

URBAN ECHOES

EVERYDAY LIFE, WELLNESS, AND
CULTURE IN CONTEMPORARY INDIA

Gargi Sheth
Tanya Thapar
Unnati Choudhary
Shweta Minocha





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CHAPTER 1

ANALYSIS OF EMPOWERING MUMBAI'S FLOWER SELLERS THROUGH SOCIOECONOMIC INITIATIVES

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ABSTRACT:

Flower markets in India are essential to the country's economy and cultural fabric, supplying blooms for religious rituals, festivals, and celebrations. However, vendors in these markets face mounting challenges, exacerbated by climate change, logistical bottlenecks, and shifting consumer preferences. This study examines the lives of flower sellers in Mumbai's Dadar and Vakola markets, focusing on those without formal qualifications and their strategies for sustaining their businesses. Using an ethnographic approach, the research highlights how these vendors adapt through traditional knowledge, peer networks, and community support to navigate market challenges. While some vendors incorporate technology, like smartphones for communication and social media for marketing, others remain excluded due to a persistent digital divide. The absence of formal training limits their ability to expand and compete with more modernized businesses. The findings underscore the value of informal education and traditional skills, which enable flower sellers to maintain operations despite challenges.

KEYWORDS:

Adaptability, Challenges, Education, Family, Opportunity, Resilience, Strength, Success.

1. INTRODUCTION

The flower markets of Mumbai, such as the Dadar Flower Market and Vakola Market, are vital centers for commerce and cultural expression. These markets have been an essential part of Mumbai's economy for decades, serving the city's vast demand for flowers in religious ceremonies, festivals, and personal occasions. Dadar Flower Market, in particular, is one of the largest in the city, catering to wholesalers, retailers, and individual customers. Vakola Market, though smaller, serves a similarly important role within its local community. In these spaces, vendors typically rely on knowledge passed down through generations, and many sellers lack formal education or qualifications. The sellers in these markets face distinct challenges due to their educational limitations [1], [2]. Without access to formal training, they depend on informal learning, practical experience, and traditional selling methods. These sellers often come from marginalized communities and rely heavily on peer networks and community support to overcome the challenges they face, such as dealing with price fluctuations, limited bargaining power with middlemen, and inconsistent access to customers [3], [4]. This research seeks to understand the experience of flower sellers who lack formal qualifications and how they navigate these hurdles. Despite their significant contributions to the local economy, these vendors operate in the shadows of more formal market structures, with little recognition of their economic impact. Figure 1 demonstrates the flower markets of Mumbai.



Figure 1: Demonstrates the flower markets of Mumbai.

The primary objective of this study is to bring visibility to the often-overlooked flower sellers who contribute significantly to the local economy despite lacking formal education. Their resilience and adaptability offer valuable insights into how individuals in the informal sector navigate complex economic landscapes [5], [6]. Through this study, we aim to highlight the role of community networks, practical skills, and traditional knowledge in sustaining these vendors in competitive markets like Dadar and Vakola. Also, this research seeks to explore the barriers that prevent these flower sellers from growing their businesses, such as limited access to technology, marketing tools, and financial resources. By focusing on their lived experiences, the study sheds light on the broader socio-economic structures that shape their ability to succeed in a rapidly modernizing economy.

1.1.Hypothesis:

This research is guided by the hypothesis that the absence of formal education and training significantly limits the business growth and income potential of flower sellers in markets like Dadar and Vakola. It is assumed that without formal education, sellers are less likely to adopt modern marketing techniques, such as digital marketing and online sales platforms, which could otherwise expand their customer base and profitability. Furthermore, without formal training, they may be more vulnerable to exploitation by middlemen and suppliers, reducing their profit margins and limiting their business growth [7], [8]. The reliance on traditional customer relationships may provide stability but restrict opportunities for broader market expansion.

1.2.Need/Scope:

Understanding the experiences of flower sellers in informal markets, especially in Dadar and Vakola, highlights their critical role in local economies despite lacking formal qualifications. These markets preserve cultural traditions while adapting to modern economic challenges, with community support and informal learning being key to their resilience. The study also focuses on empowering marginalized groups, particularly women, by emphasizing the importance of community networks for sustaining their businesses. Recognizing their challenges offers insights into integrating informal workers into the broader economy without disrupting traditional practices.

2. LITERATURE REVIEW

Z. Zulkarnain *et al.* [9] investigated ornamental plants are plants grown mainly for their beauty. One popular ornamental plant right now is the Aglaonema flower. People like to buy this plant to make their homes or spaces look nicer. This research wants to find out how satisfied customers are with the sellers of Aglaonema plants in Tulus Rejo Village, which is in Pekalongan District, East Lampung. The study was done in Rejo Ikhlas Village, an area known for selling lots of Aglaonema plants. The researchers asked 30 people who had bought Aglaonema plants, both from inside and outside Pekalongan. The respondents were chosen using a simple method called accidental sampling, which means whoever was available at the time was included. To understand customer satisfaction, the researchers used two tools: the Customer Satisfaction Index (CSI) and Importance Performance Analysis (IPA).

A. Fitrani *et al.* [10] described the home industry includes many types of small businesses and one of them is making flower pots. Flower pots are not only used to hold plants but also to decorate them. In Candiharjo, many people have started selling flower pots because they are easy to make, and many people like them. This research started after observing local flower pot sellers. Usually, they promote their products using brochures with photos, but these do not show the full details of the products. So, there is a need for a better way to display the flower pots. The purpose of this research is to create an app that helps sellers show their flower pots in 3D using Augmented Reality (AR) technology. This will help buyers see the flower pot designs more clearly and interact with them. The result of the study is a digital catalog app that uses AR to show 3D models of flower pots in an interactive way.

D. Dewi *et al.* [11] emphasized that roses are one of the most loved flowers in the community. At the 5 Brothers Flower Shop, the demand for roses is growing. It is important to understand this increase in sales to track progress. Right now, the shop can only manually see which roses are selling the most. This study tries to predict future rose sales using the Monte Carlo simulation method, which gives accurate results. The data used in this study comes from the years 2018 and 2019, collected from the 5 Brothers Flower Shop in Solok City. The shop sells different types of roses, and the study includes all of them. First, the sales data is turned into a probability distribution and cumulative frequency. Then, random numbers are generated and grouped into certain ranges. This helps in running the simulation and getting results. Finally, the percentage accuracy of the sales prediction is calculated using the Monte Carlo method.

W. Pratama *et al.* [12] stated that chrysanthemum-cut flowers are useful in many ways. They are used in flower bouquets, help absorb pollution, and are also used in traditional medicine. In West Java Province, the main center for chrysanthemum flowers is in Cianjur Regency, which produces 53% of the flowers. However, even though production is high, the price difference between what farmers get and what the final seller earns is also growing. This study looked at how these flowers are sold in Cianjur to see which way is the most efficient. The researchers talked to farmers, collectors, wholesalers, and florists.

S. Rathnayake *et al.* [13] emphasized that selling flowers to other countries brings a good amount of money to Sri Lanka, and there is a lot of room to grow this business. The hill country (Upcountry) is the main area where flowers are grown, especially for cutting. This study looked at general information about how these flowers are grown and sold, the problems faced by farmers, and ways to improve things. Researchers did surveys in three districts of Sri Lanka. They talked directly to 58 flower farmers through face-to-face and phone interviews using a prepared set of questions. They also spoke with flower exporters, sellers, and officials from the National Botanical Gardens and the Export Development Board.

One of the core problems identified in this study is the lack of formal education and digital literacy among flower sellers in Mumbai's Dadar and Vakola markets. This has limited their ability to expand their businesses, adopt modern marketing strategies, or access financial resources. Many vendors also face seasonal income instability, reliance on middlemen, and exclusion from formal economic systems. To solve these challenges, there is a pressing need for targeted interventions, such as skill development workshops, basic digital training, and microfinance access tailored for informal workers. Establishing community-based cooperatives can strengthen their bargaining power and promote collective growth.

3. METHODOLOGY

3.1.Design:

This study employed a qualitative ethnographic research design to explore the intricate lives of flower sellers operating within Mumbai's bustling flower markets. Ethnography, as a methodological approach, allowed the researchers to immerse themselves deeply in the lived experiences of participants, offering a rich, contextualized understanding of their work routines, socio-cultural practices, and economic challenges. By engaging directly with the flower sellers in their natural environments, the research was able to capture the nuanced realities of their daily lives. Fieldwork was conducted in two major flower markets Dadar and Vakola selected for their prominence and diversity within the city's floral trade. These markets served as vibrant microcosms of Mumbai's informal economy, providing access to a wide range of flower sellers and community dynamics. Spending extended periods in both markets enabled the researchers to witness the complete cycle of daily market life, from early morning setup to late evening closure. Participant observation was a cornerstone of the data collection process. By embedding themselves in the vendors' daily routines, the researchers were able to observe interactions with customers, trading practices, and the informal social structures that shape the work environment. These observations offered valuable insights into the tacit knowledge, resilience, and adaptability required to sustain a livelihood in such a competitive and uncertain trade.

3.2.Sample and Instrument:

This study utilized a purposive sampling strategy to select flower sellers from the Dadar and Vakola flower markets in Mumbai. The participants were chosen to reflect a diverse range of ages, genders, business sizes, and lengths of experience in the flower-selling trade. A total of 8 flower sellers 4 from each market were interviewed, including individuals such as Iyer, Usha, Suresh, Gangue Tai, Santosh, Kapil, and Ramesh. These participants were selected based on their availability, willingness to share their experiences, and relevance to the study's focus on informal vendors without formal education. The primary research instruments used were semi-structured interviews and participant observation. Table 1 demonstrates the sampling strategy and research instruments used.

Table 1: Demonstrates the sampling strategy and research instruments used.

S. No.	Aspect	Description
1.	Sampling Method	Purposive sampling
2.	Sample Size	8 participants (4 from Dadar, 4 from Vakola)
3.	Participant Criteria	Flower sellers without formal education, with varied experience and demographics

4.	Instruments Used	Semi-structured interviews, participant observation, field notes
5.	Interview Language	Hindi, Marathi (translated and transcribed into English)

The interviews, which lasted between 30 to 60 minutes, included open-ended questions that allowed participants to share their lived experiences, business challenges, coping strategies, and community dynamics. Interviews were conducted in Hindi and Marathi, then translated and transcribed into English for analysis.

In addition to interviews, extensive field notes were taken during participant observation sessions, where researchers shadowed vendors through their daily activities. This immersive approach enabled a deeper understanding of non-verbal interactions, market practices, and the socio-cultural environment of the flower trade.

3.3.Data Collection:

The data for this study were collected over a span of four weeks from two primary locations in Mumbai. The Dadar Flower Market and the Vakola Flower Market. These locations were selected due to their prominence in the city's floral trade and the diversity of vendors they host. Data collection involved in-depth semi-structured interviews, participant observation, and field note documentation.

Interviews were conducted with eight flower sellers at their stalls during their working hours, ensuring minimal disruption to their business. Table 2 demonstrates the data sites, methods, and tools used in the study.

Table 2: Demonstrates the data sites, methods, and tools used in the study.

S. No.	Component	Details
1.	Locations	Dadar Flower Market, Vakola Flower Market
2.	Duration	Four weeks
3.	Methods Used	Semi-structured interviews, participant observation
4.	Participants	8 flower sellers
5.	Data Tools	Audio recordings, field notes, observation logs

Observational data were gathered by spending extended time in both markets, noting interactions with customers, peer relationships, and business strategies. The researchers also documented environmental and spatial dynamics, such as stall layout, crowd flow, and market accessibility. This multi-method approach allowed the researchers to triangulate data sources and gain a well-rounded understanding of the vendors' daily lives, challenges, and adaptive strategies in their informal economic setting.

3.4.Data Analysis:

The data through semi-structured interviews and participant observations were analyzed using thematic analysis. Transcripts of interviews and field notes were systematically coded to identify recurring patterns, sentiments, and challenges. Six core themes emerged from the analysis. Table 3 represents the theme and frequency(Number of Mentions).

Table 3: Represents the theme and frequency (Number of Mentions).

S. No.	Theme	Frequency (Number of Mentions)
1.	Adaptability	12
2.	Business Operations	10
3.	Challenges	18
4.	Character Traits	14
5.	Community and Family	16
6.	Informal Education and Technology	13

Also, Business Operations, Challenges, Character Traits, Community and Family, and Informal Education and Technology. These themes were derived by clustering participant responses based on frequently used words, expressions, and experiences. NVivo software and manual coding techniques were used to cross-check codes for consistency. Figure 2 illustrates the theme and their frequency.

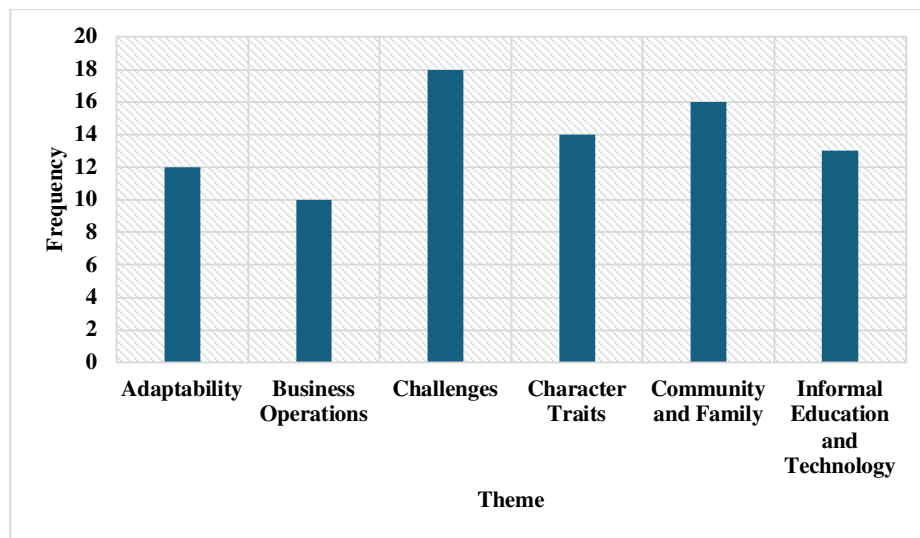


Figure 2: illustrates the theme and their frequency.

Frequency counts of statements under each theme were also tabulated to identify dominant concerns and strengths. Thematic frequency was then visualized through a bar graph to show which areas were most emphasized by flower sellers. The analysis revealed that Challenges and Community Support were the most referenced themes, highlighting the dual nature of hardship and solidarity within Mumbai's informal flower economy.

4. RESULT AND DISCUSSION

The findings of this research provide valuable insights into the experiences of flower sellers who lack formal education or qualifications in the Dadar and Vakola flower markets. The study highlights their remarkable resilience, adaptability, and entrepreneurial spirit. The flower sellers' experiences demonstrate the significance of informal education and practical skills in navigating the complexities of the market [14], [15]. They rely on a combination of traditional knowledge, on-the-job training, and peer learning to acquire the necessary skills to succeed. This underscores the importance of recognizing and valuing informal learning processes, particularly in sectors like floriculture, where formal education may not always be directly applicable. The study also sheds light on the role of community and social networks in supporting flower sellers. These networks provide a vital source of social capital, enabling sellers to access information, resources, and opportunities. By sharing knowledge, experiences, and resources, these networks contribute to the resilience and sustainability of the flower-selling community. The research highlights the challenges faced by flower sellers due to their limited access to technology and formal education. While some sellers have embraced digital tools to enhance their business, others remain marginalized due to a lack of digital literacy and access to technology [16], [17]. This suggests a need for targeted interventions to bridge the digital divide and empower flower sellers to leverage technology for their benefit. The findings of this study contribute to the broader understanding of informal economies and the role of social capital in economic development. Table 4 demonstrates the themes, clusters, and findings.

Table 4: Demonstrates the themes, clusters, and findings.

Themes	Clusters	Findings
Adaptability	Adaptability, Adaptation, Location, Career change, and Seasonality	<ul style="list-style-type: none"> The flower market is also seasonal earning but better
Business	Business, Business Growth, Business operations, Strategy, Management, Financial Stress, Opportunities, Socio-economic Factors and Status.	<ul style="list-style-type: none"> "If my flowers don't sell off by 7:30, I give them to the full-time vendors sitting beside me.
Challenges	Digital Divide, Economic Hardship, Economic Independence, Economic Opportunity, Education, Location, Rural Life, Seasonality.	<ul style="list-style-type: none"> I go back to my town for 2-3 days every week. I like to stay in touch with my roots and bring back flowers from the farm to sell and gain a better profit.
Character traits	Hard Work, Independent, Perseverance, Resilience, Sacrifice, Solidarity, Strength,	<ul style="list-style-type: none"> I live in Dharavi; I have been selling flowers for the last 38 years. I lost my husband in a car accident

	Struggle, Success, Survival.	back in South India.
Community and Family	Empowerment, Family, Family Support, Opportunity, Sacrifice, Social Support, Solidarity, Support.	<ul style="list-style-type: none"> We don't see each other as competition all the time. If someone runs out of flowers, they come to me, and I help them. When I need help, they do the same for me.
Informal education	Experience, Hard Work, Informal Education, Sales Technique, Skill Development, Strategic Decision Making, Strategic Thinking.	<ul style="list-style-type: none"> "Bargaining is everything here. Customers will always try to get a lower price. You have to know when to give them a deal and when to stand your ground.
Technology	Digital divide, technology.	<ul style="list-style-type: none"> My son showed me how to use WhatsApp. Now, my regular customers message me when they need flowers, and I deliver them.

Also, the study contributes to the literature on the role of women in informal economies. Many of the flower sellers in this study are women who have overcome significant challenges, including poverty, domestic violence, and social discrimination. Their resilience and entrepreneurial spirit demonstrate the potential of women to contribute to economic development, even in the face of adversity. Figure 3 illustrates the different types of business technology.

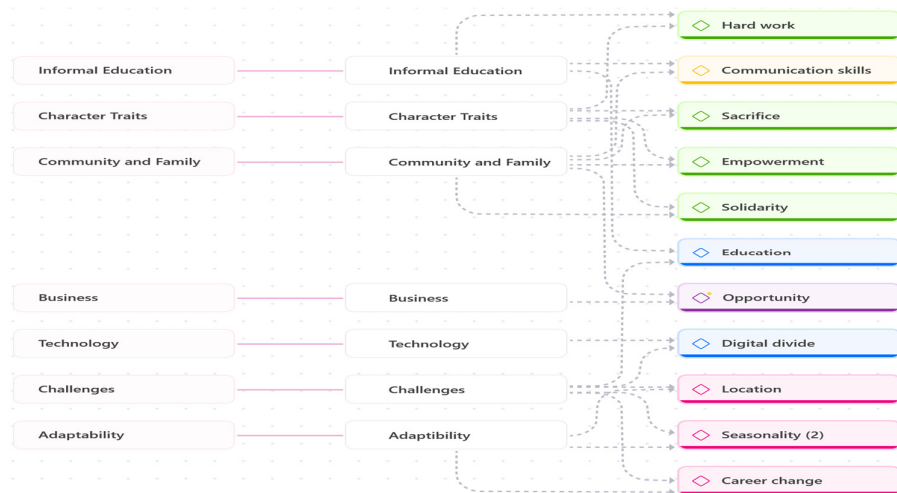


Figure 3: Illustrates the different types of business technology.

The findings of this research have several practical implications. Firstly, there is a need to recognize the valuable contributions of flower sellers and to support their efforts to improve their livelihoods. This could be achieved through initiatives such as skill development programs, access to microfinance, and support for cooperative ventures. Secondly, policymakers and development agencies should consider the role of informal education and community networks in promoting economic development [18], [19]. By supporting initiatives that strengthen these networks, they can empower marginalized communities and foster sustainable livelihoods. Finally, the study highlights the importance of digital literacy and access to technology for flower sellers. By providing training and support in these areas, we can help them to adapt to the changing market landscape and improve their business performance. Table 5 demonstrates the key themes and final weighted impact (1-20 Scale).

Table 5: Demonstrates the key themes and final weighted impact (1-20 Scale).

S. No.	Key Themes	Final Weighted Impact (1–20 Scale)
1.	Community and Family Support	18
2.	Challenges Faced	17
3.	Informal Education & Skills	15
4.	Character Traits (Resilience, Perseverance)	14
5.	Adaptability	12

The results of this study revealed that flower sellers in the Dadar and Vakola markets navigate their professional challenges with remarkable resilience, adaptability, and community reliance. Despite lacking formal education, most participants demonstrated high levels of informal knowledge and strategic decision-making gained through years of experience. Figure 4 demonstrates the final weighted impact (1-20 scale) of key themes.

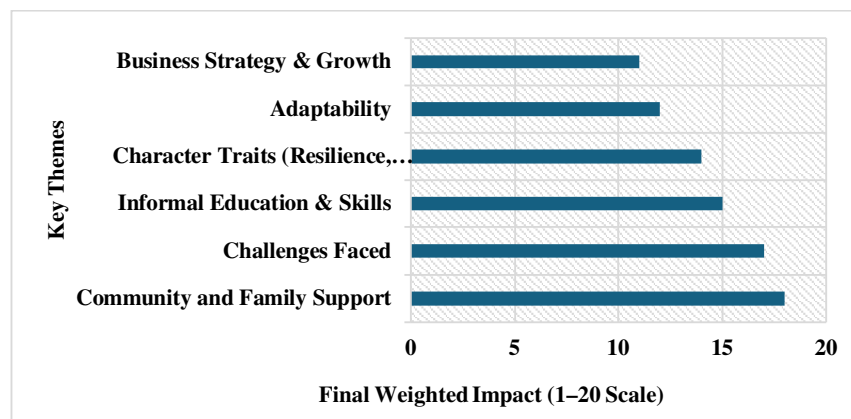


Figure 4: Demonstrates the final weighted impact (1-20 scale) of key themes.

The most frequently mentioned success factor was community and family support, highlighting the significance of social networks in sustaining livelihoods. Challenges such as inconsistent income, lack of digital literacy, and market instability were heavily emphasized. However, many vendors adapted by diversifying their services, such as offering event decoration and

leveraging basic technology like WhatsApp for orders [20], [21]. Women participants, in particular, shared stories of empowerment, showing how informal flower selling provided not only economic relief but also personal agency. Overall, the study emphasizes the importance of recognizing informal workers, supporting their skill development, and bridging the digital divide for inclusive growth.

5. CONCLUSION

The research on flower markets in Mumbai, focusing on Dadar and Vakola, offers a rich understanding of the experiences of flower sellers who work without formal education or specialized skills. These vendors play a crucial role in Mumbai's economy and cultural landscape, providing flowers essential for religious, social, and personal occasions. However, despite their contributions, they face significant challenges, including limited formal training and restricted access to modern tools and resources. This study reveals that while flower sellers rely on informal education and traditional knowledge to manage daily operations, the absence of formal training and technological skills limits their business growth. The digital divide prevents them from adopting modern marketing methods and reaching a larger customer base. Instead, they depend heavily on face-to-face interactions and local connections, which, though valuable, restrict their capacity to expand and compete with more technologically advanced businesses. The research underscores the resilience and unique skill sets of Mumbai's flower sellers, suggesting the need for inclusive economic policies that could integrate them more fully into the broader economy while preserving their traditional practices. By recognizing and supporting these vendors, policymakers could strengthen the informal sector, fostering sustainable development and cultural continuity in an increasingly modernized urban landscape.

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CHAPTER 2

EXPLORING THE PSYCHOLOGY OF VISIBILITY AND PERCEPTION IN PHOTOGRAPHY THROUGH THE LENS OF SELF

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ABSTRACT:

The presence of a camera, whether as an observer or an observed subject, profoundly impacts individuals' psychological experiences and behavioral patterns. This research investigates the role of the 'gaze' in shaping self-perception, confidence, and creative expression, focusing on how individuals navigate their roles in front of and behind the camera. While existing studies analyze the broader evolution of photography and videography in response to societal, cultural, and technological changes, this study emphasizes a micro-level perspective, exploring the intimate psychological and behavioral shifts individuals experience when engaging with the camera. This study is significant for its ability to merge macro-level industry insights with micro-level psychological understanding, filling a crucial gap in current research. The findings reveal how the camera's presence alters individual behavior, with themes of vulnerability, self-awareness, and empowerment emerging as central influences. By focusing on the gaze as a psychological and social construct, this research offers valuable insights for industries like design, fashion, and media, where visual representation plays a pivotal role.

KEYWORDS:

Camera-Induced Behavior, Gaze, Psychological Shifts, Self-Image Perception, Visual Identity

1. INTRODUCTION

The relationship between humans and the camera has been a subject of fascination, evolving from a medium of documentation to a powerful tool for self-expression and identity construction. In today's hyper-visual society, the presence of a camera influences not just how individuals present themselves but also how they perceive their identity, self-worth, and confidence. This dual dynamic of being both the observer and the observed has profound psychological implications, particularly in fields like photography, fashion, and videography. This research delves into the micro-level psychological shifts associated with these roles, focusing on how individuals adapt their behaviors in the presence of a camera, particularly within creative industries like design and fashion. The concept of the gaze rooted in visual and cultural studies, is central to understanding these dynamics [1], [2]. The gaze highlights the power relationships and societal constructs that emerge when one is observed or acts as an observer. In the context of photography and videography, this phenomenon influences how individuals present themselves, consciously or subconsciously adapting to the expectations

imposed by the lens. Within design and fashion, where personal expression meets external validation, these interactions become especially significant. This research situates itself within broader visual cultural trends, notably the resurgence of film photography in recent years [3], [4]. The analog medium, with its nostalgic and tactile appeal, has seen a revival as a counterpoint to the digital age's hyper-real, curated aesthetics. The resurgence is not merely a technical shift but a cultural and psychological one, redefining how individuals relate to themselves and their creative processes.

1.1.Purpose:

The purpose of this study is to examine the psychological and behavioral changes that occur when individuals interact with a camera, focusing on the influence of the "gaze" on self-perception, body image, and confidence. It seeks to understand how being observed or acting as the observer shapes personal and creative expression, bridging the gap between internal psychological experiences and external portrayals [5], [6]. This research further aims to explore how these insights can be applied in fields such as fashion, photography, videography, and visual media. By investigating the interplay between individual psychology and creative output, the study aspires to offer practical and theoretical contributions that inform practices in these industries, particularly concerning identity, storytelling, and the visual representation of subjects.

2. LITERATURE REVIEW

A. Hertzmann *et al.* [7] investigated the people often think of photography as a way to capture real-life scenes just by recording light, unlike painting which is seen as more creative and personal. However, this article explains that photography also involves making choices like deciding on colors, lighting, and angles just like painting does. It looks at examples from both film photography and smartphone cameras to show this. So, to truly understand how we see and understand pictures, we need to see photography as just one of many ways to create images. More research is needed to explore how these choices affect how we view photos, which could help in creating better photography tools in the future.

C. Lau *et al.* [8] investigated the rise of digital medical photography, it is important to find a balance between what technology can do and what is ethically acceptable. Understanding how patients feel about their medical photos is key to keeping a good relationship between doctors and patients and avoiding legal problems. To study this, researchers gave out anonymous surveys to patients in plastic surgery clinics. These surveys were approved by ethics boards and asked patients how comfortable they were with their identifiable or non-identifiable photos being used for teaching, presentations, publications, or online. The survey also asked about patient preferences for the type of equipment used and who should be allowed to view their photos. A total of 205 patients completed the surveys, and the answers were carefully analyzed using statistics.

S. Wang *et al.* [9] emphasized the aim of this study was to understand how patients feel about taking photographs of their wounds and whether this helps them better understand and take part in their wound care. The study found that 86% of patients had wounds that were hard to

see on their own. Only 20% of them kept track of their wounds themselves, while most depended on nurses or clinic visits. The ability to see their wound helped patients remember what it looked like, especially those who were new to the clinic. However, this link was not seen in patients who had been visiting the clinic for more than three years. Many patients said that not being able to see their wounds made them feel like they had less control over their care.

H. Chuang et al. [10] explained that photography is a form of art that combines how we see and how we feel to create a sense of beauty. This research uses eye-tracking technology to study how certain visual patterns, known as Gestalt principles, affect the way people look at and understand photographs.

The study found that photos using these patterns can change how long and where people focus their eyes, as well as how beautiful or complex they think the image is. For example, photos that use the closure technique are easier to understand and make people focus their eyes for longer in one place, giving a stronger sense of beauty. On the other hand, photos that use the similarity principle lead to more eye movements and scattered focus, making the image feel more complicated and less attractive.

V. Štampfl et al. [11] stated that a photographer's understanding of light is very important for capturing a good photo. Whether aiming for a perfect technical shot or creating something artistic, light plays a key role. This article talks about how both light and shadow affect photography. It shares examples from the past and present, showing how people have viewed and used light and shadow in different ways through philosophy, art, and technology. These examples show how wide and useful this area of photography is for learning and creative work.

3. METHODOLOGY

3.1.Design:

This study employs a mixed-methods approach, integrating both quantitative and qualitative research techniques to explore the psychological and behavioral shifts individuals experience concerning the presence of a camera. The methodology is designed to capture a comprehensive understanding of participants' attitudes, behaviors, and experiences, ensuring that the research is both data-driven and contextually rich.

The methodology employed combines quantitative and qualitative analyses. A sample size of 154 participants was surveyed using a structured questionnaire. Quantitative data, including cross-tabulations and frequency distributions, examine demographic and behavioral trends, while qualitative insights interpret open-ended responses to understand constructs like self-esteem, body image, and the influence of the gaze. Graphical representations such as bar charts and pie charts highlight trends and comparisons across different demographic groups. These findings are further contextualized within psychological theories and existing literature to provide a comprehensive analysis. A quantitative survey was conducted to gather broad insights into participants' demographic profiles, social behaviors, and perceptions regarding photography and videography. Additionally, focus group discussions were utilized for qualitative exploration, enabling a deeper understanding of nuanced psychological and emotional responses that are difficult to quantify.

3.2. Sample and Instrument:

This research involved a diverse sample of 154 participants across various age groups, professions, and living environments to ensure representativeness. Participants were selected using purposive sampling to include individuals with varying degrees of exposure to photography and videography ranging from casual social media users to professional creatives. The primary instrument used for data collection was a structured questionnaire consisting of 15 questions. This tool was designed to capture both quantitative and qualitative data, with a combination of multiple-choice, Likert scale, and open-ended questions. Table 1 demonstrates the key components of the sample and instruments employed to gather data, highlighting the diversity of participants.

Table 1: Demonstrates the key components of the sample and instruments employed to gather data, highlighting the diversity of participants.

S. No.	Component	Description
1	Sample Size	154 participants from varied demographics (age, gender, occupation, etc.)
2	Sampling Technique	Purposive Sampling
3	Primary Instrument	Structured Questionnaire (15 questions)
4	Question Types	Multiple-choice, Likert scale, open-ended
5	Supplementary Method	Focus Group Discussions (5–8 participants per group)

The questionnaire focused on key themes such as self-image, social behavior, emotional responses to being photographed or filmed, and preferences for being in front of or behind the camera. To deepen the understanding of the emotional and psychological dimensions, focus group discussions were also conducted with small groups of 5 to 8 participants, guided by a semi-structured interview format.

3.3. Data Collection:

The data for this study was collected primarily through two methods: surveys and focus group discussions. A structured questionnaire comprising 15 questions was developed to capture data on demographics, social behavior, emotional responses to photography, and preferences for being in front of or behind the camera. This survey included a mix of multiple-choice, Likert scale, and open-ended questions to allow for both quantitative and qualitative insights. It was administered online to a sample of 154 participants, ensuring a diverse representation across age groups, occupations, and living environments.

To complement the survey findings, focus group discussions were conducted with groups of 5 to 8 participants each. These discussions explored participants' experiences with photography, changes in self-perception over time, and responses to social media imagery. Participants were selected from varied demographic backgrounds, and a semi-structured guide was used to facilitate open yet focused conversations on the study's key themes.

3.4.Data Analysis:

The data collected through surveys and focus group discussions was analyzed using both quantitative and qualitative methods to ensure a comprehensive understanding of the psychological and behavioral responses to the presence of a camera. Quantitative data were processed using basic statistical tools, including frequency distributions and cross-tabulations, to identify patterns and correlations among demographic variables, self-perception, and social behavior. Table 2 demonstrates the distribution of behavioral responses when aware of being photographed or filmed.

Table 2: Demonstrates the distribution of behavioral responses when aware of being photographed or filmed.

S. No.	Behavioral Response Type	Number of Respondents	Percentage
1	Tried to Act Naturally	59	38%
2	Became More Self-Conscious	47	30%
3	Behavior Did Not Change	39	25%
4	Acted More Outgoing	9	6%

The use of bar graphs and pie charts allowed for clear visualization of key trends, such as levels of self-consciousness, comfort with photography, and reactions to social media tagging. Qualitative data from open-ended responses and focus group discussions were thematically analyzed to extract recurring patterns related to identity, emotional vulnerability, confidence, and creative expression. Figure 1 demonstrates the type of behavioral response, number of respondents, and their percentage.

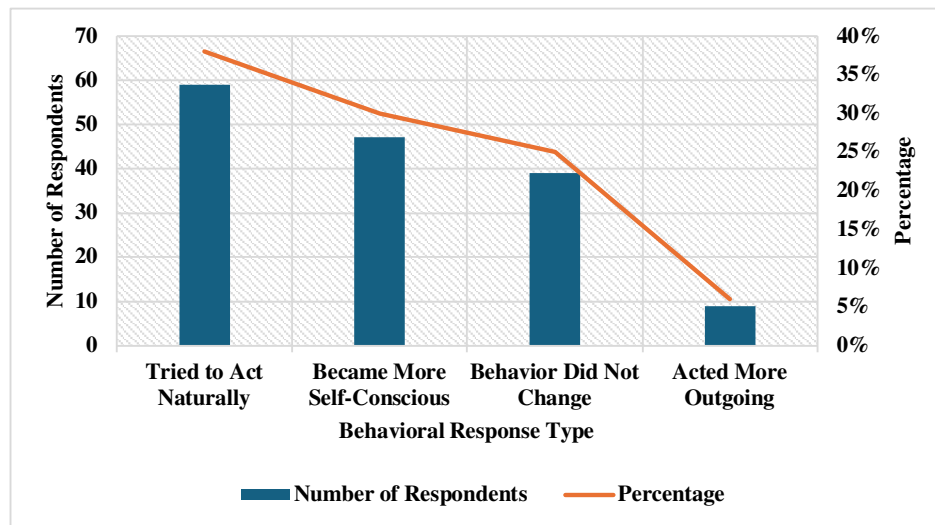


Figure 1: Demonstrates the type of behavioral response, number of respondents and their percentage.

Participants frequently expressed feeling more self-aware or performative when aware of the camera, highlighting the influence of the gaze on their natural behavior. Themes of control,

authenticity, and self-image emerged consistently, reinforcing the quantitative findings and adding emotional depth to the analysis. These dual layers of interpretation offered valuable insights into how individuals construct and navigate their visual identity in both personal and professional settings.

4. RESULT AND DISCUSSION

This section presents the analysis of survey data gathered from 154 participants, focusing on the psychological and behavioral shifts that occur when individuals are in front of or behind the camera. The data provides valuable insights into self-perception, body image, social behavior, and how the presence of a camera affects individual behavior. These findings are especially relevant for the fields of photography, visual media, and fashion, where understanding the dynamics of how individuals interact with the camera is crucial for creating authentic and engaging content. The majority of respondents (57%) reported that they prefer to listen and engage when needed, which indicates a preference for more passive social interactions. 21% of participants enjoy being the center of attention, highlighting extroverted tendencies, while 16% prefer smaller, one-on-one conversations, and 6% avoid large groups altogether [12], [13]. This distribution suggests that individuals' comfort levels with social visibility may significantly influence how they engage with the camera. For visual media professionals, understanding these behavioral patterns is essential for creating an environment where subjects feel comfortable and confident, especially during photo shoots and video recordings. A majority of respondents (58%) expressed concern about their appearance in group photos, indicating that self-image plays a significant role in how they engage with social settings and visual representation. 29% of participants are indifferent to their appearance in photos, suggesting a more relaxed approach to group photos, while 10% want to see the photo before deciding how they feel, and 3% would prefer to avoid the photo entirely [14], [15]. The data reveals a significant focus on appearance, which can affect how individuals behave in front of the camera, especially in social media contexts where self-presentation is often scrutinized. Understanding this tendency is vital for photographers and creative professionals, as it allows them to create an environment where the subject feels confident and authentic in front of the camera. A majority of participants (52%) expressed enjoyment when tagged in photos on social media, suggesting a positive relationship with their digital representation. However, 12% of participants wished for more control over their appearance, and 3% reported feeling anxious and self-critical when tagged [16], [17]. This indicates that while many individuals embrace their digital representation, a significant portion feels vulnerable to judgment, highlighting the psychological impact of social media on self-esteem. For visual media creators, this insight emphasizes the need to provide subjects with more control over how they are represented, particularly in digital media, to ensure a positive self-image and foster engagement.

27% of participants would ask for an unflattering photo to be removed or edited, while 33% would laugh it off despite disliking it. 21% would leave the photo up but feel uncomfortable, and 19% would not care and leave it up [18], [19]. These responses reflect the complex relationship individuals have with their self-image and body perception. For visual media professionals, it is essential to recognize that negative responses to photos can stem from body

image concerns and self-esteem issues, particularly when photos are shared in public or social media contexts. Offering subjects more control over their portrayal can reduce discomfort and promote a positive experience. Table 3 illustrates the behavior in informal settings.

Table 3: Illustrates the behavior in informal settings.

S. No.	Response Option	Number of Respondents	Percentage
1.	Try to Act Naturally	59	38%
2.	Become Self-Conscious	47	30%
3.	No Change	39	25%
4.	Act More Outgoing	9	6%

When participants knew they were being filmed or photographed, 38% tried to act naturally, while 30% became more self-conscious. 25% reported that their behavior did not change, and 6% acted more outgoing than usual. These responses align with the psychological theory of the "gaze", suggesting that people often adjust their behavior when they know they are being observed. This is especially relevant for photographers and videographers, as creating a relaxed environment is key to capturing authentic expressions and moments. Understanding these dynamics can help improve the overall experience for subjects in fashion, lifestyle, and portrait photography.

The majority (49%) of participants are comfortable with spontaneous photos and act naturally, while 25% feel self-conscious. 6% would refuse unless they could prepare first, and 20% would agree only if the photo was not shared online [20], [21]. This highlights a common concern about privacy and control over one's image, particularly in the digital age where photos are easily shared. For visual media professionals, ensuring that subjects feel comfortable and have control over how their images are used can improve the subject's experience and enhance the authenticity of the captured moments. 54% of participants prefer capturing moments naturally, while 12% prioritize making their subjects look flattering. 15% focus on ensuring the subject feels comfortable, and 19% enjoy taking creative shots. These preferences emphasize the importance of authenticity over idealized representations. For photographers and visual media creators, this suggests that most people value genuine moments over posed perfection. Capturing authentic expressions is especially important in fashion photography and storytelling, where relatability and emotional resonance are key.

