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#### **3.1.4 ICT training**

Five studies examined the effectiveness of Information and Communication Technology (ICT training) interventions targeting older people (50+) [39-43]. Programmes involved classes dedicated to developing IT skills, social media skills, and online safety for up to 10 weeks. Only two studies reported statistically significant improvements in loneliness after the intervention: a 4-week computer class programme that introduced older adults to ICT via digital games [39] and a 4-week series of social media group training sessions [43]. Neither study that examined both control and intervention groups found a difference between groups in loneliness change overtime [43].

#### **3.1.5 Other interventions**

For the nine interventions classed as 'Other', five were delivered at the community-level [44-48] and four were delivered in healthcare settings [49-52]. Only three studies reported statistically significant improvements in loneliness post-intervention, including a structured social support intervention to help intellectually disabled adults increase their social networks [49] and a 4-week intervention that used an Amazon Echo personal voice assistant with older adults [44] that also had a medium effect size. Although evidence from a 4-month multi-tier intervention consisting of group and one-to-one goal-orientated social internet-based activities [46] found a decrease in loneliness in those who participated in the intervention, there was no statistically significant difference between intervention and control groups.

One controlled study used a single-item loneliness measure to assess an out-patient case management intervention that provided older people with information on recovery and linked to local activities [50]. The percentage of individuals reporting they felt "rather or very lonely" decreased by 10.1% after 6-months (26.1 to 15.9%), although returned to similar levels as baseline after 12-months (27.3%).<sup>10</sup> While the control group demonstrated larger increases in loneliness (baseline: 22.7%, 6-months: 31.6%, 12-months: 30.6%), there was only a statistical difference at the 6-month follow-up point.

### **3.2 Social interaction**

Social interaction interventions aim to reduce loneliness by growing an individual's social relationships or network. The review found 23 interventions for this theme, reported in 19 studies [53-71]. Three studies presented multiple intervention arms; this included two versions of a meal delivery service for older community-dwelling adults and the other used weekly frozen meal deliveries [65], two digital interactions in the

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<sup>10</sup> The single-item measure used was "Do you feel lonely nowadays?" Yes, I feel rather/very lonely; No, I don't feel lonely.

form of a social gaming app or a ‘Push to Talk’ device [66] and three different activities-based community interventions (fitness/arts, forums/buddy system, volunteer information) [68].

There is consistent evidence that social interaction interventions improve loneliness in the short-term. Overall, a medium-sized statistically significant effect was found for this theme, including from studies that used control groups which make up approximately one quarter of the overall evidence within this theme (n=6).<sup>a</sup>

<sup>a</sup> The overall effect for social interaction interventions was of -0.50 (Confidence interval -0.78, -0.23). This represents a medium-sized effect. It is based on 18 studies that provided mean loneliness scores before and after the intervention. Full results can be found in Appendix 5. There was substantial statistical heterogeneity ( $I^2$  82%); this suggests that the differences in estimates between intervention are due to different effects of each study intervention rather than sampling error (i.e. chance).

Social interaction interventions were separated into three main subthemes. Table 4 below shows the statistical significance and effect size for each subtheme. Full results can be found in Appendix 5 (Figures 4-6).

*Table 4 Social support interventions, results by subtheme*

| Subtheme                | Number of interventions | Overall effect (95% CI) | Statistically Significant? | Effect size              |
|-------------------------|-------------------------|-------------------------|----------------------------|--------------------------|
| Art/Music/Culture       | 8                       | -0.87 (-1.64, -0.09)    | Significant                | Large                    |
| Other Single Activities | 8                       | -0.01 (-0.16, 0.14)     | Not significant            | No evidence of an effect |
| Multiple Activities     | 7                       | -0.54 (-0.91, -0.17)    | Significant                | Medium                   |

Nine of these reported statistically significant improvements and six studies showed statistically significant differences between intervention and control groups. These are discussed further in the sections below.

### 3.2.1 Art/Music/Culture

Evidence on the effectiveness of ‘Art/Music/Culture’-based activities was found for eight different interventions aimed primarily at older adults (60+) and all of which were delivered in face-to-face group settings. They included: Art [53, 54], Dance and participatory arts [55, 56], Music and singing [57, 58], Crafts [59] and Heritage [60] interventions.

