

User Perceptions and Experiences of Targeted Ads on Social Media Platforms: Learning from Bangladesh and India

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ABSTRACT

While people's perceptions of targeted ads have been studied extensively from a Western perspective (e.g., North America, Europe), we know little about users' perceptions in the South Asian region. We interviewed 40 participants from two South Asian countries, Bangladesh and India, to explore their perceptions and practices regarding targeted ads on social media platforms. Participants identified emerging ad types, such as influencer-based ads and soft ads, through articles. In addition, participants often outweighed discounts over product quality when viewing ads. We also observed novel user mental models of targeted ads based on mobile app permissions and excessive AI usage. Participants often preferred ad control over transparency. While most participants rarely used ad settings, some controlled ads by changing mobile app permissions or muting ads on social media platforms. Participants also raised concerns about fraudulent targeted ads and privacy violations due to device sharing. We present potential design ideas to mitigate these concerns.

CCS CONCEPTS

• Security and privacy → Usability in security and privacy.

KEYWORDS

Targeted Advertisement, Privacy, South Asia

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1 INTRODUCTION

Organizations are increasingly utilizing social media to interact with consumers, resulting in a proliferation of targeted advertisements at an ever-increasing pace. People often experience targeted ads based on their past online activities and other related information [11, 55]. Studies [14, 34, 37, 55] from the Western perspective have highlighted that targeted ads cause significant privacy concerns to users. However, we know little about South Asian users' perceptions, experiences, and concerns around targeted ads. South Asia refers to the sub-Himalayan region of eight southern Asian countries, including India and Bangladesh [48]. We focused on two South Asian countries in the Global South region, namely India and Bangladesh, because of their large social media user populations and our familiarity with their cultures (we have co-authors from these two countries). Millions of users from both countries [1] actively use social media platforms such as Facebook, Instagram, and YouTube, among others. As of January 2022, India is the leading country with the most Facebook users, and Bangladesh ranks among the top 10 countries using Facebook [1].

We conducted semi-structured interviews with 40 social media users from Bangladesh and India with diverse backgrounds. This paper explores the perceptions and experiences of targeted ad privacy on social media platforms in Bangladesh and India in their cultural, social, and economic contexts. We also present concerns resulting from targeted ads that could violate privacy. Finally, we discuss users' preferences for improving Ad technology design.

Research Questions. In doing so, we examine three main research questions:

- **RQ1:** How do users from Bangladesh and India perceive and experience targeted ads on popular social media platforms?
- **RQ2:** How do users from Bangladesh and India manage their privacy regarding targeted ads on these platforms?
- **RQ3:** What concerns do users from Bangladesh and India have in managing their privacy regarding targeted ads on these platforms?

Summary of findings. Our study presents a variety of targeted advertisement perceptions and practices. While having both positive and negative impressions of ads, participants associated the benefits of ads with how much of a discount they can obtain for products where discounts outweigh the product quality.

Notably, influencer-based ads significantly affect participants' purchase decisions because of the trust in the Internet personalities endorsing those ads. Participants tended to compare ads on various social media platforms to assess ad relevancy, categories, and user experience. For instance, some believed that *"YouTube shows less relevant ads vs. Facebook shows somewhat relevant ads vs. Instagram shows relevant ads."* Participants also shared two unique mental models of how targeted ads work: (a) data sharing enabled by external app configurations and permissions on user devices and (b) data processing by various social media AIs together to update user interest profiles and generate targeted ads. Some participants used existing settings to manage targeted ads, such as hiding or reporting ads. However, most of them mentioned that this setting is not intuitive and it is time-consuming to use for users. As a result, many users reported scrolling or skipping to ignore irrelevant ads. Participants from both regions expressed concerns about fraudulent ads, especially targeting users with certain socio-economical statuses. Another concern involving social ties and impression management [56] resulted from device sharing with family members leading to embarrassing situations due to inappropriate targeted ads. Participants provided several design suggestions to mitigate these concerns, including licensing and validation for publishing ads, ranking ads, and more user control on existing settings. We noticed that users tended to prefer control over transparency. For example, they did not want explanations for targeted ads. Instead, they preferred improvements in ad management for better user experience.

Main contributions. Our work makes three main contributions: (1) our study has novel findings from under-studied populations (users in Bangladesh and India) on the various perceptions and practices around targeted ads; (2) our interview results uncover novel user mental models of targeted ads and ads settings management, shedding light on how their perceptions may differ from findings of the current literature; and (3) we present design implications of ad settings and how to improve targeted ad experience on social media platforms.