57% of participants enjoy both roles equally, while 30% feel more in control behind the camera. Only 13% prefer being in front of the camera. This indicates that many individuals are comfortable in both roles and enjoy participating in the creative process. For photographers and directors, understanding this balance is important in ensuring that subjects feel empowered and engaged in the creative direction. Collaboration between the subject and the photographer

can lead to more authentic and emotionally impactful content. 44% of participants prepare for events where photos will be taken as they would for any event, while 14% spend extra time on their appearance. 8% feel nervous about how they will look, and 34% enjoy getting ready without stress. This data suggests that while many individuals approach photo preparation casually, a portion of the population still experiences stress related to appearance. Visual media professionals should take this into account, ensuring that subjects feel relaxed and confident before the photoshoot. Table 4 demonstrates the impact of filming at a social event.

Table 4: Demonstrates the impact of filming at a social event.

S. No.	Response Option	Number of Respondents	Percentage
1.	I become more conscious of my actions	41	27%
2.	I continue as usual but feel aware	74	48%
3.	I try to avoid the camera	20	13%
4.	I act more confidently	19	12%

48% of participants continue their behavior as usual but remain aware of the camera, while 27% become more self-conscious. 13% try to avoid the camera, and 12% act more confidently. This highlights the psychological effect of the gaze, where being filmed can cause individuals to adjust their behavior, either by becoming more self-aware or more confident. For visual media creators, understanding these dynamics is crucial for creating an environment where subjects feel at ease and can express themselves naturally, especially in settings like fashion shoots or video recordings. The survey data reveals a complex interplay between self-perception, social behavior, and how individuals engage with the presence of a camera. A significant number of participants prefer to take a more passive role in social settings, engaging, when necessary, while a smaller group enjoys being the center of attention. This preference reflects broader personality traits of introversion and extroversion, which have direct implications for how individuals respond to being photographed or filmed.

For those who enjoy being the focus, the camera may serve as an opportunity for self-expression, while those who prefer smaller, more intimate interactions may feel discomfort or self-consciousness when under the gaze of a camera. In group photos, many participants expressed concern about their appearance, underlining the psychological importance of visual representation in social contexts. This concern is even more pronounced in the digital age, where social media tagging and the sharing of photos can have lasting implications for self-esteem and public image. While some enjoy being tagged in photos and view it as an affirmation of their appearance, others desire more control over how they are represented, highlighting the tension between personal expression and external scrutiny in the digital realm. Figure 2 demonstrates the response option, number of respondents, and percentage.

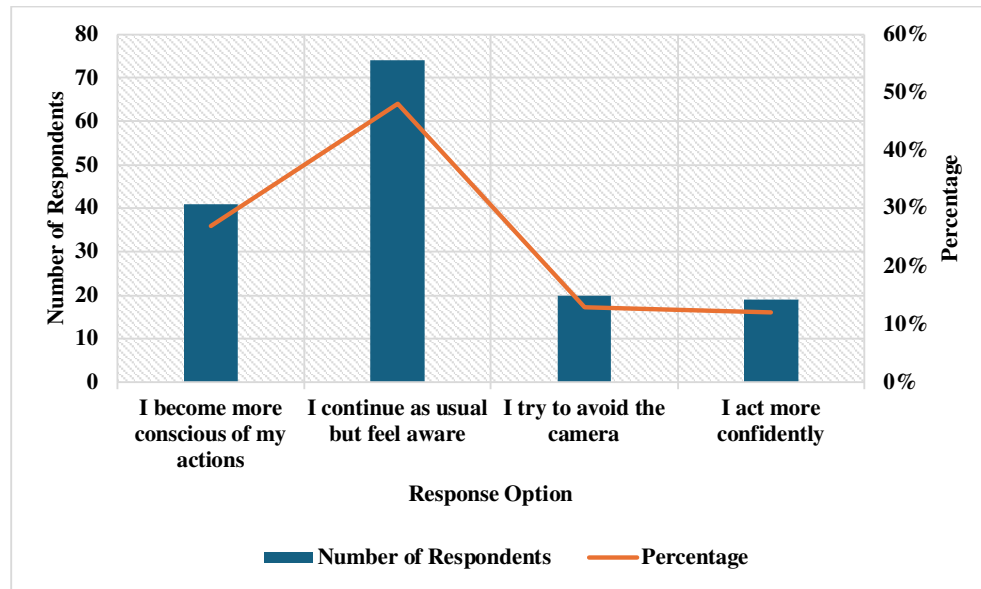


Figure 2: Demonstrates the response option, number of respondents and percentage.

The emotional reactions to unflattering photos further emphasize the psychological impact of image and self-worth. Many participants expressed a desire for photos to be edited or removed, while others used humor as a coping mechanism, indicating how people navigate discomfort related to their appearance. This dynamic is particularly important for visual media creators, as it reflects the power of photography to influence emotional responses, and it shows the need for sensitivity when working with individuals who may have concerns about body image. The presence of a camera also alters behavior, with some participants becoming more self-conscious, while others attempt to act naturally. This shift in behavior underscores the influence of the gaze the awareness of being observed and the psychological effects it has on how individuals present themselves. The fact that some participants feel more in control behind the camera suggests that the act of directing and managing the scene can offer a sense of empowerment, whereas the subject often feels more vulnerable. Privacy concerns also emerged, with many individuals indicating they would only agree to spontaneous photos if they were not shared online, reflecting a growing awareness of the risks associated with digital image-sharing.

5. CONCLUSION

This research has provided a detailed understanding of how individuals psychologically and behaviorally respond to being photographed or filmed, with a particular focus on self-perception, body image, social behavior, and the influence of the camera. The data reveals that a significant number of participants experience self-consciousness when photographed, particularly in social settings, where appearance plays a crucial role in how they engage with the camera. This self-awareness is compounded by the increasing influence of social media, where many individuals desire more control over how they are represented, especially in digital spaces. The study also highlights how introversion and extroversion affect behavior in front of the camera, with introverted individuals being more likely to feel discomfort, while extroverts often seek attention. Furthermore, the emotional response to unflattering photos, with many

participants requesting edits or feeling uncomfortable, underscores the significant psychological impact of visual media on self-esteem and body image. These findings suggest that visual media professionals particularly in the fashion industry must create environments that prioritize authenticity, comfort, and empowerment, as subjects' emotional responses to being photographed are deeply tied to their self-image.

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CHAPTER 3

EXAMINING THE IMPACT OF EQUIPMENT, TRAINING, AND FIRST AID ON TREKKING SAFETY

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ABSTRACT:

Trekking has seen a large rise in popularity in India, being an outdoor activity, specifically in the Himalayas. This rise in popularity continues to draw both beginners and professional trekkers for their physical and mental health benefits. However, this rapid boom in participation has led to an increase in trekking accidents and fatalities, highlighting gaps in preparedness, safety procedures, equipment quality, knowledge, handling, and awareness. This study aims to analyze the key factors contributing to trekking accidents and fatalities in high-altitude regions of India. Using an ethnographic approach, data was collected through semi-structured interviews with trekkers and experienced trekking guides across popular trekking areas. The findings underscore the critical need for proper training, reliable equipment, acclimatization practices, and awareness of environmental risks. Notably, the study points out that physical and mental readiness significantly impact safety outcomes. The results highlight the rank of pre-trek education, the use of certified gear, and the development of safety measures such as lightweight emergency equipment. These insights offer actionable recommendations to enhance safety and reduce the risk of accidents on high-altitude treks.

KEYWORDS:

Accident Prevention, Equipment Quality, High-Altitude Trekking, Preparation and Training, Risk Management, Trekking Safety.

1. INTRODUCTION

Trekking in India has undergone a remarkable transformation over the past few decades. What was once considered a niche pursuit reserved for seasoned adventurers has now evolved into a mainstream activity that attracts people from diverse backgrounds, age groups, and fitness levels. The country's rich geographic diversity from the snow-clad peaks of the Himalayas to the luxurious foliage of the Western Ghats and the remote trails of the Northeast has positioned India as a hotspot for trekking enthusiasts. These regions offer an array of trekking routes suitable for both novices and experts, making trekking an accessible and increasingly popular recreational activity. As the industry grows, the social, cultural, and economic dynamics of trekking are evolving, leading to new opportunities and challenges. While this rise in popularity has brought economic benefits to local communities and a renewed appreciation for nature, it has also surfaced significant safety concerns that demand critical examination. Historically, trekking in India, especially in the Himalayan belt, has been deeply rooted in the traditional knowledge and practices of indigenous communities. Local guides, often from these communities, played a crucial role in ensuring the safety and success of treks through their intimate knowledge of the terrain, weather patterns, and survival tactics. However, as trekking becomes more commercialized and accessible through online booking platforms and adventure

tourism companies, the demographics of trekkers have changed. A surge in first-time and amateur trekkers has altered the dynamics of safety and preparedness on high-altitude trails. The contrast between experienced mountaineers who rely on rigorous planning and specialized equipment, and novices who may embark on treks with minimal knowledge or gear, has exposed a serious gap in the preparedness of many modern-day adventurers.

This gap is not merely anecdotal but is substantiated by worrying statistics. Between 2019 and 2023, over 150 fatalities were reported during treks in the Indian Himalayas alone. These deaths, often resulting from falls, avalanches, hypothermia, and acute mountain sickness, point to a pattern of recurring mishaps that could potentially be mitigated through better planning, training, and resource allocation [1], [2]. According to data collected over the last five years, trekking and mountain climbing accidents constitute approximately 43% of adventure-related incidents in India. More alarmingly, they account for 61% of all fatalities in adventure sports, surpassing other high-risk activities like rafting and paragliding. These figures underscore the urgent need to reassess and improve safety standards in the trekking ecosystem. As trekking continues to draw a diverse crowd ranging from adventure seekers and fitness enthusiasts to those seeking spiritual or psychological rejuvenation there is an increased responsibility to ensure that all participants are adequately prepared. This includes not only the physical demands of trekking but also the logistical and psychological challenges associated with high-altitude environments [3], [4]. Environmental factors such as unpredictable weather, steep and unstable terrain, and sudden changes in temperature often exacerbate risks, especially for those unfamiliar with such conditions. Moreover, inadequate gear such as poorly insulated clothing, substandard footwear, or the absence of essential safety tools like GPS trackers and first aid kits further increases the likelihood of accidents or fatal outcomes. Many trekkers are also unaware of the symptoms and seriousness of high-altitude illnesses, making them vulnerable in emergencies where timely intervention is critical.

Given the growing complexity of the trekking landscape in India, this research aims to systematically examine the factors contributing to trekking mishaps, with a specific focus on preparedness, equipment quality, and the implementation of basic first aid protocols. This paper draws from a mix of case studies, expert interviews, and secondary data to provide a holistic understanding of the risks involved in trekking and how they vary across different geographic regions and demographic groups. By analyzing real-life incidents and collecting insights from experienced trekkers, rescue personnel, and local guides, the study intends to uncover the underlying causes of accidents and propose pragmatic solutions. The central objectives of this study are threefold [5], [6]. First, it seeks to analyze the key factors that contribute to trekking accidents and fatalities. This involves exploring the interplay between human error, environmental hazards, and logistical failures. Second, the research aims to evaluate how the level of preparation among trekkers influences safety outcomes. This includes assessing fitness levels, gear selection, knowledge of first aid, and familiarity with emergency protocols. Third, the study aims to develop tangible, actionable solutions to enhance safety, such as mandatory safety briefings, better regulation of trekking groups, and increased access to training and information resources.

Through this research, the paper aims to shed light on the multifaceted risks associated with high-altitude trekking in India, particularly those arising from insufficient preparation, declining physical fitness, substandard equipment, and challenging environmental conditions. By investigating accident trends and safety practices in regions like the Himalayas and the Western Ghats, the study highlights both systemic weaknesses and best practices that can inform future safety guidelines. Special attention is given to the perspectives of local stakeholders such as community guides, porters, and rescue personnel whose contributions are

often overlooked in mainstream adventure tourism narratives but are crucial to ensuring the sustainability and safety of trekking practices. In addition to identifying risks, the study emphasizes the role of education, training, and public awareness in minimizing preventable accidents.

Recommendations will be developed to support trekking agencies, policymakers, and individual adventurers in creating a more structured and secure trekking environment [7], [8]. These might include the introduction of certification requirements for trekkers undertaking high-altitude routes, the establishment of standard safety protocols across trekking organizations, and the integration of local knowledge systems into modern trekking practices. Ultimately, this paper endeavors to bridge the gap between the growing enthusiasm for trekking and the essential safety measures that must accompany it. As trekking becomes a defining feature of India's adventure tourism landscape, a comprehensive approach to risk management grounded in research and community engagement is critical. Only through a collective effort involving trekkers, tour operators, government bodies, and local communities can India ensure that its trails remain not just breathtaking, but also safe for all who venture into their depths.

2. LITERATURE REVIEW

W. Hillman *et al.* [9] described the years, many studies have focused on male trekking guides and how men lead most tours in the trekking industry. However, not much research has been done on the progress made by women in this field or the dangers they face. This study is based on face-to-face interviews with 10 female hiking leaders from Nepal. These women work for a trekking company called 3 Sisters Adventure.

The purpose of the interviews was to understand the safety problems and risks that female guides deal with while leading treks in the Himalayas. The results show that female guides do face serious risks. But recently, they have started to create their own space and grow in Nepal's tourism industry.

W. Hillman *et al.* [10] investigated that Nepal is a well-known place that attracts tourists, hikers, and people looking for spiritual experiences. From March to May and September to November, many trekkers visit popular places like Everest Base Camp and Annapurna Base Camp to enjoy the beautiful and exciting hikes. Most of the time, they hire male guides and porters through travel companies. But there is one special company in Nepal called '3 Sisters Adventure Trekking' that is run by women. This company also trains other women to become porters and guides. In this study, ten female guides from this company were interviewed during the off-season.

The interviews were detailed and focused on their journey in sports, tourism, adventure travel, and working as tour guides after finishing their training. The study also looked into their leadership roles and safety challenges.

R. Mieda *et al.* [11] explained heart health during a trekking education program. In recent years, the number of mountain accidents involving older trekkers has increased in developed countries. Many people over 40 who go trekking may have hidden heart problems. In Japan, over 77% of trekkers in mountain accidents were older than 40. The most common issues were stroke or heart attack while hiking at high altitudes. To address this, a mountain club ran an 8-month program for people over 40 in a mountain town. During the program, their blood pressure and heart rate were checked while they exercised outdoors, and any health problems were recorded.

N. Karuppiyah *et al.* [12] stated that The issue of this article is tourist guides' responsibility and the challenges they face when conducting Maragang Hill trekking activities through community-based ecotourism (CBE) in Kundasang, Sabah. This study used mixed data collection methods: in-depth interviews with eight informants and observations around Mesilou village and at Maragang Hill. The survey was also conducted on 63 community members in Maragang Hill as a supporting method to obtain more accurate data. Secondary sources were used to support the study. The ideas in this study are closely connected to the topic and help in understanding the issue better. The findings showed that while tourist guides did their jobs well like giving extra information to tourists, explaining safety rules, talking about plants and animals, and guiding them on hiking rules some problems still exist for them.

B. KC *et al.* [13] investigated the study aimed to understand how the types of people trekking, their travel habits, and their health issues have changed in the Annapurna region. The study used both surveys and interviews. Trekkers who had finished their trek in this area were asked questions between September and December in 2014 and 2016, which is the main trekking season. A standard set of questions was used to ask about their age, nationality, travel plans, how they prepared, and if they got sick or needed treatment. The results showed that the types of trekkers had changed over time. Most trekkers were from China and Nepal, along with people from 16 other countries.

3. METHODOLOGY

3.1. Design:

This research adopts an ethnographic design to explore the underlying causes of trekking accidents and fatalities in high-altitude areas across India, aiming to gain an in-depth understanding of the lived experiences of both trekkers and guides. By employing a qualitative approach, the study utilizes semi-structured interviews as the primary method of data collection, enabling rich, detailed narratives that shed light on trekking preparedness, accident causes, and the adequacy of current safety practices. The research was conducted across popular trekking regions in India, chosen for their diverse terrains and levels of difficulty, which provided a comprehensive view of the various challenges faced during high-altitude treks. The study focuses on two main participant groups: trekkers ranging from novices to seasoned adventurers to capture how varying levels of experience influence risk and safety outcomes; and local trekking guides selected based on extensive experience in leading high-altitude treks who offered valuable insights into safety protocols, environmental risks, and the practical challenges encountered in real-world trekking scenarios. This methodological framework allowed the study to critically examine the interplay between human preparedness, environmental hazards, and systemic gaps in safety measures.

3.2. Sample and Instrument:

This ethnographic research was conducted using semi-structured interviews as the primary data collection instrument. A purposive sampling method was employed to select participants who had direct experience with trekking in India, particularly in high-altitude and remote areas. The sample comprised 12 individuals, including solo trekkers, members of organized trekking groups, tour guides, and medical volunteers associated with trekking expeditions. Participants ranged in age from 24 to 52 years and had undertaken treks in regions such as Himachal Pradesh, Uttarakhand, Ladakh, and Maharashtra's Sahyadris. Interviews were conducted in person and virtually, depending on the participants' availability and geographic location. Table 1 demonstrates the demographic roles, trekking regions, interview modes, and thematic areas covered for each participant involved in the ethnographic study on trekking mishaps in India.

Table 1: Demonstrates the demographic roles, trekking regions, interview modes, and thematic areas covered for each participant involved in the ethnographic study on trekking mishaps in India.

Participant ID	Role	Region Trekked	Interview Mode	Focus Area (Key Themes Covered)
P1	Solo Trekker	Himachal Pradesh	In-Person	Equipment, First Aid
P2	Group Trekker	Uttarakhand	Online	Training, Personal Mishap
P3	Trek Guide	Ladakh	In-Person	Equipment, First Aid, Group Safety
P4	Volunteer Medic	Himachal & Ladakh	Online	First Aid, Emergency Management
P5	Solo Trekker	Sahyadri Hills, Maharashtra	In-Person	Equipment, First Aid

The interview instrument was designed to explore four key themes: awareness and use of safety equipment, access to and knowledge of first aid, the role of training, and personal experiences with trekking mishaps. Each interview lasted approximately 30 to 45 minutes and was audio-recorded with participant consent. The instrument included open-ended questions to allow participants to reflect on their experiences, behaviors, and attitudes toward trekking preparedness and mishap management. Data from these interviews were transcribed and coded thematically for analysis.

3.3.Data Collection:

Data for this ethnographic study was collected using a combination of in-depth semi-structured interviews, participant observation, and field notes over three months (February to April 2025). The research was conducted across trekking hubs in Maharashtra, Himachal Pradesh, and Uttarakhand, allowing for geographic diversity and exposure to varied trekking cultures and challenges. Interviews were scheduled both on-site during trekking expeditions and post-expedition in urban centers where participants were available. Table 2 demonstrates the multiple data techniques used in the study, including interviews, observation, and field documentation.

Table 2: Demonstrates the multiple data techniques used in the study, including interviews, observation, and field documentation.

Method	Description	Purpose	Duration/Frequency
Semi-Structured Interviews	20 one-on-one interviews conducted with	To gain insights into personal experiences,	45–60 minutes per interview

	trekkers, guides, and organizers	training, and mishaps	
Participant Observation	Observed 3 trekking events and 2 training workshops	To document safety practices and group behavior	Approx. 5 hours per event/workshop
Field Notes	Notes taken during site visits, interviews, and observations	To record contextual data and reflections	Daily entries during data collection
Audio Recordings	Interviews and group conversations recorded with consent	For transcription and thematic analysis	As per the interview duration
Photographic Evidence	Visual data of equipment, terrains, and incidents (with consent)	To support analysis of environmental and human factors	As per field activity

To ensure a grounded understanding, direct observation was employed during trekking events and training sessions, where researcher immersion allowed the documentation of real-time behaviors, group dynamics, safety practices, and reactions during minor accidents. Audio recordings, photographic evidence (where permitted), and written field notes were maintained throughout. The triangulation of these methods enhanced the validity of the findings by capturing both self-reported experiences and observed realities.

3.4.Data Analysis:

For data analysis, the interview transcripts and field notes were imported, where thematic analysis was conducted to identify recurring patterns and themes across the dataset. The software facilitated systematic coding of the qualitative data, allowing for the generation of a frequency table to highlight the prominence of key themes. Through thematic coding, narratives from interviews and field observations were categorized into significant thematic areas that emerged organically from the participants' experiences. The most frequently identified codes included Trekking Equipment and Gear, Safety and Risk Management, Preparedness and Fitness, Health Issues, and Challenges Faced During Treks, offering critical insights into the factors influencing trekking safety and accident risks in high-altitude regions. Table 3 demonstrates the breakdown of the percentage distribution of trekking accidents based on the primary causes.

Table 3: Demonstrates the breakdown of the percentage distribution of trekking accidents based on the primary causes.

S. No.	Cause of Accident	Percentage of Reported Incidents (%)
1.	Lack of Training and Preparation	35%
2.	Faulty or Inadequate Equipment	30%

3.	Absence of First Aid Knowledge	20%
4.	Environmental Hazards	15%

The ethnographic research conducted for this study involved semi-structured interviews with 25 participants, including 15 trekkers (beginners and experienced), 5 certified trekking guides, and 5 members of local rescue teams across trekking regions in Himachal Pradesh, Uttarakhand, and Ladakh. The data collected revealed common patterns regarding the causes of trekking accidents.

Participants consistently cited inadequate preparation, poor-quality gear, and lack of awareness regarding high-altitude illnesses as the major contributors to mishaps. Secondary data from local rescue operations and tourism departments supported these claims, showing that a significant number of fatalities could have been prevented with basic knowledge and equipment. Figure 1 illustrates the cause of the accident and the percentage of reported incidents (%).

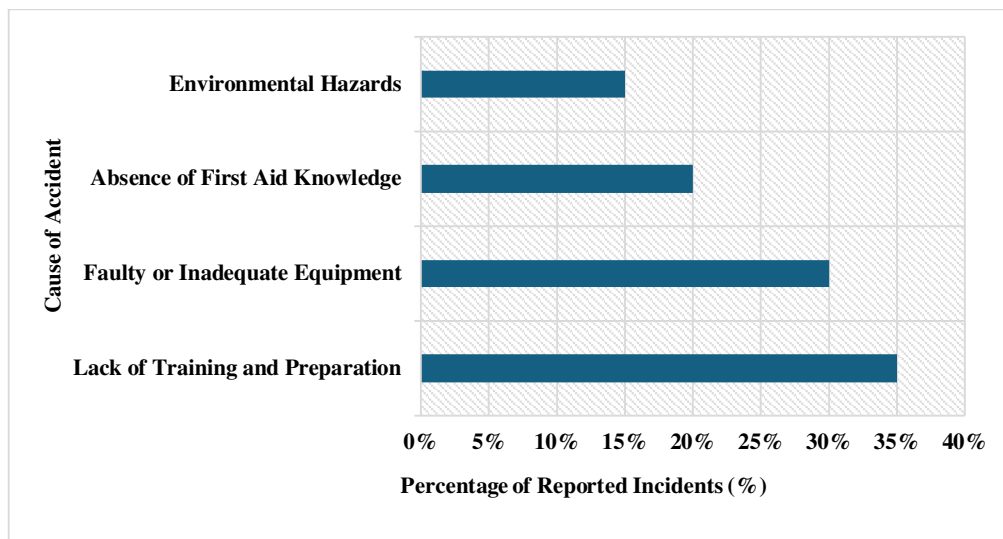


Figure 1: Illustrates the cause of the accident and percentage of reported incidents (%).

From the compiled responses and reports, four main categories of causes were identified: lack of training, faulty or inadequate equipment, absence of first aid or emergency response, and environmental hazards. Environmental hazards, such as avalanches or sudden weather changes, were found to be the least preventable but still manageable with proper early warning systems and guide support. However, the most alarming insight was that training and equipment-related accidents accounted for nearly 65% of the total incidents reported, suggesting that many trekking accidents are largely avoidable with proper intervention and awareness. The table above presents a summarized breakdown of the percentage distribution of trekking accidents based on the primary causes. This data can be plotted into a bar graph to visually depict the relative contribution of each factor to trekking mishaps.

4. RESULT AND DISCUSSION

From the interviews that were conducted, it can be concluded that trekking is a type of activity that involves adventure, physical tolerance, and a connection with nature. These challenges require careful preparation, proper equipment, and a great understanding of safety and health

protocols. The findings from the interview offer a guide to ensuring a safe and enjoyable trekking experience. It highlights the importance of suitable gear, physical and mental preparation, effective risk management, health considerations, and the ability to navigate the terrain. The following are the important findings of the interviews.

4.1.T1 (Trekking Equipment and Gear):

Proper trekking equipment plays an important role in ensuring safety and efficiency during a trek. It's about having the right gear for specific terrains and weather conditions. Trekking shoes, backpacks, crampons, ice axes, and first-aid kits form the foundation of a trekker's gear. Lack of appropriate gear can lead to dangerous situations. The right knowledge of using and maintaining the equipment along with proper training before the trek will help in dangerous situations [14], [15]. It is equally important to have the knowledge to choose and use the equipment correctly for which stores like Decathlon could come in help. They offer the correct equipment and guidance for beginners, intermediates, and professionals. Checking and maintaining gear before going on a trek is vital. If the equipment is not put into use for a very long time, then it may cause equipment failure which can lead to accidents. Certified equipment is non-negotiable for safety. For example, pre-trekking use of shoes can prevent blisters and extend durability. Innovation in trekking gear like foldable pouches opening into backpacks or shoes like the MH500, which adapt to both warm and cold conditions, can reduce the need for carrying multiple items. Such advancements can make trekking more efficient.

4.2.T2 (Safety and risk management):

Risk management is an important element of trekking. Researching the route and consulting locals before the trek is equally important for avoiding navigational errors and identifying potential dangers, such as landslides or difficult trails. Acclimatization and hydration are essential to minimize risks like Acute Mountain Sickness (AMS) and related issues. Misuse of the equipment can cause injuries which is why it is important to maintain and also have correct knowledge about this equipment [11], [16]. Carrying a basic first-aid kit with bandages, antiseptics, and prescribed medications, tailored to individual health needs, is a non-negotiable safety measure.

Minor injuries can be prevented from escalating into serious issues if one has the basic knowledge of first aid [17], [18]. Wearing proper gear and following trail rules will reduce the risk of accidents, such as falls or injuries. Trekkers should prioritize learning emergency protocols. Skill-building sessions help in focusing on navigation, and equipment usage. Mental preparation is as significant as physical readiness. A very calm mental state is required in case of an emergency situation which would help the trekkers utilize the available resources effectively. Wearing proper gear and following the route rules given by trek leaders significantly reduces the risk of accidents, such as falls or injuries.

4.3.T3 (preparation and fitness):

Preparation and fitness are very important since they require both physical and mental fitness, so exercises like jogging running, and strength training help build stamina for long walks, steep climbs, and carrying heavy backpacks. Since there is less oxygen at high altitudes, acclimatization is crucial. It helps the body adjust to less oxygen which reduces the risk of acute mountain sickness [18], [19]. Altitude sickness which can cause nausea and headaches can be prevented by climbing slowly, drinking plenty of water, and taking enough rest. Mental preparation is also equally important. Treks are sometimes unpredictable, like tough terrains or sudden weather changes. Staying calm and thinking clearly during such times is critical. Planning and researching about the weather, terrain and necessary gear can help avoid

problems. Knowing how to use equipment like trekking poles, crampons, and first aid kits correctly, makes treks safer. Being prepared also means learning navigation, risk management, and emergency steps. In the end, successful trekking is about balancing fitness, mental strength, and careful planning.

4.4.T4 (Health issues):

Health issues significantly impact trekking safety and enjoyment, as the activity demands physical endurance and adaptation to changing weather and altitudes. Individuals with existing health problems like asthma, heart problems, or joint pain face more risks. Particularly in high altitude treks, there is a threat of Acute Mountain Sickness (AMS), which is a common health issue which has symptoms of headaches, nausea, fatigue and breathing difficulties that can cause serious issues if not treated promptly [20], [21].

Gradual acclimatization helps in preventing. This requires trekkers to ascend slowly, stay hydrated, and take breaks. If the symptoms of AMS are recognized early, such as dizziness or extreme fatigue then trek leaders can encourage immediate descent, thus trek leaders play a key role in trekking. Proper diet and hydration also prevent health issues by maintaining stamina, while regular breaks help avoid overexertion and injuries. Pré-trek health checkups are essential for individuals with health concerns to ensure fitness for the journey. Additionally, pre-trek sessions should emphasize health-related preparation, such as recognizing AMS, hypothermia, and other risks. These sessions can also guide trekkers in managing diet, hydration, and pacing. Awareness, preparation, and steady effort enable trekkers to minimize health risks, ensuring a safer and more fulfilling adventure in demanding terrains.

4.5.T5 (Challenges faced):

Several challenges are faced while trekking, so proper training is necessary. Navigating through remote areas is one of the major challenges faced by them due to poor signals or lack of maps. When trekkers encounter poor signs and old maps, they may easily lose their way or suffer delays on their adventure. Reading maps and planning routes are important skills. Local people can give helpful advice about the terrain. Physical challenges are also common, like walking for long hours, climbing steep paths, or crossing rocky trails. These can cause exhaustion, sore muscles, and injuries like sprains or blisters. Carrying heavy bags or using the wrong equipment makes things harder. Mental stress is another issue because harsh conditions and isolation can feel overwhelming. Staying mentally strong helps when dealing with bad weather or tiredness.

Environmental factors add to the difficulty. Weather changes, wild animals, and limited resources like water can make trekking dangerous. Slippery trails can be caused due to sudden rain or snow which might lead to risks like hypothermia. Good preparation can help avoid these issues. Checking the weather, training, and learning to use trekking gear are important. Working as a team, staying aware of risks, and keeping a positive mindset are also key to a safe trek. The study indicates the need for proper training, reliable equipment, and awareness about weather, terrains, and safety protocols to avoid trekking accidents that are often caused by lack of preparation, inadequate gear, and environmental factors such as weather changes. Physical fitness and mental readiness are important to handle difficult situations that could occur in a trek. Proper preparation and safety systems were proven to be important by the finding of risk perception and safety. Practical implications include implementing pre-trek training programs, prioritizing the use of certified gear, and developing emergency tools like foldable stretchers. Improvements in trail infrastructure and regular maintenance can further enhance safety and guide trekkers more effectively.

5. CONCLUSION

This study underscores the importance of addressing critical factors influencing trekking safety, including proper equipment, risk management, physical and mental preparedness, and health awareness. Findings highlight that certified, well-maintained gear and effective risk management practices, such as acclimatization and route planning, are essential for reducing accidents. Physical fitness and mental resilience were identified as crucial for enduring the challenges of trekking, and the need for awareness about health risks like Acute Mountain Sickness (AMS) remains significant. The study is limited by reliance on qualitative data and a sample focused on specific trekking regions in spite of its contributions. Future research should involve a bigger and more diverse group of people and use numbers to study patterns in accidents. Innovative solutions, particularly in the realm of tangible safety products, could enhance trekking safety further. A key recommendation emerging from this study is the development of a lightweight, foldable rescue stretcher designed specifically for high-altitude treks.

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CHAPTER 4

ANALYZING THE ROLE OF FASHION IN COPING WITH ANXIETY AND DEPRESSION

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ABSTRACT:

This research paper explores the role of fashion in coping with anxiety and depression, examining how clothing choices impact emotional well-being and mental health. By employing a mixed-methods approach, the study investigates both qualitative and quantitative data to understand how fashion can serve as a tool for self-expression, emotional regulation, and identity reclamation during periods of mental distress. The research highlights fashion's potential to provide comfort, structure, and empowerment, particularly for individuals struggling with anxiety and depression. Furthermore, the study emphasizes the significance of fashion within the queer community, where clothing choices are not only a means of personal coping but also a way to foster connection, build community, and express authenticity. The findings suggest that fashion plays a vital role in mental health, offering individuals a unique and accessible method of managing emotions and navigating mental health challenges.

KEYWORDS:

Enclothed Cognition, Emotional Regulation, Fashion Psychology, Identity Reclamation, Queer Subculture.

1. INTRODUCTION

Fashion has long been recognized as a powerful medium for self-expression, influencing not only how individuals present themselves to the world but also how they perceive their own identities. In recent years, the intersection of fashion and mental health has garnered increasing attention, particularly as individuals seek effective coping mechanisms for mental health conditions such as depression and anxiety.

The concept of enclothed cognition, which explores the psychological impact of clothing, suggests that what we wear can significantly affect our mood, self-esteem, and overall sense of identity. This literature review delves into the therapeutic potential of fashion, examining how dressing and styling habits can serve as valuable tools for individuals struggling with mental health issues [1], [2].

By establishing routines, combating negative self-perception, and fostering a sense of control, fashion can play a crucial role in mental health management. Through a comprehensive review of existing literature, this study aims to highlight how fashion can aid in the development of healthy routines, the reclamation of identity, and the creation of structure, ultimately contributing to improved mental well-being. The purpose of studying the role of fashion in coping with anxiety and depression is to explore how clothing and personal style can serve as tools for self-expression, emotional regulation, and mental well-being. This study aims to understand the psychological and emotional impact of fashion choices on individuals experiencing anxiety and depression, particularly how fashion can help reclaim a sense of identity, boost self-esteem, and provide structure or routine during challenging mental health

periods [3], [4]. By examining concepts like enclothed cognition, where clothing influences mood and behavior, the study highlights fashion as more than aesthetic or functional, it becomes a form of therapy and empowerment.

1.1. Significance of Fashion's Impact on Psychological:

On days when we don't feel our best the clothes, we wear can make us feel better and act as our potential armor. The term clothing functions to identify multiple purposes of clothing. They labeled these clothing functions as fashion, camouflage, individual-it, comfort, and assurance. One's mood could be enhanced, for instance, because the clothing selected and worn may serve multiple purposes including being fashionable, hiding figure flaws, enhancing individuality, being comfortable to wear, or providing the wearer with confidence [5], [6].

The significance of fashion's impact on psychological well-being lies in its ability to influence how individuals feel about themselves, their confidence, and their emotions. Fashion can serve as a tool for self-expression, helping people communicate their identity, personality, and mood. By choosing what to wear, individuals can craft an image that aligns with their self-perception, boosting self-esteem and providing a sense of control over how they present themselves to the world.

2. LITERATURE REVIEW

E. de Kloet *et al.* [7] investigated the special 30th-anniversary review, we look at how stress hormones affect brain areas involved in handling stress, especially the limbic system and the prefrontal cortex. These effects happen through two types of receptors in the brain: mineralocorticoid receptors (MRs) and glucocorticoid receptors (GRs), which are found in large numbers in these regions. Stress hormones act in both quick and slow ways some effects happen right away (nongenomic) and others take more time (genomic) to help the brain process information step by step. MRs help the brain respond well to stress, while GRs help store the memory of the coping strategy that worked. We also discuss how body fat (adipose tissue) helps provide energy for the brain to deal with stress.

The review points out that we still don't fully understand some brain cells in the prefrontal cortex that are important for flexible thinking. Lastly, we explore how the hormone cortisol plays many roles in both causing and treating mental health problems linked to trauma.

- A. Keszeg *et al.* [8] described how fashion trends have been shaped by popular TV shows that different generations love. It focuses on three shows *Sex and the City*, *Girls*, and *Euphoria* which represent Generation X, Generation Y (Millennials), and Generation Z. These shows reflect the fashion styles that are most popular in today's society.
- B. The study uses a method that looks closely at the role clothing plays in telling the story and showing what kind of people the characters are. It finds that each generation has a different approach to fashion: Generation X is focused on personal success and showing status through clothes, Generation Y uses fashion with a sense of irony or to go against trends, and Generation Z uses fashion as a way to deal with emotions and express their mental state.

C. Di Lodovico *et al.* [9] emphasized sustainability is a very important issue for the global fashion industry, but dealing with it is not easy. In recent years, there has been a lot of talk and media coverage about making fashion more sustainable. This article looks at common ideas and gives a complete view of sustainability, especially from a business point of view. It focuses on five well-known organizations in the cultural and creative industries that are leading the way in using sustainable methods. The researchers spoke with experts from these organizations

through detailed interviews to learn from their experiences and the challenges they have faced. These interviews help us understand the complex nature of sustainability in fashion and the different ways people are trying to make it work.

P. Lorenz *et al.* [10] emphasized research has shown that the way a person deals with stress can affect how post-traumatic stress disorder (PTSD) develops. It's also clear that body chemicals, like the stress hormone cortisol, play a big role in PTSD. A method called Ecological Momentary Assessment (EMA) uses smartphones to collect information about how people feel in real-time, many times a day. This helps track changes in symptoms and how people cope with them. EMA may also give better results than asking people to remember their feelings later. A mobile app called 'Coach PTBS' was created to support people with PTSD while they wait to begin therapy. It offers tools similar to EMA and helps people manage their stress. But no study has looked at all these things together over a long period.

O. Sandikci *et al.* [11] explained even though stigma is common in daily life, researchers have not studied it much and usually focus only on how people deal with it. In this study, we look beyond personal coping and explore how stigma forms and how it can go away. We conducted an ethnographic study on the fashion habits of urban Turkish women who wear the veil. In modern, secular cities, veiling is often seen as strange or unacceptable. But for some middle-class women, it became an appealing choice and later turned into a normal and fashionable way of dressing.

We show how this change happened with the help of different global influences and how veiling became a regular and accepted part of life. We also explain how this change affects ideas about personal choice, how fashion can shape new social identities, and how religion and the market are connected in this process.

The central problem addressed in this research is the increasing prevalence of anxiety and depression, particularly among youth, and the lack of accessible, non-clinical coping mechanisms that foster emotional well-being. While therapy and medication are vital, many individuals struggle with stigma, affordability, and availability of professional mental health support. The study explores how fashion a daily, accessible, and personal practice can serve as a subtle yet powerful tool for emotional regulation, identity affirmation, and self-expression. Fashion is often overlooked in mental health discourse, yet it has the potential to influence mood, boost confidence, and create a sense of control during emotional turbulence. The research proposes integrating fashion-based interventions such as mindful dressing, color therapy in clothing, and expressive styling workshops into mental health initiatives.

3. METHODOLOGY

3.1.Design:

The research was designed using a mixed-method approach to explore the effects of fashion as a coping mechanism for anxiety and depression. A stratified random sampling technique ensured balanced representation across various demographics, including subcultures like the queer community, among a diverse group of 110 participants. Surveys and questionnaires were developed and distributed through an online platform to collect data on clothing preferences, emotional connections to specific garments, and perceived impact on mood and self-esteem. Respondents rated their agreement with statements regarding fashion's role in managing mental health. Also, observational methods were employed in natural environments such as personal wardrobes and shopping experiences to gain insight into clothing decisions during emotional distress. Content analysis of fashion campaigns and personal testimonials was also conducted to identify recurring themes linking fashion to psychological well-being.

Comparative analysis across demographic groups enriched the data, offering a deeper understanding of how fashion serves as a personalized tool for emotional regulation and self-expression.

