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"A STUDY TO ASSESS THE EFFECTIVENESS OF NURSE LED HEALTH PROMOTION PROGRAMME ON PREVENTION AND MANAGEMENT OF OCCUPATIONAL HEALTH PROBLEMS AMONG WORKERS IN SELECTED RURAL AREAS SHIMLA HIMACHAL PRADESH"

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ABSTRACT

Introduction

India, a country of Agriculture, great supply source of food to the world, is the habitat of large number of the worker in rural areas. Workers naturally face occupational hazards that make their health condition vulnerable over the working life. The World Health Organization (WHO), the International Labor Organization (ILO), Ministry of Health and Family Welfare, Government of India (MOHFW) has started active advocacy for prevention and management of occupational health problems among the unorganized occupational sectors. Workers or Agricultural workers are on immense priority to ensure occupational safety in intersectional collaboration approach. Occupational Health Nursing is a factual need of the moment in perspective of public health concern with other health team members' panel. Aim of the present study was to assess the effectiveness of a Nurse Led Health Promotion Programmed on prevention and management of the occupational health problems among rural field workers, West Bengal.

Materials and Methods

A Time series non-equivalent control group (Quasi Experimental Research Design) was selected for the present study with quantitative approach at selected rural areas Shimla Himachal Pradesh among five hundred twelve rural field worker divided in one experimental and one control group chosen by multistage sampling technique. Data collection was done using semi structured interview schedule for the demographic variables, semi structured observation checklist by workers' health problems, Biophysiological measurement checklist and Likert scale, self report checklist practice of occupational safety measures and semi structured interview schedule for health service utilization among rural field workers. Data collection for both of the experimental and control groups were done at after first month, third month and sixth month of pretest. In the experimental group, intervention

of Nurse led Health promotion composed of Hot and cold compression for pain management, range of motion exercise, progressive muscle relaxation technique, foot massage and palm massage for skin, and health literacy for practice of occupational safety measures by Field worker was administered in pretest time point and recapitulation was done on third month following pretest.

Results

The results of the study revealed that nurse led health promotion programmed was mostly effective on improvement of the health problems, practice of occupational safety measures and health service utilization with a statistical significance $p<0.05$). The demographic variables were partially associated with the health problems, practice of occupational safety measures and health service utilization in pretest.

Conclusion

Hence, it was concluded that nurse led health promotion programmed on prevention and management of occupational health problems was able to improve health problems, practice of occupational safety measures and health service utilization among rural field workers.
Keywords: Occupational Health problem, Field worker, Nurse led Health Promotion Programmed, Occupation, Safety, and Health.

1. INTRODUCTION

A person, who performs the tasks and duties in terms of employment regulated by the self or any organization, is called job. Conceptually occupation is described as a set of jobs whose main tasks and duties are characterized by a high degree of similarity. A person's health and illness is reflected in association with an occupation through the jobs carried out at present, past and future **(ISCO-08, 2023).**

Skilled agricultural, forestry and fishery workers are included in the major group as occupational but laboureres are included in sub major group as per the International Standard of Occupations`. Based on the activities, there are numbers of workers associated with farming in layers of hierarchy Like farm manager, ranch manager, farmer, farm machinery operators, farm labourer, etc. **(International Labour Organisation, 2023).**

Any person attached to an occupation for necessary income to maintain livelihood often potentially encounters physical and psychosocial alteration as the stressor effect of a preferred occupation. Health of workers is a durable stock of capital that is invested in observed and unobserved ways. Erosion of worker's health over the ages is an exogenous and detrimental factor. Individual can prevent unhealthy effects of occupation through core promotion of self-screening and health seeking behavior, early management of ailments and protective approach towards perceived occupational hazards **(Yaqiang, 2020).**

Ergonomics is the scientific discipline that deals with understanding and the improvement of human interactions with products, equipment, environments and working systems. Drawing upon human biology, psychology, engineering and design, Ergonomics aims to develop and apply knowledge and techniques to optimize system performance with focused protection of the health, safety and well-being of individuals involved **(Taylor and Francis, 2023).**

2. BACKGROUND OF STUDY

Field workers & agriculture is the largest dynamic livelihood resource of India since ancient time. The term 'Agriculture' is generally used in a broad sense which includes all the activities directly related to cultivating, growing, harvesting and primary processing of agricultural products, animal and livestock breeding including aquaculture and agro forestry **(International Labour Organisation, 2020).**

An estimated 1.3 billion workers are engaged in field worked & agriculture production worldwide which represents half of the total world labour force. Almost 60% of them are in developing countries. A great majority of agricultural workers reside in Asia, which is the most densely populated region of the world, with more than 40% of the world's agricultural population concentrated in China and more than 20% in India. 100 to 150 million people are occupationally and professionally involved in Indian agriculture. The agriculture sector shows a slight decline in the percentage of workers at 45.5% **(Directorate General of Employment, 2022).**

