Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 1s (2025)
https://www.jneonatalsurg.com

OPEN ACCESS

Factors Influencing The Clinical Pharmacists' Perceptions of Pediatric Clinical Patient Care

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Cite this paper as: Prachi Gurudiwan, Mahendra Kumar Sahu, (2025) Factors Influencing The Clinical Pharmacists' Perceptions of Pediatric Clinical Patient Care. *Journal of Neonatal Surgery*, 14 (1s), 33-40.

ABSTRACT

This Systematic Review (SR) aimed to identify and summarize factors influencing the execution of Pediatric Clinical Pathways (PCP) from the viewpoints of consumers of services in hospital environments. An SR of databases was conducted to discover pertinent peer-reviewed studies from conception, adhering to the requirements for inclusion. Boolean search algorithms encompass assistance, client subgroups, and feature subdomains. Research was separately examined, and those that were selected were evaluated for quality using the Mixed Methods Appraisal Tool. The investigation used the 'Enhancing Transparency in Reporting the Summary of Qualitative Investigation' declaration. Four thousand two hundred references were evaluated based on title and abstract, including 6 of 33 articles reviewed. Two investigations were assessed as 'high' quality, while four were rated as 'mild.' The investigation identified seven elements classified under five established broad themes. The factors included the views and approval of other medical professionals; the presence of Clinical Pharmacists (CP) in inward or outpatient treatment environments; the application of drug-related expertise to clinical operations; resources for providing services and protection; participation in a multifaceted team; instruction in specialized areas; and the enhancement of communication skills. Support for PCP was limited compared to a comparable SR undertaken in the adult community. A significant knowledge deficiency in this field of practice has been observed. Most of the identified characteristics were seen as enablers that contributed to the effective execution of PCP. Additional study is required to discover further elements, and their investigation is essential to establish a robust framework for strategic thinking for PCP deployment and growth.

Keywords: *Pharmacists, paediatrics, pharmacists, clinical care*

1. INTRODUCTION

Particular emphasis must be placed on optimizing pharmaceutical use in youngsters since they are at an elevated risk of injury from pharmaceutical errors, which can be more detrimental to them than to grownups [1]. The American College of Pediatrics reported that pediatric drug orders led to medication mistakes, with rates ranging from 4% to 25% in a Systematic Review (SR). Factors contributing to pediatric pharmaceutical errors include formulation abuse, dosage calculations based on weight or body dimension, alterations in pharmaceutical kinetics, off-label drug usage, lacking standardized dosing protocols [12].

The Paediatric Pharmaceutical Advocacy Committee and the Paediatrics Management and Studying Network have jointly endorsed the necessity of Pediatric Clinical Patients (PCPs) within the pediatric demographic [3]. The SR demonstrates the advantages of PCP across several clinical situations.[2]. The majority of investigations were performed in a controlled environment. When data is applied to real-world scenarios, the outcomes do not consistently align. The disparity stems from the environment of the actions, which significantly influences the adoption and sustainability of the tested elements. [9].

A recent SR has assessed the advantages of PCPs in pediatrics relative to adult clients in medical environments. Medical pharmacists in pediatric wards enhance patient results, but there are impediments to pharmacist participation [16]. The review did not address how these obstacles impact PCP participation; however, the setting for execution is crucial as it encompasses multiple variables that influence the service procedure and the outcomes of the service.[4].[11]. By recognizing the elements that facilitate or obstruct the adoption of PCP, methods to surmount process impediments are formulated, promoting the widespread introduction of medical breakthroughs [14].

No SR exists that has analyzed the aspects affecting the application of PCP in medical environments.[5].[13]. The objective of this SR was to determine characteristics that affect the execution of pediatric inpatient PCPs from the viewpoints of service consumers, including healthcare providers, kids, parents, or caretakers who have utilized services offered by CPs. This evaluation aimed to determine the following:

Any enablers that promote

Any obstacles that obstruct the effective execution of PCP in a hospital context.

