JOURNAL OF COMMUNITY SYSTEMS FOR HEALTH
2025, VOL. 2
https://doi.org/10.36368/jcsh.v2i1.1172

ORIGINAL RESEARCH

Impact of the community intervention 'Auzozaintza' to address loneliness among community-dwelling older adults: a pilot pre-post study

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Received 11 February 2025; Accepted 1 July 2025; Published 4 July 2025

ABSTRACT

Introduction: Chronic loneliness is increasingly recognized as a significant detriment to health and well-being. Projections indicate a substantial escalation in cases of chronic loneliness in the forthcoming years, with a particularly pronounced impact on women. In response, a variety of interventions are currently being developed and executed to mitigate this issue. However, empirical evidence supporting the efficacy of group interventions in alleviating loneliness remains sparse. The aim of this study was to assess the impact of the pilot community intervention "Auzozaintza" on loneliness and health (anxiety, depression and self-rated health) of older adults in the town of Hernani, Spain.

Methods: A pre-post study design without a control group was conducted with participants from the three neighbourhoods in which the intervention was piloted. All 20 participants were women, with a mean age of 80.3 ± 5.1 years, 15 of them were widow and 15 lived alone. Self-reported loneliness (measured by the UCLA Loneliness scale), anxiety, depression and self-rated health were assessed over a period of six months from February to September 2023. Bayesian inference was applied to estimate the association between the intervention and the selected outcomes.

Results: UCLA along with its three dimensions decreased after the intervention, with all of them showing near statistical significance. The prevalence of anxiety and depression decreased over the period, with a greater uncertainty for the former (PR=0.50; 95% CrI: 0.15, 1.31) but being statistically significant in the latter (PR=0.38; 95% CrI: 0.13, 0.90). No effects were observed in self-rated health.

Conclusion: The positive results observed in this study may justify the expansion of the "Auzozaintza" intervention across the municipality of Hernani. Future research should examine the replicability of these favourable effects in neighbourhoods of different social contexts, utilizing a larger and a more heterogeneous sample, specially including men. Additionally, future longitudinal and comparative studies are needed to determine whether the benefits observed are sustained over time and attributable to the intervention along with qualitative studies that explore participants' experiences.

Keywords: Loneliness, intervention, community, older, Spain.

Abstract in Español at the end of the article

INTRODUCTION

Loneliness has been defined as a subjective and distressing perception that occurs when there is a discrepancy between desired and actual relationships [1]. Chronic loneliness has been reported to have detrimental effects on health [2-4] and has been associated with increased risk of mortality [5] and health care utilization among older adults [6]. Problematic levels of loneliness are experienced by a significant proportion of the population in many countries [7], and estimates predict a sharp increase in the coming years, with a particular impact on women [8], making it a public health issue of concern [9, 10]. There is low-to-moderate evidence showing that group-based treatment interventions, i.e. those that bring together small groups of people for regular group sessions, usually over 2-4 months, led by a trained facilitator, have the potential to reduce loneliness in community-dwelling older adults [11, 12]. However, due to low confidence in the evidence, further evaluation of such interventions is recommended [11].

The "Auzozaintza" community intervention

In this context, the local government of Hernani, a town of 20 thousand inhabitants located in the province of Gipuzkoa, Spain, decided to design and implement in partnership with two local cooperatives a community intervention called "Auzozaintza" ("caring for the neighbourhood" in Basque language) to address loneliness among community-dwelling older adults. The intervention was designed through a community-based participatory process as part of a complex political programme led by the successive local governments over the last decade. The aim of the political programme was to boost citizenship participation is all spheres of municipal organization through multiple commissions and working groups with involvement of all associations and organizations that exist in the municipality [13].

First, individuals living alone and/or aged over 80 were identified through the municipal census. The oldest individuals living alone or with similarly aged partner were invited first to participate in the programme, and invitation process continued progressively with younger individuals. Although the intervention was designed as a group intervention, transition from feeling lonely to engaging in a group was understood as a process more than a discrete event. Thus, individuals who had been contacted by phone and decided to participate in the programme, were offered an individual interview with a social worker. The content and structure of these individual sessions was not rigidly predefined, and social workers used their knowledge and experience to identify the individual needs, preferences and specific circumstances. This could in practice be translated into weekly telephone calls just to chat about how things had been going the previous days or to discuss health issues or in-person meetings to go for a walk and have a coffee. During these encounters, the social workers invited individuals to participate in group activities when they considered it appropriate. Group activities consisted of ad-hoc groups formed with individuals that decided to participate in each neighbourhood that met once a week at a community venue with a social worker and a trained caregiver hired by the two organizations in partnership with the municipality who facilitated the meetings. The content of these meetings (playing cards, dancing, talking, making handicrafts for celebrations, etc.) was jointly decided by the participants and the facilitators. At each meeting, the facilitators also presented an overview of the diverse activities taking place in the municipality, so that participants could decide whether they wanted to participate as a group, with some of the group members, or on their own.

