Average UCLA scores where 'Difference' is the average UCLA baseline score minus the average UCLA follow-up score (to account for the fact that a higher score is more lonely) whilst 'Improvement' is the average difference between UCLA baseline score and UCLA follow-up score for participants who have provided both.

	Baseline (n=1137)	Follow-up (n=434)	Difference (without adjustment for no response to follow-up survey)	Improvement (including adjustment for no response to follow-up survey)
Ethnicity				
Sample size	998	415		
Asian	5.60	5.08	0.52	0.43
Black / African / Caribbean	4.90	4.80	0.10	-0.65
Mixed ethnic background	5.95	5.50	0.45	0.3
Other ethnic group	5.65	5.86	-0.21	-0.43
White	5.25	5.01	0.24	0.18
Gender				
Sample size	1057	422		
Female	5.26	4.96	0.29	0.23
Male	5.45	5.18	0.28	0.14
Age[16]				
Sample size	1036	421		
<60	5.50/5.55	5.57/5.47	-0.07/0.08	-0.07/-0.07
60-64	5.99/6.09	5.77/5.96	0.22/0.13	0.12/0.34

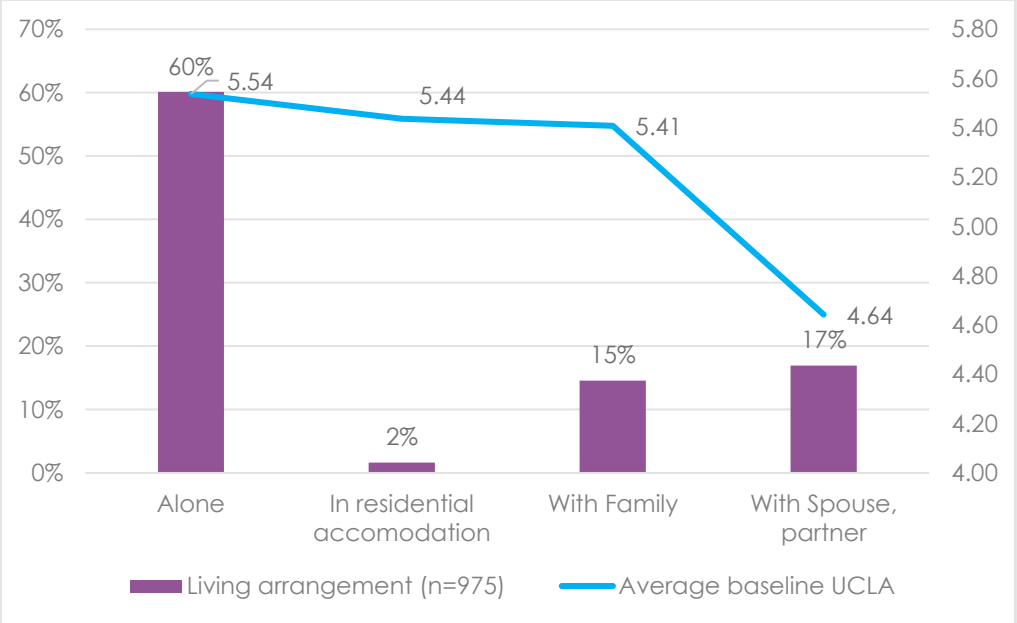
[16] Two values given as two methodologies have been used to calculate participant age. Participants provided their year of birth rather than their age, so the first method (before the slash) uses their ages at the time of reporting (2021). The second method (the number after the slash) uses the participants' ages at the point in time when they took part in an activity. See Appendix 4 for further details.

65-69	5.66/5.16	5.65/4.96	0.01/0.20	0.29/0.11
70-74	5.31/5.26	5.08/4.90	0.23/0.36	0.14/0.35
75-79	5.04/5.15	4.75/4.64	0.29/0.51	0.20/0.12
80-84	5.21/5.20	4.49/4.73	0.72/0.47	0.23/0.33
85+	5.44/5.50	5.34/5.63	0.10/-0.13	0.25/0.03
Religion				
Sample size	917	377		
Buddhist	4.52	3.79	0.73	0.43
Christian	5.28	5.15	0.13	0.04
Hindu	5.58	5.46	0.12	0.54
Jewish	4.78	4.88	-0.09	-0.75
Muslim	6.30	6.12	0.19	0.58
Sikh	6.00	4.00	2.00	4.00
No religion	5.37	4.98	0.39	0.20
Other	5.25	5.17	0.08	0.13
Sexuality				
Sample size	735	295		
Bisexual	6.11	5.92	0.19	-0.08
Gay/Lesbian	5.17	5.23	-0.06	0.07
Heterosexual	5.45	5.13	0.32	0.24

Living arrangements

The CMF questionnaire asks participants to describe their living arrangements and to answer questions about their health. The chart below illustrates participants' living situations and their average baseline UCLA scores.

Figure 1: Average baseline UCLA score by living arrangement.



These figures suggest that those who live with their spouse or partner experience the lowest levels of loneliness. However, as the 'Improvement' column in Table 3 below shows, they also appear to gain relatively little from the ABC programmes compared to those who live with their families.

Table 3: Average UCLA scores by living arrangement. 'Difference is calculated by subtracting the average UCLA follow-up score from the average UCLA baseline score. 'Improvement' is the average difference between UCLA baseline score and UCLA follow-up score for participants who have provided both.

