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The Impact of Intergenerational Learning on Quality of Life in Older Populations Residing in A Public Sector Old Age Home: A Quasi-experimental Study

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ABSTRACT

There has been no research in Pakistan about how to improve quality of life (QOL) of aging populations through intergenerational learning. In this study we aimed to deliver an intervention for intergenerational learning to assess the impact on QOL through a quasi-experiment research design. We also aimed to identify which types of intergenerational learning activities improve QOL and how the activities may be improved. We gained permission to deliver the intervention from a state-run old age center in Punjab. Though the intervention started with 42 participants, we were left with 18 participants at the end of the three-month intervention. The results show posttest improvement in: (i) sleep ($t = 3.01, p < .05$), (ii) life enjoyment ($t = 2.26, p < .05$), and (iii) psychological health ($t = 2.04, p = .05$). In addition, participants with more education exhibited significant improvement in QOL after the intervention. We were also able to compile a list of 19 suggestions by participants for overall changes in learning activities, changes in specific interventions delivered, and suggestions for more types of interventions. We conclude that intergenerational learning improves QOL, and recommend suggestions for life satisfaction, and the planning of old age home centers. This study has implications for aging policy across developing and South Asian populations.

KEYWORDS

Aging population; intergenerational learning; aging policy; quality of life; quasi-experiment

Introduction

World estimates suggest that in another 5 years the global population above the age of 60 years will stand at 1.2 billion (United Nations, 2002). In developing nations the poor and disadvantaged-aging populations face complex problems of old age poverty, lack of social security, inadequate services for disease and illness, and family neglect (Ganesh Kumar et al., 2014). Additionally, poorer countries have major shortages in old age homes, contributing to problems of housing and shelter (Shetty, 2012). Two major

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reasons have led to the underinvestment in old-age homes. The first is due to the systemic financial constraints of developing nations and general neglect for the protection of marginalized populations (Barrientos et al., 2003), and the second is the deep-rooted cultural belief that aging members must be housed with family and relatives (Cassum et al., 2020). Research highlights that housing and environmental characteristics are key indicators in perceived quality of life in older people (Feng et al., 2018).

Rising trends of nuclear households, migration for work, dual-career couples, delayed or childless marriages, means that there is less attention and time for aging people within family households (Bookman & Kimbrel, 2011). Other scholarship shows that aging people within the homes can suffer not just from neglect (Taqui et al., 2007), but also abuse (Gadit, 2010). This is why it is critical to invest in state-run public sector old age homes, and also to ensure that older people are supported in cultivating independence, dignity, and engagement, in order to holistically maintain their quality of life. Research from South Asia on aging populations has commonly adopted domains used by World Health Organization to assess quality of life, including: physical health, psychological health, social relationships, and environment (Amonkar et al., 2018; Gupta et al., 2014; Hariprasad et al., 2013; Khan et al., 2014; Parshad & Tufail, 2014).

Asian elderly people living in old age homes have been found to have unfavorable quality of life due to loneliness and depression (Ng et al., 2010). Deterioration in mental health of the elderly may have a lot to do with cultural shame and stigma of living in old age homes and being abandoned by family members (Evans et al., 2011). Research has focused on the importance of including younger family members or grandchildren in maintaining the quality of life in elderly people and improving their mental wellbeing (Victor et al., 2012). In the event that family members are not available, the interaction with non-biological children is also known to improve quality of life in the elderly (Bowling et al., 2003). Association between increased support and communication with younger people shows improved integration in society and quality of life in aging people (Gabriel & Bowling, 2004). The quality of care in older people residing in old age homes has also shown improvement when youth volunteer their services at the center (Santini et al., 2018).

Rooted in Erikson's stages of psychosocial development (Brown & Lewis, 2003), intergenerational programs aim to bridge the gap between non-biological old and young people to promote learning, wellbeing, and stability (Newman & Hatton-Yeo, 2008). In aging populations particularly, intergenerational learning is a means to promote activity, autonomy, physical health, and emotional health (Hsu et al., 2018; Martins et al., 2019; Tam, 2014; Thianthai, 2020). Scholars have recommended more interventional studies in intergenerational learning (K. Lee et al., 2020), especially for older people

living in old age homes or day cares, as it may have a positive effect on their life satisfaction and longevity (Lunt et al., 2018).

Through intergenerational learning older people get the chance to transfer their knowledge and experiences to younger people, and this is known to build their self-esteem and improve wellbeing (Berčan & Ovsenik, 2019; Strom & Strom, 2011). Providing older people with an opportunity to share their traditions and culture helps in building their confidence and self-assurance. In addition, older people gain companionship by sharing their life-stories with younger people. In fact, intergenerational learning has also been found to reduce ageism, with the younger generation affording the elderly more respect and honor, which in turn adds to the self-worth of aging people (Burnes et al., 2019). Research also suggests that physical activity and health in older adults is considerably improved due to intergenerational learning activities (Powers et al., 2013). When older people are engaged in learning new skills it also helps to improve their mental health, memory, and attention (Noor et al., 2016). Some studies suggest that intergenerational learning can prevent advances in dementia and prevent rapid cognitive decline in older people (Gualano et al., 2018).

There has been less research on the impact of intergenerational learning on quality of life in aging populations of South Asia (Panday & Kumar, 2017). However, literature does confirm that elders belonging to the region rely on the bonding with grandchildren and youth for their wellbeing (Pandya, 2020). In Pakistan it is estimated that in another 10 years there will be nearly 25 million older people above the age of 60 years (Ashiq & Asad, 2017). State-run old homes come under the jurisdiction of the respective Social Welfare Department (SWD) of each province. There are only a handful of state-run old age homes in few major urban cities of Pakistan and none in rural areas (Sabzwari & Azhar, 2011). The number of people housed in old age homes is uncertain, but approximates suggest that there are less than 500 older people being housed in total across the country (Muhammad et al., 2009). Local research suggests that aging population living in old age homes of Pakistan suffer from low quality of life due to inadequate social and structural support (Jalal & Younis, 2014).

Aim of study

There is a need to develop community solutions to help the government expand and improve the quality of their services for the aging population. There has been no research on intergenerational learning for aging populations living in old-age homes of Pakistan to guide aging policy and social welfare. The aim of this study was to deliver an intervention for intergenerational learning between older people housed in state-run old age homes and youth.

Our main research question is to quantitatively identify the change in the quality of life of the aging participants post the intervention. In lieu of this and based on the literature review, the study hypothesis is that post the intergenerational learning intervention the elderly participants will show an improvement in overall quality of life; as measured by the four World Health Organization dimensions of quality of life. In addition, this study also qualitatively aimed to ascertain which type of learning activities are preferred and compile suggestions about how they may be improved.