2. METHOD

2.1 Research Methodology

Information was gathered through Semi-Structured Interactions (SSIs) [17]. SSIs have been widely employed as a robust data-gathering technique for assessing the determinants that affect pharmacy practice. The interview schedule's topics were derived from pre-established subdivisions and themes detected in PCPs. The list of interviews was created after discussions with everybody on the team.[6]. A pilot experiment was conducted with three study subjects to verify the comprehensiveness and pertinence of the information in the developed guides and to ascertain the potential necessity for reformulating the queries. As every investigator concurred that no modifications were necessary to the timetable, the findings were incorporated into the study.[15].

2.2 Selection of studies

The inclusion requirements encompassed peer-reviewed studies concerning PCPs, with specified participants, actions, and results detailed below. This review includes solely English-language works or pieces in other languages accompanied by complete English translations. Articles that did not fulfill the specified inclusion criteria were eliminated from this review.

- Respondents: Hospitalized children aged 0 to 18 years. Only information about the pediatric group was considered in a study involving adult and kid individuals.
- Initiatives: Any tasks, obligations, or remedies conducted by CPs.
- Outcome metrics: Immediate or indirect results that indicate factors affecting the execution of PCP.

2.3 Data acquisition

A comprehensive list was compiled of all studies discovered from the search databases. A bibliographic search for the papers included was conducted. The study evaluated the research titles, and if a title appeared pertinent to the purpose of this assessment, the abstract was obtained. Study separately evaluated these abstracts to determine their possible eligibility. All complete texts of papers deemed possibly inclusive investigations by both investigators were obtained. The study further assessed the research articles separately according to the inclusion standards, while the study verified the chosen full-text publications for relevance and suitability [18]. The study supervised the data evaluation procedure and served as an unbiased assessor for reaching a consensus in instances of dispute. All four assessors convened, and the principal themes derived from data evaluation were deliberated. A standardized form was employed to extract information from the studies for quality evaluation and evidence synthesis.[7].

2.4 Evaluation and distillation of data

The synthesis documentation adhered to the criteria for Enhancing Transparent in Presenting the Synthesis of Quantitative Researchers. This SR uses a combined converging synthesis method. The conclusions were integrated concurrently throughout the procedure stage rather than separating each synthesis. [10]. Upon transformation and integration, all data underwent theme synthesizing following the outlined procedures. The software program was employed to enable data evaluation and synthesis.

2.5 Evaluation of quality

The study separately assessed the efficacy of the included research with the Mixed Methods Assessment Tool [8]. The reliability rating methodology was implemented, with studies evaluated on a scale of 0 to 5 points according to the five-item criterion. Research receiving scores of 0-2 points were classified as having poor quality, 3-4 points as good quality, and 5 points as excellent quality. The study deliberated and agreed on the definitive quality assessment for all studies.

3. SYSTEMATIC ANALYSIS AND OUTCOMES

3.1 Search outcomes and attributes

Four thousand two hundred references were found from the first library searches, and 33 full-text papers were evaluated for qualification. Six investigations were incorporated after the selection procedure. Figure 1 delineates the phases involved in the selection procedure. Among the six research covered, two were subjective, three were measurable, and one employed mixed methodologies.