Among the 15 neighbourhoods in which Hernani is divided, three of the most peripheral and disadvantaged neighbourhoods in terms of physical accessibility (structural barriers such as multiple stairs to access city centre, scarce frequency of public transportation or distance to city centre) and household income were selected by the local government to pilot the programme. The intervention began in 2022 during which the participants gradually joined the "Auzozaintza" programme. Initially, there was no plan to evaluate the impact on health of this intervention, but a casual conversation led to a collaboration between the municipality and the university to assess whether this intervention had any impact on the health status of the participants. Thus, the aim of this study was to assess the impact of participating in the group activities of the pilot community intervention "Auzozaintza" on loneliness and health (anxiety, depression, and self-rated health) of community-dwelling older adults in the town of Hernani, Spain.

METHODS

A pre-post study design without a control group was conducted. Data were collected at two time points separated by six months, February-March 2023 (T1) and September-October 2023 (T2). Four variables were included as outcomes: loneliness, anxiety, depression and self-rated health.

Loneliness was assessed by using a validated Spanish version of the University of California, Los Angeles Loneliness Scale version 3 (UCLA). The total score ranges from 20 to 80 with 20–34 indicating a low level of loneliness, 35–49 a moderate level, 50–64 a moderately high level , and 65–80 a high level of loneliness This version was applied to replicate a multiple dimension described in previous literature that fitted a three-factor structure: isolation, trait loneliness and social connectedness. Isolation refers to feelings of isolation and is reflected in items of the scale such as frequency for "lack of company", "feeling lonely" "left aside," or "isolated." Factor two represents a trait of loneliness, and is reflected in items such as "I am extrovert and friendly," "I am a person close to others," or "I am shy." Finally, the third factor refers to social connectedness reflected in the scale in items such as "I belong to the group," "I have much in

common with people around me," "I may find company when I want to," I have people to talk to" [14].

The state of anxiety or depression was assessed using a validated Spanish version of the Goldberg Anxiety and Depression Scale (GADS) composed of two subscales of 9 binary (yes/no) items. The initial four questions of each subscale are conditioning questions, e.g., "Have you felt keyed up or on edge?", "Have you lost interest in things?" At least two affirmative answers are required for the anxiety subscale and one for depression subscale to continue answering the complementary questions, e.g., "Have you been sleeping poorly?", "Have you had difficulty concentrating?" Cut-off points were considered to be >4 and >2 for anxiety and depression, respectively, based on 'having a 50% chance of having a clinically important disorder' [15, 16]. Self-rated health was assessed by asking participants 'On a scale from poor to excellent, how would you rate your health status at this moment?' which was rated as poor/fair or good/excellent based on a 4-point scale from 'poor' to 'excellent'.

Participants

At the time the research study began, 22 women were participating in "Auzozaintza". All the individuals (n=22) who were involved in the intervention were invited to participate in the study. One refused to participate and one died between the first and the second measurement, leaving a total of 20 individuals from the three neighbourhoods that were included.

Data analysis

Descriptive analyses were performed first, followed by an estimation of the mean scores of the total UCLA and its dimensions and the prevalence of the other three outcomes, pre- and post-intervention. Given the small sample size, regression models were estimated using Bayesian inference. Bayesian analysis allows the prior to "fill in" where data are sparse, leading to more stable and realistic inferences than methods that rely solely on the data (like frequentist approaches). In addition, Bayesian methods combine prior information with observed data to produce posterior distributions, leading to more robust and informative results even with small samples.

The association between key covariates (age, marital status, education level, income level, and time in the intervention) and the statistically significant outcomes (UCLA loneliness and depression scores) was examined. None of them showed a statistically significant relationship with the outcomes. Nevertheless, age was retained in the regression models as a potential confounder, given its established relevance in relation to these outcomes in prior research.

The magnitude of the association between time and the dependent variables was summarised with the β coefficients for the loneliness (UCLA) and prevalence ratios for the health (anxiety, depression and self-rated health) outcomes, using 95% credible intervals (95% CrI) for inferential purposes. All models were adjusted for age. Analyses were performed with the R software using the *rstanarm* package. The priors used in the models were based on normal (continuous outcome) and t-student (binary outcomes) distributions respectively.

