Original Research

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IMPROVING PATIENT SAFETY CULTURE (PSC) IN PRIMARY HEALTH CENTERS (PHCs) IN JAMBI PROVINCE

Peningkatan Budaya Keselamatan Pasien di Pusat Kesehatan Masyarakat di Provinsi Jambi

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Abstract

Background: Patient safety incidents continue to occur in primary health care services despite being 24% to 85% preventable. Promoting and assessing patient safety culture is the primary step to minimize and prevent adverse incidents.
Aims: This research examined the level of patient safety culture implementation in Primary Health Centers.
Methods: A quantitative descriptive research design was conducted involving 319 employees randomly selected from 11 Primary Health Centers in Jambi province. Data were collected using the Hospital Survey on Patient Safety Culture (HSOPSC) questionnaire and analyzed descriptively, with an average cut-off point of 75%.
Results: The implementation level of patient safety culture in the Primary Health Centers in Jambi Province was 71.5%. Furthermore, seven dimensions of patient safety culture were weakly implemented namely staffing, communication openness, organizational learning for continuous improvement, supervisor/manager expectations and actions promoting patients, non-punitive response to error, general perception of patient safety, and frequency of error reporting.
Conclusion: Continuous examination should be conducted to ensure better changes in improving patient safety culture.

Keywords: Jambi Province, Patient safety culture, Primary health center

Abstrak

Latar Belakang: *Banyak insiden keselamatan pasien terjadi di layanan kesehatan primer meskipun sekitar 24-85% dapat dicegah. Mempromosikan dan menilai budaya keselamatan pasien adalah langkah paling utama untuk meminimalkan dan mencegah insiden yang merugikan pasien.*
Tujuan: *Penelitian ini bertujuan untuk menilai tingkat penerapan budaya keselamatan pasien di Puskesmas .*
Metode: *Penelitian deskriptif kuantitatif dilakukan terhadap 319 partisipan, yaitu karyawan dari 11 Puskesmas di Provinsi Jambi yang dipilih secara acak. Data dikumpulkan menggunakan kuesioner Hospital Survey on Patient Safety Culture (HSOPSC) dan dianalisis secara deskriptif dengan rata-rata titik potong 75%.*
Hasil: *Tingkat penerapan budaya keselamatan pasien di Puskesmas di Provinsi Jambi masih rendah yaitu 71,5%. Terdapat tujuh dari dua belas dimensi budaya keselamatan pasien masih lemah penerapannya yaitu penempatan staf, keterbukaan komunikasi, pembelajaran organisasi untuk perbaikan berkelanjutan, harapan dan tindakan supervisor/manajer yang mendukung pasien, respons yang tidak menghukum terhadap kesalahan, persepsi umum tentang keselamatan pasien, dan frekuensi pelaporan kesalahan.*
Kesimpulan: *Penilaian berkelanjutan diperlukan untuk memastikan perubahan yang lebih baik untuk meningkatkan budaya keselamatan pasien.*

Kata kunci*: Budaya keselamatan pasien, Puskesmas, Provinsi Jambi*

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Introduction

Patient safety (PS) refers to a system designed to enhance patient care safety by minimizing risks and preventing harm caused by errors. It indicates the extent to which patients are protected from avoidable harm. The failure to carry out adequate protection indicates deficiencies in the patient safety system (WHO, 2023). In this context, incidents continue to occur exponentially due to public health problems and major challenges related to unsafe services worldwide (S. E. Lee *et al.*, 2019).

Research on patient safety was conducted at hospitals, despite the fact that most medical consultations occurred in primary care facilities, such as Public Health Centers (PHCs). These facilites typically have fewer resources in infrastructure, procedures, and practice standards to ensure patient safety compared to hospitals. The culture of patient safety has been neglected in primary care, with limited information published on the subject (Kavanagh and Cormier, 2023).

