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Who benefits most from resilience-building groups for ‘at-risk’ older people? A pilot service-evaluation

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Disclosure of interest

Mind (JC), Mind Cymru (JJ) and Merthyr and the Valleys Mind (RP) are charitable not-for-profit organisations which advocate for improved provision of preventative mental health

services for older people and may receive commissions from statutory bodies to provide such services.

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Abstract

Objectives

Resilience-building interventions have not yet targeted older adults, despite the importance of well-being for maintaining independence and health. The ‘My Generation’ programme aims to build resilience through greater access to social networks, well-being activities, and psycho-educational support; this paper examines service evaluation data from its pilot implementation to identify factors leading to positive outcomes.

Method

The ‘My Generation’ programme comprises eight weekly 2-hour group sessions; each session includes both psychoeducation and a well-being activity. Participants were invited to complete questionnaires at the start and end of the course, and 12 weeks later. These included measures of well-being, loneliness, social connections and self-efficacy.

Results

Baseline assessments were completed by 239 older people (average age 71, range 50-97), attending 38 courses in four centres. Most were female (80%), 40% were widowed, 25% divorced/separated and 64% lived alone. Demographics did not differ between those completing post-intervention assessments (N=137) and those who did not. Compared with normative data, participants had significantly lower well-being and greater feelings of loneliness than age-peers. Significant improvements in well-being, self-efficacy, social connections and one measure of loneliness were evident at post-intervention and follow-up assessments. Improvement in well-being at post-intervention was greater in those who were divorced/separated and who were not carers, and at follow-up in females and those living alone.

Conclusion

The ‘My Generation’ package appeared effective in improving well-being, self-efficacy, social connections and aspects of loneliness in at-risk older people. More research is needed to identify the intervention’s key components and possible between-centre differences in outcomes.

Keywords

Self-efficacy; Well-being; Prevention; Psychoeducation; Loneliness

Introduction

Older adults may face many challenges, including multiple losses, changes to physical health and function, caregiving roles, social isolation and financial concerns. According to Age UK (2017), half of adults aged 55 and over have experienced anxiety and / or depression, with a fifth of these stating that their problems had worsened as they became older. They suggest that there may be a cohort effect relating to people's willingness to seek help, with current older people said to have been brought up at a time when there was greater stigma relating to mental health difficulties, and a 'stiff upper lip' was encouraged.

However, many older people do experience high levels of well-being, despite the potential vicissitudes of later life. Thomas (2015) reports, from a survey of over 5000 people, that those aged 65 and over are more likely to report high levels of life satisfaction and happiness than those aged 16-64. Those aged 80 and above are a little less likely to report high levels, but the proportion still exceeds that of the under 65s. Notably those aged 80 and over were twice as likely to report being lonely as those in the younger age groups, with loneliness being strongly related to lower well-being.

The ability to maintain well-being in the face of adversity is often described as evidence of resilience (Windle, 2011), and there is evidence that this resilience may be underpinned by resources such as coping abilities and self-efficacy (e.g. Windle, Woods & Markland, 2010). There is growing interest in developing intervention programmes aiming to build resilience, with resilience being seen as a dynamic process of adaptation that can potentially be trained (Chmitorz et al., 2018). Systematic reviews of resilience building interventions indicate some success in achieving small to moderate effects (Leppin et al., 2014), with a meta-analysis of 11 randomised controlled trials showing that resilience interventions based on a combination of cognitive behaviour therapy (CBT) and mindfulness techniques had a positive impact on individual resilience (Joyce et al., 2018). However, it appears that studies to date have not focused on older adults.

There is interest in approaches that could prevent reductions in well-being in later life. For example, Age UK (2010) have published guidance for commissioners of older people's services on ways in which mental health and well-being can be promoted in this sector of the population. The National Institute for Health and Care Excellence (NICE, 2015) has similarly issued guidelines on maintaining and improving mental well-being and independence of older people. Whilst it recommends a range of individual and group activities, from singing to arts and crafts and walking groups and includes encouragement to undertake volunteering, it does not include psycho-education and resilience building in its recommendations. The failure of the Lifestyle Matters trial (Mountain et al., 2017) to identify positive changes in well-being from four months of weekly group-sessions, with a

psychoeducation element, aimed at increasing activity and interaction has perhaps led to the lack of a more specific recommendation regarding psychoeducation when the guideline was reviewed in 2018. However, the guideline does recommend targeting 'at risk' and vulnerable groups, and Mountain et al. (2017) attribute their results in part to their difficulty in recruiting participants who are at risk with lowered mental well-being.

In Wales, well-being and resilience are at the heart of the Welsh Government's 2013 *Strategy for Older People in Wales, 2013-2023*. The strategy's vision states 'Building well-being and resilience is good for individuals and society, reducing dependence and improving overall health'. Accordingly, as part of the delivery of that strategy, Mind the leading mental health charity in England and Wales, were funded by a Sustainable Social Services grant to develop, trial and then roll-out a course promoting the resilience of older people in Wales (the Welsh Government define older people as those who are 50 years old and over). Mind has developed an approach to resilience in work with a range of populations, including the emergency services, identifying three key elements: well-being, social connections and having ways to cope (Mind, 2019). The approach aims to help people develop all three elements, so that individuals have the capacity to adapt in the face of difficult circumstances, whilst maintaining their well-being. In relation to older people in Wales, the 'My Generation' programme aims to improve the resilience of at-risk older people through greater access to social networks, well-being activities, and psycho-educational support (see Mind Cymru, 2018).

This paper draws on data from the evaluation of this pilot service, examining outcomes from the pilot phase of this resilience-building programme in South Wales in the key areas of mental well-being, social connections and self-efficacy; it aims to identify factors leading to positive outcomes for those taking part. In so doing, it aims to add to the evidence base relating to prevention and early intervention for at-risk older people.

Method

Design: Service evaluation across four centres in South Wales and multiple cohorts, with baseline, post-intervention and follow-up assessments.

Procedure: Participants were invited to complete the self-report evaluation measures at the start of the initial group session ('baseline'), at the end of final session of the 8-week programme (post-intervention) and at a follow-up session 12 weeks later. Participation in the group programme was not dependent on completing the measures. The protocol for the service evaluation was reviewed for ethical and management aspects by Mind, as the sponsoring organisation.

Intervention: 8 weekly two-hour group sessions. The first hour of each session followed a programme of psychoeducational modules (see Table 1), standardised across centres and cohorts, supported by a manual and handouts. Each psychoeducational module was designed to prompt discussion around each topic, using a variety of different teaching methods to retain group engagement throughout, and drawing in personal experiences and examples as appropriate. The modules aimed to provide coping tools and techniques that could be applied to everyday life situations. The content of the modules was adapted from evidence-based material in the public domain and developed through a service design workshop involving programme managers and project coordinators. All modules were quality tested on small groups of colleagues and potential service users before being refined and finalised. Group and pair exercises were included so that the course could capitalise on the therapeutic impact of being part of a group, as well as promote one-to-one relationships. The material was ordered so that participants could progressively share more personal information as the weeks progressed. Most of the exercises were aimed at increasing an individual's awareness of their own patterns of thinking, feeling, behaving and relating. Safety boundaries were put in place to keep the material at the level of psycho-education.