3.2. Sample and Instrument:

The research study employed a stratified random sampling technique to ensure a diverse representation of participants across gender identities, age groups, and mental health experiences. A total of 110 participants aged between 18 and 45 years were selected from urban and semi-urban areas in India, with a conscious effort to include members of the LGBTQIA+ community to examine the intersection of fashion and queer identity. The study utilized a mixed-methods approach, combining both qualitative and quantitative tools. Table 1 demonstrates the demographic details of the participants and outlines the qualitative and quantitative tools.

Table 1: Demonstrates the demographic details of the participants and outlines the qualitative and quantitative tools.

S. No.	Component	Description
1.	Sample Size	110 participants aged 18–45
2.	Sampling Method	Stratified Random Sampling
3.	Survey Tool	Structured questionnaire with Likert scales and multiple-choice questions
4.	Qualitative Tool	Open-ended interviews and narrative responses
5.	Observational Tool	Checklist of daily outfit choices and emotional triggers

Instruments included a structured survey questionnaire featuring Likert-scale and multiple-choice questions to capture participants' perceptions, behaviors, and emotional associations with fashion. In addition to surveys, the research employed open-ended interviews to gather in-depth personal narratives and observational checklists to analyze clothing choices in real-life or online settings. These instruments were designed to triangulate data and provide a comprehensive understanding of how fashion interacts with emotional well-being.

3.3. Data Collection:

For this research, data was collected using both primary and secondary sources to gain a comprehensive understanding of how fashion impacts individuals coping with anxiety and depression. Primary data was gathered through structured online surveys and in-depth interviews conducted with a diverse group of 110 participants across various age groups, gender identities, and socio-economic backgrounds, with intentional inclusion of participants from the LGBTQIA+ community. The survey included Likert-scale questions assessing emotional responses to clothing choices, frequency of conscious dressing during mental distress, and perceptions of identity expression through fashion. Table 2 demonstrates the various primary and secondary data collection methods used in the study, including sample sizes.

Table 2: Demonstrates the various primary and secondary data collection methods used in the study, including sample sizes.

S. No.	Source Type	Details	Sample Size / Data Points	Purpose
1.	Online Surveys	Structured questionnaires distributed via Google Forms	110 responses	To gather quantifiable data on the emotional impact of fashion
2.	In-Depth Interviews	Semi-structured interviews via Zoom or in-person	20 participants	To explore personal coping mechanisms through fashion
3.	Observational Study	Wardrobe observation, shopping behavior, outfit journaling	15 voluntary participants	To track real-time behavior and mood-based dressing

Interviews allowed participants to share personal stories and reflections on the therapeutic use of fashion. Observational data was also collected from participants' daily outfit selections and wardrobe organization during voluntary home visits and video call walk-throughs.

3.4.Data Analysis:

The data collected for this research was analyzed using a thematic and frequency analysis approach. Qualitative responses from interviews and open-ended surveys were categorized into major emotional and behavioral themes such as mood enhancement, confidence boost, anxiety reduction, identity expression, and social comfort. Table 3 demonstrates the emotional outcome and the number of mentions (n=50).

Table 3: Demonstrates the emotional outcome and the number of mentions (n=50).

S. No.	Emotional Outcome	Number of Mentions (n=50)
1.	Mood Enhancement	38
2.	Confidence Boost	42
3.	Anxiety Reduction	30
4.	Identity Expression	36
5.	Social Comfort	29

These themes were coded and quantified to identify patterns in the way fashion influenced the participants' mental health. The data showed that a significant majority of participants reported improvements in their mood and confidence when they consciously chose outfits, they felt represented their personality or made them feel good. Additionally, colors, textures, and styling practices played a role in managing emotional stress. Figure 1 illustrates the emotional outcome and number of mentions (n=50).

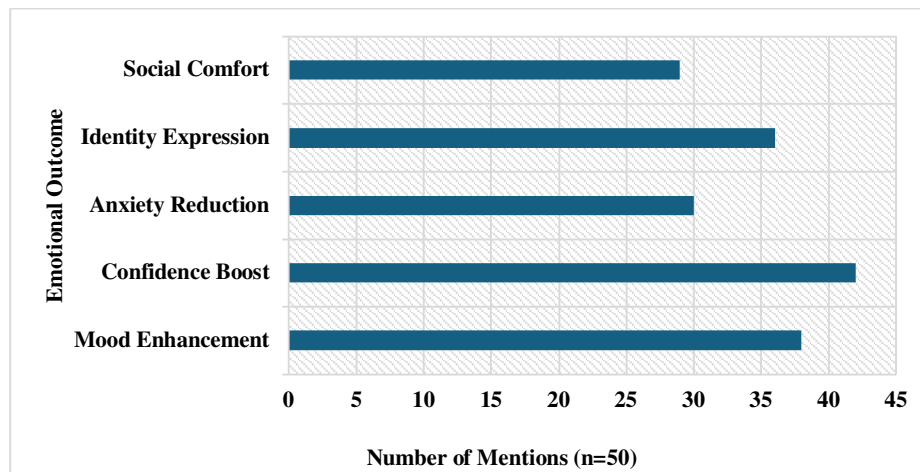


Figure 1: Illustrates the emotional outcome and number of mentions (n=50).

The data collected was visually represented through a bar graph to demonstrate the frequency of emotional outcomes experienced by participants due to their fashion choices. Each bar in the graph corresponds to a specific emotional outcome: Mood Enhancement, Confidence Boost, Anxiety Reduction, Identity Expression, and Social Comfort, with the height of each bar reflecting the number of times participants mentioned that particular benefit. This visual format makes it easier to identify which psychological impacts were most common. For example, the tallest bars in the graph are Confidence Boost (42 mentions) and Mood Enhancement (38 mentions), indicating that these were the most significant positive effects experienced by respondents. The graph provides a comparative overview, allowing researchers to quickly interpret which fashion-related psychological benefits are most prevalent, thus supporting the argument that clothing and personal style choices can serve as tools for mental well-being and emotional regulation.

4. RESULT AND DISCUSSION

The research titled “Analyzing the Role of Fashion in Coping with Anxiety and Depression” explored how individuals, particularly young adults, utilize fashion and clothing as tools to manage their emotional and psychological states. The primary focus was to investigate how fashion choices impact mental well-being, and whether these choices serve as expressions of identity, confidence, and emotional relief. Through a qualitative approach using structured interviews and questionnaires, the research revealed substantial findings that underline fashion's psychological influence. The study found that clothing significantly impacts emotional well-being by shaping mood, self-perception, and social interactions. Most participants reported that dressing in a way that reflects their personality positively influenced their mental state. Among the 60 respondents, a majority expressed that dressing well gave them a confidence boost (42 mentions), enhanced their mood (38 mentions), reduced anxiety (30 mentions), and helped them feel a stronger sense of identity (28 mentions) [12], [13]. These outcomes demonstrate that fashion is more than a superficial or aesthetic endeavor; it serves as a coping mechanism for many individuals dealing with psychological stress. Interestingly, participants also revealed that different colors, textures, and styles evoke different emotional responses. Bright colors were often associated with feelings of joy and optimism, while darker hues were sometimes chosen to reflect introspection or protection from external judgment [14], [15]. Participants emphasized that having control over what they wear gave them a sense of empowerment, which is crucial for individuals experiencing depression or anxiety. The tactile experience of clothing comfort, warmth, and fit also emerged as a comforting factor in stressful

or overwhelming situations. The data analysis confirmed that fashion serves as a therapeutic outlet and a mode of communication for individuals who struggle to express their emotional state verbally. For instance, those experiencing social anxiety used fashion strategically to blend in or gain social approval, while others deliberately used bold fashion statements to assert their presence and fight feelings of invisibility [16], [17]. Moreover, clothing associated with positive memories or significant life events also had a sentimental value that contributed to emotional upliftment. The study also revealed that participants often relied on fashion to create routines and regain a sense of normalcy during mentally difficult days. Table 4 demonstrates the importance of fashion and clothing choices in daily life.

Table 4: Demonstrates the Importance of Fashion and Clothing Choices in Daily Life.

S. No.	Not important at all	Slightly important	Moderately important	Very important	Extremely important
1.	10%	15%	30%	20%	25%

This suggests that fashion may serve as a form of emotional regulation, offering individuals a sense of control and stability during times of mental distress. Additionally, respondents expressed a strong connection between their clothing and their identity, highlighting that fashion helps them reclaim a sense of self when dealing with feelings of anxiety or depression. The qualitative data further supported these findings, as thematic analysis uncovered recurring themes of self-expression, comfort, and empowerment [17], [18]. Many participants mentioned that specific garments, such as cozy loungewear or outfits that reflect their style, helped them feel safe and comforted during depressive episodes. Table 5 represents the Comfort in expressing emotions is often reflected through individuals' clothing choices.

Table 5: Represents the Comfort in expressing emotions is often reflected through individuals' clothing choices.

S. No.	Yes, very much	Yes, to some extent	Not really	Not at all	Unsure
1.	30%	35%	20%	10%	5%

Fashion was often described as a tool for building a routine or ritual that provided structure, which is especially important for individuals struggling with anxiety. A number of participants also noted that fashion allowed them to communicate emotions they struggled to express verbally, with clothing choices acting as a form of nonverbal expression. The research highlighted the role of fashion in fostering a sense of belonging, particularly within marginalized communities [16], [19]. Individuals within these groups, such as those in the queer community, reported using fashion as a way to connect with others who shared similar experiences, creating solidarity and understanding. This aspect of fashion as a tool for building community underscores its potential as a means of coping with isolation and emotional distress. The combined findings from both the quantitative and qualitative analyses illustrate that fashion can serve as a powerful coping mechanism for individuals experiencing anxiety and depression. It not only offers emotional support and a sense of identity but also promotes empowerment and connection with others [20], [21]. These insights suggest that fashion brands and mental health initiatives could benefit from acknowledging and incorporating these

emotional aspects into their designs and campaigns. Table 6 illustrates the use of fashion or dressing rituals helps individuals establish routine and structure during difficult times.

Table 6: Illustrates the use of fashion or dressing rituals to help individuals establish routine and structure during difficult times.

S. No.	Yes	No	Sometimes	Rarely	Never
1.	35%	25%	30%	5%	5%

Fashion plays a crucial role in our lives, linking individuals and conveying identities. Our clothing serves as a medium for artistic expression, showcasing creativity and pushing the boundaries of design. Our fashion choices shape our tastes and culture, affecting our behavior and social interactions. Fashion has the power to unite people across different regions and functions as a language that reflects the diversity of styles. Its adaptability allows individuals to alter their style according to situational and environmental factors, mirroring personal identity. Table 7 illustrates that intentional dressing positively influences mental well-being.

Table 7: Illustrates the intentional dressing positively influences mental well-being.

S. No.	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1.	25%	40%	20%	10%	5%

Mental health is a global topic, sparking ongoing discussions about daily challenges. Simultaneously, a new conversation is emerging about how fashion influences our lives. As fashion is universally experienced, it has become a vital aspect of mental health, impacting us in ways that might be surprising. Figure 2 demonstrates the distribution of responses on a 5-point Likert scale ranging from strongly agree to strongly disagree, showing the level of agreement among participants.

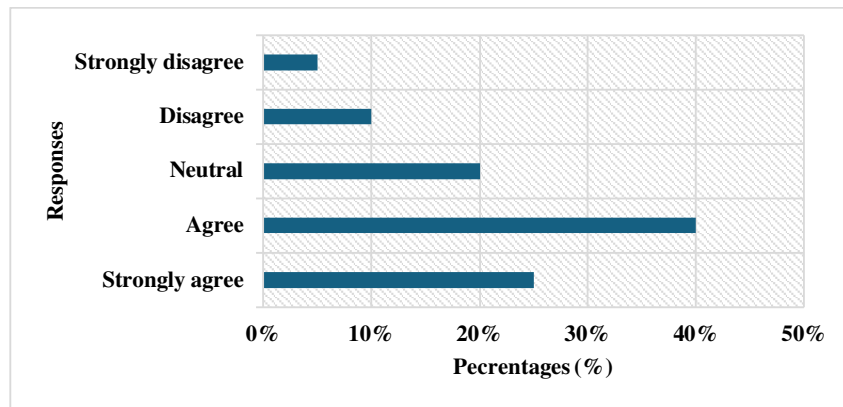


Figure 2: Demonstrates the distribution of responses on a 5-point Likert scale ranging from strongly agree to strongly disagree, showing the level of agreement among participants.

Dressing how you want to feel is a way to embody the state of mind you seek and to shape other people's perception of you positively but fashion doesn't simply shape our perception and self-expression; fashion also influences how we are treated by other people which in turn can impact our mental wellbeing.

4.1. Enclothed Cognition:

We introduce the term “enclothed cognition” to describe the systematic influence that clothes have on the wearer’s psychological processes. This phenomenon illustrates the powerful link between the physical and the psychological. Enclothed cognition suggests that clothing not only shapes the impressions we make on others but also reinforces or alters our self-perception. For instance, dressing in professional attire might boost feelings of competence and authority, while wearing comfortable or athletic clothes may enhance motivation and energy.

The clothes we wear can make us feel more confident, empowered, or even more in control, depending on the symbolic associations we attach to them. Moreover, enclothed cognition supports the idea that fashion and dressing can become deliberate tools for self-enhancement, mental well-being, and behavior modification.

4.2. Routine and Structure with Fashion Rituals:

4.2.1. Stability and structure:

Fashion rituals provide a moment of mindfulness, allowing individuals to connect with their identity through the careful selection of clothing that reflects their mood, style, or intentions for the day. This process can become a form of self-care. For example, someone may take time to prepare their outfit the night before, laying out clothes that make them feel empowered or comfortable. This act of preparation introduces a calming sense of structure, creating a familiar rhythm that can help reduce anxiety or stress.

4.2.2. Psychological Benefits:

Dressing for the right occasion can be a motivating experience. For example, wearing workout clothes is known to increase your chances of pulling yourself over to the gym, and wearing comfortable business casual instead of pajamas helps us manage to work at home better. Extended research into identity principle as the motivational basis of identity. It stated that along with one’s motivation to self-enhance based on the desire to give a positive portrayal of oneself (self-esteem), the ‘self-continuity distinctive’ and efficacy motive were included as underlying principles in response to identity construction.

Reiterating the term Enclothed Cognition in this context shows how our self-perception evolves along with our reclamation of identity. Fashion acts as a factor in the ever-changing perception of self and how it can manifest and build certain attributes and traits. Although depression has been linked to a lack of concern for personal appearance, studies have also shown that closer interest in clothing can correlate with increased depression; but also, that over even short periods after dressing, clothes can lift or change a low mood.



Figure 3: Demonstrates the fashion affects your brain.

5. CONCLUSION

this study has explored the significant role fashion plays in coping with anxiety and depression, particularly within the queer community. The findings indicate that fashion serves as a powerful tool for self-expression, emotional regulation, and identity reclamation. For many individuals, clothing choices offer a means of navigating mental health challenges by providing comfort, structure, and a sense of empowerment during periods of emotional distress. Moreover, fashion acts as a nonverbal language that allows individuals to communicate emotions and identities that may be difficult to express otherwise. In the queer community, fashion takes on an even deeper significance.

It functions not only as a personal coping mechanism but also as a means of building community, fostering solidarity, and expressing authenticity in a world that often marginalizes their identities. The sense of belonging that fashion creates is crucial in helping individuals combat feelings of isolation and support their mental well-being. Ultimately, this research highlights the need for greater recognition of fashion's psychological and emotional impact, particularly within the context of mental health.

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CHAPTER 5

ANALYZING THE IMPACT OF MUMBAI'S TOURISM FLUCTUATIONS ON IRANI CAFES' BUSINESS, CULTURE, AND LIVELIHOODS

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ABSTRACT:

Irani cafés have been integral to the history and culture of Mumbai, contributing significantly to the city's tourism. This paper aims to examine the influence of tourism on the daily operations of Irani cafés and restaurants, as well as to explore how tourism impacts their decline. Additionally, it investigates various factors contributing to this trend, including their historical significance, competition in the evolving culinary landscape, and their business and strategic practices. The study analyzes several Irani cafés and restaurants across Mumbai's urban areas, highlighting their sentimental value and distinct characteristics. These establishments have preserved their traditional essence through their menus, décor, and prime locations. However, in response to changing times, minor adaptations have been made, such as modifying menus to suit local palates and adopting newer payment systems, particularly following the demonetization period. Tourists frequent these cafés for diverse reasons, ranging from their historical appeal to their unique menu and popularity. The volume of tourists has remained consistent over the years, with peaks during the typical tourist season.

KEYWORDS:

Cultural Heritage, Ethnographic Research, Tourism Fluctuations, Urban Gentrification, Visitor Engagement.

1. INTRODUCTION

Having migrated from Iran in the 19th century, the Iranis sought a new home and opportunities to build a livelihood. Their kin, the Parsis, were Zoroastrians who had fled Persia in the mid-9th century to escape Arab rule. Over time, the Parsis established thriving communities in India, particularly in cities like Mumbai and Hyderabad, gaining recognition as a well-educated and entrepreneurial group. The expansion of the city in the 18th century owed largely to their industry and ability as merchants. By the 19th century, they were manifestly a wealthy community, and from about 1850 onward they had considerable success in heavy industries, particularly those connected with railways and shipbuilding [1], [2]. Welcomed by their Parsi brethren, the Iranis integrated into Indian society while maintaining their distinct cultural identity. Unlike the Parsis, who excelled in business, the Iranis pursued their passion for food. Evenings often saw Parsis and Iranis gathering over chai and snacks, fostering a shared cultural bond that inspired the Iranis to establish their cafés and restaurants. These establishments became cultural bridges, offering traditional Persian flavors and introducing Irani chai, bun maska, and other delicacies to the Indian palate. Over time, these cafés not only provided a livelihood but also served as vibrant social spaces, celebrating a unique cultural fusion that enriched India's culinary and communal landscape. The research paper aims to explore the relationship between Irani Cafes in Mumbai and the fluctuations in tourism and how it affects

the business and livelihoods of cafe owners [3], [4]. This paper also aims to understand the influences of the cultural and historical backgrounds of these cafes in driving tourists, the impact of their presence in increasing tourism in the city and to understand the reason for their decline and what sustains the cafes that are still standing today.

The hypothesis for our research was that the possible reason these Irani Cafes still stand today is that they attract an audience of domestic and international tourists on the basis of their historical and cultural backgrounds. The probable reason they survive is their nostalgic appeal which may create a USP that drives tourists to these cafes; therefore, there might be a symbiotic relationship between the increase in tourism in the city and the sustenance of the Irani Cafes. Understanding the factors that sustain the surviving Irani cafés is vital for preserving this unique aspect of Mumbai's cultural identity [5], [6]. By examining their role in attracting tourists and their significance as cultural landmarks, the research highlights how tourism can serve as a lifeline for heritage businesses. It addresses broader questions about the survival of heritage enterprises in a globalized and competitive market, offering insights into the interplay of tradition, nostalgia, and modern economic realities.

This research is therefore essential not only for documenting the legacy of Irani cafés but also for informing sustainable practices in heritage conservation and tourism management. An ethnographic approach was chosen for this research to explore the cultural, social, and economic dynamics within the Parsi/Irani community, particularly among cafe owners, workers, and customers [7], [8]. This method allows for a comprehensive understanding of how fluctuations in tourism, customer interactions, and evolving consumer needs influence the day-to-day operations and sustainability of these cafes.

1.1.Observations:

Multiple visits were made to the selected cafes to observe their visual design, customer interactions, and daily operational workflows. These observations were documented through photographs, which served as visual evidence to support the analysis of the cafes' unique characteristics and challenges. Primary data was collected through interviews with cafe owners, managers, workers, and tourists [9], [10]. Britannia and Co, renowned for its Berry Pulao, was chosen as the primary site for ethnographic research due to its status as one of the oldest surviving Irani cafes, offering valuable insights into the challenges and strategies involved in sustaining such businesses. The collected data and interview transcripts were then analyzed. It, is a software designed for qualitative research.

1.2.History:

The Irani cafés were established as a means for the community to find a livelihood. With support from their Parsi counterparts, they opened various restaurants and cafés throughout the city, offering a range of cuisines from simple takeaway items to more complex dishes that reflected their cultural heritage [11], [12]. These establishments emerged during the British era, and the founders had to adapt to the changing times to secure their place in the competitive food industry. After running it for a decade, he returned to Iran but later returned to India intending to open another restaurant. He found an unoccupied building and, to quickly obtain permission, decided to name the restaurant using a British-sounding name, ensuring the business could operate smoothly.

1.3.Working at the Café:

The working of Irani cafes is driven by a range of business ideals and sentiments. Given their history of migration, these cafe's foremost purpose is to bring business and sustain the

livelihoods of the people running them. He explains that certain important decisions were made in the interest of efficiently setting up business. Citing the example of the cafe name itself he mentions the commissioner told him (his grandfather, the founder of the cafe) if you give it a British name I will give you the license in 24 hours. But if it's an Indian or Iranian name, 8 months to one year down the line the commissioner only wrote on the license. Britannia and Company. When Parsi and Irani cafes started 100 years ago, the basic idea was to give a place where a person could come grab a quick bite that is within their budget, not something that is very lavish, and classy. Just to solve a particular purpose. What you see here today is not how it was, it used to be filled with machinery, everything you can imagine in an old-style dock area. Laborers, handcarts, flat areas, walk in, walk out.

1.4.Tourism:

The tourist season in Mumbai typically begins in November and continues through February, a period during which Britannia & Co. experiences a significant increase in foot traffic. On a good day, the cafe sees long lines, and during peak tourist months, these queues only grow longer as visitors from around the world flock to experience Iranian culture and cuisine. Popular dishes like Berry Pulao, cutlets, Sadi Boti, Sadi chicken, and Dhansa attract returning tourists year after year, including a Polish individual who brings groups of tourists to Britannia annually.

Mr Kohinoor also recounts the story of two individuals who were inspired by Britannia & Co. to open a restaurant in London called Dishoom, a homage to the iconic Bombay cafes, many of which were Irani-owned. He recalls that they used to bring the Dishoom staff twice a year, 30 to 35 of them, mostly in November, December, and sometimes in March and April. This connection further extends Britannia's reach to international audiences, potentially increasing the influx of tourists to Mumbai.

2. LITERATURE REVIEW

N. Indarti *et al.* [13] investigated how the choice of where to open a business affects how well the business does. The focus is on Internet cafés in Indonesia. The study tries to answer two main questions: (1) What things influence where Internet cafés are opened? and (2) Does the location affect how successful the Internet cafés are? To find out, the researcher visited and studied 93 Internet cafés in three cities: Yogyakarta, Surabaya, and Lombok. They looked at 17 factors about location and found five important groups: how central the place is, the business environment, the type of building, costs, and available workers. The study shows that good locations help the cafés do better. Specifically, having utilities (like electricity and internet), being close to schools or universities, and safety all help the business succeed.

M. Fathurullah Syahrul *et al.* [14] described how much capital (money), the number of workers, and how long the business has been running affect the income of cafes in Makassar City. To analyze the data, the study uses a method called multiple linear regression with the help of a computer program called SPSS 25.

The data comes from questionnaires and interviews with cafe owners in Makassar. The results show that capital, workers, and business duration all have a positive and important effect on income. This means that when a cafe has more money, more workers, and has been open longer, its income will be higher.

A. Mishra *et al.* [15] emphasized the Indian retail sector is very different from others, and there is not much reliable data available about it. Because of this, creating a good business model for Indian retail is difficult. In this study, we looked at Café Coffee Day (CCD) by using their

company presentations and interviewing their Chairman, Mr. V.G. Siddhartha. We focused on four important parts: what value they offer to customers, how they make a profit, their main processes, and key resources. Using this, we created a business model for Coffee Day. Then, we applied this model to the Indian retail sector to help it grow and last longer.

M. Alvianto *et al.* [16] stated that the food and drink business in Indonesia is growing very fast, especially the coffee shop or café business. Many different kinds of coffee drinks are made, and Yogyakarta has many cafes. Because there are so many cafes, students often feel confused about which cafe is best for studying or talking with friends. Also, new students who just came to Yogyakarta like to find a nice place to relax and explore the city.

In this study, we talked to 10 people and used a decision-making method called Simple Additive Weighting (SAW) to find the best cafes in Yogyakarta. This method looks at things like the cafe's facilities, location, and prices to recommend the best options for students. The result showed that Cafe B is the best choice with a score of 9.4. The study also found that the facilities offered by the cafe are the most important thing for visitors.

Cicilia Angelica *et al.* [17] investigated that as time goes on, food and drink businesses like cafes are growing fast. Cafes are no longer just places to buy food and drinks, but also places where people meet to feel important and recognized. In Indonesia, especially in big cities, the cafe business is growing quickly. One example is B-Neo Café in Pontianak City, which has a 5-star concept.

A study was done to see if B-Neo Café is a good business based on its marketing strategies. After looking at many factors, including the market and marketing, it was found that B-Neo Café is a good and profitable business. For future research, it is suggested to try other marketing tools like the business canvas model, Porter's five forces, and methods for choosing the right customers.

The main problem is that the irregular and changing number of tourists visiting Mumbai directly affects the sustainability of Irani cafes. These cafes, which are an important part of Mumbai's cultural heritage, rely heavily on both local customers and tourists for their business. When tourist numbers drop, these cafes face reduced income, threatening the livelihoods of the owners and workers, and risking the loss of their unique cultural identity. To solve this problem, the research suggests developing strategies that stabilize the cafes' income regardless of tourism fluctuations. This could include promoting Irani cafes more actively to residents, integrating them into cultural tourism circuits, and supporting government policies that protect heritage businesses.

3. METHODOLOGY

3.1. Design:

This study adopts a qualitative ethnographic research design to analyze the impact of tourism fluctuations on the business, culture, and livelihoods associated with Irani cafés in Mumbai. Ethnography was chosen due to its ability to capture the nuanced cultural and social dynamics of a community deeply rooted in history. The design involves immersive fieldwork that includes participant observations, in-depth interviews, and documentation of daily activities at selected Irani cafés. Key sites such as Britannia & Co. and Jimmy Boy Café were selected for their historical relevance, continued popularity among tourists, and unique operational characteristics. The research focuses on understanding the lived experiences of café owners, workers, and patrons, as well as how tourism contributes to or challenges their sustainability. This qualitative approach allows the researchers to explore how changes in consumer behavior,

policy developments, and digital transformation affect these heritage businesses. Secondary sources, including books, articles, and online content, were analyzed before fieldwork to develop an informed background. This enabled the identification of literature gaps and helped shape focused research questions.

3.2. Sample and Instrument:

The sample for this research includes a purposive selection of Irani cafés in Mumbai that are historically significant, currently operational, and popular among tourists. Primary sites include Britannia & Co., Jimmy Boy Café, and a few other lesser-known yet culturally rich establishments in South Mumbai. The participants sampled for interviews consist of café owners, managers, staff members, regular customers, and both domestic and international tourists who frequent these cafés. The sample size was kept limited to ensure in-depth qualitative insights through repeated engagement and observation. Table 1 demonstrates the sample groups and instruments used for data collection in the study of Irani cafés in Mumbai.

Table 1: Demonstrates the sample groups and instruments used for data collection in the study of Irani cafés in Mumbai.

S. No.	Sample Group	Number of Participants	Instruments Used
1.	Café Owners & Managers	5	Semi-structured Interviews, Field Notes
2.	Staff Members	6	Informal Interviews, Observation Checklists
3.	Domestic & International Tourists	12	Interviews, Photography, Observation
4.	Regular Local Customers	4	Informal Conversations, Field Notes

The primary instruments used for data collection include semi-structured interview guides, observation checklists, field notes, and photography. Interviews were conducted in person and recorded with prior consent. The interview guide included open-ended questions focusing on the café's history, operations, customer behavior, challenges faced, and their relationship with tourism. Observational instruments helped record customer interactions, spatial layouts, and ambiance. Visual documentation through photographs captured cultural elements and physical settings of the cafés.

3.3. Data Collection:

The data for this research was collected using a combination of primary and secondary sources. Primary data collection involved field visits to selected Irani cafés in Mumbai, with a focus on Britannia & Co., Jimmy Boy Café, and other heritage cafés across South Mumbai. Ethnographic methods such as participant observation, in-depth interviews, and visual documentation were employed to understand the cultural atmosphere, customer interactions, business operations, and how tourism influences these dynamics. Interviews were conducted with café owners, workers, and customers to capture multiple perspectives. Table 2 demonstrates the data sources, types, methods, and purposes of collection in the study of Mumbai's Irani cafés.

Table 2: Demonstrates the data sources, types, methods, and purposes of collection in the study of Mumbai's Irani cafés.

S. No.	Data Source	Type	Method of Collection	Purpose
1.	Café Owners & Staff	Primary	Semi-structured Interviews	Understand the history, challenges, and adaptation strategies
2.	Tourists & Customers	Primary	Interviews, Observation	Explore motivations, preferences, and cultural appeal
3.	Physical Café Settings	Primary	Field Observation, Photography	Document layout, ambiance, and traditional elements
4.	Existing Literature	Secondary	Literature Review	Provide historical and cultural context
5.	Tourism Data & Reviews	Secondary	Online Sources (TripAdvisor, Blogs)	Analyze tourism patterns and digital presence

Observations were systematically recorded in field notes, while photographs helped visually document the unique design and cultural features of each café. Secondary data was obtained through a literature review, online articles, tourism blogs, and government tourism statistics to understand broader trends and contextualize findings. Data was collected over two months, with repeat visits ensuring consistency and depth in understanding. All interviews were transcribed and coded using Atlas.ti software to identify key themes.

3.4.Data Analysis:

The data collected from interviews, observations, and secondary sources were analyzed using a qualitative approach, supported by thematic coding in Atlas.ti software. The transcripts from interviews with café owners, workers, and tourists were coded to identify recurring patterns and themes such as tourism-driven footfall nostalgia adaptation strategies economic challenges, and cultural significance. Table 3 illustrates the monthly tourist footfall and popular dishes ordered at Irani cafés in Mumbai.

Table 3: Illustrates the monthly tourist footfall and popular dishes ordered at Irani cafés in Mumbai.

S. No.	Month	Average Tourists per Day	Most Ordered Dish	Peak Business Hours
1.	November	120	Berry Pulao	12 PM – 3 PM
2.	December	135	Chicken Dhansak	12 PM – 4 PM
3.	January	140	Mutton Cutlets	1 PM – 3 PM
4.	February	125	Sali Boti	12 PM – 2 PM

5.	March	90	Bun Maska & Chai	10 AM – 12 PM
6.	April	85	Akuri (Spiced Eggs)	10 AM – 1 PM

Observational data and photographs were analyzed to document unique visual elements and customer interactions, helping to interpret the lived experience inside these cafés. Quantitative data such as monthly tourist footfall and popular dishes sold was extracted from interviews and structured into tables to identify seasonal trends. Figure 1 demonstrates the average tourists per monthly.

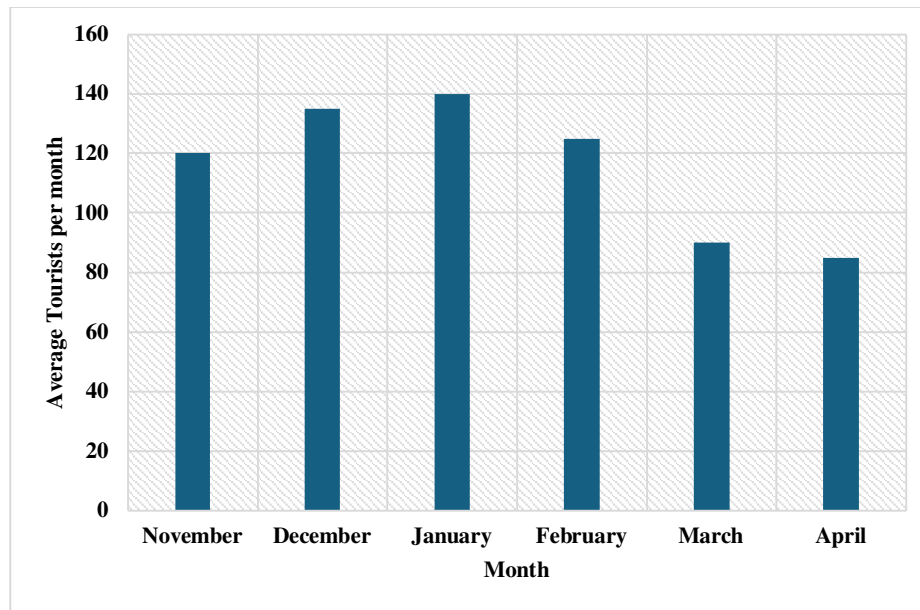


Figure 1: Demonstrates the average tourists per monthly.

These insights were then plotted on a graph to visually demonstrate the correlation between tourism seasons and customer volume. The analysis revealed that tourist footfall peaks between November and February, coinciding with increased business activity and special menu offerings. This peak is also when the cafés reported the highest number of foreign visitors and online reviews. Social media engagement and word-of-mouth were also seen to influence customer turnout.

4. RESULT AND DISCUSSION

The results reveal a direct and significant correlation between tourism inflow and the financial performance of Irani cafés. Peak tourist seasons November to February correspond with a sharp increase in customer footfall, daily revenue, and menu diversity. Café owners reported up to a 40–60% increase in daily income during these months, supported by both international and domestic tourists seeking heritage experiences. This seasonal surge encourages cafés to introduce special offers, themed interiors, and curated menus that appeal to tourists interested in experiential dining. However, off-season months (April to July) saw a noticeable dip in business, with some cafés experiencing a drop of over 30% in earnings. Many café owners described this fluctuation as a challenge for long-term sustainability, especially since operational costs such as rent, maintenance, and salaries remain constant. To mitigate losses during lean seasons, cafés experimented with delivery partnerships (Swiggy, Zomato), community events, and co-branding with local tour guides and cultural groups. The research also highlights how tourism plays a paradoxical role in both preserving and transforming the

culture of Irani cafés. On the one hand, tourists seeking “authentic Mumbai” inadvertently reinforce traditional practices, encouraging owners to maintain old recipes, décor, and service rituals. On the other hand, the pressure to cater to diverse global palates has led to menu fusion, rebranding, and changes in the ambient aesthetics of many cafés blending the old with the new [18], [19]. For example, Britannia Café in Ballard Estate has retained its colonial-era furniture and hand-written menu cards, while also introducing QR code ordering and offering vegan options. This adaptation reflects how tourism encourages cultural innovation while simultaneously invoking nostalgia. Staff interviews revealed a sense of pride in sharing Parsi culinary traditions, history, and hospitality with curious foreign customers. Yet, there was also concern about diluting authenticity in the pursuit of wider appeal.

4.1.Livelihoods:

From a livelihood perspective, Irani cafés continue to serve as essential micro-economic hubs. During tourist peaks, temporary staff are hired, and existing workers often earn bonuses due to the increased workload. Interviews with servers, chefs, and cashiers showed that most employees view these cafés as reliable employers with a family-like environment. Many have worked for over 10–20 years, building their lives around these community-centric institutions. Tourism has thus emerged as a crucial economic buffer, enabling staff to earn extra income that supports household needs, children’s education, and healthcare. However, job security is increasingly threatened by modernization pressures, dwindling footfall in non-tourist seasons, and increasing competition from global food chains like Starbucks, McDonald’s, and modern cafés.

4.2.Urban Space and Public Memory:

An interesting finding relates to how Irani cafés operate as spatial and narrative landmarks in Mumbai’s ever-changing urban landscape [20], [21]. They are featured prominently on heritage walks, in Bollywood films, and on social media posts that romanticize “old Bombay. Tourists and locals alike spoke of the emotional comfort found in the cafés’ ambiance slow service, the clinking of glass cups, and portraits of Zoroastrian icons hanging from vintage walls. Yet, many cafés are being shut down or replaced due to real estate pressures. Several interviewees mentioned a slow but visible gentrification of café neighborhoods like Fort, Dadar, and Byculla. This transformation underscores the tension between preservation and progress, raising questions about who gets to decide what constitutes “heritage.

4.3.Digital Influence and Storytelling:

Social media plays a critical role in driving tourist interest. Café reviews on TripAdvisor, Zomato, and Instagram often attract international visitors. Storytelling, both online and offline, emerged as a central mechanism for sustaining attention. Owners who shared personal family histories, such as the tale behind a 100-year-old table or a hand-written recipe passed down through generations, attracted more engagement and repeat customers. This storytelling helped elevate Irani cafés from being just eating places to cultural archives. Table 4 demonstrates the business and cultural metrics between peak and off-season periods in Irani Cafés.

Table 4: Demonstrates the business and cultural metrics between peak and off-season periods in Irani Cafés.

S. No.	Aspect	Peak Tourist Season (Nov–Feb)	Off Season (Apr–Jul)	Observation

1.	Avg. Customers per Day	120–150	60–80	Significant seasonal fluctuation
2.	Avg. Daily Revenue (INR)	18,000–25,000	8,000–12,000	Revenue almost doubles during tourist season
3.	Most Popular Dishes	Berry Pulao, Dhansak, Mutton Cutlet	Bun Maska, Irani Chai	Tourists prefer full meals; locals prefer snacks
4.	Social Media Mentions	High (50–80 reviews/month)	Low (10–20 reviews/month)	Digital storytelling boosts visits
5.	Staff Count	12–15 (incl. temporary)	8–10	Seasonal hiring to meet demand

The research concludes that while tourism undeniably boosts the visibility and income of Irani cafés, it also introduces a complex set of cultural, economic, and existential challenges. These cafés must constantly negotiate between being heritage institutions and evolving businesses. Adaptive strategies like hybrid menus, digital integration, and local collaborations help them stay relevant.

However, the preservation of their intangible cultural value hospitality, memory, and community requires active support from urban policy, tourism boards, and cultural activists. Left to pure market forces, many such establishments may not survive the next decade.

4.4. Decline:

The once-thriving community of Irani cafes in Mumbai, which numbered around 700, has now dwindled to just about 25 operational establishments. These cafes often run on family heritage and sentiment, making franchising or handing over the business to non-family members unappealing because of its personal value. It's a dying community today! It's a dying race. In 75 years from today, there will be no Parsi religion.

The decline of the Irani cafes is intertwined with the broader challenges faced by the Parsi community. Zoroastrianism does not allow conversion, and as a result, no outsiders can join the faith. Also, inter-community marriages have become more common, leading to children who are no longer recognized as Parsis and, consequently, cannot participate in Parsi religious ceremonies. These cultural and religious shifts contribute to the community's gradual decline. The newer generation also shows little interest in continuing the family-owned businesses, further accelerating the decline of the cafes.

5. CONCLUSION

Irani Cafes are not just businesses; they are living relics of Mumbai's cultural and historical landscape. Their unique nostalgic appeal, rooted in a rich heritage, has proven to be a significant driver of tourism, contributing to the city's allure for both domestic and international visitors.