The majority of patients who experienced incidents in hospitals received care in primary care setting. Approximately four out of ten patients experience injuries in primary healthcare and outpatient settings (WHO, 2023). Several incidents occur in PHCs, even though around 24%-85% are preventable. Research by Fassi *et al*. (2024) in Morocco found that 22.3% of patients reported experiencing 1 to 2 incidents annually in PHCs, while 11.1% reported between 3 and more than 20 incidents per year (Fassi *et al*., 2024). In Indonesia, reported data remain scarce and poorly recorded (Wanda *et al*., 2020). The National Committee on Patient Safety showed an increase in patient incidents from 1,489 cases in 2018 to 7,465 in 2019 (Tirzaningrum *et al*., 2022). This lack of data was due to a culture of underreporting, driven by fear of blame and concerns about potential careers repercussions (Guspianto, Ibnu, and Solida, 2021).

Patient incidents in PHCs are difficult to detect due to inaccurate recording and reporting (Nora and Beghetto, 2020). Data on incidents due to medical errors in PHCs in Jambi Province were difficult to obtain because there was still a lot of reluctance to report and a prevailing culture of blame (Astriyani, Suryoputro, *and Budiyanti*, 2021). However, incidents frequently occur, considering the lower service standards compared to developed countries. The phenomenon is believed to be the tip of the iceberg, indicating a larger patient safety problem. In addition, there are no uniform standard criteria for the identification and classification of potential patient safety risks in PHCs (Guspianto, Ibnu, and Wardiah, 2022), and this was a typical challenge that determined the success of the services. Therefore, establishing and promoting a Patient Safety Culture (PSC) program is very important to prevent adverse incidents in PHCs (Kavanagh and Cormier, 2023; Morris *et al*., 2023).

Patient Safety Culture (PSC) is a product of shared values, assumptions, attitudes, beliefs, and competencies that drive commitment, behavioral patterns, and organizational capabilities in patient safety performance (Mistri *et al*., 2023; Arzahan *et al*., 2022). The program requires high awareness among health professionals, which guides appropriate attitudes and actions to ensure patient safety (Lousada *et al*., 2020). Primary Health Centers (PHCs) without PSC programs faced increased risk of errors, psychological and physiological disorders among staff, reduced productivity, and interpersonal conflicts that may lead to adverse patient incidents. The emphasis on awareness of improving PSC serves as a tool for monitoring the development of steps and transitions in PSC (Lai *et al*., 2020). Therefore, this research aimed to assess PSC as a basis for improving and enhancing the quality of services focused on patient safety.

Method

This research used a quantitative descriptive design to determine the level of PSC implementation at 11 PHCs representing 11 districts in Jambi Province. The sample consisted of health and non-health workers, excluding those who had worked for less than one month due to

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limited time to adapt and understand the work or services at the PHCs.

An electronic format (Google Form) was initially used for data collection and was later replaced with paper-based, as agreed with PHCs. The data collection was conducted approximately three months, from August to October 2024. A total of 319 PHC staff responded to the survey and completed the questionnaire (response rate: 70.6%). The staff comprised 23 doctors (7.3%), 14 pharmacists (4.4%), 85 nurses (26.6%), 116 midwives (36.4%), 31 public health workers (9.7%), 11 laboratory analysts (3.4%), 13 sanitarians (4.1%), 9 nutritionists (2.8%), and 17 non-health workers (5.3%). Furthermore, written informed consent was obtained and anonymity was guaranteed.

The questionnaire was adopted from the Hospital Survey on Patient Safety Culture (HSOPSC) developed by the Agency for Healthcare Research and Quality (AHRQ), and was translated into Indonesian version linguistically by Tambajong, *et al*., (2022) with good validity (loading factor = 0.50) and high reliability (Cronbach's alpha = 0.70). It has been used by the Ministry of Health as the gold standard for measuring patient safety culture in healthcare institutions. The questionnaire consisted of 12 dimensions divided into 3 contexts: 1) unit level namely staffing, teamwork, open communication, organization learning, supervisor expectations and actions to promote patient safety, non-punitive responses, and communication about errors, 2) institutional level including management supporting, handoffs and transitions, and cooperation between units, 3) outcome measure namely general perception of patient safety and frequency of error reports.

