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INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/20468

DOI URL: <http://dx.doi.org/10.21474/IJAR01/20468>



RESEARCH ARTICLE

“ASSESSING THE EFFECT OF INTERVENTION ON KNOWLEDGE AND PRACTICES OF HEALTHCARE WORKERS ON CPHC GUIDELINES AMONG SELECTED AYUSHMAN AROGYA MANDIRS IN SHAHDOL AND SATNA DISTRICTS OF MADHYA PRADESH: A COMPARATIVE CROSS-SECTIONAL STUDY”

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Manuscript Info

Manuscript History

Received: 19 December 2024

Final Accepted: 22 January 2025

Published: February 2025

Abstract

Background: In 2018, Government of India launched the Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana (AB-PMJAY), incorporating the recommendations given by National Health Policy 2017. One of the two components of this programme was the Ayushman Bharat Health and Wellness Centre (AB-HWC), which is now renamed as Ayushman Arogya Mandir (AAM) catering to the goals of National Health Protection Scheme and Universal Health Coverage. (Abonmai et al., 2022). To support this effort, Collectives for Integrated Livelihood Initiatives (CInI), an associate organisation of TATA Trusts, initiated an intervention in identified AAMs of Madhya Pradesh, in collaboration with National Health Mission (M.P).

Objectives: This study aims to assess the knowledge and practices of the healthcare workers on Comprehensive Primary Health Care service packages among intervention as well as non- intervention AAMs. It also aims to assess the differences between the knowledge and practices of healthcare workers among both types of AAMs.

Methods: The study was conducted through a quantitative approach - a comparative cross- sectional survey and a structured questionnaire were used to assess the knowledge and practice levels. 40 AAMs were chosen for the study, 20 each from Satna and Shahdol districts. The participants were Community Health Officer (CHOs) and Auxiliary Nurse Midwife (ANMs) of these centres. Data was collected through a digitized questionnaire, followed by coding and analyzed using SPSS and Excel.

Results: A significant difference in the scores of two types of AAMs were observed. Centres which were associated with the intervention clearly outperformed the non-intervention centres.

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Introduction:-

The Ayushman Bharat scheme, launched in 2018 by the Govt of India, is designed as a comprehensive health initiative to address the lack of affordable healthcare for a larger section of population, especially vulnerable and economically weaker communities. The scheme aims to provide both preventive and curative healthcare services, addressing the major issue in India - limited access to affordable medical care. Rising healthcare costs and the burden

of out-of-pocket expenditure on low-income families highlighted the need for a system that can be more affordable and more accessible. Ayushman Bharat seeks to close this gap by delivering healthcare through its dual component; Health and Wellness Centres and Pradhan Mantri Jan Arogya yojana (PMJAY), an insurance scheme which offers financial protection for the secondary and tertiary healthcare services.

Within the framework of Ayushman Bharat, the comprehensive primary health care (CPHC) is also integrated based on the National Health Policy, 2017. CPHC was developed to build a robust primary healthcare system in India, focusing on preventing diseases, promoting health and providing timely treatment. By addressing health issues at primary level, CPHC aims to reduce the pressure on higher levels of care, such as secondary and tertiary hospitals. This system is critical in ensuring that health services reach rural, urban and underserved communities, including tribal population, who often face barriers in accessing healthcare.

The need for CPHC became evident as gaps in health outcomes between rural and urban areas grew and it was clear that enhancing primary care services will have a positive impact on the overall health outcomes. CPHC is also essential to enhance the accessibility of healthcare by delivering the service closer to the communities. Along with the accessibility of CPHC services, quality of those services is also an important factor. National Quality Assurance Standards (NQAS) have been developed to ensure provision of quality care at all the levels. It assesses the healthcare facility and the quality of services provided by those facilities based on 8 areas of concern and if scored above 70% in all these areas along with other parameters, the facility becomes NQAS certified.

Collectives for Integrated Livelihood Initiatives (CInI), is deeply involved in improving the lives of rural and tribal communities in India's central tribal belt. CInI's mission is to uplift these communities by improving their livelihood, education and health, with a special focus on marginalized tribal population. The major focus areas of CInI are livelihood, renewable energy, water, sanitation and hygiene, education, sports and healthcare. In alignment with its broader goals, CInI in collaboration with National Health Mission, Madhya Pradesh has implemented a project named "Madhya Pradesh Health Systems Strengthening project" (MPHSSP) to address the lack of accessible healthcare for tribal communities in Madhya Pradesh.