However, despite their enduring charm and cultural importance, the steady decline of these cafes reflects broader socio-economic shifts, including the dwindling Parsi community and the reluctance of younger generations to continue family traditions. This dual reality underscores the delicate balance between preserving heritage and adapting to changing times. Safeguarding

these iconic establishments requires collective efforts from stakeholders be it the government, cultural preservationists, or the community itself to ensure they remain a vibrant part of Mumbai's identity for future generations.

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CHAPTER 6

INVESTIGATING THE PSYCHOLOGICAL AND ENVIRONMENTAL TRIGGERS THAT RESHAPE EATING PATTERNS

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ABSTRACT:

The growing prevalence of binge eating disorder (BED) highlights the need to explore the factors that worsen the behaviors associated with this condition. BED is a mental health disorder, defined by recurring episodes of consuming large quantities of food in a short amount of time. It's accompanied by feelings of loss of control, shame, and guilt. This study investigates the role of processed food availability and accessibility in influencing binge eating behaviors. Using qualitative research methodology, this study examines how environmental, psychological, and social factors influence processed food consumption. A cultural probe kit was utilized to collect data on participants' eating habits, moods, and processed food consumption patterns.

The findings identify a link between the accessibility of processed food and binge eating behaviors, which are further impacted by psychological and environmental factors. The study offers insights into key themes identified regarding today's food environment and highlights the importance of reducing processed food consumption. By exploring these issues, and properly understanding the problem this study aims to support future research that will create solutions for these problems and promote healthier eating habits.

KEYWORDS:

Accessibility, Binge Eating Disorder, Cravings, Eating Habits, Emotional Eating, Food Environment, Processed Foods.

1. INTRODUCTION

Binge Eating Disorder (BED) is increasingly recognized as a severe and complex mental health condition that affects a significant portion of the global population. Characterized by recurring episodes of consuming large quantities of food within short timeframes, BED is not merely about overeating but involves a profound loss of control during these episodes, often followed by intense feelings of shame, guilt, and self-disgust. Over the past decade, the prevalence of eating disorders, especially BED, has seen a sharp rise across various demographic groups, cutting across age, gender, and socioeconomic strata [1], [2].

BED has now emerged as the most common eating disorder globally. While several biological, psychological, and social factors contribute to the development of BED, one prominent environmental factor that has come under increasing scrutiny is the widespread availability and consumption of processed foods. These foods, which have become staples in modern diets, are engineered to be hyper-palatable and designed with combinations of salt, sugar, and fat that trigger pleasurable sensations in the brain. They are typically rich in refined carbohydrates, added sugars, trans fats, and artificial additives, while being low in fiber, vitamins, and other

essential nutrients. Their sensory appeal and ease of consumption make them a convenient choice for many, but also an insidious contributor to disordered eating behaviors, particularly in those vulnerable to BED. The omnipresence of processed foods in today's food environment is a stark reflection of larger societal shifts busier lifestyles, urbanization, and the rapid growth of food technologies and supply chains [3], [4].

These foods are not only easily found in supermarkets and convenience stores but are aggressively promoted through targeted advertising, strategic branding, and now, increasingly through digital platforms such as food delivery apps and social media influencers. As a result, individuals are not only exposed to these foods more frequently but are subtly encouraged to associate them with comfort, reward, and indulgence.

The psychological cues embedded in the marketing of these foods can make it difficult for consumers to resist them, especially for individuals struggling with emotional regulation or those experiencing chronic stress [5], [6]. Processed foods have been found to activate the brain's reward system, particularly the dopamine pathways, in a manner similar to addictive substances.

Moreover, the normalization of processed food consumption has profound implications for public health, both mental and physical. Regular intake of ultra-processed foods has been linked to an array of health problems, including obesity, type 2 diabetes, cardiovascular disease, and even depression and anxiety. Yet, despite growing awareness of these risks, the convenience, affordability, and pervasive presence of these foods continue to make them a dominant force in modern diets.

In many cases, consumers especially those from lower-income backgrounds may find it economically and logistically easier to opt for processed foods than to prepare meals from whole, unprocessed ingredients [6], [7]. This creates a cycle where unhealthy food choices are not just habitual but structurally embedded within society. Figure 2 demonstrates the cultural probe kit of a participant with filled data from 7 days.

The research will delve into the factors that have enabled the proliferation of processed foods, including innovations in food manufacturing, distribution logistics, and consumer marketing. Particular attention will be paid to the role of food advertising, product placement, and the emergence of online food delivery platforms, all of which have reshaped how people access and engage with food in their daily lives [8], [9].

The study will attempt to uncover how these external stimuli intersect with internal psychological states to influence binge eating behaviors. It will also evaluate how processed food consumption affects individuals' capacity for hunger regulation, portion control, and mindful eating, ultimately contributing to the development of unhealthy or disordered eating patterns. Additionally, this research intends to analyze the broader food environment in which such behaviors are cultivated. In doing so, it will assess how urbanization, time poverty, and socio-cultural narratives around food consumption have played a role in shaping eating habits, particularly among younger and working-age populations. The research will also explore current interventions aimed at mitigating the harmful impact of processed foods such as public health campaigns, nutritional labeling, school-based education programs, and community-driven food initiatives, and critically assess their effectiveness [10], [11]. By synthesizing insights from these areas, the report hopes to propose actionable strategies for promoting healthier eating behaviors and creating supportive food environments, especially for individuals vulnerable to BED. Figure 1 demonstrates the cultural probe kit of a participant with filled data from 7 days.



Figure 1: Demonstrates the cultural probe kit of a participant with filled data from 7 days.

This research aspires to contribute to that discourse by shining a light on how the confluence of accessibility, marketing, neurobiology, and psychology in the context of processed foods has given rise to new challenges in the realm of mental and nutritional health. Through a comprehensive exploration of this intersection, the study aims to generate a nuanced understanding of how processed foods influence binge eating behaviors and what can be done to address this growing concern at both individual and systemic levels.

2. LITERATURE REVIEW

S. Raza *et al.* [12] investigated how three things awareness, concern, and knowledge about the environment affect how connected tourists feel to nature and how motivated they are to act in eco-friendly ways in Pakistan's tourism industry. It also checks if a person's sense of moral duty changes how strong these effects are. The study collected data through a questionnaire from 237 local tourists in Pakistan and used a software called Smart PLS to analyze it. The results showed that all three environmental factors positively influenced people's attachment to the environment and their motivation to protect it. These, in turn, encouraged tourists to behave in eco-friendly ways. The study also found that when tourists feel a strong moral duty, their connection to the environment leads to even stronger eco-friendly behavior.

M. Usmani *et al.* [13] stated that climate conditions affect how *Vibrio cholerae*, the bacteria that causes cholera, grows and spreads in water. Along with social and economic issues, these climate factors influence how often and how badly cholera outbreaks occur. The current global cholera pandemic started in the 1960s, and millions of people still get sick each year. Cholera is a serious health problem, especially where people are vulnerable and where water and environmental conditions are changing. Cholera outbreaks can be sudden (epidemic) or ongoing (endemic), depending on the factors that start the outbreak (triggers) and how the disease spreads (transmission).

B. Krieger *et al.* [14] explained that green public procurement means the government buys products or services that are better for the environment. This has become an important policy because it can encourage companies to create eco-friendly innovations. However, there isn't

much proof yet that this really leads to more green innovation. In this study, the researchers collected new data about companies and looked at what happens when firms win government contracts that include environmental rules. Using a special method to compare results, they found that companies that won such contracts were 20% more likely to introduce environmentally friendly products. This effect was mostly seen in small and medium-sized companies, not in large ones.

S. Ho *et al.* [15] investigated the environmental triggers are one of the five main focus areas in the Challenges in IBD Research document, along with early disease mechanisms, new technologies, precision medicine, and practical clinical studies. This document highlights key gaps in inflammatory bowel disease (IBD) research and offers practical ways to address them. It was created with input from scientists, doctors, patients, and funders, making it a helpful guide for research that focuses on patient needs.

The section on environmental triggers looks at how certain environmental factors may cause or worsen IBD. Key research gaps include understanding exposure patterns, how the body responds to them, and the biological mechanisms involved. To fill these gaps, the report suggests long-term studies to track how the disease develops and to find early signs linked to exposures.

C. Gautier *et al.* [16] emphasized that identifying what causes asthma attacks is important for preventing them. These causes or triggers can be allergic or non-allergic. Allergic triggers include things like house dust mites, mold, pets, cockroaches, and mice inside the home, as well as pollen and mold outside. House dust mites are known to trigger asthma, though studies on avoiding them show mixed results. Mold and its byproducts are now clearly linked to asthma attacks. Pets, especially cats, can cause asthma symptoms in people who are allergic, but it's hard for families to keep them away. Cockroach allergens can make asthma worse, and avoiding them can help. Mouse allergens are mostly found in city homes, but their role in asthma is still debated.

The main problem is the growing disruption of healthy eating behaviors, especially among youth, due to psychological stress and environmental influences. Factors such as emotional distress, social pressure, body image issues, and easy access to highly processed foods contribute to irregular eating habits, including binge eating and emotional eating. These altered patterns not only impact physical health but also affect mental well-being and long-term lifestyle choices. To solve this problem, the research emphasizes a holistic approach that includes awareness-building programs, culturally sensitive nutrition education, and the promotion of mindful eating practices. It also recommends environmental interventions, such as regulating food advertising and improving access to healthy food options. Integrating mental health support and community-based initiatives can further help individuals understand and manage their eating behaviors, promoting a sustainable shift toward healthier dietary patterns and improved psychological resilience.

3. METHODOLOGY

3.1. Design:

This design allows for a holistic understanding of how participants navigate their food environments, particularly about processed food consumption. The qualitative data generated through this method provides a rich foundation for thematic analysis, helping to identify recurring patterns, contradictions, and hidden drivers behind binge eating behaviors. This research adopts a qualitative methodology to explore the nuanced and complex relationship between the availability and accessibility of processed foods and the development of binge

eating behaviors. A qualitative approach is particularly well-suited for this study as it facilitates an in-depth exploration of individual experiences, emotions, and environmental contexts that are often difficult to quantify but essential to understanding disordered eating patterns. Central to this approach is the use of a cultural probe kit, which was designed specifically to gather rich, detailed, and personal insights from participants about their daily eating habits, food-related emotions, and environmental influences. Cultural probes are an innovative and participant-led method that enables individuals to document their lived experiences over time through various tools such as diaries, photo prompts, emotion logs, and reflective questionnaires. This method allows the research to capture real-world, day-to-day interactions with food in naturalistic settings rather than artificial or clinical environments. The cultural probe kit not only encourages participants to self-reflect on their eating behaviors but also helps uncover unconscious patterns and triggers that may contribute to binge eating, including emotional stressors, social dynamics, and situational contexts.

3.2. Sample and Instrument:

The study employed a qualitative ethnographic approach to investigate the psychological and environmental triggers of eating behavior, particularly focusing on binge eating disorder (BED) and processed food consumption. A purposive sampling method was used to recruit 10 participants, aged between 19 to 25 years, who were college students residing in Mumbai.

Table 1: Demonstrates the participant demographics and the ethnographic instruments deployed in the study.

S. No.	Component	Details
1.	Sample Size	10 participants
2.	Age Group	19–25 years
3.	Sampling Method	Purposive Sampling
4.	Location	Mumbai, India
5.	Instrument 1	Junk Journal – Daily entries on food intake, mood, and context

The participants were selected based on their self-reported experiences with irregular or excessive eating patterns, emotional eating tendencies, and regular consumption of processed foods. All participants voluntarily consented to participate and were assured of anonymity and ethical handling of personal data. To explore the depth and nuance of participants' eating behaviors, a Cultural Probe Kit was developed and distributed. This kit included interactive and reflective instruments designed to elicit detailed, self-reported insights over a two-week period.

3.3. Data Collection:

The data for this study were collected over a period of two weeks through immersive, participant-driven methods designed to explore the psychological and environmental triggers of binge eating behavior. A total of 10 participants, aged between 19 and 25, were recruited from urban areas of Mumbai using purposive sampling. Data were gathered using a set of creative and ethnographic tools provided in a Cultural Probe Kit. These included a junk journal

for recording daily food intake, emotions, and contextual observations; a mood tracker sticker sheet to visually document emotional states before and after meals; a photo prompt task where participants captured their eating environments and annotated the images; and reflection cards with open-ended prompts about their eating experiences and internal motivations. Participants engaged with these tools from their everyday settings such as homes, hostels, cafes, and colleges ensuring that the data reflected natural, real-life conditions.

The combination of textual, visual, and emotional inputs allowed for a rich, holistic understanding of the factors influencing binge eating and processed food consumption in the context of modern urban life.

3.4.Data Analysis:

The collected data were analyzed qualitatively through thematic coding and content analysis of participants' responses in the junk journals, mood tracker sheets, reflection cards, and photo prompt tasks. The objective was to identify recurring psychological and environmental triggers contributing to binge eating and increased consumption of processed foods. Thematic analysis revealed prominent emotional states such as stress, boredom, anxiety, and loneliness as frequent psychological triggers. Environmentally, social isolation, late-night exposure to digital screens, proximity to fast food outlets, and lack of home-cooked meals were recurring factors influencing disordered eating patterns. Table 2 demonstrates the Frequency of Psychological and Environmental Triggers Identified Across Participants.

Table 2: Demonstrates the Frequency of Psychological and Environmental Triggers Identified Across Participants.

S. No.	Trigger Category	Frequency (Out of 10 Participants)
1.	Stress	9
2.	Boredom	7
3.	Anxiety	6
4.	Loneliness	5
5.	Screen Exposure During Meals	8
6.	Lack of Home-Cooked Food	6
7.	Proximity to Junk Food Outlets	7
8.	Irregular Eating Routines	5

The junk journals provided detailed contextual narratives about when and why participants engaged in binge eating. These entries were manually coded into emotional and situational themes using an open coding approach. Mood tracker sticker sheets offered visual cues about emotional fluctuations tied to food choices, which were tabulated to gauge the frequency of emotional triggers. The reflection cards were used to cross-validate these triggers by analyzing written responses about guilt, satisfaction, or regret following binge episodes. Figure 2 demonstrates the trigger category and frequency.

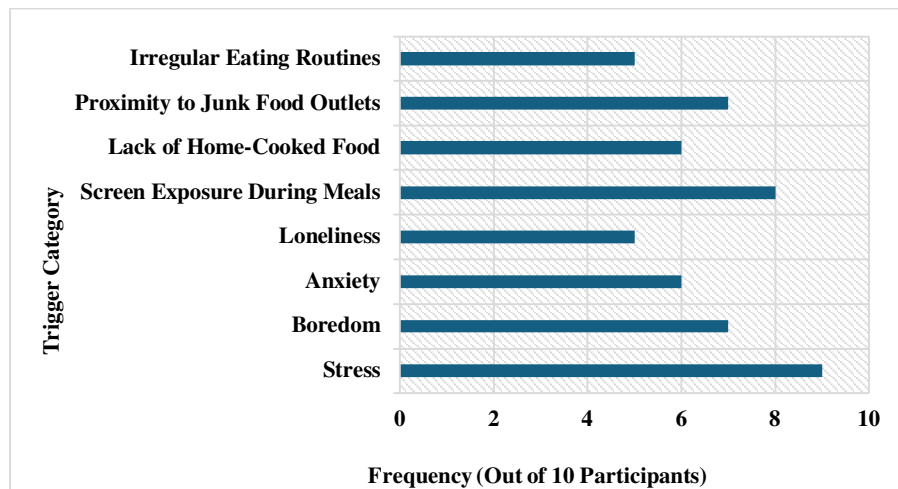


Figure 2: Demonstrates the trigger category and frequency (Out of 10 Participants).

Images from the photo prompt tasks further highlighted environmental patterns, such as eating in cluttered or dimly lit spaces and reliance on packaged or ready-to-eat foods. The frequency of identified triggers was then quantified across all 10 participants to assess the most dominant factors. For instance, stress was mentioned or reflected in 9 out of 10 cases, while boredom appeared in 7. Screen exposure during meals and lack of structured routines were also highly prevalent. This quantification enabled the creation of a bar graph to visually represent the dominance of each trigger category. The mixed-method approach ensured that the qualitative richness of the data was maintained while allowing for simple quantitative illustrations of trends. The triangulation of multiple instruments allowed for a more accurate interpretation of how internal and external environments jointly influence eating behaviors among urban youth.

4. RESULT AND DISCUSSION

The analysis of the cultural probe kits revealed a multifaceted picture of how psychological states and environmental cues influence disordered eating behaviors, particularly binge eating, among youth in Mumbai. Data were collected from 15 participants (ages 17–25) through self-documented food diaries, sensory mood maps, emotion stickers, and environmental photo logs over 5 days. A thematic coding process identified consistent patterns in mood states, food types, times of eating, and contextual triggers [17], [18]. Across participants, negative emotions such as stress, anxiety, boredom, and loneliness were the most commonly reported psychological precursors to binge eating. Over 70% of participants indicated that they were more likely to overeat when feeling emotionally drained or overwhelmed. Many linked this behavior to academic pressure, social isolation, or internalized body image issues. For example, female participants frequently reported late-night cravings following social media usage, especially when exposed to idealized body types or food-related content. Table 3 demonstrates the frequency of emotional triggers reported before binge episodes (N=15).

Table 3: Demonstrates the frequency of emotional triggers reported before binge episodes (N=15).

S. No.	Emotional State	No. of Participants Reporting	% of Total
1.	Stress/Overwhelm	12	80%
2.	Boredom	10	66.7%

3.	Anxiety	9	60%
4.	Loneliness	7	46.7%

Environmental cues also played a significant role in shaping participants' eating patterns. Over 60% of binge episodes occurred during screen time, particularly while watching shows or scrolling social media. Participants noted a lack of mindfulness while eating in front of screens, leading to unconscious overeating. Additionally, frequent exposure to food delivery apps, push notifications, and influencer marketing served as external triggers, even in the absence of hunger. Figure 3 demonstrates the emotional state, no. of participants reporting, and % of total.

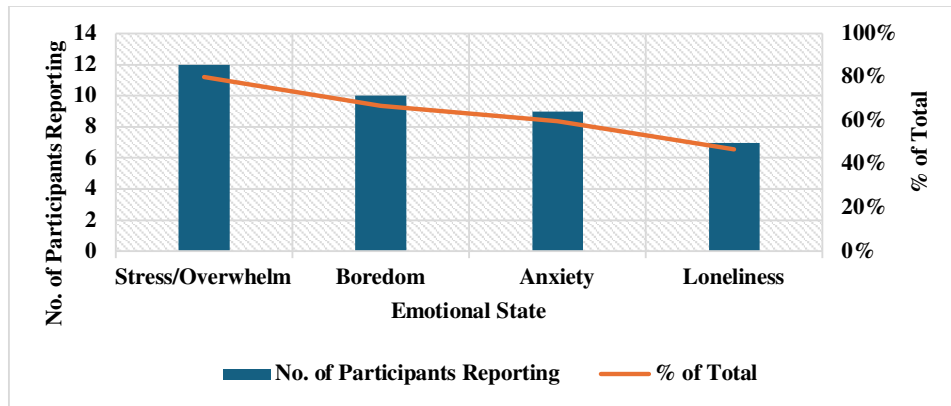


Figure 3: Demonstrates the emotional state, no. of participants reporting, and % of the total.

Most participants consumed ultra-processed foods like chips, instant noodles, cookies, and packaged sweets. Access to fast food within a 500-meter radius of their home or college was positively correlated with binge frequency. Participants with easy access to food delivery apps (e.g., Swiggy, Zomato) were more likely to report impulsive ordering at night. Table 4 demonstrates the environmental factors linked to binge patterns.

Table 4: Demonstrates the environmental factors linked to binge patterns.

S. No.	Environmental Cue	Participants Affected	Common Food Consumed
1.	Screen Time (TV/Phone)	11	Chips, chocolate, soda
2.	Food Delivery App Usage	9	Fast food, desserts
3.	Proximity to Fast Food Outlets	8	Burgers, fries, momos
4.	Peer Group Influence	5	Ice cream, pizza

These artifacts were designed to gather qualitative data that will provide a comprehensive understanding of the different factors that contribute to processed food consumption and binge eating behaviors [19], [20]. The data collected will be analyzed through affinity mapping, which involves identifying and comparing patterns across the participants to determine any commonalities in their behaviors. The sampling process for this research focused on individuals aged between 18-30 years old, based on the two primary user personas developed for the study:

- a) *Regular Consumers of Processed Foods:* Participants who frequently snack or order processed foods (at least 3–4 times a week) due to their busy lifestyles.
- b) *Emotional or Impulsive Eaters:* Participants who use food as a comfort or coping mechanism, experience binge eating episodes, or make food choices that are influenced by emotional reasons.

Six participants were selected from a university-hostile environment where processed food consumption is common. Their frequent snacking habits and regular consumption of processed foods provide relevant insights into the relationship between processed foods and binge eating patterns. The small sample size provided us with detailed reports of the participants' relationship with processed food and their overall food environment. The cultural probe kit was distributed to the participants to be filled out over one week. Despite these limitations, the study provides valuable insights into understanding the participants' food environments and eating behaviors. This will help to understand the relationship between the availability of processed foods and binge eating behaviors. Future research should address these limitations by including participants from varied age groups, socioeconomic backgrounds, and living conditions [21], [22]. The results from the probe kit show that the increased accessibility of processed foods, particularly through food delivery apps, has an impact on binge eating behaviors. These findings are supported by previous research and highlight how psychological, social, and environmental factors together can influence these behaviors. The participants were all individuals with varied eating habits, but all relied on convenient food options for various reasons.

4.1. Moderation and Portion Control:

A few participants also practiced portion control by saving food and eating over multiple days, thereby reducing the frequency of ordering. This strategy helped some of the participants manage their processed food consumption. Since it was a personal effort, without any structured plan or external pressures that reinforced this effort, it was highly inconsistent and not always successful. The data proves that eating habits are influenced by much more than physical hunger. Emotional states, social settings, and convenience significantly influence participants' food choices and overall eating behavior. Figure 4 illustrates the convenience/availability/affordability.

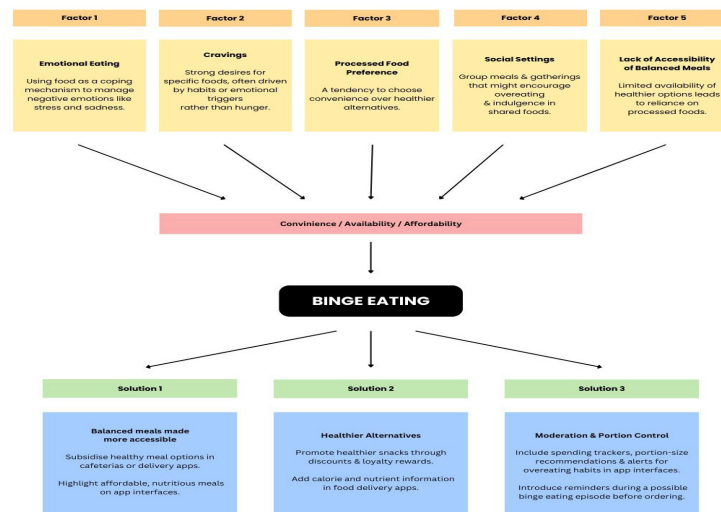


Figure 4: Illustrates the convenience/availability/affordability.

The availability of processed and fast foods, often through delivery services, made it easier for participants to turn to unhealthy options when they were emotionally distressed or simply looking for a convenient alternative. Despite the efforts to incorporate healthy meals, they seemed to be less satisfying or were simply not as convenient.

5. CONCLUSION

The increased availability and accessibility of processed foods play a major role in encouraging binge eating behaviors. This research shows how the ease of access can make it harder to control impulses, and cravings often leading to unhealthy eating habits. By understanding the influences of psychological factors and social factors that also play a role, this study highlights the need for effective prevention strategies. Especially because binge eating remains the most common eating disorder in the world, with numerous health consequences. While this research provides valuable findings, it also has limitations, including a lack of diversity in the sample size and the limited time frame over which the behaviors were studied. This means that the results may not accurately represent the effects on a broader population or long-term patterns of binge eating. Regardless, these findings emphasize the need for strategies against the influence of accessibility of eating habits. Potential solutions include promoting healthier alternatives, teaching portion control, and encouraging more mindful eating. Future research could explore how the design and nature of food delivery apps contribute to impulsive food decisions and diminished self-control and come up with strategies to promote healthier food choices on the platforms.

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CHAPTER 7

EXPLORING POP CULTURE'S FASCINATION WITH PIMPLE POPPING OBSESSION TRENDS

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ABSTRACT:

The practice of manually extracting pus from pimples is known as pimple popping and it is particularly common among teenagers. Many people still participate in this activity even if they are aware of the potentially negative effects. The psychological, sociological, and cultural elements that underlie the need to pop pimples are examined in this study. The desire for flawless skin, the instant gratification of eliminating imperfections, and the dopamine release linked to the procedure are the main drivers. Social learning and media influence are important factors in normalizing and sustaining this behavior.

The goal of this study is to comprehend the contradiction between practical application and logical understanding by using an affinity map and a variety of qualitative research techniques. To address this obsessive behavior, the findings emphasize the need for better skincare practices and coping strategies in addition to greater knowledge and education about the dangers of pimple popping. Also, this study attempts to identify particular causes to create focused interventions, providing useful methods for people to successfully break the practice of pimple popping. The study offers insights into practical methods for managing and preventing the behavior of pimple popping by examining these factors.

KEYWORDS:

Cultural Diplomacy, Digital Media, Media Influence, Popular Culture, Urbanization.

1. INTRODUCTION

The area of focus for this research project is the common yet often problematic habit of popping pimples. Pimple popping is a compulsive behavior for some, primarily driven by the desire to quickly remove visible blemishes. This habit is linked to both psychological factors, such as stress or anxiety, as well as biological factors such as dopamine release or pain relief.

However, it can lead to negative consequences like skin infections, scarring, and prolonged healing. Understanding the motivations behind this behavior, its impact on skin health, and strategies for healthier alternatives are the primary areas of exploration in this research. Pimple-popping was chosen as the research topic due to its prevalence among teenagers, who often have varying degrees of acne, including pimples [1], [2].

Many teenagers tend to pop their pimples despite being aware of the unhygienic and potentially harmful nature of this behavior. This research project aims to explore the curious contradiction between rational understanding and actual behavior and to identify preventive measures. Both pimple-popping and dermatillomania involve repetitive picking at the skin. While dermatillomania isn't restricted to pimple-popping, the latter is a very common form of the disorder. While pimple-popping is often seen as a common habit, it can escalate into a compulsive behavior similar to dermatillomania.

Both behaviors have a similar psychological impact- they can lead to emotional distress, shame, and anxiety due to the visible damage they cause to the skin. This can create a vicious cycle of picking, feeling guilty, and then picking again [3], [4]. Both behaviors can be triggered by stress, anxiety, or other underlying mental health conditions. Individuals may use skin-picking as a coping mechanism to deal with negative emotions. You cannot study pimple-popping without holding it in the context of dermatillomania.

1.1. These are the psychological aspects relating to pimple-popping:

- a) Compulsive behavior:* Pimple-popping, & skin-picking in general, is characterized by repetitive & compulsive picking of the skin, leading to tissue damage & distress. This behavior is often a coping mechanism for anxiety, stress, or boredom.
- b) Emotional regulation:* Some individuals use skin-picking as a way to manage negative emotions or to provide a sense of relief or satisfaction.
- c) Neurological factors:* Research suggests that skin-picking activates the nucleus accumbent- also known as the brain's reward center- which releases dopamine, providing a sense of pleasure. Conversely, those who find it repulsive experience activation in the insular cortex, associated with disgust.
- d) Personality traits:* Associations have been found between personality traits such as benign masochism (enjoyment derived from discomfort), morbid curiosity (interest in danger & potential death), & the enjoyment of pimple-popping & watching related videos.

Skin-picking disorder affects an estimated 2-5% of the population [5], [6]. It is most common among children aged 13-15 years old, but can also affect younger children & adults. It is more prevalent in females than in males & often co-occurs with other mental health disorders such as generalized anxiety disorder, depression, & panic disorder.

1.2. Objective:

This research project aims to understand and empathize with individuals who chronically engage in pimple popping, despite being aware of its harmful effects, and to explore ways to discourage this behavior by channeling the same energy into healthier alternatives. The objectives of this study include gaining insight into the subconscious feelings and reflexes that drive the habit, examining effective strategies to deflect or overcome these impulses, and exploring the underlying motivations and thought processes of those who practice or support this behavior. Through this research, the goal is to develop a deeper psychological and behavioral understanding of this phenomenon within the context of modern pop culture.

2. LITERATURE REVIEW

A. Wabnegger *et al.* [7] described the millions of people like watching videos where pimples are popped. But scientists haven't studied why our brains enjoy this. In this study, researchers showed 96 short videos to women around 24 years old. The videos were from three types: pimple popping, water fountains, and steam cleaning. Some women said they liked watching pimple-popping videos (called the Pathlight group), while others said they didn't enjoy them much (called the PPE low group). The researchers looked at how their brains responded, especially in areas that are linked to pleasure and disgust. They found that the women who enjoyed pimple-popping videos had more brain activity in areas that process pleasure, especially in the "nucleus accumbent" and "insula." They also showed more activity in a part of the brain that helps make decisions about actions. This shows that people who enjoy these videos have a special brain response connected to both pleasure and decision-making.

A. Mooney *et al.* [8] investigated the Pimple popping videos on YouTube to get millions of views and comments. This paper looks at the comments using a method called Critical Thematic Analysis to understand why people find these videos so interesting. Based on research about skin, suggests that people enjoy these videos for a few reasons: (1) they feel both grossed out and fascinated at the same time; (2) the videos use close-up shots that focus only on the skin, not the person, which makes it feel less personal; (3) skin is seen as something that separates the inside and outside of the body, so acne feels like it's both in and out at once; and (4) the popping is shown like a medical treatment, which makes it seem more official and serious. Normally, pus and oil are seen as dirty, but in these videos, they are given their special focus, making the "gross" stuff seem important.

C. Reisz *et al.* [9] stated that Repetitive behaviors that focus on the skin like nail biting, hair pulling, cutting, and pimple popping may be connected to parts of the brain that deal with touch, sight, learning from situations, and anxiety. In this study, information about gender and the age when these habits started was collected from 78 patients who visited a skin clinic between 2014 and 2018. These patients had various skin-related habits, including nail biting (onychophagia), hair pulling (trichotillomania), cutting, compulsive skin picking, constantly picking at acne (acne excoriée), and believing they were infested with bugs (delusions of infestation). V. Labuschagne *et al.* [10] explained that Pop culture events can help attract tourists and bring money to the places where they are held. To make the most of this, it's important to understand what motivates fans to travel to these events. This study looked at why pop culture fans choose to attend such events. The research involved 576 fans at a pop culture event in Gauteng, South Africa, who filled out a questionnaire. The results were studied and showed nine main reasons why fans traveled to the event. These included: wanting to see popular brands, taking part in the event, learning more about pop culture, escaping daily life, seeing celebrities, getting good value for money, buying exclusive items, having fun with others, and trying something new. The study found that the biggest reason fans came was to experience something new and different. Based on this, event organizers should focus on all these reasons to keep fans interested and stay successful.

S. Rafique *et al.* [11] emphasized that studies have shown that in today's digital world, popular culture has become very powerful. This article looks closely at how the media plays a big role in spreading and supporting popular culture. It also shows how culture has changed with the growth of cities and industries. To understand this, research from the past 20 years was studied. The article talks about different sources of popular culture like movies, TV shows, online games, politics, music, sports, ads, shopping websites, and mobile apps, and explains how the media helps make them popular. The study finds that media is strongly connected to cultural change, and pop culture and media depend on each other. It also says that pop culture has a lot of influence and can be used to share ideas and build international relationships. Pop culture keeps changing, and media plays an important part in its growth. The central problem identified in this research is the compulsive and often unconscious habit of pimple popping, particularly among teenagers and young adults, despite widespread awareness of its harmful effects such as skin infections, scarring, and emotional distress. This contradiction between rational understanding and actual behavior highlights a deeper psychological conflict rooted in emotional regulation, reward-seeking, and social influence. Many individuals use pimple popping as a coping mechanism for stress, anxiety, boredom, or dissatisfaction with skin appearance, further reinforced by social media and viral video content. To address this issue, the solution must go beyond awareness campaigns. Effective interventions should integrate behavioral redirection tools (e.g., silicone pads, and pimple patches), mindfulness techniques, and emotional support strategies.

3. METHODOLOGY

3.1.Design:

This research project employed a primarily qualitative approach, supplemented by surveys, to explore the habit of chronic pimple popping and its underlying motivations. After defining the problem, a 12-day cultural probe kit was developed and distributed to a select group of individuals from the same location and similar lifestyles to reduce potential bias. The probe kit, designed to evolve every three days, included a consent form, an infographic on the science and ill effects of pimples, a daily tracker, a silicone skin-picking pad to redirect compulsive behavior, mindfulness cards to aid focus, pimple patches for skincare, and Q-tips for safe pimple popping if necessary. Participants followed a set usage schedule starting with just the tracker, followed by using patches, then the skin-picking pad, and finally both. The tracker allowed researchers and users to monitor behavioral changes across morning, midday, and night. At the end of the 12-day cycle, one-on-one interviews were conducted to assess the kit's effectiveness and user experiences. Additionally, a broader survey targeting individuals across various locations within the same age group was conducted to gather data on general behaviors and motivations related to pimple popping, allowing for a comprehensive understanding of the habit and potential interventions.

3.2.Sample and Instrument:

In this research study, a combination of purposive and convenience sampling was employed to select participants, ensuring relevance to the topic and accessibility for data collection. The study primarily focused on teenagers and young adults between the ages of 13 and 24, as this group is most commonly associated with compulsive pimple-popping behavior. A total of 12 participants were selected for the in-depth cultural probe kit study, all of whom shared similar lifestyles and belonged to the same locality to maintain consistency and reduce demographic bias. Additionally, a larger sample size of 100 individuals from various cities was surveyed online to gather a wider range of perspectives on pimple-popping behaviors and motivations. Table 1 represents the instruments, their purpose, sample size, target group, and duration.

Table 1: Represent the instruments, their purpose, sample size, target group, and duration.

S. No.	Instrument	Purpose	Sample Size	Target Group	Duration
1.	Cultural Probe Kit	Track pimple-popping behavior and emotional response	12	Teenagers/Young Adults	12 days
2.	Semi-structured Interviews	Explore deeper motivations and psychological insights	12	Same as the probe kit group	After 12-day kit
3.	Online/Offline Surveys	Gather large-scale behavioral data and motivational trends	100	Teenagers & Young Adults	One-time

To gather meaningful data, the research utilized three key instruments: a cultural probe kit, semi-structured interviews, and structured online/offline surveys. The cultural probe kit was designed to document real-time behavioral patterns and emotional responses to various stimuli associated with pimple popping. It included materials like a tracker sheet, silicone picking pad, mindfulness cue cards, pimple patches, Q-tips, and educational infographics. Semi-structured interviews were used to understand the deeper psychological motivations and personal experiences of the participants, allowing for qualitative depth. The surveys provided quantitative support and helped identify broader trends, particularly regarding media influence, emotional triggers, and awareness of risks associated with the behavior.

3.3.Data Collection:

For this research, data was gathered through a mix of primary and secondary sources, all of which were organized using an affinity mapping technique. Primary data was collected using three key qualitative methods: probe kits, interviews, and surveys. A carefully designed probe kit was distributed among participants to capture their natural behaviors, triggers, and reflections around pimple-popping over a set period. Simultaneously, semi-structured interviews were conducted to dive deeper into the personal experiences, motivations, and emotional responses of individuals who engage in this behavior. Additionally, online and offline surveys were conducted to reach a broader sample size and to quantify recurring themes and patterns. Secondary data was compiled through extensive literature reviews, which involved examining academic journals, dermatology articles, behavioral psychology research papers, and media sources like YouTube, Instagram, and dermatologists' blogs. These sources helped to contextualize the primary findings and highlight trends in societal attitudes and popular culture regarding pimple popping.

3.4.Data Analysis:

The collected data was organized and interpreted using an affinity map, which helped cluster similar insights and themes. This method allowed for the creation of six distinct categories: Prerequisites, Objectives, Literature Review, Insights, Secondary Research, and Analysis & Findings/Clusters. Table 2 demonstrates the motivation/reason and % of participants.

Table 2: Demonstrates the motivation/reason and % of participants.

S. No.	Motivation/Reason	% of Participants (All Methods)
1.	Awareness of Harm	95%
2.	Compulsion	78%
3.	The desire for Clear Skin	72%
4.	Enjoyment	60%
5.	Disgust Reaction	52%

Each cluster helped identify common motivations and behavioral patterns associated with pimple popping. Qualitative responses were coded and categorized according to recurring emotional or psychological triggers, such as compulsion, dopamine release, curiosity, and media influence. Figure 1 demonstrates the motivation/reason and percentage of participation.

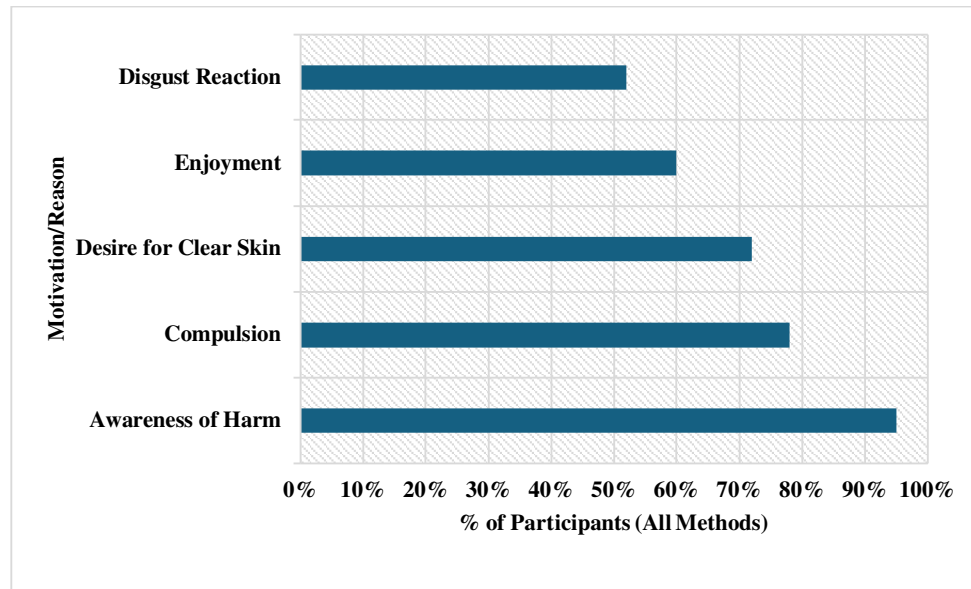


Figure 1: Demonstrates the motivation/reason and percentage of participation.

Thematic analysis was conducted manually, and clusters were drawn from overlapping themes in both primary and secondary data. This allowed researchers to identify 15 major reasons behind the behavior. This information was visualized in a cluster matrix and was later plotted in a bar graph (not shown here) to compare the top motivations for pimple popping among different demographic groups.

