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Research Article

Multi-Level Evidence-Based Practice Training Program (MITP-EBP) on Health Outcomes for Patients

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ABSTRACT

Allied Health and Nursing Resources Section of the Medical Library Association is funding this research as part of its Phase I initiative to create a nursing literature map. The main aim of the study is to Multi-Level Evidence-Based Practice Training Program (MITP-EBP) on Health Outcomes for Patients**.** Polit and Hungler state that a research study's a representative cross-section of a larger population. In research, a sample is the fundamental unit from which data must be culled, or the people who take part in the study. Here, we set out to measure the effects of MITP-EBP on nursing education and patient care outcomes in two contexts (academic and clinical) using data collected from three groups of nurses: nurse educators, postgraduate nursing students, and clinical nurses.

Keywords: Multi-Level, Evidence-Based, Practice Training Program, Health, Patients, etc.

INTRODUCTION

Allied Health and Nursing Resources Section of the Medical Library Association is funding this research as part of its Phase I initiative to create a nursing literature map. Examining the breadth of coverage by bibliographic this research adheres to the standard technique mentioned in the general overview article by using databases and using Bradford's Law of Scattering to citation studies of typical medical-surgical publications.

Its goal is to identify the core literature in medical-surgical nursing. Librarians might find this study's findings useful when deciding which journals and databases to subscribe to. Guidelines for choosing databases to search are also provided, which will be helpful for researchers. Having proof to back your title selection for indexing will also help database developers.

Patients in their adult years who are experiencing a "known or predicted physiological alteration" are the primary focus of medical-surgical nurses, alternately called adult health nurses. Both community and institutional settings may provide "holistic care" that focuses on promoting health, preventing diseases, and maintaining good health. One significant component of this specialization is providing comprehensive, entire patient treatment, rather than focusing on a single organ system or condition. Career options for registered nurses with concentrations in medical-surgical or adult health include research, practice as nurse practitioners or clinical nurse specialists, and postgraduate degrees in nursing. Certification at both the basic and advanced levels is also an option for them.

Multilevel Integrated Training program in Evidence- Based Practice (MITP-EBP)

Evidence - Based Practice (EBP)

A better patient outcome is the end goal of evidence-based practice (EBP), which is defined as "the integration of best research evidence with best available scientific research, clinical expertise and patient values" (WHO). You will use three sources of evidence: scientific research, clinical expertise, and the patient's values and circumstances—to design the most effective physical therapy treatment plan for each individual patient. These three forms of evidence will form the basis of your choices as an evidence-based therapist. Making ensuring that patient treatment is guided by the best available research is the goal of evidence-based therapists. This way, patients may maximize the advantages of therapy. Using EBP as a framework, clinicians may more organized consider and compile the many pieces of evidence that go into making treatment choices.

Nurses

To achieve, maintain, or regain optimum health and quality of life for people, families, and communities is the primary goal of the nursing profession, which is a subset of healthcare. A nurse's training, breadth of practice, and attitude towards patient care set them apart from other medical professionals. Depending on their specialty, nurses

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may or may not have the power to prescribe medication. There is evidence of worldwide shortages of competent nurses, even though nurses make up the bulk of healthcare facilities. Along with doctors, NPs, PTs, and psychologists, nurses work as interdisciplinary teams to offer patients the best treatment possible. Nurses and nurse practitioners are not the same thing. In the United States, Master's degree holders in advanced practice nursing are known as nurse practitioners. medical care and may prescribe drugs, whereas nurses only have a bachelor's degree.

Literature Review

In contrast to According to the World Health Organization, India should have a doctor-to-patient ratio of 1:1000 ratio is at 0.62:1000. A shortage of trained allied health workers who can aid in the provision of timely, impartial, critically assessed health information is a major obstacle for physicians in India, a country with a rapidly expanding population and a massive pool of potential patients. Because of their close collaboration with the public and interdisciplinary health care teams, chemists play an essential role in promoting sensible drug use and are among the most easily available health experts. By incorporating targeted skill development programmes into health students' curricula, the objective of providing quality patient care may be attained. Training programmes, seminars, examples, online stories, electronic wallet cards, and models that concentrate on evidence-based medicine should be encouraged to include into Indian pharmacy curricula. The existing state of evidence-based medical education at India's pharmacy schools is described in this article.[4]

