Health Promotion and Disease Prevention Through Pharmacy Interventions

Tripti Dewangan[1], Chandra Pratap Dhimar[2]

[1,2]*Assistant Professor, Department of Pharmacy, Kalinga University, Raipur, India.*

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ABSTRACT

The rapidly developing discipline of health informatics offers enormous potential to enhance the prompt administration and high-quality services provided by the healthcare system. One invention that has significantly altered the world is information technology. Health informatics is the application of practical information technology features to healthcare practices with the goal of improving patient outcomes. It significantly facilitates information sharing amongst medical experts. In clinical practice, having reliable, evidence-based data readily available is really beneficial. There are several facets to health informatics. The first is the keeping of medical records. This includes computerised prescribing and electronic management of medical records. It is beneficial to have quick access to all of a patient's medical records. Health experts' time can be greatly saved by this. The availability of a sizable patient population's health data, which may be used for population-based investigations and research, is another benefit. A component of health informatics, clinical decision support systems (also known as CDSS) assist medical professionals, particularly physicians, in making decisions regarding patients throughout their regular practice. They are created as applications or software to be utilised in patient care.

1. Introduction

Clinical Pharmacists are pharmacy experts with specialised training who work directly with patients to assure their safety and quality of care. With the introduction of the Doctor of Pharmacy programme in India in 2008, the field of clinical pharmacy began to take shape. Following the appointment of clinical Pharmacists by these hospitals to enhance the calibre of medical care. All of the European countries have been using the method for a considerable amount of time [1]. As an integral part of the healthcare team, clinical pharmacy services have been shown to dramatically improve the standard of treatment. Clinical Pharmacists' primary responsibilities include performing routine ward rounds with the physician team to participate in decision-making regarding drug therapy; reviewing medication charts to identify medication errors such as incorrect dosage, incorrect formulation, drugs without an indication, etc.; and identifying administration errors such as incorrect timing, missed dosage, improper dilution technique, etc. To spot negative medication reactions, clinical Pharmacists keep an eye on their patients and follow up with them as needed [2].

In addition, they identify and handle clinically noteworthy drug-drug and drug-food interactions. In addition to these standard tasks, clinical Pharmacists can contribute productively to the creation of hospital drug usage guidelines, such as antibiotic policies and dilution procedures. They can also instruct and train doctors, nurses, and other medical professionals on different facets of medication therapy. These services have the potential to provide enormous direct and indirect benefits. In the world, medication errors rank as the fourth most common cause of mortality. In many cases, treating pharmaceutical errors can save patients' lives. Additionally, the services lead to a patient management that is economical [3]. One of the main causes of mortality related to health care is reportedly medication errors. Among all known causes of death, it ranks as the fourth most common cause of death in the United States. Given India's rapidly expanding population and underdeveloped healthcare infrastructure, the number of pharmaceutical error-related deaths would undoubtedly be even higher. However, because reliable research studies and statistical data are hard to come by, the government itself is ignorant of the possible consequences of prescription errors. Errors might happen at several phases of the patient interaction. Doctors can make mistakes when prescribing medication, writing down the incorrect dosage, frequency, dosage form, etc. Occasionally, they fail to recognise certain ailments or recommend medications without a reason. Errors in nursing are very common. These could be mistakes in documentation, transcription, or administration. Errors in administration can include using the incorrect medication, administering it via the incorrect route, administering it frequently, missing a dose, reconstituting and diluting it incorrectly, and more. Errors in transcription happen when you read and interpret the drug chart. Errors in transcription can also result from unreadable prescriptions. Pharmacists sometimes make mistakes when delivering the incorrect medication,

dosage, or dosage type. Errors in documentation can occur in any professional [4].

