Development and evaluation of a theory-based health promotion programme aimed at improving retirees’ psychological well-being and quality of life: a protocol for a mixed-method study

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ABSTRACT

Introduction The changes that retirees experience during their retirement years will challenge their ability to cope, potentially endangering their health and quality of life. This study aims to design and evaluate a theory-based health promotion programme to improve retirees’ psychological well-being and quality of life.

Methods and analysis This mixed-method, non-blind study uses an embedded design. The purpose of the study is to collect qualitative and quantitative data, focusing on retirement adjustment. Qualitative data will be collected at baseline, 3 months after the intervention, and Lundman’s qualitative content analysis method. A pre–post test controlled group design will be conducted for the qualitative part of the study. A sample size of 80 is estimated for both the intervention and control groups. Systematic sampling and the block randomisation method will be employed for sampling. The training programme in the intervention group will consist of eight 60 min sessions and environmental support, implemented after assessing the research environment and obtaining approval from the relevant officials. A brief training programme unrelated to the intervention group’s focus (home safety) will be implemented for the control group. Quantitative measures will be collected in both groups at baseline, 3 months and 6 months after the intervention. These measures will include self-administered questionnaires covering demographic variables, retirement adjustment, retirement resources, quality of life, coping methods, spiritual well-being and psychological well-being. Analytical statistics will be performed using the generalised linear model, with p values<0.05 considered significant.

Ethics and dissemination This protocol has received approval from the ethics committee of Shiraz University of Medical Sciences. The research findings will be disseminated through peer-reviewed manuscripts, presentation in abstracts at National and International Scientific Conferences, and data sharing among researchers.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ A mixed-method approach will lead to a contextualised understanding of real life, multilevel perspectives and sociocultural influences related to the topic at hand.
⇒ The combination of two theories (Lazarus and Precede-Proceed) has enriched the content of the intervention and can target more determinants.
⇒ The impossibility of evaluating the results in the long term (over 6 months).
⇒ The probability of overestimated dropping in the sample during the study.

Trial registration number IRCT20180516039690N2.

INTRODUCTION

Retirement is a critical transition associated with changes in various areas of life, including lifestyle, daily activities, financial resources, interpersonal communication, and engagement in social networks. Many retirees experience the cumulative effects of exposure to physical, chemical and psychosocial risk factors during their working years. In addition, the retirement period is usually associated with age-related physiopathological changes. For some retirees, the level of physical activity and participation in social networks decreases after retirement. Many retirees experience a reduction in their salaries and benefits compared with when they were employed. These changes may negatively affect retirees’ ability to adapt to new conditions and their health, especially in the psychosocial dimensions, as well as life satisfaction or quality of life (QOL).
Many studies have shown that some retirees, especially in the early years of retirement, suffer from psychological ailments such as depression, distress and anxiety. In the retirement course, there may also be an increase in physical diseases such as high blood pressure, heart disease and musculoskeletal diseases. Suffering from ailments reduces the QOL and life satisfaction, and imposes a significant financial burden on the individual, family and healthcare systems.

One possible explanation for variations in changes experienced after retirement and its effect on health and QOL may be individual differences and participants’ experiences, including job conditions, individual characteristics, socioeconomic conditions and environmental support. Therefore, specific research on retirees of different occupations and among different populations is proposed in terms of social, economic and cultural aspects. Various interventions focusing on the empowerment of retirees have been previously proposed or experimentally tested. To date, most of these past studies show that most of these studies have focused on single component intervention (to increase knowledge, attitude, and, in some cases, skills) and lacked a comprehensive theoretical framework, such as physical activity, positive psychology, goal setting, and retirees’ satisfaction, depression, and losses. They have not taken into account the multiple criteria of retirement adjustment, retirement resources and well-being factors in a centralised manner.

The study proposed in this protocol aims to meet the need for timely, effective, planned and evidence-based interventions to improve the well-being and retirees’ QOL.

