Efficacy of Protocol for Behavioural Interventions in Promoting Health Behaviour among Rural Geriatric Population Related to Primary Prevention of Respiratory Pandemics

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Abstract

The world over, older people have faced specific challenges, more recently due to outbreak of Covid-19 pandemic that required behavioural interventions like social distancing, hand washing, a healthy diet, regular exercise, meditation, regular health monitoring, etc. Health-promoting behaviours are major determinants of health and disease prevention. As respiratory pandemics recur, the physical and psychosocial health of our senior citizens warrants urgent attention. This study, conducted in two phases, aimed to evaluate the efficacy of a behavioural intervention protocol for promoting health behaviour among rural geriatric populations related to the primary prevention of respiratory pandemics. In Phase I, a protocol for behavioural interventions on primary prevention of respiratory pandemics was developed, and in Phase II, a pre-experimental one-group pre-test post-test research design was used to evaluate its efficacy in terms of health-promoting behaviour among the rural geriatric population; 30 rural elderly were selected by a purposive sampling technique, and data were collected from them. In Phase I, protocols for behavioural interventions on the primary prevention of respiratory pandemics were developed and validated; in Phase II, the health-promoting behaviour was assessed using the modified health-promoting behaviour tool. A behavioural intervention was administered before the post-test, which included primary preventive measures to decrease the spread of respiratory pandemics and mortality rates among rural geriatric populations. Results showed that the majority (63.33%) were aged 55-65 years; 56.66 percent were male, 60 percent were from joint families, 43.3 percent were middle pass, 80 percent had a business (farming), and 93.33 percent were married. In the pre-test, the majority (n=21, 70%) of rural elderly had moderate health-promoting behaviour and 9 (30%) had positive health-promoting behaviour, the mean being 98.53. In the post-test, the majority (n=16, 53.3%) of rural elderly had moderate health-promoting behaviour and 14 (46.6%) had positive health-promoting behaviour, and the mean was 103.83. The mean difference was 5.36, SD 1.225, and the t value 24.03, which is highly significant at the level of $p<0.001$, supporting the hypothesis that there is a statistically significant improvement in health-promoting behaviour among the rural geriatric population with the administration of behavioural interventions. Improvement in health-promoting behaviour suggests that behavioural interventions help in preventing/mitigating the spread of respiratory pandemics among the elderly and reducing the mortality rate.

Key words: Respiratory pandemics, Behavioural interventions, Geriatric

As the Covid-19 pandemic affected the global population in drastic ways, the world, older people have faced the most challenges at the time of the pandemic. Health-promoting behaviours are major determinants of health and disease prevention. As respiratory pandemics recur, the physical and psychosocial health of our senior citizens warrants urgent attention. Older people face a significantly higher risk of developing severe illness if they contract the disease due to physiological changes that come with ageing and potential underlying co-morbid conditions (WHO, 2020). According to case records analysed by the Disease Control and Prevention Centers (CDC) in China and South Korea, people aged 80 and above are at the highest risk of dying due to Covid-19 (Radhakrishnan, 2020). According to an official release of the government of India, 19 percent of confirmed cases have been reported among the elderly. Among them, the elderly people form a high-risk population (India news NDTV, 2020). Dr Hans Kluge, WHO Regional Director for Europe said,

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"Older adults are at a significantly increased risk of severe disease following infection from Covid-19 (WHO, 2020).

The burden of the epidemic can be prevented by reducing the number of contacts among high-risk populations. Interventions targeting high-risk groups may be more effective in containing or mitigating the epidemic (Yu, 2020). The elderly are more vulnerable to coronavirus because of both physical and social reasons (World Economic Forum, 2020). Health promotion is a process that implies changes in behaviour and the adoption of new patterns that promote good health to improve the comprehensive health of people (Rathnayake et al, 2020).