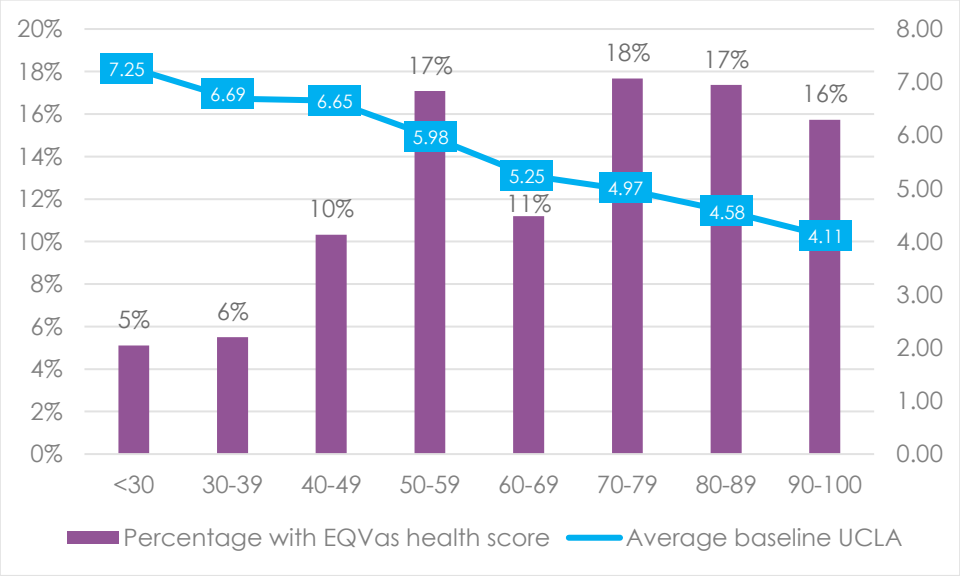
	Baseline	Follow-up	Difference	Improvement
Alone	5.54	5.39	0.15	0.19
In residential accommodation	5.44	4.88	0.56	0.00
With Family	5.41	4.83	0.58	0.52
With Spouse, partner	4.64	4.38	0.26	0.03

It is worth noting that it does not necessarily follow that living alone, in residential accommodation or with family causes someone to be more lonely than living with a spouse or partner. A combination of factors may underpin the numbers in the table above. For example, those living in residential accommodation may be in poorer health than those with other living arrangement and (as the following section explains) it has been shown that poorer health correlates to greater loneliness.

Health

Health is assessed in the CMF questionnaire using questions about mobility, self-care, ability to engage in usual activities, whether they have any pain or discomfort and whether they experience anxiety or depression. Following this, participants are asked to rate their health on a scale of 0-100, with 100 being the best state of health. The chart below illustrates the percentage of participants at baseline with each EQVas health score and the corresponding average baseline UCLA score for this group.

Figure 2: Average baseline UCLA score by health score.



This chart demonstrates a strong positive correlation between poorer health and increased isolation and loneliness. This is concordant with the findings of the evaluation of the national Ageing Better programme, which observed that participants with a disability or long-standing illness had considerably worse loneliness scores than those who did not.[17] However, there may nonetheless be other factors which combine with poorer health to cause increased loneliness.

Social measures

As in the 2019 report, regression analysis has been used to understand which of the social measures in the CMF survey are **the most associated** with loneliness levels.

[17] *Ageing Better: Impact Evaluation*, Ecorys (2021), pp. 56-7.

At baseline, participation in social groups, being involved and volunteering was associated with a statistically significant reduction in participants' levels of loneliness and isolation.

At follow-up, participation in social groups continued to be statistically significant, but the only other statistically significant variable was participation in group-based activities.[18] Being involved and volunteering no longer had a statistically significant impact.

Nonetheless, this provides strong evidence that being part of social groups reduces likelihood of experiencing isolation or loneliness. This analysis is summarised in more detail in the section which follows and in Appendix 3.

[18] Further detail can be seen in Table 7 of Appendix 3.

Assessment of change in levels of loneliness

Overall changes in loneliness scores

In total, **1137 participants** provided sufficient data to allow the calculation of a baseline UCLA and 434 participants provided sufficient data to calculate a follow-up score. Among these participants the average UCLA score was 5.32 at baseline and 5.07 at follow-up (where a lower score means less lonely). This initially appears to suggest a reduction in loneliness between baseline and follow-up. A key question is whether a more careful analysis that adjusts for non-responses confirms this pattern.

Meanwhile, the average improvement between baseline and follow-up scores among participants who provided sufficient data to produce a score for both was 0.19. The fact that this is less than the 0.25 difference between the average scores for baseline and follow-up above indicates that some participants with higher loneliness scores may not have returned follow-up data. The impact of the programme on those with a very high loneliness score at baseline is explored in more detail below.

Nonetheless, the overall reduction in loneliness between baseline and follow-up was confirmed by regression analysis, which showed that the 'Constant' term (the average loneliness figure generated once all other variables have been eliminated) reduced from 7.44 at baseline to 7.07 at follow-up[19] which is a significant improvement.[20]

The evaluation of the national Ageing Better programme observed a similar reduction in loneliness amongst participants, but found that loneliness also reduced amongst its comparator group, and therefore the change could not be attributed to programme activities.[21] This evaluation of ABC has no comparator group. However, when the same regression analysis as above was applied using the values of social group involvement it produced a 'Constant' of 7.22 which indicates that the improvement in loneliness scores is partly a feature of participation in community

[19] It should be noted that the difference between the baseline and follow-up 'Constant' figures is slightly diminished when an updated methodology for determining age of participants is applied. Nonetheless the overall conclusion that there is a significant reduction in isolation and loneliness between baseline and follow-up remains applicable. Details of the updated methodology for determining age can be seen in Appendix 3.

[20] See tables 8 and 9 in Appendix 3 for more detail.

[21] *Ageing Better: Impact Evaluation*, Ecorys (2021), pp. 55-6.

activities or working with services which support connection and partly a feature of deeper social engagement.[22]

Variables impacting very high levels of loneliness

Regression analysis was used to examine the extent to which data is available for participants experiencing very high levels of loneliness. It showed that those who provided follow-up information were less likely to be very lonely, although this finding should be treated with caution as the effect of reversion to the mean[23] is significant between the baseline and follow-up submissions.

Where follow-up data is available for those experiencing very high levels of loneliness at baseline, it suggests that they are likely to benefit from the ABC programmes to a greater extent than those who are less lonely. This can be seen below in Table 4.