Of these, four studies provided evidence of statistically significant improvements in loneliness post intervention [53, 54, 57, 59]: an 8-week singing programme [57]); a weekly art therapy group aimed at older people living alone [53] which also reported significant improvements between intervention and control groups; an arts intervention delivered in a community centre [54] and a project providing community spaces to encourage men to pursue leisure and practical activities [59]. There were no changes in loneliness from pre to post intervention for the heritage intervention [60], the choreography-based dance programme [56], or a series of brief participatory arts interactions with a social robot [55].

The final intervention – a group-based music making programme aimed at female carers of all ages - used the single-item direct loneliness measure [58]. There were larger improvements in older carers (aged 16+: 38% vs aged <16 years old: 22%) and those who had not received support before (no previous support: 41% vs previous support: 25%).

### **3.2.2 Other single-themed**

Eight interventions had 'other'-themed activities which included: a Spiritual/religious focus [61] Physical activity [62], Animal/robot interaction [63, 64], Food delivery [65] (one intervention delivered to two separate groups) and Online social groups [66] (one intervention delivered to two separate groups).

Five interventions did not formally test for differences from pre to post interventions. Two found statistically significant reductions in loneliness, although neither study used a control group. These were: a 12-week programme of virtual church sessions aimed at older adults [61] and a 2-month intervention using an animatronic pet (choice of cat or dog) where participants received automated weekly phone-calls reminding them to interact with their pet [64]. The physical activity intervention, 3-months of twice weekly tai chi qigong classes, did not have a significant effect on loneliness [62].

Finally, a 12-week programme involving interactions with an advanced robot [63] and a traditional daily meal delivery service for older people living alone [65] both reported statistically significant improvements in loneliness between groups compared to control.

Evidence from two interventions used the single-item direct loneliness measure to report findings. Of these, two projects aimed to test the effectiveness of a large-scale infrastructure programme that brought 5G technology to a deprived neighbourhood in northern England: the first was a social gaming app that used high bandwidth to increase online video communication and reported a reduction in participants feeling lonely 'often/always' and 'some of the time' by the end of the programme; the second was a Push to Talk device that grouped users into online 'communities' of people in similar situations [66] and reported an increase in participants feeling lonely 'often/always' and 'some of the time', although nearly half the sample was lost to follow-up.

### **3.2.3 Multiple activities**

Of the seven interventions involving multiple activities [67-71] - including one study with three distinct community-level interventions [68]- three found statistically significant improvements: a programme of health promotion and social activities that found significant improvements for older adult participants compared to a control group [67], and two uncontrolled studies that included a community-level intervention connecting senior migrants to leisure activities and library services [68] and a 12-week programme of recreational activities aimed at female prisoners [69]. However, all studies demonstrated a positive trend, producing a medium overall effect size.



### 3.3 Psychological interventions

Psychological interventions provide targeted non-pharmacological therapeutic support/treatment, often based on a psychological theory. There were 23 psychological interventions consisting of 14 Therapy interventions [72-84] and 9 'Other' approaches [85-93].

There is strong evidence that psychological interventions improve loneliness in the short-term. Overall, a **large statistically significant effect** was found for this theme, including from studies that used control groups which make up over two thirds of the overall evidence for these interventions (n=16).<sup>a</sup>

<sup>a</sup> The overall effect for psychological interventions was of -0.79 (Confidence interval -1.19, -0.38). This represents a large effect. It is based on 22 studies that provided mean loneliness scores before and after the intervention. Full results can be found in Appendix 5. There was substantial statistical heterogeneity ( $I^2$  79%); this suggests that the differences in estimates between intervention are due to different effects of each study intervention rather than sampling error (i.e. chance).

Psychological interventions were separated into two main subthemes. Table 5 below shows the statistical significance and effect size for each subtheme. Full results can be found in Appendix 5 (Tables 7-8).

