

# **AN EXPLORATORY STUDY ON THE ROLE OF CONTINUING MEDICAL EDUCATION IN INFLUENCING DRUG PRESCRIPTION PATTERNS**

Dissertation Submitted to



**The IIHMR University, Jaipur**

for the partial fulfillment for the award of the degree of

Master of Business Administration (MBA)

in

**Pharmaceutical Management**

by

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Under the Supervision and Guidance of

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Dear Akshit Singla,

This is to formally acknowledge the successful completion of your internship with Orizia Healthcare, in Market Research from a period from March 10, 2025 to June 10, 2025

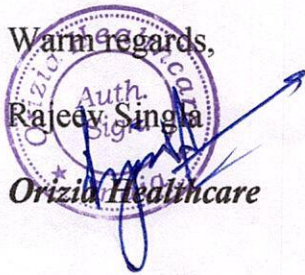
During your internship, you have demonstrated professionalism and a positive attitude toward your responsibilities. Your contribution to our market research activities was appreciated and valued.

We thank you for your dedication and enthusiasm and wish you the very best in your future academic and professional pursuits.

Warm regards,

Rajeev Singla

Orizia Healthcare



## Certificate

This is to certify that dissertation titled is a record of the research **An Exploratory Study on the Role of Continuing Medical Education in Influencing Drug Prescription Patterns** work undertaken by Akshit Singla in partial fulfillment of the requirements for the award of the degree of MBA (Pharmaceutical Management) from the IIHMR University, Jaipur under my guidance and supervision and her approach to the research study has been sincere, scientific, and analytical.

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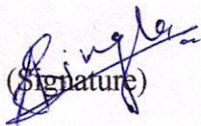
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## DECLARATION BY STUDENT

I hereby declare that this dissertation titled “An Exploratory Study on the Role of Continuing Medical Education (CME) in Influencing Drug Prescription Patterns” is the Bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

  
(Signature)

Akshit Singla

Date:

## **ABSTRACT**

### **Introduction:**

Continuing Medical Education (CME) is vital for updating physicians' clinical knowledge. However, pharmaceutical sponsorship of CME raises concerns about bias in prescribing behavior. This study explores how CME—both independent and pharma-sponsored—impacts drug prescription patterns among urban physicians in Bathinda, Punjab.

### **Objectives:**

- To assess the impact of CME on prescribing behavior.
- To compare independent vs. pharma-sponsored CME effects.
- To examine the role of physician demographics.
- To evaluate perceived bias and ethical concerns.
- To suggest improvements based on findings.

### **Methodology:**

A cross-sectional study was conducted among 300-350 physicians who attended CME in the past two years. Stratified random sampling was used, and data were collected via a structured questionnaire. Analysis included descriptive statistics and thematic evaluation based on the Theory of Planned Behavior and Knowledge-to-Action Framework.

### **Results:**

63% of physicians reported changes in prescribing post-CME; 54% noted increased branded prescriptions. Pharma-sponsored CMEs were more attended (40%) than independent ones (25%). 60% perceived quality differences favoring independent CME. 73% believed CME should be free from pharma sponsorship. Only 12% rated CME as excellent.

### **Conclusion:**

CME significantly influences prescribing, especially in pharma-sponsored formats. Ethical concerns and perceived bias highlight the need for transparent, unbiased, and independently governed CME programs to ensure evidence-based medical practice.

## **Acknowledgement**

As my project reports near completion, I would want to take this time to thank everyone who contributed in a significant way to my research. It gives me great pleasure to take advantage of this once-in-a-lifetime opportunity to thank my esteemed faculty and the Dean & Associate Professor of the School of Pharmaceutical Management at the IIHMR University Jaipur for their unmatched & outstanding support & encouragement as I worked to finish my course and dissertation.

Also, I would like to express my gratitude to my Organization Mentor Mr. Rajeev Singla & the entire team of Orizia Healthcare for their continuous support and for taking me through the practical environment of the Pharmaceutical Industry.

Place:

Date:

**Akshit Singla**

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## **Chapter 1: Introduction**

## **1.1 Background**

### **1.1.1 Overview of Continuing Medical Education (CME)**

Continuing Medical Education (CME) plays a pivotal role in helping physicians stay updated with the latest advancements in clinical practice, pharmaceutical developments, and treatment guidelines. CME programs are vital for enhancing professional competence and ultimately improving patient outcomes. These programs can be conducted independently or in collaboration with industry sponsors, including pharmaceutical companies.

### **1.1.2 Relevance of CME in Drug Prescription Behavior**

While CME primarily aims to improve knowledge and clinical decision-making, its influence on prescribing behavior has come under scrutiny — especially when funded by pharmaceutical companies. Industry-sponsored CME may subtly promote specific drugs or therapeutic approaches, raising ethical concerns about bias and conflict of interest in clinical practice.

## **1.2 Research Problem**

### **1.2.1 Statement of the Problem**

Despite CME's goal of fostering unbiased, evidence-based practice, the involvement of pharmaceutical companies in sponsoring these programs has raised concerns about potential influence on doctors' prescribing patterns. This study seeks to examine whether such influence exists and to what extent CME—especially pharma-sponsored CME—alters prescription behavior.

### **1.2.2 Rationale for Choosing This Topic**

Given the growing dependency on CME as a knowledge source and the parallel increase in pharmaceutical sponsorship, it is critical to assess how this dynamic affects prescription decisions. The lack of data from the Indian healthcare context — particularly comparing independent and pharma-sponsored CME — makes this an important area of investigation.

### **1.3 Objectives of the Study**

#### **1.3.1 Main Objectives**

- To determine the influence of CME on drug prescribing behavior.
- To compare the effects of independent and industry-sponsored CME.
- To examine differences based on physician demographics such as specialty and years in practice.
- To explore the educational and ethical implications of CME.

#### **1.3.2 Sub-Objectives**

- To identify the primary motivations for attending CME programs.
- To examine the exposure to and promotion of branded pharmaceutical products through CME.
- To analyze physicians' perceptions regarding content quality and bias in CME programs.
- To evaluate the ethical stance of practitioners on pharma-sponsored education.

### **1.4 Research Questions**

- To what extent does CME influence the drug prescribing behavior of medical practitioners?
- How do independent and pharma-sponsored CME differ in their impact on prescribing patterns?
- What role do demographic variables play in shaping responses to CME content?
- What are the ethical concerns perceived by physicians regarding pharma-sponsored CME?

### **1.5 Scope of the Study**

#### **1.5.1 Geographical Scope**

The study will be conducted among physicians practicing in urban healthcare settings in India.

#### **1.5.2 Temporal Scope**

Data will be collected from participants who have attended CME within the past two years.

### **1.5.3 Conceptual Scope**

The focus will be on CME's influence on prescribing patterns, contrasting independent and industry-sponsored formats, and evaluating ethical concerns.

### **1.6 Significance of Study**

This study will provide valuable insights into the dual role of CME as an educational and potentially promotional tool. The findings can guide policymakers, academic bodies, and pharmaceutical companies in formulating more transparent, unbiased, and ethically sound CME practices [6],[16]. It will also contribute to building a framework for ethical CME delivery in the Indian context.

## **Chapter 2: Literature Review**

## **2.1 Continuing Medical Education in Healthcare**

### **2.1.1 Definition and Theoretical Foundations of CME**

Continuing Medical Education (CME) refers to formal educational programs intended to maintain and enhance the knowledge, skills, and professional performance of medical practitioners. CME is essential for keeping up with evolving medical science, treatment protocols, and pharmaceutical advancements.[2]

- **Theory of Planned Behavior** – which explains how attitudes, subjective norms, and perceived behavioral control influence a physician's intent and actions [1]
- **Knowledge-to-Action (KTA) Framework**– which outlines how knowledge acquired through CME is applied in clinical settings [4]

## **2.2 Medical Practitioners and CME Participation**

### **2.2.1 How Physicians Engage with CME**

Physicians participate in CME for various reasons: updating clinical knowledge, obtaining certifications, networking, or accessing incentives.[5][13] The source and structure of CME, whether independent or sponsored—can significantly influence their experience and learning outcomes. Interactions with pharmaceutical companies, including branded content and promotional sessions, may alter their views and potentially affect prescription behavior.[3][7][11]

## **2.3 Factors Influencing Prescription Behavior via CME**

### **2.3.1 Content Quality and Educational Value**

High-quality, unbiased content improves clinical decision-making and strengthens trust in CME programs. Independent CME is generally perceived as more credible compared to industry-sponsored content, which may carry promotional bias.[7][8]

### **2.3.2 Sponsorship and Commercial Influence**

Pharmaceutical-sponsored CME can subtly encourage the prescription of specific branded drugs. These programs often present new drug data, samples, or promotional

material that can influence decision-making—even subconsciously.[3][10]

### **2.3.3 Frequency of Pharma Interactions**

Repeated exposure to pharma representatives and sponsored events increases familiarity with certain brands. While this may be educational, it can also lead to preferential prescribing behavior, intentionally or otherwise [3][17].