Methodology

Though we intended to randomly sample public sector old age homes of Punjab, after one year of attempts to gain permission, we only received a response from the Punjab Social Welfare Department (SWD). Punjab SWD gave us permission to sample the aging residents at one state-run “*Aafiyat*” old age home, in a city of Punjab, which houses 45 cognitively sound residents. We deemed it ethical to ask all 45 of the residents to be part of our intervention and chose a quasi-experiment design for this study (Handley et al., 2018; Rogers & Révész, 2020). We used a pre- and post-survey to measure the effect of the intervention without a control group (Harris et al., 2006; Kampenes et al., 2009).

Ethics

Ethics approval for this study was taken from the Institutional Review Board of Forman Christian College University. Informed consent was taken from all participants and anonymity and confidentiality was preserved. Participants were also made aware that counseling services were available by a professional psychologist during the study if they ever felt the need for support and that they had the right to withdraw from the study at any point. The themes of the interventions were provided in advance to the participants to gain their permission and approval before the start of the intervention. Weekly visits for the intervention were scheduled based on convenience of participants.

Selection criteria for participants

The selection criterion for this study, included: (i) Older people above the age of 60 years living in old age homes run by the SWD with stable physical health, sound mind, and cognitive functioning, and (ii) University students.

Sample of old-age home residents and youth participants

All the 45 aging residents were requested for participation in the intervention. A total of 42 agreed to be part of the study. However, during the intervention period, 15 were unable to continue due to ill-health, five withdrew from the interventions, three left the old home to shift back with their family, and one died (Figure 1). In this way, a final sample of 18 aging participants, including 13 men and five women completed the intervention. Other research has confirmed that withdrawal rates are high during interventions for older populations due to ill-health and medical co-morbidities (Knechel, 2013). We compared the average socio-demographic characteristics of the dropouts and those who comprised the final sample and did not find any significant difference.

Eighteen Undergraduate university students, between 18 and 19 years, were selected as youth participants for the intervention. They were briefed for 1 week by the first three authors about the research objectives and the content of

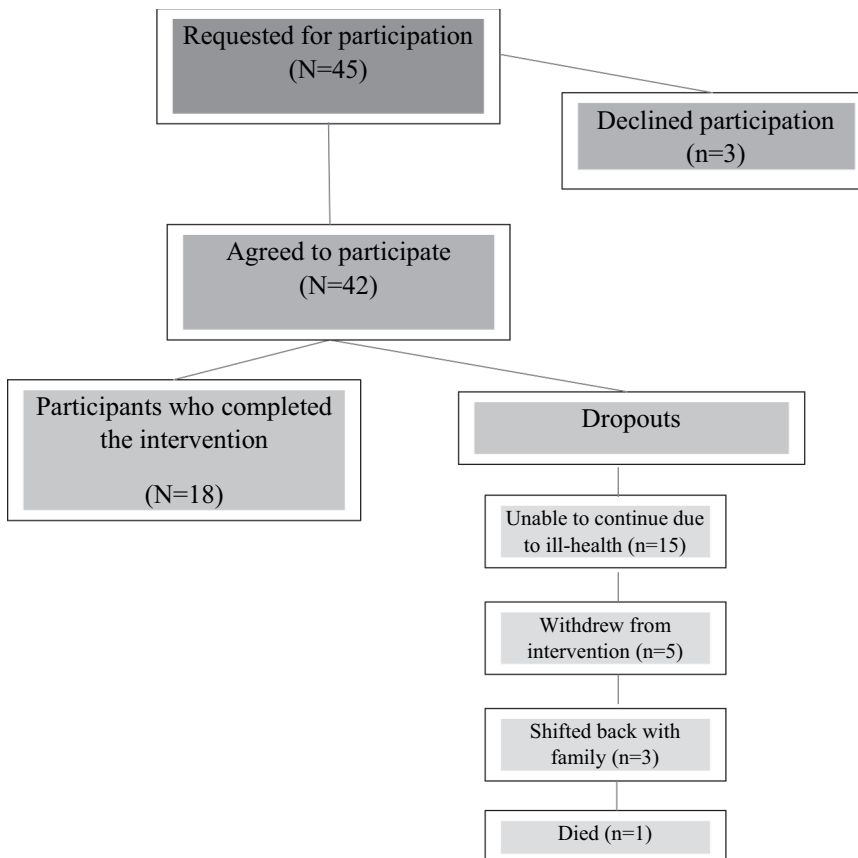


Figure 1. Flowchart describing the number of initial sample, dropout rate, and final participants of the intervention.

the intergenerational research, they were also provided guidelines about how to deal with aging population during the intervention (America, T. G. S. o, 2012). University students are preferred choices for intergenerational learning interventions as fewer problems are encountered related to (i) management and training of younger children, and (ii) frequent sick absences of younger children (Aguilera-Hermida et al., 2018; Hock & Mickus, 2019; Underwood & Dorfman, 2006). More advantages of using university students for intergenerational interventions include (i) ease in coordinating their travel and (ii) maturity of young adults in managing the emotional needs of older participants (Newman & Hatton-Yeo, 2008; Santini et al., 2018; Tam, 2014).

Pretest and posttest instrument

A pretest and posttest survey was used to measure the change in quality of life of participants after the intervention. We used 25 questions from the psychometrically sound (Skevington et al., 2004) World Health Organization Quality of Life (WHOQOL) scale (WHOQOL GROUP & Whoqol Group, 1998), to measure changes in four categories of quality of life: (i) physical health, (ii) psychological health, (iii) social relationships, and (iv) environment. A five-point Likert scale was used ('Not at all,' 'not much,' 'moderately,' 'a great deal,' and 'completely'). Translation of the survey and intervention material to Urdu language was done by the first and second author, who are fluent in both languages, through the two-panel approach (Swaine-Verdier et al., 2004). The translations were then confirmed independently by the third author, also fluent in both languages.

Observational analysis

Qualitative observation techniques were used to assess the behavior, moods, body language, and gestures of aging participants during the intervention (Morshed et al., 2009). The aim was to identify which types of intergenerational learning activities show higher satisfaction in aging populations. An observation tool checklist was developed to record the emotions and behaviors of elderly participants (Kawulich, 2012) (Appendix A). The checklist included seven items for positive emotions and behaviors (1. smiling, 2. contentment, 3. engagement with youth, 4. involved, 5. showing consistent interest, 6. engaged with youth but not activity, and 7. planning for next activity) and seven items for negative emotions and behaviors (1. aloofness, 2. unhappiness, 3. discontent, 4. distressed with youth, 5. distressed with activity, 6. aggression, and 7. Restlessness).