*Table 5 Psychological interventions, results by subtheme*

| Subtheme | Number of interventions in subtheme | Overall effect (95% CI) | Statistically Significant? | Effect size |
|----------|-------------------------------------|-------------------------|----------------------------|-------------|
| Therapy  | 14                                  | -1.05 (-1.80, -0.29)    | Significant                | Large       |
| Other    | 9                                   | -0.51 (-0.79, -0.23)    | Significant                | Medium      |

There was a large effect size for therapy-based intervention and a medium effect size for 'Other' approaches. Nine studies reported statistically significant improvements compared to a control group, nearly all of which reported large effect sizes [72-77, 81, 83, 93].

#### 3.3.1 Therapy

The majority of studies focused on the impacts of therapeutic approaches, specifically: two group therapy programmes targeting young adults [73], a Mindfulness intervention targeting older adults [72], seven Cognitive Behavioural Therapy interventions targeting older adults [84], university students [81], adults experiencing loneliness and distress [76, 77] and adults with health-related conditions [82]. Other group therapy approaches included sandplay and interpersonal therapy targeting migrant adult women [75], group counselling [74], narrative therapy [79], laughter [78] and attachment-based therapy [80].

### 3.3.2 Other approaches

Four studies involved psychological interventions to develop emotional and social skills among older adults in a community setting [87], adults with social anxiety disorder [89] and in an education-based setting with adolescents (11-18 years) [93] and university students [85]. One study assessed the effects of a pet therapy intervention with university students [90].

Finally, a stress reduction intervention targeting adolescents (11-18 years) involved a 28-day Self-Care programme including guided exercises, stress management education and goal setting activities [88]. This intervention also examined sub-group differences by United States Region and found larger statistically significant improvements for adolescents in the Western region of the USA, compared to the Southwest, Midwest, Southeast and Northeast regions.

Three interventions found statistically significant improvements for participants post-intervention but did not use control groups. These included the use of a 'Theory of Mind' approach with school children [86], and a meditation intervention delivered to medical professionals [91].

### 3.4 Multiple-themed interventions

The review found nine interventions involving activities that spanned two or more core themes [94-102]. Studies within this group present evidence on group and one-to-one interventions aimed largely at older people (50+). The majority were grey literature evaluation reports of national and city-wide programmes, delivered following [England's national strategy](#) to tackle loneliness and social isolation in 2018.

Five studies reported mean loneliness scores pre- and post-intervention, with four demonstrating improvements in loneliness over time (Appendix 5, Figure 9<sup>11</sup>) [94-97]. These four studies present evidence from the Ageing Better programme and are discussed in further detail below.

#### 3.4.1 Ageing Better Programme

The Ageing Better programme was a National Lottery Community Fund programme funded between 2015 and 2022 and delivered by 14 Voluntary, Community and Social Enterprise (VCSE) sector-led partnerships across England. The programme aimed to promote the active involvement of over 50s in their communities to combat social isolation and loneliness. It involved a range of programmes and projects providing intensive one-to-one support, social prescribing/connector interventions and social activities to promote social interaction. This review examined the quantitative evidence on loneliness alleviation presented from five Ageing Better evaluations identified in our searches [94-98].

Four studies were evaluations of city-wide Ageing Better programmes [94-96, 98]. One programme included 19 separate projects delivered to and with the local community,

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<sup>11</sup> Note that due to substantial heterogeneity between the complex interventions - all of which had multiple components - only individual effect sizes are reported in Appendix 5.

and the evaluation cohort activities included data from projects delivering meal-sharing activities; cultural appropriate group activities; walking/outdoor interventions and arts/theatre/dance activities [94].

A second programme provided group and one-to-one support on: Intergenerational Activity, Creativity and Arts, Peer Support, Food and Nutrition and Talking therapies [96]. It also reported statistically significant effects disaggregated by socio-demographic characteristics (age, gender, ethnicity, area of residence) and background circumstances (caring status); greater improvements in loneliness were observed in those aged 70 and below, females, individuals from white ethnic background, those living in less deprived areas and carers.

A third city-wide programme targeted geographic areas with a higher risk of isolation and specific at-risk groups (older LGBT people and older carers) [95]. The evaluation data captured the effects of skills development activities, physical activities and social activities on loneliness and found that loneliness decreased for almost one third of participants (32%) from by the end of the programme.

