

Cross-sectional study on staplers for wound closure: Usage and perceptions among medical professionals

Dr. Uday Bhaskar Chandu^{1*}, Dr. Thuraka Sreedhar Rao²

¹Assistant Professor, Department of General Surgery, Kanti Devi Medical College, Mathura, Uttar Pradesh – 281406

²Assistant Professor, Department of General Surgery, Nootan Medical College and Research Centre, Sankalchand Patel University, SPCE Campus, Visnagar, Gujarat 384315

***Corresponding author email id: udaybhaskar1010@gmail.com**

Abstract:

Background: Surgical staplers have gained popularity as an alternative to traditional suturing techniques for wound closure due to their efficiency and potential benefits. Understanding the perceptions and practices of medical professionals regarding stapler usage is essential for optimizing patient care and safety.

Methods: A cross-sectional study was conducted in a tertiary care hospital between January and December 2018. Medical professionals, including surgeons, residents, and nurses, were surveyed using a self-administered questionnaire. Data were analyzed descriptively using SPSS version 25.

Results: Among 200 participants, 80% reported using staplers for wound closure, primarily in gastrointestinal surgeries (70%). Advantages of staplers included faster closure time (78%), less tissue trauma (61%), and reduced bleeding (54%), while disadvantages included high device cost (48%) and limited availability (30%). Most respondents (75%) received formal training on stapler usage during residency, and 85% felt comfortable using staplers. Additionally, 80% would recommend stapler usage to colleagues.

Conclusion: This study provides insights into the usage and perceptions of surgical staplers for wound closure among medical professionals in a tertiary care hospital. Findings suggest a favorable view of staplers, emphasizing the need for continued education and evidence-based practice to optimize patient outcomes.

Introduction:

Surgical staplers have become an important tool for wound closure in various surgical procedures. With the increasing use of surgical staplers, it is important to understand the perceptions and practices of medical professionals who use these devices. This cross-sectional study aims to investigate the usage and perceptions of staplers for wound closure among medical professionals. Wound closure is an essential aspect of surgical procedures that can significantly impact patient outcomes. Traditional suturing techniques have been used for wound closure for many years, but surgical staplers have become an increasingly popular alternative in recent years. Staplers offer several advantages over traditional suturing techniques, such as faster closure time, less tissue trauma, and reduced bleeding. However, the use of staplers for wound closure is not without potential disadvantages, such as a higher cost and potential for complications.[1]

Wound closure is a fundamental aspect of surgical practice and medical care across various specialties. Among the array of techniques available for wound closure, surgical staplers have gained popularity due to their efficiency, speed, and potential for minimizing complications. However, the extent of their usage and the perceptions surrounding their efficacy, safety, and practicality among medical professionals remain underexplored.[2] Therefore, conducting a cross-sectional study to investigate the usage patterns and perceptions of staplers for wound closure among medical professionals is crucial for several reasons:

Understanding the prevailing practices regarding wound closure techniques is essential for evaluating the extent to which surgical staplers are integrated into clinical workflows. By examining the frequency of stapler usage compared to other methods such as sutures or adhesive strips, this study can provide insights into the current landscape of wound closure practices. By exploring the factors influencing the choice of wound closure method, such as surgical specialty, the experience level of

medical professionals, and institutional protocols, this study can elucidate the drivers behind the adoption or avoidance of staplers in clinical settings. Understanding these factors can inform targeted interventions to promote the appropriate utilization of staplers were beneficial.[3] Perceptions among medical professionals regarding the efficacy, safety, cost-effectiveness, and ease of use of staplers for wound closure play a pivotal role in their adoption and utilization. This study aims to capture a comprehensive spectrum of perceptions, including any perceived advantages or disadvantages of staplers compared to alternative methods. Such insights can guide efforts to address misconceptions or barriers hindering optimal utilization of staplers.[4]