### **2.3.4 Ethical and Professional Considerations**

The presence of industry sponsorship raises ethical concerns. Many physicians feel that CME should be free from commercial influence to maintain educational integrity. There is growing advocacy for regulating these interactions to uphold unbiased medical practice.[6][9][12]

## **2.4 Review of Past Literature**

### **2.4.1 Summary of Existing Research**

Previous research supports the idea that CME improves clinical competence and patient outcomes. However, it also reveals that pharma involvement can sway prescribing behavior. Some studies suggest that independent CME promotes evidence-based medicine, while sponsored sessions may introduce promotional bias. [3][7][14]

### **2.4.2 Research Gaps Identified**

Despite global research, few studies have been conducted in the Indian context, particularly comparing the influence of independent vs. pharma-sponsored CME. Additionally, little is known about how urban physicians in India perceive and act upon CME, highlighting a significant gap that this study aims to address.[15][16]

## **Chapter 3: Research Methodology**

### 3.1 Research Design

#### 3.1.1 Type of Study

This research follows a **descriptive and exploratory quantitative design**, aimed at assessing the influence of Continuing Medical Education (CME) on physicians' prescription patterns. The study is grounded in behavioral science through the **Theory of Planned Behavior** and knowledge translation models such as the **Knowledge-to-Action Framework**.

### 3.2 Population and Sample

#### 3.2.1 Description of the Target Population

The target population consists of **licensed physicians** practicing in **Bathinda city**, Punjab. The study focuses on those who have participated in CME programs within the past two years, ensuring relevance and recency of insights into educational and prescribing behavior.

#### 3.2.2 Sampling Technique

To enhance representativeness and minimize bias, a **probability-based stratified random sampling** technique was adopted. The total physician population in the selected regions is estimated to be **2,400**.

Physicians were stratified based on key characteristics including:

- **Specialty** (e.g., General Medicine, Pediatrics, Surgery)
- **Years of professional experience**
- **Practice setting** (Private clinic, Government facility, Hospital, etc.)

From each stratum, participants were randomly selected in proportion to the stratum's representation in the overall population.

Using Slovin's formula with a 95% confidence level and 5% margin of error:

$$n = 1 + N(e^2)$$

$$N = 1 + 2400(0.05)$$

$$22400 \approx 333$$

A total of **330 physicians** were targeted for participation in the study.

### 3.2.3 Response Rate and Non-Response

Out of the 330 physicians contacted, **250 completed the questionnaire**, resulting in a **response rate of 75.8%**.

The remaining **80 physicians** did not respond due to:

- Time constraints or lack of interest
- Incomplete or unusable responses
- Unreachable or outdated contact information

These non-responses were documented but excluded from the final analysis. The study acknowledges this as a potential limitation due to non-response bias.

## 3.3 Data Collection Methods

### 3.3.1 Tools and Techniques for Collecting Data

The primary tool used for data collection was a **structured questionnaire** with 17 questions, grouped under:

- Demographics
- CME participation
- Influence on prescribing behavior
- Perceptions and ethical concerns

The questionnaire was administered in both **offline (paper-based)** and **online formats**, allowing for broader participation. It was adapted from validated CME impact studies and pilot-tested before full deployment.

## 3.4 Data Analysis Methods

### Techniques for Analyzing the Collected Data

Collected data were entered into **Microsoft Excel** and analyzed using:

- **Descriptive statistics:** frequencies, percentages, and averages
- **Cross-tabulations:** to examine relationships between CME type, specialty, and prescription changes
- **Graphical representation:** using bar charts, pie charts, and line graphs

- **Thematic analysis:** applied to open-ended responses to identify ethical themes and trends.

### **3.5 Ethical Considerations**

#### **Ethical Issues and How They Will Be Addressed**

- **Informed Consent:** Participants were informed about the study's purpose and provided consent before participating.
- **Confidentiality:** Participant anonymity was maintained, and data were securely stored.
- **Voluntary Participation:** Participation was voluntary, and participants could withdraw at any time.

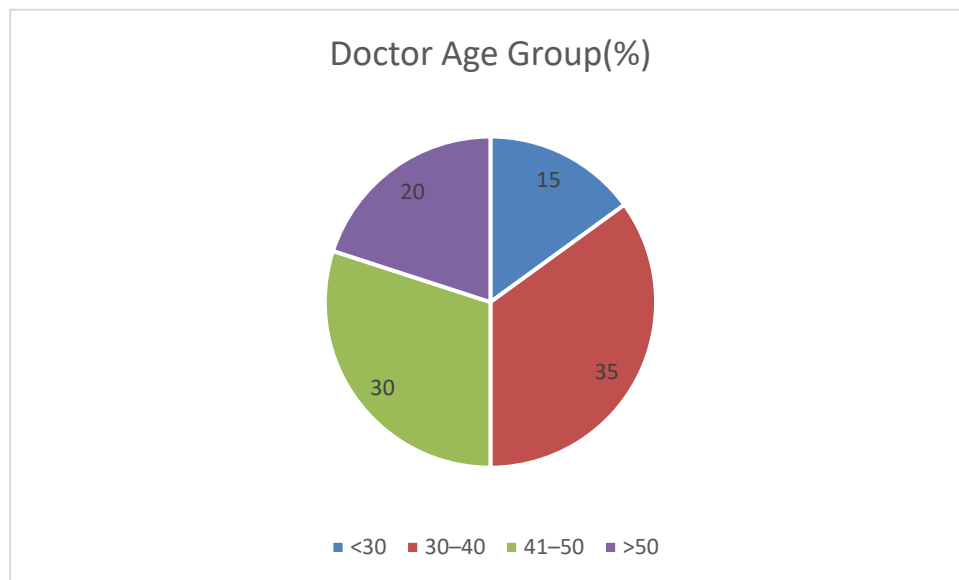
## **Chapter 4: Data Analysis and Interpretation**

## 4.1 Demographic Profile of Respondents

The survey was conducted among 250 physicians, predominantly from urban healthcare settings. Participants were diverse in terms of age, years in medical practice, gender, and specialty. The majority were from specialties such as General Medicine, Pediatrics, and Surgery, with a mix of private and government practice settings. This diverse demographic provides a balanced understanding of how CME influences prescription behavior across different types of medical professionals.

## 4.2 Analysis of Key Findings

### 4.2.1 Doctor's Age Group



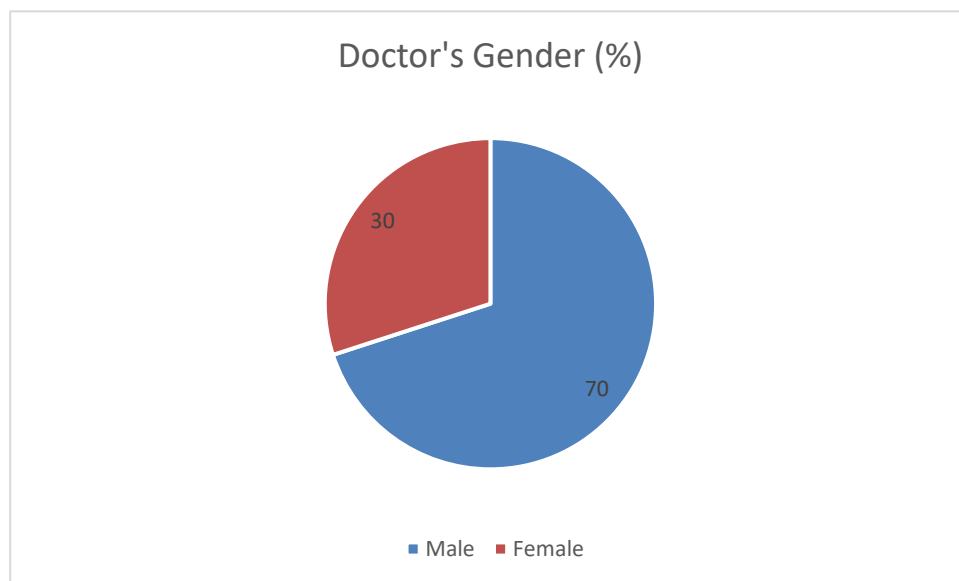
**Fig. 4.1**

- **<30 years:** Representing 15%, this group includes young professionals early in their careers.
- **30–40 years:** This is the largest group (35%), indicating active participation from early to mid-career doctors.
- **41–50 years:** Close behind, this group accounts for 30%, showing strong mid-career representation.
- **>50 years:** 20% of respondents, bringing senior-level insight.

