

ORIGINAL ARTICLE

Empowering Care: The Impact of Staff Training on Patient Satisfaction in Pediatric and Gynecological Settings

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ISSN: 3006-760X (Online)

Citation: Mufaddal, T., Ali, S. T., Siddiqui, M. B., & Otho, M. S. (2024). Empowering Care: The Impact of Staff Training on Patient Satisfaction in Pediatric and Gynecological Settings. *Journal of Women and Child Health (JoWaCH)*, 1(3), 29-35. DOI: <https://doi.org/10.62807/jowach.v1i3.2024.29-35>

Available at: [Link](#)

Editor: Sana Ahmed

Peer Review History: JOWACH recognizes the benefits of transparency in the peer review process; therefore, we keep all of the content of peer review and author responses in our repository. We do not have a hyperlink to publicly accessible peer-review history, but if needed, we can send the history to you.



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Data Availability Statement: All relevant data are within the manuscript. We do not have a hyperlink to publicly accessible archived datasets, but if needed, we can send the raw data to you.

Funding: The author(s) received no specific funding for this work.

Competing interests: The authors have declared that no competing interests exist.

Competing interests: The authors have declared that no competing interests exist.

Abstract

Background: High-quality patient care depends on satisfied patients. This study focusses on investigating the impact of comprehensive staff training programs on patient satisfaction scores in pediatric and gynecological departments in Karachi, Pakistan.

Methods: This was a cross-sectional study of 414 healthcare providers, including doctors and nurses from public and private hospitals, to assess the association of staff training with patient satisfaction through surveys and hospital records; multivariate analysis explores the relationship further.

Results: Staff training was associated with the delivery of highly patient-satisfactory care, with a mean difference of 1.8 (95% CI, from 1.3 to 2.3, $p < 0.001$). Variables highly correlated with increased satisfaction scores are training in communication skills, cultural competency, and patient-centered care. Staff training was a positive predictor for patient satisfaction in most areas, including the perception of the quality of provided care, communication by the provider, and respect for patient preferences.

Conclusions: Comprehensive staff training programs raise patient satisfaction in a paediatric and gynaecological setting to a significant level. This brings out the importance of the investment in staff development in enhancing the quality of care for women and children.

Keywords: Staff training, patient satisfaction, pediatrics, gynecology, healthcare quality

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Layman Summary

Happy patients mean better healthcare! This study examined how training healthcare workers in children's and women's health departments in Karachi, Pakistan, affects patient satisfaction. We surveyed 414 doctors and nurses and looked at patient satisfaction scores in their departments. Trained staff had patients who were much happier with their care. The most important training areas were communication skills, cultural sensitivity, and focusing on what matters to patients. Training also improved how patients felt about the overall quality of care, how doctors and nurses communicated with them, and how much respect they felt they received. In short, investing in staff training can significantly improve the care women and children receive in these critical healthcare settings.

INTRODUCTION

Provision of quality healthcare is paramount, with the satisfaction of patients being one of the major pointers that indicate success. This is even truer with specialized fields like pediatrics and gynecology, which deal with vulnerable populations having sensitive health concerns most of the time.

Patient satisfaction has become one of the major metrics used to measure the quality of health care in recent decades. Patient satisfaction reflects not only perceived quality of care but also influences a number of factors, including treatment adherence, health outcomes, and general confidence in health care [1, 2].

While the relationship between the training staff and the rise in healthcare delivery is clearly established, at least in the developing world, including Pakistan, how comprehensive staff training programs impact patient satisfaction in pediatric and gynecological setups remains relatively understudied [3, 4].

There has already been significant research into the general benefits of staff training. For example, Aiken et al. conducted a systematic review in 2014 that concluded there was lower patient mortality and higher patient satisfaction within hospitals that had a better-educated nurse workforce [5]. Similarly, Banka et al. showed in the year 2015 that communication skills training for physicians improved patient satisfaction in the outpatient setting [6]. While these studies were highly relevant, with their focus on general hospital settings or specific medical specialties, there is very little known about how this will impact patient satisfaction regarding pediatric and gynecological care.

What is unique about the specialty care in pediatrics and gynecology, per se, presents special challenges to which focused staff training can respond. In clinical setting, the healthcare provider has to manage interactions involving not only with the patient but equally with his or her parents/guardians or accompanied relatives toward promoting satisfaction among patients and families [7]. Effective communication within this triad is important. Sensitivity to culture, a great amount of empathy, and technical expertise are needed in both specialties including pediatric and gynecological care settings [8]. All these challenges are further worsened in Karachi, Pakistan, by different socio-cultural factors, lack of resources, and varying levels of health literacy among patients [9, 10]. Literature is condensed with evidences suggesting multiple linguistic, cultural, behavioral, and management barriers in doctor-nurse-patient communication in Pakistan, emphasizing the need for communication skills training [11, 12, 13].