There are two possible approaches in designing health promotion interventions: a top-down or bottom-up approach. In the top-down approach, the programme developers choose and implement the intervention based on their experiences or diagnosis without considering the audience’s characteristics and the context in which they are located. Such an approach is often associated with low effectiveness and poor programme sustainability. However, on the contrary, in the bottom-up approach, during a backward process, the components of the intervention will be aligned through the identification of the determinants of the intervention outcomes (early and late outcomes). In the first approach, the community becomes a venue for health behaviour programmes. In the second approach, the community becomes a locus for organising attempts to shift broader public and private socioeconomic policies and practices. The ‘bottom-up’ approach to health promotion enables public participation in health programme decision-making, thus promoting social justice and equity in health. One potential avenue to increase success is to incorporate ecological and logical models that consider the views and preferences of the target population members and scientific evidence’s findings at different planning stages. The Precede-Proceed Model (PPM) could be used as a road map to guide the bottom-up planning of health promotion interventions.

Green and Kreuter developed the PPM, which is widely used in health education in various communities. Some applications include developing and piloting a rural community pharmacy-based ear health service, designing an oral health strategy, preventing brucellosis and vaccinating livestock and developing a nutritional screening tool. It guides the user through the diagnostic processes that lead to the development of evaluation and intervention. PPM is a model for participatory and community-based (community-oriented) planning. Planning and evaluating health promotion interventions based on the PPM includes two steps (primary) and eight stages (phases). PRECEDE, the first step of PPM, stands for Predisposing, Reinforcing and Enabling Constructs in Educational/Environmental Diagnosis and Evaluation. The component of this step allows the researcher to work backward from the ultimate goal of the research (distal outcomes) to create a plan to guide the formation of an intervention or strategy. PROCEED, the second step of PPM, stands for Policy, Regulatory and Organisational Structures in Educational and Environmental Development.

The eight phases of the model are phase 1—social assessment; phase 2—epidemiological assessment; phase 3—educational and ecological assessment; phase 4—administrative and policy assessment and intervention alignment; phase 5—implementation; phase 6—process evaluation; phase 7—impact evaluation and phase 8—outcome evaluation. This model is a practical framework for describing the factors affecting health outcomes and providing a comprehensive structure for assessing health needs, designing intervention programmes, implementing and evaluating health promotion programmes, and studying behaviour.

This framework helps identify specific intervention goals, integrates individual and environmental factors into a concise plan, and includes consideration of organisational, administrative and policy aspects that may hinder or support programme implementation. Specifically, this roadmap enables us to identify helpful intervention strategies for achieving desired outcomes. According to the proponents of the model, Green and Kreuter, and other health promotion experts, this model considers the context and the research problem to use specific theories or models aimed at the third phase. This will increase the internal validity of the programme.

As far as we know, no application of this model was observed in the planning of retirement health promotion, and most previous studies have focused on the part of the model, often the third phase, to analyse the health problem or to develop and evaluate interventions. Therefore, the primary purpose of this study is to develop and evaluate a theory-based health promotion programme to improve retirees’ psychological well-being and QOL. The
PPM is used as the main theoretical framework on which the processes of this study will be conducted.

RESEARCH OBJECTIVES

Goal 1 (qualitative)
To explain the status of retirement adjustment and the factors affecting it from the perspective of participants.

Specific objectives
- To explain the perceptions of the retirees about their retirement adjustment.
- To explain factors (individual and environmental) affecting the retirement adjustment.

Goal 2 (quantitative)
To determine the effects of health promotion intervention on retirement adjustment, QOL, Ways of Coping, retirement resources, psychological well-being, Spiritual Well-Being among retirees.

Specific objective
Within-group and between-group comparisons of the average scores of each study constructs (retirement adjustment, QOL, Ways of Coping, retirement resources, Psychological well-being, Spiritual Well-Being) among study groups before, 3 and 6 months after the educational intervention.