Focus group discussions

After the posttest survey was administered and the intervention was complete focus group discussions were held with all the 18 participants to collect evidence

about how the intergenerational learning activities may be improved. In total, six focus group discussions were held with 3 different participants in order to provide comfort and time for voicing suggestions and experiences (Smithson, 2008). The first and second authors moderated the sessions and all suggestions by the participants, without exclusion, are reported in this paper (Hesse-Biber, 2010).

Setting

The state-run old age home where the study took place is a two-story building with 14 bedrooms, common room/dining room, kitchen, and two office spaces. The building has an indoor central lawn with the bedrooms built round it. The upper story bedrooms also have small verandas built in. The ground floor is mainly occupied by the female residents and the upper floor with the male residents. Each bedroom is shared by 3–4 people and has one adjoining bathroom. The ground floor has the administrative offices, common room/dining room and kitchen; whereas the upper floor only has bedrooms. Basic furniture has been provided by the management for each resident which includes a bed, chair and a cupboard. Some of the residents had been given permission to keep other items in the room if they fit in, such as a desk, sofa set, TV, refrigerator, and book-shelf.

Learning activities

The learning activities planned for the intervention primarily included discussion and dialogue between participants (Table 1). No activities related to physical exercises or outdoor activities were included as we were unable to: (i) guarantee precautions to prevent falls and injuries, (ii) confirm recent medical clearance of participants, and (iii) gain permission to bring a GP and physiotherapist during the intervention (Barnett et al., 2003). The learning activities were developed based on a literature review (Kaplan & Hanhardt, 2003), and reviewed by three expert educationalists and a psychologist for the utility and validity of the content.

The discussion areas for the intervention activities included: (A1) *'Oral narration of the past,'* (A2) *'Did you ever? Activity,'* (A3) *'Use of language and meaning of common idioms,'* (A4) *'Creative writing';* (A5) *'Family history and value system';* (A6) *'Civil awareness and opinions for change,'* (A7) *'Likes and dislikes in community,'* (A8) *'Poetry, music, and religious hymns,'* (A9) *'Rules for character building';* and (A10) *'Discussing favourite religious and spiritual practices.'* These intergenerational learning activities comprised part of the broader seven thematic groups: a. Stimulate Dialogue, b. Language, c. History, d. Civic Awareness and Community Belonging, e. Music and Creativity, f. Character Building and Ethics, and g. Religious and Spiritual Dialogue.



Table 1. Description of each of the ten study interventions

| No. | Learning Activity/ Thematic Group | Description/ Aim | Facilitation Prompts |
|-----|---|---|--|
| A1 | <i>Oral narrations of the past</i> <u>Stimulate Dialogue</u> | <ul style="list-style-type: none"> - To encourage older people to discuss their life, struggles and hardships from an early age and also identify the differences between parents and children (older generation/younger generation). - Discuss changes in social structures, roads and city, education system and values to better understand the different world the older people had experienced and how they find contemporary times. | <p>Older people can be asked questions like:</p> <ul style="list-style-type: none"> ● What was it like when you were our age? ● What was the weather like then? ● What were the roads and traffic like? ● What were the teacher, schools and studies like? ● What do you remember about your parents and elders? ● What do you remember about your house and siblings ● Do you think Pakistan/ Lahore is better now or in the past? ● If you could bring back something from the past/ your childhood what would it be? |
| A2 | <i>Did you ever?</i> <u>Activity/ Stimulate Dialogue</u> | <ul style="list-style-type: none"> - The aim is to encourage older people to share life events and any thrilling adventures they had experienced and to make them think about /relive past experiences - To make participants feel that their past experiences matter to us. To make them remember things they may have forgotten or allow them to share things they have no one to share with | <p>Did you ever ...</p> <ul style="list-style-type: none"> ● see a lion? ● go swimming? ● go on a boat? ● take a cruise? ● go to a beach? ● visit an art gallery? ● stay on a farm? ● sleep in a cabin or tent? ● go to a county fair? ● go berry or vegetable picking? ● see a circus? ● act in a play? ● see a really scary movie? ● get a bad grade? ● win a prize? ● have a good luck charm? ● make something you were really proud of? ● move to a new house? ● travel overseas? ● live in a foreign country? ● stay in a fancy hotel? ● drive in a convertible? ● have a pet? ● bake bread? ● play an instrument? |

(Continued)

Table 1. (Continued).

| No. | Learning Activity/ Thematic Group | Description/ Aim | Facilitation Prompts |
|-----|---|--|---|
| A3 | <i>Use of language and meaning of common idioms/ Language</i> | <p>- Divide into groups to discuss barriers in communication and meanings of phrases and proverbs between older people and youth (in English, Urdu, Punjabi languages)</p> <p>- Identify old proverbs and their interpretation and overt/ covert meanings. The aim is not only to bridge the generational gap and explore proficiency in different languages, but also to deconstruct meaning.</p> <p>First group to volunteer can describe phrase and discuss meanings (hidden and overt). Other groups can subsequently further discuss.</p> | <p>Facilitator can suggest an idiom from the following:</p> <ol style="list-style-type: none"> 1. Beat around the bush 2. Best of both worlds 3. A blessing in disguise 4. Ghar da Jogi Jogra, Bahar da Jogi Sidh (a learned person is honored except in their own house) 5. Turreya te Appareya (you will reach the destination once you start) 6. Udeek Nalon Kahl Changi (Its better to do it yourself, than to wait for someone else to do it) 7. _____ 8. _____ 9. _____ <p>(In Rome do as the Romans do)</p> <p>(The wealthy are always welcome in the homes)</p> <p>(You should always hide faults and weaknesses)</p> <p>Facilitator can provide themes for creative essay writing including:</p> <ul style="list-style-type: none"> ● childhood summer ● spring ● school ● the future |
| A4 | <i>Creative writing/ Language</i> | <p>The aim is to return to attempting essay writing and creative thinking. This activity is also intended to strengthen expression of thoughts and communication skills.</p> <p>Facilitators and student participants must help older people to write, if they need assistance. Sentences written must be re-read to provide opportunity for older people to modify written content.</p> | <p>Facilitator can provide themes for creative essay writing including:</p> <ul style="list-style-type: none"> ● childhood summer ● spring ● school ● the future |
| A5 | <i>Family history & value system/ History</i> | <p>- To discuss the familial background, ethnicity, and moral values and to probe into kinship and traditional attachment patterns.</p> | <p>- The older people can be asked questions about:</p> <ul style="list-style-type: none"> ● Family history, kinship, ethnicity, caste, and racial backgrounds. ● Stories, objects and events that are related to their family and kin. ● Their family system, family values and family ethics. |
| A6 | <i>Civil awareness and opinions for change/ Civic Awareness & Community Belonging</i> | <p>- To make participants share their thoughts and expectations about civil awareness and civic duties. This activity is aimed at assessing their citizen knowledge and political participation</p> <p>- The attempt is to make the older people feel like worthy citizens whose opinion matter. The aim is also to delve into advantageous/disadvantageous aspects of civil awareness and how this impacts society and community.</p> | <p>- Discuss themes like governance, education for all, leadership, poverty and unemployment.</p> <ul style="list-style-type: none"> - The older people can be asked about their advice on what they would change? ● civics ● leadership ● values ● communication |