In 2019, there was a global Agrarian crisis by quitting of ancestral profession though the advancement of Agricultural Science. The biggest problem for the workers was the lack of capital or cost for farming and meeting socio-domestic needs. Sudden surges in weather damage, crop wastage, debt, inflation, unlimited stressful hard work had increased the burden of farmer's suicide and fatal dysfunctions **(Vantika, 2020).**
Perspective social gradient of health and illness follow proportionate association i.e. poor socioeconomic conditions had led to poor health of workers. Challenging Occupational factors imply effect on workers' health over the life cycle **(World Health Organization, 2023).**
A constant vulnerability is faced by workers in consequence of the potential occupational hazards. Agriculture is a concerning occupation due to its nature of activities and conditions that is presented as embedded in triangle of occupational environment. In occupational environment, workers interact with a number of environmental conditions like open air works, seasons of summer, rainy season, winter season etc. machineries, equipment, tools and the upper level controllers of farming activities by land owners. Referring such obvious hazards International Labour Organisation (ILO) expressed interest in assuring policy and protocol for health safety and protection of workers through ILO Convention No.184, 2001. Agriculture and farming is the third hazardous occupation globally **(International Labor Organization, 2018).**

Mahjabin et al. (2020) conducted a cross sectional study among 360 workers and reported that workers from Sreepur Upazila were physically more active and nearly 40% used to perform extremely high level activity. Percentage of the workers who falls into vigorous and extremely high level activity was higher among medium sized workers although quite similarity was found across workers of different farm size. Proportion of younger workers achieving extremely high level of physical activity was higher than older workers. The agricultural workforce has been recognized as a vulnerable occupational group with an increased risk of adverse health outcomes from rising global temperatures as occupational health related mortality is estimated at 35 times higher risk in comparison to workers from other industries globally. The agricultural sector projects an account for 60% of the global working hours lost due to heat stress by the year 2030 and health problems would affect reduction of productivity **(Khayat et al., 2022).**
Farm noise from tools and machinery used in the farms expose workers to the temporary hearing loss and sometimes permanent hearing loss followed by repeated temporary incidents of hearing loss. **(Oregon state University, 2022).**
During farming, organic dust spreads from hay, grain, fuel chips, straw, and livestock. Organic dust includes molds, pollens, bacteria, pesticides, chemicals, feed and bedding particles, and animal particles including hair, feathers, and droppings. Not only in air, heavy concentrations of organic dust are common in grain dryers, livestock pens, and swine buildings or other enclosed spaces. Long term exposure to organic dust can lead to chest congestion, coughing with wheezing, sensitivity to dust, higher incidence of Rhinitis, Pharyngitis, Bronchitis, Pneumonia etc. As the effect of longtime exposure to organic dust, serious respiratory illnesses, such as Organic Dust Toxic Syndrome (ODTS) and Farmer's lung happen to the farm workers. Approximately one in ten people working in agriculture are exposed to an episode of ODTS during work life and repeated exposure can lead to complicated lung damage and death **(US Department of Labour, 2021).**
A cross sectional study was conducted to estimate the morbidity pattern among the selected vegetable and wheat workers of Perambalur district, Tamil Nadu. The result showed that participants had history of animal attack in past one year 12(2.8%), attack by cow/buffalo 10(83.3%), snake bite in farm 8(80%), 18(4.3%) participants had scorpion sting 18(4.3%) and 8(44.4%) participants were treated in health facility and 10(55.6%) underwent native treatment. So, in reflection of total agricultural population and agro diversity may indicate an alarming health status among occupational group of farmer nationally and globally as general health problems are accelerated by occupational hazards **(Rajsri, 2020).**

3. NEED FOR THE STUDY

Arphoron et al. (2020) conducted a cross-sectional survey of 419 Thai workers aged 40 years and over during March and April, 2021. In objective to assess the physical capacity, we used the Self-Check Risk Assessment of Falls and Other Accidents in the Workplace tool developed in Japan, consisting of five physical test components. Results revealed that 25.5% of participants had experienced occupational falls in past 12 months. For each of the five physical test components, there was no significant association between physical capacity and experience of occupational falls. The area under the receiver operating characteristic curve was less than 0.60 for each of the five physical test components. A similar trend was observed when the analysis was limited to participants aged 50 years and over.

Makita, Ikegami and Matsumoto (2021) evaluated or proposed innovative solutions to distinctive risks faced by livestock, agricultural workers and consumers in the developing countries. Such as Index-Based Livestock Insurance (IBLI) to counter climate change risks, mobile money to livelihood risks, and the participatory risk analysis to food contamination this review then identified and discussed the areas of further research needed to improve the livelihoods of livestock workers, the study concluded by calling for international collaboration.