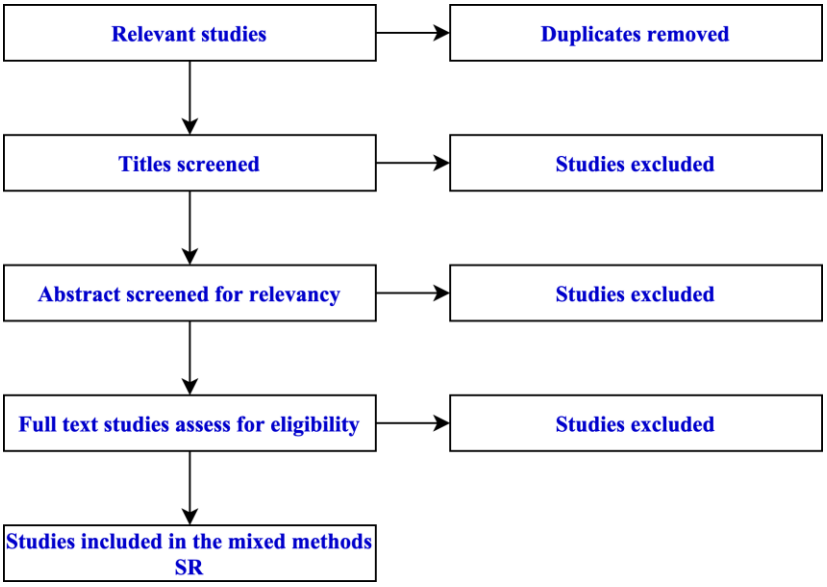

Figure 1: Workflow of the SR

3.2 Evaluation of quality

Two studies were rated as 'high' quality, while four were rated as 'moderate.' Prevalent weaknesses included insufficient representativeness of the samples of the target people, untested and unpiloted surveys for reliability and accuracy, and an absence of clarity in mitigating biases such as socially acceptable and failure to respond bias. A structure-based method was utilized, with themes extracted from research that has examined variables related to the quality of execution in medical care. These markers have been effectively integrated into pharmacy environments. The investigation resulted in the discovery of seven operational elements categorized under five specified general themes. Figure 2 illustrates thematic maps depicting the topics and their practical aspects derived from the collected research.

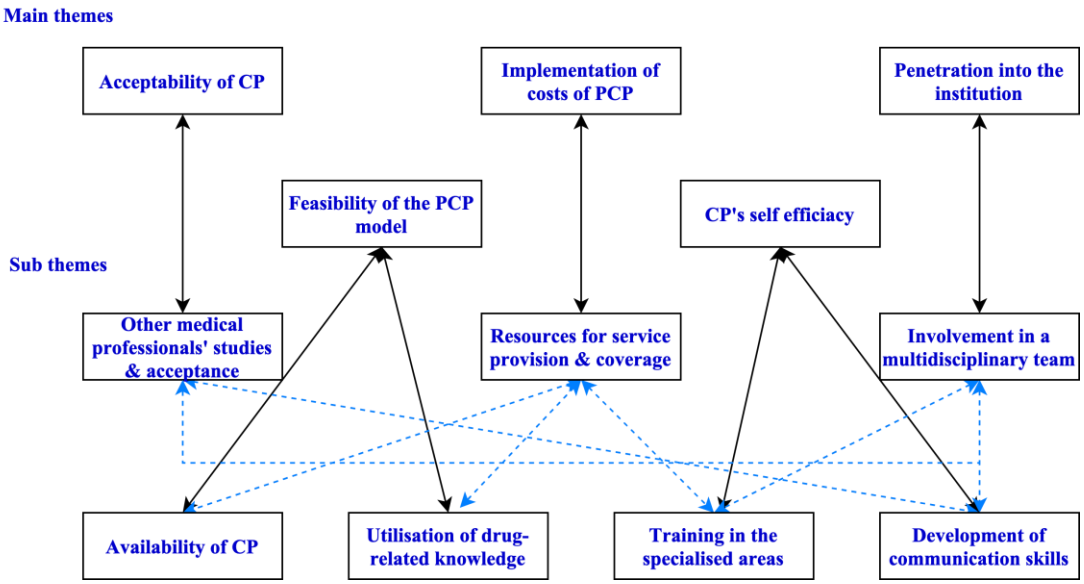

Figure 2: Thematic maps of different facts of PCP

Acceptance of CP and their Perspectives and Reception of Other CP

Both nurses and doctors exhibited a predominantly favorable disposition towards the function of CP. The data indicate that CPs' views are a significant facilitator interconnected with other operational elements, including institutional depth and the self-efficacy of CPs. Several physicians believed that the participation of CP could influence their prescribing practices, hence becoming an obstacle to the deployment of PCP.

Viability of the PCP service paradigm in the environment

- Availability of PCP in inpatient and outpatient environments

The presence of CPs was identified as a significant facilitator that promotes PCP adoption. The research outlined the advantages nurses and doctors recognized when CPs were readily accessible to fulfill their responsibilities.