(Continued)

Table 1. (Continued).

| Learning Activity/ Thematic Group | Description/ Aim | Facilitation Prompts |
|---|---|---|
| <p>A7 <u>Likes and dislikes in community/ Civic Awareness & Community Belonging</u></p> | <p>- The aim is to make older people share their likes and dislikes and also to highlight the positive aspects of their lives and increase understanding. Facilitators were encouraged to pass around a bag of sweets. For each sweet they choose, have them say something about how they feel about their community. Keep the activity going until participants tire or run out of sweets.</p> | <p>- Older people can be asked questions like: <ul style="list-style-type: none"> ● Is there something you dislike about your community ● Is there something you like about your neighborhood. ● Is there something you dislike about Lahore's weather ● What do you like most about getting up in the morning and looking forward to in the day </p> |
| <p>A8 <u>Poetry, music, and religious hymns/ Music and creativity</u></p> | <p>- The objective was to create a lighthearted and happy ambience with this activity and encourage older people to share their favorite music album, song, qawwali, hamd etc. - Older people and student participants were also encouraged to recite their favorite poetry, and religious hymns (<i>hamads, naats</i>) and music.</p> | <p>- Older people can be asked questions like: <ul style="list-style-type: none"> ● What is your favorite kind of music/ poem/ Naat/ Hamd? ● What is your favorite song/ poet/ Naat/ Hamd? ● How do you feel listening to your favorite music/ poetry/ Naat/ Hamd? </p> |
| <p>A9 <u>Rules for character building/ Character Building & Ethics</u></p> | <p>- The aim is to make older people share rules they would want introduced or recommend changes that they would want seen in society. - This activity also aims to make participants feel that their opinion matters and that their beliefs hold value. It will also encourage older people to think about past and current society's rules and regulations</p> | <p>- The facilitators can start the discussion by addressing: "There are many rules for social order and religious order, for example, we know that murder is not allowed and charity is noble." - Older people can then be asked? - If you were allowed to make 10 commandments/ basic rules for survival and prosperity for your community and the youth as upstanding citizens what would they be? (E.g., honesty, responsibility, ethics, discipline, endeavor, unity, etc.)</p> |
| <p>A10 <u>Discussing favorite religious and spiritual practices/ Religious and Spiritual Dialogue</u></p> | <p>- The objective is to highlight favorite religious rituals and to make older people think about spirituality. Some of the areas that will be covered include: prayer/namaz, fasting/roza, death or birth anniversaries/ Urs, Sufism, and religious gatherings or congregations/ majalis. - We aim to hear about the role of religion and spirituality in coping strategies for wellbeing and survival of older people</p> | <p>- Older people can be asked questions like: <ul style="list-style-type: none"> ● Are you religious/ spiritual? ● How does religion/ spirituality help you in life? ● What are your favorite religious rituals/ spiritual practices? ● Do you think religion/ spirituality is important for the youth? ● How can the young keep religion/ spirituality alive in today's time? </p> |

Intervention facilitators

Three research assistants, MPhil students from the Social Sciences experienced in field research, were recruited for the project and trained for facilitation during the interventions to assist the first three authors of this study. Care was taken to ensure that the facilitators were trained about vigilance during the intervention and ethics of researching older populations so the process remained productive and beneficial to the aging participants (Williams et al., 2003). In this way, there were a total of six intervention facilitators (the first three authors and three MPhil students) who were responsible for: (i) collecting the pre and posttest survey results, (ii) coordinating the intergenerational learning activities at the old-age home, (iii) coordinating and arranging transport of youth participants to the old-age home, and (iv) recording observational notes during the intervention. Each of the six intervention facilitators were assigned three aging participants to monitor and support during the entire intervention.

Pilot test

We held one pilot learning activity, which was aimed to understand the needs of the aging participants and any potential problems in delivering the intervention. The pilot intergenerational learning activity, which fell under the thematic group of ‘music and creativity,’ was a success and there were no problems. The pilot intervention lasted 4 hours and consisted of aging members being asked to recall their favorite old songs or *naats*. Two youth participants brought their guitars and were able to encourage some of the older residents to sing old songs. In all, the pilot intervention allowed the aging members and youth to become comfortable with each other. The request from the aging participants was to have one youth assigned to them through the three-month intervention for their convenience and comfort. Thus, regardless of whether the activity was one-on-one learning or a group learning activity, the aging participant had the support of interacting with the same familiar youth for each activity, making this a person-to-person intervention approach (Hsu et al., 2018).

Data collection

Most of the participants were illiterate or semi-literate, so the pre and posttest survey responses were collected and filled by the first three authors of the study. The intervention took place between the months of January 2020 to February 2020, over a 10 week period. One intervention per week was scheduled, lasting 2–3 hours, between Mondays and Fridays. The visits were scheduled between 11:00am-1:00pm to avoid meal and prayer times. The

interventions started in winter so the first four took place in the bedrooms or the common rooms, and as the weather improved the next six interventions were carried out in the verandas or in the courtyard in the center of the building.

Meetings between the youth participants and intervention facilitators were conducted before and after each intervention, in order to: (i) go over the intervention, (ii) answer any questions of youth participants, and (iii) gain feedback regarding any problems with the intervention or participants. In addition, weekly meetings were held between the six intervention facilitators to discuss the observation sheets, remaining objectives of the study, or the need for replacement of interventions. The aim of these meetings through the intervention period required extra time and effort, but was deemed necessary to avoid obstacles in evaluation techniques, smooth-running of activities, and overall intervention effectiveness (Belizan et al., 2019).

Data analysis

The data was analyzed using SPSS 27.0. Pre and posttest results for the intervention were investigated using descriptive statistics, chi square, and t-tests. The quality of life items were compounded, as guided by scholarship (WHOQOL GROUP & Whoqol Group, 1998), under four domains of physical health, psychological health, social relationships and environment. The observation data was summarized quantitatively using frequencies (Morshed et al., 2009). *P* values less than 0.05 were considered significant for all statistical analysis in this study.