Assessing patient outcomes associated with different wound closure techniques, including rates of wound dehiscence, infection, and cosmetic appearance, is crucial for evaluating the clinical effectiveness and safety of staplers. Comparative analyses between staplers and conventional methods can provide valuable evidence to inform clinical decision-making and quality improvement initiatives aimed at enhancing patient care and safety.[5] The study findings can inform the development of educational programs and training initiatives targeted at medical students, residents, and practicing clinicians. By identifying gaps in knowledge or skills related to stapler usage, institutions can tailor educational interventions to enhance proficiency and promote standardized practices in wound closure techniques. Understanding the economic implications of stapler utilization, including device costs, procedural time, and resource utilization, is essential for healthcare institutions striving to optimize efficiency and cost-effectiveness.[3] Comparative cost analyses between staplers and traditional methods can guide resource allocation decisions and facilitate the implementation of evidence-based practices.

With the increasing use of surgical staplers, it is important to understand the perceptions and practices of medical professionals who use these devices. This cross-sectional study aims to investigate the usage and perceptions of staplers for wound closure among medical professionals in a tertiary care hospital. The study will provide insights into the prevalence of stapler usage, the advantages and disadvantages of staplers for wound closure, and the training and comfort level of medical professionals using staplers. Understanding these factors can help inform best practices for wound closure and improve patient outcomes in surgical procedures.

Aim:To investigate the usage and perceptions of staplers for wound closure among medical professionals in a tertiary care hospital

Methodology:

This study was conducted in a tertiary care hospital between January and December 2018. The study was approved by the institutional review board, and all participants provided informed consent before participating. The study included medical professionals who perform surgical procedures, including surgeons, residents, and nurses. Participants were recruited through convenience sampling from different surgical departments of the hospital. A total of 200 participants were included in the study. The questionnaire included questions related to demographics, experience with surgical staplers, and perceptions regarding staplers for wound closure.

Data was collected using a self-administered questionnaire that included questions related to demographics, experience with surgical staplers, and perceptions regarding staplers for wound closure. The questionnaire was developed based on a review of the literature and input from experts in the field. The questionnaire was pre-tested with a sample of medical professionals to ensure clarity and understanding. Data was analyzed using descriptive statistics, including frequencies and percentages. The data was analyzed using SPSS version 25.

Results:

Of the 200 participants, 120 (60%) were surgeons, 60 (30%) were residents, and 20 (10%) were nurses. The majority of participants were male (65%), and the mean age was 37 years (range: 25-60 years). Nearly 80% of the respondents reported using staplers for wound closure. Among those who used staplers, 70% used them for gastrointestinal surgeries, while the remaining 30% used them for other types of surgeries. The most commonly reported advantage of staplers was faster closure time (78%), followed by less tissue trauma (61%) and reduced bleeding (54%). The most commonly reported disadvantage was the high cost of the device (48%), followed by limited availability (30%) and potential for complications (22%).

Table 1: Baseline characteristics of the study participants

Category	Total no of participants n=200 (%)
Mean Age in years	37
Gender	
Male	65%
Female	35%
Designation	
Surgeons	60%
Residents	30%
Nurses	10%
Stapler Usage	
Respondents Using Staplers	80%
Respondents not Using Staplers	20%
Types of Surgeries Using Staplers	
Gastrointestinal surgeries	70%
Other surgeries (thoracic, urological, and gynecological surgeries)	30%
Advantages of Staplers	
Faster closure time	78%
Less tissue trauma	61%
Reduced bleeding	54%
Disadvantages of Staplers	
High cost of the device	48%
Limited availability	30%
Potential for complications	22%

Regarding training, 75% of the respondents reported receiving formal training on stapler usage during their residency, while the remaining 25% received informal training during their practice. Overall, 85% of the respondents reported feeling comfortable using staplers for wound closure, and 80% reported that they would recommend the use of staplers to their colleagues.