4. RESULT AND DISCUSSION

The study revealed a rich and multifaceted understanding of the compulsive behavior of pimple popping, particularly among teenagers and young adults. Through the integration of qualitative methods (probe kits and interviews) and quantitative methods (surveys), multiple emotional, psychological, and social themes were uncovered. Despite most participants being aware of the potential negative effects of pimple popping including skin damage, infection, and emotional distress they continued to engage in the behavior. This contradiction between awareness and action served as the central paradox explored throughout the study [12], [13]. The 12-day cultural probe kit played a crucial role in tracking participants' behaviors and emotional states in real time. Initial observations during the first three days when participants were only asked to track their behavior revealed high frequency and emotional triggers such as boredom, anxiety, and perceived "blemish anxiety" (an urge to remove imperfections). Participants self-reported engaging in pimple-popping between 2 to 5 times a day, particularly during midday or before bedtime.

Many of these acts were impulsive and unplanned, often performed while looking into a mirror or during moments of inactivity. When pimple patches and the silicone skin-picking pad were introduced on Day 4, a significant behavioral shift was observed. Most participants reported a drop in their urge to pick pimples, attributing it to the physical redirection provided by the pad and the visual coverage offered by patches [14], [15]. The physical barriers helped interrupt the habitual loop of skin picking. For instance, 8 out of the 12 participants reported that wearing a patch reminded them to avoid touching their face, acting as a visual cue against the behavior. Some participants even described the experience of using the pad as "satisfying but less harmful," demonstrating the potential for healthy sensory substitution. From Day 7 onwards, the introduction of mindfulness cue cards had a further calming effect [16], [17]. These cards,

which encouraged simple breathing exercises, grounding techniques, and reflective journaling, helped participants become more conscious of the emotional triggers leading to skin-picking behavior. While not everyone responded equally, at least 10 participants acknowledged that the mindfulness cues made them pause and think before acting. This behavioral pause is critical, as it marks a moment of cognitive intervention creating a space between impulse and action. Table 3 demonstrates the motivation/reason and percentage of Participants.

Table 3: Demonstrates the motivation/reason and percentage of Participants.

S. No.	Motivation/Reason	% of Participants (All Methods)
1.	Awareness of Harm	95%
2.	Compulsion	78%
3.	Desire for Clear Skin	72%
4.	Enjoyment/Satisfaction	60%
5.	Disgust Reaction	52%
6.	Stress/Emotional Triggers	48%
7.	Media Influence (e.g. YouTube)	40%

Interviews conducted after the 12-day probe reinforced these findings. Participants discussed how they often popped pimples due to a combination of stress relief, anxiety reduction, and the gratification of seeing immediate results. Some also mentioned the influence of pop culture and digital media particularly pimple-popping videos on YouTube and Instagram as normalizing and even glamorizing the behavior. The widespread consumption of these videos has fostered a paradoxical relationship with disgust and pleasure. Several respondents confessed that while they found such content disgusting, they still felt drawn to watch it. Figure 2 illustrates the % of participants of motivation/reason.

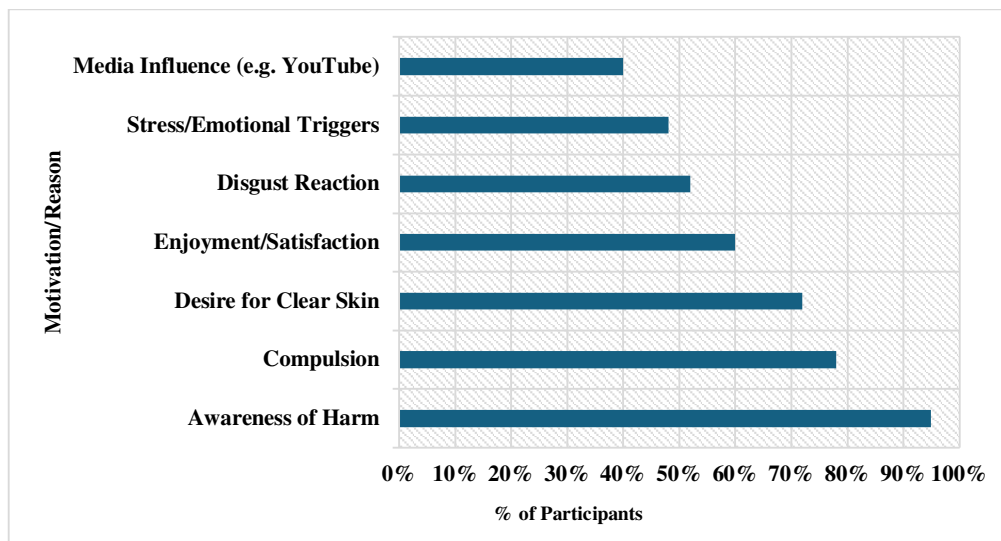


Figure 2: Illustrates the % of participants of motivation/reason.

This aligns with psychological theories around “benign masochism,” where individuals enjoy negative sensations in safe or socially sanctioned contexts [18], [19]. The broader survey of 100 participants provided a quantifiable perspective on the trends identified in the probe study. It revealed that 95% of respondents were aware that pimple popping could lead to negative outcomes such as infections or scarring [20], [21]. Despite this, 78% admitted to doing it regularly. A desire for flawless skin was cited by 72%, while 60% reported enjoyment, and 52% mentioned experiencing a disgust reaction. The emotional reward associated with dopamine release was indirectly acknowledged, especially when participants mentioned “relief” or “satisfaction” after popping a pimple. Interestingly, gender-based behavioral trends also emerged. While both male and female participants engaged in pimple popping, female participants were more likely to mention emotional triggers (like stress or social anxiety), while male participants cited curiosity or lack of awareness about the risks. Additionally, individuals who had previously watched pimple-popping videos were 40% more likely to pop their pimples compulsively, highlighting the media’s influence in shaping and reinforcing behavioral norms.

- a) The study also identified key psychological mechanisms involved in this behavior:
- b) Cognitive dissonance: Acknowledging the harm but continuing the habit.
- c) Reward circuitry: Dopamine release following the act creates a reinforcing loop.
- d) Social learning: Behavior learned or normalized through digital influencers, peers, or viral content.

Participants who experienced a reduction in their pimple-popping habits by the end of the probe kit trial often combined multiple coping strategies, such as using pimple patches along with mindfulness techniques. This underscores the importance of multi-pronged interventions rather than relying solely on awareness or education. The research indicates that awareness alone is not sufficient to prevent pimple popping. Instead, physical tools, emotional regulation strategies, and behavioral redirection methods must be integrated into any intervention. The findings suggest a need for accessible resources like mobile apps, mental health-infused skincare campaigns, and educational modules in schools to encourage healthier practices. This research presents an in-depth exploration of the psychological, cultural, and behavioral factors associated with pimple popping. It highlights how compulsive behavior is driven by both emotional needs and external influences and how practical interventions can offer effective solutions. As such, this study lays the foundation for more targeted educational campaigns and therapeutic approaches in dealing with compulsive skin-picking behavior.

5. CONCLUSION

In conclusion, the phenomenon of pimple popping, particularly among teenagers, is a compelling study of psychological, sociological, and cultural dynamics. Despite being aware of the potential risks, people continue to engage in this behavior driven by the pursuit of clear and flawless skin, the immediate satisfaction of removing imperfections, and the dopamine release associated with the act. The study highlights the significant influence of social media in normalizing and perpetuating this behavior. By using an affinity map and qualitative research technique, the research emphasizes the contradiction between practical application and logical understanding. The findings stress the importance of improving skincare practices, implementing effective coping strategies, and enhancing education and awareness about the dangers of pimple popping. Furthermore, the study identifies specific triggers, paving the way for targeted audiences. The integration of better knowledge, education, and coping mechanisms can play a pivotal role in mitigating this obsessive behavior, ultimately leading to improved skin health and overall well-being. By offering insights into practical methods for managing

and preventing the habit of pimple popping, this research does exactly that. This comprehensive study not only sheds light on the reasons behind pimple popping but also provides a foundation for future research aimed at addressing this pervasive issue.

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CHAPTER 8

INVESTIGATING URBAN LIVING AND ITS IMPACT ON NUTRITIONAL HEALTH TRENDS

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ABSTRACT:

Urban living has significantly transformed dietary habits and nutritional health trends across diverse populations. This study investigates the multifaceted impact of urban environments on individuals' nutritional status, focusing on patterns of dietary deficiencies and health-related behaviors. With increasing urbanization, there is a marked shift from traditional, nutrient-rich diets toward highly processed, convenience-based foods high in sugar, salt, and unhealthy fats. This transition has contributed to a growing prevalence of lifestyle-related health issues, including obesity, type 2 diabetes, cardiovascular disease, and micronutrient deficiencies. Key factors such as limited time, high cost of nutritious food, aggressive marketing of fast food, and limited access to fresh produce in urban food deserts exacerbate these challenges. The study also explores socio-economic disparities, revealing that lower-income urban populations are more vulnerable to poor nutrition due to financial and environmental constraints. Through an interdisciplinary approach that includes public health data analysis, dietary surveys, and environmental assessments, the research highlights the urgent need for urban policies that promote healthier food environments. Overall, the findings suggest a strong correlation between urban lifestyles and declining nutritional quality, emphasizing the importance of public health interventions, nutritional education, and improved access to healthy foods in mitigating the adverse effects of urban living on health.

KEYWORDS:

Access, Diet, Food, Health, Malnutrition, Nutrition, Urbanization.

1. INTRODUCTION

In recent decades, the global demographic landscape has witnessed a significant shift toward urbanization. According to the United Nations, more than 55% of the world's population currently resides in urban areas, a figure projected to rise to 68% by 2050. Urbanization, characterized by rapid population concentration in cities, has transformed the way people live, work, and interact with their environments. While urban living has often been associated with economic advancement, improved access to healthcare, and better infrastructure, it has also introduced a myriad of challenges particularly about public health and nutrition [1]. This paper seeks to explore the intricate relationship between urban living and nutritional health trends, investigating how the urban environment influences dietary behaviors, access to nutritious food, lifestyle choices, and ultimately, population health outcomes.

Urban centers present a unique paradox when it comes to nutrition. On one hand, cities offer a wide array of food options, including supermarkets, restaurants, and international cuisine, theoretically increasing food diversity and availability [2]. On the other hand, the proliferation

of ultra-processed foods, fast food outlets, and convenience-driven eating habits have been linked to rising rates of non-communicable diseases such as obesity, diabetes, and cardiovascular conditions [3]. The urban diet is often high in calories, sugar, and unhealthy fats, yet low in essential nutrients, creating what nutritionists describe as “the double burden of malnutrition” the coexistence of undernutrition and overnutrition within the same population or even individual.

One of the key contributors to the shifting nutritional landscape in urban areas is the modernization of food systems. Traditional diets rich in whole grains, fruits, vegetables, and locally sourced ingredients have been increasingly replaced by diets dominated by processed and packaged foods. This transition, known as the “nutrition transition,” is especially prominent in low- and middle-income countries experiencing rapid urbanization [4]. As food becomes more industrialized and commodified, people tend to prioritize convenience and affordability over nutritional quality, often due to time constraints, work pressures, and limited cooking facilities in densely populated urban housing units [5]. Socioeconomic status plays a critical role in determining nutritional health in urban environments. While affluent urban dwellers may have the resources and education to make health-conscious food choices, lower-income groups often struggle with food insecurity, limited access to fresh produce, and inadequate nutrition education. Urban food deserts areas where affordable, healthy food is difficult to obtain are a growing concern in many cities around the world [6]. In such settings, residents may rely heavily on fast food or corner stores with minimal healthy options, exacerbating diet-related health disparities. This social stratification creates an environment where health inequalities are perpetuated, making urban nutrition a pressing issue of social justice [7].

In addition to food availability, the built environment in urban areas significantly influences lifestyle behaviors associated with nutritional health. High-density living, lack of green spaces, long commutes, and sedentary jobs contribute to decreased physical activity levels among urban residents. The convenience of transportation systems and the prevalence of screen-based entertainment further compound sedentary behavior [8]. These lifestyle patterns not only affect weight and metabolism but also interact with dietary choices, forming a cycle of poor health behaviors that are difficult to break. Cultural globalization, which often accompanies urbanization, has also had a profound impact on dietary patterns. The global spread of Western dietary norms, including fast food consumption and sugary beverages, has led to the homogenization of diets and the erosion of traditional eating habits [9]. While globalization can increase food variety and introduce beneficial dietary components, it often promotes calorie-dense, nutrient-poor options that are aggressively marketed to urban populations. Advertising, particularly targeted at children and young adults, reinforces unhealthy eating habits that persist into adulthood [10].

Another important dimension in understanding urban nutritional health is the influence of urban policy and governance. Zoning laws, public health campaigns, taxation on sugary drinks, subsidies for healthy foods, and school nutrition programs all play a role in shaping the urban food environment. For example, cities that invest in farmer’s markets, community gardens, and urban agriculture can help promote access to fresh foods and reconnect people with food production [11]. Conversely, lax regulations on food advertising or the unchecked expansion of fast food chains can have detrimental effects on public health. Therefore, urban planning and health policy must be integrated to address the complex web of factors influencing nutritional outcomes in cities [12]. Technological advancements in urban settings have also contributed to the changing nature of food consumption. The rise of food delivery services, online grocery platforms, and mobile applications for diet tracking and nutrition guidance

reflect the digitalization of food culture [13]. While technology has the potential to enhance dietary awareness and access to healthier options, it also fosters convenience-based consumption habits that may prioritize speed and indulgence over nutrition. The challenge lies in leveraging technology for health promotion without reinforcing unhealthy norms.

Mental health is another often overlooked factor in the relationship between urban living and nutrition. Urban life can be associated with stress, anxiety, and social isolation all of which can influence eating behaviors. Emotional eating, binge eating, and irregular meal patterns are more prevalent among individuals dealing with psychological stress, which is disproportionately higher in densely populated, high-pressure urban settings [14]. The mental health-nutrition connection is increasingly recognized as bidirectional, with diet quality influencing mood and cognitive function, and vice versa. Children and adolescents are particularly vulnerable to the nutritional risks of urban living. Exposure to unhealthy food marketing, peer pressure, limited physical activity spaces, and availability of junk food near schools contribute to poor dietary habits from a young age. Childhood obesity, previously considered a problem of affluent societies, is now a growing concern in many urban areas of developing countries [15]. Early interventions in schools and communities are essential to instill healthy eating patterns and promote long-term wellness.

Elderly populations in urban settings also face specific nutritional challenges. Issues such as limited mobility, social isolation, and fixed incomes can hinder their ability to access and prepare nutritious meals. Chronic health conditions common in older age often require specialized diets, which can be difficult to manage without adequate support. As the urban population ages, ensuring nutritional care for older adults will become increasingly important [16]. The COVID-19 pandemic has further highlighted the vulnerabilities of urban food systems and exposed the deep interconnections between health, nutrition, and the urban environment. Lockdowns disrupted supply chains, increased food insecurity, and altered consumption patterns, with many people turning to shelf-stable, processed foods. Simultaneously, the pandemic spurred innovation in community-based food delivery, local farming initiatives, and health education, demonstrating both the fragility and resilience of urban food ecosystems [17]. As cities recover and rebuild, there is an urgent need to incorporate nutritional resilience into urban planning and emergency preparedness strategies.

This investigation into urban living and its impact on nutritional health trends is not only timely but essential for addressing the broader challenges of sustainable development. As cities continue to grow and evolve, understanding the factors that shape urban nutrition will be crucial for designing interventions that promote health equity and environmental sustainability. This entails a multidisciplinary approach that integrates public health, urban planning, sociology, economics, and environmental science. From promoting equitable food access to designing walkable neighborhoods and educating urban populations on healthy eating, a comprehensive strategy is required to tackle the nutritional challenges of the modern city. Urban living exerts a profound influence on nutritional health trends through a complex interplay of social, economic, environmental, and behavioral factors. While urbanization brings opportunities for improved food systems and health services, it also poses significant risks related to dietary habits, lifestyle choices, and health disparities. By investigating these dynamics, this study aims to contribute to a more nuanced understanding of urban nutrition and support the development of effective strategies for healthier urban futures.

2. LITERATURE REVIEW

V. Roja et al. [18] looked at how the living conditions of children under five in urban slums in southern India affect their health, nutrition, vaccination, and hygiene. Researchers spoke to 224

mothers from 17 slums in Udupi, Karnataka. They found that children of mothers who couldn't read or write were more likely to be undernourished. Kids whose mothers had jobs were more likely to fall sick compared to those with stay-at-home moms. Illness was also more common in families with low income and poor living conditions. Many factors like clean drinking water, toilets, hygiene, the number of children, parents' education, and use of mosquito nets had strong effects on children's health. The study showed that a family's background, especially the parents' education, job, and income, plays a big role in a child's well-being. It also highlighted the urgent need for clean water, proper sanitation, and mosquito nets to help improve the health of children in slum areas.

B. Abuya et al. [19] discussed that malnutrition is still a serious health problem in sub-Saharan Africa. In East Africa, nearly half of children under five are too short for their age (stunted), and over a third are underweight. Surprisingly, children in cities are now facing worse nutrition than those in rural areas. This is mainly because many city residents now live in slums, where poor living conditions cancel out the usual health benefits of urban life. This study looked at how a mother's education affects her child's nutrition in Nairobi slums. It included data from over 5,000 children under 3.5 years old. Results showed that nearly 40% of these children were stunted. A mother's education was a key factor linked to better child nutrition, even when other factors like family income, the child's birth weight, and health behavior were considered. The study concludes that educating girls and women can help improve child health and break the cycle of poverty in slum areas.

D. Chroneer et al. [20] analyzed the cities grow and face climate change, they need new and inclusive ways to solve problems. One idea that has come up is the urban living lab. This is a way for cities to test and create sustainable, nature-based solutions to improve urban life. Many people are confused about what an urban living lab is. Some think it's a method, others think it's just one project, a location, or don't understand it at all. To clear up this confusion, researchers worked with city officials by reading past studies, holding two workshops, and using a questionnaire. From this, they identified seven important parts of an urban living lab: how it is managed, how it is funded, the local city environment, nature-based ideas, who is involved (like citizens and partners), the way the lab works, and the technology and systems it uses. The study also provides a clearer definition of what an urban living lab means.

H. Bulkeley et al. [21] reviewed that cities today are becoming places where new ideas and projects are tested to make urban life more sustainable. This growing interest in making cities more "experimental" means trying out new ways of running things like new government methods, community projects, or eco-friendly ideas. Researchers are starting to view city improvements as experiments, but they've realized it's a complex topic with many different forms. This paper focuses on one type of experiment: the Urban Living Laboratory (ULL). The researchers studied 40 ULLs across Europe to understand how they are created and what they aim to do. They found that not all ULLs are the same. They vary based on how they are designed and the roles they play. The study identifies three main types: strategic, civic, and organic ULLs. Each fits into one or more of four styles: trial, enclave, demonstration, or platform, showing different ways cities experiment to solve urban problems.

Y. Afacan [22] discussed that urban design education now recognizes the importance of working closely with different people and groups like city planners, communities, and policymakers to make better cities. But creating inclusive and sustainable cities is not easy because every city is different. Cities have unique feelings, spaces, and challenges influenced by their social, economic, political, and cultural situations. This study looks at how a method called the Urban Living Lab (ULL) can help in designing better urban spaces. In a graduate design class, the ULL approach was used not just as a lab, but as a way to connect learning,

real-world experience, and planning policies. It helped students see how design ideas link to real challenges like climate change and land use. The study suggests that this method of teaching can be used in different cities to guide better decisions during city planning and land use development, helping build cities that are more inclusive, sustainable, and climate-ready.

3. DISCUSSION

Urbanization has fundamentally changed how people live, work, and eat, especially in developing and densely populated cities. One of the most influential factors shaping nutritional behavior in urban areas is socioeconomic status (SES), which includes income, education level, employment, and access to resources. These factors have a profound impact on the types of food people consume, their overall dietary patterns, and, ultimately, their health outcomes. Understanding the socioeconomic effects on urban nutritional choices is critical in addressing the growing public health concerns related to diet-related diseases and malnutrition in modern cities. People from higher socioeconomic backgrounds generally have more resources to make informed and healthier food choices. They tend to have better access to fresh fruits, vegetables, lean proteins, and whole grains. Their financial security allows them to afford more expensive but nutritious foods and dine-in places that offer healthier menu options. In addition, higher levels of education are often linked to increased nutritional knowledge, which further influences health-conscious decision-making.

In contrast, individuals and families with lower SES often face significant barriers to maintaining a nutritious diet. Limited financial resources may lead them to prioritize quantity over quality, opting for cheaper, calorie-dense foods that are high in sugar, salt, and unhealthy fats. Fast food outlets and convenience stores, which are often more accessible in low-income neighborhoods, become primary food sources. These areas, often termed “food deserts,” lack supermarkets or fresh produce markets, further constraining healthy choices. This pattern of consumption contributes to the rising incidence of obesity, type 2 diabetes, cardiovascular diseases, and micronutrient deficiencies among low-income urban populations. Time poverty is a major issue in urban settings, particularly for those juggling multiple jobs or working long hours to meet financial demands. This often reduces the time available for home-cooked meals, leading to greater reliance on pre-packaged and ready-to-eat foods. These time-saving options are frequently low in nutritional value but high in calories, preservatives, and additives, further deteriorating dietary quality among working-class urban residents.

Cultural and social norms also intersect with SES in influencing food preferences and consumption patterns. In some urban communities, there may be less emphasis on traditional dietary practices that are usually healthier and more balanced. Instead, there is a growing normalization of Western-style eating habits, particularly among youth, influenced by aggressive marketing, media, and peer behavior all of which are more pronounced in densely populated urban areas. The impact of these socioeconomic inequalities on health trends is significant. While the affluent may experience lifestyle-related issues such as overconsumption or specific deficiencies due to dietary preferences, it is the urban poor who suffer the brunt of nutrition-related health disparities. Addressing these challenges requires a multi-faceted approach involving policy reform, urban planning, public health campaigns, and educational outreach. Providing subsidies for healthy foods, creating more inclusive urban food systems, and improving nutritional education in low-income communities are essential steps toward mitigating the negative effects of SES on urban nutritional health. Socioeconomic status remains a key determinant of dietary behavior and health outcomes in urban settings. Tackling these disparities is essential for achieving equitable and sustainable urban health.

Table 1 compares key nutritional and lifestyle differences between urban and rural populations. Urban residents tend to consume more processed and fast foods, leading to higher sugar intake and increased rates of obesity and non-communicable diseases (NCDs). In contrast, rural populations often maintain more traditional diets rich in fiber and lower in processed ingredients. Rural communities still face certain micronutrient deficiencies. Urban lifestyles are typically more sedentary due to desk jobs and transportation habits, whereas rural residents engage in more physical activity through labor-intensive work. These distinctions reveal the health challenges unique to both environments, emphasizing the need for tailored interventions.

Table 1: Shows the comparison of nutritional trends in urban vs. rural populations.

Nutritional Factor	Urban Population	Rural Population
Diet Type	Processed, fast food, high in fat	Traditional, home-cooked, high in fiber
Fruit & Vegetable Intake	Often insufficient	Relatively higher
Sugar Consumption	High (due to processed foods)	Moderate to low
Micronutrient Deficiencies	Iron, Vitamin D, Calcium	Iron, Iodine, Vitamin A
Obesity Rates	Higher	Lower
Physical Activity	Sedentary lifestyle	More physically active
Prevalence of NCDs	Increasing	Lower but rising

In recent decades, fast food has become a defining feature of urban food culture across the globe. The growth of urban populations, coupled with changing lifestyles and work patterns, has led to an increased reliance on quick, convenient, and affordable food options. Among these, fast food stands out for its accessibility and popularity. This shift in eating habits is having a significant impact on the nutritional health of urban communities. Fast food is typically high in calories, saturated fats, trans fats, added sugars, and sodium, while being low in essential nutrients such as fiber, vitamins, and minerals. Regular consumption of such foods contributes to poor dietary quality and increases the risk of a range of non-communicable diseases (NCDs). In urban areas, the growing prevalence of obesity, type 2 diabetes, hypertension, and cardiovascular diseases is closely linked to fast food consumption patterns.

One of the main drivers of fast food consumption in urban environments is time scarcity. Urban residents often face long working hours, daily commutes, and busy lifestyles that leave little time for meal preparation. Fast food, which is readily available and requires minimal waiting time, becomes an easy solution for time-pressed individuals and families. This convenience factor, combined with aggressive advertising and the appeal of low prices, has normalized fast food as a regular part of the urban diet. In addition to time and convenience, the widespread presence of fast food outlets in urban settings contributes to their consumption. In many cities, fast food chains are more densely located in lower-income neighborhoods, where healthy food options such as supermarkets or fresh produce markets are limited. This contributes to what are known as “food swamps,” areas where unhealthy food choices outnumber nutritious ones. For economically disadvantaged urban residents, fast food often becomes the most viable and affordable option, even if it compromises their health in the long term.

Youth and adolescents in urban communities are particularly vulnerable to the influence of fast food culture. Marketing strategies often target this demographic with promotions, celebrity endorsements, and online campaigns. Over time, frequent fast food intake can form lifelong dietary habits that are hard to reverse. The result is an urban generation increasingly at risk of chronic health conditions at younger ages. The health impact of fast food extends beyond

individuals to the broader urban community. Rising healthcare costs, increased burden on public health systems, and reduced productivity due to diet-related illnesses are growing concerns for urban planners and policymakers. The cultural shift away from traditional, home-cooked meals toward processed, high-calorie foods can erode culinary heritage and social eating practices.

To mitigate the negative effects of fast food consumption in urban areas, interventions must address both environmental and behavioral factors. Urban planning that encourages access to fresh, affordable food, regulatory policies that limit unhealthy food advertising, and community-level nutrition education campaigns can help reshape consumption patterns. Ultimately, reducing the reliance on fast food is essential for improving urban community health and fostering sustainable dietary habits.

Table 2 outlines major contributors to poor nutritional health in urban settings. Urban environments often promote fast food consumption due to widespread availability and busy lifestyles, which limit time for home-cooked meals. High costs of fresh, nutritious foods make healthy eating difficult for low-income residents.

Many urban areas suffer from food deserts, where access to quality grocery stores is lacking. Aggressive marketing of unhealthy foods and sedentary habits further exacerbate health issues. A general lack of nutrition education means many urban residents are unaware of healthy eating practices. These factors collectively increase the risk of chronic diseases and nutritional deficiencies.

Table 2: Shows the factors contributing to poor urban nutritional health.

Contributing Factor	Description
Fast Food Availability	Widespread access to high-calorie, low-nutrient meals
Limited Time for Cooking	Urban jobs and commute times reduce home cooking frequency.
High Cost of Healthy Foods	Nutritious options often unaffordable for low-income urban residents
Food Deserts	Limited access to supermarkets or fresh produce in low-income areas
Aggressive Food Marketing	Targeted ads promoting unhealthy food, especially to children and youth
Sedentary Lifestyles	Desk jobs and urban transport reduce daily physical activity.
Lack of Nutrition Education	Poor awareness of healthy eating practices in some urban populations

Urban food deserts are areas within cities where residents have limited access to affordable and nutritious food, particularly fresh fruits, vegetables, whole grains, and lean proteins. These regions are often characterized by a high concentration of fast food outlets, convenience stores, and liquor shops, but a noticeable absence of full-service grocery stores or farmers' markets. The concept of food deserts has become a significant concern in urban public health, as it highlights the deep-rooted inequalities in food distribution and access that impact dietary choices and health outcomes. Food deserts are most commonly found in low-income urban neighborhoods where transportation, income, and infrastructure barriers make accessing healthy food extremely difficult. Many residents in these areas do not own cars and must rely

on public transportation, which may not conveniently connect them to grocery stores offering healthier options. As a result, people are often forced to shop at nearby corner stores or fast-food restaurants, where the available food is usually processed, calorie-dense, and lacking in essential nutrients.

The lack of access to nutritious food contributes significantly to poor dietary habits and, consequently, to rising rates of diet-related diseases. Studies consistently show that people living in food deserts are at a higher risk of obesity, type 2 diabetes, heart disease, and other chronic illnesses. The inability to make healthier food choices is not due to a lack of awareness but often due to constrained options. Even when residents want to eat healthily, their environment limits their ability to do so. The economic dynamics within food deserts further discourage the establishment of healthier food outlets. Supermarket chains may avoid setting up stores in these areas due to perceived security concerns, low profit margins, or high operating costs. This leaves communities dependent on small retailers that lack the infrastructure or supply chains to stock perishable items like fresh produce regularly. When healthier items are available in these areas, they are often more expensive and of lower quality, making them less appealing and less affordable to already financially stretched households.

Children growing up in food deserts face compounded challenges. Poor nutrition in childhood can affect physical development, cognitive performance, and educational achievement, perpetuating cycles of poverty and ill health. Urban food deserts often overlap with other social and environmental vulnerabilities such as poor housing, inadequate healthcare, and unsafe neighborhoods, amplifying their negative effects. Addressing the problem of urban food deserts requires a multifaceted strategy. Solutions include incentivizing grocery store development in underserved areas, supporting urban agriculture and community gardens, improving public transportation routes to food retailers, and subsidizing the cost of healthy foods for low-income families. Nutrition education alone is insufficient if healthy food is not physically or economically accessible. Urban food deserts represent a critical barrier to health equity in cities. By limiting access to healthy dietary options, they contribute to systemic health disparities. Tackling this issue demands coordinated efforts from government, communities, and private sectors to ensure that all urban residents regardless of income or location have access to nutritious and affordable food.

The term double burden of malnutrition refers to the coexistence of undernutrition and overnutrition within the same population, household, or even individual. This phenomenon is becoming increasingly common in rapidly urbanizing regions, especially in low- and middle-income countries. As cities expand and populations grow, dietary patterns are shifting dramatically, and with them, the global health landscape is facing new, complex challenges. In urban settings, undernutrition marked by stunting, wasting, and micronutrient deficiencies often persists among poorer populations. These individuals struggle to access adequate, nutritious food due to poverty, rising food prices, and the high cost of living in cities. Children in these communities may suffer from chronic undernourishment, which affects their growth, cognitive development, and immune function. Micronutrient deficiencies, especially in iron, vitamin A, and iodine, remain widespread among both children and women of reproductive age, even in urban environments.

At the same time, urban areas are witnessing a dramatic increase in overweight, obesity, and diet-related non-communicable diseases (NCDs), such as type 2 diabetes, hypertension, and cardiovascular disease. These conditions are largely driven by sedentary lifestyles, reduced physical activity, and the consumption of calorie-dense, nutrient-poor foods that are cheap and readily available in urban markets. The rise of fast food, processed snacks, and sugar-sweetened beverages is especially prominent in cities, making unhealthy diets a widespread

concern. What makes the double burden particularly challenging is its simultaneous occurrence within the same communities and even households. For instance, it is not uncommon to find a stunted child living with an overweight adult in the same urban household. This paradox is a result of uneven food distribution, lack of nutritional education, and varying nutritional needs within families. Poor dietary quality, rather than just quantity, is at the heart of this issue.

Urbanization also affects people's food environments. Low-income neighborhoods often lack access to affordable, fresh, and nutritious foods, while being saturated with unhealthy options. These "food deserts" and "food swamps" reinforce poor eating habits and contribute to the complex nutritional landscape of cities. In addition, cultural perceptions and marketing influence food choices, pushing urban residents toward modern, Western-style diets that often lack traditional nutritional balance. The health consequences of the double burden are severe. Undernourished children are more vulnerable to infections and less likely to succeed academically, while overnourished adults face a higher risk of chronic illness and premature death. This dual threat places immense pressure on urban healthcare systems and hinders social and economic development. Addressing the double burden of malnutrition requires integrated approaches. Urban policies must promote equitable access to nutritious food, support school meal programs, regulate the marketing of unhealthy foods, and encourage physical activity. Nutrition education must be tailored to diverse urban populations and consider the realities of their environments. The double burden of malnutrition in urban populations reflects deep-rooted social, economic, and structural inequalities. Combating it demands coordinated action that targets both ends of the malnutrition spectrum to build healthier, more resilient urban communities worldwide.

4. CONCLUSION

The study confirms that urban living exerts a profound and complex influence on nutritional health, primarily through changes in dietary habits, food accessibility, and lifestyle behavior. As cities expand and modernize, convenience often takes precedence over nutritional value, leading to increased consumption of ultra-processed foods and a decline in the intake of fresh fruits, vegetables, and whole grains.

The consequences are evident in the rising rates of obesity, chronic diseases, and nutritional deficiencies among urban populations. Importantly, these issues are not uniformly distributed; socio-economic inequalities exacerbate nutritional disparities, with marginalized communities facing greater barriers to accessing healthy food options. Urban environments often lack supportive infrastructure such as affordable supermarkets, community gardens, or nutrition education programs that can facilitate healthier choices. The paper underscores the urgent need for policymakers, urban planners, and public health professionals to collaborate on designing interventions that make nutritious food both accessible and appealing. Solutions may include urban agriculture, subsidies for healthy food, improved food labeling, and stricter regulation of unhealthy food marketing. Mitigating the nutritional challenges of urban living requires a systemic approach that considers the socio-economic, environmental, and cultural factors influencing dietary behavior in rapidly urbanizing societies.

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CHAPTER 9

EXPLORING PSYCHOLOGICAL AND MEDICAL ASPECTS OF KNUCKLE-CRACKING BEHAVIOR

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ABSTRACT:

Knuckle cracking is a widespread and often debated behavior, commonly regarded as a benign habit or a social annoyance. This study explores both the psychological motivations and medical implications associated with knuckle cracking. Medically, knuckle cracking produces a distinct popping sound caused by gas bubble collapse in the synovial fluid within the joint. Despite widespread beliefs linking it to arthritis and joint damage, current evidence suggests no strong correlation between habitual knuckle cracking and long-term joint problems. Psychologically, knuckle cracking is often associated with stress relief, boredom, or a compulsive behavioral pattern, sharing characteristics with body-focused repetitive behaviors (BFRBs). Personality traits such as high neuroticism or anxiety-proneness may also influence the frequency of the habit. Social perceptions around knuckle cracking tend to be negative, contributing to interpersonal tension in shared environments. The study synthesizes findings from medical literature and psychological assessments to provide a comprehensive understanding of this behavior. By framing knuckle cracking within both biological and behavioral contexts, the research highlights the importance of addressing habitual behaviors without overstating medical risks, while recognizing the social and psychological cues that perpetuate them.

KEYWORDS:

Anxiety, Arthritis, Biomechanics, Habit, Knuckle Cracking, Psychological, Stress, Synovial.

1. INTRODUCTION

Knuckle cracking is a common and often controversial behavior observed in many individuals across diverse age groups and cultures. For some, it is a habitual action performed almost unconsciously; for others, it is an occasional activity that provides physical relief or psychological satisfaction. Despite its ubiquity, knuckle cracking has long been the subject of scrutiny, curiosity, and debate within both the medical and psychological communities. While some view it as a benign personal habit, others associate it with social annoyance or health concerns, particularly about joint damage or arthritis. This multifaceted behavior warrants a deeper exploration that encompasses both psychological motivations and medical implications, to provide a balanced understanding and potentially dispel myths or unfounded fears surrounding it [1]. The phenomenon of knuckle cracking typically involves pulling or bending the fingers to create a distinct popping sound. This sound results from the rapid formation and collapse of gas bubbles in the synovial fluid, a lubricant found in the joints [2]. Although the biomechanics of the sound have been increasingly understood in recent years through advancements in imaging technology such as MRI and ultrasound, the social and psychological dimensions of the behavior remain less thoroughly examined [3].

From a medical standpoint, knuckle cracking has been the subject of numerous studies, particularly regarding whether it contributes to or protects against joint-related pathologies.

One of the most enduring concerns is the widely held belief that habitual knuckle cracking leads to arthritis [4]. Scientific research over several decades has largely failed to substantiate this claim. Numerous studies, including longitudinal research and comparative analyses, have found no conclusive evidence linking knuckle cracking with osteoarthritis or other forms of joint degeneration [5]. On the contrary, some evidence even suggests that the mechanical motion involved in knuckle cracking may not be inherently harmful and could be part of normal joint usage. Still, critics point out that excessive or aggressive manipulation of the joints might lead to soft tissue damage or reduced grip strength, particularly in individuals who engage in the behavior compulsively [6]. Therefore, the medical community remains cautious, recommending moderation while acknowledging the absence of definitive harm.

Psychologically, knuckle cracking can be understood through the lens of behavioral psychology and neuroscience. The act often starts in adolescence and can evolve into a habitual or even compulsive behavior over time [7]. For many individuals, cracking knuckles offers a form of immediate sensory feedback that can be gratifying or soothing. This may be particularly relevant in stressful or monotonous situations, suggesting that the behavior might serve a self-regulatory function akin to fidgeting, nail-biting, or other repetitive actions [8]. In some cases, it may even be associated with symptoms of anxiety or obsessive-compulsive tendencies, although it typically falls well below the threshold for clinical concern [9]. Habitual knuckle cracking may also reflect a learned behavior reinforced by momentary feelings of relief or satisfaction, despite the lack of long-term physiological necessity or benefit [10].

Social and cultural dimensions further complicate the narrative surrounding knuckle cracking. In many social settings, the act is viewed as impolite, distracting, or even disrespectful. This negative perception is often reinforced by social feedback and may contribute to feelings of embarrassment or self-consciousness in habitual crackers [11]. Conversely, in more relaxed or informal environments, the behavior may be normalized or even mimicked, pointing to its potential role in group dynamics and social learning. Cultural attitudes towards personal space, bodily control, and noise can all influence how knuckle cracking is perceived and whether it is tolerated [12]. This social framing can, in turn, impact an individual's self-regulation strategies and willingness to modify the behavior, particularly when faced with disapproval from peers, family, or colleagues.

Knuckle cracking can intersect with broader themes in psychology, such as habit loops and conditioning. According to the habit loop model proposed by researchers like Charles Duhigg, behaviors become entrenched through a cycle of cue, routine, and reward. In the case of knuckle cracking, the cue might be a feeling of tension or boredom, the routine is the act of cracking, and the reward is the sense of release or satisfaction that follows [13]. Over time, this loop can become so deeply ingrained that the individual may not even be consciously aware of acting. This model provides a useful framework for understanding how benign habits like knuckle cracking can persist for years, and it also opens the door to therapeutic strategies for those who wish to reduce or eliminate the behavior due to social or health concerns.