The fourth city-wide programme provided both group and 1-to-1 therapeutic and befriending activities based on the '[Five Ways to Wellbeing](#)' [98]. The evaluation reported that loneliness levels decreased for around 40% of participants.

Finally, the end of programme Ageing Better evaluation examined data on loneliness alleviation for beneficiaries across the 14 partnerships and specifically, for the following intervention types: IT interventions, Asset-based community development (ABCD), Creative activities, Social interventions, Culture change, Knowledge sharing/building, Social prescribing, Mental health, Physical health and Transport [97].

Evidence from the Ageing Better evaluations have consistently suggested that loneliness improved over time in those participating in activities. For example, the final programme evaluation summarised that Ageing Better participants were less lonely 6 months (44% to 37%) and 12 months (45% to 36%) after starting the programme [97]. However, the control group (older adults who did not take part in any activities) demonstrated a similar – albeit unexpected – decline in loneliness over the same time period (43% to 38% for 6-months; 47% to 36% for twelve months); the effectiveness of the programme must be interpreted with caution.

### **3.4.2 Other interventions**

Three interventions within this subtheme used the direct loneliness self-report measure ('How often do you feel lonely?') which defines individuals reporting they feel lonely 'always or often' as chronic loneliness.

The Building Connections fund was the first ever government fund dedicated to reducing loneliness in England, with 126 VCSE sector organisations delivering community-based individual and group interventions. The most common activities were face-to-face befriending, mentoring and peer-to-peer support and aimed to increase social connections and foster a sense of community and belonging [102]. Limited quantitative data suggested that half of participants improved their loneliness after engaging in the programme, although 'Trust in staff and volunteers', 'Feeling safe'

and 'Feeling that change was possible' were identified as key pathways of change for loneliness improvements.

The GoodMood project aimed to alleviate loneliness in older adults by providing a social intervention chosen by the individual (i.e. weekly group supervised exercise, weekly group social activity, or personal counselling every 3rd week) [100]. Chronic loneliness decreased over a 6-month period, with 50.9% of participants reported they 'very rarely or never' felt lonely compared to 31% pre-intervention.

The final intervention aimed to help voluntary sector organisations adapt services that addressed loneliness during COVID-19 restrictions [101], including befriending services and provision of ICT support. Those reported that they felt lonely 'often' decreased from 27% to 17% after engaging in these services.

### **3.5 Insights from qualitative data**

Qualitative data were extracted from 25 studies, the majority of which were social support-themed interventions (n=18), followed by social interaction (n=4) and multiple themed interventions (n=3). Below are some of the insights on enabling factors, key ingredients and causal pathways in the context of loneliness alleviation. Further details are available in Appendix 5.

#### **For structured social support interventions, qualitative data provide insight into some of the enablers and pathways to improvements in loneliness.**

There appear to be key barriers to sustained engagement for interventions that use befrienders, mentors and link workers. In the case of social prescribing schemes in particular, the lack of local infrastructure, health and mobility issues faced by participants, and other personal circumstances for specific groups such as carers, can act as important barriers to face-to-face participation.

The use of technology or remote settings appears to have positive effects overall, with the potential to make participants feel connected to the outside world, although there are concerns about ongoing internet costs after support ends and of individuals losing interest.

Overall, the emotional bond and caring/trusting relationship at the heart of one-to-one social support interventions appear to act as catalysts for larger changes in loneliness. Mentors, befrienders, link workers and home-sharers all act as connectors to the wider world, providing a first step towards increasing the confidence and social connectedness of participants.

#### **For group activities, qualitative data suggest that participants value tailored approaches to deliver group activities**

Specific factors that enable participation include: the opportunity to connect with 'people like you', a safe place to meet, 'locally situated' activities, as well as skilled facilitation.

Community-focused connections and the experience of positive emotions/mood may be a precursor to reduced loneliness. Group settings also appear to offer a pretext for social

contact and meaningful interaction, and acting as catalysts for larger individual-level changes.

## 4. Quality of evidence

Quality assessment was carried out to examine the reliability of evidence included in the review. The validated WWCW quality checklist was used to examine the level of confidence for each study against 10 quality criteria (Appendix 2).