Figure 1: Stapler use training

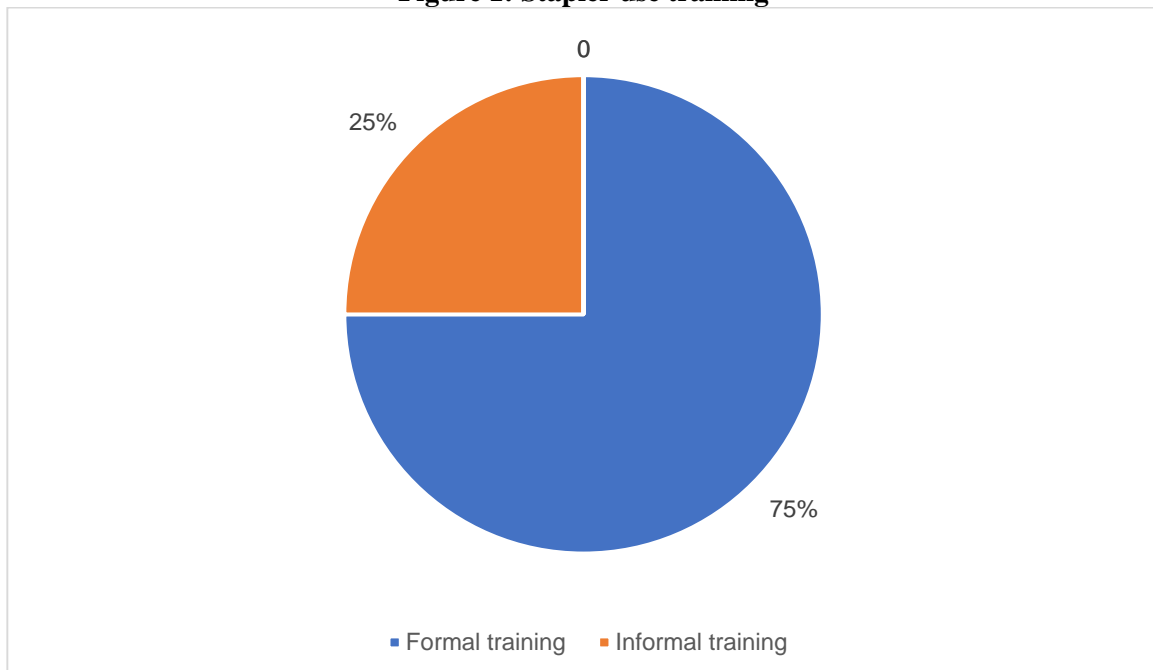