Up until recently, medical educators simply passed on their knowledge. Many of the physicians who teach at India's medical schools still lack formal education in the field. Therefore, there is an immediate need to familiarize educators with the Evidence Based Education System (EBES) and to apply the EBES curriculum. In order to make judgements on the delivery of instructions, EBES incorporates both professional expertise and the best available empirical facts. Consequently, creating and implementing the EBES Curriculum is the goal of the research. Methods: One method of education delivery is Evidence Based Medicine (EBM). Systematically analyzing, evaluating, as well as incorporating findings from clinical trials into the provision of high-quality patient care is what is known as evidence-based medicine (EBM). We chose to apply EBM in phases (Phase -I, II, and III) after introducing it on January 23, 2007, at Sumandeep Vidyapeeth (SV). A curriculum was created for evidence-based medicine (EBM) with evaluation methods (annual exams and assignments). To facilitate the most effective searches of current literature, library resources were improved. Through an international conference, seminars on a national and international scale, and in-house training, we have also raised awareness among educators. End result: The first year MBBS class of 2010–2011 has successfully completed the EBM test. The EBM course is now being offered to the second year MBBS class. The following is the faculty comment on the EBM workshop: The majority of the participants (85%) had nothing but praise for the resource people' ability to teach EBM sessions. The evidence-searching session received a 56 percent rating, ranging from excellent to very good. The critical evaluation of the article session, however, received just 44% of the possible excellent to very high ratings. We draw the conclusion that this method of instruction delivery is very efficient, and that we will rapidly reach our goal if we can use it throughout the whole four-year MBBS program Millennium Development Goals for our area and ensure that everyone has access to health care.[3]

A number of nations' health agencies have mandated that all medical treatment be based on scientific evidence. Recent studies have shown that interventions aimed at removing identified obstacles may increase the likelihood of effective implementation of practice based on evidence. The investigators set out to determine what factors were linked to nurses' use of evidence-based practice at a large Norwegian university hospital. By use of the Developing Evidence-based Practice questionnaire in its Norwegian translation (DEBP), 407 nurses had their cross-sectional data gathered from 8 November to December 3, 2010. Information on possible obstacles In respect to evidence-based practice, the information sources used to back up practice, and the self-reported skills in overseeing research based on evidence were all included of the DEBP. Following established protocols for cultural adaptation and translation, There was a Norwegian translation of the DEBP. The majority of nurses' practice-supporting information came from experience-based sources, such as their own observations, coworkers, and other collaborators. Rarely was research evidence used. Time constraints and a lack of expertise in finding and organizing research findings were the biggest obstacles. Factors that impacted the utilization of information sources and self-reported obstacles included the nurse's chronological age, the duration of her nursing career, and the time since her last master's degree in health care were all factors. The use of scientific evidence was positively correlated with self-reported abilities to locate, evaluate, and utilize various sources of evidence, and an inverse

correlation between using research evidence and obstacles. Competence in Reducing and improving the use of research results in clinical practice seems to be the goal of evidence-based practice.[2]