The project focuses on bridging the gap in 'Healthcare for all' in Madhya Pradesh and making quality healthcare accessible through a Health Systems Strengthening (HSS) initiative involving Ayushman Arogya Mandirs (AAMs) and Urban Primary Health Centres (UPHCs). Goal of the project is to 'Improve primary healthcare in tribal communities through capacity building of health care workers and sustainable technology integration, led by dedicated Community Healthcare Workers.

The project's three key objectives are:

1. Operationalise 500 AAMs and 23 UPHCs across 23 selected districts, through technology driven Supportive Supervision Visits.
2. Systematic capacity building of healthcare workers in collaboration with Knowledge Partners.
3. Facilitate comprehensive continuum of care through digital technology

To evaluate the effectiveness of this intervention, healthcare centres involved in the project were assessed based on five key elements to determine whether they could be classified as "Model Centres." These elements include the delivery of seven essential health services, adherence to Standard Operating Procedures (SOPs), the use of information technology to strengthen healthcare services, periodic self-assessments, and monitoring of key indicators to track outcomes.

The study was conducted in two tribal dominated districts of Madhya Pradesh - Satna and Shahdol, where all the selected centres received the intervention and were declared as 'model centers. The study was conducted to assess how well these interventions met the healthcare needs of tribal communities and to identify areas where further improvements were necessary as well as its replicability. The study also aimed to assess the understanding, perceptions and practices of healthcare workers regarding the services. By identifying gaps and areas for improvement, the study provided valuable insights to refine training, enhance service quality and align healthcare practices with the standards outlined under CPHC. This would help ensure that model centers serve as exemplary benchmarks for comprehensive quality healthcare.

Research question:

What is the effect of intervention on knowledge and practices of healthcare workers regarding Comprehensive primary health care service packages in intervention AAMs as compared to non-intervention AAMs?

Objective:-

1. To assess the knowledge and practices of CHOs and ANMs on defined parameters.
2. To compare the knowledge and practice level of CHOs and ANMs of selected intervention centres to those of selected non-intervention centres.

Methodology:-**Study design:**

It is a comparative cross-sectional assessment of two types of AAMs, intervention and non-intervention. Here, intervention AAMs are those centers which were demonstrated as model centres by CInI, where handholding activities were conducted. Non- intervention AAMs are those which are not associated under the CInI interventions.

Study area:

Selected Ayushman Arogya Mandirs of Satna and Shahdol. Population: CHOs and ANMs of Ayushman Arogya Mandir.

Sampling:

Sampling was done through convenience sampling considering the geography and time frame.

Sample size:

1 CHO and 1 ANM each from 20 selected intervention centres and 20 Selected Non-intervention centres. Total sample size is 80.

Inclusion criteria:

1. CHOs and ANMs who were willing to participate
2. CHOs and ANMs who attended the supportive handholding trainings by CInI

Data collection method and tool: Interview through a structured questionnaire using Microsoft forms. The questionnaire comprised of 60 questions: 10 for general information, 31 to assess knowledge, 10 based on observation and 9 to assess practice. The data collection tool was developed collaboratively with guidance from CInI's program management unit, which brought extensive expertise in CPHC and NQAS guidelines. After thorough discussions and careful deliberations, the tool was successfully validated through pilot field testing. Verbal consent was taken from all the participants who volunteered for the study.

Scoring criteria:

1. mark: for incorrect answer or less than 50% correct in case of multiple correct answers.
2. mark: for at least 50% correct in case of multiple correct answers.
3. marks: for correct answers or at least 90% correct in case of multiple correct answers.

Results:-

This section presents the analysis of data collected to compare various parameters among healthcare workers of intervention and non-intervention Ayushman Arogya Mandir.

Age	No of respondents	Experience (yrs)	No of respondents	Gender	No of respondents
21-30 yrs	32	0-10 yrs	51	Male	4
31-40 yrs	25	10-20 yrs	19	Female	76
41-50 yrs	13	>20 yrs	10		
>50 yrs	10				

Table 1:- General information breakdown.