### Strategic Use of Age Distribution Data:

- **Content Customization:** Younger physicians (<30) may prefer more interactive or tech-driven CME formats (e.g., app-based modules), whereas older doctors (>50) might favor traditional, expert-led seminars.
- **Influence Channels:** Mid-career groups (30–50) are highly active in clinical decision-making — targeting them with scientifically sound, evidence-backed content could yield greater brand uptake.
- **Mentorship and Influence:** Senior doctors (>50) often influence prescribing patterns of junior colleagues. Engaging them can have a cascading effect on adoption within clinics and institutions.
- **CME Planning:** Segmenting age groups for CME content delivery helps ensure higher engagement — younger doctors may prefer concise updates, while older doctors might seek in-depth discussion.

#### 4.2.2 Doctor's Gender



**Fig. 4.2**

- **Male (70%):** A significant majority of the respondents were male, indicating their dominant presence in the medical community across the surveyed regions.
- **Female (30%):** Female practitioners comprised 30% of the total sample, reflecting growing participation from women in the healthcare sector, though still underrepresented compared to their male counterparts.

## Strategic Use of Gender Data

- **Communication Preferences:** Gender may influence communication preferences; companies can explore whether tailoring reps' communication style affects receptiveness.
- **Representation in CME:** Ensure CME speakers, panels, and materials reflect gender diversity, encouraging more inclusive participation.
- **Engagement Strategy:** Understand whether male and female doctors prefer different formats or content in CME delivery or pharma interactions.
- **Research Opportunities:** Further study could investigate if gender influences prescribing trends or ethical stances toward pharma-sponsored CME.

### 4.2.3 Doctor's Experience

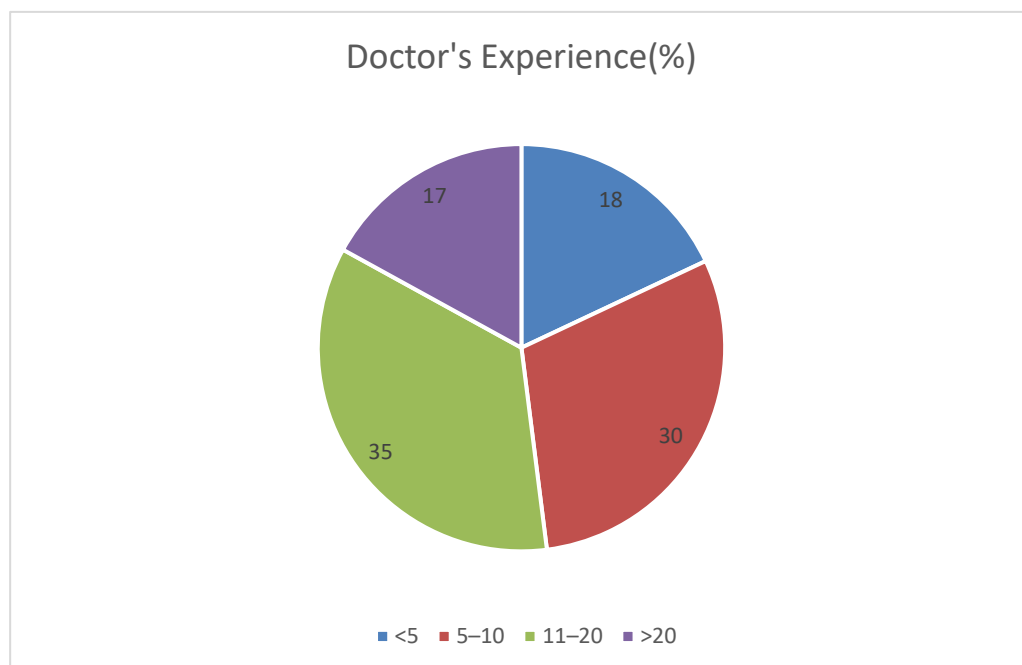


Fig. 4.3

- **<5 years (18%):** This group consists of relatively new entrants to the profession, still shaping their clinical habits and potentially more open to influence through CME.
- **5–10 years (30%):** A strong representation from mid-career professionals who are actively evolving in their clinical practice and likely to be highly receptive to CME content.
- **11–20 years (35%):** This is the largest group, suggesting that a majority of respondents are seasoned practitioners with considerable prescribing responsibility and clinical exposure.
- **>20 years (17%):** Senior physicians nearing the peak of their careers, typically

more conservative and experience-driven in prescribing behavior.

### Strategic Use of Literature Data

- **CME Targeting:** Doctors with 5–20 years of experience represent the most engaged segment — CME programs tailored to this group can drive immediate clinical impact and behavior change.
- **Educational Style:** Less experienced doctors (<5 years) benefit from foundational knowledge, while experienced ones (>20 years) may prefer case-based discussions or updates on advanced therapies.
- **Adoption Readiness:** Mid-career physicians often serve as key decision-makers in hospitals and clinics; thus, influencing them may lead to wider acceptance of brand messages and prescribing patterns.
- **Peer Learning Models:** Utilize experienced doctors (11–20 years and above) as CME facilitators to enhance credibility and foster trust among younger peers.

#### 4.2.4 Practice Setting

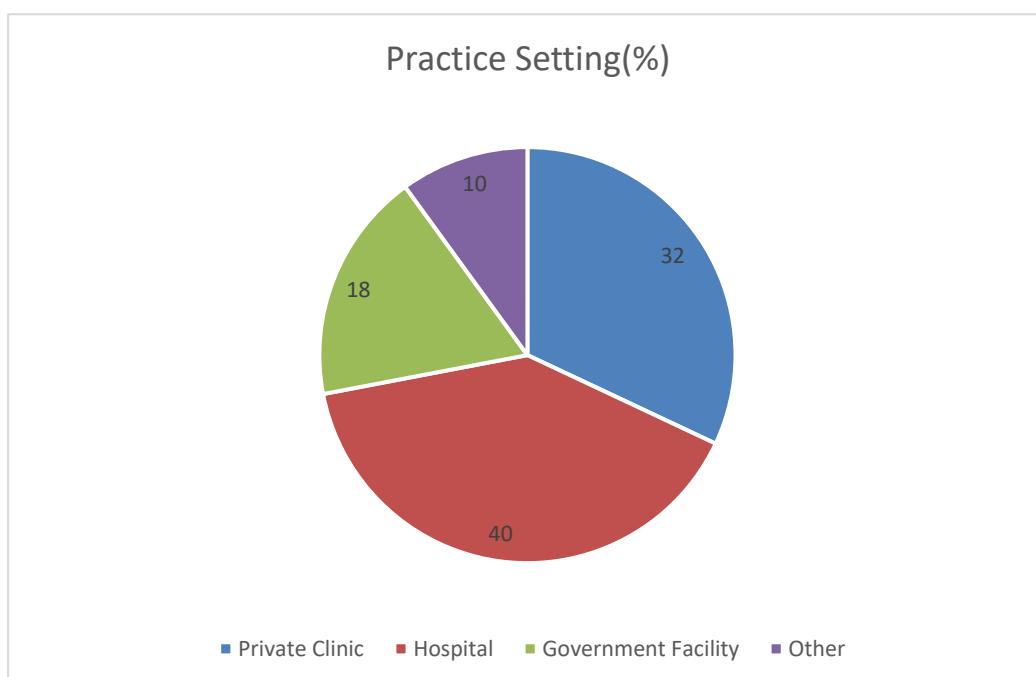


Fig. 4.4

- **Hospital (40%):** The largest segment of respondents practice in hospitals, which often serve as hubs for structured CME sessions and frequent pharma interactions.
- **Private Clinic (32%):** A significant proportion of physicians work independently in private clinics, where prescribing decisions are typically made autonomously.

- **Government Facilities (18%):** These doctors operate under stricter regulatory norms and may have limited pharma interaction or CME accessibility.
- **Other Settings (10%):** This includes NGOs, research roles, and academic institutions with diverse CME exposure and prescribing frameworks.