With respect to this, our study attempts to fill in this lacuna by analyzing the impact of extensive staff training programs on patient satisfaction within pediatric and gynecological care settings in Karachi. Drawing on these specialist areas, we hope to make certain important contributions to the literature about the efficacy of staff training in enhancing patient experience within contexts where cultural sensitivities interact with complex patient needs.

Our research is guided by the following objectives:

1. To evaluate the association between staff participation in comprehensive training programs and patient satisfaction scores within departments for both pediatrics and gynecology.
2. To identify particular aspects of training of staff that have the greatest impact on patient satisfaction, such as communication skills, cultural competency, and technical expertise.
3. To determine the influence of staff training on key components of patient satisfaction, including perceived quality of care, provider-patient communication, and respect for patient preferences.
4. To investigate if there is any difference in the effect of staff training on satisfaction for patients treated in public or private healthcare facilities in Karachi.

By answering these objectives, we want to add to this extremely fast-growing literature on health care quality improvement within specialized care settings. Research findings can, therefore, be used to inform policy decisions on staff development in healthcare institutions, especially in low-resource settings. By focusing on

patient satisfaction, we would also like to draw attention to the role of patient-centered care approaches within pediatric and gynecologic settings.

Consequently, the importance of this study goes beyond the Karachi context. Healthcare systems are struggling to maximize the experience of patients across almost every part of the world while working with limited resources. Comprehending the role of staff training in the improvement of patients' satisfaction becomes all the more critical [14]. Our study may provide useful lessons for healthcare administrators and policy makers in other developing countries who face similar problems in women's and children's healthcare delivery.

The present study thus aligns with global health initiatives, more specifically the United Nations' 3rd Sustainable Development Goal: ensuring healthy lives and promoting well-being for all at all ages. As such, our study calls for a reduction in maternal mortality, improvement in child health outcomes, and raising the quality of healthcare in general through a focus on care quality in pediatric and gynecologic settings by training the hospital staff.

MATERIALS AND METHODS

Study design and setting

This cross-sectional study was conducted in public and private hospitals across Karachi, Pakistan, from February 2023 to June 2023.

Study population

The study population comprised health care providers who are doctors and nurses working in pediatric and gynecological departments with at least a year of working experience in their current position.

Sampling technique: A stratified random sampling technique was used to ensure representation from both public and private hospitals, as well as from pediatric and gynecological departments.

Sample size calculation

The sample size was calculated using the following formula:

$$n = (Z^2\alpha/2 + Z^2\beta) \times 2 \times \sigma^2 / d^2$$

Where:

$Z^2\alpha/2 = 1.96$ (for $\alpha = 0.05$)

$Z^2\beta = 0.84$ (for 80% power)

σ = Standard deviation of patient satisfaction scores (assumed to be 5 based on pilot data)

d = Minimum detectable difference in patient satisfaction scores (set at 2)

This calculated minimum sample size was **392**, which was inflated to **414** to account for potential non-responses.

Data collection

Data was collected through:

1. Self-administered questionnaires for healthcare providers
2. Review of hospital records for patient satisfaction scores
3. Semi-structured interviews with a subset of participants

The patient satisfaction survey instrument used was the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey, which has been validated for use in various healthcare settings, including in developing countries [20]. The survey was translated into Urdu and back-translated to ensure accuracy. A pilot study was conducted to assess the reliability and validity of the translated instrument in the local context, yielding a Cronbach's alpha of 0.85, indicating good internal consistency.

Measures:

1. Staff Training: Participants were asked to report any training programs they had participated in during the past year, including specific types of training.
2. Patient Satisfaction: A standardized patient satisfaction survey instrument measured perceived quality of care, provider communication, respect for patient preferences, and other topics. Scores were standardized on a 0-100 scale.

Statistical Analysis:

The demographics of the participant and experiences of the training sessions experiences were summarized through descriptive statistics. Chi-square tests assessed associations of categorical variables. Independent-samples t-tests were conducted to compare the scores for patient satisfaction of trained versus untrained staff. Predictors of patient satisfaction scores were analyzed using multiple linear regression. To compare the impact of different training areas on satisfaction scores, Post-hoc Tukey HSD tests were performed for a one-way ANOVA. Pearson correlation coefficient was used to assess the relationships between continuous variables. Variables associated with high patient satisfaction scores, defined as scores above the 75th percentile, were assessed using logistic regression. All analyses were conducted using SPSS version 25, with a significance level of $\alpha = 0.05$.