Fotre et al. (2023) conducted a cross sectional study to estimate the differences in self-reported health outcomes, complete blood counts, cholinesterase activity, and serum/urine calcium and keratinize concentrations at baseline between the workers and comparison workers, and after pesticide spraying in workers only. Results revealed that none of the workers wore standardized personal protective equipment (PPE) for the concentrated chemicals they were working with. When it came to reporting confidence in the ability to handle personal problems, only 43% of workers reported feeling confident, which reflects higher stress levels in comparison to 78% of comparison workers ($p<0.028$). Workers also had significantly lower monocot counts ($p<0.01$), serum calcium ($p <0.01$), red blood count ($p<0.01$), white blood cell count ($p<0.04$), and relative to comparison workers. After adjusting for Body Mass Index (BMI), age, and smoking, concentrations were associated with a decrease in activity (beta = O0.327, $p<0.016$). These changes being potentially linked to occupational pesticide exposures, improving the PPE use was a likely route for preventive intervention in this population. The science and practice of occupational health safety and promotion involves several disciplines, such as occupational medicine, nursing, ergonomics, psychology, hygiene, safety and public health. The traditional occupational health services used to indicate that if anyone is sick with sign and symptoms of diseases with a probable vision to treat the condition.

Personal risk factors, socio economic risk factors also horizontally and vertically need to be included for enforcement of well being in disciplinary approach where all stakeholders may perform with autonomy and professional responsibility. Value added health promotional measures are more needed to be implemented than treatment after health problems at workplace. All the workers are highly prone to environmental vulnerability, unorganized authority and occupational hazards. So the present study aims at revealing the effectiveness of due interventions of Nurse led health promotion measures

4. OBJECTIVE

1. To identify the selected occupational health problems, practice of occupational safety measures and health service utilization in pretest among the field workers in selected rural areas in the experimental and control groups.
2. To evaluate the effectiveness of nurse led health Promotion Programmed on the selected occupational health problems, the practice of occupational safety measures and health service utilization among field workers in the experimental group at selected rural areas in posttest I, posttest II and posttest III.
3. To compare the effectiveness of Nurse led health promotion programmed on the selected occupational health problems, the practice of occupational safety measures and health service utilization among field workers between the experimental group and control group at selected rural areas within posttest I, posttest II and posttest III.

4. To find out the association between the pretest score of occupational health problems, the practice of occupational safety measures and health service utilization among the field workers in both the experimental and control groups with selected demographic variables.

5. Hypotheses of the Study

H1: There is a significant difference of occupational health problems, practice of occupational safety measures and health service utilization among the field workers of selected rural areas in the experimental group within pretest, posttest I, posttest II and posttest III after the intervention.

H2: There is a significant difference of occupational health problems, the practice of occupational safety measures and health service utilization between the experimental group and control group at selected rural areas after the intervention.

H3: There is a significant association between the pretest score of parameters (occupational health problems, practice of safety measures and health service utilization) and selected demographic variables of the experimental and control groups.

6. Assumptions

1. Every occupation is prone to affect health of the persons engaged to that occupation.
2. Occupational health problems may be perceived as normal and usual by field workers.
3. Occupational health problems may act as worsening burden for general health of field workers.
4. Field workers may have poor health seeking behavior to prevent occupational diseases.
5. Experience of occupational health problems may be individualistic to individual field workers.
6. Nurse led health promotion program has potential to prevent and manage occupational health problems faced by field workers.

7. Operational Definitions

Occupational Health Problems

In the present research study, occupational health problems included physical health problems. Problems of musculoskeletal system (posture, discomfort and pain), skin problem (skin condition, dermatitis of hand and skin of feet), some co morbidities (parameters of respiratory system – respiratory rate, pattern, lung sound, cardiac system – pulse rate, blood pressure, blood hemoglobin for anemia, blood glucose level for diabetes mellitus, body mass index) as measured bio physiological parameters and some experienced health problems like headache, tiredness, sleep deprivation and anxiety as measured by liker scale, occupational safety measures related problems (during use of electricity for machineries, using personal protective clothing and equipments, first aids in emergency situation, following personal health routines) by self report check list.

Field Workers

In this study, male field workers, aged 30 to 59 years and cultivating in fields at least since last 5 years themselves. They are predominantly paddy field workers.

Effectiveness

Effectiveness refers to the extent of significant changes in occupational health problems, the practice of occupational safety measures, health service utilization. The effectiveness is determined by statistically significant difference between pretest and posttest evaluation by prepared data collection tools.