Data analysis was conducted descriptively using statistical data processing software (SPSS version 24.0) to examine the PSC level in PHCs, based on the positive responses given, with an average indicator of at least 75%.

Result and Discussion

Based on the research, 44.5%, 87.8%, 53.3%, and 61.2% of respondents were aged 30-39 years, female, had diploma-level education, and were government employees, respectively. Approximately 25.1%, 28.5%, and 70% of respondents had worked in PHCs for 6-10 years, in the current work unit for 1-5 years, and as a nurse/midwife, respectively. Even though 57.7% admitted to not receiving safety training, 91.8% received safety information.

This research found the five types of patient incidents widely known by respondents in the last 12 months, including loss of documentation (27%), procedural errors not complying with operational standards (17.9%), patient falls (13.2%), errors in recording the treatment process, vaccinations, and others (8.5%), and incorrect drug dosage (6.6%).

The unit-level context

These results provide an overview of the implementation of PSC dimensions at the unit level based on the indicators. PSC dimensions that have indicators with weak implementation include staffing, open communication, organizational learning, supervisor expectations, and actions to promote patient safety and non-punitive responses. Meanwhile, the dimensions with strong indicators are cooperation within the unit and communication about errors. The implementation of PSC at the unit was still weak, as reported in Table 1. Based on the research, several indicators of patient safety dimensions in the context of unit level were still weak (<75%), namely staff placement (3 indicators), open communication (3 indicators), organizational learning (3 indicators), supervisor expectations and actions to promote patient safety (4 indicators), non-punitive responses to errors (3 indicators), and communication about errors (1 indicator).

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Table 1. Description of PSC dimensions and indicators at the unit level

Dimension/indicator	Number (%) of positive responses	
1. Staffing (73.1%)		
- The unit has enough staff to handle the workload	228	(71.4)
- Do not mind staying late to complete work or patient services.	247	(77.4)
- Needs help from other units to provide intensive services.	183	(57.4)
- Works in “crisis mode”, doing too much, too fast	275	(86.2)
2. Teamwork (95.8%)		
- People support one another in this unit	308	(96.5)
- Work together as a team when heavy and fast work is required	310	(97.1)
- Respect each other in this unit	312	(97.8)
- In this unit, when one area gets busy, others help out	293	(91.8)
3. Open communication (55.7%)		
- Free to speak up when they know something that may negatively impact on patient	172	(54.0)
- Free to ask about the decisions or actions of the leader/coordinator.	174	(54.6)
- Reluctant to ask when you get something that looks wrong	187	(58.6)
4. Organization learning (68.3%)		
- Making active efforts to improve patient safety	219	(68.6)
- Every mistake leads to positive change	214	(67.1)
- Evaluate the effectiveness of every change made	221	(69.3)
5. Supervisor expectations & actions to promote patient safety (65.2%)		
- The supervisor gives praise when work is in line with the procedures of PS.	210	(65.8)
- The supervisor takes staff suggestions for patient safety seriously.	216	(67.7)
- The supervisor asks to work faster when heavy work is required, even when shortcuts are taken.	199	(62.4)
- The supervisor does not care about patient safety incidents	207	(64.9)
6. Non-punitive response to error (55.1%)		
- Our mistakes are blamed on us	184	(57.6)
- The person is written up when the incident is reported.	180	(56.5)
- Any errors will be recorded as bad conduct	163	(51.1)
7. Communication about error (78.4%)		
- Incidents or errors that occur are always informed	247	(77.4)
- Discussed ways to prevent the errors from happening again	252	(79.0)
- Receive feedback on changes implemented to prevent errors	251	(78.7)

Source: primary data

The institutional level context

The implementation of PSC dimensions at the institutional level in PHCs showed strong performance, particularly in the dimensions of management support for patient safety, hand-offs and transitions, and cooperation between units in PHCs. Overall, the implementation of PSC at the institutional level in PHCs across Jambi Province was strong, as shown in Table 2. However, the results also revealed a few weak indicators within the institutional level context, specifically in dimensions of management support for patient safety (1 indicator) and hand-offs and transitions (1 indicator).