We had to develop a unique way to analyze our observational data for emotions and behaviors of the aging participants during the intervention, based on the number of interventions in the study and the items in the scorecard (Clark & Bowling, 1989). Observational findings were assessed subjectively by the intervention facilitators and recorded on a checklist using ticks and crosses, under categories of: 'Almost always observed /often observed,' or 'never or rarely observed.' As observation records noted both positive and negative emotions for each intervention, meaning it was possible that during the 2–3 hour intervention one participant for example, exhibited both 'contentment' and 'restlessness' for the same intervention, we subtracted the positive score from the negative score to conclude an overall satisfaction score. The highest score, for positive or negative emotions, that one intervention could get was 126 points = Number of participants (18) x Number of positive/ negative emotions (7). We assigned a value of above 63 points to consider satisfaction for a learning activity.

The findings from the focus group discussion were reported through thematic content analysis approach (Anderson, June 2021). It was pre-decided to include all the suggestions made by participants in the final write-up. Three

Table 2. Socio-demographic characteristics of participants in intervention with chi square associations for correlation with pre and posttest quality of life measures, N = 18.

| Variable | f (%) | Pretest Chi square P value | Posttest Chi square P value |
|---|------------|----------------------------|-----------------------------|
| Age | 09 (50.0%) | 57.25 (0.087) | 50.00 (0.247) |
| 65–69 years | 08 (44.4%) | | |
| 70–77 years | 01 (05.6%) | | |
| 80 years | | | |
| Mean (SD) = 68.4 (6.099) | | | |
| Gender | 13 (72.2%) | 7.20 (0.126) | 4.71 (0.319) |
| Male | 05 (27.8%) | | |
| Female | | | |
| Literacy | 05 (27.8%) | 9.51 (0.658) | 23.31 (0.025) |
| None | 05 (27.8%) | | |
| Primary | 07 (38.9%) | | |
| Secondary | 01 (05.6%) | | |
| Graduate | | | |
| Marital Status | 04 (22.2%) | 15.16 (0.512) | 9.96 (0.869) |
| Single | 02 (11.1%) | | |
| Currently married | 09 (50.0%) | | |
| Widow | 01 (05.6%) | | |
| Divorced | 02 (11.1%) | | |
| Separated | | | |
| Profession before retirement | 02 (11.1%) | 5.10 (0.747) | 4.60 (0.799) |
| None | 11 (61.1%) | | |
| Unskilled | 05 (27.8%) | | |
| Skilled | | | |
| Family type before living in old age home | 08 (44.4%) | 6.18 (0.186) | 3.48 (0.480) |
| Joint | 10 (55.6%) | | |
| Nuclear | | | |
| Number of children | 08 (44.4%) | 23.25 (0.107) | 15.12 (0.516) |
| None | 04 (22.2%) | | |
| 2 children | 06 (33.3%) | | |
| 4–7 children | | | |

thematic areas were defined to present the findings, including suggestions for: (i) overall change, (ii) changes in activities experienced during intervention, and (iii) more types of interventions. Initially, the first author of the study analyzed all the results. Next, to secure objectivity and validity, the data was blinded by provision of only participant codes to the fourth author, who was not part of the data collection team for the intervention (Gøtzsche, 1996). In this way, data analyses for posttest results were repeated and findings were confirmed to secure soundness.

Results

Socio-demographics

Table 2 Presents the socio-demographic data of the participants in the intervention (N = 18). Half of the sample ($n = 9$) are below 69 years and the other nine are between 70 and 86 years. Thirteen of the participants are male and only one is a graduate, with the rest either illiterate ($n = 5$) or having gained primary or secondary schooling ($n = 12$). Only two participants are currently married and the rest are single, widowed, divorced or

Table 3. T-test results for comparison between selected socio-demographic characteristics of participants and posttest quality of life (compounded), N = 18.

| Variable | N | Mean | P value |
|---|----|-------|--------------|
| Age | 09 | 66.78 | 0.775 |
| 65–69 years | 08 | 66.12 | |
| 70–77 years | | | |
| Gender | 13 | 74.53 | 0.723 |
| Male | 05 | 53.20 | |
| Female | | | |
| Literacy | 05 | 60.00 | 0.048 |
| Primary | 07 | 61.85 | |
| Secondary | | | |
| Marital Status | 02 | 70.00 | 0.421 |
| Currently married | 09 | 69.88 | |
| Widow | | | |
| Profession before retirement | 11 | 67.18 | 0.587 |
| Unskilled | 05 | 78.80 | |
| Skilled | | | |
| Family type before living in old age home | 08 | 68.87 | 0.585 |
| Joint | 10 | 68.40 | |
| Nuclear | | | |
| Number of children | 08 | 74.50 | 0.328 |
| None | 06 | 73.20 | |
| 4–7 children | | | |

Table 4. Pre and posttest perceived satisfaction with quality of life, N = 18

| | Pretest | | Posttest | | Diff | | T-test | Sig |
|----------------------------|---------|-------|----------|-------|-------|--------|--------|--------------|
| | Mean | SD | Mean | SD | Mean | SD | | |
| Self-rated quality of life | 2.83 | 1.295 | 2.89 | 1.023 | 0.06 | -0.272 | 0.25 | 0.805 |
| Health overall | 2.83 | 1.654 | 3.22 | 1.215 | 0.39 | -0.439 | 1.24 | 0.233 |
| Troubled by physical pain | 2.83 | 1.654 | 3.22 | 1.215 | 0.39 | -0.439 | 1.24 | 0.233 |
| Need medical treatment | 2.44 | 1.653 | 2.06 | 1.349 | -0.39 | -0.304 | -1.07 | 0.299 |
| Energy level | 2.94 | 1.392 | 3.22 | 1.396 | 0.28 | 0.004 | 0.60 | 0.556 |
| Mobility | 3.11 | 1.323 | 3.22 | 1.166 | 0.11 | -0.158 | 0.32 | 0.749 |
| Sleep | 2.56 | 1.542 | 3.28 | 1.526 | 0.72 | -0.016 | 3.01 | 0.008 |
| Managing daily activities | 3.11 | 1.323 | 3.22 | 1.166 | 0.11 | -0.158 | 0.33 | 0.749 |
| Work capacity | 2.44 | 1.653 | 2.06 | 1.349 | -0.39 | -0.304 | -1.07 | 0.299 |
| Life enjoyment | 2.44 | 1.247 | 3.00 | 1.283 | 0.56 | 0.036 | 2.26 | 0.037 |
| Meaningful life | 2.56 | 1.199 | 3.22 | 1.215 | 0.67 | 0.016 | 1.89 | 0.076 |
| Concentration | 2.39 | 1.577 | 2.00 | 1.237 | -0.39 | -0.340 | -1.07 | 0.299 |
| Body appearance | 3.06 | 1.162 | 3.11 | 0.832 | 0.06 | -0.329 | 0.20 | 0.848 |
| Satisfied with self | 3.33 | 1.572 | 3.61 | 1.378 | 0.28 | -0.194 | 0.66 | 0.516 |
| Negative feelings | 3.33 | 1.237 | 3.06 | 1.349 | -0.28 | 0.112 | -0.66 | 0.516 |
| Personal relationships | 3.44 | 1.381 | 3.28 | 1.274 | -0.17 | -0.107 | -0.35 | 0.733 |
| Support from friends | 2.44 | 1.653 | 2.06 | 1.349 | -0.39 | -0.304 | -1.07 | 0.299 |
| Safety in daily life | 2.83 | 1.295 | 2.89 | 1.023 | 0.06 | -0.272 | 0.25 | 0.805 |
| Physical environment | 2.67 | 1.328 | 2.28 | 1.074 | -0.39 | -0.254 | -1.38 | 0.185 |
| Enough money | 2.44 | 1.653 | 2.06 | 1.349 | -0.39 | -0.304 | -1.07 | 0.299 |
| Information availability | 2.44 | 1.653 | 2.06 | 1.349 | -0.39 | -0.304 | -1.07 | 0.299 |
| Leisure activities | 2.67 | 1.328 | 2.28 | 1.074 | -0.39 | -0.254 | -1.38 | 0.185 |
| Conditions of living space | 2.44 | 1.653 | 2.06 | 1.349 | -0.39 | -0.304 | -1.07 | 0.299 |
| Health access | 2.83 | 1.654 | 3.22 | 1.215 | 0.39 | -0.439 | 1.23 | 0.233 |
| Transport | 2.44 | 1.653 | 2.06 | 1.349 | -0.39 | -0.304 | -1.07 | 0.299 |