### Strategic Use of Credibility Data

- **Program Customization:** CME content and delivery should be customized for different practice environments. Hospital-based doctors might prefer in-depth, specialty-focused sessions, while clinic-based doctors may favor concise and flexible modules.
- **Access Strategy:** Government doctors may face barriers in accessing pharma-sponsored CME — offering accredited, neutral platforms can increase engagement here.
- **Representative Targeting:** Sales and medical reps can prioritize hospitals and private clinics where there is both access and decision-making authority.
- **Partnership Opportunities:** Collaborations with hospitals and private clinics can facilitate more structured CME delivery and post-session prescription tracking.

### 4.2.5 CME Attended

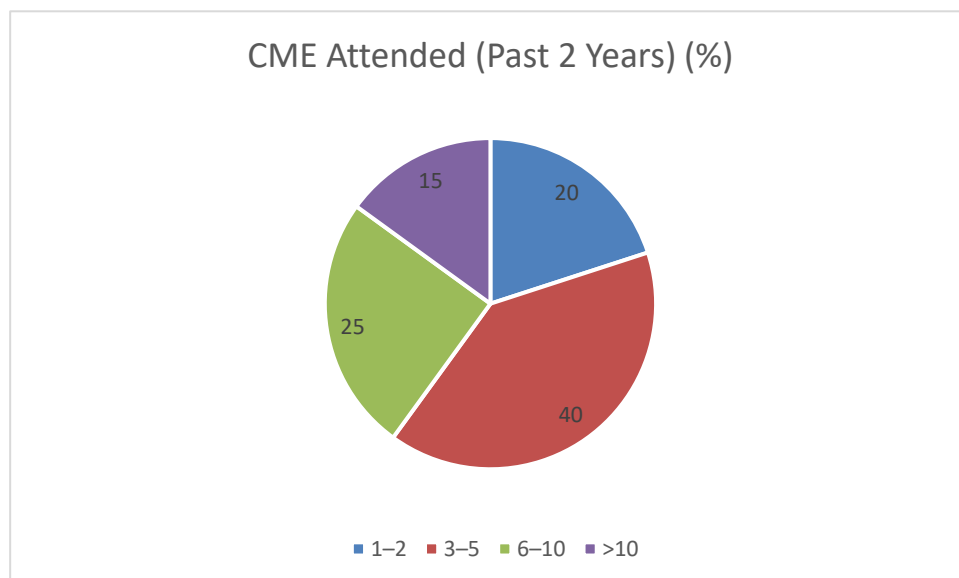


Fig. 4.5

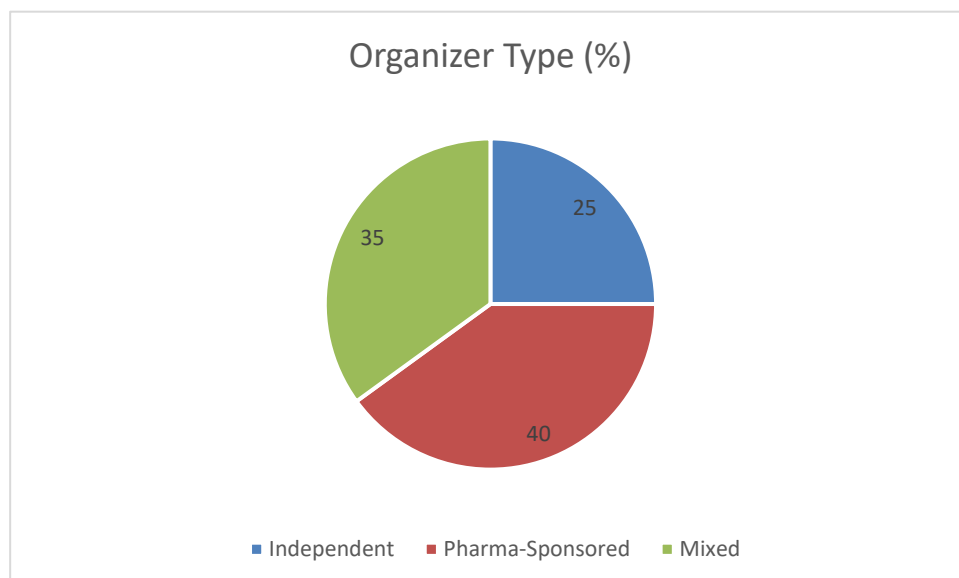
- **1–2 Sessions (20%):** A notable portion of respondents attended only 1 to 2 CME sessions, potentially due to limited access or interest.
- **3–5 Sessions (40%):** The largest group, representing consistent participation in ongoing medical education.

- **6–10 Sessions (25%):** This group is highly engaged and demonstrates a commitment to staying updated on clinical knowledge.
- **>10 Sessions (15%):** These respondents are extremely proactive in continuous learning, likely involved in academic leadership or specialist roles.

#### Strategic Use of Oversight Data

- **Support Low-Frequency Attendees:** Physicians attending 1–2 sessions may need more accessible or engaging formats like webinars or CME-at-home kits.
- **Leverage the Largest Group (3–5):** Focus efforts on this 40% segment with tailored, topic-specific CME programs to drive deeper engagement and brand recall.
- **Sustain Momentum with 6–10 Group:** These doctors are actively engaged — advanced content and speaker-led sessions could help deepen relationships.
- **Reward High-Engagement (>10):** Recognize and involve these doctors in CME panels or as peer-educators, increasing credibility and peer influence.

#### 4.2.6 Type of CME Organizers Attended



**Fig. 4.6**

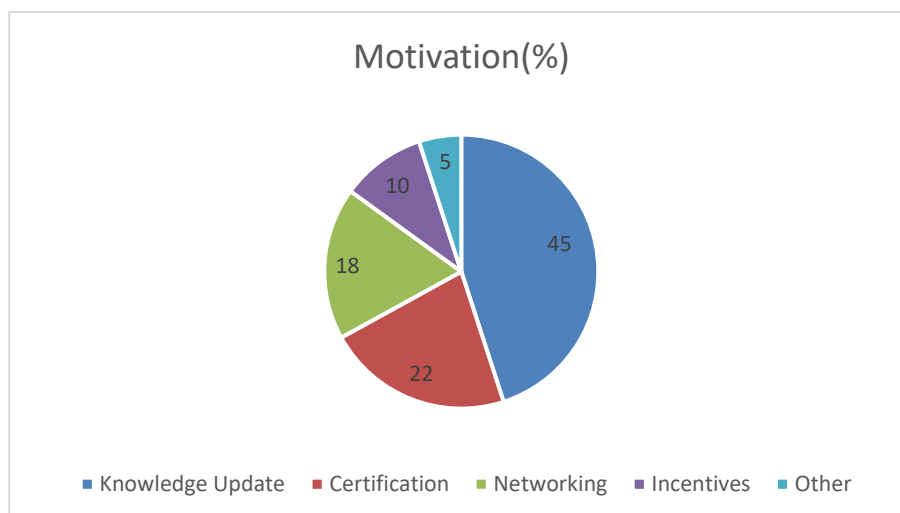
- **Independent (25%):** A quarter of respondents attended CME sessions hosted by neutral academic or institutional bodies, often perceived as more unbiased and evidence-based.
- **Mixed (35%):** Over a third of doctors participated in CME programs with shared organization between independent entities and pharmaceutical sponsors.
- **Pharma-Sponsored (40%):** The largest segment attended sessions organized entirely by pharmaceutical companies, which may carry promotional influence.

## Strategic Use of Influence Data

This data can inform your pharmaceutical company's approach to marketing and interacting with doctors:

- **Balance of Influence and Education:** With 75% of respondents participating in pharma-sponsored or mixed sessions, there's a clear need to ensure educational content remains objective, evidence-driven, and avoids overt promotion.
- **Enhance Credibility in Mixed Models:** For mixed programs, co-branding with medical institutions and use of third-party experts can elevate perceived credibility.
- **Support Independent CME:** Promote and invest in collaborations with neutral academic partners to increase the share of independent CME and foster trust among skeptical practitioners.
- **Transparency in Pharma-CMEs:** For pharma-sponsored programs, it's critical to disclose sponsorship, present unbiased data, and focus on clinical value to minimize ethical concerns and maximize learning impact.

### 4.2.7 Motivation for Attending CME Sessions:



**Fig. 4.7**

- **Other (5%):** A small group had varied, less common motivations such as employer mandates or institutional requirements.
- **Incentives (10%):** A modest share attended primarily for benefits like travel reimbursements or gifts, raising ethical considerations.
- **Networking (18%):** Some physicians viewed CME as an opportunity to connect with peers, specialists, or pharma representatives.