Assess

In the present study, assess refers to the process to identify the measurement of parameters like demographic information, physical health problems, safety measures used and health service utilization by prepared data collection tools.

Nurse Led Health Promotion Programmed

Nurse led health promotion programmed includes the following components such as hot and cold compression, range of motion exercise, progressive muscle relaxation techniques, oil massage for sole, palms for skin, literacy on occupational safety measures and need for regular health check up of field workers. The duration was 35 – 40 minutes.

Prevention and Management of Occupational Health Problems

In the present research study, prevention of occupational health problems refers to minimization of risks consequence of various occupational hazards (overwork, exposure to sun, pesticides etc.). The management

refers to the nursing actions that alleviate the occupational health problems by reducing discomfort, improvement of skin condition, ensuring workplace safety practices and promotion of health service utilization by the field workers having health problems.

8. Delimitations

This study is delimited to:

Field worker of only in selected rural areas Shimla Himachal Pradesh

The data collection period was one year.

Conceptual Framework Based on Conceptual Model for the Occupational Health Nurse Specialist Prepared by Ms. Janice Dees (1984)

A conceptual framework is a synthetization of interrelated components and variables for problem solving and it is the final lens used for viewing the deductive resolution of an identified issue in the research. Scientific and logical processes, procedures, functional approach, models, or theory may be used for problem resolution in a summative frame of concepts. In the present study, conceptual model for the occupational health nurse specialist prepared by **Janice Dees (1984)** based on Orem's self care theory was adopted as the conceptual framework.

9. REVIEW OF LITERETURE

A Health Blog by Better Health Channel (2022) on farm safety discussed that manual farming is highly involved in heavy load carrying, lifting, bending, lifting etc. due to manual handling exposure to dust, vermin, insects, waste water is quite frequent so infections, lung diseases are noticeably prevalent. Repetitive task and body movements lead to numbers of musculoskeletal injuries. Postural alteration leads to soft tissue injuries, sores etc.

Agricultural Households and Land and Holdings of Households in Rural India Reports (2021) that an average farmer household in Meghalaya earned about Rs 29,348 per month whereas a Punjab farmer's household earned about Rs 26,701 not Punjab workers, but those from the northeastern state of Meghalaya are the richest in India. In state wise, farmer's monthly income of West Bengal is Rs. 6762/-.

Department of Industrial Relations Labor Enforcement Task Force (2020) insists on agricultural employees to set at least minimum wage for all hours worked. One must pay whichever of those rates is the highest. Workers must receive a paid 10 minutes rest break for every 4 hours of work. Unpaid meal breaks of at least 30 minutes if they work more than 5 hours. An employee can agree to skip meal breaks if the workday is 6 hours or less. Skipping meal leads to n umbers of occupational distresses.

The Occupational Safety, Health and Working Conditions Code, (2020) by Ministry of Labour and Employment suggests agriculture workers are unorganized workers who don't have any written contract of time schedule as per Economic Survey (2018-19) which estimates that almost 93% of the total workforce is informal.

Rajsri (2020) conducted a cross sectional community based study on assessment of occupational health problems among workers inferred that there was significant difference in gender between morbidity is found to be insignificant with a p value of 0.098. Among the people with morbidity,

107(86.29%) participants were married, 14(11.29%) widower and 3(2.42%) divorced. Among the people suffering from disease, all of them 124(100%) were Hindu. The difference between educational status of participants and morbidity were statistically significant with p value 0.001. The difference between land ownership and morbidity is found to be insignificant with a

p value of 0.382.

Siwakoti (2020) carried out a cross sectional study in rural parts of South District of Sikkim during July to August 2019 among sixty workers. By caste, 28.33% workers were general, 21.67% belongs to schedule caste and 20% others were in backward category totally, 53.33% of workers were in high socio-economic condition category, 46.67% were in the medium socio-economic condition category.

Tiwari and Bureau (2020) narrated that in competition of more food resourcing, use of farm machinery is too much appreciated of late. Global advancement of technology has helped to improve use of affordable machineries like tractor, seed drill etc. The overall farm mechanization in India has been lower at 40-45 per cent compared to other countries such as USA (95%), Brazil (75%) and China (57%).

The HLRN Team (2020) conducted primary research on the housing status of migrant workers via telephonic interviews administered to a sample size of 248 people, from 8 to 25 August 2020. A second round of questions was administered on 105 people from the first sample, from 7 to 29 September 2020, in order to better understand issues of access to housing and land in villages of the interviewees. The sample consisted of migrant workers who had returned to their villages from the National Capital Territory of Delhi during the lockdown (between 25 March and 31 May 2020) as well as a few migrants residing in Delhi (4 per cent of the participants) who could not return home, for various reasons. 12.5% used to do agriculture in own land. Only 17.8% of participants had own house.