When it comes to teaching student nurses how to use evidence-based practice (EBP), how to find Nurse educators are vital in ensuring that students understand how to utilize research products, as well as how to participate in research efforts. The use of the Internet for instructional purposes, student access to digital materials, online meetings, and instruction are all examples of new pedagogical practices that may help students become more engaged, creative, and critical thinkers. Examine the nurse educators' perspectives on the use of evidence-based practice (EBP) in the classroom, and discuss the significance and advantages of EBP education for all members of the nursing profession, but notably for those in the role of teacher and student. Two campuses selected from the uMgungundlovu Health District operate under the KwaZulu-Natal College of Nursing (KZNCN), providing a 4-year R425 training curriculum. The study adhered to the standards of qualitative research methodology. Twelve nurse educators were chosen using a purposeful selection process that did not include randomness. To gather information, we used a digital voice recorder, an interview guide, and semi-structured interviews. Two themes emerged from the manual data analysis that followed a content thematic approach: the difficulties nurse educators had when attempted to include EBP into their lessons and the advantages and worth of doing so. While the majority of nurse educators expressed enthusiasm for and support for evidence-based practice (EBP) in the classroom, the results cast doubt on their actual competence in this area. This was accompanied by an absence of enthusiasm and dedication towards doing study. The incorporation of additional practice-based evidence from nurse educators into the implementation when it comes to evidence-based practice, the field of education and training might be pivotal. In order to guarantee that student nurses get a high-quality nursing education, nurse educators should use EBP.[1] The influence of evidence-based practice (EBP) on nurses' understanding and work has brought it to the forefront of the nursing profession. As a result, evidence-based practice (EBP) is gaining prominence as a means to better healthcare and nursing service quality and reaching the pinnacle of patient care perfection. Purpose: As a whole, this study aims to compile what little is known on nurses' knowledge, attitudes, and experiences with evidence-based practice. Approach: The following databases were searched: JSTOR, ASSIA, Web of Science, Scopus, PubMed, MEDLINE, AVOID, CINAHL, EMBASE, Science Direct, Cochrane Collaboration, and Scopus from 2012 to 2021. We only included studies that have complete texts in English, such as cohort, case-control, or randomized controlled trials. After applying the exclusion criteria, only eight articles out of a total of 2,155 were determined to fit the criterion. A lack of competence and a generally positive outlook on EBP were found in the majority of these eight studies. In conclusion, most nurses are enthusiastic about their work, but few understand EBP's effectiveness. If we want to build global strategies that work, we need to first identify and compare the elements that potentially affect EBP knowledge, attitude, and behaviors throughout the world to apply research findings in nursing. More research is needed to fill this gap in our understanding.[5]

METHODOLOGY

Sample and Sample Size

Polit and Hungler state that a research study's a representative cross-section of a larger population. In research, a sample is the fundamental unit from which data must be culled, or the people who take part in the study. The results are more reliable and robust when a big sample is used. Alternatively, it was more expensive and time-consuming to gather and analyses the data. The goals and objectives of the research, the resources that are available, and the need for statistical quality all play a role in selecting the target sample. To conduct statistical analysis in quantitative research, it is crucial to accurately calculate the sample size.

Sampling Technique

Choosing a portion of a population to stand in for the whole is what's known as sampling. Two hundred fourth-year nursing students from the top Indore schools made up the study's sample. The investigator went to various nursing schools in Indore to get official approval to collect samples. After deciding which schools to visit, they included students from the fourth year of medical school in the sampling procedure. The schools chosen were Mahatma Gandhi Memorial Medical College, Sri Aurobindo Institute of Medical Sciences, Indore Institute of Medicine Science College, and Library MGM Medical College, all of which were within easy driving distance. The researcher employed the purposive sampling method to choose 100 students from each nursing school, for a total of 200 students in the study.

RESULTS

Impact of the Multi-Level Evidence-Based Practice Training Program (MITP-EBP) on Health Outcomes for Patients

The results of the EBP knowledge tests administered to clinical nurses before and after the

intervention are shown in Table 4.1, together with the corresponding standard deviations, means, and t-values.

Table 1: Comparison of EBP Knowledge between the Experimental and Control Groups of Clinical Nurses: Mean, Standard Deviation, Mean Difference, and t-value before and after the intervention

Group	Pre test Mean± SD	Post-test Mean± SD	Mean Differences 95% confidence intervals	Standard error	df t value P value
Experimental (n=100)	51.24± 4.99	93.36± 4.48	39.54 [35.50, 43.57]	2.00	Df= 47 T value= 19.72 P Value< 0.001
Controls (n=100)	48.71 8.34	51.29± 4.56			

According to Table 4.1, Each group of clinical nurses had significantly different levels of comparable pre-test scores (17.2 and 18.0, respectively). In contrast to their pre-test score of 17.2 ± 8.16, the experimental group of clinical nurses showed a significant improvement in their mean EBP knowledge score (26.92 ± 6.74) on the post-test. As opposed to their pre-test score of 18.0 ± 4.89, the control group shows a decline in their mean post-test score of 16.17 ± 7.78.