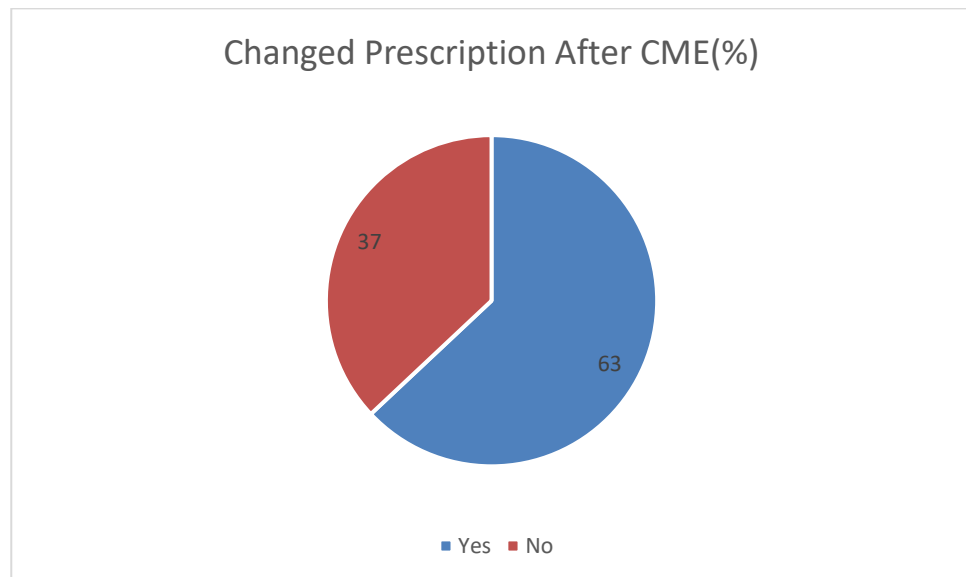
- **Certification (22%):** Recognition or credit-based motivation influenced about one-fifth of the respondents.
- **Knowledge Update (45%):** The most common driver, with nearly half attending CMEs to stay current with medical advancements and treatment protocols.

### **Strategic Use of Satisfaction Data**

- **Prioritize Content Value:** With 45% attending for knowledge updates, ensure that CME sessions deliver high-quality, evidence-based clinical content.
- **Highlight Accreditation:** For the 22% driven by certification, emphasize CME credits and affiliations with medical councils to boost participation.
- **Incorporate Networking:** For networking-focused participants, build in interactive elements like panel discussions or Q&A with experts.
- **Monitor Incentive-Based Attendance:** Although only 10% attend for incentives, maintaining ethical boundaries is crucial—ensure value-based learning remains the core offering.
- **Understand ‘Other’ Needs:** Explore additional motivations (like career advancement or job requirements) and consider tailoring CME delivery for institutional or hospital-linked audiences.

### **4.2.8 Prescription Change After Attending CME**

- **No (37%):** Over one-third of respondents reported no significant change in their prescription behavior after attending CME sessions. This could be due to skepticism, existing clinical confidence, or perceived lack of new value in the CME content.
- **Yes (63%):** A clear majority acknowledged that CME participation had impacted their prescribing decisions, suggesting that CME sessions play a substantial role in clinical decision-making.

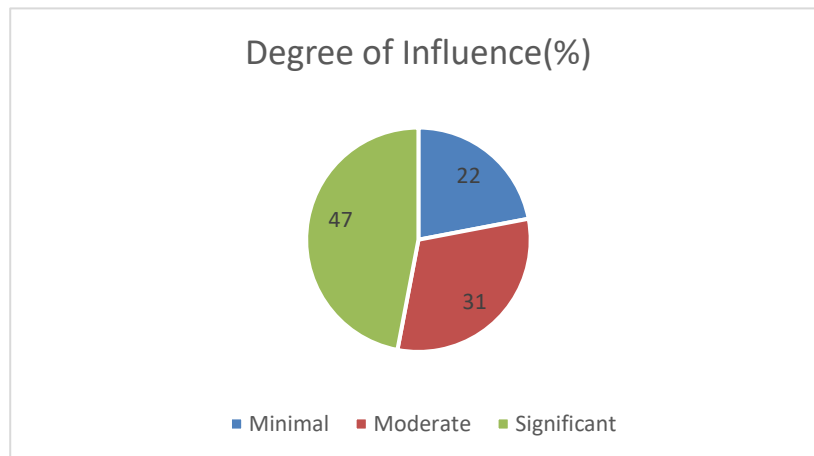


**Fig. 4.8**

**Strategic Use of Prescription Change Data:**

- **Reinforce Evidence-Based CME:** With 63% changing prescriptions post-CME, it's crucial to ensure that the information presented is grounded in strong clinical evidence and aligns with treatment guidelines.
- **Understand Resistance:** For the 37% who did not alter their practices, further qualitative research can explore whether content relevance, delivery format, or trust in sources are barriers.
- **Highlight Case Studies:** Incorporate real-world evidence, clinical success stories, and patient outcomes to influence prescribing in a more practical, relatable manner.
- **Post-CME Follow-Ups:** Consider offering post-CME support such as newsletters or Q&A webinars to help reinforce content and encourage clinical integration.

#### 4.2.9 Degree of Influence of CME on Prescription Behavior



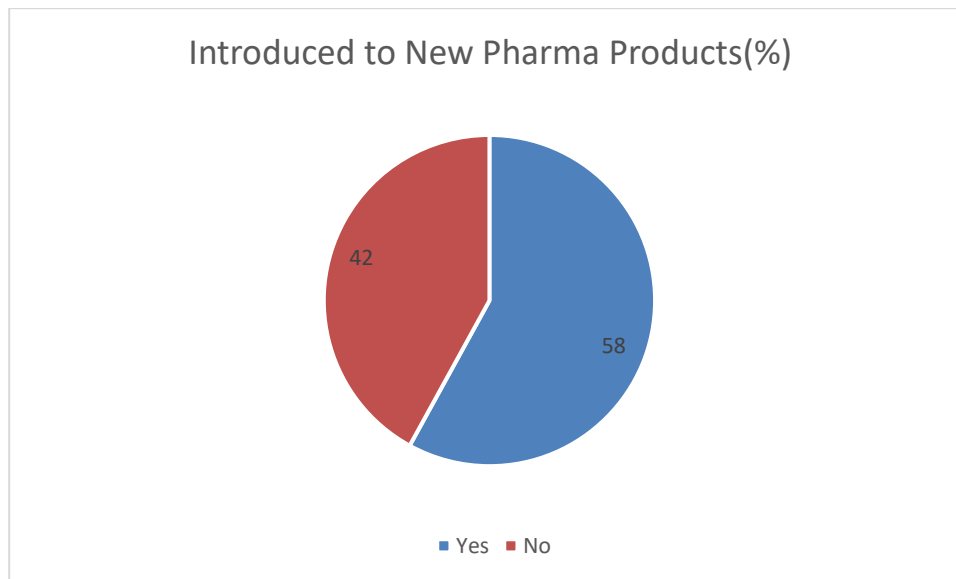
**Fig 4.9**

- **Minimal (22%):** A smaller group of physicians acknowledged only slight influence, suggesting either limited content relevance or established prescribing habits.
- **Moderate (31%):** Nearly one-third reported a moderate influence, showing that CME can shift perspectives or reinforce ongoing changes in clinical behavior.
- **Significant (47%):** The largest segment found CME to be highly influential in guiding their prescription choices, indicating the strong educational impact of well-designed sessions.

#### **Strategic Use of Influence Level Data:**

- **Capitalize on High Influence (47%):** Prioritize producing high-quality, clinically relevant CME content that reinforces therapeutic confidence and promotes rational prescribing.
- **Enhance Moderate Engagement:** For those with moderate influence, include interactive modules, peer discussions, and practical toolkits to deepen learning and encourage practice-level changes.
- **Address Low Impact Segments:** Investigate why some HCPs (22%) reported minimal influence — be it lack of customization, repetition of known material, or content skepticism — and improve targeting.
- **Measure Long-Term Behavior:** Track the longitudinal impact of CME on prescription patterns across all influence levels to continuously refine educational strategy.

