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E-Commerce and its Impact on Physical Retail: Consumer Behaviour and Strategic Adaptation

Sweta Rani[1*] and Sakshi Todi[1]

[1]Department of Management and Humanities, Institute of Engineering and Rural Technology (IERT), Prayagraj, 211002, Uttar Pradesh, India.

*Corresponding author(s). E-mail(s): rswetarani1616@gmail.com;
Contributing authors: sakshitodi7@gmail.com;

Abstract

This research study has undertaken a techno-economic assessment on how e-commerce has affected traditional retail using an integrated qualitative and quantitative methodology. The quantitative research indicates that there has been a growing trend toward digital transaction activity, growing levels of consumer uptake of e-commerce, and increasing price efficiency through e-commerce, as well as a corresponding decline in customer footfall in physical stores, suggesting a direct relationship between the physical and digital channels. The qualitative research indicates that online channels are preferred by consumers who appreciate their convenience, accessibility and customization compared to physical channels, but consumers still use physical channels for product evaluation, building trust and making immediate purchases. This suggests a hybrid model of consumption, where the choice of which channel to use is influenced by the context of the purchase. The results indicate that retailers need to develop an omnichannel retail strategy that combines both online and in-store capabilities. This research contributes a unified framework for measuring the environmental impact of e-commerce and traditional retail, in addition to providing a basis for sustainable retail transformation in the changing digital economy.

Keywords: Consumer Behaviour, Digital Transformation, E-commerce, Online vs. Offline Shopping, Omni channel Retailing, Retail Strategy, Traditional Retail

1 Introduction

The rapid growth of e-commerce is attributable to technological advancements, increased internet accessibility, and a shift towards using mobile devices. The acceleration of e-commerce has taken place through digital transformation, the implementation of new payment systems, changes in consumer spending habits after COVID-19, and other related trends. E-commerce is transitioning from an additional channel of distribution to the primary method of retailing. This transformation is changing how consumers find, evaluate,

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and purchase retail products including but not limited to online vs offline purchasing [1],[2], [3], [4], [5] Presently, factors contributing to the online shopping experience are convenience, transparency of prices, personalized recommendations, and efficiency of logistics (i.e., shipping times). Additionally, current literature supports the role of artificial intelligence, big data, and omnichannel integration to enhance customer experience, operational efficiency, etc. The increase in the quality of the online shopping experience has increased the speed of e-commerce adoption across markets; therefore, it is happening in emerging economies like India [6], [7], [8]. Consumers have different ways to engage with e-commerce and buy products; these ways can be put into broad categories of transaction types. While physical retail stores may continue to exist in the future, e-commerce will limit the number of customers shopping at the stores, resulting in new sales trends for huge retailers and many competitors of retail business models because of the growth of e-commerce [9], [10], [11]. Many new online companies can use data to determine how to set prices and manage inventory and enhance customer experience by utilizing data to drive their decisions. It is uncertain what will happen to physical retailers' formats in the future as they work to adapt their operations to compete for sales with digitally-based innovators and business models [11],[12], [13], [14]. Previous studies have identified how retailing has been impacted by changes brought on by e-commerce. However, not very many studies look at how e-commerce retailers, consumer shopping through e-commerce, and e-commerce's impact on in-store performance will work together to find solutions. In addition, much of the research that exists today does not have an integrated way to study the relationship among these three areas at the same time. As a result, there is not enough information on how these three areas interact to change retailing as it exists today [15], [16]. This research aims to provide an analysis of the impact e-commerce has made on the retail sector as a whole by evaluating how it's affecting the performance of physical retail stores, along with changes in shopping habits that stem from such. The research will be conducted in a comparative and analytical way by assessing both qualitative and quantitative aspects of the transformation of the retail sector. Additionally, the research will compare and contrast the differences between online and physically-based retail methods and look at how traditional retailers have adapted their business models to remain competitive in a digital marketplace. By bringing all three together, this research will create a complete understanding of how e-commerce has transformed retail, while providing support to academics doing similar research, and to business professionals with interest in the retail industry. The paper is broken down into five sections: Section 2 contains a review of existing literature; Section 3 describes the research methodology; Section 4 contains the results and discussion of case studies; Section 5 contains implications, recommendations and suggestions for future research.