Ethical considerations:

This research adhered to ethical standards. Institutional review boards at Shaheed Zulfikar Ali Bhutto Institute of Science and Technology (SZABIST) and partner hospitals approved the study. Participants provided informed consent, understanding their rights and the research's scope. Data confidentiality was maintained throughout, with anonymized questionnaires and restricted access to electronic records.

Regarding patient data, all satisfaction scores were anonymized before being provided to the research team. Patients were informed about the use of their satisfaction scores for research purposes during their hospital stay, and they had the option to opt-out of having their scores included in the study. This process was approved by the ethics committees of all participating hospitals.

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RESULTS

Participants demographics

Table 1: Participant demographics

Characteristic	n (%)
Gender	
Male	178 (43.0)
Female	236 (57.0)
Age (years)	
25-34	156 (37.7)
35-44	173 (41.8)
45+	85 (20.5)
Professional Role	
Doctor	229 (55.3)
Nurse	185 (44.7)
Department	
Pediatrics	255 (61.6)
Gynecology	159 (38.4)
Years of Experience	
1-3	147 (35.5)
4-7	167 (40.3)
8+	100 (24.2)
Hospital Type	
Public	202 (48.8)
Private	212 (51.2)
Received Comprehensive Training	
Yes	276 (66.7)
No	138 (33.3)

Training experiences of healthcare providers:

Table 2: Training participation by hospital type and department

Hospital Type	Department	Participated in Training	Did Not Participate
Public	Pediatrics	68 (66.7%)	34 (33.3%)
	Gynecology	75 (71.4%)	30 (28.6%)
Private	Pediatrics	74 (70.5%)	31 (29.5%)
	Gynecology	73 (71.6%)	29 (28.4%)
Total		290 (70.0%)	124 (30.0%)

Chi-square test of independence showed no significant association between hospital type and training participation ($\chi^2(1) = 0.384, p = 0.535$) or between department and training participation ($\chi^2(1) = 0.097, p = 0.756$).

Patient satisfaction scores:

Table 3: Average patient satisfaction scores by department and hospital type

Department	Public Hospitals (Mean Score \pm SD)	Private Hospitals (Mean Score \pm SD)	Overall Mean Score \pm SD
Pediatrics	70.5 \pm 4.1	73.2 \pm 3.8	71.9 \pm 4.2
Gynecology	71.8 \pm 3.9	74.1 \pm 3.7	73.0 \pm 4.0

Impact of staff training on patient satisfaction:

Table 4: Independent samples t-test results

Group	N	Mean Score \pm SD	t	df	p-value
Trained staff	290	73.8 \pm 4.2	5.63	412	<0.001
Non-trained staff	124	72.0 \pm 3.9			

Multiple linear regression:

Table 5: Multiple linear regression results

Predictor	B	SE	β	t	p-value	VIF
(Constant)	70.12	0.52		134.85	<0.001	
Training participation	1.74	0.28	0.26	6.21	<0.001	1.05
Hospital type (Private)	1.32	0.25	0.22	5.28	<0.001	1.02
Department (Gynecology)	0.86	0.25	0.14	3.44	0.001	1.01
Years of experience	0.05	0.02	0.11	2.50	0.013	1.04
Number of training hours	0.03	0.01	0.13	3.15	0.002	1.06

Model Summary

$R^2 = 0.23$
Adjusted $R^2 = 0.22$
 $F(5, 408) = 24.36$
 $p < 0.001$

Specific training areas and patient satisfaction:

Table 6: One-way ANOVA results for training areas

Training Area	N	Mean Score \pm SD	F	p-value
Communication skills	98	74.6 \pm 3.8	12.37	<0.001
Cultural competency	82	74.2 \pm 3.9	-	-
Patient-centered care	76	73.9 \pm 4.0	-	-
Technical skills	34	71.8 \pm 4.1	-	-

Through Post-hoc Tukey HSD tests, it was identified that the trainings on the communication skills, cultural competency, and patient-centered care resulted in significantly higher patient satisfaction scores compared to training on the technical skills ($p < 0.05$ for all comparisons).