Based on the above data, which shows that the elderly are the most vulnerable group, it was planned to assess the efficacy of the protocol for behavioural interventions on promoting health behaviour among the rural geriatric population related to primary prevention of respiratory pandemics to decrease the risk of mortality.

Objective

This study was conducted with the twin objective to:

1. Evolve a protocol for behavioural interventions for the rural geriatric population related to primary prevention of respiratory pandemics, and
2. Find out the efficacy of the protocol for behavioural interventions on promoting health behaviour among the rural geriatric population related to the primary prevention of respiratory pandemics.

Review of Literature

Carretero et al (2020) found that SARS-CoV-2 infection is associated with a high risk of malnutrition, mainly due to increased nutritional requirements and the presence of a severe and universal inflammatory state. This risk is greater in elderly and multimorbid patients.

Alvi et al (2020) did a study on pharmacological and non-pharmacological efforts at prevention, mitigation, and treatment for Covid-19. This review found that pharmacological interventions at play and evidence-based successes and limitations of non-pharmacological therapies such as social distancing, personal protective equipment, and ventilator support are associated with the prevention and treatment of Covid-19.

In a study on use of non-pharmacological interventions on Covid-19, Singh et al (2020) found that the non-pharmacological intervention measures reduce the growth of the spread facilitate decision-makers for dealing with the disease.

An earlier study (Cao et al, 2018) compared the health-promoting behaviours and quality of life in older adults with hypertension with a community-control group. The result showed that the hypertensive elderly had significantly lower scores in their spiritual growth and health management.

Methodology

In this study quantitative approach was used. It was conducted in two phases: Phase I (Development phase) and Phase II (Evaluation phase). In Phase I protocol for behavioural interventions on primary prevention of respiratory pandemics was developed, and in Phase II, a pre-experimental (one-group pretest-post-test) research design was used to evaluate its efficacy in terms of health-promoting behaviour among the rural geriatric population. Thirty rural elderly (a small-scale study) were selected by a purposive sampling technique from the village Nevari in Kabirdham district (Chhatisgarh) and data was collected from them. In Phase I, a protocol for behavioural interventions on primary prevention of respiratory pandemics was developed and validated with the help of a review of the literature and expert opinions. In Phase II, the health-promoting behaviour was assessed before and after application of the modified health-promoting behaviour tool. A behavioural intervention was administered before the post-test, which included primary preventive measures to decrease the spread of respiratory pandemics and mortality rate among the rural geriatric population.

Tool and Assessment Criteria

1. Socio-demographic data includes age, sex, qualification, marital status, occupation, type of family, religion, etc.
2. The health behaviour was assessed by the modified Health Promotion Model - Instruments to Measure Health Behaviour. The modified Health-Promoting behaviour tool consists of 1 to 39 items (Walker et al, 2024).

Scoring instructions

Items are scored as Never (N) = 1, Sometimes (S) = 2, Often (O) = 3, Routinely (R) = 4. The lowest overall score is 39 points, and the highest is 156.

1-52 - negative health-promoting behaviour
53-104 - moderate health-promoting behaviour
105-156 - positive health-promoting behaviour

Behavioural interventions include primary preventive measures to decrease the spread of respiratory pandemics and the mortality rate among the geriatric population.

Results

The characteristics of the demographic variables described in terms of their frequency and percentage distribution showed that majority (63.33%) were in the age group of 55-65 years; 56.66 percent were males; 60 percent were from a joint family; 43.3 percent of the subjects were middle class passed, 80 percent were having a business (farming) and 93.33 percent were married.

SARS-CoV exhibits high transmissibility between middle-aged (45 to 64 years old) and elderly (≥ 65 years old) people. This study was sought to suggest which most effective prevention measures should be applied to middle-aged and elderly people (Zhao et al, 2020). In Phase I, protocols for behavioural interventions on primary prevention of respiratory pandemics were developed and validated with the help of a review of literature and expert opinions.