Table 2: Measures of EBP Knowledge Sources for Practice (both before and after the intervention), together with their standard deviations, mean differences, and t-values for the experimental and control groups of clinical nurses

Group	Pre test Mean± SD	Post-test Mean± SD	Mean Differences 95% confidence intervals	Standard error	df t value P value
Experimental (n=100)	51.24± 4.99	93.36± 4.48	39.54 [35.50, 43.57]	2.00	Df= 47 T value= 19.72 P Value< 0.001
Controls (n=100)	48.71 8.34	51.29± 4.56			

The experimental and control groups of clinical nurses had almost identical pre-test scores (51.24 and 48.71, respectively), as shown in Table 2. In contrast to their pre-test score of 51.24 ± 4.99, the experimental group of clinical nurses shown a significant improvement in their mean EBP knowledge sources for practice score (93.36 ± 4.48) in the post-test. In contrast, the control group's mean post-test score (51.29 ± 4.56) is somewhat higher than their pre-test score (48.71 ± 8.34). Table 3 shows the average, standard deviation, mean difference, and t-value of the clinical nurses' EBP attitude ratings before and after the exam.

Table 3: Results for the Experimental Group and the Control Group of Clinical Nurses' EBP Attitude: Mean, Standard Deviation, Mean Difference, and t-value before and after the intervention

Group	Pre test Mean± SD	Post-test Mean± SD	Mean Differences 95% confidence intervals	Standard error	df t value P value
Experimental (n=100)	36.24± 5.43	79.28± 6.55	41.25[37.55, 44.94]	1.83	df= 47 T value= 22.46 P Value < 0.001
Controls (n=100)	37.96± 4.47	39.75± 4.41			

Both the test and control groups of clinical nurses had very comparable pre-test scores (36.24 and 37.96, respectively), as shown in Table 4.3. In contrast to their pre-test score of 36.24 ± 5.43, the experimental group of clinical nurses showed a significant improvement in their mean EBP attitude score (79.28 ± 6.55) on the post-test. When comparing the control group's pre-test score (37.96 ± 4.47) with their post-test score (39.75 ± 4.41), a little rise is seen.

Table 4.4 displays the statistical information on the clinical nurses' EBP practice scores before and after the test, including an analysis of variance, t-value, mean difference, and standard deviation.

Table 4: Results of Evidence-Based Practice (EBP) among Clinical Nurses in the Experimental and Control Groups: Mean, Standard Deviation, Mean Difference, and t-value before and after the intervention

Group	Pre test Mean± SD	Post-test Mean± SD	Mean Differences 95% confidence intervals	Standard error	df t value P value
Experimental (n=100)	47.96± 3.76	79.68± 9.77	28.43[21.85, 35.00]	3.27	df= 47 T value= 8.69 P Value < 0.001
Controls (n=100)	49± 3.88	52.29± 11.44			

The pre-test scores of the experimental group of clinical nurses were 49 and the control group had a score of 47.96, as indicated in Table 4.4. In any case, the experimental group of clinical nurses' post-test score was 79.68 ± 9.77 shows a significant improvement in the mean EBP practice score compared to their pre-test score (47.96 ± 3.76). In contrast, the control group showed a little improvement in their mean post-test score (52.29 ± 11.44) compared to their pre-test score (49 ± 3.88).

Clinical nurse pre-test results for the comparison and experimental groups measuring adherence to newborn skin care recommendations are shown in Table 3.

The standard deviation, mean difference, and t-value are also displayed.

Table 5: Comparison of the two tests Comparison of the Experimental and Control Groups' Compliance with Neonatal Skin Care Guidelines: Mean, Standard Deviation, Mean Difference, and t-value

Group	Pre test Mean± SD	Post-test Mean± SD	Mean Differences 95% confidence intervals	Standard error	df t value P value
Experimental (n=100)	21.24± 4.95	37.20± 0.65	13.09[8.19, 17.97]	2.43	df= 47 T value= 5.39 P Value < 0.001
Controls (n=100)	20.5± 5.56	23.38± 8.82			

Figure 5 shows that both the experimental and control groups of clinical nurses have very comparable pre-test scores (21.24 and 20.5, respectively). The experimental group of clinical nurses showed a significant improvement in their compliance to Neonatal skin care EBP guidelines, with a post-test score of 37.20 ± 0.65 compared to a pre-test score of just 21.24 ± 4.95. Alternatively, the control group's mean post-test score (23.38 ± 8.82) is marginally higher than their pre-test score (20.5 ± 5.56). Results for clinical nurses in both the experimental and control groups took a pre-test measuring compliance with newborn pain treatment recommendations are shown in Table 5. The standard deviation, mean difference, t-value, and mean are also displayed.