Logistic regression analysis also focused on particular characteristics which increased the likelihood of experiencing very high levels of loneliness. This analysis shows that being white or involved in a social group reduced the risk of having a very high loneliness score (an 8 or 9 on the UCLA measure) at baseline. Furthermore, participation in social groups continued to be statistically significant at follow-up. This suggests that participation in social groups is a key variable when it comes to addressing very high levels of isolation and loneliness and appears to some extent to contradict the finding of the national evaluation that there is only a small link between face-to-face contact and change in loneliness levels.[24]

[22] See table 10 in Appendix 3 for more detail.
[23] Reversion to the mean is the concept that if a first sample of results are 'extreme' or deviate greatly from the mean then a second or subsequent sample would be likely to fall closer to the mean and produce less 'extreme' results.
[24] *Ageing Better: Impact Evaluation*, Ecorys (2021), pp. 61-2.

Table 4: Improvement in UCLA scores between baseline and follow-up. 'Difference' is calculated by subtracting the average UCLA follow-up score from the average UCLA baseline score. 'Improvement' is the average difference between UCLA baseline score and UCLA follow-up score for participants who have provided both.

	Very/most lonely	Moderately lonely	Not lonely
Number submitting baseline UCLA scores	173	375	589
Average baseline UCLA scores	8.63	6.27	3.73
Number submitting follow-up UCLA scores	62	146	226
Average follow-up UCLA scores	7.29	5.72	4.05
Difference	1.34	0.56	-0.32
Improvement	1.39	0.53	-0.37

Appendix 1: Loneliness measures

Loneliness is measured using two scoring methods. This report focused on the **UCLA loneliness scale**. This asks the following questions:

1. How often do you feel you lack companionship?
2. How often do you feel left out?
3. How often do you feel isolated from others?

Answers are scored as follows:

- Hardly ever: 1
- Some of the time: 2
- Often: 3

Where answering all 3 questions corresponds to a score from 3-9, with 3 being the least lonely and 9 being the most lonely.

Appendix 2: Social scores

Measure name	Description	Scoring
Social contact (Contact)	Not counting the people you live with, how often do you do any of the following with children, family or friends? • Meet up in person • Speak on the phone (including FaceTime and Skype) • Email or write • Text message	Each is scored from 0-5 with 5 being the most frequent contact and then an average is taken across each social measure.
Social contact (Speak local)	Thinking about people in your local area, how often do you speak to anyone who isn't a family member? Please include local friends, neighbours, acquaintances, people who come in to help you, people you see if you go out, and so on.	Scored from 0-8 with 8 being every day or almost every day and 0 being less than once a year.
Social participation (Social)	Are you a member of any clubs, organisations or societies?	Scored from 0-8. Eight categories of organisation presented as options, with each category selected adding 1 to the score.
Social participation (Take part)	Compared to other people of your age, how often would you say you take part in social activities?	Scored from 0-4 with 4 being much more than most and 0 being much less than most
Volunteering (Help)	In the last 12 months, have you given unpaid help in any of the ways shown on this card?	Scored from 0-12. Twelve types of unpaid help presented as options, with each category selected adding 1 to the score.
Co-design (Involved)	Which of the following activities have you been involved in?	Scored from 0-5. Five activities presented as options, with each category selected adding 1 to the score.
Influencing (Influence)	Do you agree or disagree that you personally can influence decisions affecting your local area?	A Likert scale from 'definitely disagree' (1) to 'definitely agree' (5).

Appendix 3: Regression analysis

The following tables show the analysis undertaken by a statistical modelling specialist. In all of the following tables an asterisk (*) indicates a statistically significant variable.

Availability of follow-up data

In order to determine whether it would be necessary to adjust for sample selection bias, a variable was created (called "Missing_UCLA") which took a value of 1 if no follow-up took place, and 0 if it did. We then used a statistical technique known as logit (logistic regression) which assessed the features potentially making it more or less likely for the variable to take a value of 1.

Table 5: Variables affecting the prospects of follow-up data being made available (n=1036, pseudo-R^2=0.07)

Missing_UCLA	Coefficient	Standard Error	z	P>|z|	95% Conf. Interval	
Female	0.188	0.15	1.26	0.21	-0.104	0.480
No_reply_gender *	0.927	0.39	2.39	0.02	0.168	1.686
Age	-0.002	0.01	-0.22	0.83	-0.016	0.013
Non_BME *	-0.462	0.14	-3.19	0.00	-0.745	-0.178
Hetero *	0.298	0.14	2.11	0.04	0.022	0.574
Group_based	-0.063	0.16	-0.40	0.69	-0.370	0.245
Social_groups1 *	-0.456	0.17	-2.60	0.01	-0.799	-0.113
Involved1 *	0.585	0.18	3.26	0.00	0.233	0.937
Help1 *	-0.865	0.15	-5.88	0.00	-1.153	-0.577
Constant	1.168	0.55	2.12	0.03	0.089	2.248

Three characteristics increased the prospects of follow-up data being available – being non-BME, participating in social groups, and volunteering.

Three characteristics among the cohort reduced the prospects of follow-up data being available – not giving a response in relation to gender, being hetero-sexual, and being involved.

Though there is much variability in the sample (as shown by the low R^2 value), these results suggest that a full analysis would require adjustments to be made for sample selection bias.

Impact of personal characteristics on loneliness at baseline

A regression analysis examining the impact of personal characteristics on loneliness at baseline was conducted partly in order to understand the effects that are potentially important in affecting loneliness, and partly to provide an insight into whether scores at baseline were higher or lower than one would expect on the basis of that relationship.