- Utilizing pharmacological expertise to execute clinical tasks

Another emerging subtheme is that CP might apply their specialized knowledge in pediatric pharmacotherapy when engaging in tasks pertinent to their employment. Evidence indicated that with CP engaging in drug-related tasks, medical personnel might divert their efforts towards different therapeutic tasks. The involvement of CP in such operations resulted in healthcare workers feeling more assured in enhancing patient experiences, particularly regarding pharmaceutical safety.

- Costs associated with the deployment of PCP assets allocated for service delivery

The deficiency in financial resources impeded PCP execution, adversely affecting other elements such as the accessibility of CPs and the training offered to them. The scarcity of assets was evidenced by the limitations in manpower and time encountered by CPs. Despite resource constraints, service customers maintained elevated expectations of PCP, resulting in significant pressure on the CPs delivering these services.

Infiltration into the organization

The partnership between CP and other medical professionals was identified as promoting primary care provider integration. The degree of cooperation indicated the collaboration theology, which is crucial for facilitating effective execution. Medical experts saw the incorporation of hospital pharmacists into a multidisciplinary group as highly advantageous, particularly in managing chronic disorders. Furthermore, the acknowledgment of an integrated strategy has facilitated the implementation of novel services, which is connected to the accessibility of CPs.

Self-efficacy of CP

A critical ability highlighted for service delivery was the specialized knowledge of pharmacology that CP holds for this specific demographic. Several instances have demonstrated the need for pediatrics training and managing children with persistent illnesses. Service consumers regarded adequate training as essential before the provision of services. The acquisition of necessary expertise in these specialized fields enhances the credibility of PCP.

Enhancement of Communicative Competencies

Evidence indicated that effective communication among care providers and nurses fostered a robust connection, facilitating service utilization; however, analogous findings were not observed between doctors and care providers. CP frequently served as an intermediary between physicians and nurses to address pharmacological concerns.

The analysis has indicated that pharmacists' direct interactions with caregivers and parents have enhanced their trust in handling children's diseases. This experience encompassed teenagers who directly sought assistance from pharmacies since statistics indicated that teenagers were more inclined than younger individuals to regard pharmacies as a reliable source of knowledge, demonstrating how communications facilitate the execution of primary care principles from their perspective.

Barriers and Facilitators

4.1 Barriers

Infiltration into the medical field

Responders perceived that their contributions were inadequately acknowledged and articulated that this deficiency in acknowledgment stemmed not from issues of trust or assurance but from a lack of comprehension regarding their roles. The society of medical hegemony was regarded as an impediment. Respondents noted that certain physicians did not value PCPs. They argued that doctors were hesitant to modify their practices.

The opposition to change was varied, encompassing doubts over the capability of CPs to deliver superior services and concerns about the erosion of drug expertise. Certain CPs argued that this opposition was connected to internal problems within the pharmacy field, detailed in a later portion of this article. Respondents said the present PCP project has not been executed as effectively as in other nations, given that it was established only recently, suggesting that its execution will improve over time.

Limitations of the practice setting

Respondents experienced challenges in executing their duties due to their substantial workload. They contended that primary care providers were highly stressed and occasionally exceeded their capability. The pharmacist-to-patient proportion was scrutinized. Several respondents indicated that the daily patient load has restricted their employment due to resource limitations.

One respondent stated that the underlying issue regarding the accessibility of CPs was associated with the absence of a distinct separation between primary and supplementary care.

Respondents emphasized that a more organized pharmacy structure, featuring a delineated division of responsibilities within the division, could improve the accessibility of CP to fulfill their obligations.

Assistance from institutional partners

Due to divergent perspectives on outcome measurements, CPs articulated their challenges in securing support from operational partners. Administrative partners lacked commitment to invest in CPs, thereby restricting their resources. A respondent indicated that, from the investors' viewpoint, pursuing CPs would not be as appealing as engaging with other medical experts regarding cost-effectiveness. CPs expressed their difficulties in labor distribution due to resource deficiencies. A fundamental change in the medical amenities offered by pharmacists was highlighted, along with the unsustainable resource allocation for primary care providers to deliver the desired services.