The second hour was devoted to a well-being activity. These varied from centre to centre and could be different for each course. They included tasters of local groups that participants could join after the programme; general wellbeing (including nutrition); gentle exercise (Tai chi, yoga, armchair aerobics etc.); creative thinking and arts-based activities; and crafts, games and quizzes etc.

Groups were delivered in a variety of locations, including town halls, community centres, church halls, Mind venues and sheltered housing. The psychoeducation modules were facilitated by Mind project coordinators, who were required to have good group facilitator skills, a person-centred approach and prior experience of delivering training, as well as knowledge of the local area and available services. Well-being activities were delivered by a mix of project coordinators, freelancers and volunteers. The initial aim was to recruit 16-20 participants per group, but in practice group size was typically smaller.

Participants:

The pilot project involved a collaboration between four local Mind Cymru groups and the local older people's third sector organisation (Age Cymru / Age Connects). The majority of participants were recruited via these organisations. The project targeted older people, defined by the Welsh Government, the project funders, as people aged 50 and over. Younger people were not excluded from participation in the groups, but only those aged 50 and over are included in the evaluation. Most of the centres diversified their recruitment approaches e.g. recruiting participants and

delivering sessions in social housing providers' premises and making contact with health and social care providers including GPs, mental health support services, social workers and drug and alcohol services to encourage recruitment of older people identified as being at-risk.

Measures:

Demographic information: this included age, gender, ethnicity, marital status, living arrangements and type of accommodation; respondents were also asked whether they were a caregiver; whether they had a long-term physical health condition; whether they had personal experience of mental health problems and/or had used mental health services (including those of local MIND groups) and whether their ability and willingness to take part in social activities was affected by any financial concerns.

The evaluation pack also included the following questionnaires selected to assess well-being, quality of life, loneliness, social networks and self-efficacy:

Short Warwick Edinburgh Mental Well-being Scale - SWEMWBS (Stewart-Brown et al., 2009): a 7-item scale designed and widely-used for monitoring of mental well-being in the general population and the evaluation of well-being interventions. This was the primary outcome measure. Each item has 5 response options, scored 1 to 5; the range of possible raw scores is 7 to 35. This short form was developed using Rasch scaling, so raw scores are transformed using a conversion table (Stewart-Brown et al., 2009), allowing comparisons with other studies as an interval scale.

ONS-4 (Tinkler & Hicks, 2011): these are four questions routinely used by the Office of National Statistics (ONS) in the UK to evaluate well-being in the population. They are: 'Overall, how satisfied with your life are you nowadays?'; 'Overall, to what extent do you feel the things you do in your life are worthwhile?'; 'Overall, how happy did you feel yesterday?'; 'Overall, how anxious did you feel yesterday?'. Each question has a response scale from 0 'not at all' to 10 'completely'. Following ONS guidance, the scores for each question are analysed separately (Office for National Statistics, 2018).

Recovering Quality of Life - ReQoL-10 (Keetharuth et al., 2018): ReQoL-10 is a relatively new quality of life measure, developed for people with different mental health conditions. It comprises 10 items, each with a 5-point response scale from 0 ('none of the time') to 4 ('most or all of the time'). Four negatively worded items are reverse scored, and item scores summed to give a total score ranging from 0 to 40. The respondent is also asked to rate their physical health (including problems with pain, mobility, difficulties in self-care and feeling physically unwell) on a 5-point scale from 0 ('no problems') to 4 ('very severe problems'), but this rating is not included in the ReQoL-10 total score.

De Jong Gierveld Loneliness Scale (de Jong Gierveld & Van Tilburg, 2006): this widely used loneliness scale comprises three questions assessing social loneliness and three assessing emotional loneliness. Participants respond either 'yes', 'more or less', or 'no' to each question. Some questions are reverse scored so that higher scores indicate greater feelings of loneliness. Scores are summed to provide an overall loneliness score, ranging from 0 to 6, with scores for the social and emotional subscale each ranging from 0 to 3.

UCLA Loneliness Scale (Hughes, Waite, Hawkey & Cacioppo, 2004): This brief loneliness scale comprises 3 questions, each with a 3-point scale, that enquire regarding different aspects of loneliness: relational connectedness, social connectedness and self-perceived isolation. Scores are summed to give a total score ranging from 3 to 9.

Lubben Social Network Scale - LSNS-6 (Lubben et al., 2006): The extent of social networks was assessed with the Lubben Social Network Scale–6, comprising three questions assessing support available from family and three comparable questions assessing support available from friends. The questions ask participants to report the number of relatives/ friends seen or heard from in the past month, that they feel at ease to talk with about private matters, and that they feel they could call on for help. Each item has a six-category response scale ranging from 0 (no relatives/ friends) to 5 (nine or more relatives/friends). A total score and sub-scale scores for family and friends can be calculated by summing responses. Total scores range from 0 to 30 and the two subscale scores each range from 0 to 15. Higher scores indicate more extensive social networks.

General Self-efficacy scale - GSE (Schwarzer & Jerusalem, 1995): widely used 10-item scale designed to assess optimistic self-beliefs regarding ability to cope with challenges in life and the belief that one's actions are responsible for successful outcomes. Each item has a 4-point response scale from 1 ('not at all true') to 4 ('exactly true'). The total score is the sum of the item scores and ranges from 10 to 40.

Analyses

For this secondary analysis, anonymised data were imported into and analysed using IBM SPSS v25. For the SWEMWBS, ReQoL and GSE, if a response to one item was missing, the missing value was imputed from the average of the other items. Less than 3% of these scales required such imputation. To allow for multiple comparisons, Bonferroni corrections were applied on an analysis by analysis basis (with the exception of the baseline comparisons between those remaining in the study and those lost to follow-up), with an alpha of 0.05 before correction being regarded as statistically significant. In comparing baseline data of participants completing follow-up assessments with those

who only completed baseline assessments, independent sample t-tests were used for continuous variables and Chi squared tests for categorical variables. Comparisons of baseline data on the various measures used were made with the most relevant normative data available using independent sample t-tests. Changes from baseline to the post-intervention and follow-up assessments were assessed using paired sample t-tests. A sensitivity analysis was undertaken to assess whether similar results were obtained for older participants (aged 60 and over). The relationship of continuous variables to change on the two main outcome measures was evaluated with Pearson correlation coefficients and with categorical variables using independent sample t-tests or one-way ANOVA where the variable had more than 2 categories.

A series of linear regression analyses were conducted, with change in the two main outcomes, well-being and self-efficacy at post-intervention and follow-up, as the dependent variables. A forward entry procedure was used with variables entered in three blocks, first demographic variables that had been related to these outcomes in bivariate analyses; second, baseline outcome measures related to each of these outcome measures at either time point and finally the different centres. These analyses examined the independent contribution of these variables, giving precedence to demographic variables to enable further understanding of the characteristics of those participants benefitting most from the intervention.

Results:

A total of 38 courses were offered across 4 centres, with 350 people attending the programmes overall. Of these, 239 people aged 50 and over completed baseline assessments. There was considerable attrition with 137 going on to complete assessments at the end of the 8-week intervention period and 97 completing assessments at a follow-up carried out 12 weeks later. Eight participants completed baseline and follow-up assessments, but were not available for the post-intervention assessment. Attrition differed between centres, with the proportion remaining in the evaluation in the four centres being 70%, 64%, 52% and 27% respectively (chi squared = 23.4, df=3, $p < 0.0001$).