2. Literature Review

In the Indian context, most medical professionals are overworked. Nurses and doctors have a lot of patients to tend to. Notwithstanding the specialists' expertise and experience, this circumstance raises the possibility of drug blunders. A clinical Pharmacist can step in and help in this situation. They can collaborate together with other medical specialists to guarantee patient security. Medication history enquiries and medication reconciliations assist in locating any ailments that doctors neglected to address or any over-the-counter medications that they neglected to continue. Reviewing medication charts aids in monitoring drug interactions as well as locating and fixing prescribing errors [5]. It is possible to educate and supervise nurses in appropriate dilution and administration procedures. These are only a few instances of clinical pharmaceutical services. Clinical Pharmacists must put in a great deal of work to set up such a system in Indian hospitals. The system can only function effectively for the benefit of patients if the organisation and its affiliated experts are persuaded of the good effects and they collaborate effectively [6].

Numerous patient populations including the elderly, children, expectant mothers, and patients with renal impairments receive particular attention due to their increased susceptibility to unfavourable outcomes. Nonetheless, when it comes to the administration of their drug regimen, patients using enteral feeding tubes are mostly disregarded. Health professionals and carers are not sufficiently aware of this issue. Due to their inability to swallow, the patients are placed on feeding tubes [7]. Consequently, these enteral tubes will also need to be used to administer the medications. In this process, there is a significant risk of serious pharmaceutical errors. The first place mistakes can occur is in the medicine selection process. Enteral tubes are not appropriate for the administration of any kind of drug or composition. Medication that is solid must be crushed before administration. However, crushing causes many formulations to lose their effectiveness or become more hazardous. The combination of medications with feed formulations is an additional problem. Some medications interact with feed formula, losing up to 70% of its absorption and effectiveness. Patients may experience minor to life-threatening side effects as a result of administration errors. Inadequate flushing of tubes, incorrect delivery procedures, and improper preparation of drugs can all be quite harmful [8]. In general, this study aims to investigate the difficulties in treating enteral tube-dependent individuals who have trouble swallowing and to provide practical solutions for the problems. The clinical Pharmacist, in their capacity as a responsible member of the medical community, will identify and address the issues that physicians, nurses, and Pharmacists encounter when caring for patients of this type. Numerous studies have demonstrated that when clinical Pharmacists' expertise and advanced health informatics techniques are properly integrated into the healthcare system, they can significantly improve the quality of care, particularly for high-risk patients like those on enteral tubes.

3. Methodology

We analysed the research papers that demonstrated clinical Pharmacists play a vital role in the primary healthcare team. Numerous research assessing how well clinical pharmacy services work to ensure cost-effective therapy and enhance the quality of patient care were discovered. The work plan for the current study was developed with assistance from a thorough reading of previous papers. It might be possible to make effective use of a variety of clinical pharmacy services, such as medication therapy reviews, involvement in ward rounds, drug interaction monitoring, patient counselling, education, and training. Although few in number, articles about the role of clinical Pharmacists in treating patients with enteral tubes were also found [9]. Because all of the evaluated outcomes and occurrences happened within the research period, the study was prospective in design. It differs from the retrospective approach, which has researchers go back in time to gather data from earlier studies. Prior to the development of any interesting outcome, baseline data is gathered at the beginning of the research. Instead of using outdated records, the pre-intervention data was also gathered from patients who were hospitalised during that research phase. Subsequently, the participants are monitored immediately for the necessary results and

prospectively tracked into the future. Two separate patient groups, one before and one after the intervention, made up the study groups. Before the intervention, there were 160 samples in the before-intervention arm, and 245 samples in the after-intervention arm. No particular method was used to calculate the sample size because all patients who met the study requirements and were admitted to the hospital during the study period were included. [10]..

4. Results and discussion

IBM SPSS version 18.0.2 was used to perform the statistical analysis. Various statistical tests were applied based on the data that was examined.