From a developmental perspective, it is also interesting to examine how and when knuckle cracking begins. Research suggests that many individuals start cracking their knuckles in their early teenage years, often influenced by peers or family members. The adolescent period is marked by experimentation with self-image and bodily control, and knuckle cracking may serve as a form of self-expression or autonomy [14]. For some, it might be an act of rebellion or a bid for attention, especially in environments where such behaviors are frowned upon. As the behavior becomes habituated, it can persist into adulthood, sometimes becoming more entrenched as a coping mechanism for stress or anxiety. Understanding the developmental trajectory of knuckle cracking can therefore offer valuable insights into broader patterns of

behavior acquisition and modification. In recent years, scientific interest in habitual body-focused behaviors known as body-focused repetitive behaviors (BFRBs) has grown, encompassing actions like hair pulling (trichotillomania), skin picking (excoriation disorder), and nail-biting (onychophagia). While knuckle cracking is not formally classified as a BFRB, it shares many of the same characteristics, including repetition, a sense of relief following the act, and a struggle with cessation despite negative social consequences [15]. This emerging field of study offers promising avenues for exploring the psychological underpinnings of knuckle cracking and may help to identify individuals for whom the behavior is part of a broader pattern of stress-related self-regulation. Advances in brain imaging and cognitive neuroscience offer exciting possibilities for understanding the neural correlates of habitual behaviors like knuckle cracking. Functional MRI and other imaging technologies can shed light on the brain circuits involved in habit formation, reward processing, and impulse control. For instance, areas such as the basal ganglia, prefrontal cortex, and anterior cingulate cortex are known to play significant roles in the initiation and regulation of habitual behaviors. Investigating how these regions are activated during or in anticipation of knuckle cracking could provide valuable insights into the behavior's neurobiological basis and how it might be influenced through cognitive or pharmacological interventions.

In sum, knuckle cracking is a deceptively simple behavior that encapsulates a complex interplay of physical mechanics, psychological conditioning, social dynamics, and neurological processes. Its prevalence across different populations and resistance to medical stigmatization or validation make it a unique topic of study that bridges multiple disciplines. While the medical evidence generally points to its harmlessness when performed in moderation, the psychological and social aspects merit more nuanced attention, particularly given the behavior's habitual nature and potential ties to stress and emotional regulation. By adopting an interdisciplinary approach that includes medical science, psychology, neuroscience, and sociology, researchers and practitioners can arrive at a more comprehensive understanding of knuckle cracking and its place in the spectrum of human behavior. This introduction lays the groundwork for a deeper investigation into the psychological and medical aspects of knuckle-cracking behavior. Subsequent sections will explore in detail the biomechanics behind the sound, the physiological consequences of the practice, the psychological motivations and effects, and the broader social implications. In doing so, the aim is to demystify this common yet often misunderstood behavior and provide both scientific clarity and empathetic insight into why people crack their knuckles and what it might reveal about their bodies and minds.

2. LITERATURE REVIEW

K. DeWeber et al. [16] discussed that previous studies have not found a clear link between knuckle cracking (KC) and hand osteoarthritis (OA). One study did show a slight inverse relationship, suggesting that knuckle cracking might even reduce the risk of OA in the metacarpophalangeal joint (knuckle joint). In a new study, researchers looked at people aged 50 to 89 who had an X-ray of their right hand in the past five years. Some had hand OA, and others did not. They asked about the frequency and duration of their knuckle-cracking habits. The results showed that the rate of OA was similar between those who cracked their knuckles and those who did not. The study concluded that habitual knuckle cracking, including how long and how often someone cracks, does not appear to increase the risk of hand OA.

A. Rizvi et al. [17] analyzed that knuckle cracking is the sound made when a joint is moved or stretched. Over the years, scientists have studied how and why this sound happens, as well as its possible effects on joints. Several theories have been suggested, but the exact cause of the cracking sound remains unclear. One commonly agreed-upon explanation is that the sound comes from the formation of a bubble in the joint's fluid. Some people worry that knuckle

cracking could harm the joints, possibly leading to conditions like osteoarthritis. Studies have not found strong evidence linking knuckle cracking with joint problems. Most research shows no connection, and many studies on the topic are small or observational.

D. Axelrod et al. [18] analyzed that habitual knuckle cracking causing arthritis or hand problems was just a myth without any scientific backing. Studies have shown that the action of cracking knuckles involves a rapid release of energy, similar to the forces that can damage mechanical equipment. In one study, 300 patients aged 45 or older were examined to see if habitual knuckle cracking was linked to arthritis or hand problems. The study found that, while there was no increased risk of arthritis in knuckle crackers, they did experience more hand swelling and weaker grip strength. Knuckle crackers were more likely to have habits like nail biting, smoking, and drinking alcohol. The study concluded that while knuckle cracking doesn't directly cause arthritis, it can lead to functional impairment, such as swelling and reduced hand strength.

A. Barakat et al. [19] explained that knuckle cracking happens when the metacarpophalangeal joint (the joint at the base of the fingers) is stretched, creating the typical cracking sound. Although scientists have studied this for over sixty years, the exact cause of the sound has remained unclear because existing imaging methods couldn't capture the process. To help understand the sound, researchers developed a mathematical model that simulates what happens inside the joint. This model shows that the cracking sound is caused by the collapse of a tiny bubble in the synovial fluid of the joint. The sound's strength and frequency match previous experimental measurements, supporting the idea that the bubble collapsing is responsible for the noise. The model suggests that only a partial collapse of the bubble is needed to create the sound, which explains why bubbles may still exist after the crack occurs, as seen in some experiments.

T. Ekiz et al. [20] aimed to find out if habitual knuckle cracking (KC) affects grip strength and the thickness of cartilage in the finger joints. The study involved 35 people who cracked their knuckles at least five times a day, and 35 people who did not crack their knuckles. The participants were similar in age, gender, and body mass index. Researchers used ultrasound to measure the thickness of the cartilage in the metacarpal head (MH) and a hand dynamometer to test grip strength. The results showed that habitual knuckle crackers had thicker cartilage in both hands compared to non-crackers, but there was no difference in grip strength between the two groups. The study concluded that while habitual knuckle cracking does not affect grip strength, it seems to be linked to increased cartilage thickness in the joints, which may suggest a protective effect on the joints.

3. DISCUSSION

Knuckle cracking is a common yet often misunderstood behavior, typically dismissed as a harmless habit or minor annoyance. A closer examination reveals that this behavior may serve significant psychological functions for many individuals. One of the primary psychological motivations behind knuckle cracking is stress relief. Similar to other body-focused repetitive behaviors (BFRBs) such as nail-biting, hair-twirling, or skin-picking, knuckle cracking can provide a sense of release or comfort, particularly in moments of anxiety, boredom, or restlessness. Many individuals report an internal tension or buildup of discomfort that is temporarily alleviated by the act of cracking their knuckles. The physical sensation and audible "pop" may act as a form of sensory feedback that reinforces the behavior. This can create a habitual loop, where cracking becomes an automatic response to stress or unease. Over time, individuals may begin to associate knuckle cracking with emotional regulation, making it a psychologically reinforcing behavior even when external stressors are minimal.

In psychological terms, knuckle cracking can be considered a “coping mechanism.” Coping mechanisms are behaviors people engage in often unconsciously to manage difficult emotions or psychological discomfort. In stressful environments, especially those involving prolonged periods of inactivity or mental strain, such as during exams, work meetings, or while waiting, individuals may find themselves cracking their knuckles as a way to self-soothe. It provides a brief moment of control or satisfaction, which is particularly important for those who experience anxiety or feel overwhelmed by external pressures. From a behavioral psychology perspective, the reinforcement loop surrounding knuckle cracking can be explained through operant conditioning. The sensation of relief following the act serves as positive reinforcement, increasing the likelihood of repeating the behavior in future stressful scenarios. If someone feels anxious and cracks their knuckles, the anxiety reduction—even if momentary—reinforces the behavior, making it more likely to recur under similar emotional conditions.

Personality traits may play a role in knuckle-cracking behavior. Studies have suggested that individuals high in neuroticism or those prone to anxiety and perfectionism may be more likely to engage in habitual behaviors such as knuckle cracking. These individuals may have a heightened sensitivity to internal discomfort, making them more likely to seek out repetitive, self-soothing actions. Social and environmental factors can also influence the psychological motivation behind knuckle cracking. For example, individuals who are exposed to others who crack their knuckles family members, friends, or coworkers may develop the habit through observational learning or social mimicry. Over time, it becomes an ingrained routine, not necessarily tied to stress but rather to environmental conditioning.

Knuckle cracking is more than just a physical action it often serves as a psychologically motivated behavior aimed at managing internal states such as stress, anxiety, or boredom. Understanding its function as a coping mechanism provides valuable insight into why people continue the habit, even in the absence of medical necessity. Future psychological research could further explore its relationship to anxiety disorders and compulsive behaviors, shedding light on its potential as a nonverbal signal of internal emotional states. Knuckle cracking is a behavior that has sparked debate and concern for decades, primarily due to widespread medical myths about its potential risks. One of the most enduring beliefs is that habitual knuckle cracking leads to arthritis or permanent joint damage. Scientific studies over the years have largely debunked this notion, providing a clearer picture of the actual medical effects—if any—associated with the habit.

Table 1 outlines the various psychological triggers and behavioral patterns linked to knuckle cracking. The behavior is often a response to emotional states like stress, anxiety, or boredom, serving as a coping mechanism or unconscious habit. Some individuals crack their knuckles compulsively, especially those with obsessive-compulsive tendencies, seeking relief or control. Others pick up the habit through social exposure, such as mimicking friends or family. The sensory satisfaction from the sound or feel of the crack also reinforces the action. Understanding these psychological factors reveals that knuckle cracking can have deeper emotional roots beyond being just a physical habit.

Table 1: Shows the psychological factors associated with knuckle cracking.

Psychological Factor	Description	Associated Behavior
Stress Relief	Cracking is used as a self-soothing mechanism during tension or anxiety	Frequent cracking during high-stress moments

Boredom	Habitual action during periods of idleness or distraction	Mindless, unconscious cracking
Compulsion/OCD Traits	Repetitive behavior linked to anxiety or obsessive patterns	Cracking in even numbers, symmetry needs
Social Mimicry	Behavior learned from observing peers or family	Starts in childhood or adolescence
Sensory Satisfaction	Enjoyment of physical sensation or sound	Regular, intentional cracking

The cracking sound produced during knuckle cracking is not the result of bones rubbing against each other or cartilage damage, as some believe. Instead, it is caused by the rapid formation and collapse of gas bubbles in the synovial fluid the lubricant within the joints. This process, known as cavitation, is a normal biomechanical phenomenon and does not inherently harm the joint. One of the most well-known studies addressing the myth was conducted by Dr. Donald Unger, who cracked the knuckles on his left hand daily for over 50 years while leaving his right hand untouched. At the end of the self-study, he found no difference in arthritis development between the two hands. While informal, his experiment highlighted the lack of evidence linking knuckle cracking directly to arthritis.

Further scientific studies have supported this conclusion. A 1990 study published in the journal *Annals of the Rheumatic Diseases* examined 300 individuals aged 45 and older and found no increased risk of arthritis among those who cracked their knuckles regularly. Some minor physical effects have been observed. For instance, habitual knuckle crackers may experience mild hand swelling or reduced grip strength, though these effects are generally not severe or medically concerning. Despite the scientific consensus, the myth persists, largely due to generational warnings and anecdotal beliefs passed down over time. Parents and elders often discourage the habit, warning children that they will “ruin their joints” or develop painful arthritis later in life. This cultural transmission of misinformation has kept the myth alive, even in the face of scientific evidence.

Another reason for the persistence of these myths is the social perception of knuckle cracking. The sound is often perceived as irritating or disruptive in quiet environments, such as classrooms or offices. As a result, some of the health-related warnings may be exaggerated to discourage the behavior based on social, rather than medical, grounds. It is also important to note that while knuckle cracking itself may not be dangerous, it should be distinguished from joint manipulation caused by underlying medical conditions. For instance, individuals experiencing frequent joint pain, stiffness, or swelling should consult a medical professional, as these symptoms may indicate real joint disorders unrelated to knuckle cracking. While the myth that knuckle cracking causes arthritis continues to circulate, scientific evidence consistently shows that the behavior is medically harmless for most people. Minor physical side effects may occur in some habitual crackers, but there is no credible link to long-term joint damage or arthritis. Promoting awareness based on evidence can help dispel these myths and encourage a more informed public understanding of the behavior.

Table 2 summarizes the current scientific understanding of the medical implications of knuckle cracking. Research consistently shows that there is no proven link between knuckle cracking and arthritis or joint damage. The cracking sound results from harmless gas bubble formation and collapse within the synovial fluid. Although some habitual crackers may experience mild hand swelling or slightly reduced grip strength, these effects are minimal and not medically

concerning. Overall, the findings support the view that knuckle cracking is a biomechanically normal and largely harmless behavior, contradicting common myths about long-term joint harm or deformities.

Table 2: Shows the medical findings on knuckle cracking.

Medical Aspect	Finding	Implication
Arthritis Risk	No strong evidence linking cracking to arthritis	Considered medically harmless
Joint Damage	No cartilage damage was observed through imaging studies	No long-term structural harm
Grip Strength	A slight reduction was reported in habitual crackers	Minor impact, not clinically significant
Hand Swelling	Occasionally observed in heavy, repetitive crackers	Temporary and generally harmless
Sound Mechanism	Caused by gas bubble formation/collapse in synovial fluid	Normal biomechanical process

Knuckle cracking, though often seen as a trivial or socially annoying habit, can be deeply rooted in psychological patterns of habit formation and compulsive behavior. For many individuals, it begins as a simple, often unconscious, physical action perhaps picked up by mimicking others or triggered by tension in the hands. Over time, this seemingly minor act can evolve into a reinforced habit, repeated throughout the day without deliberate intent. Understanding how knuckle cracking becomes habitual and possibly compulsive involves examining both behavioral psychology and cognitive-emotional regulation. Habits typically form through repetition and reinforcement. When an action provides even minor satisfaction or relief—such as the release or “pop” sound from cracking a knuckle it activates the brain’s reward system. This creates a loop: the cue (such as tension or boredom), the routine (knuckle cracking), and the reward (a brief sense of relief or satisfaction). The brain learns to associate certain emotional or physical states with the behavior, making it more likely to recur in similar situations. Over time, the action becomes automatically performed without conscious thought.

For many, knuckle cracking is tied to specific emotional or environmental triggers. Feelings of stress, anxiety, boredom, or nervousness often prompt the behavior, making it an outlet for emotional regulation. In this context, knuckle cracking can be classified under body-focused repetitive behaviors (BFRBs) a group of habits like nail-biting, skin-picking, and hair-pulling, where individuals repetitively act on their bodies to manage psychological discomfort. While not always harmful, these behaviors can be difficult to control and may escalate under stress. In some cases, knuckle cracking may develop into a compulsive tendency, particularly for individuals with underlying anxiety, obsessive-compulsive traits, or perfectionism. Compulsions are repetitive behaviors performed to relieve psychological distress. Although knuckle cracking doesn’t meet clinical criteria for compulsion on its own, it may act as one component of a larger pattern in individuals prone to compulsive or ritualistic behaviors. For example, someone might feel an overwhelming urge to “even out” cracking on both hands or to do it a certain number of times before they feel “right.”

This compulsive element is further strengthened by psychological reinforcement. If cracking relieves a buildup of internal tension, the individual learns that this act is a quick and reliable coping mechanism. Unfortunately, this short-term relief can make it harder to resist the

behavior, even when one wants to stop. Over time, attempts to suppress the urge may only intensify it, leading to a cycle of repetition and frustration. Breaking such a habit typically requires conscious effort and sometimes behavioral intervention. Strategies such as habit tracking, mindfulness, and substitution (replacing the behavior with a less disruptive one) can help reduce the frequency. In more severe cases, especially when linked to anxiety or compulsive disorders, cognitive-behavioral therapy (CBT) may be effective in addressing the root causes. Knuckle cracking may seem harmless, but for some, it becomes a deeply embedded habit or a compulsive response to internal discomfort. Recognizing the psychological drivers behind the behavior is key to managing it, especially when it interferes with daily life or causes personal distress.

Knuckle cracking has long been the subject of debate in both medical and public circles. Many people believe the habit causes joint damage, particularly arthritis, while others consider it harmless. Over the past few decades, several biomechanical studies have aimed to explore the true joint health implications of knuckle cracking, offering insights into what happens inside the joint during the cracking process and whether it leads to long-term damage. Biomechanically, knuckle cracking is primarily explained by a process called cavitation. Within the joints, there is a lubricating fluid called synovial fluid. When a joint is stretched or manipulated, the pressure inside the joint capsule drops, forming gas bubbles. The characteristic “pop” or “crack” sound is believed to occur when one of these gas bubbles collapses or rapidly forms. Studies using MRI and ultrasound imaging have confirmed this phenomenon, showing that the sound is not caused by bones grinding or cartilage wearing away, but by changes in pressure within the synovial fluid.

One of the first significant studies on the subject was published in the 1970s when Dr. Donald Unger conducted a personal experiment: he cracked the knuckles on his left hand every day for over 50 years while leaving his right hand untouched. At the end of the experiment, he reported no difference in the health or function of either hand. While informal, the study raised important questions about the long-assumed dangers of knuckle cracking. More structured research followed. A notable 1990 study published in the *Annals of the Rheumatic Diseases* investigated 300 participants aged 45 and older.

The study found no significant correlation between habitual knuckle cracking and an increased risk of osteoarthritis. This finding has been supported by subsequent research, confirming that the act of knuckle cracking does not cause cartilage degradation or joint inflammation commonly associated with arthritis.

While knuckle cracking may not lead to arthritis, some studies have noted minor effects. Habitual knuckle crackers may be more likely to experience temporary hand swelling or a slight reduction in grip strength. These outcomes are usually mild and not medically concerning but indicate that excessive or aggressive cracking might stress soft tissues around the joints, such as ligaments and tendons. Biomechanical studies have also helped clarify the frequency and mechanics of cracking. Research has shown that a joint typically cannot be cracked again immediately after it has been cracked, suggesting that the gases in the synovial fluid need time to re-dissolve before the process can repeat. This “refractory period” further supports the understanding that the cracking sound is a gas-related event rather than structural damage. Biomechanical and clinical evidence strongly suggests that knuckle cracking does not harm joint health in any meaningful way and is not a cause of arthritis. While some minor side effects may occur with excessive cracking, the practice is generally considered safe. These findings help dispel long-standing myths and provide a science-based understanding of what happens within the joint during cracking.

4. CONCLUSION

Knuckle cracking, though often dismissed as a trivial habit, occupies a unique intersection between medical science and psychological behavior. Medically, research consistently shows that knuckle cracking does not cause arthritis or significant joint damage, alleviating long-standing public misconceptions. Frequent or aggressive cracking may cause minor issues such as hand swelling or reduced grip strength in some individuals. Psychologically, knuckle cracking can serve as a coping mechanism for stress, anxiety, or tension, and may be symptomatic of underlying compulsive tendencies. For many, it becomes an unconscious ritual tied to emotional states or environmental triggers. The habit's social implications often regarded as irritating or disruptive can lead to negative feedback from peers, affecting social interactions and self-awareness. Understanding knuckle cracking as both a medical non-issue and a psychological cue invites a more empathetic and evidence-based approach to addressing it. Future research could explore interventions for those who wish to reduce the behavior, particularly when linked to anxiety or compulsion. Overall, knuckle cracking exemplifies how simple bodily habits can reflect broader themes in health, behavior, and human interaction, and should be considered within a nuanced, interdisciplinary framework.

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CHAPTER 10

EXPLORING MUSIC HABITS OF YOUNG ADULTS DURING LOCAL TRAVEL JOURNEYS

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ABSTRACT:

This study explores the music listening habits of young adults during local travel, focusing on the factors that influence their choices and behaviors. With the increasing accessibility of digital music platforms and mobile devices, music has become a key companion for daily commutes and short-distance travel. Through surveys and interviews conducted with individuals aged 18 to 30, the research identifies major factors that shape music preferences, including mood, time of day, travel duration, and environmental context. The findings reveal that most young adults use music as a means to relax, focus, or escape during their journeys. Streaming services like Spotify and Apple Music are the most preferred platforms due to their personalization features and ease of use. Social influences, such as recommendations from peers or trends on social media, also play a role in shaping listening patterns. This research contributes to a better understanding of how music fits into the daily lives of urban youth and how travel environments affect auditory choices. The insights gained can inform future developments in music technology, urban mobility experiences, and mental well-being strategies associated with routine travel among young adults.

KEYWORDS:

Commute, Emotion, Listening, Music, Playlist, Streaming, Travel.

1. INTRODUCTION

In the modern era, music has evolved beyond being a form of entertainment to become a deeply personal and pervasive element of daily life. With the proliferation of smartphones, streaming platforms, and wireless headphones, music is now a constant companion for many, particularly young adults. This demographic, defined broadly as individuals between the ages of 18 and 30, often turn to music not only as a source of enjoyment but also as a tool for managing mood, reducing stress, fostering focus, and expressing identity. Among the many contexts in which music plays an important role, one that is especially compelling and understudied is local travel. Whether commuting to university, heading to work, running errands, or embarking on a leisurely exploration of their city, young adults frequently use music during these short travel experiences [1]. This study aims to explore the music habits of young adults during local travel journeys, investigating how, why, and when music is used, and what this reveals about the intersection of technology, mobility, and identity in contemporary youth culture [2].

The intersection of music and mobility has long intrigued scholars in fields ranging from cultural studies to psychology and urban sociology. Much of the existing literature focuses on long-distance travel or high-stakes journeys, such as road trips or air travel. In contrast, local

travel—commuting via public transportation, walking, cycling, or driving short distances has received comparatively little attention [3]. Yet, for young adults, these everyday travel episodes are crucial touchpoints where music habits are formed and reinforced. These journeys are often routine, predictable, and solitary, creating the perfect environment for music to shape the emotional and cognitive experience of transit [4]. In a world that increasingly values productivity and personalization, music becomes not just a background element but a central feature of how young people curate their daily lives.

Technological advancements have played a key role in making music an integral part of local travel. The rise of mobile streaming services such as Spotify, Apple Music, and YouTube Music has democratized access to a vast library of songs and podcasts, allowing users to curate playlists that match their mood, destination, or mode of travel [5]. Wireless earbuds and noise-canceling headphones further enable an immersive auditory experience that isolates listeners from the ambient noise of the outside world. This creates a mobile “sound bubble,” allowing young adults to turn public or shared environments into private auditory zones [6]. Within these bubbles, music becomes a form of self-care, an emotional regulator, or even a temporal marker that segments the day into meaningful intervals. Such practices speak to broader societal trends including the rise of individualism, the commodification of time, and the increasing importance of emotional autonomy [7].

From a psychological standpoint, music listening during travel serves various functions. For some, it is a coping mechanism to alleviate the stress of crowded buses or traffic congestion. For others, it enhances the experience of walking through familiar or unfamiliar neighborhoods, adding a cinematic quality to the journey [8]. The act of selecting and playing music can also serve as a preparatory ritual, mentally transitioning individuals between the domains of home, work, or school. In this context, music is not merely reactive; it is proactive, helping young adults construct mental and emotional states that align with their goals or anticipated experiences [9]. The portability and personalization of music allow it to serve as a tool for emotional engineering a way to generate focus, confidence, nostalgia, or even escapism during otherwise mundane or stressful travel routines.

The sociocultural implications of music listening during local travel are also worth examining. For many young adults, music serves as a marker of identity and community, even in solitary moments. Choices about what to listen to are influenced by cultural background, peer networks, online communities, and social media trends [10]. The phenomenon of “playlist culture” exemplifies this, where users not only consume but also create and share personalized soundtracks that reflect their personalities, tastes, and values. These playlists often correspond with specific travel contexts such as a “morning commute” or “walking through the city” mix demonstrating how music habits are closely aligned with movement through space and time [11]. The act of curating or sharing travel playlists can function as a form of social signaling, a way of asserting individuality while also aligning oneself with broader aesthetic or cultural movements.

Gender, socioeconomic status, and geographic location also influence music habits during travel. For example, young women might use music as a strategy to ward off unwanted attention in public spaces, while others may choose specific songs or genres based on the perceived safety or mood of a given neighborhood or route [12]. In lower-income areas where access to safe or reliable public transit may be limited, music can become a crucial means of mental escape or resilience. Meanwhile, urban vs. rural settings offer different auditory landscapes, which in turn shape how and why music is used. These contextual factors suggest that music listening during travel is not just an individual choice but is embedded within larger systems of infrastructure, inequality, and cultural meaning. Understanding the music habits of

young adults during local travel is also important from a practical standpoint [13]. For urban planners, transit authorities, and app developers, insights into these habits can inform the design of public spaces, transportation systems, and user interfaces. For example, knowledge about peak music usage times or preferred genres could help in designing better sound environments in buses, subways, or waiting areas [14]. Music streaming platforms might also use this data to offer more context-sensitive recommendations, enhancing user engagement and satisfaction. Mental health professionals and educators may find value in understanding how music functions as a coping strategy or emotional aid in the daily routines of young people. In an increasingly fast-paced and often stressful world, these insights could contribute to interventions aimed at improving emotional well-being and life satisfaction [15].

The exploration of music habits during travel opens up exciting methodological possibilities. Ethnographic studies, diary methods, mobile app analytics, and even geolocated streaming data offer innovative ways to capture the nuances of how music is used in real-time and space. The integration of qualitative and quantitative approaches allows for a more holistic understanding of the phenomenon, capturing both the subjective experiences and the larger behavioral patterns involved. This kind of research is interdisciplinary by nature, drawing from fields as diverse as musicology, psychology, urban studies, communication, and human-computer interaction. By situating music habits within the broader context of everyday mobility, researchers can uncover new dimensions of youth behavior that traditional studies of either music or transport might overlook.

The local travel journeys of young adults represent a rich yet underexplored site for understanding music habits. These everyday movements provide fertile ground for the intersection of technology, emotion, identity, and space. As young adults navigate their environments with earbuds in and playlists on, they are not just moving through the city they are actively scoring their lives, using music as a tool to shape perception, manage mood, and assert identity. This study, therefore, seeks to delve into these multifaceted behaviors, uncovering not only the what and how of music listening but also the deeper meanings and implications that lie beneath. In doing so, it aims to contribute to a growing body of research that views music not as a passive backdrop but as an active, dynamic force in the lived experiences of youth today.

2. LITERATURE REVIEW

L. Kiss and K. Linnell [16] discussed that many people listen to background music while doing different tasks, but there isn't a clear answer about whether it helps or hurts performance. One reason for the mixed results might be arousal how energized or calm someone feels. This study looked at how people use background music during tasks like studying, reading, driving, or doing boring work. Among the 197 people surveyed, most said they listened to music while driving or doing boring tasks, but fewer listened while studying or reading. Those who did listen while studying or reading often chose instrumental music to help them feel calm. On the other hand, people who listened to music while driving or doing simple tasks preferred songs with vocals and used music to feel more energized. Overall, the study shows that people choose different types of music depending on the task, and they seem to understand how music affects their energy and focus.

A. Atllgan et al. [17] analyzed that music is a powerful form of art that brings out strong emotions and improves quality of life. For adolescents with cochlear implants (CIs), enjoying music can be harder because CI users don't hear music as clearly as people with normal hearing. This can affect their mental health, especially during their teenage years when music is very important. This study looked at 29 adolescents who were born deaf and use CIs. It aimed

to understand how well they hear and enjoy music, and how often they listen to it. Researchers used a special test called T-CAMP to measure music skills like recognizing melodies and understanding lyrics. They also used a short questionnaire. The results showed that teens with CIs do enjoy music and listen to it regularly, like adults who lost hearing later in life. Those who were better at recognizing melodies were also more likely to enjoy music and listen to it more often.

D. Paping et al. [18] reviewed that personal listening devices (PLDs), like headphones with smartphones, have become very common among teenagers in recent years. This study wanted to find out how often adolescents listen to music through PLDs and whether their self-reported answers were accurate. The study was part of a larger research project in Rotterdam, Netherlands. Researchers created a special smartphone app to track music listening habits for 35 days. They also sent a questionnaire by mail to collect self-reported data. A total of 311 adolescents (ages 12–15) joined the study, and 237 filled out the questionnaire. The app showed that teens listened to music about 2 days a week for around 21 minutes each day, with an average volume of 54.5%. When comparing app data with what teens reported, the match was only “slight to fair.” This means self-reports weren’t very reliable. The study suggests using smartphone apps is helpful for more accurate research in the future.

U. Shastri et al. [19] suggested that teenagers now have access to personal music devices like smartphones and earphones, and they often listen to music daily. Listening to music at high volume can damage hearing over time. This study looked at the music habits of 300 adolescents aged 13–20 from a South Indian city. They were divided into three age groups: high school (13–16), pre-university (16–17), and undergraduate (18–20). All groups listened to music for similar lengths of time and used similar devices, but younger students (high school and pre-university) more often listened at louder volumes. These younger teens were also less aware that loud music can cause hearing loss. Interestingly, 17% of the oldest group (undergraduates) reported some hearing loss, compared to only 4% of the youngest group. The study shows that younger teens are at higher risk for future hearing damage but are willing to change their habits if they are properly educated about the risks.

K. Starcke et al. [20] reviewed that listening to favorite music can give people chills and change their body reactions. People often listen to music while drinking alcohol, such as in bars or clubs. Since alcohol affects emotions and body responses, this study looked at whether alcohol changes how people feel chills while listening to music. Thirty-nine people took part in the study. Each person listened to two songs one they chose and one chosen by the researchers once while sober and once after drinking alcohol. They reported when they felt chills, and their heart rate and skin responses were measured. Results showed people felt the most chills and had stronger body reactions when they were sober and listening to their favorite song. After drinking, heart rate reactions were weaker and more similar across both songs. Also, personality traits like openness and extraversion affected body responses. In short, alcohol lowers the emotional and physical impact of music.

3. DISCUSSION

In today’s fast-paced urban environments, local travel has become an integral part of young adults’ daily routines. Whether commuting to school, work, or social engagements, young people often turn to music as a companion throughout their journeys. Music is not just a form of entertainment during these commutes it is a psychological and emotional tool that significantly influences mood and mental well-being. For many young adults, listening to music during travel is a ritual that enhances their emotional state and helps them cope with the stressors of urban life. The link between music and mood regulation is well-documented in

psychology. Music can stimulate the release of dopamine, a neurotransmitter associated with pleasure and reward. Depending on the genre, tempo, and personal connection to the music, it can either energize or calm the listener. For example, upbeat pop or electronic music might energize someone on a morning commute, preparing them mentally for the day ahead. On the other hand, slow, acoustic, or ambient tracks might help a person unwind during an evening journey after a long day.

Young adults, often dealing with academic pressures, work stress, or social anxieties, use music as a way to self-soothe and regulate their emotions. Local travel, which might otherwise feel mundane or stressful—especially in crowded public transport or traffic becomes more manageable with the right soundtrack. Music transforms the commute into a personal, immersive space, allowing individuals to detach from external stressors and refocus on their inner world. This emotional buffering is particularly important during transition periods, such as moving between different roles (e.g., from student to employee), where mood shifts are necessary. Personalized playlists, mood-based recommendations from streaming services, and algorithmically generated mixes have made mood-matching music more accessible than ever. Platforms like Spotify and YouTube offer “commute,” “chill,” “focus,” and “feel-good” playlists that align with users’ emotional states or desired moods. Young adults are especially responsive to these tools, curating their listening environments based on how they want to feel. This active role in mood management shows a high level of self-awareness and emotional intelligence. Figure 1 the genre of music you most frequently listen to while traveling.

What genre of music do you most frequently listen to while traveling?

27 responses

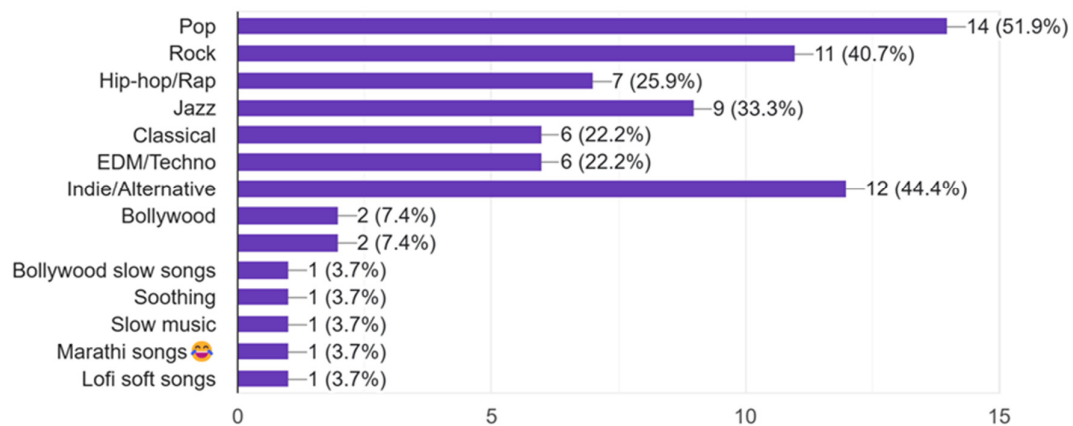


Figure 1: Shows the genre of music you most frequently listen to while traveling.

The portability of smartphones and wireless headphones means that young people can maintain continuous control over their auditory environment. This autonomy adds a sense of personal space in otherwise public or chaotic commuting scenarios. The ability to block out noise, distractions, or even unwanted interactions with others gives listeners a sense of control and privacy, which contributes further to emotional comfort. Music plays a central role in shaping the emotional landscape of young adults during local travel. It helps transform a potentially negative or neutral experience into a more emotionally enriching one. As local commuting continues to be a staple of urban life, music remains a powerful ally for young adults seeking balance, mood control, and a more personalized travel experience.

In the digital age, music streaming platforms have revolutionized the way people access and consume music. For young adults navigating busy urban environments, streaming services such as Spotify, Apple Music, YouTube Music, and Amazon Music have become essential companions during daily travel routines. These platforms not only provide easy access to vast libraries of music but also significantly influence what individuals listen to through curated recommendations, playlists, and algorithms. As a result, streaming platforms play a key role in shaping music choices during everyday commutes and local travel experiences. One of the most impactful ways streaming platforms shape listening behavior is through personalization. Using machine learning and user data, platforms recommend music based on an individual's past listening habits, time of day, location, and even activity. For instance, morning commuters might be served playlists titled "Wake Up Happy" or "Morning Motivation," while evening travelers may receive suggestions like "Chill Vibes" or "Unwind After Work." These personalized playlists often align with the listener's emotional and physical state during travel, subtly guiding their music choices without requiring active searching. Figure 2 that listening to music affects your mood while traveling.

How does listening to music affect your mood while traveling?

27 responses

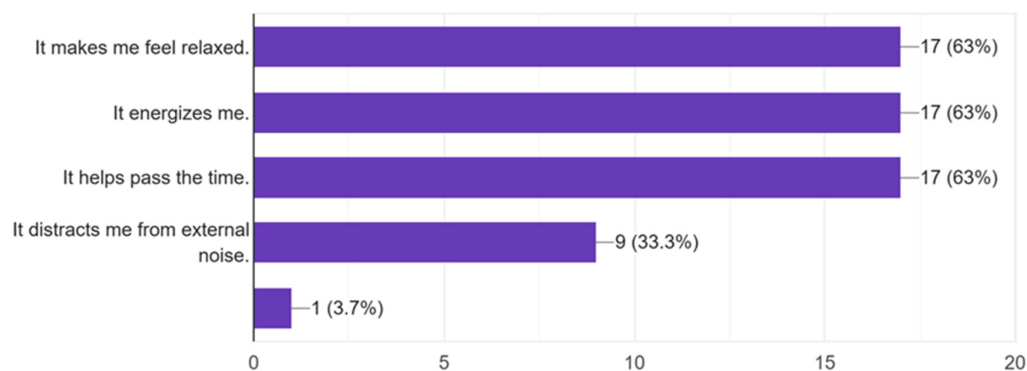


Figure 2: Shows the listening to music affects your mood while traveling.

Streaming services also offer mood- and activity-based categories, which are particularly popular among young adults. Playlists curated for travel, such as "Commute Essentials," "City Sounds," or "Drive & Reflect," are tailored to enhance the travel experience, whether one is walking, driving, or using public transportation. These thematic collections influence users to explore new artists and genres they might not have otherwise discovered, thus expanding their musical tastes in the context of travel. Another major influence comes from the social and trending aspects of streaming platforms. Young adults are highly responsive to what's popular, especially on social media. Platforms like Spotify feature trending charts, collaborative playlists, and influencer-curated selections that reflect what others are listening to. These features encourage users to engage with the latest hits or socially relevant tracks during their commutes, helping them feel more connected to cultural conversations and peer preferences.

Streaming platforms offer seamless integration across devices, allowing users to listen wherever they go. Whether using wireless headphones on a train or a car stereo through Bluetooth, the ability to start and stop music without interruption reinforces the habit of continuous listening during daily travel. Offline modes also allow users to download music for areas with poor connectivity, ensuring that urban travel is rarely without a soundtrack. For

many young adults, the convenience and personalization of streaming services have made them the default method of music consumption, especially during commutes. The ability to control, customize, and discover music enhances not only the quality of their travel but also their emotional well-being and identity expression. Streaming platforms do more than provide access to music they actively shape what people listen to, when, and why. For urban travelers, especially young adults, these services turn routine journeys into personally meaningful and emotionally resonant experiences, reinforcing music as a vital part of everyday life.

Music is a powerful emotional tool, and its impact becomes especially significant during local commuting a routine part of urban life for young adults. Whether traveling by bus, train, bicycle, or on foot, many individuals use music not just for entertainment but as a way to manage and reflect their emotional states. Emotional conditions such as stress, anxiety, happiness, or fatigue significantly influence how, when, and what type of music people choose to listen to during their daily travels. Commuting can be a stressful or monotonous experience, especially in crowded or noisy environments. In these situations, individuals often turn to music that helps reduce stress and create a sense of calm. For example, someone feeling anxious or overwhelmed may choose to listen to soothing or instrumental music to create a peaceful internal space amid external chaos. Conversely, a person who feels tired might opt for upbeat, high-energy songs to help boost alertness and motivation, especially during morning commutes. Figure 3 that listening to music while traveling helps you de-stress.

Would you say listening to music while traveling helps you de-stress?

27 responses

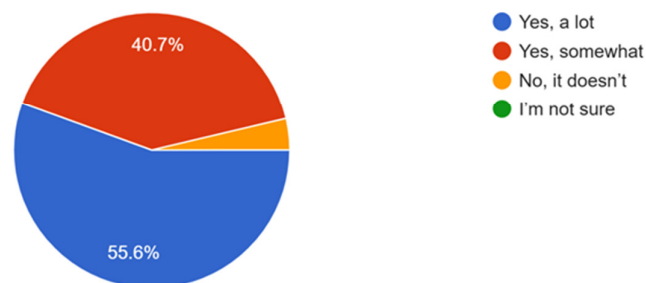


Figure 3: Shows that listening to music while traveling helps you de-stress.