Average age was 71 (range 50-97), and 80% were female. 40% were widowed and 25% divorced or separated. Nearly two-thirds (64%) lived alone and the majority (57%) reported having a long-term physical health condition. The sample included a significant number of people (43%) reporting that they had personal experience of mental health problems and/or had used mental health or local MIND services at some point. Although over half the participants (56%) owned and lived in their own

house, only a third reported that they could take part in social activities without having concerns regarding the costs incurred.

Table 2 shows a comparison on the baseline demographic variables between those who completed the post-intervention assessment and those who did not. There were no statistically significant differences in demography between these two groups. Their exposure to potential sources of adversity appeared similar. They were just as likely to live alone, be widowed or have a long-term physical health condition or be a caregiver. Although a slightly smaller proportion had personal experience of mental health problems or had used mental health services, this difference was not significant. Comparing those who completed the 12-week follow-up assessment with those who only completed the post-intervention assessment indicated that the only difference in demographic variables related to use and experience of mental health services, with those remaining in the study **more** likely to report this risk factor than those who dropped out after the post-intervention assessment (Supplementary Table 1).

Although attrition from the evaluation was not associated with demographic variables, on most of the outcome measures those remaining did have scores indicating better function at baseline than those who did not complete post-intervention measures (see Table 3). These differences reached statistical significance for the ReQoL scale, the De Jong Loneliness social sub-scale score and the ONS items relating to life satisfaction and life being worthwhile. A similar pattern emerges when the follow-up sample is compared with those who only completed the baseline assessment (Supplementary Table 2), with significant differences also evident for the SWEMWBS, the ONS item relating to feeling happy and the De Jong Loneliness scale total score. The follow-up sample did not, however, differ at baseline on any measure from those who only completed the post-intervention assessment.

Table 3 also shows a comparison of the post-intervention sample with available population norms for the age-group. Whilst those who remained in the evaluation had better function than those who did not, on almost all measures they still score significantly worse than would be expected of the general population of people in this age group. The only exception was the Friends sub-scale of the LSNS, in comparison with a large sample of older people from North and South Wales. However, on the well-being measures and the loneliness measures there was clear evidence that the older people included in the evaluation do indeed have significantly lower well-being and greater feelings of loneliness than their age-peers.

Improvements on most of the measures employed were evident from baseline to post-intervention and from baseline to the follow-up assessment (Table 4). The exceptions at the post-intervention

assessment were the ONS item regarding life being worthwhile and the De Jong Loneliness Scale total and sub-scale scores. In contrast, there was a significant improvement on the UCLA Loneliness scale. A similar pattern emerged when follow-up scores and baseline scores were compared; here all measures showed a significant improvement, after allowing for multiple testing, apart from the De Jong Loneliness scales. In a sensitivity analysis, results were similar for participants aged 60 and over, the main exception being that none of the loneliness scales showed a significant improvement at post-intervention, but both the UCLA loneliness scale and the De Jong Loneliness total and social sub-scale scores showed improvement at the follow-up point (Supplementary Table 3).

Scores at the three time-points on the primary outcome measure, the SWEMWBS, were analysed using a repeated measures general linear model for the 79 participants with data at all time points, with centre as a between subjects factor. There was a significant effect of time ($F=9.84$, $df=2$, $p=0.0001$), and whilst there was an interaction of time and centre, this did not reach significance ($F=2.12$, $df=6$, $p=0.054$).

Analyses were undertaken to examine whether any of the main demographic variables were related to the extent of change on the SWEMWBS and the GSE scale at post-intervention and follow-up assessments (see Table 5). There was no effect of age, having a long-term health condition or being widowed. Those who reported having caregiving responsibilities improved less than those who did not at post-intervention and at follow-up on the SWEMWBS, and those who lived alone improved significantly more by the follow-up assessment than those who lived with others. Those who were divorced or separated had improved more than those who were married or in a civil partnership at the post-intervention assessment on the GSE scale, and those who had never married had improved more than those who had at follow-up on the SWEMWBS. In one of the four centres (with a high attrition rate) there was significantly less improvement on the SWEMWBS at follow-up.

Baseline measures were also examined to ascertain whether they predicted improvement (Supplementary Table 4). At post-intervention, participants who had scored less well on other well-being measures and on the GSE had shown greater improvement on the SWEMWBS; at follow-up, those who had been most anxious at baseline had shown the most change on SWEMWBS. Improvements in GSE scores were predicted by worse baseline scores on emotional loneliness and the UCLA loneliness scale, as well as on certain well-being measures. Baseline social network scores did not appear to be related to the extent of outcomes.

Linear regression analyses (Table 6) examined the independent contribution of the variables showing bivariate relationships with these two outcomes at post-intervention and follow-up. Improvement on the SWEMWBS at post-intervention was predicted by carer status, being divorced

or separated and baseline ReQoL score, so that improvement was greater for those who were *not* carers, who were divorced or separated and had lower ReQoL scores. Improvement at follow-up was predicted by two demographic variables – living alone and gender, with those living alone and females reporting greater improvement 12 weeks after the end of the programme.

Improvement on self-efficacy at post-intervention was related to being divorced or separated and to reporting more emotional loneliness on the De Jong scale at baseline and was less in one centre. At the follow-up evaluation, those who lived alone had improved more on self-efficacy, as had those with lower baseline scores on the ONS life satisfaction question. Participants in one of the four centres showed less improvement than the other participants completing follow-up evaluations.

The relationship between change in well-being and change in self efficacy was also examined. At both post-intervention ($r=0.37$, $p<0.001$) and at follow-up ($r=0.38$, $p<0.001$), changes in well-being and self-efficacy were significantly associated. At post-intervention, those scoring below the median on the GSE scale at baseline had improved twice as much on the SWEMWBS as those who had been above the median (below median: 3.6 points improvement; above median: 1.75 points improvement; $t=2.88$, $p=0.005$). By follow-up, this difference had been attenuated and was no longer significant.

Discussion

This service evaluation does indicate considerable success for the 'My Generation' programme. Participants showed improvements in well-being, social connections and self-efficacy, in accordance with the three-fold pillars of the Mind resilience approach. These improvements were evident immediately at the end of the 8 weeks of group meetings and 12 weeks later. Improvements in loneliness were noted on one of the two scales used (the UCLA loneliness scale). The changes on the De Jong Gierveld loneliness scale and its sub-scales were in the expected direction, and the lack of statistical significance may reflect differences in sensitivity to change between measures of loneliness. For older participants (60 and over), both scales showed significant improvement at the follow-up assessment.

The programme does appear to have been successful in recruiting a greater proportion of at-risk participants on a number of relevant indicators, both in terms of demography and in relation to comparative normative data. Even allowing for the lower well-being of those who were lost to the evaluation, those who continued to complete measures were at greater risk of difficulties than their age-peers. Thus, nearly two-thirds lived alone, 40% were widowed and a quarter were divorced or

separated. Over half had a long-term physical health condition and 40% had personal experience of mental health problems or had used mental health services (including those provided by local Mind groups). Other studies have had difficulty in recruiting at-risk older people (e.g. Chatters et al., 2018), but this evaluation suggests that programmes run by well-established third sector groups may be more productive than seeking to recruit through primary care practices or health professionals.