METHODS AND ANALYSIS

Study design
This mixed-methods study employs an embedded design, wherein a series of qualitative interviews and focus groups with participants are incorporated into the initial (preintervention) phases of a more extensive quantitative study. The quantitative component of the study uses a randomised controlled trial design, as illustrated in figure 1. The qualitative inquiries will align with the initial four phases of the study’s theoretical framework, PPM. These inquiries primarily seek to elicit participants’ perceptions and perspectives regarding retirement adjustment and resources to enhance the face and content validity of the related measurement tools, as they have not previously been validated within the Iranian population. Simultaneously, we will leverage the insights gained from qualitative inquiries to customise interventions based on the characteristics and preferences of the participants. Table 1 presents the phases of the PPM, critical inquiries and data sources for this study.

![ CONSORT diagram for the quantitative part of the study project as a randomised controlled trial. CONSORT, Consolidated Standards of Reporting Trials.](http://bmjopen.bmj.com/ BMJ Open: first published as 10.1136/bmjopen-2023-075337 on 14 November 2023. Downloaded from http://bmjopen.bmj.com/ on November 23, 2023 by guest. Protected by copyright.)
Table 1  Steps 1–8 of the PPM model including key questions and sources of data

<table>
<thead>
<tr>
<th>Phase</th>
<th>Key questions to be addressed</th>
<th>Data sources</th>
</tr>
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<tbody>
<tr>
<td>Social assessment</td>
<td>► What are the demographic characteristics of the retirees? ► What are the social problems and perceived QOL of the retirees? ► Is retirees' QOL more affected by psychological issues rather than physical issues? Why?</td>
<td>Literature review Participants survey Key informant interview Focus group discussion</td>
</tr>
<tr>
<td>Epidemiological assessment</td>
<td>► What are the participants levels of psychological well-being? ► What are the behavioural risk factors affecting psychological well-being and QOL? ► How important and changeable are these behavioural risk factors? ► What are the environmental causes of the health concern? ► How important and changeable are these environmental causes of the health concern?</td>
<td>Literature review Participants survey Key informant interview Focus group discussion</td>
</tr>
<tr>
<td>Educational and ecological assessment</td>
<td>► What are the predisposing factors influencing each behaviour? ► What are the enabling factors influencing each behaviour? ► What are the reinforcing factors influencing each behaviour? ► How important is each factor? ► How changeable is each factor?</td>
<td>Key informant interview Focus group discussion Participants’ opinion survey using the Transactional Model of Stress and Coping as a framework</td>
</tr>
<tr>
<td>Administrative and policy assessment and intervention alignment</td>
<td>► What are the dominant policies, resources and other circumstances? ► What are the policies, regulations and organisational factors that prevent changes in the enabling factors? ► What are the factors influencing implementation? ► What are the barriers to implementation?</td>
<td>Key informant interview Focus group discussion Documentary analysis if available</td>
</tr>
<tr>
<td>Implementation</td>
<td>► What are the health promotion strategies per educational objective? ► Are strategies aligned with the objectives? ► What is the time frame for the implementation of each strategy? ► What resources are needed?</td>
<td>Participatory health promotion intervention and strategy development and implementation</td>
</tr>
<tr>
<td>Process evaluation</td>
<td>► What is/are the process indicator/s? ► What is/are the means of verification for the indicator/s?</td>
<td>Objectives set during the assessment phases Report on intervention programme and strategies Participants’ opinion survey using the Kirkpatrick’s model as a framework: reaction level</td>
</tr>
<tr>
<td>Impact evaluation</td>
<td>► What is/are the impact indicator/s? ► What is/are the means of verification for the indicator/s?</td>
<td>Objectives set during the assessment phases Report on intervention programme and strategies Participants survey using the Kirkpatrick’s model as a framework: learning and behaviour levels</td>
</tr>
<tr>
<td>Outcome evaluation</td>
<td>► What is/are the outcome indicator/s? ► What is/are the means of verification for the indicator/s?</td>
<td>Participants survey for assessing psychological well-being and QOL Participants survey using the Kirkpatrick’s model as a framework: result level</td>
</tr>
</tbody>
</table>

PPM, Precede-Proceed Model; QOL, quality of life.
Study setting
The protocol described herein can be applied in any setting where retiree populations are present. However, this research will take place in Shiraz, a metropolis in Iran that serves as the capital of Fars province in the country’s southern region. As per the 2016 census data, the population of Shiraz metropolis stood at 1,565,572 individuals. This census data underscores Shiraz’s position as the fifth-largest and most populous city in Iran and the most densely populated city in the nation’s southern region. It is important to note that Shiraz’s population comprises individuals of diverse ethnic backgrounds and cultures who have migrated from various cities across the country.