The emotional state at the time of travel doesn't just dictate the tempo or genre of music—it also influences whether the individual chooses to listen to music at all. For instance, someone feeling emotionally drained may prefer silence or passive listening, such as ambient background sounds. Meanwhile, a person in a positive mood may engage more actively with their music, singing along or even curating new playlists that match their optimistic state. Mood-based listening is also shaped by specific travel situations. For example, someone on their way to an important meeting or exam may choose motivational or confidence-boosting music to mentally prepare. In contrast, someone returning home after a long day might choose nostalgic or relaxing tunes to unwind. These shifts in emotional needs throughout the day highlight how commuting and music listening are deeply interconnected with mental and emotional self-regulation.

Streaming platforms like Spotify and Apple Music recognize this emotional dynamic and often offer mood-specific playlists such as “Feeling Blue,” “Happy Hits,” or “Lo-Fi Chill.” These

curated collections cater to various emotional states, making it easier for users to select music that matches how they feel or how they want to feel. This ability to “tune” one’s emotions through music provides a sense of emotional agency, especially during commutes when individuals have limited control over external circumstances. The use of music for emotional regulation during travel isn’t just functional it’s often deeply personal. People develop strong associations between certain songs and specific memories or feelings, and commuting time provides a regular space to revisit these emotions. Whether it’s dealing with heartbreak, preparing for a new day, or simply enjoying a moment of solitude, music becomes a reliable emotional companion. Emotional states have a profound effect on music-listening behaviors during local commutes. Music serves not only as a distraction or background noise but as a carefully chosen emotional response, helping individuals navigate the psychological demands of daily travel. Understanding this connection can enhance both personal well-being and the design of better commuting experiences.

The music people choose to listen to during their local commutes is influenced by many factors, but two of the most significant are the mode of travel and the time of day. Young adults, who often rely on music to enhance their travel experience, adjust their playlists based on whether they are walking, driving, taking public transport, or cycling, and also depending on whether it’s morning, afternoon, or night. These situational factors help determine not only the type of music they select but also the energy, mood, and length of their playlists. Travel mode plays a key role in shaping music preferences. For example, people commuting by car often have more control over their environment. With high-quality sound systems and minimal interruption, they tend to enjoy louder, more immersive music such as pop, rock, or upbeat hip-hop. Long drives may invite full albums, curated playlists, or even podcasts. In contrast, those commuting on public transport like buses or trains often choose music that helps them zone out or mask the noise around them. Here, listeners may lean toward ambient, lo-fi, or relaxed genres that create a personal sound bubble in a crowded space. The use of headphones in public settings also means playlists are usually more curated for short, focused listening sessions.

Walking or biking introduces yet another listening behavior. When walking, people often choose music with a rhythmic beat that matches their stride like electronic, indie, or R&B tracks. Cyclists, depending on local safety norms and headphone use, may prefer instrumental or motivational tracks to maintain focus and pace without being overly distracted. In each of these modes, safety, environment awareness, and duration of travel are key influences on how and what people listen to. Equally important is the time of day, which significantly affects energy levels and emotional states both of which drive music choice. Morning commutes usually involve preparing mentally for the day ahead. During these hours, listeners might choose slower, softer music to ease into their routine, or energizing playlists to shake off tiredness and boost productivity. Playlists labeled “Morning Motivation,” “Wake Up Vibes,” or “Daily Drive” are popular across platforms like Spotify, reflecting this demand.

Afternoon commutes, often occurring after a full day of work or study, call for music that either helps unwind or recharges energy for evening activities. Listeners may switch to nostalgic songs, relaxing genres, or mood-lifting tracks to recover from mental fatigue. In contrast, night-time travel particularly after social events or late shifts may involve slower, reflective, or even melancholic music, helping listeners transition into rest mode. Together, travel mode and time of day form a dynamic framework that young adults use, often unconsciously, to shape their music choices. Platforms that provide context-aware recommendations suggesting playlists based on time, location, and routine are increasingly popular because they align closely with users’ real-world needs. Understanding how travel mode and time of day impact music selection offers deeper insight into the commuting habits of young adults. Music becomes not

just background entertainment, but a tool for managing mood, energy, and focus based on the unique circumstances of each journey.

4. CONCLUSION

The study demonstrates that music plays a significant role in enhancing the travel experiences of young adults during local journeys. The majority of respondents reported using music as a way to manage mood, reduce stress, and create a personalized travel environment. Listening preferences were shaped not only by individual factors such as emotional state and time constraints but also by external influences including social media trends and peer suggestions. The convenience and algorithmic recommendations offered by streaming platforms contributed to more spontaneous and mood-driven listening habits. The choice of music often changed depending on whether the individual was walking, using public transportation, or driving. These findings suggest that music consumption during travel is both purposeful and adaptive, influenced by a complex interplay of internal desires and external stimuli. As young adults continue to integrate music into their daily routines, understanding these behaviors can benefit app developers, marketers, and urban planners looking to enhance commuting experiences. Further research could expand on how these habits differ by cultural background or city infrastructure. Ultimately, music serves not just as entertainment but as a crucial tool for emotional regulation and personal comfort during local travel.

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CHAPTER 11

UNDERSTANDING MISHEARD LYRICS THROUGH COGNITIVE AND CULTURAL LANGUAGE PERSPECTIVES

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ABSTRACT:

Misheard lyrics, often referred to as “mondegreens,” offer a unique lens through which to explore how humans process language, particularly in the auditory realm of music. This study investigates the phenomenon of misheard lyrics from both cognitive and cultural language perspectives, emphasizing the interplay between perception, memory, and cultural familiarity. Cognitively, misheard lyrics can be attributed to limitations in auditory processing, phonetic ambiguity, and the brain's tendency to impose familiar linguistic patterns on unclear input. Factors such as attention, expectation, and prior linguistic knowledge significantly shape what listeners perceive. Culturally, the interpretation of lyrics is heavily influenced by a listener's language background, exposure to specific musical genres, and sociolinguistic context. Certain mishearings persist or become widespread due to shared cultural references or humorous reinterpretations that gain traction in popular media.

By combining cognitive linguistics with cultural analysis, this research highlights how both mental processing and social context contribute to the experience of mishearing lyrics. The study underscores the complexity of auditory language comprehension and suggests that mondegreens are not merely mistakes but reflections of broader linguistic and cultural dynamics.

KEYWORDS:

Culture, Language, Misheard Lyrics, Mondegreens, Perception, Phonetics

1. INTRODUCTION

Music is a universal mode of human expression that transcends borders, languages, and cultures. Whether through lullabies, national anthems, or popular songs, music plays an intrinsic role in shaping individual identity and collective consciousness. Among its many features, song lyrics often serve as a vehicle for emotional expression, storytelling, and social commentary. Yet, even as listeners engage deeply with lyrics, a common phenomenon disrupts their understanding: misheard lyrics, also known as mondegreens. This phenomenon where individuals interpret sung lyrics incorrectly has persisted for decades and is a source of both confusion and amusement. While at first glance misheard lyrics might seem trivial or humorous, they offer significant insight into the workings of human cognition and the influence of cultural and linguistic backgrounds on perception [1]. This introduction explores the cognitive and cultural dimensions of misheard lyrics, framing the issue not merely as a collection of humorous mistakes but as a meaningful lens through which to examine how language is processed, how cultural schemas influence interpretation, and how communication is inherently variable across contexts [2]. By analyzing the cognitive mechanisms that underpin speech perception and examining the socio-cultural influences that shape our interpretive

frames, we can uncover why mishearing lyrics is not only widespread but also inevitable in many contexts. In doing so, we gain a deeper understanding of language processing and the subtle interplay between sound, meaning, and context [3].

To understand why misheard lyrics occur, we must first consider the limitations and intricacies of human auditory perception. The brain does not passively receive language but actively constructs meaning from auditory input. When we listen to music, especially with vocals, our auditory system is tasked with parsing speech from a continuous sound stream that is often masked by musical accompaniment, unconventional enunciation, or rapid delivery [4]. Cognitive psychology offers valuable explanations for how our brain fills in the gaps when linguistic input is ambiguous. One of the key mechanisms at play is top-down processing, where prior knowledge, expectations, and contextual clues guide interpretation [5]. For instance, when a singer slurs syllables, uses non-standard pronunciation, or embeds words in heavy instrumentation, the brain attempts to impose familiar patterns to make sense of what is heard [6].

This pattern-matching behavior is based on previously encountered words, phrases, and linguistic structures. Thus, when faced with unclear or novel linguistic input, the listener's brain defaults to the most phonetically similar or contextually expected phrases [7]. For example, the well-known mishearing of Jimi Hendrix's lyric "Scuse me while I kiss the sky" as "Scuse me while I kiss this guy" illustrates how phonetic ambiguity combined with prior linguistic experience can generate alternative, unintended meanings.

Another cognitive concept central to this phenomenon is phonemic restoration, where the brain fills in missing or masked sounds based on contextual expectations. Research in psycholinguistics shows that listeners often "hear" sounds that are not present if they expect them in a certain context. This helps explain why even native speakers frequently mishear lyrics in their language especially when the delivery is stylized or acoustically compromised [8]. When the brain fails to reconcile the ambiguous input with a coherent interpretation, it defaults to a familiar or culturally salient alternative, which may or may not align with the intended lyric. While cognitive processes play a foundational role in misheard lyrics, these processes do not operate in a vacuum [9].

Cultural and linguistic backgrounds significantly influence how individuals interpret ambiguous auditory stimuli. People draw on their linguistic repertoire, cultural knowledge, and even popular media exposure to decode what they hear. This means that mishearings are not randomly distributed but are shaped by shared experiences and culturally specific references [10].

For example, a non-native English speaker may mishear English lyrics based on phonemes and syntax patterns from their native language. They might replace unfamiliar English sounds with more familiar ones from their first language, creating a lyric that is phonetically plausible within their linguistic framework. This form of mishearing is influenced by language transfer the application of phonological or grammatical rules from one's native language when processing a second language [11]. Cultural script schemas that outline expected behaviors, phrases, or concepts within a cultural context guide how ambiguous language is interpreted. A listener from one culture might "fill in the gaps" in a way that aligns with common phrases or idioms from their linguistic environment, even if those interpretations diverge from the actual lyrics. This cultural component helps explain why certain misheard lyrics become viral or iconic within specific communities [12]. A famous example includes the misinterpretation of Elton John's lyric "Hold me closer, tiny dancer" as "Hold me closer, Tony Danza," which became a humorous cultural meme in American pop culture. This mondegreen gains traction

because "Tony Danza" is a recognizable name in American media, making the mishearing culturally coherent even though it's semantically nonsensical [13]. Thus, the interpretive act of hearing lyrics is both a personal and social activity shaped by the interaction between the listener's cognitive processing and their broader cultural environment.

Understanding misheard lyrics also requires an appreciation of the unique phonetic environment of music. Unlike conversational speech, singing alters the prosody, rhythm, and articulation of words. Singers may stretch syllables, omit consonants, or emphasize off-beat stresses for artistic effect. These modifications, while aesthetically pleasing, introduce additional challenges for accurate linguistic perception [14]. Musical genre further complicates this process. For instance, fast-paced genres like rap or metal often feature rapid-fire lyrics that are difficult to parse even under ideal listening conditions. Conversely, slower ballads with clear enunciation might still produce mishearings due to ambiguous word boundaries or metaphorical language. In many cases, the poetic and metaphorical nature of lyrics also encourages flexible interpretation. Song lyrics are not always literal, and their abstract qualities invite multiple readings [15]. This openness can sometimes blur the line between intentional ambiguity and listener-imposed reinterpretation. Consequently, a misheard lyric may persist because it offers a satisfying or humorous alternative meaning that resonates with the listener. This phenomenon aligns with theories in semantics and pragmatics, which suggest that language users are not only decoding words but also inferring meaning based on intention, context, and coherence [16].

The study of misheard lyrics offers a unique entry point into broader discussions in linguistics, cognitive psychology, and cultural studies. On a linguistic level, mondegreens reveal how listeners segment and process spoken language, offering insight into phonological perception, lexical access, and semantic interpretation. They also expose the cognitive shortcuts that listeners use to manage linguistic ambiguity such as substituting unfamiliar input with the closest recognizable pattern. From a cultural perspective, shared mishearings illuminate the collective frameworks through which language is interpreted. The virality of certain mondegreens points to a form of cultural bonding, where groups coalesce around humorous or unexpected reinterpretations of language. In this way, misheard lyrics serve as a form of participatory culture, where listeners contribute to the evolution of meaning through reinterpretation, remixing, and humor. These reinterpretations, while technically "incorrect," often reflect profound truths about how people interact with language not as passive recipients but as active participants in meaning-making.

The prevalence of misheard lyrics in popular music underscores the dynamic relationship between orality and literacy. Many listeners consume music without access to written lyrics, relying instead on auditory memory and contextual inference. This oral mode of engagement challenges the primacy of textual accuracy in language and highlights the fluid, negotiated nature of meaning in spoken and sung communication. Misheard lyrics are far more than humorous footnotes in the history of popular music; they are windows into the human mind and the cultural world it inhabits. By examining this phenomenon through cognitive and cultural language perspectives, we gain valuable insight into how people perceive, process, and make sense of linguistic input under complex conditions. Whether driven by auditory ambiguity, cognitive heuristics, or cultural frames of reference, mondegreens reveal the deeply human tendency to seek order, coherence, and meaning even in the face of noise and uncertainty. Understanding why and how people mishear lyrics has implications that extend beyond music. It informs fields such as psycholinguistics, sociolinguistics, media studies, and even artificial intelligence, where speech recognition systems must grapple with similar challenges of ambiguity and interpretation. Misheard lyrics remind us that language is not a

static code but a dynamic, context-dependent, and culturally embedded tool of human expression. In listening more closely to what is misunderstood, we come closer to understanding the cognitive and cultural processes that shape all forms of communication.

2. LITERATURE REVIEW

H. Ye et al. [17] discussed the music available today, traditional ways of finding songs like searching by title, singer, or music file are no longer enough. People often try to find songs using lyrics they remember, but sometimes they mishear the lyrics or remember them in another language. This makes searching much harder. To solve this, the article introduces a new method called the TextToHumming framework. It works by turning the misheard lyrics into a humming version of the song. Then, a specially improved version of the DTW (Dynamic Time Warping) algorithm is used to compare this humming with real audio data in the music database. This approach helps match the song even if the lyrics are incorrect or unclear. In tests using their music collection, this method could correctly find the right song within the top 10 results about 88% of the time, showing that it works well for music searches.

H. Hirjee and D. Brown [18] analyzed the mishearing of song lyrics, especially when hearing new songs on the radio or in public places. When they try to search for these songs using regular text search engines, it usually doesn't work well because the lyrics they remember are incorrect. To solve this problem, researchers created a special method that matches the sounds of the misheard lyrics to the correct ones using phonetic pattern matching. They built a probabilistic model a system that learns from real examples of how people mishear lyrics. Using this, they created a phoneme similarity scoring matrix, which helps compare the sounds of misheard and actual lyrics more accurately. This new method was tested against other simpler ways of matching lyrics and did much better. It was able to find the correct song 5–8% more often in the top five search results, proving that understanding how people mishear words can improve music search.

N. Ring et al. [19] looked at ways to improve music search systems when someone only remembers a part of a song's lyrics but they misheard them. Searching for songs using incorrect lyrics is a difficult task, different from other types of searches like searching for names. The researchers tested three different methods to match the misheard lyrics with the correct ones. These were edit distance (which counts how many changes are needed to fix a word), Editex (a method that works well with spelling and sound errors), and SAPS-L, which focuses on matching syllables. All three methods were tested for their ability to find close matches, not exact ones. The results showed that edit distance and Editex performed about the same in terms of accuracy and ranking the right song near the top. SAPS-L had mixed results it worked well in some ways but not in others. Overall, the study shows how tricky it is to search using misheard lyrics.

T. Sinar et al. [20] suggested that digital technology is becoming more important in education, so schools need to use learning methods in digital formats. One modern approach is multimodal literacy, which means understanding and learning through different types of media, like text, images, audio, and video. This study looked at how junior high school students in Medan, Indonesia, view the use of digital tools especially the game Roblox for learning. The goal was to understand their need for digital literacy and how they feel about using games to improve their English skills. Researchers used surveys with two types of questions: one with simple yes/no answers and another using a 4-point scale to measure agreement. The results showed that students feel they need digital learning and have positive opinions about using Roblox to help them learn English. The study suggests that teaching English should include digital tools like games, making it more fun and effective for improving students' multimodal literacy.

L. Tan et al. [21] reviewed the augmented reality (AR) apps available today, most Australian primary school teachers are still not using them much to teach multimodal literacies (learning through text, images, sound, etc.). This study looked at teachers' knowledge of using technology for teaching, known as TPACK(ML) a mix of tech skills, teaching methods, and subject knowledge. Researchers surveyed 142 primary teachers and found two main groups. The first group had low confidence in using AR and felt unsure about how to include it in lessons. They also worried about their technical skills.

In contrast, the second group felt more confident and had more experience using technology in teaching. These teachers gave examples of how they could use AR in creative ways to help students learn language through multiple modes. The study suggests that teachers need different types of training and support to help them feel confident and skilled in using new digital tools like AR in the classroom.

3. DISCUSSION

Misheard lyrics, or mondegreens, are a common auditory phenomenon, especially in noisy environments where music is often played. The cognitive mechanisms behind this experience involve several interrelated processes in the brain that govern how we perceive, interpret, and make sense of spoken language particularly when that language is embedded in song and accompanied by competing sounds. Understanding these mechanisms helps reveal the underlying complexity of auditory processing and language comprehension. One of the primary cognitive factors behind misheard lyrics is auditory scene analysis, the brain's ability to distinguish different sound sources within an environment.

When music is played in a noisy setting—such as a car, a party, or a crowded café the brain must work harder to separate the voice of the singer from the background instruments and environmental noise. In such conditions, the clarity of the sung words is reduced, increasing the likelihood of perceptual errors. When the brain receives incomplete or ambiguous input, it uses top-down processing, relying on prior knowledge and expectations to “fill in” the gaps.

Top-down processing plays a critical role in why people hear familiar words or phrases even when the actual lyrics differ. The brain draws upon a person's language background, vocabulary, and common word patterns to make sense of unclear sounds.

If the actual lyric includes uncommon words or is grammatically unusual, the brain may substitute a more familiar phrase that fits the acoustic input just well enough. This is why misheard lyrics often seem humorous or bizarre they result from the brain's best guess, not from careful linguistic decoding. Working memory also influences lyric perception.

As listeners attempt to make sense of a song, they hold segments of lyrics in working memory to piece them together into a coherent message. If the input is garbled or ambiguous, memory may introduce distortions, especially if the listener is distracted or unfamiliar with the song. This explains why even repeated listening does not always correct a mondegreen once a misheard lyric is encoded in memory, it can persist unless consciously corrected.

Another factor is phonetic ambiguity. Singing often stretches or distorts words for artistic or rhythmic effect, making it harder to recognize standard speech patterns. Vowel sounds may be elongated, consonants dropped or softened, and syllables blended. This distortion increases the likelihood of mishearing, particularly when coupled with fast tempos, heavy instrumentation, or accented pronunciation. Attention is a finite resource. In multitasking environments, where listeners are driving, socializing, or performing other tasks while listening to music, their attention to lyrics is reduced. This lowers their ability to process speech accurately, increasing

the chance of inserting plausible but incorrect interpretations of what is being sung. Mishearing lyrics in noisy environments is a complex result of cognitive processes such as top-down processing, memory, attention, and phonetic decoding. Rather than being simple mistakes, mondegreens highlight the brain's remarkable ability to make sense of imperfect information by drawing on linguistic experience and contextual inference.

Table 1 outlines the primary cognitive mechanisms that contribute to the misperception of lyrics. One key factor is top-down processing, where the brain fills in ambiguous or unclear audio input based on expectations and prior knowledge. Working memory limitations also play a role, as the brain can only hold a small amount of audio information at a time, leading to guessing when lyrics are forgotten or unclear. Auditory scene analysis refers to how the brain distinguishes between different sound sources, which becomes difficult when music is layered or background noise is present. Phonetic similarity confuses when different words sound alike, especially when sung. Lastly, attention and distraction impact accuracy; when listeners multitask or are in noisy environments, their focus on lyrics diminishes. Together, these factors illustrate that misheard lyrics are not random but result from how the brain actively processes sound.

Table 1: Shows the cognitive factors influencing misheard lyrics.

Cognitive Factor	Description	Example
Top-down processing	The brain uses prior knowledge and expectations to interpret unclear input.	Hearing "kiss this guy" instead of "kiss the sky."
Working memory	Temporary storage of sounds for interpretation; limited capacity increases errors.	Forgetting earlier parts of lyrics and filling gaps.
Auditory scene analysis	Separating vocals from background noise; difficulty increases misperception.	Mistaking lyrics in a loud concert setting.
Phonetic similarity	Confusing words with similar sounds, especially in singing.	"Hold me closer, Tony Danza" vs. "Tiny Dancer."
Attention and distraction	Divided attention reduces accurate lyric perception.	Listening while driving or multitasking.

The interpretation of song lyrics is not purely a linguistic or auditory process—it is deeply shaped by cultural context. Culture influences how people perceive language, understand meaning, and interpret ambiguous or unclear lyrics. When listeners mishear or reinterpret lyrics, they often do so through the lens of their cultural background, language familiarity, media exposure, and shared social experiences. This cultural shaping plays a significant role in the creation and persistence of mondegreens (misheard lyrics), and it helps explain why different communities may hear the same song in strikingly different ways. One major cultural factor is language familiarity. Non-native speakers often struggle to recognize certain phonemes, idioms, or expressions in songs performed in a second language. This lack of familiarity can lead them to substitute words or phrases from their language or more commonly known expressions. For example, an English speaker listening to a song in Spanish might mishear words based on English phonetic patterns or recognizable phrases, even when those substitutions are incorrect. This is particularly true when lyrics use slang, regional dialects, or poetic language that deviates from standard usage.

Shared cultural references also shape how lyrics are interpreted. People tend to hear words and meanings that align with the popular culture they consume movies, TV shows, trends, jokes, and memes. For example, if a phrase in a song sounds like a popular catchphrase or quote, listeners may interpret it that way, even if it's inaccurate. This explains why some mondegreens become widely recognized within certain communities; they resonate with collective cultural knowledge and humor. The misheard lyric becomes a part of cultural memory, sometimes even more memorable than the original. Sociolinguistic context plays a crucial role as well. Listeners from different regions or social backgrounds may interpret lyrics through the lens of their dialects, slang, or pronunciation norms. For instance, an accent or vocal style may obscure certain words to one group of listeners but not to another. A lyric that seems ambiguous to someone from one country may be clear to someone from another, simply because it aligns with familiar speech patterns or cultural references. Music genres that emphasize rhythm and rhyme over lyrical clarity, such as hip-hop or electronic music, can further amplify these differences in interpretation across cultures.

Table 2 focuses on the cultural influences that shape how lyrics are interpreted and sometimes misheard. Language familiarity plays a central role, as non-native listeners may struggle with unfamiliar phonemes or idiomatic expressions, increasing the likelihood of misperception. Shared pop culture context also shapes expectations listeners may interpret lyrics through the lens of familiar media references or memes. Sociolinguistic background influences how individuals from different regions or dialects perceive the same sounds; accents and pronunciation norms differ globally, leading to varied interpretations. Cultural norms and taboos may suppress or alter perceived meanings, especially in conservative societies that avoid explicit content, while genre exposure affects understanding those unfamiliar with specific genres may misinterpret slang, rhythm, or delivery styles. This table shows that cultural experience fundamentally shapes how listeners decode lyrics, revealing how meaning is filtered through social, regional, and linguistic frameworks rather than processed solely through sound.

Table 2: Shows the cultural influences on lyric interpretation.

Cultural Aspect	Influence on Perception	Example
Language familiarity	Non-native speakers misinterpret unfamiliar sounds or idioms.	Spanish speakers mishearing English lyrics.
Shared pop culture context	Listeners hear phrases they associate with known cultural references.	Mishearing lyrics as movie quotes or memes.
Sociolinguistic background	Regional dialects and accents alter sound interpretation.	UK vs. US interpretations of the same lyrics.
Norms and taboos	Conservative cultures may reinterpret or censor perceived explicit lyrics.	Avoiding interpretation of suggestive lyrics.
Genre exposure	Familiarity with musical genres affects lyric comprehension.	Hip-hop lyrics are misunderstood by unfamiliar listeners.

Cultural values and norms can also influence how lyrics are understood. In more conservative cultures, listeners may be less likely to interpret lyrics as containing explicit or suggestive content, even if such an interpretation is plausible. Conversely, in more liberal or expressive

cultures, listeners might be more attuned to double meanings, satire, or irony in songs. This variation in interpretive frameworks reflects how cultural conditioning affects not just what people hear, but what they are willing to hear or accept. Cultural background significantly influences how listeners interpret ambiguous or unclear song lyrics. Language familiarity, media exposure, regional dialects, and societal norms all shape the way lyrics are heard and understood. These cultural influences help explain why misheard lyrics vary so widely and why they can become meaningful within specific social groups.

Phonetic ambiguity plays a central role in the phenomenon of lyric misperception, especially across different languages and dialects. In music, lyrics are often sung rather than spoken, which introduces a range of phonetic variations such as stretched vowels, dropped consonants, and altered stress patterns that can obscure the original words. When these vocal distortions interact with the natural ambiguities of language sounds, especially in multilingual or non-native contexts, the result is a heightened likelihood of misheard lyrics or *mondegreens*. Phonetic ambiguity refers to the uncertainty in identifying specific speech sounds due to their acoustic similarity or indistinct articulation. This is common in music because singing naturally alters the typical phonetic structure of spoken language. For instance, vowels may be held for longer durations, consonants may be softened or omitted, and intonation patterns often differ from everyday speech. These changes can make it difficult for listeners to identify word boundaries and individual phonemes accurately, leading them to substitute more familiar or expected sounds even if those do not match the actual lyrics.

In multilingual contexts, phonetic ambiguity is further intensified. Non-native listeners often struggle with sounds that do not exist in their first language. For example, Japanese speakers may misperceive English *l* and *r* sounds, which are not phonemically distinct in Japanese. Native Spanish speakers may confuse English *b* and *v*, especially in songs where pronunciation is unclear. This creates room for misinterpretation based on the listener's internal phonetic inventory—the set of sounds they are used to hearing and producing. When a lyric includes a sound that is ambiguous or unfamiliar, the brain often fills in a more familiar alternative from the listener's language background. Even among native speakers, phonetic ambiguity can arise due to homophone words that sound the same but have different meanings or near-homophones that are easily confused in fast or melodic speech. For example, the English phrase "Excuse me while I kiss the sky" from Jimi Hendrix's song is often misheard as "kiss this guy." Both interpretations are phonetically plausible, and the ambiguity is amplified by musical delivery. Such cases reveal that misperceptions are not necessarily due to inattention or ignorance, but rather the brain's tendency to resolve unclear input in the most contextually or culturally relevant way.

Phonetic ambiguity is also affected by the musical genre and production style. Songs with dense instrumentation, heavy bass, or vocal effects (like autotune or reverb) may further obscure the enunciation of lyrics. Faster tempos or unconventional singing techniques as seen in rap, metal, or experimental pop add to the listener's cognitive load, increasing the chances of mishearing. Phonetic ambiguity is a significant driver of lyric misperception, particularly across language boundaries. It highlights the limitations of auditory processing in challenging conditions and underscores the role of linguistic familiarity in shaping what we hear. Understanding this phenomenon deepens our appreciation for the complex interplay between language, music, and perception in everyday listening experiences.

Cross-cultural *mondegreens* misheard lyrics that occur when listeners interpret songs through the filter of a different language or culture offer valuable insights into how humans perceive and process language. These misinterpretations are not random mistakes but rather reflections of the listener's linguistic background, cultural expectations, and the cognitive strategies they

use to make sense of unfamiliar or ambiguous sounds. By examining these phenomena across different cultures, we can better understand how language perception is shaped not only by sound but also by social, cultural, and psychological factors. One of the most fascinating aspects of cross-cultural mondegreens is how listeners impose the phonetic patterns and vocabulary of their own language onto foreign lyrics. For instance, an English speaker listening to a Japanese or Korean song might subconsciously “translate” the sounds into English-like words that don’t match the actual lyrics but are acoustically similar. This often results in amusing or nonsensical interpretations that nonetheless reveal how the brain strives to make unfamiliar sounds meaningful. Non-native English speakers frequently reinterpret English song lyrics based on the phonetic patterns and meanings familiar in their first language, leading to lyric interpretations that may sound logical in their culture but are entirely different from the intended message.

These mishearings highlight the role of top-down processing in language perception. Rather than relying solely on the raw sound input (bottom-up processing), listeners use prior knowledge, expectations, and contextual cues to interpret what they hear. In cross-cultural situations, where lyrics are sung in an unfamiliar language or accent, the brain often defaults to familiar patterns to fill in gaps, leading to cross-linguistic mondegreens. This tendency reflects the brain’s effort to reduce uncertainty and impose coherence on ambiguous input, even if the result diverges from reality. Cross-cultural mondegreens also reflect the universality of phonetic perception. Certain sounds or phoneme combinations are more likely to be misheard across languages because they are acoustically similar or because they resemble common words in the listener’s language. For example, the repeated syllables in pop songs or electronic dance music are often misheard as meaningful words in another language, even if they were never intended to be interpreted that way. This phenomenon, sometimes referred to as “soramimi” in Japanese, underscores the global nature of this perceptual process.

Culturally shared interpretations of misheard lyrics can even lead to viral media and collective experiences. For example, fans across different countries often share humorous mondegreens online, bonding over misinterpretations that arise from the collision of musical phonetics and cultural language systems. In this way, cross-cultural mondegreens also shed light on the social side of language perception and how miscommunication can foster community, creativity, and shared humor. Cross-cultural mondegreens reveal that language perception is not a neutral decoding of sound but an active process shaped by cultural knowledge, linguistic background, and cognitive biases. They provide a rich window into how people across the world interpret language in music and show how deeply perception is influenced by what we already know and expect to hear.

4. CONCLUSION

The misperception of song lyrics is a compelling example of how language comprehension is influenced by both cognitive processing and cultural context. This study demonstrates that misheard lyrics result from a complex interaction between the limitations of the human auditory system and the interpretive frameworks shaped by individual experience and societal norms. Cognitively, our brains strive for coherence, filling in gaps with familiar or expected words, particularly when sound clarity is compromised. This automatic processing explains why even native speakers often misinterpret lyrics in their own language. Culturally, shared backgrounds, media exposure, and linguistic habits significantly affect how lyrics are perceived and remembered, leading to widespread and even culturally specific mondegreens. These findings underscore the fact that language perception is not solely a linguistic function but a multifaceted phenomenon that includes memory, attention, and social influence. Recognizing this can improve our understanding of language learning, cross-cultural communication, and

even the design of clearer audio systems or lyric displays. Misheard lyrics are more than amusing errors they offer insight into how deeply our minds are shaped by both biology and culture when interpreting the sounds around us.

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CHAPTER 12

EXPLORING THE IMPACT OF DIGITAL DEVICE USAGE ON POSTURE AND MUSCULOSKELETAL HEALTH IN CHILDREN

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ABSTRACT:

The widespread use of digital devices among children has raised growing concerns regarding its impact on posture and musculoskeletal health. This study explores the correlation between prolonged screen time and the development of postural deviations and musculoskeletal discomfort in children. By reviewing existing literature and analyzing observational data from school-aged children, the research highlights key physical issues associated with device use, including forward head posture, rounded shoulders, and lower back pain. Factors such as device type, duration of use, screen height, and the lack of physical activity were found to significantly influence musculoskeletal outcomes. The findings reveal that children who spend extended periods on smartphones or tablets, particularly in non-ergonomic positions, are at higher risk of developing chronic postural problems. The study also discusses the role of parental awareness and school policies in mitigating these risks. Recommendations include promoting ergonomically sound device usage habits, integrating regular physical activity, and educating children and caregivers about healthy posture. As digital device usage continues to rise, understanding its physical health implications is essential. This research emphasizes the urgent need for proactive strategies to prevent long-term musculoskeletal complications and support healthier technology habits among children.

KEYWORDS:

Ergonomics, Musculoskeletal, Posture, Screen Time, Sedentary, Technology, Traditional Play.

1. INTRODUCTION

In an increasingly digitized world, the use of digital devices such as smartphones, tablets, laptops, and gaming consoles has become an integral part of everyday life for people across all age groups, including children. Digital technology has revolutionized education, recreation, and social interaction, offering children access to vast information, e-learning opportunities, entertainment platforms, and virtual connectivity. This technological advancement comes with a set of growing concerns, particularly in terms of children's physical health. Among the most pressing of these concerns is the impact of prolonged digital device usage on posture and musculoskeletal health [1].

As digital screens become more deeply embedded in the daily lives of children, there is a compelling need to examine how this shift is influencing their developing bodies, especially their musculoskeletal systems. The early years of life are critical for physical development [2]. During childhood, bones grow rapidly, muscles strengthen, and postural habits are formed. Any disruption in this development such as that caused by poor posture, lack of movement, or repetitive strain from device use can have long-lasting effects. Digital device usage often

requires children to remain in static or awkward postures for extended periods [3]. They might hunch over a smartphone, lie on their stomachs while using a tablet, or sit slouched in front of a computer for hours. These positions can place undue stress on the neck, shoulders, back, and even wrists and fingers. Over time, such habits may lead to postural deviations, musculoskeletal discomfort, and more severe orthopedic issues such as spinal misalignments or repetitive strain injuries [4].

Several studies have begun to document an increase in complaints related to musculoskeletal discomfort among children and adolescents in the digital age. Reports of neck pain, lower back pain, and tension in the shoulders and upper limbs are becoming increasingly common. These symptoms, previously associated more with adult occupational health, are now emerging among school-aged children, signaling a worrying trend [5]. The rise in these physical health complaints parallels the dramatic increase in screen time reported in recent years. According to global health data, children in many developed and developing countries now spend more than the recommended amount of time engaged with screens, often far exceeding the limits advised by pediatric and public health authorities [6]. Digital learning, which became particularly prevalent during the COVID-19 pandemic, has intensified this issue. With classrooms moving online, children were required to attend virtual classes for extended hours without adequate ergonomic arrangements at home. Many homes lacked proper desks and chairs, and children often used couches, beds, or the floor as learning spaces [7]. This period highlighted and perhaps accelerated the impact of poor ergonomic environments and unregulated screen use on children's physical well-being. It became apparent that not only the duration but also the context in which devices are used plays a vital role in determining health outcomes.

The impact of poor posture and musculoskeletal strain during childhood is not just immediate but can also extend into adulthood. Repeated stress on the spine and muscles can result in chronic pain, reduced physical performance, and the need for medical interventions later in life. Musculoskeletal discomfort may lead to a sedentary lifestyle due to pain-related avoidance of physical activity, creating a vicious cycle of poor posture and deconditioning [8]. The consequences also extend beyond physical health, as chronic pain and postural problems have been associated with decreased concentration, lower academic performance, emotional distress, and a reduction in overall quality of life in children and adolescents [9]. While the negative physical outcomes of excessive device use are becoming more evident, the understanding of the mechanisms linking screen time to musculoskeletal health in children remains limited and fragmented. There is a lack of comprehensive data on how factors such as device type, duration of use, posture, ergonomics, and physical activity interact to influence health outcomes. Most existing research has focused on adults, particularly office workers, leaving a significant knowledge gap regarding the pediatric population [10]. Cultural and socioeconomic variables may influence how and why children use digital devices, further complicating the issue and underscoring the need for targeted research that accounts for these diverse contexts.

The urgency of this issue is amplified by the increasing reliance on digital technology for education and entertainment. While digital literacy is undeniably important in today's society, a balance must be struck between its benefits and the associated risks to physical health [11]. Parents, educators, and policymakers must be made aware of the implications of digital overuse, and strategies must be developed to mitigate its adverse effects [12]. This includes the promotion of healthy digital habits, the integration of ergonomic education into school curriculums, and the encouragement of regular physical activity as part of a child's daily routine. Equally important is the role of healthcare providers, who must be vigilant in

recognizing early signs of musculoskeletal issues in children and provide guidance on preventive measures [13]. Technological interventions themselves may also hold promise in addressing this problem. Innovations such as screen-time monitoring apps, posture-correcting wearables, and ergonomically designed furniture for children can support healthier screen use. The effectiveness of such tools depends on proper education, accessibility, and user adherence [14]. Therefore, the development and implementation of these interventions must be accompanied by widespread awareness campaigns and policy initiatives.

In light of these considerations, this study aims to explore the impact of digital device usage on posture and musculoskeletal health in children. It seeks to identify the most common postural issues and musculoskeletal complaints associated with prolonged screen use, analyze the contributing factors, and examine the awareness levels among children, parents, and educators. The research will also explore potential strategies for prevention and intervention, drawing on insights from health professionals, educators, and ergonomic specialists [15]. By providing a clearer picture of this emerging public health concern, the study aspires to contribute to the development of evidence-based guidelines and practical recommendations that can support the healthy growth and development of children in a digital age. To achieve these objectives, the research will employ a mixed-methods approach, combining quantitative data collection through surveys and assessments with qualitative interviews and observational studies. The target population will include children across various age groups, as well as their caregivers and teachers, ensuring a holistic understanding of the issue from multiple perspectives [16]. Attention will be paid to variables such as the type of device used, duration of screen time, physical activity levels, and ergonomic conditions in both home and school settings.

The exploration of digital device usage and its impact on children's posture and musculoskeletal health is both timely and necessary. As society becomes more interconnected through technology, the physical well-being of the youngest and most vulnerable members mustn't be overlooked. With the appropriate knowledge, awareness, and interventions, it is possible to harness the benefits of digital devices while minimizing their risks. This study endeavors to illuminate the path forward, advocating for a healthier, more balanced integration of technology in children's lives one that supports both their cognitive growth and physical development.

2. LITERATURE REVIEW

M. Faienza et al. [17] looked at what helps keep bones and muscles healthy during childhood and teenage years, especially focusing on how physical activity plays a role. It first explained how bones grow and change over time to stay strong and healthy. The review also showed that getting enough calcium and vitamin D, along with different kinds of physical movement, helps build strong bones. Scientists have discovered that muscles release special substances called myokines, which help bones and other parts of the body. One of these, called irisin, is important for bone health and body metabolism. The review highlighted that regular physical activity during growth is good for bone strength and may prevent bone loss later in life. It also noted that we still need to understand more about the best types and timing of exercise, especially during puberty. The review also shared recent findings about how exercise affects children with rare diseases.

J. Hussey et al. [18] looked at how obesity affects the muscles and bones of children, especially in the legs. Researchers wanted to see if there were any problems in movement, strength, or flexibility in children who are overweight, and how these issues are linked to screen time, physical activity, and body weight. Seventeen children, with an average age of about 12, took

part. Tests showed that as body weight increased, flexibility, strength, and range of motion in the legs decreased. A condition called “knock knees” (genu valgum) was also more common in children with higher body weight. The study suggests that obesity may lead to muscle and joint problems in children, especially in the lower limbs. Because of this, doctors and physical therapists should carefully check for these issues when working with children who are overweight, and take these into account when encouraging physical activity to make sure it’s safe and effective.