Fávero et al. (2020) conducted a cross sectional study to describe the prevalence of heavy drinking, high risk of alcohol consumption and associated factors among 2,469 tobacco workers over 18 years old in 2011. High risk off alcohol consumption was considered the intake of three or more standard doses per day for men or two or more for women. Heavy drinking was considered the intake of four or more standard doses per day for men and three or more for women. Results depicted that the prevalence of high risk and heavy drinking was of 4.7% and 1.09% among women and 30.8% and 4.8% among men respectively. The factors associated with high risk of drinking for men and women were the percentage of income tobacco accounted for (PR 1.3 and 0.4), being an employee (PR 1.3 and 3.1), and use of pesticides (PR 1.5 and 2.1), respectively. Heavy drinking among men was associated with losing the crop (PR 1.6), attending religious activities (PR 0.3), and hours working in agriculture (PR 0.6). Occupational factors were associated with high-risk alcohol consumption among men. The associated factors vary according to the pattern of consumption assessed.

Bahsi and Kendi (2019) conducted a case study on workers' approaches on occupational health and safety at the city of Osmaniye and Konya, Turkey. The result revealed that there were significant difference between age (_2 = 28.964, df= 4) and education status regarding occupational health and safety considerations, and knowledge of occupational health and safety obligations of workers. Young people were more knowledge of the occupational health and safety of workers and are more positive about occupational health and safety practices. As the level of education increases, positive thoughts on occupational health and safety are increasing and obligations were well-known.

International Labour Organisation (2019) mentioned that stress, excessively long working hours and disease, contribute to the deaths of nearly 2.8 million workers every year, while an additional 374 million people get injured or fall ill because of jobs.

Deekor (2019) conducted a descriptive survey research study to examine the challenges of participation of rural workers in community development using proportionate sampling technique among 286 respondents from the total population of 954 at rural workers' cooperative societies from the two selected LGAs in Rivers State. An instrument tagged "Questionnaire on Challenges of Participation of Rural Workers in Community Development (QCPRFCD) with r = 0.73 was used for data collection. Results showed that Women rural workers' participation in some community activities is limited due to socio-cultural practices, poor flow of information, timing and duration of community development activities, type of occupation of the participants, cultural and social norms are the challenges faced by rural workers in community development participation. So the study recommended that there should be proper and adequate flow of information needed by rural workers to participate in community development.

Tiwari et al. (2019) narrated that seeds and fertilizers by 15–20%, labour requirement and operational time by 20–30%, increases cropping intensity by 5–20% and crop productivity by 10–15%. Farm power availability from tractors has grown from 0.007 kW/ha in 1960–61 to 1.03 kW/ha in 2013–14 and it is also estimated to reach 3.74 kW/ha by 2032–33. As per the World Bank estimates, half of the total Indian population would be in urban areas by 2050. It is estimated that the percentage of farm workers of total work force would reduce to 49.9% in 2033 and 25.7% in 2050 from 54.6% in 2011. The share of agricultural workers in total power availability in 1960-61 was about 16.3%, which is going to reduce to 2.3% in 2032–33. The overall level of

farm mechanization in the country is only 40–45% and 90% of the total farm power is contributed by mechanical and electrical power sources. To assure timeliness and quality in various field operations, the average farm power availability needs to be increased to a minimum of 2.5 kW/ha by 2020.

Ministry of Agriculture and Workers Welfare, Government of India (2019) targeted to double the income of workers by 2022, by realigning its interventions from production centric approach to workers' income-centric initiatives, with focus on better and new technology based solutions.

Karagounis and Cohen (2023) critically reviewed the current literature on occupational hand dermatitis. Occupational dermatitis continues to have a high prevalence among workers although the overall incidence is slowly decreasing. Irritant contact dermatitis due to wet work exposure is the most common cause of occupational hand dermatitis. Farm workers, Healthcare workers, hairdressers, and metal workers are at particularly high risk for this disease. While some prevention programs have been ineffective in mitigating occupational hand dermatitis, other more resource-intensive initiatives may have benefit.

Prihartono et al. (2022) conducted a cross sectional survey in high and low heat stress agriculture areas of West Java, Indonesia among 354 male workers aged 25 to 73 years. Blood pressure was measured and occupational factors including farming methods, heat stress and pesticide use, and personal factors including obesity, food intake, smoking status, alcohol consumption were assessed. Totally, 46% workers experienced hypertension. Farming in a location with higher heat stress (WBGT) was significantly associated with increased risk of hypertension (adjusted prevalence ratio (aPR) 1.41, 95% confidence interval (CI) 1.01, 1.95). Workers who used pesticide sprayers had an increased risk of hypertension (aPR 1.90, 95% CI 0.93, 3.87). No personal/ lifestyle characteristics were significantly associated with hypertension though ever smoking and ever consuming alcohol had an increased prevalence of hypertension.