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Table 2. Description of PSC dimension and indicators at the PHC level

Dimension/indicator	Number (%) of positive responses	
1. Management support (77.5%)		
- Management provides a work climate that supports PS	288	(90.3)
- PS is a top priority in management actions	286	(89.7)
- Management only pays attention to patient safety when an incident occurs	168	(52.6)
2. Hand-offs & transitions (80.7%)		
- Problems often occur during the transfer or referral patients between units within the PHCs.	245	(76.8)
- Problems often occur when transferring or referring patients from the PHCs to the Hospital.	223	(69.9)
- Important patient records are often lost during shift changes.	275	(86.2)
- Problems often occur in the exchange of information across units in PHCs.	271	(84.9)
- Shift changes often cause problems for patients.	274	(85.9)
3. Cooperation between units (89.4%)		
- There is good cooperation between units in PHC	304	(95.3)
- PHC units work together to provide the best care	311	(97.5)
- It is difficult for PHC units to coordinate with each other	255	(79.9)
- Not comfortable working with other units in PHC	270	(84.7)

Source: primary data

Table 3. Description of the outcome measure of PSC

Dimension/indicator	Number (%) of positive responses	
1. General perception of patient safety (Dimension's positivity = 72.8%)		
- Never sacrificing patient safety, even though there is heavy work to be done	191	(59.9)
- PHCs have good working procedures and systems to prevent errors or mistakes	297	(93.1)
- It's just a coincidence when there are no incidents or errors	211	(66.1)
- The patient safety program at PHCs is not running well	230	(72.1)
2. Frequency of error reporting (Dimension's positivity 45.5%)		
- How often is an error that endangers patients (KTD) reported?	135	(42.3)
- How often is an error reported to have occurred but was discovered and corrected before impacting patients/the community (KNC)?	171	(53.6)
- How often is an error reported to have occurred but did not have the potential to endanger patients (KTC)?	140	(43.9)
- How often is an error reported to have occurred but did not have the potential to endanger patients (KPC)?	134	(42.0)

Source: primary data

Outcome measure context

The analysis of the outcome measure revealed that three out of four indicators were low. In the *Frequency of Error Reporting* dimension, all associated indicators had low implementation. In general, the outcome measure of PSC in PHCs across Jambi Province was still considered weak.

Areas of strength and weakness in PSC implementation at PHCs

Figure 1 illustrates five dimensions of PSC, namely teamwork within the unit (95.8%), communication about errors (78.4%), management support for PS (77.5%), handover and transition (80.7%), and cross-unit teamwork (89.4%).

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Meanwhile, seven dimensions were identified as areas of weakness, including staffing (73.1%), communication openness (55.7%), organization learning (68.3%), supervisor expectations and actions that promote PS (65.2%), non-punitive responses to errors (55.1%), patient safety perceptions (72.8%), and frequency of error reporting (45.5%). Overall, the implementation of PSC in PHCs in Jambi Province was approximately 71.5%, indicating the need for systemic improvement.

The concept of patient safety in primary care has become an increasingly important focus among health organizations, given that the majority of health services are provided at the primary level (Dalla Nora and Beghetto, 2020).

Several research were conducted to measure the professionals' perception of PSC of in PHCs emphasizing the importance of improving patient safety (Araújo *et al*., 2022). This research is the first to be conducted in Jambi Province that specifically measures and analyzes PSC in PHCs, achieving a fairly high response rate of 85.8% from several professionals. This study show that PHCs have implemented PSC at both the unit and institutional levels. This is relevant because PHCs have gone through an accreditation process where one of the assessment standards is the patient safety program. The accreditation process was confirmed to have a positive effect on the implementation and outcome of PSCs and to improve the quality of service. Meanwhile, patient safety practices reflect a culture that impacts the accreditation performance. Therefore, PHC leaders are expected to better understand safety culture and the relationship with performance to develop realistic strategies for achieving accreditation (Alfadhalah *et al*., 2022).