H. Foster et al. [19] explained that problems with bones, muscles, and joints (called musculoskeletal or MSK conditions) affect children and young people around the world. These conditions can cause pain, limit movement, and make daily activities harder, which affects not just the children but also their families and communities. MSK conditions are a part of the growing number of long-term health problems (non-communicable diseases) seen globally. The chapter explains some common MSK conditions in children and the challenges faced in treating and managing them. It also highlights the need for better teamwork among doctors, health workers, and organizations. The chapter shares examples of programs that help raise awareness, train health professionals, and improve care for children with these conditions. It also talks about the importance of doing more research to understand and treat these problems better. Overall, it shows ways to make a bigger positive impact on children’s MSK health around the world.

F. Glorieux et al. [20] reviewed that scientists have learned a lot about how bones grow and how muscles and bones work together to stay strong and healthy. This knowledge has helped improve bone health for many people. XLH is a rare genetic disorder where the body loses too much phosphate, a mineral needed for strong bones. Children with XLH often suffer from weak bones, poor growth, and bent legs (rickets), and the problems can continue into adulthood. Their bones remain soft and their muscles may also be weak. The severity can differ from person to person. Treating XLH early in childhood by restoring phosphate levels can help bones grow better and may prevent serious deformities. Continued treatment into adulthood can help maintain bone strength and reduce future health problems. Experts believe lifelong care is important for better outcomes in people with XLH.

P. Singh et al. [21] analyzed the COVID-19 pandemic, lockdowns led to a major increase in digital device use, especially because classes moved online. This study focused on how this affected medical students at Nepal Medical College, specifically looking at a condition called Digital Eye Strain (DES). DES happens when the eyes get tired from looking at screens for too long. The study included 116 undergraduate students, with an average age of 22 years. It found that 68.1% of the students had symptoms of DES most had mild cases, and a few had moderate symptoms. The most common problems were burning eyes, worsening eyesight, and eye pain. Although screen time increased a lot during the pandemic, the study did not find strong links between DES and common risk factors like posture, screen distance, or break frequency. Using lubricating eye drops and special glasses (blue light filters or anti-glare) helped reduce symptoms. The study recommends limiting screen time and following the 20-20-20 rule to protect eye health.

3. DISCUSSION

In today’s digital age, screen time has become an integral part of children’s daily routines. From online education to recreational activities such as gaming and social media, children are spending more hours than ever before interacting with digital screens. While technology has undoubtedly brought convenience and opportunities for learning, excessive screen time poses serious health risks, particularly concerning children’s posture and overall musculoskeletal

development. Prolonged screen time often results in children maintaining static, non-ergonomic postures for extended periods. This includes slouching, forward head posture, rounded shoulders, and improper spinal alignment, especially when using handheld devices or laptops placed below eye level. Over time, these poor postural habits can lead to chronic musculoskeletal issues, such as neck and back pain, muscle imbalances, and early spinal curvature changes. Studies have shown a direct correlation between increased screen time and the prevalence of posture-related complaints among children, indicating that the duration of screen exposure plays a significant role in their physical well-being.

One of the primary concerns with extended screen use is the lack of movement. When children are engaged with devices for long periods, they tend to remain in sedentary positions, reducing physical activity that is essential for muscular strength and postural stability. This inactivity contributes to weakened core and back muscles, which are vital for maintaining proper posture. As a result, even short periods of upright sitting can become uncomfortable, encouraging further slouching or leaning, thereby compounding the problem. The position in which children use their devices greatly influences their musculoskeletal health. For instance, using smartphones while lying on the bed or sitting cross-legged on the floor may lead to asymmetrical body loading and strain on certain muscle groups. Children often adopt these positions without being aware of their long-term consequences. The cumulative effect of such poor postures over months or years can result in long-lasting deformities and persistent discomfort.

The impact of screen time on posture is also age-dependent. Younger children, whose bones and muscles are still developing, are particularly vulnerable to postural issues. The earlier poor habits are formed, the more difficult they are to correct later. This highlights the importance of early intervention and awareness among parents, teachers, and healthcare professionals. To mitigate these issues, it is essential to set limits on daily screen time and encourage regular breaks during device use. Health experts recommend the 20-20-20 rule: for every 20 minutes of screen time, take a 20-second break to look at something 20 feet away. Integrating physical activities and exercises that promote strength and flexibility into children's routines can help counterbalance the negative effects of screen time. The duration of screen time has a substantial impact on children's postural health. With increasing reliance on digital technology, it is crucial to monitor and manage how long and in what posture children are using screens. Raising awareness and promoting healthy habits can protect their developing bodies and ensure long-term musculoskeletal well-being.

As digital devices become increasingly integrated into children's daily routines through online learning, entertainment, and communication the importance of ergonomics in device use has come into sharp focus. Ergonomics, the science of designing environments and products to fit the users' needs and comfort, plays a crucial role in promoting good posture and preventing musculoskeletal problems, particularly in children. With their bodies still growing and developing, children are especially vulnerable to the physical stress caused by poor ergonomic setups. Proper ergonomic device use involves positioning screens at eye level, maintaining neutral wrist positions, using chairs that support the spine, and ensuring feet are flat on the ground or a footrest. Unfortunately, most children use digital devices in non-ergonomic ways slouching on sofas, lying on their stomachs, or hunching over handheld devices. These positions often result in forward head posture, rounded shoulders, and spinal misalignment, which can lead to discomfort, fatigue, and long-term postural issues.

Table 1 outlines the World Health Organization's recommendations for screen time and physical activity for children across different age groups. For children under two years, screen exposure should be avoided entirely to support brain and motor development. For ages 3–4,

screen time should be limited to one hour, with a strong emphasis on three hours of physical movement daily. Children aged 5–17 should engage in at least one hour of moderate to vigorous physical activity, with non-educational screen time limited to two hours. These guidelines aim to balance digital engagement with essential physical development needs and healthy posture.

Table 1: Shows the screen time and physical activity guidelines (WHO recommendations).

Age Group	Recommended Daily Screen Time	Recommended Physical Activity
0–2 years	No screen time	At least 30 minutes of tummy time for infants
3–4 years	Maximum 1 hour	At least 3 hours of physical activity
5–17 years	Maximum 2 hours (non-educational)	At least 1 hour of moderate to vigorous activity

The role of ergonomics becomes even more critical when considering the duration and frequency of screen use among children today. Many children spend hours daily on computers, tablets, and smartphones without breaks. Without ergonomic intervention, this repetitive stress can contribute to the development of musculoskeletal disorders (MSDs), including chronic neck and back pain, carpal tunnel syndrome, and tension headaches. Poor posture during childhood can influence skeletal development and posture patterns into adulthood, making early intervention vital. Schools and homes often lack the awareness or resources to implement ergonomic principles effectively. Many educational institutions are not equipped with child-sized furniture or adjustable workstations, leading to awkward postures during long periods of study. At home, children frequently use personal devices on beds or couches, which further encourages unhealthy sitting or reclining positions. These environments create a cycle of poor posture and discomfort that, if uncorrected, can become habitual.

Implementing ergonomic practices doesn't require expensive equipment. Simple adjustments can make a significant difference. For instance, using books or stands to elevate screens to eye level, encouraging the use of chairs with back support, ensuring the device is not too close or too far from the eyes, and taking regular breaks for stretching can greatly improve posture. Encouraging children to use devices while seated upright at a desk or table rather than reclining or lying down can also support proper spinal alignment. Parental and educator involvement is key. By teaching children the importance of posture and modeling good ergonomic habits, adults can help instill lifelong healthy behaviors. Schools can also include posture education in health curriculums and consider investing in ergonomically appropriate furniture. Ergonomic device use plays a fundamental role in maintaining proper posture among children. With digital devices being a permanent fixture in modern childhood, prioritizing ergonomics is not just beneficial but necessary. Early education, simple environmental modifications, and consistent monitoring can prevent long-term health issues and promote a generation of children who are both digitally literate and physically healthy.

The rise of digital learning environments has transformed education for school-aged children around the world. Classrooms are no longer confined to physical spaces; tablets, laptops, and online platforms now serve as essential tools for instruction. While this shift has made learning more flexible and accessible, it has also introduced new concerns, particularly regarding the impact of prolonged digital device use on children's musculoskeletal development.

Musculoskeletal development during childhood is a critical process. The bones, muscles, and joints of children are still forming and are highly influenced by daily activities, postural habits, and physical activity levels. In digital learning settings, children often spend hours in front of screens, engaging in academic tasks without appropriate ergonomic setups or sufficient movement breaks. This sedentary behavior, combined with poorly designed learning environments, can lead to significant postural strain and developmental issues.

Table 2 compares ergonomic and non-ergonomic device use and their impact on children's posture and musculoskeletal health. Ergonomic use includes maintaining eye-level screen positioning, proper chair and desk height, and taking regular breaks to reduce muscle strain. It encourages upright sitting with back support and promotes healthy muscle activity. In contrast, non-ergonomic habits, such as using devices while lying down or slouching, result in poor spinal alignment, muscle fatigue, and postural imbalances. This table emphasizes the importance of teaching children proper device use to prevent long-term health issues related to poor posture and sedentary behavior.

Table 2: Shows the Ergonomic vs non-ergonomic device use in children.

Aspect	Ergonomic Use	Non-Ergonomic Use
Device Position	At eye level, the screen is 20-30 inches from the eyes	Below eye level (lap, bed), screen too close/far
Sitting Posture	Upright posture, feet flat, back supported	Slouched, twisted spine, unsupported back
Break Frequency	Frequent short breaks (every 20–30 minutes)	Rare or no breaks during screen time
Muscle Engagement	Supported by proper posture and active movement	Minimal engagement, muscle fatigue over time
Surface Used	Desk and chair suited to child's height	Bed, floor, or adult-sized furniture without adjustment

One of the primary challenges of digital learning environments is that they often lack ergonomic design. Many children use devices while sitting on beds, couches, or at dining tables not suited for prolonged study. These settings typically do not support the spine properly, leading to slouched positions, forward head posture, rounded shoulders, and overall poor alignment. Over time, these positions can put strain on the spine and muscles, resulting in discomfort, fatigue, and even long-term musculoskeletal problems. The structure of digital learning often demands long periods of focused screen time with few opportunities for movement. In traditional classrooms, children naturally change postures throughout the day—moving between subjects, engaging in physical education, and participating in group activities. Digital learning, by contrast, can result in static posture for hours, especially when breaks are not encouraged. This lack of movement not only affects posture but also weakens the muscles that support the spine and joints, increasing the risk of poor musculoskeletal development.

The use of handheld devices, such as tablets and smartphones, further complicates the issue. These devices are often held below eye level, causing children to crane their necks downward for extended periods. This position, known as “tech neck,” can strain the neck and upper back muscles, contributing to early spinal misalignment and chronic pain. Without early intervention, these issues can persist into adolescence and adulthood. Strategies include providing ergonomically appropriate furniture, such as chairs with back support and adjustable desks, ensuring screens are positioned at eye level, and encouraging the use of external keyboards and mice for tablets and laptops. Most importantly, children should be encouraged

to take regular breaks from screen time, stretch, and engage in physical activities to strengthen their musculoskeletal systems. While digital learning offers many educational advantages, it also poses challenges to musculoskeletal development in school-aged children. With planning and support, it is possible to create digital learning environments that protect children's physical health and promote healthy posture and movement habits that will benefit them throughout their lives.

In recent years, there has been a notable shift in children's recreational activities—from traditional, physical play to increased screen-based entertainment. This change has sparked significant concern among health professionals and parents about its impact on posture and overall physical development.

A comparative analysis of traditional play versus screen use reveals stark contrasts in how each influences children's postural health. Traditional play, which includes running, climbing, cycling, jumping, and playing sports, is naturally dynamic. It encourages full-body movement, strengthens core muscles, improves balance, and promotes proper alignment of the spine and joints. During such activities, children are constantly shifting positions, using their muscles in varied and functional ways. This variability in movement is essential for musculoskeletal development, as it helps maintain joint mobility, muscle flexibility, and postural stability. Activities like playing on monkey bars or crawling during imaginative games enhance upper body strength and coordination, further supporting good posture.

On the other hand, screen use such as watching videos, playing video games, or using educational apps typically involves prolonged sedentary behavior. Children often engage with screens while sitting or lying in static, non-ergonomic positions. These positions may include slouching on couches, sitting cross-legged on the floor, or hunching over handheld devices. Over time, such postures can lead to forward head position, rounded shoulders, and spinal misalignment.

The neck, shoulders, and lower back are especially vulnerable to strain when screens are not positioned at eye level or when proper back support is lacking. Another key difference lies in muscle engagement. Traditional play activates multiple muscle groups, particularly the core and postural muscles, which are essential for maintaining upright posture and spinal support. In contrast, screen use requires minimal muscle activation. When children spend extended hours in front of screens, their postural muscles are underused, which can lead to muscle weakness and fatigue. This contributes to an increased risk of developing chronic pain or musculoskeletal issues as early as adolescence.

Traditional play fosters natural posture correction mechanisms. For example, when a child climbs or runs, their body instinctively aligns to maintain balance and avoid injury. These repeated, dynamic corrections help reinforce proper posture. Conversely, during screen time, these mechanisms are largely inactive due to the passive nature of the activity, leading to the reinforcement of poor postural habits over time. Psychological engagement plays a role. Traditional play often includes social interaction, competition, and creativity, which keep children physically active and mentally stimulated. Screen use, especially when excessive, tends to promote mental passivity and further reduces the desire to move, creating a cycle of inactivity and poor posture. Traditional play supports healthy posture through movement, muscle strengthening, and dynamic body engagement, while excessive screen use contributes to sedentary behavior and poor postural habits. Encouraging a balance between screen time and active, physical play is crucial for the healthy musculoskeletal development of children. Parents and educators should promote outdoor and physical activities to ensure that children build strong, resilient bodies capable of maintaining good posture throughout life.

4. CONCLUSION

The increased use of digital devices among children has a clear and measurable impact on their posture and musculoskeletal health. The study underscores that prolonged and improper use of smartphones, tablets, and laptops can lead to postural deviations such as forward head posture, kyphosis, and neck and back pain, which may persist into adulthood if left unaddressed. Contributing factors include extended screen time, poor ergonomics, reduced physical activity, and inadequate awareness among caregivers and educators. These findings point to the importance of early intervention through education, policy changes, and behavioral modifications. Ergonomic practices, including screen positioning, posture correction, and scheduled physical activity, should be integrated into children's daily routines both at home and in school. Parental guidance and school programs play a pivotal role in establishing these healthy habits. With technology becoming an unavoidable part of children's lives, balancing its benefits with preventive measures is essential to safeguard their physical well-being. Future research should focus on long-term effects and the development of standardized ergonomic guidelines for children. Ultimately, a comprehensive approach involving health professionals, educators, parents, and policymakers is critical to mitigating the adverse health effects of digital device use and promoting lifelong musculoskeletal health.

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CHAPTER 13

UNDERSTANDING CULTURAL INFLUENCE ON COSMETIC CONSUMER ETHICS IN INDIAN CITIES

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ABSTRACT:

This study investigates the cultural influence on cosmetic consumer ethics in major Indian cities, where rapid urbanization, globalization, and evolving beauty standards have significantly transformed consumer behavior. Using a mixed-methods approach, the research explores how traditional values, religious beliefs, social norms, and modern consumer culture shape ethical considerations in cosmetic purchasing decisions. Key ethical concerns include animal testing, environmental sustainability, fairness in advertising, and the authenticity of product claims. The study reveals that cultural diversity within Indian cities contributes to a wide spectrum of ethical perceptions, with older generations leaning towards traditional values and younger, urban consumers showing greater awareness of global ethical standards. Gender roles, media influence, and regional identity also emerge as critical factors in ethical decision-making. The findings highlight a growing consciousness about ethical consumption among Indian consumers, although it remains inconsistent due to socio-economic disparities and varying levels of access to information. This research underscores the importance for cosmetic brands to adopt culturally sensitive ethical marketing strategies that align with evolving urban consumer values. Ultimately, the study contributes to a deeper understanding of how culture mediates ethical consumption and offers guidance to businesses aiming to engage ethically minded consumers in diverse urban Indian contexts.

KEYWORDS:

Ayurveda, Beauty standards, Consumer behavior, Cruelty-free, Ethical consumption, Globalization, Sustainability.

1. INTRODUCTION

In the 21st century, India's cosmetic and personal care industry has witnessed transformative growth, particularly in urban centers where evolving lifestyles, increased disposable incomes, and greater exposure to global trends have redefined the very notion of beauty and self-care. As cities such as Mumbai, Delhi, Bangalore, Chennai, Hyderabad, and Kolkata continue to grow into cosmopolitan hubs, the consumption of beauty and grooming products has taken on new dimensions [1]. These developments are not merely economic but deeply cultural. In the Indian context, cosmetic consumption does not occur in a vacuum it is embedded within a tapestry of values, traditions, beliefs, and social expectations. As a result, understanding consumer ethics in the Indian cosmetic industry requires a nuanced exploration of how cultural forces shape individual and collective choices [2]. This study aims to delve into the cultural influence on consumer ethics in the Indian cosmetic industry, with a particular focus on urban populations.

Consumer ethics, in the context of cosmetics, refers to the moral and ethical considerations individuals apply when making decisions about the products they purchase and use. These considerations may include concerns about animal testing, environmental sustainability, the ingredients used in products, fair labor practices in the supply chain, brand transparency, and broader issues like inclusivity and representation [3]. While such concerns are increasingly visible in global markets, their significance and manifestation in India are shaped by unique cultural, religious, and historical factors. In Indian cities, where traditional values co-exist with modern consumer aspirations, ethical consumerism takes on diverse and sometimes contradictory meanings [4]. The same product might be viewed as ethical by one group of consumers and unethical by another, depending on cultural interpretations, religious beliefs, or social ideologies.

India is a culturally pluralistic society, and this diversity significantly informs attitudes toward cosmetics. Religious practices, caste norms, dietary restrictions, regional philosophies, and historical traditions all play a role in shaping what is deemed acceptable or ethical. For instance, Hindu consumers may avoid products containing tallow (derived from animal fat), as it is considered impure and non-vegetarian [5]. Muslim consumers may seek halal-certified cosmetics to ensure religious compliance. Jain and Buddhist philosophies, which emphasize non-violence and compassion, align with cruelty-free and vegan beauty standards. Ayurvedic traditions, rooted in natural healing, influence many Indian consumers to prefer herbal or plant-based cosmetic products [6]. These preferences are not merely about product efficacy or price; they are cultural markers that define identity and ethical boundaries.

The ethical concerns of Indian urban consumers are also closely linked to long-standing social constructs such as colorism, caste, and class. One of the most controversial products in the Indian cosmetic market remains skin-whitening creams and fairness products. Despite global criticism and increasing awareness about the harm of such products, they remain immensely popular in India [7]. This reflects the deep-seated cultural preference for fair skin, which has its roots in caste hierarchies, colonial history, and matrimonial expectations. Many consumers, particularly women, are socially conditioned to equate fairness with beauty, success, and desirability [8]. As a result, ethical concerns about colorism often clash with cultural aspirations, making it difficult to label certain consumer choices as definitively ethical or unethical. This contradiction underscores the importance of examining consumer behavior within its cultural context.

Gender also plays a crucial role in shaping cosmetic consumer ethics. While the cosmetic industry has traditionally targeted women, recent years have seen a significant rise in male grooming products in India. Urban Indian men are increasingly participating in beauty and skincare routines, influenced by changing norms of masculinity, professional expectations, and the rise of male beauty influencers [9]. The growing visibility of LGBTQ+ communities in cities like Mumbai, Bangalore, and Delhi has broadened the conversation around gender and beauty. Non-binary and queer individuals are redefining beauty standards and challenging traditional gender roles, leading to the emergence of gender-neutral and inclusive cosmetic brands [10]. For many in these communities, ethical consumption includes not only choosing cruelty-free or sustainable products but also supporting brands that are inclusive, representative, and socially conscious.

Urbanization and globalization have dramatically altered how Indian consumers access and interpret information about cosmetics. The proliferation of digital media, especially social platforms like Instagram, YouTube, and TikTok, has democratized beauty knowledge and increased awareness about ethical consumption [11]. Beauty influencers and bloggers, both Indian and international, play a significant role in shaping public opinion on what constitutes

an ethical product [12]. Campaigns promoting vegan beauty, zero-waste packaging, and anti-animal testing have gained traction among younger, more educated urban consumers. These individuals are more likely to research product ingredients, check certifications (such as PETA-approved or ECOCERT), and engage in critical discussions about sustainability. Ethical awareness is often correlated with access to resources [13]. While a segment of urban consumers may prioritize ethical considerations, many others, especially those from lower-income groups, may prioritize affordability and accessibility over ethics.

The increasing availability of international brands in Indian cities has further complicated ethical consumerism. On one hand, global brands often bring higher standards of transparency, sustainability, and cruelty-free practices. On the other hand, they also introduce fast beauty models that promote overconsumption and waste.

In such a scenario, Indian consumers are constantly negotiating between their cultural values and global beauty trends [14]. For example, while a brand may be environmentally sustainable, it may not align with Ayurvedic principles. Conversely, a traditional Indian brand may be rooted in cultural values but lack transparency in sourcing or production [15]. This complexity reinforces the idea that ethical consumerism in Indian cities is not a uniform or easily measurable phenomenon; it is a mosaic of choices influenced by context, culture, and identity.

2. LITERATURE REVIEW

R. Ramadania et al. [16] looked at how brands can connect better with diverse customers by being culturally sensitive. It focuses on how cultural sensitivity, consumer ethnocentrism (preference for local products), and brand credibility influence people's intention to buy local cosmetic brands in Indonesia. The research studied four popular Indonesian brands Mustika Ratu, Sari Ayu, Wardah, and Viva known for reflecting local beauty values. Cultural sensitivity here means how well people understand and accept foreign cultures.

The study used a survey method with 120 cosmetic users, analyzed with WarpPLS 7.0 software. The results showed that when people are more open to foreign cultures (more culturally sensitive), they are less likely to prefer only local products (lower ethnocentrism) and less likely to buy them just because they're domestic. When people trust a brand and are ethnocentric, they are more likely to buy local products. So, cultural sensitivity plays a key role in shaping consumer choices.

V. Briliana and N. Mursito [17] looked at how religion, especially Islam, influences people's attitudes and decisions when buying halal cosmetic products in Indonesia. Since religion strongly shapes people's values and behaviors, Indonesian Muslims especially those living in mixed-religion communities pay close attention to whether products are halal (permissible in Islam). While most past research focused on halal food, this study explores halal cosmetics, an area with fewer studies. Researchers interviewed people and surveyed 350 consumers to understand what affects their attitudes toward halal cosmetics. They used a method called structural equation modeling with SmartPLS 2.0 to test their ideas.

The findings showed that people's attitudes toward halal cosmetics strongly influence whether they plan to buy them. These attitudes are shaped by how religious a person is, how much they know about halal products, and what others around them think. The study helps marketers better understand and promote halal cosmetics by identifying what truly matters to consumers.

L. Pitaloka et al. [18] explored why only about 25% of consumers are interested in buying green (eco-friendly) cosmetic products, even though many are available in the market. It focuses on millennials aged 15–45 in Indonesia and looks at what influences their buying

decisions like product quality, cultural changes, and social influence. Using a survey with 197 people, the study found that product quality doesn't strongly affect the decision to buy green cosmetics, even though the products are rated well. One big reason is skepticism many people believe green cosmetics are too expensive, especially given lower average incomes in Indonesia.

The biggest influence on purchasing decisions came from social media and influencers, as people tend to trust what they see online and follow influencers they believe in. The study also pointed out greenwashing (false or misleading eco-friendly claims) as another reason people hesitate to buy green products. This shows trust and affordability are key issues.

A. Cheng et al. [19] discussed the influences of people's choices when buying skin-lightening creams online, especially on Amazon. Skin-lightening products are in high demand because skin discoloration issues can affect people's confidence and have social or cultural importance. Researchers searched for "lightening cream" in Amazon's beauty section and focused on the top-rated products those with over 4 stars and more than 100 reviews. Out of nearly 2,900 products, only 40 met this high standard. They studied details like the number of reviews, price, ingredients, and customer feedback. Common ingredients in these top products were tocopheryl (Vitamin E) in 58%, ascorbic acid (Vitamin C) in 40%, and niacinamide in 20%. Surprisingly, nearly 23% had no known lightening ingredients. There was a moderate link between higher prices and better reviews. Kojic acid was the most expensive, while salicylic acid had the highest ratings. The study shows what customers value most in lightening cream ingredients, reviews, and price.

Y. Nugraha et al. [20] explored why some Muslim millennial women in Indonesia are willing to buy foreign cosmetic products. It looks at how two psychological theories social identity theory (how people see themselves in groups) and emotional attachment theory (emotional connection to a product) affect their decisions.

The research studied consumer ethnocentrism (preference for local products), judgment of foreign products, and willingness to buy them. An online survey with 208 participants was used, and data were analyzed using advanced statistical methods. The findings showed that ethnocentric people still judge foreign products positively, and if they view a foreign product favorably, they are more likely to buy it. Affinity (liking or emotional closeness to another country) made this connection stronger, while patriotism (love for one's country) only influenced how product judgment affected buying decisions. The study suggests that marketers should connect emotionally with consumers and also respect their patriotic values to succeed in international cosmetic markets.

3. DISCUSSION

In Indian cities, where modernization and global influences increasingly shape consumer behavior, traditional beliefs continue to play a powerful role in shaping ethical choices, particularly in the realm of cosmetic consumption. Urban consumers may live in fast-paced, cosmopolitan environments, but many still draw on deep-rooted cultural and spiritual values when choosing beauty products. These values, derived from Ayurveda, religion, and regional customs, inform not only what consumers buy but also why and how they use those products. One of the most significant traditional systems influencing Indian cosmetic consumption is Ayurveda, the ancient Indian science of holistic health and wellness. Even among younger urban consumers, there is a growing preference for natural, herbal, and organic cosmetics largely inspired by Ayurvedic principles. These products are often perceived as safer, more effective, and ethically sound due to their reliance on plant-based ingredients and eco-friendly production methods. Brands that align with these values often emphasize their use of time-

honored formulations and cruelty-free, chemical-free ingredients, thereby appealing to a segment of the urban market that sees traditional knowledge as a benchmark of both health and ethical integrity.

Another aspect of tradition influencing ethical consumption is the spiritual and religious framework of Indian society. Many Indian consumers, especially Hindus, Jains, and Buddhists, place a high value on non-violence (ahimsa). This belief directly impacts their stance on animal testing and the use of animal-derived ingredients in cosmetics.

As a result, cruelty-free and vegan cosmetics are gaining popularity in urban centers, especially among ethically conscious consumers who seek alignment between their spiritual beliefs and daily choices. Cultural rituals and grooming practices also play a role. Traditional beauty practices like oiling hair with coconut or almond oil, using turmeric masks, and applying henna have been passed down through generations and are considered both effective and morally sound. Urban consumers often return to these rituals as a form of cultural continuity, wellness, and ethical self-care, resisting the synthetic and sometimes harmful ingredients used in many modern cosmetic products. These preferences are often reinforced by older family members or community traditions, sustaining their relevance even in a modern context.

Word-of-mouth recommendations from family and community elders remain influential in cities, where cultural heritage is often preserved within families despite external global influences. Elders often guide younger generations toward brands and products that reflect shared values, particularly those that avoid chemicals, are not tested on animals, and come from ethically responsible companies. While urban Indian consumers are increasingly exposed to global beauty trends, traditional beliefs continue to shape their ethical decisions around cosmetic consumption. This cultural continuity influences a growing demand for natural, cruelty-free, and Ayurvedic products. Cosmetic companies aiming to thrive in Indian cities must therefore consider not just global ethical trends, but also the local cultural and traditional values that continue to define how ethics are understood and practiced in everyday life.

In today's digital age, media plays a central role in shaping societal values, perceptions, and consumer behavior, especially in the beauty industry. In urban India, where access to television, print, and social media is widespread, the media has a profound influence on how beauty is defined and how consumers make ethical decisions regarding cosmetic products. While media has the power to educate and inform, it also often perpetuates narrow beauty ideals that influence purchasing behavior, sometimes clashing with or redefining ethical considerations. Traditionally, Indian concepts of beauty emphasized natural features, health, and holistic well-being. Media particularly advertisements, celebrity endorsements, and influencer culture have introduced and reinforced Westernized beauty standards, often focusing on fair skin, slim figures, and flawless appearances. One of the most debated consequences of media influence is the normalization of skin-lightening products, which has led to ethical concerns around colorism, self-esteem, and racial bias. Brands have faced growing criticism for promoting fairness as a measure of success or desirability. In response, several companies have started rebranding these products, shifting their narratives toward "glow" or "radiance" to appear more ethically sensitive, though critics argue that the underlying bias remains. The India Cosmetics Products Market is anticipated to grow at a CAGR of 10.91% from 2024 to 2029. Increasing buying power is a major element driving market expansion. Based on World Bank data, consumer spending in India grew from USD 1.9 trillion in 2018 to USD 2.4 trillion in 2022, driving market demand. Figure 1 the Indian cosmetics products market size.



Figure 1: Shows the Indian cosmetics products market size.

Social media platforms such as Instagram, YouTube, and TikTok have further amplified these ideals. Beauty influencers and content creators often promote products based on aesthetics and trends, encouraging impulsive consumption. This environment is also fostering a new wave of ethical consumer awareness. Influencers are increasingly using their platforms to advocate for cruelty-free, vegan, and eco-friendly beauty products. By reviewing and endorsing ethically sound brands, they shape the behavior of followers who are becoming more conscious of what goes into their cosmetics and how these products are sourced and tested. The media also plays a crucial role in exposing unethical practices in the cosmetic industry. Investigative journalism, documentaries, and viral campaigns have uncovered issues like animal testing, environmental degradation, and labor exploitation, leading to boycotts and a shift in consumer preferences. Indian consumers in urban areas, who are often digitally literate and socially aware, are using this information to support brands that align with their ethical values. This shift is evident in the rising demand for transparency in ingredients, sustainable packaging, and fair-trade certifications.

That said, there remains a tension between media-driven beauty standards and ethical awareness. On one hand, aspirational imagery encourages consumption for aesthetic enhancement, often pushing consumers toward products that promise instant results. On the other hand, increasing media coverage of ethical issues is fostering responsible consumerism, particularly among the urban youth who seek a balance between beauty and values. Media in urban India has a dual impact on beauty ideals and ethical consumer behavior. While it often promotes unrealistic standards that pressure consumers into questionable purchases, it also serves as a powerful platform for ethical awareness and activism. The evolving media landscape is thus both a challenge and an opportunity for reshaping consumer ethics in the Indian cosmetic market. The importance of clean beauty and sustainability in urban purchase decisions. These findings are consistent with the expanding global trend of ethical consumerism in the beauty business, particularly in metropolitan areas. Despite a considerable preference for ethical elegance, 62% of respondents stated that pricing and quality remain important barriers, particularly among low-income participants. Figure 2 the most important factor for you in choosing a beauty product and Figure 3 the traditional beauty practices you use regularly.

What is the most important factor for you when choosing a beauty product?

84 responses

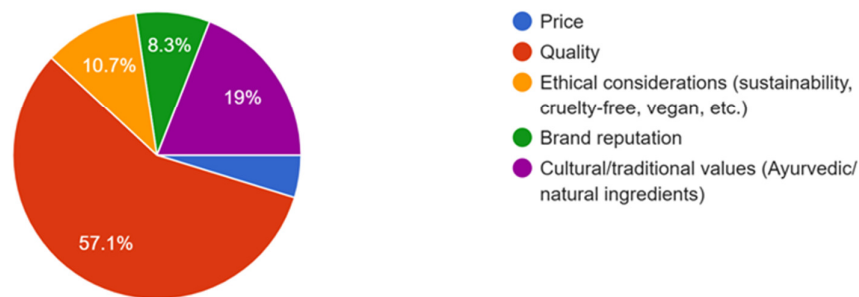


Figure 2: Shows the most important factor for you choosing a beauty product.

Which traditional beauty practices do you use regularly?

84 responses

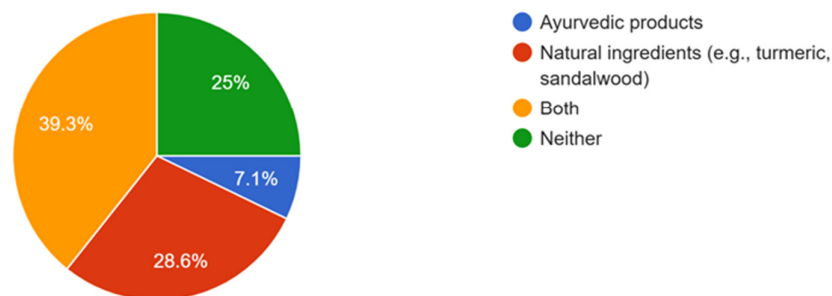


Figure 3: Shows the traditional beauty practices you use regularly.

The Indian cosmetic market is witnessing a notable shift in consumer behavior, particularly in how different generations perceive and prioritize ethics in their purchasing decisions. Urban India, with its blend of traditional values and modern lifestyles, provides a unique setting to examine how age and generational identity influence ethical cosmetic consumption. From Baby Boomers and Gen X to Millennials and Gen Z, each generation brings its values, experiences, and concerns to the cosmetics they choose to use. Older generations, such as Baby Boomers (born before 1965) and Gen X (born between 1965 and 1980), tend to favor products that align with traditional Indian values. Their preferences are often shaped by long-standing beauty rituals involving natural, herbal, or Ayurvedic ingredients. These consumers associate ethicality with safety, purity, and time-tested practices. For instance, products that avoid harsh chemicals and stay true to Ayurvedic principles are viewed as more ethical and trustworthy. They are also more likely to support local or family-owned brands that emphasize tradition, quality, and community trust over modern marketing.

Ethical concerns such as animal testing, sustainability, or corporate transparency are not always top priorities for this group unless they are explicitly linked to health or religious beliefs. For example, some older consumers avoid certain animal-based ingredients due to religious reasons, but they may not actively seek out cruelty-free certifications unless these align with

their personal values or cultural expectations. In contrast, Millennials (1981–1996) and especially Gen Z (1997 onwards) are far more engaged with global ethical discourses surrounding cosmetics. These younger urban consumers have grown up with digital technology and social media, making them more informed and vocal about issues like animal welfare, environmental impact, fair labor practices, and inclusivity in advertising. For them, ethical consumerism is not just a preference it is often seen as a form of self-expression and social responsibility.

Gen Z, in particular, is driving demand for vegan, cruelty-free, and eco-friendly products. They are more likely to research brands, check ingredient labels, and follow influencers or activists who advocate for ethical and sustainable beauty. They value transparency and are quick to call out brands on greenwashing or unethical behavior. This generation also seeks diversity in representation and prefers brands that challenge traditional beauty norms and embrace inclusivity. Interestingly, Millennials act as a bridge between the older and younger generations. While they are influenced by tradition, they are also receptive to global ethical trends. Many Millennials seek a balance between using herbal or natural products and supporting brands that are environmentally and socially responsible. Generational differences in ethical cosmetic preferences in urban India are clear and significant. Older generations prioritize cultural authenticity and natural ingredients, while younger generations emphasize transparency, sustainability, and global ethical standards. For cosmetic brands, understanding these generational nuances is essential to effectively market products and build lasting relationships across diverse consumer segments in India's rapidly evolving beauty landscape.

The Indian beauty market stands at the intersection of global ethical trends and deeply rooted local cultural values. As globalization introduces Indian consumers to international standards of ethical production and corporate responsibility, a complex dynamic has emerged where global ethics often clash with, complement, or influence local cultural practices. Understanding this interaction is essential for cosmetic brands aiming to operate successfully and responsibly in India's diverse and rapidly growing beauty sector. Global ethics in the beauty industry typically refer to principles such as cruelty-free testing, vegan ingredients, sustainability, fair trade, inclusive marketing, and environmental consciousness. These values have been championed by international organizations, advocacy groups, and increasingly, by socially conscious consumers. As a result, many international beauty brands emphasize their commitment to ethical sourcing, carbon-neutral production, and non-exploitative labor practices. These standards have set a new benchmark for what it means to be an "ethical" brand in the eyes of global consumers.

Indian urban consumers, particularly younger generations, are becoming more receptive to these global ideals. Social media, online education, and exposure to global influencers have made ethics a part of their decision-making process. Terms like cruelty-free, organic, and sustainable are now part of everyday beauty conversations in Indian cities. Many consumers actively seek certifications and transparency, aligning their cosmetic choices with broader concerns like animal rights and climate change. These global standards often exist in tension with local cultural values and traditional practices. Indian culture places significant emphasis on Ayurveda, herbal treatments, and natural remedies practices that are thousands of years old and deeply embedded in daily life. While these traditions often align with ethical principles (such as using plant-based ingredients or promoting holistic wellness), they are not always certified or standardized according to Western benchmarks. For example, a locally made Ayurvedic cream may be entirely natural and eco-friendly but lack global certifications such as "cruelty-free" or "vegan," which some urban consumers have come to expect.

Local beauty ideals, shaped by centuries of social norms, sometimes conflict with global ethical messaging. For instance, fairness creams, long popular due to cultural associations with light skin and social status, have come under ethical scrutiny for promoting colorism. While global ethics advocate for inclusive beauty and representation, many Indian brands have historically catered to narrow beauty standards rooted in caste, class, and colonial legacies. This friction presents a unique challenge: balancing respect for local cultural beliefs with the push for progressive ethical reform. The most successful brands in India are those that integrate global ethical practices without alienating local traditions. For example, combining Ayurvedic formulations with cruelty-free certifications, or promoting natural Indian ingredients while rejecting discriminatory beauty ideals. The Indian beauty market is navigating a delicate balance between global ethics and local culture. While global standards are reshaping consumer expectations, local traditions remain powerful and influential. For brands, understanding this duality is not only critical for market success but also essential for fostering a beauty industry that is both ethically sound and culturally respectful.

4. CONCLUSION

The study concludes that cultural dynamics play a pivotal role in shaping the ethical perceptions and purchasing behaviors of cosmetic consumers in Indian cities. Indian urban consumers are influenced by a blend of traditional cultural values and modern global ethics, resulting in a complex and evolving framework for decision-making. While there is a rising awareness of ethical issues such as cruelty-free testing, environmental sustainability, and fair advertising practices cultural beliefs and socio-economic backgrounds significantly moderate this awareness. Regional diversity, age, gender, and access to education further influence how consumers interpret and act upon ethical considerations. Brands operating in Indian cities must, therefore, recognize and respond to these multifaceted influences by aligning their products and communication strategies with local cultural values and ethical expectations. Tailored marketing efforts that emphasize transparency, cultural respect, and sustainability are more likely to build trust and loyalty among ethically conscious consumers. This research highlights the urgent need for cosmetic companies to integrate ethical considerations not only as a global imperative but also as a culturally contextualized strategy within the Indian market. Ultimately, ethical consumerism in India is growing, but its trajectory will depend on continued consumer education, cultural sensitivity, and responsible business practices.

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