This shows that majority of the health care workers belong to age group of 21- 40 yrs and there are significantly less respondents of older age group. The above table shows that, majority of health care workers have experience of less than 10 yrs, only one fourth of the respondents hold a total experience of 10-20 years. We can also see that 95% of the respondents are female and only 5% of the total respondents are male.

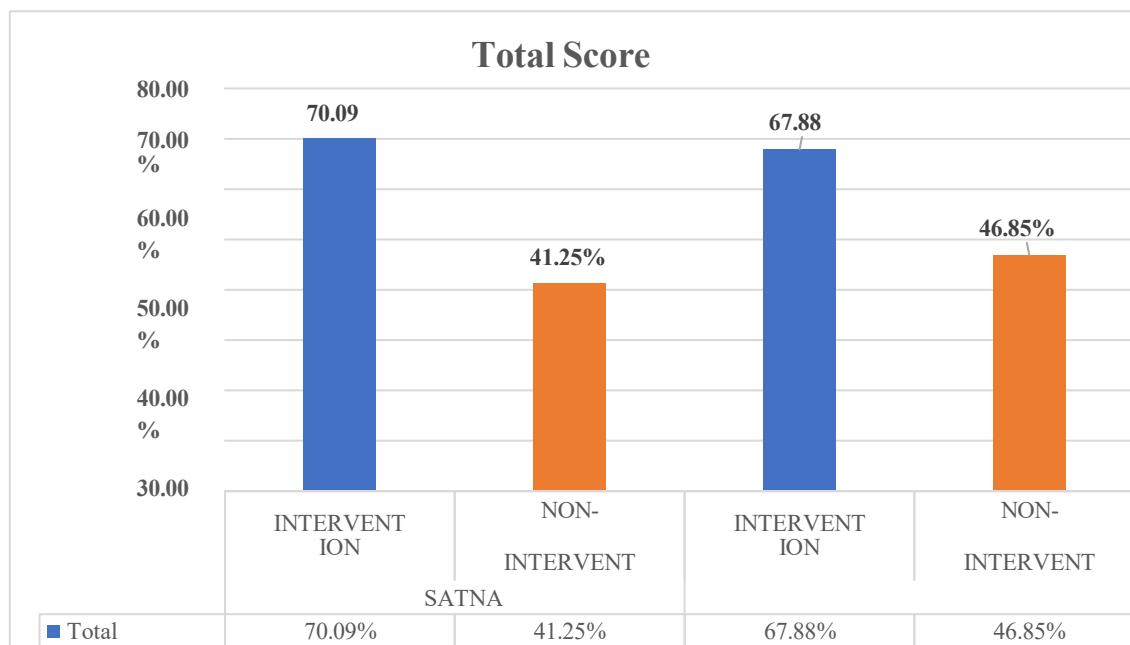


Figure 1:- Total scores in (%).

The above diagram is a representation of total scores in % of intervention and non- intervention centres which shows a significant difference in the scores of the two types of AAMs. Total scores for intervention and non-intervention are 70.09% and 41.25% for Satna, and 67.88% and 46.85% for Shahdol, respectively.

Further the scores were analysed according to each section of the questionnaire i.e. knowledge, observation and practice.