Ethics

The 'Ethics Committee for Research Involving Human Beings' of the University of the Basque Country (UPV/EHU) granted ethical approval for this study (M10_2022_287). The recruitment of potential participants and data collection did not take place until they were completely incorporated into the group activities so as not to compromise their continuity in the programme. Each participant received oral and adapted written information about the project and signed an informed consent document previous to participation.

RESULTS

Sociodemographic characteristics showed that all the participants were women with a mean age of 80.3 ± 5.1 years. Out of the 20 participants 15 were widows, 3 were married and living with a partner and 2 were divorced. Fifteen of the participants were living alone at the time of the study. In terms of educational level, 15 had not completed secondary education and 12 reported a monthly personal income of less than EUR 1000. The mean duration of participation in the intervention was 7.75 ± 3.04 months.

UCLA score along with the three dimensions decreased after the intervention, with all of them showing near statistical significance, even though a low level of loneliness was observed among the participants from the beginning.

The prevalence of anxiety and depression decreased over the period, with a greater uncertainty for the former (PR=0.50; 95% CrI: 0.15, 1.31) but being statistically significant in the latter (PR=0.38; 95% CrI: 0.13, 0.90). Finally, the point estimate for self-rated health was small with 95% of the most plausible values ranging from 0.51 to 2.31 (Table 1).

DISCUSSION

The aim of this pilot study was to evaluate the impact of the community intervention "Auzozaintza" on participants' loneliness and health status over a period of six months. Important decreases in loneliness, depression and anxiety were observed, despite the uncertainty in some of the estimations, especially in the later.

These findings add to previous evidence that group interventions are effective in reducing loneliness in community-dwelling older adults [11,12,17]. In addition, the assessed intervention included some of the elements that have been previously identified as essential for effectiveness in reducing loneliness such as being group-based, encouraging older adults' participation, incorporating community resources, increasing social

support and group meetings facilitated by trained individuals, in this case, social workers [12,17], thus strengthening the evidence for their relevance to interventions' success.

Table 1. Means and prevalence of the selected outcomes in T1 and T2 and the change in difference over time (n=20).

	T1	T2	Estímate (95% CrI)*
UCLA score (mean ±SD)	31.6±4.8	28.5±5.7	-3.06 (-6.45, 0.25)
Isolation	17.4±4.1	15.4±4.1	-1.98 (-4.69, 0.67)
Trait loneliness	12.6±2.9	11.3±2.5	-1.30 (-3.12, 0.45)
Social connectedness	9.6±2.3	8.3±1.5	-1.33 (-2.68, 0.00)
GADS n (%)			
Anxiety score			
≤4	12 (60)	16 (80)	1
>4	8 (40)	4 (20)	0.50 (0.15, 1.31)
Depression score			
≤ 2	9 (45)	16 (80)	1
>2	11 (55)	4 (20)	0.38 (0.13, 0.90)
Self-rated health n (%)			
Poor or Fair	11 (57.9)	11 (55)	1
Good or Excellent	8 (42.1)	9 (45)	1.04 (0.55, 2.14)

* β coefficients (UCLA) and prevalence ratio (GADS and self-rated health) together with their 95% credible intervals (CrI)

In this intervention, the group meeting had no specific content. Instead, the content was decided by consensus among all participants. In contrast with our findings where there was not drop out from the intervention and impact results were positive, previous research found this type of social groups as not very attractive for older people [18]. Our findings seem to support previous study authors' hypothesis about differences on acceptability of social groups between younger older adults (65-75) and older adults.

It is important to note that no men had decided to engage in this pilot stage of the intervention. The reasons behind this might be twofold. On the one hand, there are significantly fewer men over 80 living alone in the region than women (14.286 women over 80 were living alone in the region in 2023 versus 3.584 men), and thus, fewer men were invited to the intervention at this pilot stage. On the other, the few men who were contacted declined to take part in group activities. Other studies have provided reasons for reluctance of older men to participate in this type of interventions such as social expectations [19], which need to be considered in the following stages of the implementation of this intervention in order to facilitate men's participation.

Although health outcomes are less commonly measured in loneliness interventions, our findings are consistent with previous research showing reductions in depressive symptoms with similar interventions [17]. Furthermore, previous research found a decrease in depressive symptoms only after a long-term follow-up of two years [17], whereas our results showed a decrease after just six months of participation in the programme. Social connectedness, which was promoted in the intervention through weekly meetings with the neighbours, has been conceptualized as the opposite of loneliness and defined as a positive subjective evaluation of the extent to which one has meaningful, close, and constructive relationships with other individuals, groups, or society [20]. Social connectedness has been found to protect adults in the general population from depressive symptoms and disorders consistently across settings and diverse populations [21, 22] and thus, increasing social connectedness has been recommended in national strategies to address loneliness in other settings [23]. Increased social connectedness might explain the positive findings in this study. More research is nevertheless needed to confirm the impact on depressive symptoms and anxiety levels of this type of interventions.