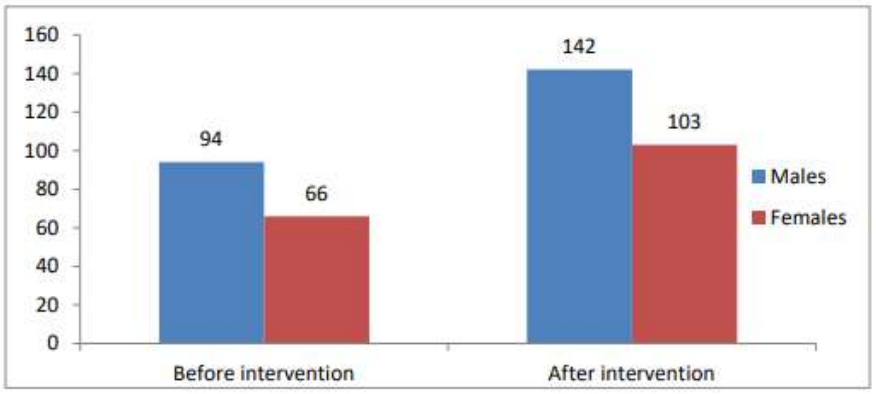

Figure 1: Gender Wise Distribution

Males outnumbered females in both the pre-intervention group and the post-intervention group when the patients' gender and age were accounted for. In the pre-intervention sample, there were 94 males and 66 females; in the post-intervention group, there were 142 males and 103 females, respectively.

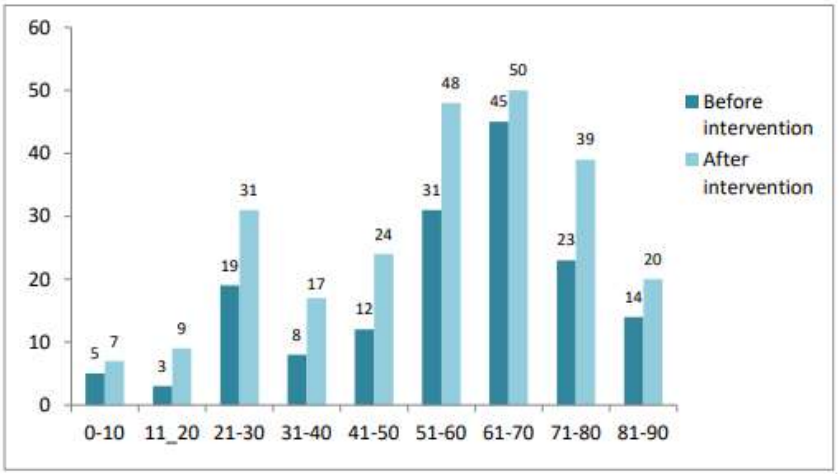

Figure 2: Age Wise Distribution

Nevertheless, in the post-intervention group, whereas the pre-intervention group's preceding category was stroke, the subsequent category—which included 50 patients—was other unidentified disorders, and severe injuries came next. 0–10–20–30–40–50–60–42–31–22–30–24–54–18–46–39–50 Prior to intervention following 46 patients' treatments. The numbers of patients with sepsis and surgery were nearly similar, at 38 and 39, respectively. These trends were also evident before to intervention, when the numbers were 30 and 31, respectively. Additional neurologic disorders were identified in 18 individuals. Overall, the diagnosis research revealed that the most common reasons patients are placed on EFT are neurological conditions and neurosurgical procedures.