It was possible to identify some characteristics of those most likely to benefit from the intervention. Demographic variables included: at post-intervention, being divorced or separated and not identifying as a carer; at follow-up, living alone and being female. The relationship of demographic variables to outcomes offers some additional support for the programme reaching those most at risk. Being divorced or separated and living alone are risk factors cited by NICE (2015) and were associated with better outcomes at post-intervention and follow-up respectively. A third risk factor – being a carer – was associated with worse outcomes, and although only a small proportion of participants identified themselves as carers (10%), their specific needs may require further consideration.

It also appeared that those participants reporting initially lower quality of life and life-satisfaction scores or higher emotional loneliness scores showed greater improvement on one of the two main outcome measures at one or other of the time-points. This could reflect a potential ceiling effect, with those reporting more positively at the outset having less room for improvement. This again reinforces the importance of targeting the intervention to those most at risk, with studies where this has not been achieved failing to find positive changes (e.g. Mountain et al., 2017).

There are, of course, limitations to the conclusions that can be drawn from a service evaluation of this kind. The absence of a control group means we cannot be certain how much of the changes observed are attributable to the intervention, and what change might have occurred naturally over time. However, it is worth noting that in the comparable Lifestyle Matters randomised controlled trial (Mountain et al., 2017), there were several measures in common with the current study, including the ONS life satisfaction question and the GSE scale, with little or no overall change being identified over a six-month period in either those receiving the intervention or those in a control group not receiving any intervention. This suggests that it is unlikely that the changes noted in this evaluation were unrelated to the My Generation programme.

The My Generation programme combines a psychoeducational course with well-being activities, and so we cannot be certain which elements of the intervention were more or less helpful. It is conceivable that well-being activities alone would have been sufficient to trigger changes in well-being. However, the changes in self efficacy and the improvements evident 12 weeks after the end

of the programme suggest that more fundamental changes have been initiated, beyond an enjoyable get-together with friends for a pleasurable group activity. The improvements seen in several domains do give support to the notion that whilst social and creative activities are important, combined with psychoeducation the effects may well be greater.

We did not find evidence that those with higher self-efficacy or more extensive social networks initially gained more from the programme in terms of well-being. In terms of self-efficacy, it appeared that those with lower levels improved most on well-being measures and that changes in self-efficacy were associated with changes in well-being. This adds to the tentative conclusion that the benefits of the programme are not simply from a pleasurable group meeting.

A potential limitation of this study is that, in contrast to studies of resilience-building interventions included in reviews cited previously (Leppin et al., 2014; Joyce et al., 2018), a specific resilience measure was not included. However, the measures described as resilience scales tend in fact to assess traits of hardiness or self-efficacy (Windle, Bennett & Noyes, 2011). Evaluating resilience as defined as a dynamic process of adaptation, maintaining well-being when experiencing an adversity, is difficult when the exposure to adversity is uncertain and unpredictable, as it is even in an at-risk population (Chmitorz et al., 2018). This is likely to be a continuing conceptual difficulty in considering the evaluation of resilience building interventions in older people, where adversities are often chronic, multiple and individual, as opposed to populations where all are exposed to the same stressor. Accordingly, there is a case to be made for evaluating the factors known to assist the dynamic process of resilience, such as self-efficacy and social networks, as in this study.

A limitation of the evaluation is the high rate of attrition from the overall baseline sample to the post-intervention and follow-up samples. This was higher in two centres, which were also the centres where there was evidence of less positive outcomes at the follow-up assessments. Although the psychoeducation course was standardised across centres, and facilitators met regularly together to discuss implementation of the programme, there may well have been differences in well-being activities and engagement across centres, and the absence of data on participant attendance and on the extent of adherence to the intervention manual is a further limitation of this study. The between centre differences may also reflect differences in types of community (rural v urban) and in referral routes. The relatively small numbers in the two centres with poorer outcomes precludes further analysis of these differences.

Conclusion

The My Generation programme was successful in improving well-being, self-efficacy, social networks and aspects of loneliness in older people who may be considered as being at risk of developing difficulties in mental well-being. There were particular benefits for those who were divorced or separated and those who lived alone. Further work is needed to understand differences in outcomes across centres, and on the key components of the intervention package.

References

- Age UK (2017). Half of adults aged 55 and over have experienced mental health problems [News item]. Retrieved from <https://www.ageuk.org.uk/latest-news/articles/2017/october/half-aged-55-have-had-mental-health-problems/>
- Age UK (2010) Promoting Mental Health and Well-being in Later Life A guide for commissioners of older people's services. Retrieved from https://www.ageuk.org.uk/Documents/EN-GB/For-professionals/Care/Mental%20Health%20and%20Wellbeing%20in%20later%20life_pro.pdf?dtrk=true
- Chatters, R., Newbould, L., Sprange, K., Hind, D., Mountain, G., Shortland, K., ... Woods, B. (2018). Recruitment of older adults to three preventative lifestyle improvement studies *Trials* 19, 121 DOI: 10.1186/s13063-018-2482-1
- Chmitorz, A., Kunzler, A., Helmreich, I., Tüscher, O., Kalisch, R., Kubiak, T., ... Lieb, K. (2018). Intervention studies to foster resilience—A systematic review and proposal for a resilience framework in future intervention studies. *Clinical Psychology Review*, 59, 78-100.
- De Jong Gierveld, J. and van Tilburg, T. (2006). 6-Item scale for overall, emotional, and social loneliness: confirmatory tests on survey data. *Research on Ageing*, 28(5), 582-598.
- Evans, I. E., Llewellyn, D. J., Matthews, F. E., Woods, R. T., Brayne, C. & Clare, L. (2019). Living alone and cognitive function in later life, *Archives of Gerontology and Geriatrics*, 81, 222-233. <https://doi.org/10.1016/j.archger.2018.12.014>.
- Fat, L. N., Scholes, S., Boniface, S., Mindell, J., & Stewart-Brown, S. (2017). Evaluating and establishing national norms for mental wellbeing using the short Warwick–Edinburgh mental wellbeing scale (SWEMWBS): findings from the health survey for England. *Quality of Life Research*, 26(5), 1129-1144.
- Hughes, M. E., Waite, L. J., Hawkey, L. C. and Cacioppo, J. T. (2004). A Short Scale for Measuring Loneliness in Large Surveys: Results from two population-based studies. *Research on Ageing*, 26(6), 655-672.
- Joyce, S., Shand, F., Tighe, J., Laurent, S. J., Bryant, R. A., & Harvey, S. B. (2018). Road to resilience: a systematic review and meta-analysis of resilience training programmes and interventions. *BMJ Open*, 8(6), e017858.
- Keetharuth, A., Brazier, J., Connell, J., Bjorner, J., Carlton, J., Taylor Buck, E., ... Barkham, M. (2018). Recovering Quality of Life (ReQoL): a new generic self-reported outcome measure for use with people experiencing mental health difficulties. *British Journal of Psychiatry*, 212(1). <https://doi.org/10.1192/bjp.2017.10>
- Leppin, A.L., Bora, P.R., Tilburt, J.C., Gionfriddo, M.R., Zeballos-Palacios, C., Dulohery, M.M., ... Montori, V.M. (2014). The efficacy of resiliency training programs: a systematic review and meta-analysis of randomized trials. *PloS One*, 9(10), p.e111420.
- Lubben, J., Blozik, E., Gillmann, G., Iliffe, S., von Renteln Kruse, W., Beck, J. C., & Stuck, A. E. (2006). Performance of an abbreviated version of the Lubben Social Network Scale among three European community-dwelling older adult populations. *Gerontologist*, 46, 503–513.
- Mind (2019). Resilience at Mind. Retrieved from <https://www.mind.org.uk/about-us/local-minds/resilience>