Table 6: Regression on UCLA baseline scores (n=1036, R^2=0.07)

UCLA1 score	Coefficient	Standard Error	z	P>|z|	95% Conf. Interval	
Female	-0.184	0.13	-1.4	0.163	-0.44	0.07
No_reply_gender	-0.052	0.31	-0.17	0.866	-0.65	0.55
Age *	-0.016	0.01	-2.56	0.011	-0.03	0.00
Non_BME	-0.138	0.13	-1.09	0.275	-0.39	0.11
Hetero	0.219	0.12	1.75	0.080	-0.03	0.46
Group_based	-0.057	0.14	-0.41	0.680	-0.33	0.21
Social_groups1 *	-0.657	0.15	-4.44	0.000	-0.95	-0.37
Involved1 *	-0.317	0.16	-2.04	0.041	-0.62	-0.01
Help1 *	-0.436	0.13	-3.36	0.001	-0.69	-0.18
Constant	7.438	0.48	15.6	0.000	6.50	8.37

Four variables – age, participation in social groups, being involved and volunteering - are statistically significant, and lead to a reduced level of loneliness as assessed by the UCLA score.

An "expected UCLA" baseline score and the difference between the actual and expected score were also calculated.

Impact of personal characteristics on loneliness at follow-up

The follow-up scores for loneliness as measured by UCLA were then examined.

Table 7: Regression on UCLA follow-up scores (n=421, R^2=0.48)

UCLA2 score	Coefficient	Standard Error	z	P>|z|	95% Conf. Interval	
Female	-0.215	0.14	-1.50	0.134	-0.50	0.07
No_reply_gender	0.385	0.42	0.93	0.355	-0.43	1.20
Age *	-0.016	0.01	-2.09	0.038	-0.03	0.00
Non_BME	-0.114	0.14	-0.80	0.426	-0.40	0.17
Hetero	0.233	0.14	1.71	0.088	-0.03	0.50
Group_based *	-0.312	0.15	-2.13	0.034	-0.60	-0.02
Social_groups2 *	-0.632	0.19	-3.25	0.001	-1.01	-0.25
Involved2	-0.114	0.17	-0.66	0.509	-0.45	0.23
Help2	-0.226	0.13	-1.69	0.093	-0.49	0.04
Residual_UCLA *	0.625	0.03	18.00	-	0.56	0.69
Constant *	7.073	0.56	12.62	-	5.97	8.17

Age, being part of a group-based activity and participating in social groups were all statistically significant in lowering loneliness.

The "Residual UCLA" variable is also worth noting, in that if a given individual was 1 point above the expected level of UCLA previously, at follow-up they have a tendency to be 0.625 points above peers – this represents a pattern of a gradual movement to the mean, as would be anticipated.

When all these factors are taken into account, the underlying level of loneliness, as assessed by the "Constant" term, has been seen to have reduced from 7.44 (in Table 6) to 7.07 (in Table 7), which is a significant improvement.[25]

[25] z-score of 11.7 relating to difference in means of 0.365 and standard error of 0.031 is statistically significant at 1% level. Standard error of 0.031 derived using formula {standard error = √((s12/n1) + (s22/n2)), where s1, s2 are standard error terms, n1 & n2 are sample sizes for group 1 and 2 respectively}.

Impact of social engagement on loneliness

A key question is whether the participants have achieved a lower level of loneliness as a result of changes that they have made to social interactions. This possibility was assessed by considering the same analysis but using the values for participation in social groups and being involved from the baseline rather than the follow-up data collection.

Table 8: Regression on UCLA follow-up scores using baseline data on social engagement (n=421, R^2=0.48)

UCLA2 scores	Coefficient	Standard error	z	P>|z|	95% Conf. Interval	
Female	-0.238	0.14	-1.66	0.098	-0.52	0.04
No_reply_gender	0.255	0.42	0.61	0.541	-0.56	1.07
Age *	-0.017	0.01	-2.35	0.019	-0.03	0.00
Non_BME	-0.106	0.14	-0.74	0.459	-0.39	0.18
Hetero	0.193	0.14	1.40	0.162	-0.08	0.46
Group_based	-0.266	0.15	-1.80	0.073	-0.56	0.03
Social_groups1 *	-0.617	0.19	-3.26	0.001	-0.99	-0.24
Involved1	-0.088	0.18	-0.49	0.627	-0.44	0.27
Help1	-0.220	0.15	-1.50	0.135	-0.51	0.07
Residual_UCLA *	0.623	0.03	17.91	0.000	0.55	0.69
Constant	7.220	0.57	12.71	0.000	6.10	8.34

In the above a key comparison is between the "Constant" term of 7.22, which contrasts with the constant term of 7.07 in Table 7 (which uses follow-up data on social engagement). As the scores against the variables for being part of a group-based activity and participation in social groups etc are broadly similar, it is shown that the movement to reduce loneliness is partly a feature of general participation in the scheme (which accounts for a drop from 7.44 in Table 6 to 7.22 here), and partly a feature of deeper social engagement (which accounts for a drop from 7.22 here to 7.07 in Table 7).

Change in loneliness vs. change in social engagement

An alternative perspective on this calculation can be seen by undertaking a regression analysis on the change in UCLA loneliness scores from baseline to follow-up, and using data on the change in participation in social groups, being involved, and volunteering.

Table 9: Regression of change in UCLA scores against changes in social engagement (n=421, R^2=0.23)

Change in UCLA score	Coefficient	Standard error	z	P>|z|	95% Conf. Interval	
Change_Social	-0.271	0.18	-1.50	0.134	-0.63	0.08
Change_Involved	-0.111	0.35	-0.32	0.750	-0.80	0.58
Change_Help	-0.252	0.13	-1.91	0.057	-0.51	0.01
Residual_UCLA *	-0.375	0.03	-10.90	0.000	-0.44	-0.31
Constant *	-0.210	0.07	-3.21	0.001	-0.34	-0.08

In addition to reversion to the mean effects, there is a significant drop in loneliness scores (by 0.21 UCLA points) as measured by the constant term. The overall pattern looks to be consistent with the results presented in Tables 6 to 8.

However, as noted earlier, there is a risk of sample selection bias skewing the results.

Impact of personal characteristics and social engagement on risk of very high loneliness at baseline

The sections of the cohort with a very high levels of loneliness at baseline were also examined at baseline. Those with a score of 8 or 9 on the UCLA score were given a value of 1 for very high risk, and those with a lower score were given a value of 0.