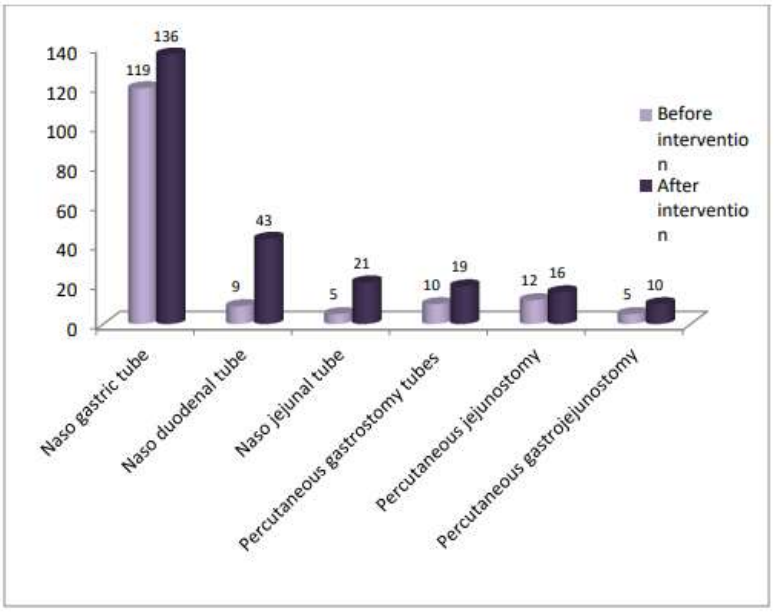

Figure 3: Quality of life of patients

The term "enteral feeding tube" is frequently used to refer to a wide range of tubing procedures performed on patients, each with a unique insertion and exit point. A subset of patients' EFT kinds were examined.

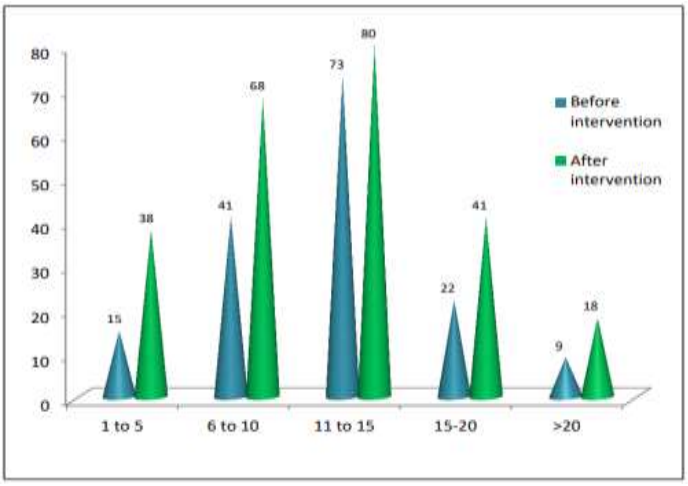

Figure 4: No of medications in drug chart

There was a very minor drop in the mean number of medications—11.87 before and 11.41 after the intervention. Statistical significance was not established for the difference when the Mann Whitney U test (p value>0.05) was performed with a 95% confidence range. The overall trend in the drug chart indicated a decrease in the total number of drugs, even if it was not statistically significant. This resulted from clinical Pharmacists' awareness-raising and intervention efforts aimed at reducing the quantity of drugs given to patients using enteral feeding tubes by holding or terminating all unnecessary prescriptions. There is substantial evidence of a positive association between the total number of days on EFT and the number of tube occlusion episodes, as consistent results were obtained both before and after the intervention. In other words, when one parameter rises, the other tends to follow suit. The duration of tube insertion days increases as a result of treatment ineffectiveness when the enteral tube patient's entire therapy regimen is not optimised organically. As previously mentioned, the number of days on EFT was considerably decreased following the intervention period as a result of the clinical Pharmacist's actions. When combined with the correlation finding found here, it is possible to draw the correct conclusion that a reduction in the duration of days spent on an enteral feeding tube is one of the major causes of the decline in the frequency of occlusions following intervention, and vice versa.

5. Conclusion and future scope

In India, the field of clinical pharmacy is still in its infancy. Future clinical Pharmacists must take the initiative to recognise different drug-related issues and develop workable solutions. In our nation, medication errors are still not acknowledged as a significant issue. It is important to research and educate authorities and health professionals on the possible consequences of drug errors. In our current healthcare environment, difficulties such as medication therapy-related problems in patients on EFT are frequently disregarded. Clinical Pharmacists are qualified to analyse these difficulties in-depth and create comprehensive programs to address them. Establishing a strong rapport with fellow professionals is crucial to the successful execution of these concepts. Better patient management results are always guaranteed when a team works together. For patients using enteral tubes, a well-designed pharmaceutical care program significantly improves the overall quality, safety, and effectiveness of medication therapy.

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