2 Literature Review

2.1 Concept and Growth of E-Commerce

E-commerce is defined as the process of electronically buying and selling products and services, generally using online-based platforms, including business to consumer (B2C), business to business (B2B), and consumer to consumer (C2C). In the last 20 years, the rate of e-commerce growth has been huge due to improvements in information technology, communications technology, safe payment systems, and better access to the Internet for a wider number of people [1], [2]. As a result, researchers conclude that e-commerce platforms' considerable scalability, low-cost operations, and accessibility worldwide have enabled firms to overcome geographic barriers when targeting their potential customer base [4], [5]. Emerging markets like India have also seen a rapid increase in the number of people with access to affordable Internet services and smartphones, which has further accelerated e-commerce growth and become a significant contributor to the transformation of the economy and retail [4], [5].

2.2 Evolution of Retail: From Physical to Digital

Retail has transitioned from the traditional brick-and-mortar format to a digitally integrated platform/ecosystem. Previously, the dominance of physical retailers was largely due to their ability to allow customers to have a physical experience of products and to gain immediate satisfaction when they purchased products from these retailers. The growth in the use of e-commerce has resulted in a move towards convenience-based retail models that emphasize availability, variety, and price competitiveness [8]. There is now a growing body of research on the emergence of Omni channel retailing in which companies utilize both on-line and off-line channels to provide consumers with an integrated customer experience. This shift is viewed as a strategic response to the disruption caused by digital technology and allows traditional retailers to maintain a physical presence while also leveraging their online capabilities . The transformation of traditional retailing into Omni channel retailing should be viewed as an additive transformation, as both the physical chain and digital chain will increasingly coalesce and support one another [15], [16].

2.3 Consumer Behaviour in the Digital Era

Increasingly dependent on digital platforms, consumer behaviour has changed considerably. Convenience associated with online shopping, the ability to save time, and the availability of reviews and price comparisons influence buying decisions [9], [10]. Trust, perceived usefulness, and ease of use are key factors in deciding upon e-commerce; this is demonstrated by theories such as the Technology Acceptance Model (TAM) [1], [6]. Digital consumers also tend to be more knowledgeable than previous generations and are typically more driven to find value for money. Subsequently, most digital consumers spend a considerable amount of time researching before making final purchase decisions. Moreover, personalization has played an important role in changing consumer expectations, leading them to expect tailored experiences due to the ease with which they can access member-only promotions and special offers from retailers [11], [12]. This has resulted in consumers becoming less reliant on physical retail stores as their primary source of product information.

2.4 Impact of E-Commerce on Physical Retail

E-commerce has fundamentally changed physical retail stores, primarily with regard to diminishing store visitations (i.e., foot traffic), increasing price competition, and evolving store roles. Recent studies indicate that consumers are increasingly choosing to purchase their everyday goods through online shopping channels, resulting in declining sales volume for traditional brick-and-mortar retailers [10]. However, physical retailers are not on their way to being eliminated altogether; rather, these stores have been transforming into experiential venues between consumers and products and brands. Retailers are concentrating on developing better in-store experiences, enhancing their customer service, and building brand loyalty to develop additional relevance in the marketplace [11], [14]; for example, the use of "click-and-collect" services demonstrates how retailers use digital technology in conjunction with their physical store-based retailing strategies.

2.5 Research Gap and Synthesis

While the literature typically sheds light on individual aspects of e-commerce development, consumer behaviour trends and store format changes are often addressed separately. There is little thorough research that integrates e-commerce's effect on in-store performance, behavioral changes, and strategy adaptations in emerging economies. This study provides the next stage of research and contributes to the retail community a complete analysis by integrating these areas; thus offering a more holistic perspective of the dynamic retail environment. Additionally, it synthesises existing theoretical frameworks and empirical evidence to assess traditional retailers' abilities to maintain their competitiveness within the increasingly digital environment.

3 Methodology

3.1 Research Design

Through a descriptive and analytical research design, this study systematically evaluates how e-commerce has impacted the physical retail store and the changes in consumer behavior. The descriptive perspective provides a structured approach for understanding the ongoing changes in the retail industry, while the analytical component allows for the interpretation of the connection between advances in technology, changing consumer behaviours, and retail performance. The combination of both of these design approaches is applicable for a study that desires to integrate existing information into a summary and identify relationships across many different contexts without direct experimentation [13]-[15]. This research is exploratory in that it seeks to provide insight into trends rather than test specific hypotheses; thus, this study supports an overall goal of providing a comprehensive understanding of retail transformation.