Regulation of the field

Respondents noted that the degree of execution varied among hospitals due to an absence of standardization in practice, which hindered stakeholders' understanding of the role of CPs, resulting in diminished recognition of the profession. Some have indicated that the establishment of broad professional organizations, such as councils or communities, can facilitate the provision of generally accepted standards and educational demands, ensuring that the competencies of CPs are upheld at an adequate level. They posited that an industry group functions as a certifying entity to guarantee that all PCPs uphold their qualifications and competencies, offering consumers confidence that all CPs have been subjected to rigorous evaluation of their practicing capabilities.

Collaboration with academic institutions

Respondents proposed enhanced partnerships with institutions. They contended that it facilitates localized evidence sought by administrative parties and empowers CP to implement evidence-based practices in pediatrics. Concerning centralized training, several CPs asserted that the pediatric specialist course was misaligned with their practice and lacked durability; they proposed that ongoing developmental instruction in this particular domain should be integrated into their training.

Public comprehension and acknowledgment of CPs

Respondents noted that the average populace lacked clarity regarding the job of CPs, as chemists are predominantly shown as medication providers. Some saw a causal conflict between the acknowledgment of CPs and professional independence. They argued that the pharmacists' designation as medical professionals was adversely impacted by the absence of supportive laws, including prescribing powers. Specific individuals emphasized that the public must comprehend the significance of CPs before enacting pertinent laws.

A society of medical hegemony

Respondents noted that medical supremacy is rooted in culturally ingrained traditional attitudes. Healthcare and nursing respondents provided distinct rationales for their reluctance to change. Certain physicians contended that the obstacle was rooted in cultural factors that hinder the promotion of CP roles in handling medications, primarily due to the public perception associated with their comprehension of the field.

- A few nurses indicated that physicians exhibit hostility toward CP due to perceived threats from the growing influence of CP.
- Lack of assets and substantial workload encompassing clinical and administrative responsibilities.

The prevailing view of both disciplines is that the existing workforce of PCPs has reached its maximum capacity. Respondents recognized that the scarcity of CP significantly constrained service execution, as the elevated participant-to-pharmacist proportion and the extensive coverage of many wards were emphasized. Certain interviewees believed that CPs were hindered by their responsibilities in the distribution, thereby impacting their availability in the hospitals. They noted that these constraints adversely affect the standard and scope of service offerings.

The necessity of CPs at the organizational level

Participants of both professions generally encountered challenges in articulating the boundaries of a PCP. Several respondents indicated they were unaware of PCP until their pediatric rotation, as it is not consistently applied across every field and organization. They asserted that the organization and its healthcare facilities must assume a pivotal role in educating nurses and doctors about the function of CPs to ensure the proper implementation of the service. Several respondents indicated that experts in healthcare organizations can assist in accomplishing this objective.

The necessity for a more proactive strategy

Despite the endorsement of CPs' actions by nurses and doctors, some believed that the execution achieve tremendous success if CPs adopted a more proactive approach. Respondents expressed a need for CPs to engage more in meetings across disciplines and to offer classroom instruction. Medication guidance was regarded as one of the essential therapeutic services CP offers. Yet, they only advise clients or guardians following doctor or nurse referrals. Numerous participants said the

optimal scenario would involve the CPs beginning the service.

Insufficient engagement in direct treatment of patients' activities

Respondents said that personal medical actions, such as administering drug counseling, constitute a significant component of the PCP. Doctors assert that drug counseling by licensed pharmacists enhances families' comprehension of medications for their kids. Confident respondents contended that the execution was swayed by recognizing that CPs' contributions have improved medication adherence. Many respondents perceived that CPs were less engaged in direct care for patients' tasks than expected. Respondents indicated that direct patient care is confined to the hospitalization period and could be expanded to encompass post-discharge to continue care.