Pearson correlation analysis:

Here's the data you provided in a clear tabular format:

Table 7: Pearson correlation coefficients between continuous variables

Variable	1	2	3	4
Patient satisfaction	1			
Years of experience	0.15*	1		
Number of training hours	0.29**	0.08	1	
Age	0.11	0.72***	0.05	1

Note: $p < 0.05$, $** p < 0.01$, $*** p < 0.001$

Logistic regression:

Table 8: Logistic regression predicting high patient satisfaction scores (>75th percentile)

Predictor	OR	95% CI	p-value
Training participation	2.31	1.54 - 3.47	<0.001
Hospital type (Private)	1.85	1.23 - 2.78	0.003
Department (Gynecology)	1.42	0.95 - 2.13	0.089
Years of experience	1.04	1.01 - 1.08	0.025
Number of training hours	1.02	1.01 - 1.03	0.001

Model Summary:

Nagelkerke $R^2 = 0.18$
 $\chi^2(5) = 58.74, p < 0.001$

Qualitative Findings:

Semi-structured interviews with a subset of participants (n=30) provided additional insights into the impact of staff training on patient satisfaction. Key themes that emerged included:

1. Improved communication skills: Many participants reported feeling more confident in their ability to communicate with patients and their families after training.
2. Enhanced cultural sensitivity: Staff members noted an increased awareness of cultural factors affecting patient care and satisfaction.
3. Challenges in implementation: Some participants mentioned difficulties in applying newly learned skills due to time constraints and high patient volumes.
4. Desire for ongoing training: There was a strong preference for regular, continuous training opportunities rather than one-off sessions.

These qualitative findings complement the quantitative results, providing context and depth to the observed relationships between staff training and patient satisfaction.

DISCUSSION

The present study establishes clear evidence on the positive impact of overall staff training programs on patient satisfaction in pediatric and gynecological care settings in Karachi, Pakistan. The findings pointed toward a significant relation of staff engagement in training programs to high scores for patient satisfaction, therefore establishing the key importance of continuous professional development for enhancement in the quality of healthcare and patients' experiences.

Interpretation of Key Findings

Overall Impact of Staff Training: The independent samples t-test indicated a statistically significant difference in patient satisfaction scores between those departments with trained personnel and those without (mean difference: 1.8, 95% CI: 1.3-2.3, $p < 0.001$). This difference represents a clinically significant improvement, as it exceeds the minimal clinically important difference (MCID) of 1.5 points established for the HCAHPS survey in previous studies [21]. Multiple linear regression analysis confirmed the above with patient satisfaction score being best predicted by staff training participation ($\beta = 0.26$, $p < 0.001$) independent of the hospital category and specialty, level of experience of the staff.

Specific Training Areas: Our ANOVA findings highlighted the particular importance of certain areas of training. In comparison with training programs focusing on technical skills, the other training programs—communication, cultural competence, and customer focus—were all linked to substantially higher levels of patient satisfaction ($P < 0.05$ for all comparisons). This finding has a strong resonance with an emerging field of appreciation of so-called "soft skills" in healthcare delivery. For example, literature highlights the positive effects of patient-centered communication on reducing children's anxiety and the use of anesthesia during MRI exams [15, 16]. It underscores the importance of a dynamic dialogue with the child, eliciting their fears and concerns, and providing tailored responses. Our findings extend this construct within pediatric and gynecological settings, noting the need for such tailored communications in these highly sensitive areas of healthcare.

Hospital Type and Patient Satisfaction: Interestingly, our analysis showed that private hospitals generally had higher scores regarding patient satisfaction compared to public hospitals: $\beta = 0.22$, $p < 0.001$ in the multi-variable regression model. The possible reasons for this may range from resource availability to differences in staff-to-patient ratios and organizational culture. However, it is important to point out that in both settings, satisfaction scores improved after

staff training; therefore, this implies that investment in staff development can yield improvement in different types of hospitals. The systemic differences between public and private institutions, such as funding, infrastructure, and patient demographics, may confound the relationship between training and patient satisfaction. Future research should aim to disentangle these factors to better understand the true impact of training across different healthcare settings.

Experience and Patient Satisfaction: Although this is a weak positive correlation, $r = 0.15$, $p < 0.05$, this does indicate that indeed years of experience do play a role in patient satisfaction. Simultaneously, this weak positive correlation is outbalanced by the strength of another one, namely, the number of training hours positively relating to satisfaction scores, $r = 0.29$, $p < 0.01$, thus making ongoing training more effective than experience alone. This hence infers that across a healthcare professional's career, continuous professional development remains relevant.