#### 4.2.10 Introduction to New Pharmaceutical Products via CME



**Fig 4.10**

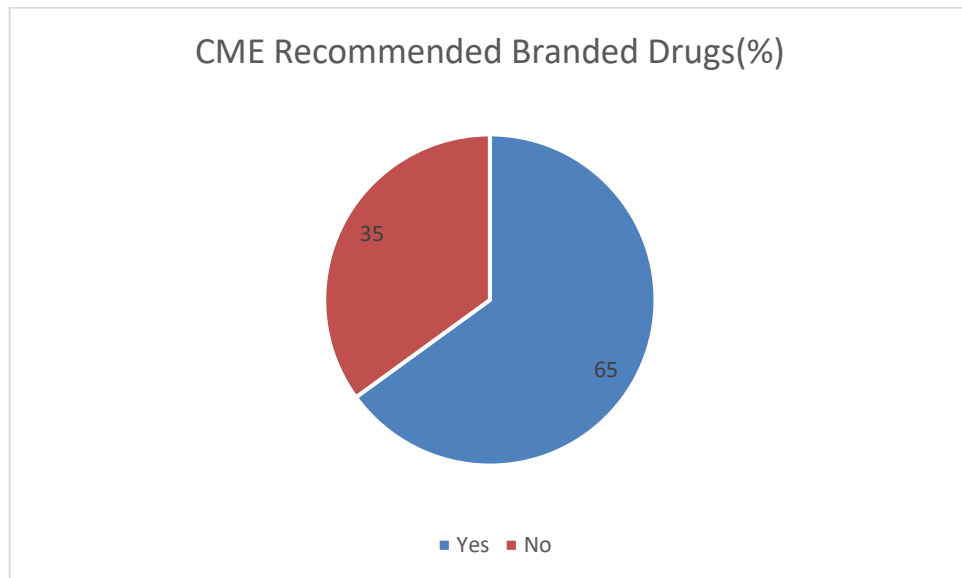
- **No (42%):** A significant portion of doctors reported not being introduced to any new products during CME sessions, which may reflect either a focus on academic content or lack of sponsor-driven presentations.
- **Yes (58%):** The majority of respondents confirmed being exposed to new pharmaceutical products through CME, reinforcing the role of these sessions in disseminating product-related information.

#### **Strategic Use of New Product Introduction Data:**

- **Leverage CME for Awareness:** The fact that 58% of physicians were introduced to new products highlights the power of CME as a strategic platform for product launches and updates.
- **Balance Promotion and Education:** While introducing new products, ensure that content remains clinical, unbiased, and supported by scientific evidence to maintain credibility.
- **Increase Informational Reach:** For the 42% who were not introduced to new products, consider integrating brief product innovation segments or optional Q&A sessions during CME without overwhelming the educational objectives.

- **Monitor Conversion to Practice:** Track whether product introductions via CME actually translate into clinical use, which will validate the ROI of educational marketing initiatives.

#### 4.2.11 CME Recommendation of Branded Drugs



**Fig 4.11**

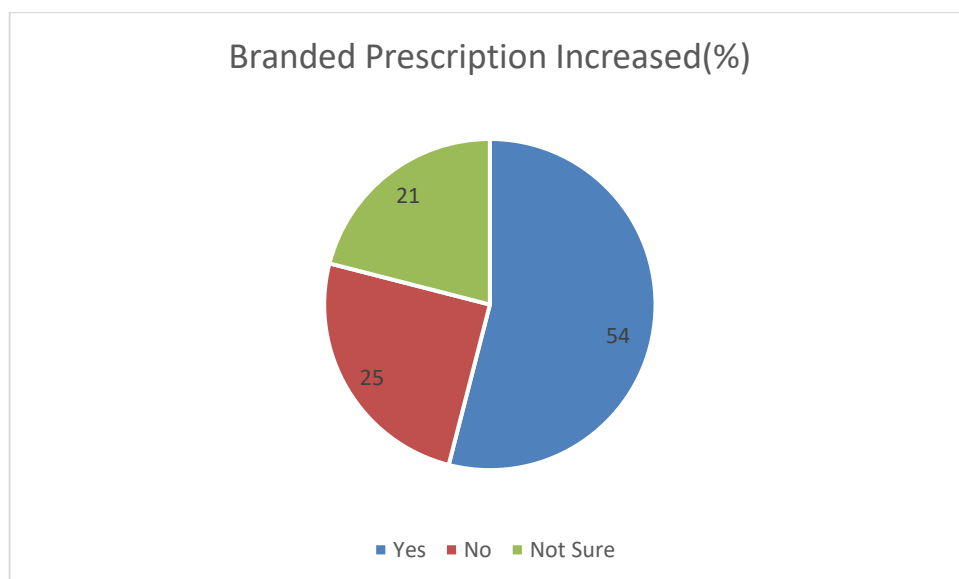
- **No (35%):** A significant minority reported that no specific branded drugs were recommended, suggesting either neutral content or a focus on generic or therapeutic principles.
- **Yes (65%):** Nearly two-thirds of respondents confirmed that CME sessions included direct or indirect recommendations for branded pharmaceuticals.

#### **Strategic Use of Branded Drug Recommendation Data:**

- **Transparency in Sponsored CME:** With 65% of sessions reportedly recommending branded drugs, it's crucial to ensure disclosures about sponsorship and brand affiliations to maintain ethical clarity.
- **Balance Content Focus:** While branded information can be valuable, ensure that such content is supported by comparative data, safety profiles, and efficacy outcomes to retain physician trust.
- **Address Skepticism:** For the 35% who did not encounter brand promotion, this could reflect their preference for unbiased education. Tailor future sessions to include both branded and generic perspectives for greater relevance.
- **Leverage Ethical Framing:** Framing brand information within clinical case

contexts, rather than promotional pitches, can help improve message receptivity without compromising educational value.

#### 4.2.12 Increase in Branded Prescriptions After CME



**Fig 4.12**

- **Not Sure (21%):** Over one-fifth of respondents were uncertain if their prescribing behavior had shifted toward branded drugs, possibly due to unconscious bias or lack of tracking.
- **No (25%):** A quarter of physicians reported no increase in branded prescriptions, suggesting either content neutrality or deliberate resistance to promotional influence.
- **Yes (54%):** More than half of the respondents acknowledged a rise in branded prescriptions post-CME, indicating measurable influence on clinical choices.

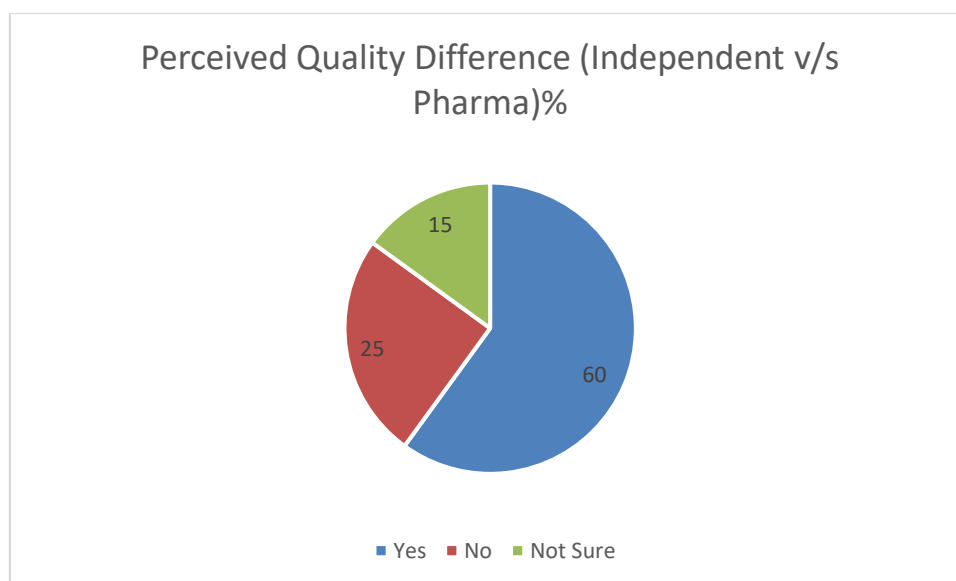
#### **Strategic Use of Branded Prescription Change Data:**

- **Acknowledge CME Impact:** The fact that 54% increased branded prescribing highlights CME's potential to influence prescribing behavior — and reinforces the importance of ethical boundaries in content.
- **Target the Uncertain Group (21%):** These doctors may benefit from reflective practice tools or post-CME audits to recognize subtle influences in their prescribing habits.
- **Support Rational Prescribing:** For the 25% who didn't shift toward brands,

ensure that future CME modules continue to emphasize clinical evidence over brand loyalty.

- **Audit and Monitor:** Consider follow-up studies or prescription audits to objectively assess brand switch patterns post-CME and ensure changes align with patient benefit, not promotional pressure.

#### 4.2.13 Perceived Quality Difference Between Independent and Pharma-Sponsored CME



**Fig 4.13**

- **Not Sure (15%):** A small but notable segment was unsure whether there was a difference, indicating either neutrality or lack of exposure to both types of CME.
- **No (25%):** One-fourth of the respondents perceived no quality difference, suggesting that for some, the learning outcomes are consistent regardless of sponsorship.
- **Yes (60%):** A majority observed a difference in quality, implying that independent CMEs may be seen as more objective, while pharma-sponsored sessions may carry promotional bias.