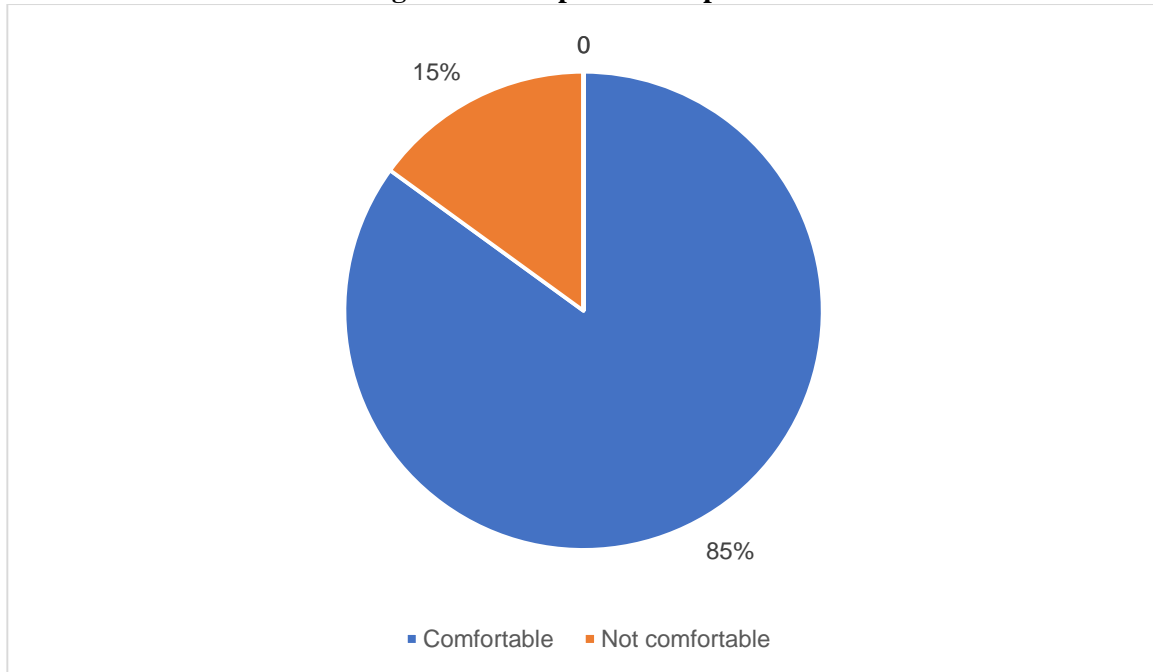
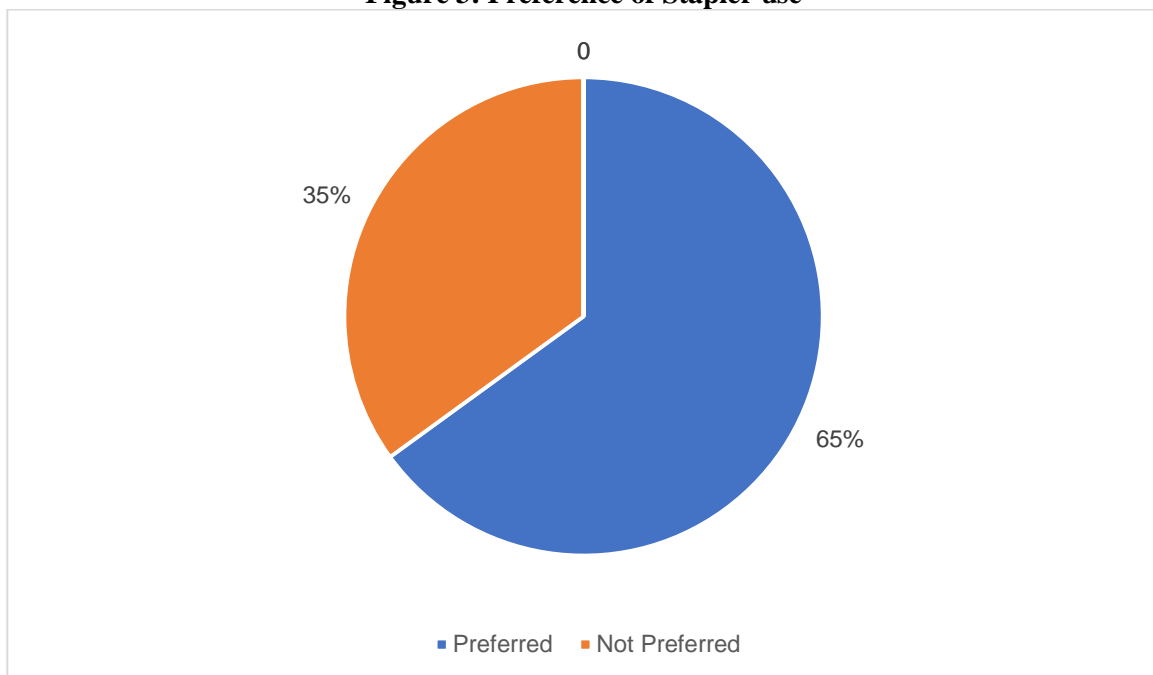