Table 10: Logistic regression of very high-risk UCLA scores at baseline (n=421, R^2=0.06)

UCLA baseline high risk	Coefficient	Std. error	z	P>|z|	95% Conf. Interval	
Female	0.039	0.28	0.14	0.887	-0.50	0.58
No_reply_gender	0.515	0.71	0.73	0.465	-0.87	1.90
Age	-0.010	0.01	-0.76	0.448	-0.04	0.02
Non_BME *	-0.529	0.26	-2.05	0.041	-1.03	-0.02

Hetero	0.296	0.26	1.14	0.253	-0.21	0.80
Group_based	0.075	0.28	0.26	0.792	-0.48	0.63
Social1 *	-0.953	0.31	-3.02	0.002	-1.57	-0.34
Involved1	0.054	0.34	0.16	0.876	-0.62	0.73
Help1	-0.471	0.27	-1.75	0.079	-1.00	0.06
Constant	0.721	1.04	0.69	0.487	-1.31	2.76

Table 10 shows the results of the logistic analysis for the risk of getting a 1 for very high risk of loneliness at the baseline. It shows that, at baseline, the two variables most closely associated with reducing the risk were being non-BME and participating in social group.

Impact of personal characteristics and social engagement on risk of very high loneliness at follow-up

When the same analysis was applied to follow-up, though the variable relating to belonging to social groups was still statistically significant, the variable relating to being non-BME was not.

Table 11: Logistic regression of very high-risk UCLA scores at follow-up (n=421, R^2=0.06)

UCLA follow-up high risk	Coefficient	Standard error	z	P>|z|	95% Conf. Interval	
Female	-0.218	0.30	-0.73	0.46	-0.80	0.36
No_reply_gender	1.393	0.67	2.08	0.04	0.08	2.71
Age	-0.013	0.01	-0.86	0.39	-0.04	0.02
Non_BME	-0.365	0.28	-1.29	0.20	-0.92	0.19
Hetero	0.446	0.29	1.56	0.12	-0.12	1.01
Group_based	-0.517	0.33	-1.56	0.12	-1.17	0.13
Social2 *	-0.781	0.34	-2.32	0.02	-1.44	-0.12
Involved2	-0.181	0.37	-0.48	0.63	-0.91	0.55
Help2	-0.329	0.28	-1.18	0.24	-0.87	0.22

Constant	0.466	1.08	0.43	0.67	-1.66	2.59

The "constant" coefficient was also much reduced at follow-up, showing a much lower probability of being in the high-risk group. These results should be treated with caution, however, given that the effect of reversion to the mean is significant between the baseline and follow-up.

Adjusted calculations

During analysis it was determined that there was a need for a new methodology to determine participants' age.[26] The regression analysis above was undertaken using the old age calculation in order to be consistent with previous reports, but the regression analysis was also redone using this new age calculation for all participants to help understand whether this substantially impacted the results. An additional variable was also introduced for LGBT Connect which changed the pattern of relationships between the variables. The tables below show regressions on UCLA baseline scores which each of the age calculations and the same for UCLA follow-up scores.

Table 12: Regression on UCLA baseline scores (n=1035, R^2=0.07) using original age calculation

UCLA1 score	Coefficient	Standard Error	z	P>|z|	95% Conf. Interval	
Female	-0.138	0.14	-1.00	0.319	-0.41	0.13
No_reply_gender	0.007	0.31	0.02	0.982	-0.60	0.62
Age	-0.015	0.01	-2.32	0.021	-0.03	-0.00
Non_BME	-0.157	0.13	-1.24	0.217	-0.41	0.09
Hetero	0.272	0.13	2.08	0.038	0.02	0.54
LGBT_connect	0.269	0.22	1.21	0.227	-0.17	0.71
Group_based	-0.013	0.14	-0.09	0.925	-0.29	0.27
Social_groups1	-0.672	0.15	-4.53	0.000	-0.96	-0.38

[26] Participants provided their year of birth rather than their age, so the original methodology deducted their year of birth from the current year to give their age (eg. 2021 – 1950 = 71 years old). However, activities began in 2015, and there is potentially therefore a significant difference between participants age now and their age when they took part in activities. For this reason, a second method deducts the year of their birth from the year in which they took part in an activity (eg. 2015 – 1950 = 65 years old). See the 'Age' section of Appendix 4 for further details.

Involved1	-0.295	0.16	-1.89	0.059	-0.60	0.01
Help1	-0.464	0.13	-3.53	0.000	-0.72	-0.21
Constant	7.268	0.50	14.61	0.000	6.29	8.24

Table 13: Regression on UCLA baseline scores (n=1035, R^2=0.07) using adjusted age calculation

UCLA1 score	Coefficient	Standard Error	z	P>|z|	95% Conf. Interval	
Female	-0.134	0.14	-0.97	0.332	-0.41	0.14
No_reply_gender	0.014	0.31	0.04	0.965	-0.59	0.62
AgeAtActivity	-0.013	0.01	-2.09	0.037	-0.03	-0.00
Non_BME	-0.164	0.13	-1.29	0.196	-0.41	0.08
Hetero	0.273	0.13	2.05	0.040	0.01	0.53
LGBT_connect	0.269	0.23	1.19	0.234	-0.17	0.71
Group_based	-0.012	0.14	-0.09	0.932	-0.29	0.27
Social_groups1	-0.674	0.15	-4.54	0.000	-0.97	-0.38
Involved1	-0.285	0.16	-1.82	0.069	-0.59	0.02
Help1	-0.464	0.13	-3.52	0.000	-0.72	-0.21
Constant	7.154	0.49	14.48	0.000	6.19	8.12

Table 14: Regression on UCLA follow-up scores (n=420, R^2=0.48) using original age calculation

UCLA2 score	Coefficient	Standard Error	z	P>|z|	95% Conf. Interval	
Female	-0.139	0.15	-0.91	0.364	-0.44	0.16
No_reply_gender	0.490	0.42	1.16	0.248	-0.34	1.32