In the context of outcomes, the perceptions of patient safety efforts in the PHC environment were less positive (72.8%), and the frequency of reporting errors was notably low (45.5%). This condition is the same as several previous research conducted in PHC facilities of Muscat-Oman, where the average positive response in the two dimensions were approximately 50% and 40% (AL Lawati *et al*., 2019), and Morocco about 56% and 42% (Fassi *et al*., 2024).

At the unit level, this research identified weak areas in the implementation of PSC in PHCs that require improvement including staffing, communication openness, organizational learning, supervisor expectations and actions to promote PS, and non-punitive responses. In contrast, at the institutional level, the dimensions of PSC must be maintained.

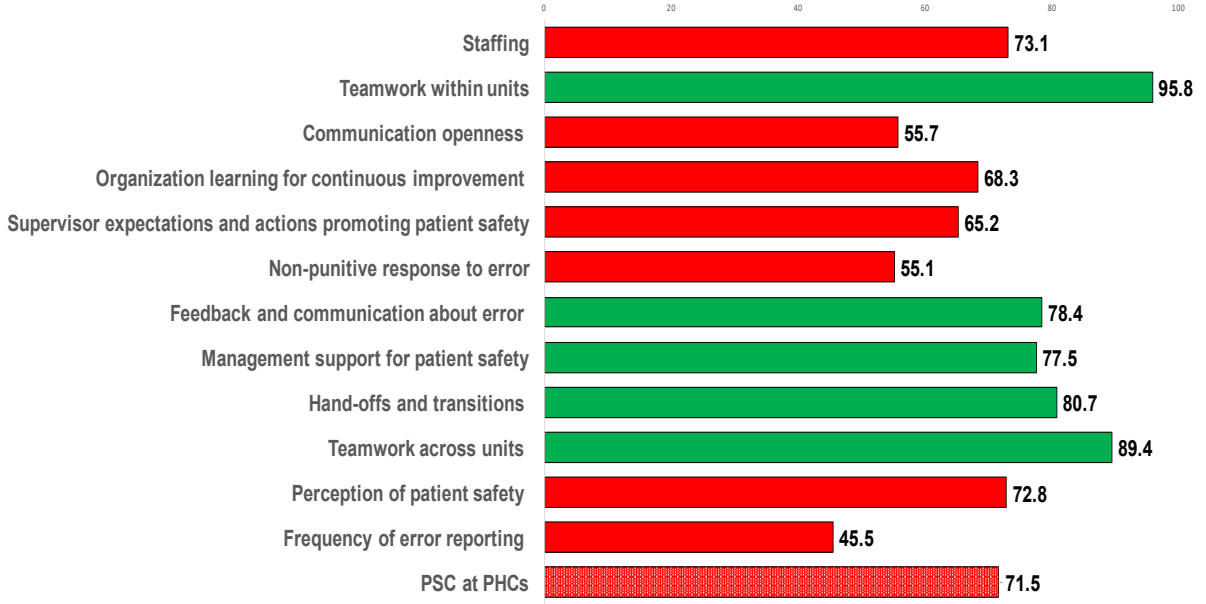

Figure 1. The average positive response for all dimensions of PSC at PHCs

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In the context of manpower, limited number of personnel to carry out the optimal workload necessitates assistance from other units to provide services. Understaffing, excessive workload, and uncomfortable working conditions affect patients and increase the probability of errors (Fassi *et al*., 2024). A shortage staff that leads to extended working hours beyond optimal for patient care can have serious consequences for patient safety and quality of care (Sousa *et al*., 2023). Therefore, efforts to evaluate staff allocation, working hours, competence and capacity, placement, and distribution of staff tasks are needed.

This research shows that superiors in PHCs were less open to staff ideas and thoughts, and do not promote alternative perspectives or different opinions. The presence of pressure and anxiety to speak up, especially regarding patient safety incidents, indicate poor communication quality. Efforts to improve the quality of service and patient safety require the implementation of a quality management system in carrying out leadership and open communication. The system in PHCs must build shared responsibility in service, including reducing the individualization of error and blame (Araújo *et al*., 2022; Fassi *et al*., 2024). Additionally, communication systems must also be developed to improve collaboration between units and the quality of professional work. A good strategy is useful for increasing adverse events by providing appreciation for the reporter to eliminate the assumption of negative consequences and providing a medium for staff to talk freely about service quality.