This checklist offers a pragmatic alternative to a full risk of bias assessment and helps readers understand the credibility of results presented in quantitative studies and the level of confidence when using them in decision-making. For each quality criterion studies were scored either 1 (yes) or 0 (no, can't tell or N/A). These scores were pooled and each study was assigned an overall as low (0-2), moderate (3-6) or high (7-10).

The majority of studies were assigned a 'high' quality score based on their design, conduct and reporting (n=60), followed by 'moderate' (n=35). No study received a 'low' confidence rating. Overall, studies described intervention designs and activities in sufficient detail and almost all conducted statistical tests on loneliness scores.

Grey literature reports scored substantially lower than peer-reviewed papers (11% vs 76% scored 'high'). The most common reason for lower scores was the lack of a meaningful counterfactual and, for studies without a control group, the failure to report on the representativeness of study samples and attrition rates. These quality ratings only apply to quantitative evidence as qualitative data were not assessed for quality.

One of the main methodological issues affecting quality scores was the lack of a control group in 49 studies. Without a control group, any changes in loneliness observed cannot be attributed to the loneliness interventions themselves and may be due to other factors. Another issue was bias from potentially high attrition rates. Almost half the studies did not describe differences between their baseline samples and the participants lost to follow-up and many researchers chose to only include individuals who had completed both pre- and post-measurements.

While the WWCW quality checklist provides a tested and comprehensive assessment of the design, conduct and reporting of quantitative data within studies, its use of binary responses for appraisal criteria (yes; no/can't tell) may have led reviewers to overestimate the quality scores where criteria were easily met. These include the 'sample size' criteria, where complete pre-post data is required for a minimum of 20 participants, and the use of validated measures as the sole criteria for a high 'measurement' criteria score. (See Appendix 2 for a description of criteria).

There is additional information that is not captured by the critical appraisal tool, for example, certain inconsistencies in the description of evaluation designs and data collection, as well as transparency on how missing data was dealt with. Often studies only included information on participants with data on both baseline and endline loneliness scores, and did not describe those who dropped out of the intervention. Data from studies that did describe these individuals suggests that they had higher loneliness scores at baseline than those who completed the intervention, therefore, any findings reported by studies on pre-post changes in loneliness should be treated with caution.

## 5. Strengths & limitations

This review adhered to rigorous systematic guidance from the Cochrane collaboration [7], including registering a protocol, conducting a comprehensive search of multiple academic databases, and 19 grey literature sources. Multiple reviewers were used to screen records for eligibility and appraise the quality of included records, and careful consideration was used to minimise missing data for meta-analyses. Review inclusion criteria were broad in terms of study sample, loneliness measure and intervention, enabling a wide range of evidence to be included, increasing the generalisability of the findings.

The focus was on studies where the alleviation of loneliness was a key aim. This is a major strength as it limits search results to interventions that intentionally target loneliness and can provide a more accurate depiction of what works to improve loneliness. Finally, the extraction of qualitative data alongside quantitative estimates of effectiveness provides insight into potential enablers and mechanisms of success which is distinct from previous reviews in the field.

Nonetheless, there are several limitations. Firstly, only English-language studies were included, which may introduce bias due to missing evidence from non-English-speaking OECD-based countries. Due to the rapid nature of the review, only three academic databases were screened, and secondary screening of reference lists from included studies was not conducted. In addition, studies where loneliness was one of more than three outcomes were excluded, increasing the risk that potential evidence on loneliness effectiveness was missed. The quality of evaluations is relatively high when scored against broad quality criteria. Furthermore, several appraisal items were included in the inclusion criteria (i.e. standardised measure of loneliness, pre and post measure of loneliness); quality scores are likely to be lower if a more comprehensive risk of bias tool is used, for example, as part of a full systematic review.

As a review that focused on the quantitative evidence of effectiveness, findings on changes in loneliness were measured using commonly-used loneliness scales. Although these scales are reliable and well-validated, they largely capture information on the frequency of loneliness at a given timepoint. As a result, they may not be providing a full and nuanced picture of the duration and intensity of loneliness within a specific timeframe or be appropriate for specific populations.