Desai et al. (2022) reviewed the diverse risk factors associated specifically with male workers over the age of 45 in the United States from 12 articles and highlighted important social and non-social risk factors that of health that negatively impacted the workers. These were followed up by offering solutions to provide a holistic approach, including clinical and community-based interventions. Male workers more than 45 years of age were at an increased risk of being diagnosed with heart disease compared to non-workers in the same demographic. Stress management should be incorporated into the treatment plan. A multifaceted approach targeting clinical and community concerns is recommended.

Chandra, Rathore and Mallick (2021) narrated that the workers aged between 24 and 50 years, who were using the traditional tool (hoe) for weeding operations were selected for the ergonomic study. Rapid Upper Limb Assessment (RULA) was used for the analysis of working postures of the agricultural workers in a virtual environment with one of widely used hand tool (hoe). The assessment results obtained from RULA suggests that the postures of the agricultural workers while using existing hoe is extremely harmful and there is an urgent need to be addressed in detail about
these postures and tool.

10. METHODOLOGY

Research methodology of the study indicates general pattern, research approach and research design, the setting, the sampling technique and variables. It indicates the general pattern for organizing the procedure for empirical study together with the method of obtaining valid reliable data for problem under investigation **(Sreekumar, 2023).**

This chapter deals with the methods adopted for the study and includes the description of the research approach, research design, setting of the study, variables, population, sample size, sampling technique, criteria for sampling selection, description of the tool, pilot study, method of data collection and plan for data analysis. The present study was designed to evaluate the effect of Nurse Led Health Promotion programmed on prevention and management of occupational health problems among in selected rural areas Shimla Himachal Pradesh.

RESEARCH APPROACH

Research approach is an umbrella that covers basic procedures for conducting research **(Sharma, 2022)**. The quantitative approach was adopted for the study to assess the effectiveness of nurse led health promotion programmed on prevention and management of occupational health problems among field workers.

Quantitative research approach is an investigation of phenomena that lend themselves to precise measurement and quantification often involving a rigorous and controlled design **(Polit, 2020).**

RESEARCH DESIGN

A researcher's overall plan for obtaining answers to the research questions or for testing the research hypothesis is referred to as the research design **(Polit and Hungler, 2020).** In view of the nature of the problem and to accomplish the objectives of the study, the researcher selected time series non-equivalent control group (Quasi Experimental Research Design) for this study.

RESEARCH SETTING

Setting is the physical location and condition in which the data collection takes place **(Polit and Hungler, 2020)**.

The main study was conducted in selected rural areas Shimla Himachal Pradesh. The sample for the experimental group was selected from eight blocks in district Shimla. The sample for the control group was selected from eight blocks belonging to Shimla.

Population

Population is defined as the aggregate or totality of those conforming to a set of specifications **(Polit and Hungler, 2020)**. In the present study, the population consists of all rural field workers.

Target Population

The target population is the field workers of selected rural areas Shimla Himachal Pradesh..

Accessible Population

The accessible population is field workers of selected rural areas Shimla Himachal Pradesh.

Sample

A sample is a subset of the population that is selected for a particular study, and the members of a sample are the subjects or participants **(Nancy and Burns, 2014).** In this study the sample for the present study was field workers residing at selected sixteen blocks as per setting who fulfilled Inclusion criteria.

Criteria for Sample Selection

Inclusion Criteria

Male field workers who were willing to participate in the study

The field workers aged between 30 to 59 years.

The workers performing field working for at least five years.

The workers who do extensively field workers, not involved in any other secondary occupation.

The workers who do predominantly with involvement in the activities like land preparation process, soaking and scattering of seeds, application of fertilizers, mixing and spraying pesticides, sowing of

Fertilizers and harvesting

The workers who speak and understand Hindi and local language

Exclusion Criteria

The workers who were deaf and dumb

The workers who were physically handicapped

The workers who were not performing any activities in field personally

The workers who were not willing to give consent to participate

The workers who were not farming at present due to COVID-19

Sampling Technique

A multistage sampling technique was used. After getting prior administrative permission from CMOH, contacted to senior PHN of the block purposively an area was identified where predominantly people are dependent on field workers. With contact of Community Health Officer of that areas' sub centre, a list of sixty five field workers with contact number (who fulfill all inclusion criteria) were prepared with the help of local ASHA workers' population register. By using a random number generator random numbers were selected from

each of the sixteen blocks with the ratio of half of the listed subjects. Then, according to the list, the subjects were considered as sample.