- Mind Cymru (2018). My Generation. Retrieved from <https://www.mind.org.uk/about-us/mind-cymru/my-generation/>
- Mountain, G., Windle, G., Hind, D., Walters, S., Keertharuth, A., Chatters, R., ... Roberts, J. (2017). A preventative lifestyle intervention for older adults (Lifestyle Matters): a randomised controlled trial. *Age Ageing* 1-8. doi: 10.1093/ageing/afx021
- NICE (2015). Older people: independence and mental wellbeing. NICE guideline [NG32]. Retrieved from <https://www.nice.org.uk/guidance/ng32>
- Office for National Statistics (2016). Measuring National Well-being: At what age is Personal Well-being the highest? Retrieved from <https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/articles/measuringnationalwellbeing/atwhatageispersonalwellbeingthehighest>
- Office for National Statistics (2018). Personal well-being frequently asked questions: 10) Why is there not one composite indicator for personal well-being? Retrieved from <https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/methodologies/personalwellbeingfrequentlyaskedquestions#why-is-there-not-one-composite-indicator-for-personal-well-being>
- Schwarzer, R., & Jerusalem, M. (1995). Generalized Self-Efficacy scale. In J. Weinman, S. Wright, & M. Johnston, *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). Windsor, UK: NFER-NELSON.
- Stewart-Brown, S., Tennant, A., Tennant, R., Platt, S., Parkinson, J. & Weich, S. (2009) Internal Construct Validity of the Warwick-Edinburgh Mental Well-being Scale (WEMWBS): A Rasch analysis using data from the Scottish Health Education Population Survey. *Health and Quality of Life Outcomes*, 7:15
- Thomas, J. (2015). Insights into Loneliness, Older People and Well-being, 2015. Office of National Statistics. Retrieved from <https://webarchive.nationalarchives.gov.uk/20160105171432/http://www.ons.gov.uk/ons/rel/wellbeing/measuring-national-well-being/older-people-s-well-being/art-older-people-s-well-being--2015.html>
- Tinkler, L. & Hicks, S. (2011). Measuring subjective well-being. Newport: Office of National Statistics. Retrieved from <https://webarchive.nationalarchives.gov.uk/20160105231537/http://www.ons.gov.uk/ons/guide-method/user-guidance/well-being/wellbeing-knowledge-bank/understanding-wellbeing/measuring-subjective-well-being.pdf> Accessed 19 August 2019.
- Welsh Government (2013). Strategy for Older People 2013-2023. Retrieved from <https://gweddill.gov.wales/docs/dhss/publications/130521olderpeoplestrategyen.pdf>
- Windle, G. (2011). What is resilience? A review and concept analysis. *Reviews in Clinical Gerontology*, 21(2), 152-169.
- Windle, G., Woods, R.T., Markland, D.A. (2010). Living with ill-health in older age: the role of a resilient personality. *Journal of Happiness Studies*, 11, 763-777.
- Windle, G., Bennett, K. M., & Noyes, J. (2011). A methodological review of resilience measurement scales. *Health and Quality of Life Outcomes*, 9(1), 8.

	Topic	Areas covered
Week 1	Exploring helpful and unhelpful thinking	<ul style="list-style-type: none"> • How to identify the difference between helpful and unhelpful forms of thinking • How to recognise the outcomes that lead from the way in which we choose to think • Techniques that help you turn unhelpful thinking patterns into helpful ones
Week 2	Exploring and managing stress	<ul style="list-style-type: none"> • How to recognise your warning signs and triggers for stress • Ways to manage your stress
Week 3	Exploring feelings and emotions - part 1	<ul style="list-style-type: none"> • Feelings and why we have them • The effect that feelings can have on us • How to process feelings in a healthy way
Week 4	Exploring feelings and emotions - part 2	<ul style="list-style-type: none"> • More about our feelings • The social need attached to feelings • What we need in order to process our feelings in a healthy way
Week 5	Exploring loss, grief and renewal	<ul style="list-style-type: none"> • The different types of loss and the responses that come from loss • Loss over a period of time • The four stages of the grieving process
Week 6	Exploring relaxation and mindfulness	<ul style="list-style-type: none"> • How to be aware of being on autopilot and being in the present moment • Practising mindfulness and relaxation • The benefits of mindfulness and relaxation
Week 7	Exploring problem solving	<ul style="list-style-type: none"> • Everyday problems we encounter • The importance of solving our problems and what could happen if we don't • How to complete a problem-solving process
Week 8	Exploring connections	<ul style="list-style-type: none"> • The importance of our connections • How to practise positive connections

Table 1. Outline of programme of psychoeducational modules

	Did not complete post-intervention assessments (N=102)	Completed post-intervention assessments (N=137)	Total baseline sample (N=239)	
Age (mean, sd)	71.0 (11.3)	70.4 (11.2)	70.7 (11.2)	t=0.422, p=0.67
Gender (Female)	82 (79.6%)	108 (79.4%)	190 (79.5%)	p=1.00 (Fisher's exact)
Marital status:				Chi-square=0.645, df=3, p=0.886
Married/civil partnership	27 (26.5%)	35 (25.9%)	62 (26.2%)	
Divorced/separated	27 (26.5%)	31 (23.0%)	58 (24.5%)	
Never married	9 (8.8%)	15 (11.1%)	24 (10.1%)	
Widowed	39 (38.2%)	54 (40.0%)	93 (39.2%)	
Living arrangements:				Chi-square=0.198, df=4, p=0.995
Lives alone	64 (64.0%)	87 (64.0%)	151 (64.0%)	
Lives with children	6 (6.0%)	8 (5.9%)	14 (5.9%)	
Lives with spouse / partner	27 (27.0%)	37 (27.2%)	64 (27.1%)	
Other	3 (3%)	4 (3%)	7 (3%)	
Household status:				Chi-square=5.95, df=3, p=0.114
Owner occupier	48 (47.1%)	84 (62.2%)	132 (55.7%)	
Privately rented	6 (5.9%)	8 (5.9%)	14 (5.9%)	
Sheltered accommodation	19 (18.6%)	16 (11.9%)	35 (14.8%)	
Social housing / housing association	29 (28.4%)	27 (20.0%)	56 (23.6%)	
Is a Caregiver	8 (8.3%)	15 (11.2%)	23 (10%)	p=0.51 (Fisher's exact)
Has used mental health services / personal experience of mental health problems	48 (46.6%)	54 (39.7%)	102 (42.7%)	p=0.29 (Fisher's exact)
Has a long-term health condition	57 (55.3%)	80 (58.8%)	137 (57.3%)	p=0.60 (Fisher's exact)
Physical health (from REQOL) (mean, sd)	2.2 (1.2)	2.3 (1.1)	2.2 (1.1)	t=0.653, p=0.51
No financial concerns regarding taking part in activities	28 (30.1%)	44 (33.8%)	72 (32.3%)	Chi-square=4.07, df=4, p=0.396