Table 6: Comparison of the Experimental and Control Groups' Compliance with Neonatal Pain Management Guidelines Before and After the Intervention, along with their Mean Difference, Standard Deviation, and t-value

Group	Pre test Mean± SD	Post-test Mean± SD	Mean Differences 95% confidence intervals	Standard error	df t value P value
Experimental (n=100)	14.8± 4.73	42.4± 0.5	15.81[10.32, 21.29]	2.73	df= 47 T value= 5.80 P Value < 0.001
Controls (n=100)	14.21± 4.19	26.0± 10.64			

According to Table 6, The pre-test scores of the clinical nurses in the control group were 14.21 and those in the experimental group were 14.88, respectively. However, when comparing the pre-test scores of 14.8 ± 4.73 to the post-test scores of 42.4 ± 0.5 on conformance to the Neonatal pain management EBP guideline, a substantial improvement was seen in the experimental group of clinical nurses. Additionally, there was an improvement in the control group in their average post-test score (26.0 ± 10.64) compared to their pre-test score (14.21-2.19). Results from the pre-test measuring clinical nurses' adherence to infant feeding protocols are shown in Table 4.6 together with their respective means, standard deviations, means differences, and t-values.

Table 7: Comparison of the Experimental and Control Groups' Compliance with Neonatal Feeding Guidelines Before and After the Intervention, together with their Mean Difference, Standard Deviation, and t-value

Group	Pre test Mean± SD	Post-test Mean± SD	Mean Differences 95% confidence intervals	Standard error	df t value P value
Experimental (n=100)	33.72± 0.98	37.64± 1.29	2.28 [3.31, 1.19]	0.53	df= 47 T value= 4.29 P Value < 0.001
Controls (n=100)	33.58± 0.93	35.25± 1.89			

The experimental and control groups of clinical nurses had very comparable pre-test scores (33.72 and 33.58, respectively), as may be seen in Table 7.

But the experimental group's post-test results of clinical nurses on conformity to Neonatal feeding EBP guidelines were 37.64 ± 1.29, which is higher than their pre-test scores of 33.72 ± 0.98. The control group also showed an improvement in they improved upon their pre-test score (33.58 ± 0.93) with an average post-test score of 35.25 ± 1.89.

Barriers to practice MITP- EBP in academic and clinical settings

In Table 8, we can see the average and standard deviation of the pre-test, post-test1, and post-test2 scores on the evidence-based practice (EBP) barriers for academic nurse educators in the control and experimental groups.

Table 8: The mean and standard deviation of the evidence-based practice barrier scores among the control and experimental groups of nurse educators before, during, and after the study

Group	Pre-test	Post-test 1	Post-test 2
	Mean± SD	Mean ±SD	Mean ±SD
Experimental (n=100)	98.22± 19.07	61.48± 15.04	56.31± 11.87
Control (n=100)	95.88±20.29	92.58±21.09	92.50±18.53

Results from the experimental group's post-test 1 (61.48) and post-test 2 (56.31) mean barrier scores were much lower than their mean pre-test scores of 98.22, as shown in Table 4.36. The control group's mean scores were still after tests 1 (92.58) and 2 (92.52) were somewhat lower than the mean scores before tests (95.88).

The overall evidence-based practice (EBP) barrier scores of nurse educators in the two groups were compared using F-statistics in mixed linear multilevel modeling. The results demonstrated a statistically significant difference ($F(2, 91.55) = 53.98$, $p < 0.001$). In terms of lowering EBP barriers, this suggests that the intervention's overall impact was different in contrasted with the control group, the experimental group.