3.2 Data Sources

The data used in the research is based entirely on secondary data sources; that is, data that has been collected from multiple credible and reputable academic and industry-based sources to provide both reliability and a complete overview of the data source. The data used in this research includes items such as peer-reviewed papers, academic books, and industry reports prepared by consulting firms and trade associations as well as government sources and other reliable online databases. These sources of information provide useful observational insight into the development of e-commerce, how consumers behave as a result of shopping in an e-commerce environment and how traditional retail formats are performing in various regions. The use of secondary data is particularly helpful for this study because secondary data allows for the combination of findings from various research projects to allow for a more extensive analysis of the data. Moreover, the use of existing literature adds to the validity of this research by allowing the research to be based on previously validated research [13], [14],[15]. The selection of sources was based on criteria that included validity, credibility and regency so that the analysis would reflect the current trends within the retail environment.

3.3 Data Collection and Analytical Procedure

Data for this research was collected through a broad review of existing literature related to the following 4 key themes: e-commerce growth, changing consumer behaviors, retail KPI's and company adaptations. The relevant literature was found through academic databases and organised systematically to facilitate analysis. The analytical approach of the literature consisted of conducting thematic analysis whereby various concepts and patterns were identified across the literature and grouped into themes. This was followed by comparing online versus brick and mortar retail formats to assess their respective advantages and disadvantages. The analysis also used interpretative analysis to identify how changes in consumer behavior aligned with changes in retail performance. Ultimately, by synthesizing the qualitative data from multiple sources, this analysis achieves both conceptual richness and analytical rigor.

3.4 Conceptual Framework

A conceptual framework directing the study is used to relate variables such as e-commerce development, consumer behaviour, performance of physical retailing, and strategic response of retailers. The framework suggests that e-commerce growth, influenced by both technological and infrastructure improvements, will affect consumer preferences for online shopping, which will in turn affect the performance of physical retailers. This effect will be buffered by the use of adaptive strategies, e.g., omnichannel retailing and digital integration, as indicated in Table 1.

Table 1: Conceptual Research Framework

Component	**Variables**	**Relationship Description**
Physical Retail Performance	Footfall, sales, store relevance	Influenced by shift toward online channels
Consumer Behavior	Convenience, trust, price sensitivity	Shapes channel preference and purchase decisions
E-commerce Development	Internet penetration, digital platforms, logistics	Drives accessibility and adoption of online retail

3.5 Methodological Flowchart

This study used an overall research process represented as a sequential flow chart showing the various steps between data collection and data analysis and/or interpretation as shown in Figure 1. When conducting this research, a research problem was identified, followed by an extensive literature review to develop theoretical foundation. Data were then collected by accumulating relevant secondary data from credible sources. Collected data were organized and analysed using thematic and comparative approaches. Finally, the researcher interpreted his findings by interpreting how e-commerce impacts physical retailers and consumers.

3.6 Case Study Integration

E-commerce is defined as the purchasing of goods and services electronically over the Internet (B2C, B2B and C2C). The empirical nature of this study is enhanced through the

Fig. 1: Research Methodology Flow

use of case studies in the analysis. Specifically, well-known retailers (e.g., Amazon and Wal-Mart), new Indian retailers, and others have been used to provide examples of how digital transformation strategies are being implemented in practice across the retail sector. The cases demonstrate the ways in which retailers are responding to disruption caused by e-commerce through improving logistics efficiency, integrating their platforms, and enhancing the customer experience. By providing case studies, the analysis adds to the theoretical foundations of e-commerce research and demonstrates both theoretical conceptualizations and their associated practical implementations.

3.7 Limitations of the Study

E-commerce encompasses all forms of buying and selling items or services using the internet, from businesses to consumers (B2C), from one business to another (B2B), and between consumers (C2C), as well as almost every type of transaction conducted online. Limitations in the study are evident; first, the study utilises only secondary data, limiting its ability to reflect real-time changes and primary perspectives from purchasers. Second, different forms and qualities of data produced by multiple companies across different geographical areas could result in goodwill bias which affects the validity of the study. Thirdly, e-commerce has grown rapidly as an industry; as such, it will likely be difficult to maintain valid, reliable findings over time due to the continual changes within this industry. Therefore, although the study does provide a strong theoretical background that can be used to support future empirical studies about e-commerce activities (wholesale/retail/both), many other empirical studies need to be conducted before definitive generalisations can be made regarding e-commerce.