separated ($n = 16$). Most participants ($n = 11$) had been working as unskilled workers before retirement. Majority had been living in a nuclear house ($n = 10$) and have between 2–7 children ($n = 10$). With regard to chi square results for association between posttest quality of life and socio-

Table 5. T-test results for compounded quality of life measures for pre- and post-test intervention, N = 18.

| | Pre test | | Post test | | Diff | | t | p value |
|----------------------|----------|-------|-----------|-------|-------|--------|--------|--------------|
| | Mean | SD | Mean | SD | Mean | SD | | |
| Physical health | 25.11 | 9.035 | 26.39 | 7.845 | 1.28 | - 1.19 | 0.759 | 0.458 |
| Psychological health | 17.11 | 3.894 | 18.00 | 3.565 | 0.89 | - 0.33 | 2.04 | 0.050 |
| Social Relationships | 5.89 | 2.374 | 5.33 | 2.114 | -0.56 | - 0.26 | -0.871 | 0.396 |
| Environment | 20.78 | 9.601 | 18.89 | 6.623 | -1.89 | - 2.98 | -1.061 | 0.304 |

demographic variables, only the variable of literacy was found to be significant (<0.005) .

Quantitative data results for improvement in quality of life

We first investigated the difference in compounded quality of life across socio-demographic characteristics of the participants. Table 3 presents t-test results for differences between selected socio-demographic characteristics and compounded quality of life. Results show that aging participants with secondary education, versus primary education, experienced greater quality of life after the intervention compared to participants with lesser education (M = 61.85 vs. M = 60.00, p = .048).

T-test results for each pretest and posttest item which measured perceived satisfaction for quality of life are presented in Table 4. Results revealed that after the intervention participants showed significant improvement in satisfaction with regard to the following two items: (i) sleep (t = 3.01, p = .008) and (ii) life enjoyment (t = 2.26, p = .037).

Table 5 Presents mean differences for the pretest and posttest perceived satisfaction with regard to the four quality of life domains. We found that only

Table 6. Observation results for emotions and behaviors across 10 interventions, N = 18.

| | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 110 |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <i>Positive emotions</i> | | | | | | | | | | |
| 1.Smiling ⁺ | 15 | 15 | 17 | 15 | 16 | 13 | 15 | 17 | 17 | 17 |
| 2.Contentment ⁺ | 13 | 11 | 12 | 12 | 11 | 10 | 12 | 13 | 14 | 14 |
| 3.Engaged with youth ⁺ | 18 | 17 | 15 | 16 | 17 | 15 | 15 | 17 | 16 | 15 |
| 4.Involved ⁺ | 17 | 16 | 17 | 16 | 16 | 16 | 16 | 17 | 17 | 15 |
| 5.Showing consistent interest ⁺ | 7 | 10 | 9 | 12 | 8 | 10 | 6 | 5 | 9 | 11 |
| 6.Engagement with youth; but not the activity ⁺ | 4 | 7 | 3 | 5 | 5 | 5 | 3 | 3 | 0 | 0 |
| 7.Planning for next activity ⁺ | 15 | 13 | 9 | 8 | 12 | 11 | 12 | 11 | 10 | 10 |
| <i>Negative emotions</i> | | | | | | | | | | |
| 1.Aloof ⁻ | 1 | 4 | 4 | 2 | 4 | 7 | 4 | 4 | 2 | 1 |
| 2.Unhappiness ⁻ | 7 | 6 | 4 | 4 | 6 | 5 | 4 | 2 | 3 | 3 |
| 3.Discontent ⁻ | 3 | 2 | 5 | 5 | 3 | 4 | 4 | 3 | 3 | 3 |
| 4.Distressed with youth ⁻ | 2 | 3 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 |
| 5.Distressed with activity ⁻ | 5 | 5 | 5 | 8 | 5 | 5 | 5 | 1 | 2 | 2 |
| 6.Agression ⁻ | 3 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 7.Restlessness ⁻ | 4 | 4 | 5 | 4 | 6 | 6 | 3 | 3 | 5 | 5 |
| Sum of positive emotions | 89 | 89 | 82 | 84 | 85 | 80 | 79 | 83 | 83 | 82 |
| Sum of negative emotions | 25 | 25 | 25 | 25 | 26 | 31 | 21 | 14 | 16 | 15 |
| <i>Overall satisfaction with intervention</i> | <i>64</i> | <i>64</i> | <i>57</i> | <i>59</i> | <i>59</i> | <i>49</i> | <i>58</i> | <i>69</i> | <i>67</i> | <i>67</i> |
| Key: + = positive emotions; - = negative emotions | | | | | | | | | | |

Table 7. Summary of suggestions for intergenerational learning made by aging participants, with regard to: (i) changes overall, (ii) changes in specific activities, and (iii) more types of activities.