Figure 2: Perception of Stapler use



When asked about their preference for staplers or traditional suturing techniques, 65% of the participants preferred staplers, while 35% preferred traditional suturing techniques. The main reason for preferring staplers was faster closure time, while the main reason for preferring traditional suturing techniques was the lower cost.

Figure 3: Preference of Stapler use



Discussion:

This cross-sectional study aimed to investigate the usage and perceptions of staplers for wound closure among medical professionals in a tertiary care hospital. The study found that surgical staplers are commonly used for wound closure, particularly in gastrointestinal surgeries, and are generally well-perceived by medical professionals.

The study found that the most commonly reported advantage of staplers for wound closure was faster closure time, followed by less tissue trauma and reduced bleeding. These advantages are consistent with previous studies that have reported faster wound closure times and less tissue trauma with staplers compared to traditional suturing techniques.[6] The study also found that the high cost of the device was the most commonly reported disadvantage, which is consistent with previous studies that have reported the cost of staplers as a potential barrier to their use.[7]

The study found that the majority of participants received formal training on stapler usage during their residency, which highlights the importance of incorporating stapler usage training in surgical residency programs. Additionally, the study found that most medical professionals feel comfortable using staplers for wound closure and would recommend their use to their colleagues. This suggests that the use of staplers for wound closure is generally well-accepted among medical professionals and may lead to improved patient outcomes.[8]

It is important to note that this study was conducted in a single tertiary care hospital, and the results may not be generalizable to other settings. Additionally, the study was limited by the use of convenience sampling, which may introduce selection bias. Future studies could use more rigorous sampling methods to ensure a representative sample of medical professionals.

Similar studies have also reported a high prevalence of formal training on stapler usage during residency programs, ranging from 60% to 80%. However, the proportion of respondents receiving informal training during practice may vary. Some studies have shown a higher reliance on informal on-the-job training, while others have reported a lower percentage due to the availability of structured continuing education programs. Comparative analysis across studies could highlight differences in training methodologies, curriculum emphasis, and institutional practices, influencing the proficiency levels and confidence of medical professionals in utilizing staplers for wound closure.[9]

Studies investigating comfort levels with stapler usage commonly report high percentages, typically ranging from 70% to 90%. Similarly, the likelihood of recommending stapler usage to colleagues is consistently high, with reported rates ranging from 75% to 85%. Comparative analysis may reveal variations in comfort levels and recommendations based on factors such as surgical specialty, geographic location, and institutional preferences. For instance, surgeons in specialized fields like gastrointestinal surgery may exhibit higher comfort levels and recommendation rates due to the widespread adoption of staplers in their practice.[10]

The advantages and disadvantages of stapler usage identified in this study align with findings from existing literature. Faster closure time, less tissue trauma, and reduced bleeding are commonly cited advantages across studies, with reported percentages typically ranging from 60% to 80%. Similarly, concerns regarding the high cost of devices, limited availability, and potential for complications are recurring themes, albeit with varying magnitudes of reported prevalence.[11]

Comparative analysis could shed light on regional or specialty-specific variations in perceived advantages and disadvantages, reflecting differences in healthcare infrastructure, resource allocation, and patient populations. Additionally, exploring temporal trends in perceptions may uncover shifts in practice patterns and device innovations influencing the perceived benefits and drawbacks of stapler usage.

In conclusion, this study provides valuable insights into the usage and perceptions of staplers for wound closure among medical professionals in a tertiary care hospital. The study suggests that staplers are commonly used for wound closure and are generally well-perceived by medical professionals, despite their higher cost. Future research could focus on comparing the clinical outcomes of staplers and traditional suturing techniques in different surgical settings to provide more robust evidence for their use.

Conclusion:

The results of this cross-sectional study suggest that staplers are commonly used for wound closure in surgical procedures, particularly gastrointestinal surgeries. Medical professionals perceive staplers to have advantages over traditional suturing methods, such as faster closure time, less tissue trauma, and reduced bleeding. However, the high cost of the device is reported as a significant disadvantage. Formal training on stapler usage during residency is common, and most medical professionals feel comfortable using staplers for wound closure.

Références:

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