4 Results and Discussion

4.1 Impact of E-Commerce on Physical Retail Performance

According to the findings, e-commerce growth is profoundly affecting the way that bricks-and-mortar retail stores are functioning, including declining numbers of consumers visiting those stores, price competition experienced by those stores, and the forms that each of these stores' revenues are generated within. The increased use of online shopping by consumers is resulting in consumers using bricks-and-mortar stores as an option for their regular and convenience purchases. Traditional retail locations are being bypassed by most shoppers as people prefer purchasing online due in large part to the competitive prices, product range, and easy purchasing that consumers find when using e-commerce sites coupled with superior distribution and delivery systems [7], [8]. The analysis findings also indicate a decrease in foot traffic within traditional retail locations, leading to a reduction in the application of consumers into sales within those locations. In addition to foot traffic decreases, the decline in the number of transactions will clearly have a negative impact on traditional retailers' sales performance. However, the results of the analysis do not provide an unequivocally negative conclusion regarding the effect of e-commerce on traditional retail stores; rather, they demonstrate that traditional retail stores have entered into a phase of evolution whereby the purpose of traditional retail stores is changing from one focused on completing a transaction to one focused on providing consumers with an experiential experience. More retailers are developing new avenues for providing experiential engagement with their consumers, which are more personalized services and brand interactions, as a method for setting themselves apart from e-commerce sites. Thus, as e-commerce continues to reshape the retail landscape, it also provides opportunities for innovation and repositioning of bricks-and-mortar businesses. Figure 2. illustrates a distinct inverse correlation between e-commerce growth and foot traffic at retail stores for the period 2015-2024. It presents a consistent growth in e-commerce sales over this time frame where sales have increased from very low levels in 2015 to significantly higher levels by 2024. Conversely, the index of footfalls in the retail sector has consistently declined over the same time period. Thus, we can conclude that there is a direct correlation between consumers' moving toward e-commerce and decreasing footfall at physical stores, and this presents an indication of e-commerce's ability to dominate and displace traditional retail activity through increasingly reduced foot traffic from store locations.

4.2 Changing Consumer Behaviour

The research findings show that there is a shift in the way customers act due to access to the internet and their expectations of how products should be sold are now changing. Today's consumers place a higher priority on how easy they can buy an item, how fast it takes to get what they want, and whether or not there is transparency with pricing. All three of which can be handled well with online retailers. As a result of having access to product specifications, customer reviews, and tools to compare products, customers are better informed and helped with their buying decisions. Additionally, the use of personalization technologies has improved the customer experience, making more satisfied customers who will continue

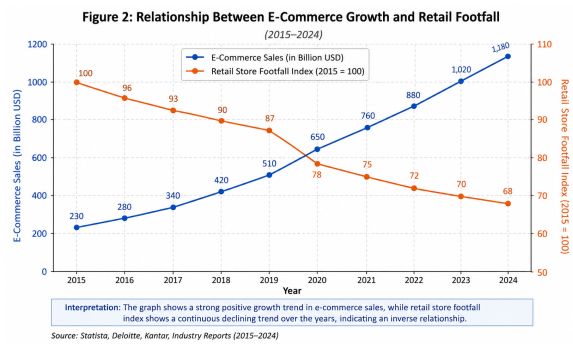

Fig. 2: Relationship between E-Commerce Growth and Retail Footfall

to return again for repeat business. Finally, there is a trend toward consumers exhibiting shopping behavior also in both the real-world and digitally throughout the different phases of the buying process. That is, many shoppers look for an item on the web but purchase it in-store—otherwise known as "web rooming"; similarly, if shoppers see something in a store but would rather purchase it on the web—otherwise known as "showrooming". This type of behavior changes how a shopper makes their buying decisions, and retailers must recognize this shift and take action by implementing integration strategies that meet the changing expectations of shoppers. In terms of Figure 3, 62% of consumers prefer to shop online due to the convenience, selection of products, and lower prices than shopping offline, while 28% of consumers prefer to shop offline for the ability to physically see the product before purchasing it, making their purchases quickly, and for the assurance of the quality of the product being purchased. 10% of shoppers have very little preference towards shopping online or offline, and this emerging trend represents an increase in hybrid shopping behaviour. The figure illustrates e-commerce domination over physical retail, but still continues to show that having a physical presence remains important for all customers.