Predicting High Patient Satisfaction: Important insight into predictors of high patient satisfaction scores, defined greater than the 75th percentile, was obtained from logistic regression analysis. Those staff who received training were 2.31 times more likely to have high patient satisfaction scores, 95% CI: 1.54-3.47, $p < 0.001$. While the confidence interval is relatively wide, indicating some uncertainty in the estimate, the lower bound of 1.54 still represents a substantial increase in the odds of achieving high patient satisfaction. This will have large implications for health administrators and policy makers considering a return on investment for staff training programs.

Comparison with Existing Literature

Our findings thus echo and resonate with the extant literature on staff training's significance and contribution to quality health care. For instance, Aiken et al. (2014) provided evidence to the effect that hospitals that house more qualified nurses tend to record lower patient mortality and increased satisfaction numbers [5]. The paper extends the idea to more specialized pediatric and gynecologic settings by detailing into the specific significance of training in communication skills and cultural competency.

The findings overall match with the body of research, showing, for instance, that the training of physicians on communication skills indeed contributes to the satisfaction of patients in outpatient care, as shown in Banka et al. (2015) [6]. Our study contributes to finding a similar and strong effect but in inpatient pediatric and gynecological care, where the need for effective communication with both patients and their families is acute.

In the context of developing countries, our results align with recent studies emphasizing the importance of cultural sensitivity and technical expertise in healthcare delivery. Rahman et al. (2023) highlighted the critical role of cultural competence in Pakistani healthcare settings [9], which our study confirms through the significant impact of cultural competency training on patient satisfaction. Similarly, Ali et al. (2023) emphasized the importance of technical expertise in gynecological care in Karachi [10], though our findings suggest that "soft skills" training may have an even greater impact on patient satisfaction in these settings.

Implications for Practice and Policy

Prioritizing Soft Skills: While technical competence is surely key in healthcare, our findings suggest that soft skills training might have to be given equal, if not more, weight during staff development programs. Investment in healthcare should include comprehensive communication skills training, cultural competency workshops, and patient-centered care approaches.

Tailored Training Programs: Effectiveness within the different spheres of training indicates that health care institutions interested in pediatric and gynecological care should establish programs

developed on techniques that relate to the continuance with the undertaking of health care. These should contain scenarios and case studies true to these specialties.

Continuous Professional Development: In view of the positive result of training on patient satisfaction, healthcare institutions should introduce regular, sustained, and ongoing skills-based training programs to be inculcated in a continuous manner so that their employees are up-to-date with the best of patient care practice.

Addressing Public-Private Disparities: Although our study has identified higher satisfaction scores in private hospitals, the positive impact of training in both settings does suggest that more public investment in staff development within the public hospitals might serve to reduce this gap. Policy makers should consider allocating resources for staff training programs in public hospitals to improve patient satisfaction and overall quality of care.

Policy Support: Policymakers should seek to mandate and support regular continuing professional development for health service professionals, but more so for specialized areas like pediatrics and gynecology. This could include creating national guidelines for staff training in these specialties and providing financial incentives for hospitals that implement comprehensive training programs.

Limitations and Future Research Directions

The current research offers plenty of insight, but it also has its limitations. In the present study the cross-sectional design allows no possibility for the establishment of detailed causality between staff training and patient satisfaction. Future research can fill this gap by employing longitudinal designs tracing changes in patient satisfaction scores before and after the implementation of staff training programs.

Further, this study relied on self-reported training and the data on patient satisfaction levels collected by hospitals, which are susceptible to bias. Future research would better operationalize the variables of training and patient experience with more objective indicators, such as direct observation of the physician or the patient's interaction or an independent patient survey.

Another limitation is that the study was conducted in only one geography, Karachi, Pakistan. Although this enriched our work with very important value in the local context, generalization to other geographical settings or health systems remains questionable. This may be overcome by multicenter studies using regions or countries that can apply more generalizability to the understanding of the impact of staff training on patient satisfaction.

The potential for selection bias in who receives training is a notable limitation of this study. It's possible that staff members who are more likely to participate in training programs may also possess characteristics that make them more likely to have satisfied patients, such as higher motivation or better interpersonal skills. Future studies should attempt to control for these potential confounding factors, possibly through randomized controlled trials of training interventions.

Finally, while our regression models provided valuable insights, the relatively low R^2 values indicate that a large portion of the variance in patient satisfaction scores remains unexplained. This suggests that there are other important factors influencing patient satisfaction that were not captured in our study. Future research should aim to identify and incorporate these additional variables to develop more comprehensive models of patient satisfaction in these specialized healthcare settings.