Table 2: Demographics of baseline population: for overall sample, those who completed assessments at post-intervention and those who did not

Measure	Total baseline sample Mean (SD) N	Did not complete post-intervention assessments Mean (SD) N	Completed post-intervention assessments Mean (SD) N	Baseline only v completed post-intervention measures		Comparison population norms mean (SD) N	Comparison population norms v baseline score of those completing post-intervention measures	
				t	p		t	p
SWEMWBS	21.15 (4.85) N=210	20.38 (5.30) N=84	21.66 (4.47) N=126	- 1.89	0.06	24.39 ¹ (4.25) N=3785	7.08	0.000*
ONS Life satisfaction	6.10 (2.65) N=236	5.70 (2.71) N=99	6.39 (2.57) N=137	- 2.01	0.046*	7.85 ² (1.71) N=18000 (approx.)	6.64	0.000*
ONS Life worthwhile	6.18 (2.70) N=235	5.66 (2.74) N=99	6.57 (2.61) N=136	- 2.58	0.01*	8.07 ² (1.37) N=18000 (approx.)	6.70	0.000*
ONS Happy yesterday	6.00 (2.85) N=234	5.61 (2.90) N=100	6.29 (2.79) N=134	- 1.82	0.07	7.81 ² (1.71) N=18000 (approx.)	6.30	0.000*
ONS Anxious yesterday	4.27 (3.02) N=235	4.38 (2.95) N=98	4.19 (3.08) N=137	0.47	0.64	2.60 ² (2.40) N=18000 (approx.)	-6.03	0.000*
ReQoL	24.32 (8.71) N=224	22.33 (8.40) N=93	25.73 (8.68) N=131	- 2.92	0.004*	Not available	-	-
UCLA Loneliness Scale	5.55 (2.15) N=234	5.73 (2.03) N=98	5.41 (2.23) N=136	1.11	0.27	3.89 ³ (1.34) N=2182	-7.86	0.000*
General Self-Efficacy Scale	27.66 (6.78) N=230	26.95 (7.23) N=96	28.16 (6.42) N=134	- 1.33	0.18	31.9 ⁴ (4.8) N=143	5.46	0.000*
De Jong Loneliness Scale Total	3.24 (2.02) N=206	3.54 (2.03) N=84	3.04 (2.01) N=122	1.73	0.09	0.82 ⁵ (1.04) N=2197	- 12.1 1	0.000*
De Jong Loneliness Scale (Social)	1.42 (1.30) N=226	1.69 (1.33) N=93	1.24 (1.25) N=133	2.58	0.01*	0.44 ⁵ (0.76) N=2197	-7.30	0.000*
De Jong Loneliness Scale (Emotional)	1.83 (1.11) N=209	1.93 (1.09) N=86	1.76 (1.12) N=123	1.06	0.29	0.38 ⁵ (0.62) N=2197	- 13.5 5	0.000*
Lubben Social Network Scale Total	13.40 (6.53) N=234	12.53 (6.87) N=98	14.02 (6.23) N=136	- 1.73	0.09	16.17 ⁵ (5.73) N=2197	3.92	0.000*
Lubben Social	6.83 (3.73)	6.55 (3.89)	7.04 (3.61)	- 0.99	0.32	8.69 ⁵ (3.31)	5.22	0.000*

Network Scale (Family)	N=236	N=99	N=137			N=2197		
Lubben Social Network Scale (Friends)	6.59 (3.85) N=234	6.02 (4.04) N=98	6.99 (3.67) N=136	- 1.92	0.06	7.48 ⁵ (4.02) N=2197	1.50	0.135

*Significant p<0.05

¹Fat et al., (2017) age 65-74

²Office for National Statistics (2016) age 65-69

³Hughes et al. (2004), mean age 66.5, US Health & Retirement Study, 2002

⁴Mountain et al. (2017), control group, baseline mean age 71.3

⁵Evans et al. (2019) CFAS Wales population – North & South Wales, community dwelling, excluding people with cognitive impairment and with depression, mean age 73.2

Table 3: Baseline scores of those who did and did not complete the post-intervention assessment and comparison with relevant population normative data

<i>Measure</i>	Baseline to post-intervention				Baseline to follow-up			
	<i>Mean difference (standard deviation)</i>	<i>N</i>	<i>t</i>	<i>p</i>	<i>Mean difference (standard deviation)</i>	<i>N</i>	<i>t</i>	<i>p</i>
SWEMWBS	2.45 (3.55)	123	7.66	.000*	2.48 (3.91)	85	5.84	.000*
ONS Life satisfaction	0.52 (1.87)	136	3.26	.001*	0.78 (1.66)	95	4.58	.000*
ONS Life worthwhile	0.40 (1.92)	135	2.42	.017	0.61 (1.67)	95	3.57	.001*
ONS Happy yesterday	0.67 (2.25)	132	3.44	.001*	0.77 (2.31)	96	3.27	.002*
ONS Anxious yesterday	-0.39 (3.20)	132	-4.99	.000*	-1.33 (3.82)	91	-3.32	.001*
ReQoL	1.91 (6.18)	128	3.49	.001*	3.14 (5.00)	91	6.00	.000*
UCLA Loneliness Scale	-0.38 (1.39)	133	-3.12	.002*	-0.76 (1.57)	94	-4.66	.000*
General Self-Efficacy Scale	2.50 (4.64)	132	6.18	.000*	2.59 (5.30)	92	4.69	.000*
De Jong Loneliness Scale Total	-0.21 (1.36)	120	-1.68	.096	-0.38 (1.52)	87	-2.33	.022
De Jong Loneliness Scale (Social)	-0.008 (0.96)	128	-0.09	.927	-0.22 (1.01)	94	-2.15	.034
De Jong Loneliness Scale (Emotional)	-0.19 (1.01)	122	-2.07	.041	-0.22 (0.98)	88	-2.08	.041
Lubben Social Network Scale Total	1.62 (3.31)	133	5.66	.000*	2.78 (4.29)	90	6.14	.000*
Lubben Social Network Scale (Family)	0.67 (2.33)	135	3.36	.001*	0.92 (2.45)	91	3.59	.001*
Lubben Social Network Scale (Friends)	0.93 (2.35)	133	4.58	.000*	1.85 (2.81)	94	6.39	.000*

* Statistically significant after Bonferroni correction applied for multiple testing

Table 4: Changes in evaluation measures from baseline to post-intervention assessment and from baseline to follow-up assessment