4.2 Facilitators

Trust and faith of doctors and nurses in PCP

Most participants believed that primary care providers received adequate support from physicians and nurses. Instances of how PCPs have assisted other medical professionals encompass their effectiveness in time management, provision of training, and mitigation of drug errors. Respondents asserted that PCPs have facilitated more direct and transparent interactions with other medical professionals, which has fostered positive rapport and thus cultivated confidence and belief in PCPs.

Assistance from Pharmacy Executives

CP perceived the support from the pharmacy administration as sufficient, regardless of whether it was delivered centrally or outside. Respondents recognized the team's endeavor to offer a comprehensive range of training to prepare them to provide uninterrupted services. The staff was acknowledged for their substantial effort in delivering sufficient training, which was met with pleasure.

Self-efficacy of CPs

Respondents' views were influenced by elements such as manpower, instruction, work relationships, and support, which in turn impacted their impressions of the setting up of PCPs. A crucial attitudinal aspect discovered for the effective execution of PCP was self-initiative. Respondents asserted that enthusiasm and passion for the task were crucial and influenced their work results. They considered that primary care physicians had augmented their participation in managing illnesses by fostering a sense of belonging within a multidisciplinary team. Respondents noted that primary care providers have afforded caregivers or families a greater comprehension of their children's medicines.

Enhancement of patient results

Respondents assert that the engagement of CPs in their responsibilities has enhanced patient satisfaction and that the effective execution of the present PCP has served as a catalyst for additional service rollout. Confident respondents believe the program enhances individuals' and parents' comprehension of pharmaceuticals, including their uses and security measures, improving medication adherence. Respondents noted that PCP enhanced the safety of medication administration in children, which was regarded as presenting a significant risk of error.

Enhancement of the general effectiveness of medical services

Healthcare professionals assert that the PCP has enhanced the general efficacy of medicines by facilitating direct interaction with a pharmacy division member. The CPs, being organized by wards, offer a more direct and comprehensive understanding of individuals' clinical requirements, facilitating the swift resolution of any inquiries or medication-related concerns. Respondents noted that one function of CPs was to serve as a liaison for communication with the medicine, thereby streamlining the ordering process and conserving a lot of time and effort.

Reliance and Assurance in the PCP

Respondents expressed trust in CPs, asserting that they possess specialized abilities and expertise that facilitate effective patient care administration. Physicians' faith in CPs was reflected in their faith in the PCP. Responders expressed confidence that CPs could deliver sophisticated services comparable to more mature PCPs.

Addressing a clinical deficiency as a provider of medical data

Doctors and nurses expressed gratitude for CPs supplying medicinal knowledge that enhanced their medical practice. Doctors typically noted that data supporting PCP adoption involves reviewing medication regimens, conducting SR, providing data, and acquiring new pharmaceutical items. Nursing respondents indicated that delivering practical knowledge, including drug composition and delivery techniques, improved the security of their nursing jobs.

Clear and cohesive communication as a part of a heterogeneous team

Physicians appreciated the involvement of CPs in the medical phases when they engaged in impromptu discussions regarding how to handle medications. They assert that informal interaction establishes a rapport among healthcare providers. Doctors

stated that speaking directly had established a strong collaborative relationship among healthcare providers, enabling mutual learning and assistance. Doctors appreciated interacting directly with pharmacists in practice, noting that it enhanced the efficiency of health services, hence benefiting individuals.

4. CONCLUSION

This SR revealed six research investigations and seven characteristics that either promote or obstruct the application of PCP in institutions. The factors included the attitudes and approval of healthcare experts, the accessibility of CP, assets for service delivery, participation in a multifaceted team, application of expertise in drug-related tasks, training in specialized fields, and enhancing interpersonal abilities. Minimal research exists regarding the implementation of PCP in healthcare facilities, revealing an essential lack of understanding in this domain. The SR has provided insight into aspects that affect the application of PCP in hospital environments. Given the diversity of various PCP actions presented in those studies, future studies should concentrate on determining the elements that affect each specific service. Subsequent studies should focus on how the attributes of the particular CP influence adoption. The provided expanded content enables research to identify the elements influencing the execution of each PCP action, establishing a robust basis for strategic thinking about PCP adoption and growth, including necessary personnel education and training.

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