Age	-0.012	0.01	-1.57	0.117	-0.03	0.00
Non_BME	-0.150	0.14	-1.04	0.300	-0.44	0.13
Hetero	0.323	0.15	2.18	0.030	0.03	0.62
LGBT_connect	0.370	0.23	1.63	0.104	-0.08	0.82
Group_based	-0.239	0.16	-1.54	0.125	-0.54	0.07
Social_groups2	-0.659	0.20	-3.36	0.001	-1.04	-0.27
Involved2	-0.091	0.17	-0.52	0.600	-0.43	0.25
Help2	-0.250	0.14	-1.84	0.067	-0.52	0.17
Residual_UCLA	0.621	0.03	17.75	0.000	0.55	0.69
Constant	6.700	0.60	11.11	0.000	5.51	7.89

Table 15: Regression on UCLA follow-up scores (n=420, R^2=0.48) using adjusted age calculation

UCLA2 score	Coefficient	Standard Error	z	P>|z|	95% Conf. Interval	
Female	-0.138	0.15	-0.90	0.367	-0.44	0.16
No_reply_gender	0.497	0.42	1.17	0.241	-0.34	1.33
AgeAtActivity	-0.012	0.01	-1.52	0.129	-0.03	0.00
Non_BME	-0.154	0.14	-1.06	0.289	-0.44	0.13
Hetero	0.321	0.15	2.17	0.031	0.03	0.61
LGBT_connect	0.362	0.23	1.58	0.114	-0.09	0.81
Group_based	-0.238	0.16	-1.53	0.127	-0.54	0.07
Social_groups2	-0.661	0.20	-3.37	0.001	-1.05	-0.28
Involved2	-0.081	0.17	-0.47	0.641	-0.42	0.26

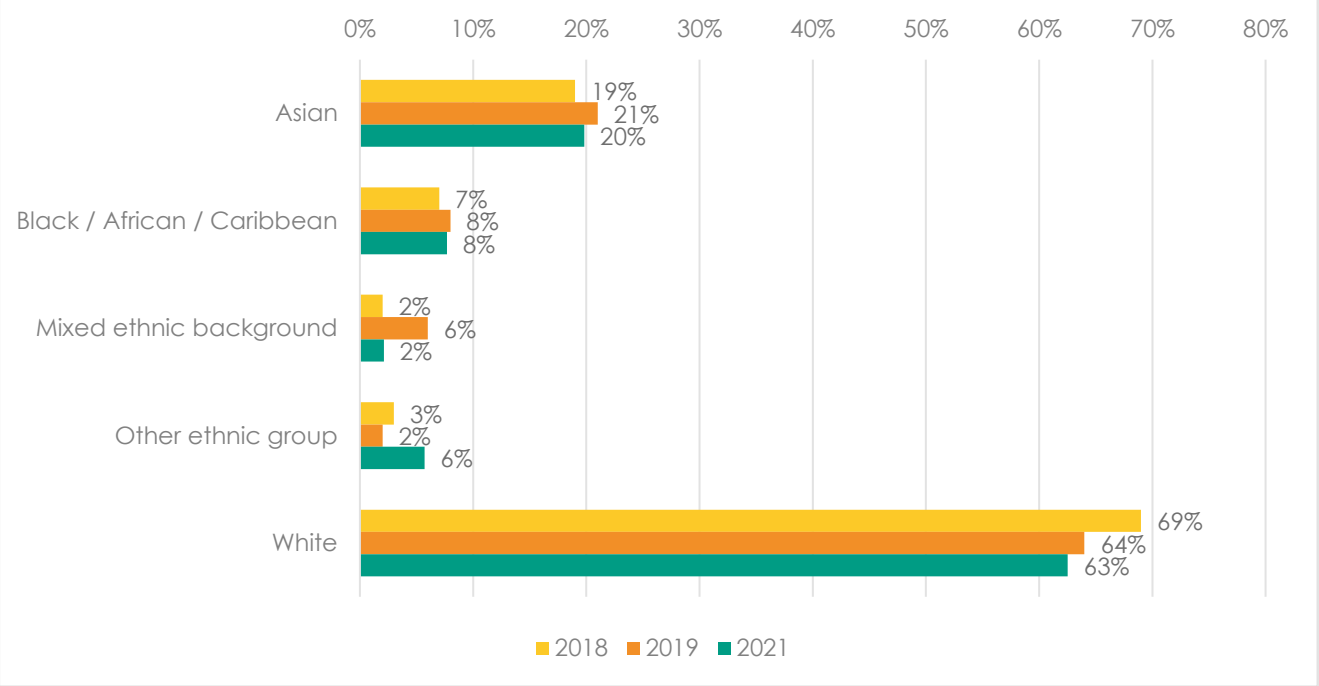
Help2	-0.253	0.14	-1.86	0.063	-0.52	0.14
Residual_UCLA	0.622	0.03	17.77	0.000	0.55	0.69
Constant	6.666	0.60	11.12	0.000	5.49	7.85

The similarity of the coefficients for the "LGBT_Connect" variable (which relates to engagement with the LGBT Connect project) and the "Hetero" variable (which relates to sexuality for all participants) suggests that the underlying wellbeing levels of LGBT participants is similar at baseline regardless of whether they were part of the LGBT Connect project or other ABC projects.