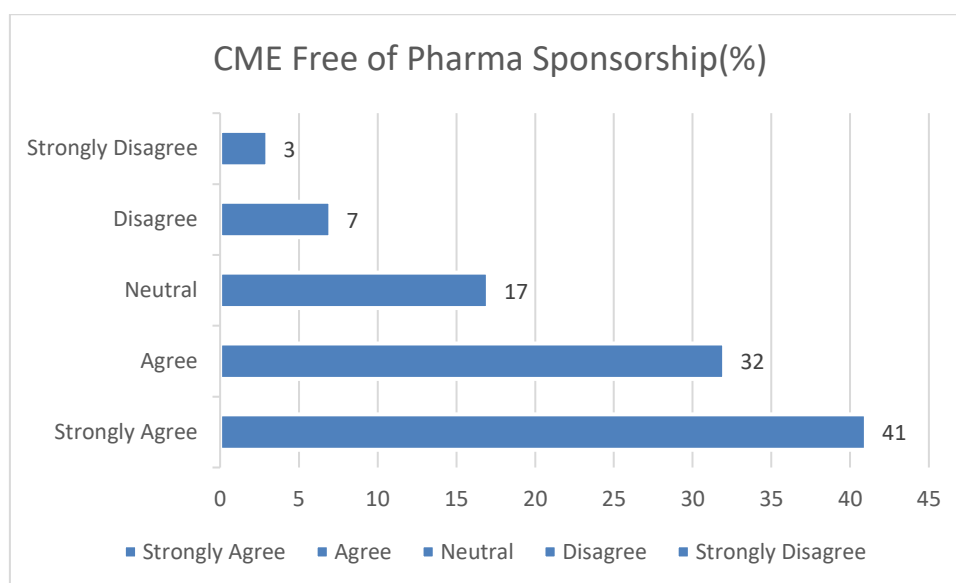
#### Strategic Use of Perceived Quality Data:

- **Prioritize Evidence-Based Content:** For the 60% who notice a quality difference, it's essential to ensure that pharma-sponsored CMEs maintain a high standard of evidence, neutrality, and transparency.
- **Bridge the Trust Gap:** Pharmaceutical companies can improve the credibility of

their CMEs by involving independent experts, disclosing affiliations, and focusing on clinically validated data.

- **Engage the ‘Not Sure’ Group:** Use feedback surveys and interactive sessions to encourage participants to evaluate CME quality more critically.
- **Standardize CME Guidelines:** Regulatory bodies and medical councils could consider defining quality standards that apply equally to all CME organizers, ensuring fairness and trust across formats.

#### 4.2.14 Opinion on Whether CME Should Be Free of Pharma Sponsorship



**Fig 4.14**

- **Strongly Disagree (3%):** A small fraction actively supports pharma-sponsored CME, likely valuing the accessibility and resources such events provide.
- **Disagree (7%):** A minority oppose the idea of pharma-free CME, possibly due to concerns over funding and the feasibility of independent alternatives.
- **Neutral (17%):** This group remains undecided, potentially weighing the educational benefits against the ethical trade-offs.
- **Agree (32%):** A significant segment supports reducing or eliminating pharma involvement to maintain objectivity and educational integrity.
- **Strongly Agree (41%):** The largest group strongly endorses pharma-free CME, highlighting growing concerns about commercial influence in medical education.

### Strategic Use of Sponsorship Opinion Data:

- **Shift Toward Neutral Platforms:** With 73% either agreeing or strongly agreeing, there is a clear call for more independent, ethically governed CME models.
- **Enhance Credibility in Pharma-CME:** For companies continuing to sponsor CME, transparency, third-party moderation, and focus on scientific evidence are essential to regain physician trust.
- **Explore Hybrid Models:** Consider partnerships where pharma provides funding but has no content control, with oversight by academic or regulatory bodies.
- **Engage the Neutral & Opposing Groups:** Address concerns of the neutral (17%) and disagreeing (10%) segments by showing clear, ethical practices and measurable educational value in pharma-supported CME.

#### 4.2.15 Educational Value Rating of CME Programs

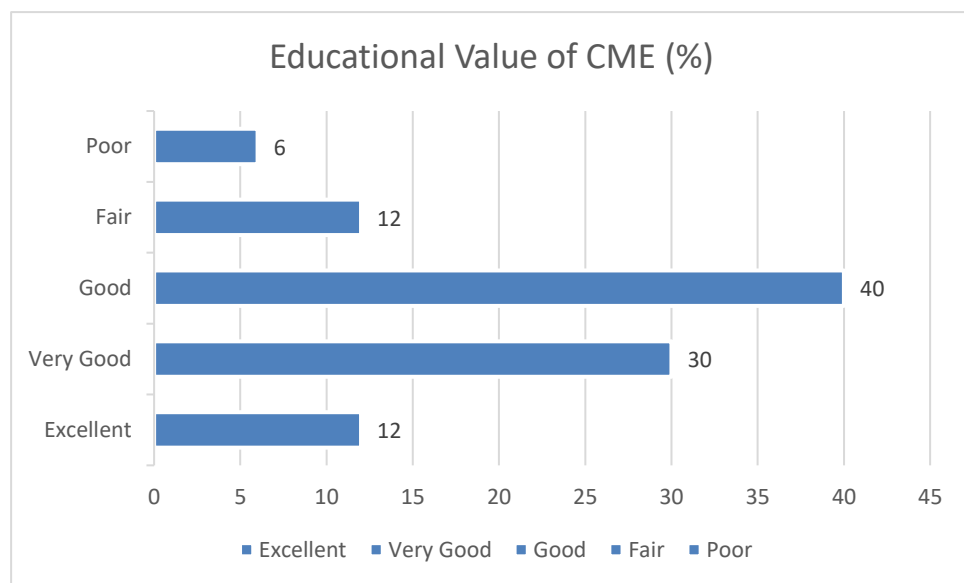


Fig 4.15

- **Poor (6%):** A small segment rated CME sessions as poor, possibly due to overly promotional content, lack of practical applicability, or poor delivery.
- **Fair (12%):** A limited group felt the sessions were only modestly beneficial, signaling room for improvement in engagement and content relevance.
- **Good (40%):** The largest segment rated CME programs as good, suggesting that most sessions delivered value, though with some scope for enhancement.
- **Very Good (30%):** A substantial portion found the programs very good, indicating high-quality learning experiences and practical takeaways.
- **Excellent (12%):** Only a small group considered CME programs to be

excellent, showing that while effective, there is a gap in delivering top-tier educational experiences consistently.

#### **Strategic Use of Educational Value Data:**

- **Target Improvement Areas:** While most respondents rated CME programs as good or very good (70%), there's an opportunity to push more sessions toward the "excellent" benchmark.
- **Engage the Critical Minority:** The 18% who rated CME as fair or poor highlight the need for better speaker quality, updated content, or improved interactivity.
- **Set Higher Quality Standards:** Design CME content using adult learning principles, problem-solving case studies, and peer-reviewed evidence to boost educational satisfaction.
- **Differentiate High-Value Sessions:** Track which CME formats or organizers earn higher ratings and replicate those elements—whether it's expert panels, clinical relevance, or hands-on modules.

#### **Understanding Brand Switching**

In line with the study's focus on how CME influences prescribing patterns, doctors reported multiple reasons for switching from one pharmaceutical brand to another. These changes in prescribing behavior were shaped by factors such as:

- A general preference for multinational (MNC) and non-generic products
- Cost considerations
- Patient feedback and satisfaction
- Product availability
- Doctor and patient acceptability
- Side effect profiles
- Strength and availability of clinical data
- Introduction of new molecules during CME sessions
- Research findings presented in CME

- User-friendliness of the medication

CME events, especially pharma-sponsored ones, often introduce or emphasize these elements, thereby influencing physicians' brand perception and switching behavior.

### **Strategic Use of Brand Preference Data**

- **Understanding Brand Loyalty:** Nearly 70% of physicians demonstrated brand loyalty. This insight reflects that while CME can promote awareness of new options, many physicians require strong clinical justification before altering prescriptions. This loyalty can be reinforced through consistent clinical value showcased in CME.
- **Focus on Retention Strategies:** Pharmaceutical firms can use CME as a platform to retain existing prescribers by aligning educational content with clinical effectiveness, long-term safety data, and treatment success stories.
- **Competitor Analysis:** CME participation provides an opportunity to observe what clinical claims or data competitors emphasize. Insights gained can guide the design of counter-strategies in future CME planning.
- **Innovate and Differentiate:** Educational sessions that showcase a company's innovation pipeline and unique selling propositions (USPs) can support differentiated positioning and brand superiority.