Given that the oil industry and the education sector represent two of the largest organisations in terms of both employees and retirees, the researchers intend to conduct this study within one of these organisations, contingent on their respective approvals.

Study participants and sampling approaches
The ecological approach of PPM emphasises engagement with the priority community in planning and implementing health promotion interventions. This will include ensuring the participation of priority population members (retirees), key informants and stakeholders in their health. In this study, family and officials from the retirement centre. Throughout the participation process, the study’s objectives will be communicated to the stakeholders, and we will inquire about their expectations and views on the details of the health promotion programme.

In the qualitative part of the study, eligible key informants (15 people and possibly more) will be selected through purposeful sampling with maximum variation. The sample size will be final when theoretical saturation occurs. Researchers consider retirees, spouses or family caregivers, geriatrics, gerontology and psychology experts, and retirement centre officials as key informants.

The inclusion criteria for the study’s quality and quantity parts are: at least 1 year has passed since retirement (for retirees), knowledge of retirement and its effects on health (focusing on the research questions), and they can share their information and experiences well. Agreement to participate in the study is provided by obtaining informed consent; people who are unable to cooperate due to uncontrolled health conditions (eg, severe physical disability or uncontrolled chronic disease) or whose answers are not coherent and related enough (as determined by the research team) will be excluded from the study.

Among types of qualitative data collection, focus groups and in-depth individual interviews provide worthy opportunities for individuals to be heard in their own words. In-depth interviews grant researchers the benefit of sighting study participants’ lives and experiences in their usual context. A focused group discussion will be used to complete the information from interviews with key informants. Focus groups are a form of qualitative interviewing that uses a researcher-led group discussion to collect data on the research topic.

For the quantitative phase of the study, according to the equation of \( n = \left( Z_{\alpha/2} + Z_{\beta} \right)^2 \left( S_2 + S_1 \right) \) \( \beta \), a sample size of at least 66 people in each study group were obtained. With an assumption of nearly 20% drop in the sample size of each group, 80 people were chosen. In this equation, \( \alpha=0.05 \) and \( \beta=0.1 \), \( Z_{1}=1.96 \), \( Z_{2}=1.28 \), \( S_2=15 \), \( S_1=16 \) and \( d=8.85 \). The value of \( \beta^2 \) is considered in terms of the difference between the mean and the values of \( S_2 \) and \( S_1 \) using the SD obtained before and after the intervention in the Kazazi et al. At first, a sample size of 480 people, three times the study sample, will be selected from the study population (about 4000 people) using the systematic random method. In the next step, considering the inclusion criteria, 160 people (required sample size) will be selected from qualified people. Then, through the block randomisation method using Random Allocation Software, individuals will be assigned to two categories of intervention and control (figure 1).

Patient and public involvement
Applying a mixed method (quantitative and qualitative) to collect initial data allows researchers to use participants’ interests, experiences and perceived priorities to identify the Research questions and outcome measures. Participants will help researchers design interventions (setting the content or elements) using a collaborative approach, by answering questionnaires and presenting their perspectives and experiences in individual and group interviews. The results of this study will be made available to retirees through a scientific article and also through the vulgate through virtual channels that we formed during the implementation of the project. These results will also be presented to relevant organisations for consideration during retiree training sessions. Because education is the primary intervention in this study and there is no medical intervention, participation in this study will not carry an intervention burden.

Data collection instruments
Interview guides (interview questions with probing questions) will be used for the key informant interviews and focus group discussions. The interview guide will be used to gather the key informants’ perceptions of retirement adjustment and the information regarding the critical informant’s knowledge of the factors affecting retirement adjustment and the availability of resources essential for adjusting to retirement courses.