Banerjee (2020) suggested that rural elderly might not be aware and updated with authentic information related to infection, amidst misinformation spread through a variety of modes. Hence protocol for behavioural interventions is an effective means to be aware of them.

Efficacy of protocol for behavioural interventions on promoting health behaviour

In the pre-test, 21 (70%) of the rural elderly had moderate health-promoting behaviour, 9 (30%) had positive health-promoting behaviour, and none had negative health-promoting behaviour.

In the post-test, 16 (53.3%) of the rural elderly had moderate health-promoting behaviour, 14 (46.6%) had positive health-promoting behaviour, and none had negative health-promoting behaviour. Table 1 reveals that in overall aspects of health-promoting behaviour, the post-test mean is greater than the pre-test mean.

Table 1: Mean of sub scales of health-promoting behaviour (N=30)

Aspects of health promoting behaviour	Pre-test mean x	Post-test mean x
Avoid exposure	25.96	27.3
Physical activity	6.4	6.9
Nutrition	11.23	11.93
Interpersonal relationship	11.26	12.03
Stress management	12.86	13.63
Preparedness	29.83	31.03

Table 2 reveals that the mean pretest of health-promoting behaviour is lower than the mean post-test of health-promoting behaviour among rural elderly after behavioural intervention. The t-test value is 24.03, which is highly significant at p≤ 0.001.

Table 2: Mean pre-test of health-promoting behaviour (N=30)

	Mean	Mean difference	SD of difference	SE of difference	t-test
Pre-test	98.53	5.36	1.225	0.223	t =24.03
post-tests	103.83				

*Significant at p≤0.05 ** Highly significant at p≤0.01, *** Very highly significant at p≤0.001).

In Phase II, results revealed that administration of the protocol for behavioural interventions is very effective in terms of promoting health behaviour among the rural geriatric population related to primary prevention of respiratory pandemics. The elderly were the most vulnerable group for coronavirus infection, and the mortality rate is also high because of age and co-morbid conditions. To decrease this, primary prevention is the most important aspect (WHO, 2020).

Discussion

The characteristics of the demographic variables described in terms of their frequency and percentage distribution showed that majority (63.33%) were in the age group of 55-65 years, 56.66 percent were males, 60 percent are from joint family, 43.3 percent of the subjects are middle class passed, 80 percent were having business (farming) and 93.33 percent were married.

In the pre-test, the majority, 21 (70%) of rural elderly, had moderate health-promoting behaviour, and 9 (30%) had positive health-promoting behaviour, with a mean of 98.53. In the post-test, the majority, 16 (53.3%) of the rural elderly had moderate health-promoting behaviour, and 14 (46.6%) had positive health-promoting behaviour, and the mean was 103.83. The mean difference was 5.36, the SD was 1.225, and the t value was 24.03, which is highly significant at the level of p<0.001. Hence, the protocol for behavioural interventions is effective in promoting health behaviour among the rural geriatric population related to primary prevention of respiratory pandemics.

Estimating the effect of non-pharmaceutical interventions on Covid-19 in Europe, Flaxman et al (2020) found that major non-pharmaceutical interventions and lockdowns were effective in reducing transmission. Continued intervention should be considered to keep the transmission of SARS-CoV-2 (respiratory pandemics) under control and provide decision-makers more time to prepare for dealing with the disease.

Implication of the study

Nursing practice: Behavioural interventions will be taught to elderly patients in the community to prevent the spread of respiratory infection during respiratory pandemics as they visit outpatient or inpatient departments for follow-up.

Nursing education: It can be introduced as a part of the curriculum in nursing education for nursing students.

Nursing research: Dissemination of findings through conferences and professional journals will make the application of research findings effective.

Recommendation

A similar study can be undertaken by applying an experimental design with a large sample to generalise the findings. The same study can be done as a comparative study among urban and rural elderly populations.

Conclusion

Based on the results of this research study, the protocol for behavioural interventions is effective in promoting health behaviour among the rural geriatric population related to primary prevention of respiratory pandemics.

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