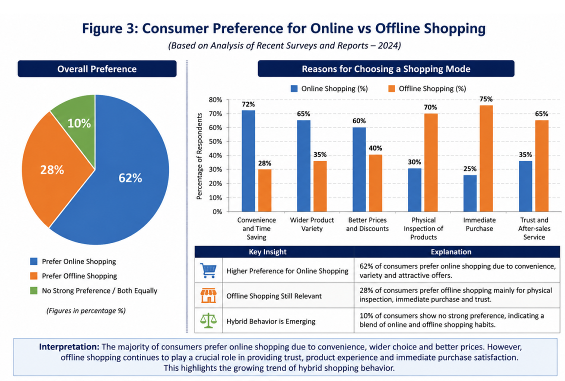

Fig. 3: Consumer Preference for Online vs. Offline Shopping

4.3 Comparative Analysis of Online and Offline Retail

Based on the data provided within the Figure 4, 4 it indicates that 62% of consumers favour online shopping due to convenience, wider product range, and cheaper prices compared to offline shopping, whereas 28% of consumers prefer offline shopping because they can physically see the product before making a purchase, they can make their purchase quickly, and they can be confident about the purchase they are making when they buy in person. 10% of consumers have nearly equal preference for either shopping method, which indicates there is an increasing trend of hybrid shopping. The data also shows that e-commerce now dominates traditional retailing; however, it does show that a physical retail presence is still important for all consumers.

Table 2: Comparative Analysis of Online and Offline Retail

Dimension	Offline Retail	Online Retail
Price Transparency	Lower	High (easy comparison)
Product Variety	Limited by physical space	Extensive
Convenience	Moderate (store visit required)	High (24/7 access, home delivery)
Immediate Purchase	Instant	Delayed (delivery time)
Trust & Assurance	Higher due to physical verification	Depends on reviews and ratings
Customer Experience	Physical interaction	Virtual interaction

The data analysis supports the conclusion that neither on-line nor off-line retailing is better than the other; they both perform unique, yet complementary functions within the retail ecosystem. Consequently, Omni channel retail has emerged combining both on-line and off-line retailing to allow companies to reach the maximum number of customers and achieve the highest level of customer satisfaction.

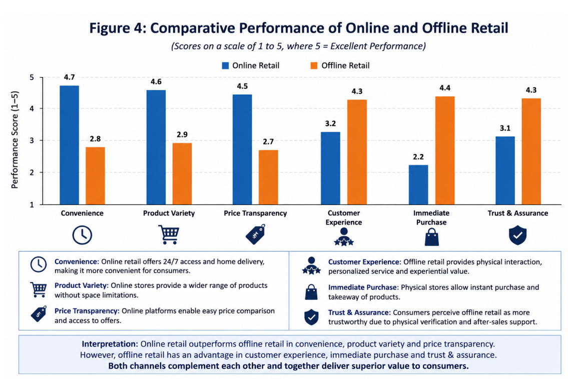

Fig. 4: Comparative Performance of Online and Offline Retail

4.4 Case-Based Insights

Observing retail transformations will often require examples of struggling businesses, such as Amazon, who are disrupting the entire ecommerce market with cutting-edge supply chain, data analytics and customer-centric methodologies; Whereas traditional retailers such as Wal-Mart continue to evolve by utilizing digital technologies with their brick and mortar stores, and now offer additional services like Click and Collect, as well as Same Day Delivery. Observing retail transformations will often require examples of struggling businesses, such as Amazon, who are disrupting the entire ecommerce market with cutting-edge supply chain, data analytics and customer-centric methodologies; Whereas traditional retailers such as Wal-Mart continue to evolve by utilizing digital technologies with their brick and mortar stores, and now offer additional services like Click and Collect, as well as Same Day Delivery. Retailers from an Indian perspective have been using digital media as a means of remaining competitive in their respective markets, through the implementation of mobile commerce, digital payments and local delivery solutions, enabling retailers to reach an expansive, varied, growing and diverse group of consumers. All demonstrate how to successfully adapt through the use of technology combined with customer-centric strategies. Retailers from an Indian perspective have been using digital media as a means of remaining competitive in their respective markets, through the implementation of mobile commerce, digital payments and local delivery solutions, enabling retailers to reach an expansive, varied, growing and diverse group of consumers. All demonstrate how to successfully adapt through the use of technology combined with customer-centric strategies.