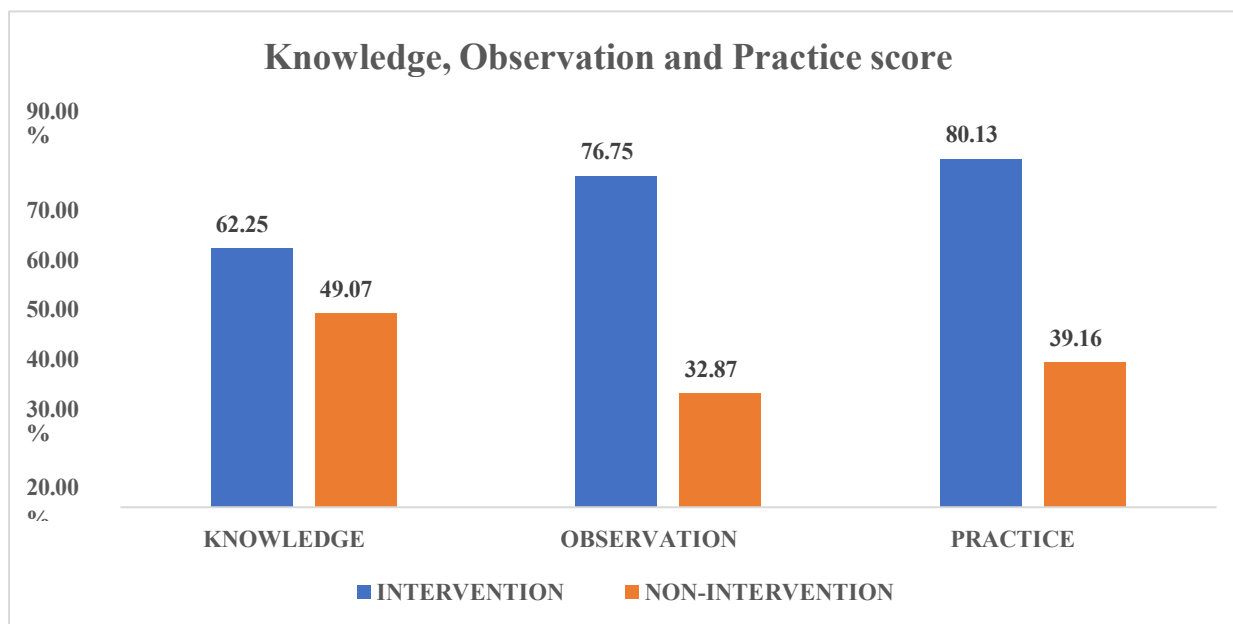


Figure 2:- Knowledge, observation and practice scores in (%).

Respondents at intervention centres obtained scores of 62.25%, while that of non- intervention centres obtained 49.07% in the knowledge assessment. This includes measuring their understanding of basic concepts. Samples recorded significantly high scores at intervention centres (76.75%) as compared to that of non-intervention centres (32.87%) in the observation checklist. This includes observation of the facility upkeep like Bio-Medical Waste management, proper waiting area, etc. Practice assessment scores of intervention centres (80.13%) is twice that of non-intervention centres (39.16%). This section evaluates their practices, such as conducting blood sugar test and other tests, following proper steps, performing any activity based on the program guidelines, etc.

Correlation between scores and variables like age and experience.

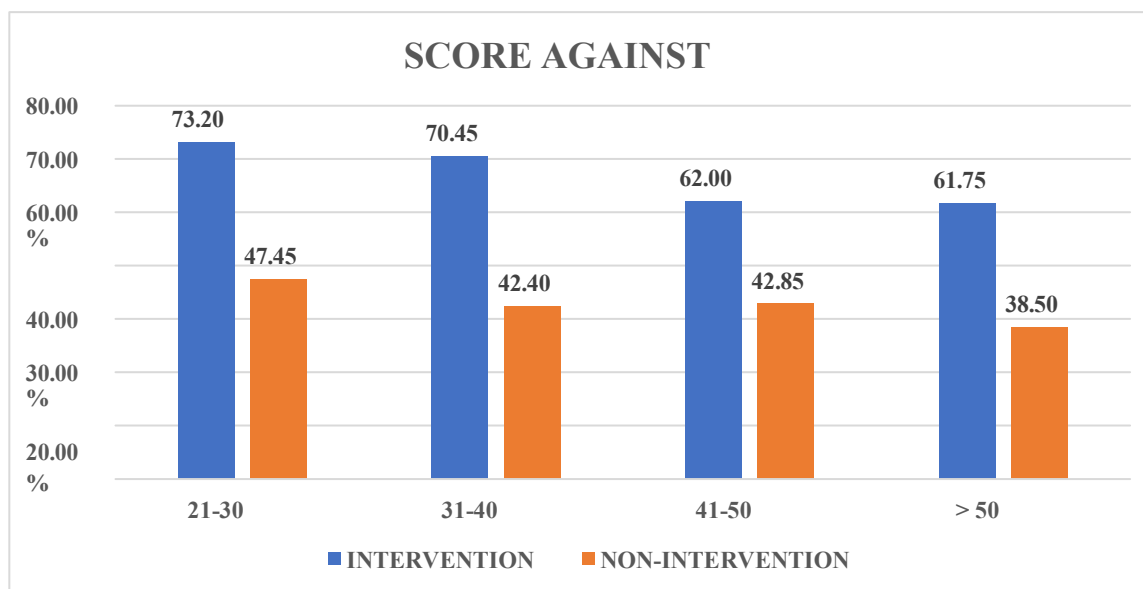


Figure 3:- Scores in % against age variable.