| Changes overall while conducting intergenerational learning activities |
|--|
| <ol style="list-style-type: none"> 1. Request for learning activities to be held in air-conditioned rooms in summer 2. Communication of detailed aim of the activity at least a day before it is conducted 3. Arranging learning activities with grandchildren 4. Request for longer learning activities than two to three hours 5. Request to record the intergenerational learning activities and share them with the children of aging participants, to increase value and respect 6. Not to have group exercises as they were a problem for some residents who do not get along |
| <p>Changes in specific intergenerational learning activities</p> <ol style="list-style-type: none"> 1. More activities like (A1) '<i>Oral narration of the past</i>,' which focused on respect for older people and the gerontological culture of the past 2. More activities like (A8) '<i>Poetry, music, and religious hymns</i>,' were requested, including: <ul style="list-style-type: none"> - Singing and discussing old patriotic and nationalistic songs - Discussing old poems and who the poets were 3. With regard to (A5) '<i>Family history and value system</i>,' the request was: <ul style="list-style-type: none"> - Include more activities on value systems and the non-monetary things in life which should be more important, like personality development and community spirit - to discuss values system but not ask questions related to aging participant or their family 4. With regard to (A10) '<i>Discussing favorite religious and spiritual practices</i>,' there were three suggestions: <ul style="list-style-type: none"> - To include topics related to interfaith harmony and narrations about the sectarian unity of the past - Adding Quranic recitation and discussion about interpretation of Quranic verses - Listening to a recorded religious sermon and then having a discussion about it afterward 5. Inviting young government officers to participate in (A6) '<i>Civil awareness and opinions for change</i>,' so they can learn about how to improve governance 6. There were two requests with regard to (A3) '<i>Use of language and meaning of common idioms</i>': <ul style="list-style-type: none"> - Adding language related activities related to Urdu specifically - Not having discussions on the meaning of idioms as it was considered a difficult activity for some |
| <p>More types of intergenerational learning activities</p> <ol style="list-style-type: none"> 1. Combing intergenerational learning with formal education and paying older people for their instruction 2. Learning activities about marital relationships, conjugal bond, and children's upbringing 3. Wish for activities to be held outside the old age home, like visits to the art gallery and parks 4. Include topics related to conflict and violence in society and to bring conflicting parties to the older people, who could act as arbitrators to solve differences 5. Include intergenerational activities related to cooking and baking, and also gardening and growing of vegetables 6. Include activities related to nature and environmental protection 7. Integrate counseling sessions as learning and support activities, with aging participants providing informal counseling for youth |

one domain of psychological health showed significant improvement after the posttest ($t = 2.04, p = .05$).

Observational data results for type of activities showing higher satisfaction

The observation results for emotions and behaviors of aging participants during the intervention are summarized in Table 6. All the activities showed more positive emotions and behaviors than negative. There were five interventions which participants were highly satisfied with, showing scores above 63 points: (i) '*Poetry, music, and religious hymns*' (A8; Point Score = 69), (ii) '*Discussing favourite religious and spiritual practices*' (A10; Point Score = 67), (iii) '*Rules for character building*' (A9; Point Score = 67) (iv) '*Oral narrations of the past*' (A1; Point Score = 64), and (v) '*Did you ever? Activity*' (A2; Point Score = 64).

Focus group discussion results for suggestions for improvement

Nearly all the aging participants confirmed that they wanted the intergenerational learning activities to continue, “*Beta dobara phir ana, humein bhool na jana*” (Child, please keep coming, and don’t forget us) (Participant 03) ($n = 17$). Suggestions by the aging participants about intergenerational learning activities are summarized in Table 7 and fall under three areas, including: (i) six suggestions for overall change, (ii) six suggestions for changes in interventions delivered, and (iii) seven suggestions for more types of interventions.

Discussion

The impact of our intervention is assessed using complete information from 18 participants. We were unable to recruit more participants due to small number of old age residents housed in limited old-age homes, permission to sample only one state-run center, and high drop-out. This was not unusual, as we found that other researchers also had problems with sampling and had to show influence of intergenerational learning activities with even fewer participants than 18 (Jones et al., 2004; Santini et al., 2018). Our main research question aimed to identify the change in the quality of life of the older people post the intervention. Findings reveal that the domain of psychological health showed significant improvement in quality of life after the posttest, proving our study hypothesis to be partially correct. Our results uphold similar results for improvement in psychological health from India (Varun Toshniwal, 2017). Similarly, other intervention-based studies have shown that when older people have opportunities for learning, specific areas of mental health such as stress, anxiety, depression, and loneliness show significant decline (Aemmi & Karimi Moonaghi, 2017; Murayama et al., 2015).

With regard to socio-demographic associations, we found that aging participants with secondary education experience greater quality of life after the intervention compared to participants with lesser education. This may be because more educated populations attach greater value for learning opportunities compared to those who do are illiterate or have lesser education. Other research confirms that educated populations show better response and improved wellbeing after participation in educational activities (Collins & Benedict, 2006). Our study findings imply that education has a role in the impact of intergenerational learning activities, and that developing countries need to invest in higher education so that subsequent aging populations respond better to opportunities for engagement and learning activities. We also found that after the intervention, perceived quality of life of aging people improved with regard to sleep and life enjoyment. Previous scholarship confirms that mental activity can contribute to improved sleep patterns (Ruiz-

Montero et al., 2020), and that looking forward to more meetings for intergenerational activities can improve pleasure with life (Corrigan et al., 2013).

We also attempted to answer which types of learning activities show higher satisfaction in aging populations. We found that overall the aging population showed more positive emotions and behaviors during the intergenerational learning activities than negative. The most popular learning activities fell under four broad thematic groups. Firstly, we found that activities related to Music and Creativity had high scores for satisfaction. Other research corroborates that music and creativity provides older populations with relief and escape (Beynon & Lang, 2018). Secondly, we found that activities related to Religious and Spiritual Dialogue showed high satisfaction. International scholarship confirms that religious and spiritual activities provides older people with surviving strategies to escape loneliness and apprehension (Sampaio, 2020). In addition, involvement in religious and spiritual rituals provides older people with meaning and social support (Martens et al., 2004).

Thirdly, we found that activities related to Stimulate Dialogue and History was a popular learning domain. Other research corroborates that discourse and discussion of the past not only provides self-esteem and value to older people, but provides them a platform, to share their knowledge and offer advice to the young about solutions related to social and environmental challenges (McQuaid et al., 2017). Furthermore, intergenerational activities that include reminiscing and oral history have shown to improve feelings of companionship and appreciation in older people (Underwood & Dorfman, 2006). Fourthly, we found that activities related to Character Building and Ethics showed higher satisfaction scores in older people. Scholarship explains that older populations gain self-esteem when they are asked to contribute their feelings and experiences with regard to personality development and morals (Hanmore-Cawley & Scharf, 2018).