Quantitative data will be collected using existing published questionnaires, including Retirement Adjustment Scale, Retirement Resources Inventory, WHOQOL-OLD, Ways of Coping Questionnaire, Spiritual Well-Being Scale, Ryff’s Scale of Psychological Well-Being. Additionally, the demographic information will be collected using a written questionnaire to assess the effectiveness of each demographic component (such as...
as age, marital status, retirement type, retirement year, comorbidities).

**Data gathering procedure**

By adhering to the PPM process, the quantitative section collects data through self-administered questionnaires tailored to each phase of the model before, 3 months and 6 months after the intervention. Meanwhile, the qualitative section entails gathering data through in-depth individual interviews and focus groups, utilising prepared guides (online supplemental additional files 1 and 2). Before data collection, informed consent will be sought from all participants in the research’s quantitative and qualitative segments. Those who choose not to participate are free to return the consent form unsigned, and no further inquiries will be made. Interviews will be recorded only with the consent of the participants and subsequently transcribed. In cases where permission to record is not granted, comprehensive notes will be taken during the interview process. The interview will be 45–60 min, with adjustments made according to the interviewee’s ability and patience. If necessary, interviews may be conducted over multiple sessions.

**Intervention**

Health promotion interventions in the current research will be developed using four sources: first, baseline data obtained through the implementation of quantitative and qualitative measures; second, relevant scientific sources from existing authoritative texts; third, a review of the current programmes and activities in the research setting and fourth source will be the research team, who as experts will make the final decisions for intervention materials and methods. This training programme targets the behavioural determinants identified in the third phase of the PPM; as mentioned in the introduction, the evidence shows that mental health issues, including dealing with stress and adapting to changes, are highly prioritised in the retired population. Based on this, the Transactional Model of Stress and Coping will be used as a guiding framework in designing and implementing educational intervention. Another part of the intervention in this study will be to provide environmental support as much as possible. These supports align with the fourth phase of the PPM and will be designed based on the findings derived from the qualitative part of the study. Finally, the three-part evaluation of the PPM will be run using KirkPatrick’s model as a practical framework. The reaction stage from this framework is equivalent to process evaluation in the PPM. The learning and behaviour stages will be considered as criteria for impact evaluation. Finally, outcome evaluation will be done by measuring results, the fourth stage of KirkPatrick’s model, that is, changes in psychological well-being and QOL. This methodology is aligned with health promotion, defined as: ‘any planned combination of educational, environmental, policy, regulatory or organisational approaches to support action and living conditions that are favourable for the health of individuals, groups and communities’. A brief training programme unrelated to the intervention group’s focus (home safety) will be implemented for the control group. Considering ethical guidelines, the intervention group’s educational materials will be provided to the control group at the end of the study project.

**Data analysing method**

The qualitative data will be analysed using Graneheim and Lundman’s qualitative content analysis method. Consequently, following multiple iterations of listening to the interviews, the contents will be transcribed and meticulously reviewed to gain a comprehensive understanding of each participant’s perspectives. Subsequently, transcripts will be dissected into meaningful units, from which codes will be derived. In the subsequent stage, these codes will be organised into categories and subcategories, with each category. Throughout this process, constant comparisons will be made among the data, classes and subclasses, ultimately leading to the development of thematic classes.

When analysing the quantitative data, in addition to employing descriptive tests (including frequency, mean and SD), we will conduct analytical statistics using the generalised linear model, which encompasses repeated measure analysis of variance and analysis of covariance, with a significance level set at p<0.05.

**Study status**

The study will start in September 2023 and will end in August 2024.

**ETHICS AND DISSEMINATION**

The study protocol was approved by the ethics committee of Shiraz University of Medical Sciences (Confirmation code: IR.SUMS.SCHEANUT.REC.1401.078). Participants will be informed in writing and verbally about the objectives, methods, processes and actions taken during the study. They will also be informed about ethical issues such as confidentiality, the right to ask questions during the study and the right to withdraw at any time without penalty. To ensure that all participants were properly informed about the study and agreed to participate, all participants will be asked to sign a written consent form. The research team is committed to conducting this study according to the guidelines of the Declaration of Helsinki. Data trustworthiness criteria include the process of data review and analysis and approval of categories based on scientific principles and methods and ethical considerations (including the use of an expert other than the interviewer and verification by supervisors, member verification, etc) will be followed up.