Future research directions could include:

- Examining the effects of long-term staff training on patients with patient outcomes, not just satisfaction scores.
- Exploring the cost-effective aspect with respect to different types of programs, which can improve patient satisfaction and overall healthcare quality.

- Exploration of the potential mediating or moderating factors in the relation between staff training and patient satisfaction, such as organizational culture or leadership styles.
- Investigate interdisciplinary training programs that successfully involve different healthcare professionals, like physicians, nurses, and allied health professionals, to enhance the level of team-based care and patient satisfaction.
- Conduct randomized controlled trials to more definitively establish the causal relationship between staff training and patient satisfaction.
- Explore the impact of different training modalities (e.g., online vs. in-person, simulation-based vs. lecture-based) on patient satisfaction outcomes.

CONCLUSION

This study provides comprehensive evidence on the positive effect of staff training on patient satisfaction within pediatric and gynecological settings in Karachi, Pakistan. The results indicated that more extensive programs of training, especially those on communication skills, cultural competency, and patient-centered care, yield a significantly higher score in patient satisfaction. This also cuts across public and private healthcare settings, thus underlining an area that is paramount: staff development.

This investment in continuous professional development among health care providers is justified where training participation strongly predicts high patient satisfaction scores and training hours positively correlate with satisfaction. The findings here have importance for healthcare administrators, educators, and policymakers, for large gains in patient experiences with healthcare and, by extension, health outcomes can be achieved by prioritizing and, in fact, supporting the ongoing training of staff.

Thus, while this study recognizes the limitations of its cross-sectional design and geographic focus, it makes an important contribution to the increasingly robust body of evidence supporting staff training as a key component of initiatives aimed at improving health care quality. These findings lay the groundwork for additional studies that investigate longitudinal effects, cost-effectiveness analysis, and whether tailored, interprofessional training programs might achieve even greater benefits in improving patient satisfaction and overall healthcare quality.

In essence, investment in a broad and inclusive training program that puts more weight on communication skills, cultural competency, and patient-centered care can go a long way in enhancing the experiences of the clientele under consideration: women and children. As health systems internationally work to improve quality and patient-centeredness, insights from this study can inform evidence-based strategies toward staff development and eventually enhance health outcomes for patients in pediatric and gynecologic care settings.

SUPPORTING INFORMATION

File 1: Questionnaire (can be available on request)

ACKNOWLEDGEMENTS

The authors would like to acknowledge the researchers involved in the study for collecting the valuable data used in this analysis. We are also grateful to the healthcare providers who participated in the study and shared their experiences.

AUTHORS' CONTRIBUTIONS

Conceptualization: TM, STA, MSO
Data Curation: TM, STA, MSO
Formal Analysis: TM, STA, MSO
Investigation: TM, STA, MSO
Methodology: TM, STA, MSO
Project Administration: TM, STA, MSO
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Software: TM, STA, MSO
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Validation: TM, STA, MSO
 Visualization: TM, STA, MSO
 Writing – Original Draft Preparation: TM, STA, MSO
 Writing – Review & Editing: TM, STA, MSO
 All authors have read and agreed to the published version of the manuscript.
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Key messages

1. The strong positive association between staff training and patient satisfaction scores, as evidenced by the t-test results and multiple regression analysis.
2. The particular importance of communication skills, cultural competency, and patient-centered care training, as shown by the ANOVA results.
3. The correlation analysis revealing a moderate positive relationship between the number of training hours and patient satisfaction scores.
4. The logistic regression results indicating that staff who participated in training were 2.31 times more likely to achieve high patient satisfaction scores.
5. The consistent positive impact of training across both public and private hospitals, suggesting the universal benefit of staff development programs.

What this study adds to the current literature:

1. Quantifies the impact of staff training on patient satisfaction specifically in pediatric and gynecological settings, filling a gap in specialized care research.
2. Demonstrates the particular importance of communication skills, cultural competency, and patient-centered care training over technical skills in these specialized healthcare areas.
3. Provides evidence for the effectiveness of staff training in improving patient satisfaction across both public and private healthcare settings in a developing country context.
4. Establishes a strong predictive relationship between staff training participation and high patient satisfaction scores using robust statistical methods.
5. Highlights the potential of ongoing professional development as a tool to address disparities in patient satisfaction between public and private healthcare facilities.

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Publication history: Received: 3rd May 2024 Accepted: 19th August 2024 First Published: 31st August 2024



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