We also attempted to identify suggestions by older participants about how intergenerational learning activities may be improved. Overall, all the participants, except one, wanted the intergenerational learning activities to continue. The suggestions by aging participants for changes in intergenerational learning activities are informative in how to plan activities in the future. For overall changes while conducting learning activities the main suggestion for environmental setting included installing air-conditioning in summers, which would help concentration and comfort. There was also request for longer time spent with the youth, arranging activities with grand-children of participants, and sending video recording of the sessions to family members to inform them about the value and worth of intergenerational time.

There was request for changes in intergenerational activities delivered, such as focusing on respect for older people, (under Activity: '*Oral narration of the past*'), and encouraging a value system which did not promote love for monetary and material things in life, (under Activity: '*Family history and*

value system'). Participants also wanted emphasis on patriotic songs and old poetry, (under Activity: '*Poetry, music, and religious hymns*'). In addition, recommendations included focusing on interfaith harmony, Quranic studies, and having discussions about religious sermons delivered by scholars, (under Activity: '*Discussing favourite religious and spiritual practices*'). Some participants desired that young government officers should attend Activity: '*Civil awareness and opinions for change*' and that the focal point of Activity: '*Use of language and meaning of common idioms*' should be to teach Urdu to the young.

Finally, the suggestions for more types of learning activities included mixing learning activities with teaching and paying aging participants for their time and efforts. One participant who had been a counselor, felt that her services should be utilized by youth who could visit the old-age home. Spending more time outdoors and activities related to cooking, gardening, environmental protection, and travel to art galleries, parks, or religious shrines were also suggested. Participants believed that a learning activity on marital relationship and the upbringing of children would be valuable learning for the young, as older people had rich experiences to share. There was also request to have learning activities about how to mitigate conflict and violence in society, with some participants suggesting that if conflicting parties were brought to the old-age center, older people could help in providing informal counseling to solve differences.

Limitations and recommendations for future research

Limitations of our intervention include the small number of participants, and inability to include more than 10 interventions as there was a high dropout rate. As predominant dropouts were due to illness, we recommend the presence of a nurse and mandatory visitation of GPs and medical specialists at public sector old age homes (Lalan, 2014); which will help retention of participants in future interventions. We did not find any impact on the quality of life domain of physical health in this study, as we were unable to conduct physical activities. For future interventions we recommend for medical clearance to be gained and for the presence of a GP and physiotherapist during activities to secure safety of the elderly (Frontera, 2018).

Similarly, the quality of life domains of environment and social relationships did not show any change after the intervention. We believe that the inability to change the center settings and resources (Walker, 2005) and the few hours of social interaction during the intervention (Tam, 2014) contributed to the lack of findings for these two domains. Also, we must take note that the posttest was taken within a week after the last intergenerational activity was conducted and that it may be that participants need more time to report the effect of the intervention on environment quality and social relationship

with visiting youth (Mittelman et al., 1995). Future research must consider evaluating the impact and administering the posttest after a longer gap of participants not receiving the intervention.

Authors of this study will be conducting another intergenerational intervention including digital literacy and providing elderly participants with a smartphone and internet. We expect that internet communication will provide the elderly an opportunity to maintain connection with youth and family members, gain online health access, and overall assume more control of their lives; with consequent improvement on the domains of environment and social relationships (O. E.-K. Lee & Kim, 2019). We were also unable to include a control group in this study, so there is potential that something other than the intergenerational activities influenced the results. It would be prudent to take care while generalizing these results to other centers and elderly people living with relatives. With regard to the observational data there is the limitation of human error or bias involved in recording emotions of the elderly participants by the intervention facilitators. We recommend repeat studies of a similar nature in the region to confirm results and generalizability. The strengths of this study, however, is that it provides us with empirical evidence about the impact of intergenerational learning activities on the quality of life of aging participants and provides us with a summary of which activities show higher satisfaction in older people and suggestions for improvement and changes in learning activities. In addition, the findings enable to us recommend improvement in state-run old age homes of Pakistan and other developing countries, in consideration that older people need support for engagement and activity with the youth for their holistic wellbeing.

Concluding recommendations for aging policy

There is dire need to open state-run old age homes in Pakistan and to incorporate policy for running them in consideration of quality of life of aging residents. We conclude that intergenerational learning is a means not just to improve quality of life in aging populations, but also to return their dignity and self-esteem in countries like Pakistan where old-age homes are less attractive and almost a source of shame for both potential residents and society.

We recommend the development of not just old age homes, but community centers that provide favorable living environment and adequate space and provision for outdoor activities and leisure. Intergenerational learning activities must be planned and organized to include the following learning domains: 1. stimulating dialogue and discussion, 2. activities exploring history, civic awareness and community belonging, 3. music and creativity, 4. character building and ethics, 5. religion and spiritual dialogue, and 6. language.

Not only must the youth participate in intergenerational learning activities, but there is scope for orphans and abandoned children, being provided shelter by the State, to be placed together with the aging population for intergenerational activities. This would provide two lonely and disadvantaged populations with support and belonging. Finally, we recommend the planning of integrating learning activities to incorporate training and instruction modules by older participants, so they can be paid a stipend affording them opportunities for greater participation, financial autonomy, and self-esteem.

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Compliance with ethical standards

There is no conflict of interest to declare. Ethics approval for this study has been taken from the Institutional Review Board, Forman Christian College University. Permission to collect data and deliver an intervention at public sector old age homes was also taken from the Punjab Social Welfare Department. No names of respondents were taken and confidentiality of the elderly has been preserved by not reporting old age home names or city belonging. Informed consent was taken from all elderly respondents for the survey and for the intervention from elderly participants. The consent forms are available at request. All elders were assured that they could leave the assisted interview for survey completion or the intervention at any time.

Author contributions

SRJ designed the study and was responsible for the data collection, data analysis and drafting of the manuscript. SKB, AK, and QK assisted in supervision and coordination for data collection. SS provided senior consultancy through the research project and approved the final submission.

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Appendix A- Participation observation tool

Date of data collection:

Name of Data Collector:

Intergenerational Activity/ Subject Heading:

Checklist for observation (expression and behavior) for elderly during intervention

| Observation of expression and behavior | Tick or cross | Comment |
|--|---------------|---------|
| Smiling | | |
| Contentment | | |
| Engaged with children | | |
| Involved and interested in the activity | | |
| Neutral | | |
| Aloof/ lack of interest in activity and child | | |
| Engagement with child, but not activity | | |
| Planning for next activity with child/ next day's lesson | | |
| Unhappiness | | |
| Discontent | | |
| Distress with presence of children | | |
| Distress or confusion generated by activity | | |
| Aggression/ anger/ hostility | | |
| Restless | | |

(Please take copious notes to ensure we are able to build themes for qualitative data analysis. Changes in behavior, responses, expression, shift in position and movements, dialogue and conversation. Please take audio recordings from mobile if unable to take all notes.)