### **4.2.16 Prioritization of Factors by Doctors**

1. Efficacy
2. Cost
3. Safety
4. Patient Feedback

### **Understanding Doctor Prescribing Decisions**

- **Efficacy:** CME sessions are most impactful when they highlight clinical trial data and real-world effectiveness. Doctors prioritize therapeutic success as their primary decision driver.
- **Cost:** With increasing pressure on healthcare affordability, cost is a vital component. CME often includes cost-benefit analyses to address this.
- **Safety:** While slightly lower in priority than efficacy, the safety profile is essential, especially for chronic or vulnerable patient populations.

- **Patient Feedback:** Though ranked lowest, CME sessions that incorporate patient-centered outcomes or satisfaction data are valued by some clinicians.

### **Strategic Use of Doctor Ranking Data**

- **Highlighting Efficacy:** Ensure CME sessions focus on comparative studies, MOA (mechanism of action), and treatment guidelines.
- **Addressing Cost Concerns:** Provide tools for economic evaluation and offer co-pay support information.
- **Balancing Safety and Efficacy:** Frame discussions around both aspects to assure comprehensive understanding.
- **Gathering Patient Feedback:** Encourage post-marketing surveillance and incorporate this into CME presentations.

### **4.2.17 How Doctors Stay Updated**

- **Medical Journals:** A critical source of peer-reviewed content, often cited during CME.
- **Conferences:** Many CME events are integrated into or modeled on academic conferences.
- **Medical Representatives:** Pharma-sponsored CME offers a controlled channel for detailed product communication.
- **Other Sources:** Digital platforms, webinars, and specialist consultations support CME themes.

### **Strategic Use of Doctor Information Preferences**

- **Medical Journal Publications:** CME content should be derived from, and linked to, published research.
- **Conference Sponsorship:** Sponsoring medical events improves both educational value and brand visibility.
- **Train Medical Representatives:** Equip MRs with CME-derived materials that are evidence-driven.
- **Develop Credible Online Resources:** CME platforms can host whitepapers, clinical tools, and interactive modules.

#### **4.2.18 Enhancing Pharma-Doctor Interactions Through CME**

- **Scientific Innovation:** Emphasis on new molecules and breakthrough therapies
- **Transparency:** Clear data on side effects, cost, and safety
- **Evidence-Backed Claims:** Clinical trials and case studies
- **Interactivity:** Opportunities for real-world discussion and Q&A
- **Professional Conduct:** Respect for time, neutrality in tone, and depth of content

#### **4.2.19 Changes in CME and Marketing from Doctors**

- Transparency in sponsorship and drug pricing
- Content led by unbiased, non-commercial entities
- Rigorous scientific data over promotional messaging
- Independent oversight and audit of CME programs

### **4.3 Discussion**

#### **4.3.1 Comparison with Existing Literature**

The findings are consistent with earlier literature that emphasizes how CME impacts prescribing decisions. CME, particularly when involving pharmaceutical sponsors, is shown to influence brand selection and promote awareness of cost-effective and efficacious medications. Independent CME, by contrast, tends to offer a more neutral educational environment.

#### **4.3.2 Explanation of Unexpected Results**

While concerns over ethical bias in pharma-sponsored CME were expected, the study found a relatively high degree of trust in pharmaceutical information, suggesting an evolving landscape where companies have started adhering to ethical guidelines and transparency mandates. This indicates a promising trend toward more responsible industry engagement in CME.

## **Chapter 5: Conclusions and Recommendations**

## 5.1 Conclusions

### 5.1.1 Summary of Key Findings

- **Influence of CME Participation:** 63% of respondents confirmed that CME participation led to changes in their prescribing behavior, indicating a strong impact of CME on clinical decision-making.[3]
- **Branded Drug Promotion:** 54% of physicians acknowledged an increase in branded prescriptions post-CME, particularly after attending pharma-sponsored sessions.[3]
- **Perceived Content Bias:** 60% of participants believed there is a noticeable difference in content quality between independent and pharma-sponsored CME, with a preference for independent programs.[9]
- **Ethical Concerns:** A combined 73% of doctors agreed or strongly agreed that CME should be free from pharma sponsorship, citing concerns over educational bias.[24]
- **Educational Value:** While 82% rated CME programs as good to excellent, only 12% found them excellent, suggesting a need for better content design and delivery.[6]

### 5.1.2 How the Findings Answer the Research Questions

- The **extent of CME's influence** on prescribing behavior, especially when pharma sponsorship is involved.
- Clear **differences between independent and industry-sponsored CME**, both in perceived bias and influence.
- The **role of physician demographics**, such as age and experience, in modifying responses to CME content.
- Strong evidence of **ethical concerns** among physicians regarding the commercial involvement in CME programs.

## 5.2 Recommendations

### 5.2.1 Practical Implications for Pharmaceutical Companies

- **Transparent Sponsorship:** Clearly disclose any sponsorship in CME programs and avoid overt promotional content.[9]

- **Evidence-Based Approach:** Deliver scientifically validated, unbiased information that prioritizes clinical benefit over marketing.[24]
- **Collaborative Development:** Partner with academic or regulatory bodies to co-create CME modules for increased credibility.[25]

### 5.2.2 Suggestions for Medical Practitioners

- **Content Evaluation:** Critically assess the educational value and neutrality of CME sessions before applying insights to practice.
- **Balanced Clinical Judgement:** Consider efficacy, safety, cost, and patient feedback rather than solely relying on brand promotion.[6]
- **Preference for Independent CME:** Whenever possible, opt for programs organized by neutral, academic institutions.[3]

### 5.2.3 Policy Recommendations

- **Regulatory Oversight:** Establish CME content monitoring guidelines to ensure educational integrity and minimize commercial influence.[8]
- **Support for Unbiased CME:** Promote funding mechanisms for independent CME programs, potentially via public or institutional support.[12]
- **Accreditation Standards:** Implement third-party audits and quality certification for CME programs to ensure compliance with ethical norms.[13]

## 5.3 Limitations of the Study

- **Geographical Limitation:** The study was conducted in Bathinda city only, which may limit the generalizability of results to other regions.
- **Self-Reported Data:** Reliance on self-reported survey responses could lead to recall or response bias.
- **Quantitative Focus:** The absence of qualitative interviews limits the depth of understanding regarding physicians' attitudes and motivations.

## 5.4 Suggestions for Future Research

- **Expanded Geographical Scope:** Replicate this study in different cities or states to assess regional differences in CME influence.
- **Qualitative Research:** Incorporate focus groups or interviews to explore nuanced ethical concerns and physician experiences.

- **Longitudinal Analysis:** Study the long-term effects of CME on prescribing behavior and whether observed changes are sustained.
- **Digital CME Impact:** Evaluate how online CME platforms influence prescription trends and whether digital sponsorship poses similar ethical challenges.[23]

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## Annexure

### Study Tools:

1. Age: ☐ <30 ☐ 30–40 ☐ 41–50 ☐ >50
2. Gender: ☐ Male ☐ Female ☐ Prefer not to say
3. Specialty: ☐ General Medicine ☐ Pediatrics ☐ Surgery ☐ Other: \_\_\_\_\_
4. Years in medical practice: ☐ <5 ☐ 5–10 ☐ 11–20 ☐ >20
5. Practice setting: ☐ Private ☐ Government ☐ Hospital ☐ Clinic ☐ Other
6. Attended CME in past 2 years? ☐ Yes ☐ No
7. Number of CME sessions attended: ☐ 1–2 ☐ 3–5 ☐ 6–10 ☐ >10
8. Main CME organizers: ☐ Independent ☐ Pharma-sponsored ☐ Mixed
9. Motivation for attending: ☐ Knowledge update ☐ Certification ☐ Networking  
☐ Incentives ☐ Other
10. Changed prescribing behavior after CME? ☐ Yes ☐ No
11. Degree of influence on change: ☐ Minimal ☐ Moderate ☐ Significant
12. Introduced new pharma products via CME? ☐ Yes ☐ No
13. CME recommended branded drugs? ☐ Yes ☐ No
14. Increased branded prescriptions after CME? ☐ Yes ☐ No ☐ Not sure
15. Difference in content quality (independent vs. pharma)? ☐ Yes ☐ No ☐ Not sure
16. CME should be free of pharma sponsorship? ☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree
17. Educational value of CME: ☐ Poor ☐ Fair ☐ Good ☐ Very Good ☐ Excellent

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