Sample Size

Sample size was estimated using the power analysis formula. Sample is the subset of the units that represents the population. The sample size consists of 512 (Experimental group = 256 and Control group = 256).

Variables

Variables are the attributes of objects, events, things and beings, which can be measured **(D'Amato, 1970).**

Independent Variable

An independent variable is that factor manipulated or selected by the experimenter in the attempt to ascertain its relationship to an observed phenomenon **(Egyankosh, 2018).**

The Independent variable for this research study is Nurse Led Health promotion Programmed on the prevention and management of occupational health problems of rural field workers.

Dependent Variables

A dependent variable is the factor that appears, disappears, or varies as the experimenter introduces, removes or varies the independent variable **(Townsend, 1953).**

The dependent variable of this research study was occupational health problems, practice of occupational safety measures and health service utilization of rural field workers.

Development and Description of the Data Collection Instrument

In the present study, the researcher prepared tool to assess the variables such as occupational health problems, practice of occupational safety measures and health service utilization of rural field workers based on the objectives of this study after an extensive review of literature and with the guidance of experts.

The tool used for the study consists of four parts:

Part– A: Structured interview schedule on demographic information

Part– B: Tool for identification of occupational health problems among field workers.

Section– I: Semi structured observation checklist to identify field workers health problems

Section– II: Biophysiological measurement checklist to identify field workers occupational health problems

Section – III: Likert scale on experienced health problems by field workers.

Part – C: Self report checklist on the practice of occupational safety measures by field workers.

Part – D: Semi structured interview schedule on health service utilization among field workers.

Data Collection Procedure

At prior researcher prepared an activity plan. ASHA helped in preparing a list of 65 workers and by using random number generation software sample of 32 workers were selected as the sample. The researcher collected the data form community.

11. Plan for Data Analysis

The data were analyzed by using SPSS version 27 package. The following statistical tests were done to find out the result of study. The socio demographic, personal health related data were analyzed using frequency, percentage and chi square test. Wilcox on Signed Rank test was used to compare pair wise score of successive time points at pretest, posttest I, Posttest II and posttest III for the dependent variables Occupational health problems, common perceived health problems, practice of safety measures and health service utilization for both the experimental and control group. Mann Whitney 'U' test was used to compare the scores between Experimental group and Control group at pretest, posttest I, Posttest II and posttest III for the dependent variables occupational health problems, common perceived health problems, practice of safety measures and health service utilization. Chi-square test was used to associate the demographic variables occupational health problems, common perceived health problems, practice of safety measures and health service utilization.

12. Major Findings of the Study

In the present study, maximum field workers in the experimental group belonged to belonged to age 51 to 59 years 106(41.41 %) and in the control group belonged to the younger age group of 30 to 40 years 132(51.56 %).

With regard to the caste, most of the field workers belonged to the agricultural caste in both groups but the distribution was more frequent in the control group 185(72.3%) than the experimental group 142(55.5%).
In relation to the occupation, most of the field workers were found independent cultivators in both groups but the distribution was more frequent in the control group 225(87.9%) than the experimental group 182(71.1%).
Regarding the educational status, 95(37.1%) field workers have completed primary schooling in experimental group whereas in the control group 102 (39.8%) workers obtained high school degree.
With regard to housing, kacha house dwellers were found more in number in control group 76(29.6%) than the experimental group 63 (24.6 1%).
The most of the field workers belonged to small family with two members i.e. respectively in experimental group and control group were 180 (70.3%) and 171(66.8%).
At most 171 (66.8%) and 207 (80.9%) field workers belonged to the middle socioeconomic class both in the experimental and control groups respectively.

13. Conclusion

India is a large Agrarian country though till field workers are the unorganized occupational group. Their vulnerabilities from occupation are uncontrollable but this research study intended to evaluate the effectiveness of the Nurse led health promotion programmed on prevention and management of health problems, occupational safety erasures' practice and health service utilization. Nurse led health promotion programmed is composed of hot and cold application on joints, range of motion exercise, progressive muscle relaxation technique, hand and foot massage, literacy on occupational safety measures' practice by field workers. Nurse led health promotion programmed was administered to the rural field workers in the experimental group. The findings revealed that the Nurse led health promotion programmed was highly effective for the rural field workers for the improvement of health problems, occupational safety measures' practice and health service utilization. The betterment in their variables were higher in posttest 3 compared to pretest and posttest 3 which indicates practice of Nurse led health promotion programmed yielded good results. Nurse led Health promotion programmed on prevention and management of the occupational health problems was highly effective, time saving, cost effective, feasible intervention which can be used for all field workers.