		SWEMWBS Baseline to post- intervention	SWEMWBS Baseline to follow-up	GSE Baseline to post- intervention	GSE Baseline to follow-up
Age (Pearson's r)		r = -0.106	r= -0.075	r= -0.035	r= -0.095
Gender	Female	2.47 (3.07)	2.92 (3.82)	2.52 (4.18)	3.05 (5.31)
	Male	2.38 (5.16)	0.58 (3.85)	2.41 (6.21)	0.59 (4.87)
Marital status: Married/civil partnership		1.66 (3.04)	1.24 (3.27)	1.08 (4.8)	1.54 (4.53)
Divorced/ separated		3.72 (2.78)	2.21 (4.30)	4.16 (4.11) ²	4.26 (4.67)
Never married		2.77 (3.97)	5.41 (5.62) ¹	2.47 (5.29)	1.63 (5.42)
Widowed		2.22 (4.07)	2.76 (2.93)	2.52 (4.41)	2.23 (6.11)
Living arrangements: Lives with others Lives alone		1.88 (3.02)	0.68 (3.46)	1.67 (4.67)	1.57 (4.41)
		2.81 (3.71)	3.62 (3.78)**	3.02 (4.57)	3.22 (5.72)
Is a Caregiver?	No	2.73 (3.65)	3.12 (3.81)	2.57 (4.62)	2.75 (5.31)
	Yes	0.46 (2.20)*	0.18 (2.18)*	1.69 (4.81)	1.40 (5.46)
Has used mental health services / personal experience of mental health problems	No	2.26 (3.82)	2.49 (3.15)	2.23 (4.49)	1.70 (5.50)
	Yes	2.74 (3.11)	2.47 (4.57)	2.87 (4.85)	3.60 (4.92)
Has a long-term health condition	No	2.18 (3.33)	2.48 (3.45)	2.78 (3.78)	2.84 (5.2)
	Yes	2.65 (3.71)	2.48 (4.27)	2.31 (5.13)	2.40 (5.41)
Centre: Centre 1 Centre 2 Centre 3 Centre 4		2.52 (3.34) (N=66)	3.36 (3.91) (N=40)	2.98 (3.77) (N=66)	3.83 (3.54) (N=40)
		2.90 (3.34) (N=32)	2.67 (3.22) (N=24)	3.25 (4.78) (N=32)	3.26 (4.97) (N=23)
		1.71 (5.02) (N=16)	1.40 (2.25) (N=11)	0.50 (5.06) (N=23)	-0.09 (5.75) (N=17)
		1.69 (2.82) (N=9)	-0.31 (5.56) ³ (N=10)	1.55 (6.99) (N=11)	1.00 (8.36) (N=12)

Apart from age, where Pearson's correlation coefficients are cited, figures given are means (standard deviations) at each time point. Marital status and Centre analysed with one-way ANOVA; other comparisons made using t-tests. Analysis by analysis comparisons made with Bonferroni correction.

* p<0.05; ** p<0.01

¹ sig diff from married / civil partnership p=0.041; ² sig diff from married / civil partnership p=0.038; ³ sig diff from Centre 1 p=0.045;

Table 5: relationship of demographic variables and Centre to outcomes

	Adjusted R ²		Standardised β	Significance
SWEMWBS Post-intervention – Baseline¹	0.143	F=7.253, p<0.0001		
Carer			-0.254	0.004
Divorced / separated			0.204	0.023
ReQoL Baseline			-0.232	0.01
SWEMWBS Follow-up – Baseline²	0.198	F=10.398, p<0.0001		
Lives alone			0.393	0.000
Gender			-0.220	0.036
General Self Efficacy Scale Post-intervention – Baseline³	0.090	F=4.819, p=0.003		
Divorced / separated			0.178	0.05
De Jong Emotional Loneliness Scale Baseline			0.187	0.039
Centre 4			-0.186	0.04
General Self Efficacy Scale Follow-up – Baseline⁴	0.181	F=6.977, P<0.0001		
Lives alone			0.250	0.017
ONS Life satisfaction Baseline			-0.223	0.033
Centre 3			-0.273	0.009

¹Excluded variables: Gender; lives alone; Never married; ONS Happy Baseline; ONS Anxious Baseline; GSE scale Baseline; Centre

²Excluded variables: Carer; Divorced/separated; Never married; ONS Anxious Baseline, ONS Happy Baseline; ReQoL Baseline; GSE scale Baseline; Centre

³Excluded variables: Gender; carer; lives alone; ONS Life satisfaction Baseline; ONS Happy Baseline; ReQoL Baseline; UCLA Loneliness Scale Baseline

⁴Excluded variables: Gender; carer; divorced/separated; ONS Happy Baseline; ReQoL Baseline; UCLA Loneliness Scale Baseline; De Jong Emotional loneliness scale Baseline

Table 6: Results of regression analyses indicating variables independently associated with change from baseline to post-intervention and baseline to follow-up on Short Warwick Edinburgh Mental Well-being Scale (SWEMWBS) and General Self Efficacy scale (GSE)

	Total baseline sample (N=239)	Completed baseline assessments only (N=94)	Completed post-intervention assessments only (N=48)	Completed follow-up assessments (N=97)	
Age (mean, sd)	70.7 (11.2)	71.2 (11.3)	72.0 (12.7)	69.5 (10.3)	F (2,232) =0.969, p=0.381
Gender (Female)	190 (79.5%)	73 (77.7%)	37 (77.1%)	80 (82.5%)	Chi-square=0.894, df=2, p=0.640
Marital status: Married/civil partnership	62 (26.2%)	24 (25.8%)	13 (27.7%)	25 (25.8%)	Chi-square=6.83, df=6, p=0.337
Divorced/separated	58 (24.5%)	26 (28.0%)	5 (10.6%)	27 (27.8%)	
Never married	24 (10.1%)	8 (8.6%)	7 (14.9%)	9 (9.3%)	
Widowed	93 (39.2%)	35 (37.6%)	22 (46.8%)	36 (37.1%)	
Living arrangements: Lives alone	151 (64%)	59 (64.8%)	31 (64.6%)	61 (62.9%)	Chi-square=2.02, df=8, p=0.980
Lives with children	14 (5.9%)	5 (5.5%)	2 (4.2%)	7 (7.2%)	
Lives with spouse / partner	64 (27.1%)	24 (26.4%)	14 (29.2%)	26 (26.8%)	
Other	7 (3.0%)	3 (3.3%)	1 (2.1%)	3 (3.1%)	
Household status: Owner occupier	132 (55.7%)	43 (46.2%)	32 (66.7%)	57 (59.4%)	Chi-square=10.86, df=6, p=0.093
Privately rented	14 (5.9%)	6 (6.5%)	4 (8.3%)	4 (4.2%)	
Sheltered accommodation	35 (14.8%)	18 (19.4%)	7 (14.6%)	10 (10.4%)	
Social housing / housing association	56 (23.6%)	26 (28.0%)	5 (10.4%)	25 (26.0%)	
Is a Caregiver	23 (10%)	7 (7.9%)	6 (12.5%)	10 (10.8%)	Chi-square=0.843, df=2, p=0.656
Has used mental health services / personal experience of mental health problems	102 (42.7%)	45 (47.9%)	13 (27.1%)	44 (45.4%)	Chi-square=6.094, df=2, p=0.048*
Has a long-term health condition	137 (57.3%)	52 (55.3%)	30 (62.5%)	55 (56.7%)	Chi-square=0.695, df=2, p=0.706
Physical health (from REQOL) (mean, sd)	2.2 (1.1)	2.2 (1.2)	2.2 (1.0)	2.3 (1.1)	F (2,228) =0.111, p=0.895
No financial concerns regarding taking part in activities	72 (32.3%)	25 (29.4%)	15 (33.3%)	32 (34.4%)	Chi-square=8.262, df=8, p=0.408

* Significant at p<0.05; no adjustment made for multiple comparisons

Supplementary Table 1: Comparison of participants' demographics broken down by last assessment completed.