Further, table 4.9 shows the outcomes of a post hoc study that compared the pre- and post-test barrier scores of the experimental and control groups using mixed linear multilevel modeling.

Table 9: Comparing the Experimental Group with the Control Group Using Mixed Linear Multilevel Modeling to Determine the Difference in Post-test1 and Post-test 2 EBP Barrier Scores from Their Pre-test Scores

Parameter	Estimate(b) Mean difference [β]	Standard error	95% confidence interval	df	t	P value
Post-test 1	-33.45	3.84	[-41.08, -25.82]	90.73	8.71	<0.001
Post-test 2	-37.21	4.10	[-45.35, -29.08]	92.02	9.09	<0.001

The mean barrier ratings varied significantly among groups and time periods, as shown in Table 4.9. When comparing the experimental group to the control group, there was a statistically significant decrease of -33.45 units from pre-test to post-test 1 and a decrease of -37.21 units from pre-test to post-test 2 ($t= 8.71$, $p< 0.001$; $t = 9.09$, $p< 0.001$). Consequently, in both the first and second post-tests, the experimental groups' barrier scores were lower than those of the control group. This data points to an effective intervention. By comparing post-test 2 with post-test1, a mixed linear MLM analysis was conducted to determine whether the experimental group's nurse educators' reduced barriers are maintained or not. The results may be shown in table 4.10. Since those in the control group skipped out on getting intervention, there was no need to administer a comparable test to them.

Table 10: Maintaining the Decrease in Evidence-Based Practice Barrier Scores of Experimental Group Nurse Educators Using Mixed Linear Multilevel Modeling in Post-test 2

Parameter	Estimate(b) Mean difference	Standard error	95% confidence interval	Df	t	P value
2 compared	4.54	2.94	[-1.30, 10.38]	94.73	1.54 0.126	

The results from the two groups are not significantly different from one another (t=1.54, p=0.126) mean barrier scores of Post-tests 2 and Post-test 1 (a difference of 4.54 units), as shown in Table 4.38. What this means is a statistically insignificant shift in members' ratings between post-test1 and post-test2. So, it's clear that the intervention's effects are still going strong when we reach post-test2.

Both the experimental and control groups of clinical nurses' barrier scores are shown in Table 11, together with their standard deviations, means, and t-values.

Table 11: Results from the experimental and control groups of clinical nurses' barrier scores before and after the intervention, together with their standard deviations, mean differences, and t-values

Group	Pre test Mean± SD	Post-test Mean± SD	Mean Differences 95% confidence intervals	Standard error	df t value P value
Experimental (n=100)	95.12± 20.38	66.52± 1.66	-41.89 [-55.62, -28.16]	6.83	df= 47 T value= 6.14 P Value < 0.001
Controls (n=100)	82.17± 19.59	95.46± 20.74			

According to Table 11, the experimental group's clinical nurses had an average pre-test score of 95.12, while the control group's average score was 82.17. Regardless, the experimental group of clinical nurses had a post-test score of 66.52 ± 1.66 shows a significant decrease in the mean EBP barrier score compared to their pre-test score of 95.12 ± 20.38. When comparing the control group's pre-test score (82.17 ± 19.59) with their post-test score (95.46 ± 20.74), a significant rise is seen.

CONCLUSION

Here, we set out to measure the effects of MITP-EBP on nursing education and patient care outcomes in two contexts (academic and clinical) using data collected from three groups of nurses: nurse educators, postgraduate nursing students, and clinical nurses. According to the intervention's findings, the experimental group improved across the board for the majority of the outcome measures. After the intervention, the experimental group of nurse educators significantly outperformed the control group in terms of evidence-based practice (EBP) knowledge, attitude, practice, competence, and elimination of EBP-related obstacles. There was an uptick in evidence-based practice (EBP) awareness, proficiency, and practice among the experimental group of postgraduate nursing students. When it came to skin care, pain management, and eating, the experimental group of clinical nurses showed significant improvements in EBP knowledge, attitude, practice, and compliance. Some outcome variables, including nurse educators' EBP knowledge sources for practice and postgraduate nursing students' EBP attitude, were unaffected by the intervention.

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