The research findings will be disseminated as widely as possible within the scientific and broader community, through publication in peer-reviewed journals, scientific book chapters, presentation in abstracts at National and International Scientific Conferences, and data sharing among users and researchers.
DISCUSSION
This study aims to develop and evaluate a theory-based health promotion programme to improve retirees’ psychological well-being and QOL. The theoretical framework of PPM as a platform will guide the implementation of this programme in different stages. In addition, considering mental health problems as an essential priority in retirement, we will use the Lazarus model (the Transactional Model of Stress and Coping) to help explain how to adapt to retirement and guide educational intervention. This study can help develop gerontology knowledge as a nascent science. Existing knowledge is more content-oriented and focuses more on the transfer of information and knowledge; what is needed is more excellent methodological knowledge to develop more profound levels of learning for older people. Therefore, the present research can help the development of theory and practice in educational gerontology.

Evidence suggests that health promotion interventions are more likely to be effective if they adopt an ecological approach. The PPM model provides this ecological and logical framework so that we can prepare the necessary data to guide the process in an orderly manner. According to the literature review results, this is the first study to take a holistic and systematic look at the issue of retirement adjustment by using all the constructs of the PPM model. Thus, an intervention study is needed to improve retirees’ health and adapt to the retirement period. In Iran, no research has been conducted on the issue of retirement adjustment. Using the systematic and ecological model makes, it is possible for the research findings to be partially or entirely comparable with the research conducted on the health and QOL of retirees of other populations. In this regard, the findings of each part of the study, for example, QOL, psychological well-being, retirement adjustment and resources, will be compared with the findings of research conducted on each of these variables in previous studies. Such comparisons in practice provide the basis for the reproducibility of the research, generalisation of the findings or the transfer of the resulting knowledge for designing interventions.

As a result, it is necessary to conduct qualitative research concurrent with quantitative research to achieve the views, opinions and needs of Iranian retirees about the changes made during retirement and the challenges of this period. The integration of quantitative and qualitative approaches in the study’s methodology, including the tools, content and strategies of modification education, may take place, and as a result, the study’s theoretical framework will be developed. This study’s quantitative and qualitative data help researchers decide on the content and method of implementing the stages. The application of quantitative research alone does not incorporate the context, environment and voice of the people and cannot answer the question ‘why’ or the ‘how’ of an intervention result. Similarly, qualitative research has limited generalisability and lacks the necessary depth to make meaningful conclusions or to answer the question of ‘what will happen next’. By collecting and integrating both data types, mixed methods focus on research questions and lead to a contextualised understanding of real life, multi-level perspectives and sociocultural influences related to the topic at hand. Health and psychological well-being are multifactors whose variables may differ from one population to another. Thus, mixed methods have great potential to improve our understanding of complex psychological phenomena by providing insight into why, how and what is next. To what extent the intervention based on the theoretical framework of this research can improve the adjustment of retirement and psychological well-being in retirees, it can pave the way for similar research and practices in the future. Therefore, this study protocol represents a beneficial addition to the literature to guide further research.

The researchers, policy-makers and planners can consider the process and findings of this study for the retired population’s health promotion. It is hoped that the findings will confirm the effectiveness of the interventions designed based on the PPM in improving the target outcomes in the studied retirees.

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Contributors MHK conceptualised the study project, MHK and ESM conceived the research idea, contributed to the study design, participated in the literature review, and wrote the manuscript. MK contributed to the discussion and reviewed/edit the manuscript. MJT contributed to research methodology development and supervised the data analysis process. ES contributed to the study’s conception. All authors read and approved the final manuscript.

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Patient consent for publication Consent obtained directly from patient(s).

Provenance and peer review Not commissioned; externally peer reviewed.

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