This graph clearly indicates that with increasing age of the health workers, the score percentage decreases, this shows the inverse relation between age and scores of respondents. The trend may be attributed to the age group of 21-30 years, which includes Community Health officers who typically possess higher level of knowledge and practice, and the higher age groups include ANMs who may not have exposure to recent trainings and practices. Graph also demonstrates a clear trend where the score percentage declines in the non-intervention facility irrespective of their work profile.

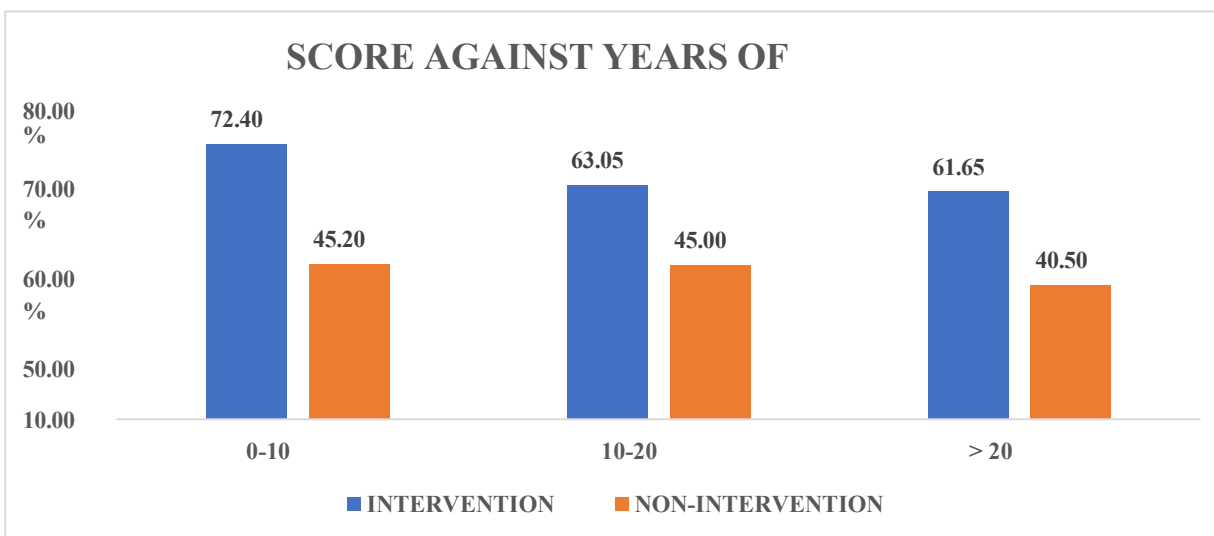


Figure 4:- Scores in % against total experience.

The graph demonstrates a clear trend where the score percentage declines as the experience of the health worker increases. This indicates an inverse relationship between the experience of health workers and their knowledge and practice levels.

This pattern suggests that the health workers with lower experience and age may be more up to date with the current practices and information. Thus, there is a need for refresher trainings for the senior workforce.

Inferential statistics:

Variable	Type of facility	N	Mean	Std. deviation	t	Sig.(2-tailed)	Mean difference
Average practice scores	Intervention AAM	40	14.43	1.65	19.221	<.001	7.37500
	Non-intervention AAM	40	7.05	1.78	19.221	<.001	7.37500
Average observation scores	Intervention AAM	40	15.35	2.56	14.258	<.001	8.77500
	Non-intervention AAM	40	6.58	2.93	14.258	<.001	8.77500
	Intervention AAM	40	39.10	7.82	4.891	<.001	8.67500
Average knowledge scores	Non-intervention AAM	40	30.43	8.04	4.891	<.001	8.67500

Table 2:- Independent sample t-test.