14. Nursing Implications

Nursing Service

The nurses are considered as the key person who can initiate supportive interventions to improve the health outcomes through individual and family participation.
Preparation of some health safety courses in local language may address the disease and self-care related concerns of a field farmer.
Periodic meeting schedules may enable field workers to perform occupational safety measures within the limit of their capacity.
In many developed countries Nurse Led occupational health programmed is gaining momentum in primary health care.
In occupational hygiene and primitive interventions, roles and responsibilities of Nurses need to be clarified with the focus on primary health care among all countries.
In a developing country like India, the nurses can actively involved in organizing supportive educative interventions for various occupational groups.
The Nurse led health promotion programmed s can be utilized as a reference material by health care professionals in the primary health care settings.
The occupational groups can be empowered for self assessment, referral and early diagnosis through guidance of pictorial cards specific at occupational settings.

Nursing Education

Nursing education is the corner of nursing practice. So, the nursing students should be prepared to provide need-based education in the primary health care practice by utilizing various teaching strategies.
The nurse educator should motivate post graduate and undergraduate student nurses to design supportive educational programmed as well as behavioral interventions for promotion and adaptation of prevention and management of occupational health problems faced by farmer and/or any occupational group.

The nurse educators can collaborate with the nursing service department in organizing and implementing the nurse led health promotion programmed for workers and / or any occupational group.
The nursing curricula should emphasize on development of nurse led health promotion programmed to promote with such conditions and can be kept as a course requirement of occupational health nursing.
The nursing faculty should plan practical hours by incorporating projects to encourage students to develop creative interventional packages.

Nursing Administration

Nurse led health promotion programmed s require time and commitment from the nurses working in occupational health. All services need support from the administrative and professional authority.
The nurse administrators can discuss with other health team members regarding the significance of such interventions and incorporate it in daily practice to provide quality care and primitive interventions for occupational groups.
Trained nursing professionals can conduct regular in-service training for its members to orient them regarding the interventions.
The nurse leaders should create a venue and spare nursing members for the same by convincing the responsible authority. The practicing nurses should be trained in developing and implementing comprehensive interventions for better health outcome and also for cost effectiveness by preventing load of secondary and tertiary illnesses among occupational groups.
Measures can be taken to propagate the Nurse led health promotion programmed s in mass media for public awareness.

Nursing Research

Nursing research provides confident answers to important health questions, which can reform guidelines for the occupational safety, enabling evidence based and quality nursing care in occupational health care front.
Extensive nursing research in exploring the effect of Nurse led health promotion programmed are needed, so that numbers of health problems among workers can be prevented with specific attention.
The present study examined only the short-term effects of the intervention in span of six months period. A longitudinal study is needed to measure the effect of Nurse led health promotion programmed s across time of longer duration than six months.
This study will be a motivation and reference for researchers who are planning to undertake more researches in this field on a large scale.
The findings of research can be disseminated by means of conferences, presentation, and seminar, workshop and journal publication so that the research evidences can be applied in various health settings and across different occupational population.

15. Recommendations

Based on study methodology and obtained findings, the following recommendations are made for future research projects -
A similar study can be conducted on large scale at different settings of the workplace among the occupational personnel.
A similar study can be replicated on a large sample using enumerative sampling technique.
Single setting can be selected instead of multiple setting.
A qualitative study on the real-life experience of field workers with occupational health problems can be done.
Primary health care centers can concentrate on targeted occupational groups for prevention and management of the occupational health problems.
Health bulletins on management of occupational health problems can be prepared and pasted on the notice board available in agricultural land areas.
A comparative study could be done to test the effectiveness between different intervention strategies for prevention and management of occupational health problems among field workers.
Same study can be done among other categories of workers except field workers.
A longitudinal study containing more frequency of observation can be done to assess effectiveness of Nurse led health promotion programmed on occupational health problems among field workers.

Health Literacy and awareness sessions can be organized to improve knowledge, practice and attitude about prevention and management of occupational health problems among the employees at various workplace settings.

Family members of persons engaged in vulnerable professions like Agriculture can be tested for the effectiveness of Nurse led health promotion programmed on prevention and management of occupational health problems.

16. Strength of the Study

This study identified and addressed specific occupational health challenges faced by rural field workers in West Bengal.

A community-centered nurse-led program tailored to local health needs was implemented.

The study emphasizes proactive health promotion to prevent occupational health issues.

The nurse led health promotion programmed empowers workers through education and skills-building in self health management.

It provides evidence for policy makers on the effectiveness of such allied programs in rural settings.

17. Limitations of the Study

The study was conducted on a time bound visit basis, so close observation of the subjects was not possible.

Performance checklist relied on practice frequency and pattern and so the investigator had to assume that they were truthful.

The identification of health problems would have been more objective if blood chemicals could be checked to rule out effect of hazardous exposures but it was not routinely available at nearest health care settings.

The effects of seasons had to be undermined due to short duration of the data collection.

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