Measure	Total baseline sample	Completed baseline assessments only	Completed post-intervention assessments only	Completed follow-up assessments	Comparison of means (one-way ANOVA)	
					F	p
SWEMWBS	21.15 (4.85) N=210	20.07 ^{1,2} (5.31) N=78	22.07 (5.14) N=45	21.63 (4.08) N=87	3.24	0.041*
ONS Life satisfaction	6.13 (2.64) N=234	5.61 ^{1,2} (2.76) N=90	6.54 (2.80) N=48	6.42 (2.37) N=96	2.95	0.055
ONS Life worthwhile	6.20 (2.68) N=233	5.49 ^{1,2} (2.71) N=90	6.64 (2.62) N=47	6.66 (2.55) N=96	5.40	0.005*
ONS Happy yesterday	6.03 (2.83) N=232	5.44 ² (2.87) N=90	6.43 (2.83) N=46	6.39 (2.73) N=96	3.21	0.042*
ONS Anxious yesterday	4.28 (3.02) N=233	4.43 (2.91) N=89	3.81 (3.06) N=48	4.38 (3.11) N=96	0.73	0.485
ReQoL	24.46 (8.67) N=221	21.86 ^{1,2} (8.37) N=83	26.48 (8.68) N=46	25.78 (8.68) N=92	6.33	0.002*
UCLA Loneliness Scale	5.54 (2.13) N=230	5.70 (1.95) N=88	5.34 (2.15) N=47	5.48 (2.29) N=95	0.50	0.609
General Self-Efficacy Scale	27.74 (6.78) N=227	26.80 (7.28) N=86	29.00 (6.12) N=46	27.97 (6.57) N=95	1.69	0.186
De Jong Loneliness Scale Total	3.25 (2.02) N=204	3.73 ² (1.96) N=75	3.05 (2.07) N=38	2.92 (2.00) N=91	3.60	0.029*
De Jong Loneliness Scale (Social)	1.44 (1.30) N=223	1.79 ^{1,2} (1.31) N=84	1.09 (1.24) N=44	1.28 (1.26) N=95	5.45	0.005*
De Jong Loneliness Scale (Emotional)	1.83 (1.11) N=207	2.03 ² (1.05) N=77	1.90 (1.19) N=39	1.64 (1.11) N=91	2.67	0.072
Lubben Social Network Scale Total	13.40 (6.56) N=231	12.45 (6.91) N=89	14.83 (6.50) N=47	13.58 (6.17) N=95	2.11	0.124
Lubben Social Network Scale (Family)	6.81 (3.73) N=233	6.38 (3.85) N=90	7.43 (3.77) N=47	6.91 (3.60) N=96	1.27	0.282
Lubben Social Network Scale (Friends)	6.61 (3.87) N=231	6.11 (4.02) N=89	7.40 (3.75) N=47	6.68 (3.74) N=95	1.76	0.175

¹Significant difference at $p < 0.05$ between baseline scores of those who completed the baseline assessment only and those who completed the post-intervention assessment but not the follow-up assessment (no adjustment made for multiple comparisons)

² Significant difference at $p < 0.05$ between baseline scores of those who completed the baseline assessment only and those who completed the follow-up assessment (no adjustment made for multiple comparisons)

* One-way ANOVA significant at $p < 0.05$ (no adjustment made for multiple comparisons)

Supplementary Table 2: Baseline scores of participants according to last assessment completed. No significant baseline differences between those who completed the post-intervention assessment only and those who completed the follow-up assessment. (SWEMWBS = Short Warwick Edinburgh Mental Well-being Scale)

<i>Measure</i>	Baseline to post-intervention				Baseline to follow-up			
	<i>Mean difference (standard deviation)</i>	<i>N</i>	<i>t</i>	<i>P</i>	<i>Mean difference (standard deviation)</i>	<i>N</i>	<i>t</i>	<i>P</i>
SWEMWBS	2.30 (3.64)	99	6.30	.000*	2.32 (3.50)	68	5.47	.000*
ONS Life satisfaction	0.51 (1.82)	111	2.92	.004	0.94 (1.65)	78	5.02	.000*
ONS Life worthwhile	0.31 (1.71)	110	1.89	.062	0.71 (1.65)	78	3.77	.000*
ONS Happy yesterday	0.68 (2.20)	107	3.21	.002*	0.99 (2.38)	79	3.27	.000*
ONS Anxious yesterday	-1.33 (3.21)	107	-4.28	.000*	-1.24 (3.98)	75	-3.32	.009
ReQoL	1.28 (6.14)	104	2.12	.036*	2.62 (5.16)	74	6.00	.000*
UCLA Loneliness Scale	-0.35 (1.41)	108	-2.59	.011	-0.77 (1.56)	77	-4.66	.000*
General Self-Efficacy Scale	2.26 (4.56)	107	5.12	.000*	2.45 (5.42)	76	4.69	.000*
De Jong Loneliness Scale Total	-0.20 (1.38)	99	-1.45	.150	-0.54 (1.46)	70	-2.33	.003*
De Jong Loneliness Scale (Social)	-0.03 (0.97)	107	-0.30	.765	-0.38 (0.95)	77	-2.15	.001*
De Jong Loneliness Scale (Emotional)	-0.15 (1.00)	100	-1.50	.136	-0.23 (0.94)	71	-2.08	.048
Lubben Social Network Scale Total	1.78 (3.07)	108	6.01	.000*	3.08 (4.23)	73	6.14	.000*
Lubben Social Network Scale (Family)	0.92 (2.03)	110	4.74	.000*	1.16 (2.27)	74	3.59	.000*
Lubben Social Network Scale (Friends)	0.83 (2.36)	108	3.67	.000*	1.91 (2.85)	77	6.39	.000*

* Statistically significant at $p < 0.05$ after Bonferroni correction applied for multiple testing

Supplementary Table 3: Changes in evaluation measures from baseline to post-intervention assessment and from baseline to follow-up assessment for participants aged 60 and over

Measure	SWEMWBS – Post-intervention - Baseline	SWEMWBS – Follow up – Baseline	GSE – Post- intervention - Baseline	GSE – Follow up – Baseline
ReQoL – Physical health	-.158	-.019	-.108	-.046
ONS Life satisfaction	-.077	-.059	-.200*	-.285**
ONS Life worthwhile	-.049	-.005	-.122	-.169
ONS Happy yesterday	-.201*	-.110	-.158	-.235*
ONS Anxious yesterday	.211*	.233*	.057	.099
ReQoL	-.209*	-.079	-.223*	-.186
UCLA Loneliness Scale	.117	.078	.196*	.273**
General Self-Efficacy Scale	-.190*	-.081	-.549**	-.576**
De Jong Loneliness Scale Total	-.015	.086	.089	.170
De Jong Loneliness Scale (Social)	-.029	.058	-.027	.072
De Jong Loneliness Scale (Emotional)	.104	.083	.221*	.219*
Lubben Social Network Scale Total	.005	.138	-.015	.020
Lubben Social Network Scale (Family)	.080	.032	.061	.052
Lubben Social Network Scale (Friends)	-.071	.195	-.083	-.014

* Significant at $p < 0.05$; ** Significant at $p < 0.01$

Supplementary Table 4: Pearson correlations between baseline variables and extent of improvement on Short Warwick Edinburgh Mental Well-being Scale (SWEMWBS) and General Self Efficacy scale (GSE) from baseline to post-intervention and from baseline to follow-up.