An independent samples t - test was conducted to compare the knowledge, practice and observation scores of health workers of intervention and non-intervention AAM. Keeping the confidence interval of 95% and assuming equal variance, the independent samples t-test results indicate a significant impact of the type of facility (intervention vs non-intervention) on practice, observation, and knowledge scores. Specifically:

Practice Scores:

Intervention facilities have an average practice score that is 7.3 points higher than non-intervention facilities, with a highly significant p-value ($p = 0.000$).

Observation Scores:-

Intervention facilities have an average observation score that is 6.7 points higher than non-intervention facilities, with a highly significant p-value ($p = 0.000$).

Knowledge Scores:

Intervention facilities have an average knowledge score that is 6.0 points higher than non-intervention facilities, with a significant p-value ($p = 0.008$).

Discussion:-

The finding from this study highlights the significant impact of the intervention on the knowledge and practices of healthcare workers of Ayushman Arogya Mandirs in Satna and Shahdol districts. The intervention centres exhibited significantly higher scores in all three aspects as compared to the non-intervention centres, indicating the effectiveness of the implemented strategies. A similar study also suggests that such CPHC strengthening interventions improve the quality of services available at the center, (Purohit et al., 2023)

The study on waste management in Satna's district hospital highlights crucial gaps in waste segregation, treatment and disposal. Emphasizing elevated contamination, it underscores the need for the better waste protocol to minimize health risks. Biomedical waste management is an important part of both the CPHC and NQAS guidelines (Dev Gupta et al., 2015). The non- intervention facilities were not aware of the bio-medical waste management practices and guidelines. as compared to intervention AAMs.

A similar study was conducted to explore the utilization of services in the Shahdol district. This study aimed to explore various social, economic and systemic factors limiting access to healthcare facilities leading to underutilization of these services. Limited awareness of available services and preventive care reduces the likelihood of early visits. Trust in the healthcare provider is another crucial factor; past negative experiences or perceived low quality of care can deter community members from using local health services. Addressing these barriers is vital for improving healthcare utilization and outcome.(Kabirpanthi et al., 2024). Another study was conducted to assess the development of health infrastructure in Madhya Pradesh which suggests that the health infrastructure in Madhya Pradesh needs improvement. The government hospitals are facing the problem of lack of resources while the private players are continuously increasing in the healthcare sector leading to increase in cost of services, making it inaccessible to the poor population. The study suggested a model healthcare plan which involves preparing a long-term strategy for qualitative as well as quantitative improvement in our healthcare infrastructure by focusing on workforce capacity and competency, information and data systems and organizational capacity with the help of local people.(Prakash Tripathi, n.d.)

Integrating the approaches used in the intervention facilities into the non-intervention setting could help improve their performance. Consider investing more in intervention training programs, which have shown to yield higher scores. Developing comprehensive training programs regarding the facility upkeep and practices that incorporates elements of intervention methodologies may lead to overall improvement in educational outcomes. Periodic visit by district team which includes peer mentors (CHOs and ANMs) to AAM across the year and not just before the assessment. Mentoring district team and block team as well to carry out the best results.

There are some limitations of the study that should be acknowledged. The study was conducted within the period of two months which imposed time constraints. Sample size was not large enough which affects the generalizability of the result. Additionally, respondents were informed in advance about the visits, potentially making room for 'Hawthorne effect' which might have influenced the actual outcome."

Conclusion:-

The study suggests that Ayushman Arogya Mandirs which are associated with supportive interventions by MPHSSP, outperform those which are not associated with CInI interventions. Active interventions on strengthening the services and quality of AAMs can help in achieving the goal of universal health coverage. MPHSSP acts as a catalyst in improving the quality of services at the community level. The independent samples t-test results indicate a significant impact of the type of facility (intervention vs non- intervention) on practice, observation and knowledge scores.

The findings clearly demonstrate that intervention facilities outperform non-intervention facilities across all measured areas- Knowledge, Observation, Practice. This suggests that the environment and methods used in the intervention facilities significantly enhance learning and performance.

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