Organizational learning for continuous improvement is not optimal, as reflected in the perception of follow-up on patient safety efforts. This has implications for the implementation of communication, non-blaming responses, teamwork, and management support. To address this, management needs to empower staff to learn from incidents and obtain a better procedure. The concept of "from zero to hero" can be applied to increase staff participation in responding to an incident or error to maintain quality and patient safety (Lee and Dahinten, 2021).

Supervisors have a critical role in building patient safety efforts in PHCs. This can be achieved through a management method to identify incidents and provide communication about errors. The expectations and actions are predictors of general perceptions of PSC (Guspianto, Ibnu and Solida, 2021).

This research reflects that PHCs tend to emphasize the practice of a blame-and-punishment culture in response to errors. Respondents have a high negative perception of the "non-punitive response to errors" dimension. Due to the culture of "blame and shame", staff believe that the errors are related to professional and personal mistakes since each individual refuses to accept the problem (Fassi *et al*., 2024). Fear of punishment is a major barrier that limits the willingness to report incidents and errors due to the fear of being punished for bad conduct or being dismissed (Guspianto, Ibnu and Solida, 2021; Y. C. Lee *et al.*, 2019). Therefore, an atmosphere of openness is created in reporting incidents without a culture of blame and makes the response to errors an indicator of staff, work unit, and institutional performance. This research uses descriptive analysis, which may be limited since the relationship between the variables is not tested. However, a comprehensive description of PSC implementation is obtained in the PHC system to determine the weak dimensions and indicators of PSC as opportunities for improvement. This is covered when using correlation test analysis focused on the significantly correlated dimensions.

Another limitation is the collection of data by questionnaire, which has high subjectivity. Therefore, the truth of the data is very dependent on the honesty of the respondents. This is anticipated by including informed consent and using the gold standard of measurement to minimize distortion of the results.

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Conclusion

In conclusion, Patient Safety Culture (PSC) promoted the development of integrated professional behavior to ensure patient quality and safety and improve the performance of health service organizations. Several PSC in PHCs in Jambi Province tended towards negative cultures, including the dimensions of staffing, communication openness, organizational learning for continuous improvement, supervisor expectations, actions promoting patient, and non-punitive responses to error. These dimensions were identified as priorities for improvement, and recommendations were directed to the management of PHCs, health service professionals, administrators, and policymakers. The recommendations include 1) recognizing and appreciating staff who reported incidents while eliminating assumptions of negative consequences, 2) providing platforms that supported freedom of expression; fostering a culture of learning from each incident through appropriate information sharing and follow-up, 3) promoting the "from zero to hero" concept to enhance staff participation, 4) strengthening the role of supervisors in advancing patient safety initiatives, 5) cultivating an open environment free from a culture of blame, and 6) using responses to incidents and errors as key performance indicators for staff and organizational units. This research also emphasized the need for continuous examination of PSC at PHCs to ensure better changes in patient safety efforts. Further research and analysis could be developed to understand the challenges in implementing patient safety culture and the associated factors through cohort or experimental analyses to obtain real causal relationships.

Abbreviations

AHRQ: Agency for Healthcare Research and Quality; HSOPSC: Hospital Survey on Patient Safety Culture; PHCs: Primary Health Centers; PS: Patient Safety; PSC: Patient Safety Culture; PSIs: Patient Safety Incidents

Declarations

Ethical Approval and Participant Consent

This research was conducted with ethical approval from the Health Research Ethics Commission of Poltekkes Jambi No. LB.02.06/2/605.1/2024.

Conflict of Interest

There was no conflict of interest affecting the presentation in this manuscript.

Availability of Data and Materials

Data and material research can be provided upon request.

Authors' Contribution

G conceptualized the study; N created the methodology; DP wrote, reviewed, and edited the manuscript; G, N, and DP wrote the original draft.

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