Due to the rapid nature of the review and its focus on quantitative evidence of effectiveness, reviewers did not search for qualitative data and process evaluations were excluded. In cases where included studies were mixed-method and published qualitative data separately, the records were not retrieved or extracted. As a result, the qualitative data presented in the discussion does not portray a comprehensive picture of the contextual factors that are likely to play an important role in how interventions are delivered and the circumstances that allow them to work effectively.

Finally, while meta-analyses allow readers to understand the effects of interventions by theme, subtheme and study design, the breadth of interventions across studies introduced substantial heterogeneity in the review results. Further investigation of intervention design and delivery (e.g. individual vs group, frequency, duration, setting) is required to better understand the ingredients of a successful intervention.

## **6. Conclusions**

### **6.1 Loneliness evaluation research from 2008-2023**

This rapid systematic review found 95 individual studies, published between 2008 and 2023, which present evidence on the effectiveness of 101 loneliness interventions.

Loneliness evaluation research has grown exponentially since 2020 and to date, the field is largely composed of peer-reviewed studies published in Europe and North America. For UK-based interventions, the majority of evidence is from grey literature reports.

The UCLA loneliness scale – the UK’s national indicator of indirect loneliness – is by far the most commonly used measure in included studies, followed by the De Jong Gierveld scale. The vast majority of studies report effectiveness using results from statistical tests conducted on mean scores for participants pre- and post-intervention and nearly half of the studies identified use a control group.

Overall, the quality of included studies is moderate to high, although the lack of a control group and potentially high attrition rates affect the reliability of findings. A more thorough risk of bias assessment as part of a full systematic review would likely generate lower overall quality scores across the included set of studies.

### **6.2 Core intervention themes and subthemes**

The most common core intervention theme was social support for approximately half of studies. This includes medium to longer-term and semi-structured to structured social support interventions, or projects that equip individuals with the necessary skills to facilitate social connection. Befriending/mentoring/peer-support programmes, followed by social and emotional skills development were the most common intervention types.

Social interaction-themed interventions reduce loneliness by growing an individual’s social relationships or network, while psychological interventions provide targeted non-pharmacological therapeutic support/treatment, often based on a psychological theory. The review found the same proportion of studies for each of these themes. Arts/music/culture and social activities with multiple-themes were the most common social interaction-based programmes, while structured therapy-based approaches made up the vast majority of psychological interventions.

### **6.3 Findings on effectiveness**

Effectiveness was assessed by calculating the overall effect and the effect size on loneliness for interventions, which were pooled by theme and subtheme. Meta-analyses were conducted to calculate the statistical significance, and estimate the importance of effects on loneliness - as small, medium or large. These estimates provide an indication of ‘what works’ to alleviate loneliness in the short-term; however, they should be interpreted with caution given the variability of data between studies, including participants, interventions and settings. They should continue to be tested in future research using robust quantitative evaluation designs, where appropriate, and explored alongside more nuanced findings at the individual study-level.

The more reliable evidence of effectiveness was from controlled studies and found medium to strong statistically significant effects for a range of intervention types spanning

three core themes. Overall, it suggests that there are multiple approaches to alleviating loneliness in the short-term, almost all of which target specific age groups or vulnerable populations. More specifically, these include:

- Structured therapeutic support and approaches that develop emotional and social skills. These include interventions targeting adolescents and young adults in education-based settings and Cognitive Behavioural Therapy delivered to individuals over 18 years of age.
- Social support interventions that develop social skills through targeted relationship-building skills and discussion-based activities.
- Interventions involving art and dance activities in community-based settings as a medium to facilitate social inclusion.
- Social interaction interventions involving facilitated animal/robot interactions, food delivery and social and health promotion activities within a single programme have moderate to strong effects on loneliness across different age groups.

In studies that did not use control groups, consistent evidence of loneliness improvements was found for a range of targeted approaches. This includes evidence for:

- Interventions that combine social and psychological support, 8-12 week social prescribing link worker schemes and government-funded programmes providing social activities and support through voluntary sector organisations.
- The UK Ageing Better programme (2017-2022) which consistently suggest that community-focused active participation in a wide range of group and one-to-one activities can generate loneliness improvements for over-50s.