As is usually the case with pilot interventions, such as the one evaluated in this research, the sample size was small. In such cases, adopting a combination of null hypothesis testing along with a Bayesian approach has been recommended [24]. According to the findings of this study, Bayesian analysis, seems to be, as in previous studies, a useful approach for this kind of settings as it allows to calculate the full probability distributions of program effects in context where sample size are limited, given a better precision of an intervention impact relevant decision-makers [24, 25].

Limitations

This study has two main limitations. Firstly, this was an evaluation of a natural intervention. This means that the research team had no control and limited information about important issues such as participation criteria, selection of the neighbourhoods, and implementation details. However, this limitation can also be seen as a strength, as the observed positive results are more representative of real-world interventions than those obtained in highly controlled scenarios. The second limitation of the study is the lack of a control group, which would increase the certainty that changes were due to the inter-

vention and no other external factors or confounders.

Conclusion

The positive results observed in this study may justify the expansion of the "Auzozaintza" intervention across the municipality of Hernani. Future research should examine the replicability of these favourable effects in neighbourhoods of different social contexts, utilizing a larger and a more heterogeneous sample, specially including men. Additionally, future longitudinal and comparative studies are needed to determine whether the benefits observed are sustained over time and attributable to the intervention along with qualitative studies that explore participants' experiences.

DECLARATIONS

Publication Consent

Not applicable.

Competing interests

The authors report no conflicts of interest.

Funding

This study was supported by the University of the Basque Country, UPV/EHU (GIU22/016) and the Provincial Council of Gipuzkoa (DGE22/15).

Author contributions

All authors contributed to the study conception and design. Material preparation, data collection and analyses were performed by all authors. The first draft of the manuscript was written by the first and corresponding authors and all authors read and approved the final manuscript.

Data availability

The dataset can be obtained from the corresponding author by making a reasonable request.

Acknowledgements

The authors are very grateful to all the participants in the study and to Miguel San Sebastián for his statistical support.

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Impacto de la intervención comunitaria 'Auzozaintza' para abordar la soledad en personas mayores que viven en la comunidad: un estudio piloto pre-post

RESUMEN

Introducción: La soledad crónica es cada vez más reconocida como un factor perjudicial para la salud y el bienestar. Las proyecciones indican un aumento considerable en los casos de soledad crónica en los próximos años, con un impacto particularmente pronunciado en las mujeres. En respuesta, se están desarrollando y ejecutando diversas intervenciones para mitigar este problema. Sin embargo, la evidencia empírica que respalde la eficacia de las intervenciones grupales en la reducción de la soledad sigue siendo escasa. El objetivo de este estudio fue evaluar el impacto de la intervención comunitaria piloto "Auzozaintza" sobre la soledad y la salud (ansiedad, depresión y salud autopercibida) de personas mayores en la localidad de Hernani, España.
Métodos: Se llevó a cabo un estudio pre-post sin grupo control con participantes de los tres barrios donde se pilotó la intervención. Las 20 participantes eran mujeres, con una edad media de 80,3 ± 5,1 años; 15 eran viudas y 15 vivían solas. Se evaluaron la soledad autopercibida (medida mediante la escala de soledad de UCLA), la ansiedad, la depresión y la salud autopercibida durante un período de seis meses, de febrero a septiembre de 2023. Se aplicó inferencia bayesiana para estimar la asociación entre la intervención y los resultados seleccionados.
Resultados: La escala de UCLA y sus tres dimensiones disminuyeron tras la intervención, todas con una tendencia cercana a la significación estadística. La prevalencia de ansiedad y depresión disminuyó durante el período, con mayor incertidumbre en el caso de la ansiedad (RP=0,50; CrI: 0,15-1,31), pero siendo estadísticamente significativa en el caso de la depresión (RP=0,38; CrI: 0,13-0,90). No se observaron efectos sobre la salud autopercibida.
Conclusión: Los resultados positivos observados en este estudio podrían justificar la expansión de la intervención "Auzozaintza" al conjunto del municipio de Hernani. Futuros estudios deberán examinar la replicabilidad de estos efectos favorables en barrios con distintos contextos sociales, utilizando una muestra más amplia y heterogénea, especialmente incluyendo hombres. Además, se requieren estudios longitudinales y comparativos para determinar si los beneficios se mantienen en el tiempo y son atribuibles a la intervención, junto con estudios cualitativos que exploren las experiencias de las personas participantes.

Palabras clave: Soledad, intervención, comunidad, personas mayores, España.

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