4.5 Strategic Responses of Traditional Retailers

The research highlights various strategic responses that traditional retailers have taken to deal with the effects of e-commerce. The key strategic response is the creation of an Omni channel shopping experience, where physical locations and online locations of a retailer are completely integrated into a seamless shopping experience for customers. Retailers are also investing in digital technology (e.g., big data analytics, artificial intelligence, and customer relationship management systems) to improve operational efficiency and customer engagement. In addition, retailers are increasingly focused on providing experiential retailing by redesigning their physical store locations to provide a unique shopping experience that cannot be duplicated online through the use of personalization, interactivity, and/or in-store events. These types of strategies will continue to enhance customer satisfaction and create greater brand loyalty.

4.6 Discussion and Insights

In general, this research indicates that e-commerce and brick-and-mortar retail are interrelated; the two forms of sale exist together, working together to facilitate commerce in the modern world. E-commerce has significantly affected how consumers see stores and impacts how they make purchases through changes in consumer habits, market conditions, and store design. Through implementing an Omni-channel strategy, both mediums enable customers to receive their purchases more quickly than in the past. The research builds on what we know about the evolution of retail by showing that a retailer's ability to adapt, embrace new technologies, and focus on the consumer experience are the foundation of business competitiveness in this new economy. This study also emphasizes the importance of a holistic approach that considers the technological and human aspects of change when implementing a successful Omni channel strategy.

5 Conclusion

This research presents reliable data in two forms: qualitative and quantitative as proof of how e-commerce has changed/changed, what has done/does to the retail industry, and why. The quantitative portion, or numbers based, provides evidence of an upward trend in e-commerce sales: As e-commerce sales have steadily increased each year for the past several years so have sales in brick-and-mortar stores decreased dramatically. The data also show that there is a clear difference between those consumers who choose to shop exclusively online versus those who still shopped both online and traditional, physical locations; approximately 60% of those surveyed indicated that they shopped mainly through an online retailer, while about 25-30% indicated that they did both. From a qualitative perspective, the data show that consumers' shopping behaviours are influenced by different motivational factors beyond just price or convenience; there are social, experiential or even emotional factors that affect the decision to use e-commerce versus traditional brick-and-mortar retail outlets; for example: consumers view online shopping as something that saves time, offers more flexibility in terms of scheduling purchases, the ability to evaluate multiple brands before making a final selection, etc. Whereas physical retail shopping is typically viewed in terms of trust, verification of the item being purchased physical look/feel of the product, the ability to take the purchased item home immediately instant gratification and so on. An emerging trend that has taken place over the past several years is a hybrid consumer behaviour; a combination of both the online (e-commerce) and offline (retail) experience/connection within the same transaction, and where consumers now choose which method/channel(s) of purchasing will best meet their needs based on many factors including their product's category type, urgency or type of use and so forth. The findings suggest that retailers need to adopt an Omni channel model based on both quantitative and qualitative data. Companies should use quantitative data to guide decisions regarding technological investments, logistics optimization and data-driven decision-making, thereby increasing efficiency and competitiveness within their market as well as improving the customer experience through qualitative measures including personalized marketing, seamless transitions between channels and engaging in-store shopping experiences. As retailers navigate through this transformative environment, achieving success will require a balance between the performance-based metrics associated with data analysis and the experience-based metrics associated with consumer-centric strategies. The most successful retailers will have integrated both aspects of their business to better compete in a changing digital economic landscape with a focus on sustainability. Areas of future research include examining the impact of AI-enabled personalization, augmented reality shopping experiences, and regional consumer behaviours and their effect on Omni channel retailing models across longitudinal and cross-border studies to create a more detailed understanding of the sustainability and inclusivity of these types of models over time.

Declarations

- The authors received no specific funding for this study.
- The authors declare that they have no conflicts of interest to report regarding the present study.
- No Human subject or animals are involved in the research.
- All authors have mutually consented to participate.
- All the authors have consented the Journal to publish this paper.
- Authors declare that all the data being used in the design and production cum layout of the manuscript is declared in the manuscript.

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