Given the targeted nature of programmes included in the review, it is likely that context/s play an important role in shaping the success of loneliness interventions. While qualitative data were not systematically searched for in this review, evidence from approximately one quarter of studies sheds light on potential enabling factors, key ingredients and causal pathways that may lead to improvements in loneliness.

- For social prescribing schemes, the lack of local infrastructure, health and mobility issues faced by participants, alongside other personal circumstances, can act as important barriers to face-to-face participation.
- The emotional bond and caring/trusting relationship built with mentors, befrienders, link workers and homesharers all act as connectors to the wider world, providing a first step towards increasing the confidence and social connectedness of participants.
- For group activities, specific factors that enable participation include: the opportunity to connect with 'people like you', a safe place to meet, 'locally situated' activities, as well as skilled facilitation.



- Community-focused connections and the experience of positive emotions/mood may be a precursor to reduced loneliness. Group settings also appear to offer a pretext for social contact and meaningful interaction, acting as catalysts for larger individual-level changes.

## **7. Recommendations for future research and practice**

For policy-makers and commissioners, systematic reviews provide a comprehensive picture of loneliness interventions and detailed information on the value and reliability of their findings.

Overall, improving the quality of evaluations is likely to generate more solid conclusions about ‘what works’ to tackle loneliness. Using a broader range of evaluation designs may also improve the transferability of evidence across contexts. Below are some specific recommendations to build on the findings of this rapid systematic review, to develop the loneliness evidence base in a comprehensive, relevant, and consistent way:

### ***For evaluation practice:***

#### **7.1 Adopt rigorous quantitative designs to evaluate loneliness interventions across populations**

Where possible, organisations should aim to use control groups to assess whether changes in loneliness are due specifically to the intervention and not external factors. Wait-list control designs and the use of Propensity Score Matching (PSM) may offer a practical and ethical viable alternative to Randomised Controlled Trials (RCT) to evaluate the effectiveness of social support and psychological interventions.

#### **7.2 Adopt theory-based evaluation to explore the contexts, mechanisms and causal pathways that lead to loneliness improvements**

Given the importance of context in the design and effectiveness of loneliness interventions, theory-based and process evaluations provide evidence on how interventions work and in what circumstances. Evaluators should be supported to use qualitative methodologies that build solid hypotheses about the context and implementation of interventions, and assess potential mechanisms and pathways of action that underlie successful interventions. The data collected should also include service-led perspectives to shed light on the potential usefulness of interventions and identify causal claims to test in quantitative designs.

***For funders and commissioners:***

### **7.3 Ensure there is adequate funding to support the use of robust and appropriate evaluation methodologies**

Commissioners should ensure that policy and programme design build in time and funding for organisations to adopt robust qualitative and quantitative evaluations. Providing chosen evaluation designs are feasible and appropriate, adequate funding will help ensure the integrity and quality of any data collected and strengthen evaluation results and recommendations.

### **7.4 Commission timely and relevant reviews of the evidence base**

Given the rapid growth of loneliness intervention research, reviewers should explore the feasibility of [living reviews](#) to allow emerging findings to be rapidly identified and disseminated to decision-makers. The timing of reviews should ideally be aligned with policy development and funding, for example, the government's [Know Your Neighbourhood Fund](#) which will pilot approaches to loneliness alleviation through 'test and learn'.

### **7.5 Commission primary research to address knowledge gaps for specific intervention types and populations**

There are some notable gaps in the evidence identified in this review, including for areas where the evidence base may still be at an [early stage](#), for example, evaluations on connectivity, including digital skills programmes and workplace interventions. In addition, there continues to be a knowledge gap in relation to loneliness alleviation for specific groups, including individuals at different life stages, ethnic minorities, and LGBTQ+ individuals.

More evidence is needed on the nature, prevalence and severity of loneliness among recipients of loneliness interventions. In particular, the high prevalence of physical and mental health issues among target populations needs further exploration and can improve our understanding of the specific risk factors for loneliness across age groups.

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