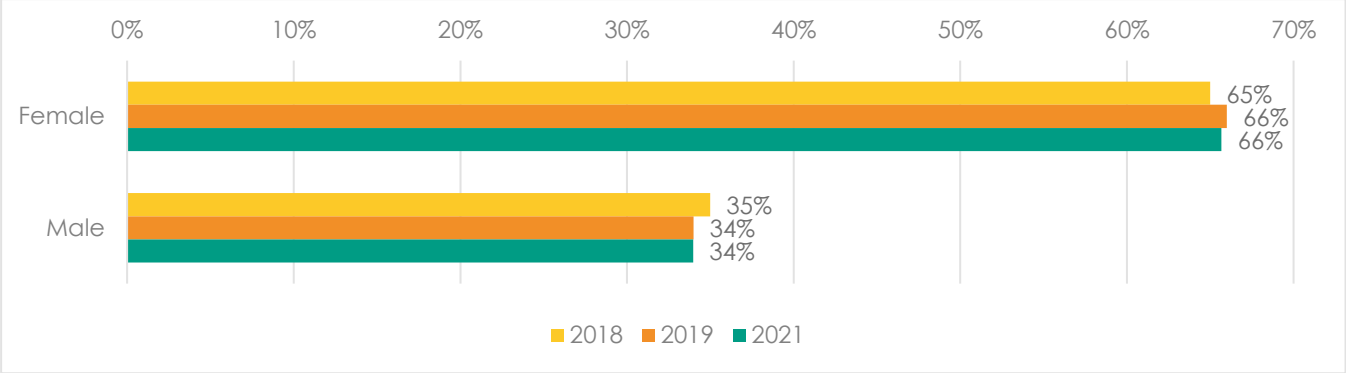
Overall, the small differences between the original and the revised tables above shows that the adjusted age calculation does not impact on the validity of the original assessment to any large degree. However, the small reduction in the baseline constant does slightly impact on the original headline assessment by reducing the improvement in loneliness and isolation scores between baseline and follow-up. Nonetheless, there is a demonstrable improvement in loneliness and isolation between the two points.

Appendix 4: Demographics

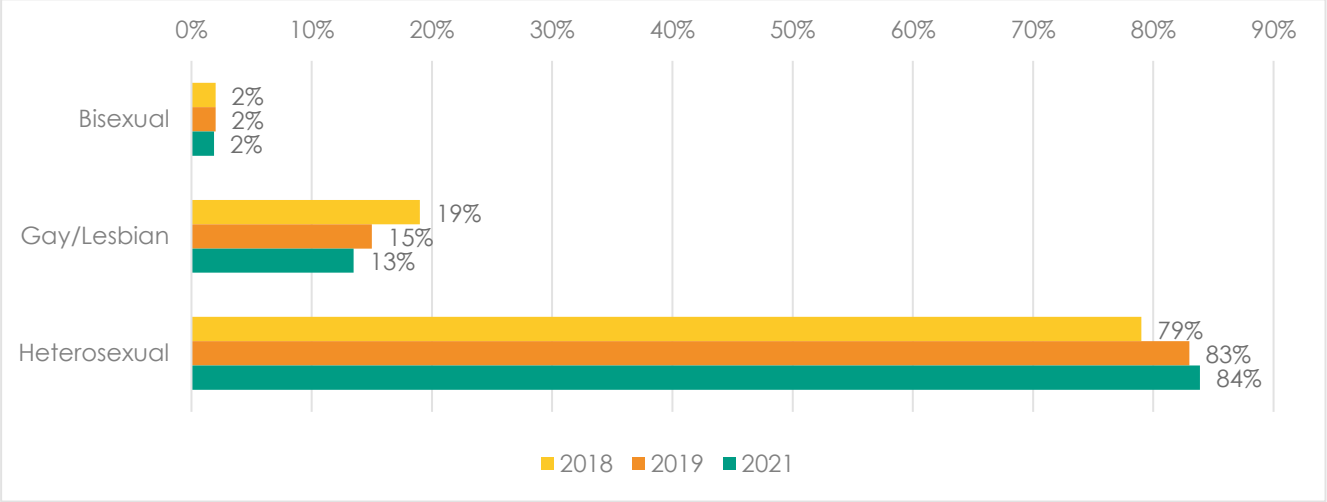
Ethnicity



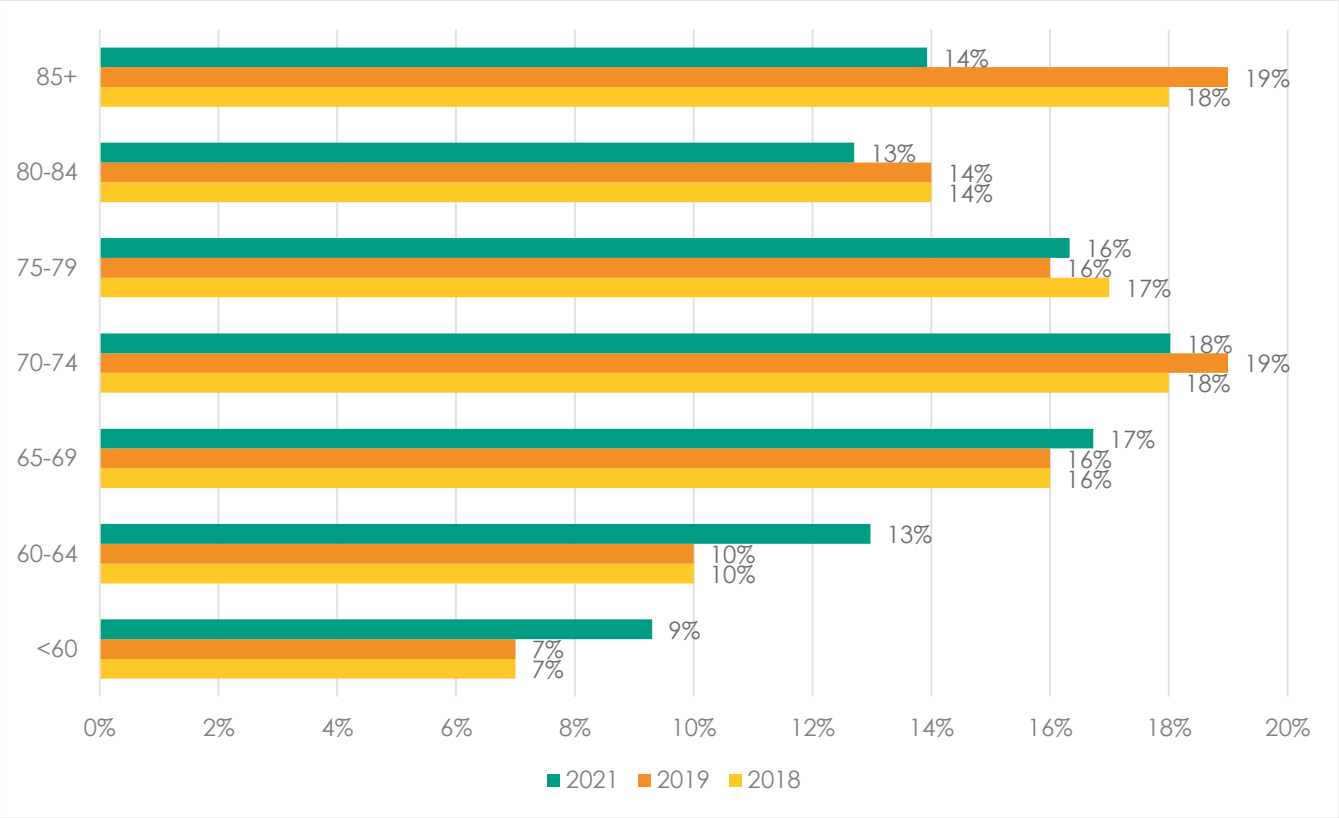
Gender



Sexuality



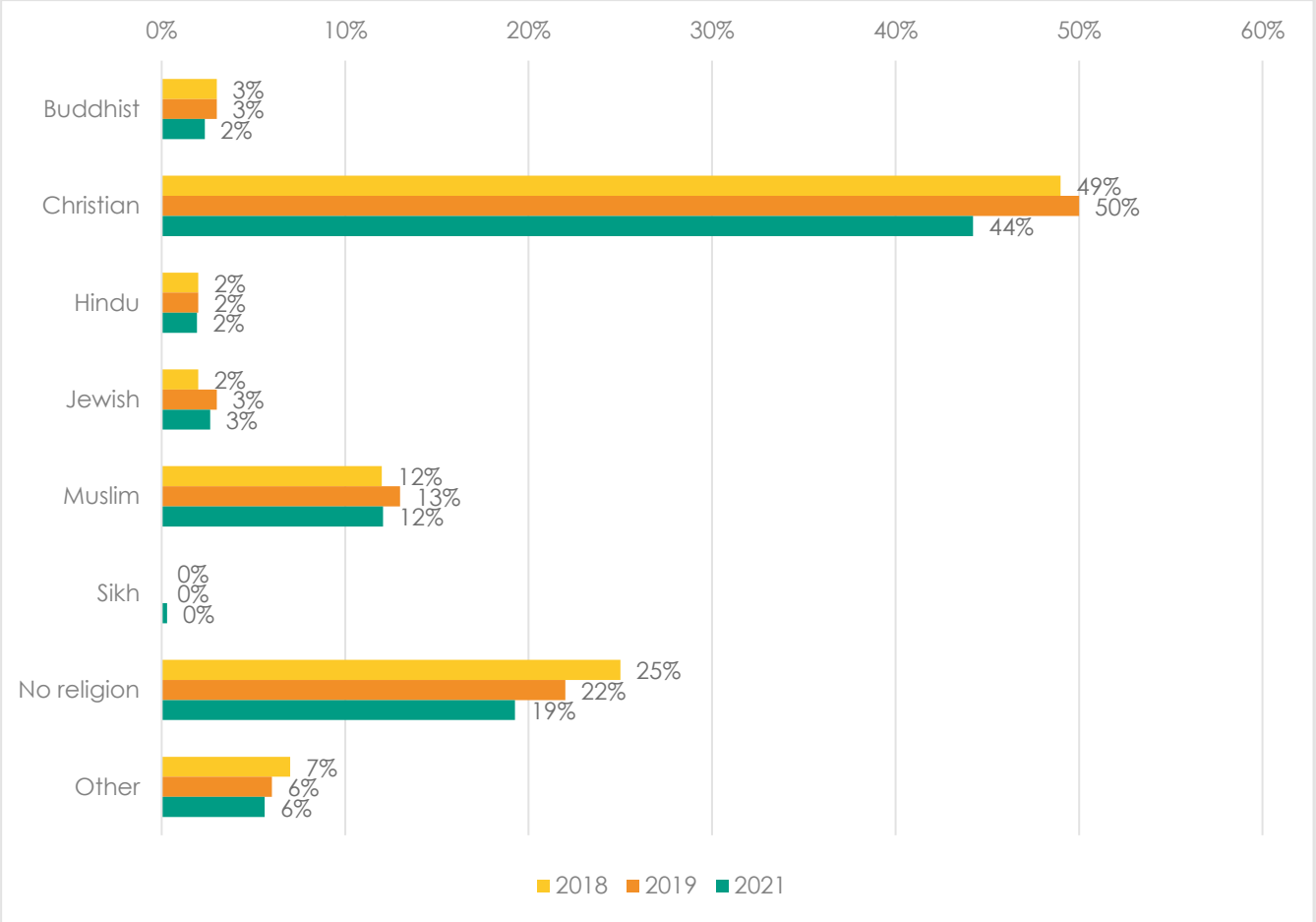
Age



The data collected from participants included their year of birth rather than their age at the time of completion. In previous reports age has been calculated by subtracting the participants' year of birth from the year at the time of the report. This means that a participant born in 1950 would appear as a 68-year-old in the 2018 report but a 71-year-old in the 2021 report. This reflects the fact participants are getting older, but the data offers a snapshot given at a particular point in time and so a new calculation was devised to reflect participants' age when they took part in projects and completed the CMF survey. In this methodology the participant's year of birth was subtracted from the year when they completed their first ABC funded activity or project. Using this methodology, if the example participant born in 1950 participated in their first ABC funded project in 2015 then they would appear as being 65-year-old.

The chart above uses the updated methodology as it more accurately reflects participants age at the point they completed the funded activities.

Religion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12%
Sikh
0%
0%
0%
No religion
25%
22%
19%
Other
7%
6%
6%
2018
2019
2021

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