2 RELATED WORK

2.1 Targeted Advertisement from Western perspective (e.g., North America and Europe)

Defining Targeted Ads. Targeted advertising is a mechanism to reach out to potential audiences based on their online activities [2]. Advertisers track users' online behavioral information using third-party cookies or other techniques to tailor personalized advertisements [11, 36]. Previous research has explored different factors determining the outcome of targeted ads, including the level of personalization and individual characteristics of users toward targeted ads [17]. While the effectiveness of targeted ads rests upon the amount of information collected from users, it could lead to potential privacy implications for users [65]. Krishnamurthy et al. [31]

found that social media sites potentially share users' unique identifiers with third parties, allowing them to link users' profiles to multiple social media sites. Prior works have explored the need for transparency in data collection disclosure [65] to address this concern and emphasized moderating ads personalization based on users' attitudes [44].

User knowledge and controls on Advertisement. Prior literature has explored users' understanding of how targeted ads work [35, 43, 55]. Some users may be aware of companies collecting data about them. However, they often were not explicitly clear about how data collection occurs, what data companies collect, and how it is used [14, 37, 64]. In particular, the United States and Dutch users misunderstood cookies' function. The difference between cookies, browsing history, and geolocation information was unclear to consumers [37, 50]. In contrast, consumers accurately understood well-known and straightforward factors such as location, age, and interests. As for behavioral inferences and list-based audiences, users could only partially understand the definition and the usage of target advertisement [25, 59]. Even though having limited knowledge of targeted ads, consumers desire to have control over their data on targeted [53]. However, users were often unaware of the existing ad controls on social media platforms, such as the ad preference page on Facebook [24, 25]. Researchers found that users often ignore or scroll past the ad [55]. Instead of controlling ads on social media platforms, users expected familiar third-party tools such as antivirus programs and ad-blocker on browsers and specific websites to help limit target advertisements [55].

User perceptions on Advertisement. Prior research [37, 43, 54, 55, 58] suggests that users have mixed perceptions of targeted ads. Rader et al. [43] found that users were generally uncomfortable with data collection used for targeted ads. Participants were especially concerned about what data Facebook collected from them to show targeted ads. Users in the U.S. found targeted ads invasive and tend to reject tracking by advertisers [37, 54]. However, some studies [37, 55] suggest that minority participants (20%) found ads useful for browsing new products.

2.2 Targeted Advertisement in South Asia

Defining Targeted Ads. Researchers [8, 28] in the South Asian context often use the term *"online marketing advertisement"* for targeted ads. Previous research has explored the purpose and issues of targeted ads on social media platforms such as Facebook and LinkedIn in various contexts. For example, studies have examined customers' perception of purchasing through targeted ads [27], the impact of ad marketing as a tool for both consumers [61] and small businesses, especially for women entrepreneurs [51]. In a study from Bangladesh, researchers found that social media ads are often inadequate in providing authentic information. Moreover, ads are crowded with inconsistent posts and reviews from random users, making it challenging for users to shop for intended products [28].

User knowledge and control on Advertisement. Scholars [8, 21] argue that social media ads highly influence the purchase behavior of e-commerce customers. In a survey study with university students

from India, researchers [9] found that students often engaged with ads on social media platforms to receive the latest information about the products, compare products, and share reviews and opinions about the products. Simultaneously, Indian citizens' perspectives on privacy are contextual and ever-changing. Wang et al. [57] reported that among the US, China, and India, users from India were least concerned about privacy on social media platforms. Kumaraguru et al. [32] explored an empirical understanding of privacy perceptions and awareness with a sample of 10,427 participants across India and found that 50% of the participants have changed their default settings on a social network that they use. However, users rarely read the privacy policy of social media services. They also found that 46% of users interlinked social media accounts with third-party applications. Similarly, research from Bangladesh unpacked people's privacy perceptions situated in local infrastructure, social practices, and policy. They also explored the impact of rapid urbanization and digitization on people's privacy perceptions [7, 49]. An interview study with 37 participants from Bangladesh reveals users' perception of benefits, a necessity which outweighs their awareness of information leakage via smartphone apps they use [7].

User perceptions on Advertisement. Few privacy studies have been conducted in the South Asian context to understand users' perceptions, practices, and privacy preferences in social media. Norah et al. [3] situated privacy norms in social media mediated by the role of Islam and cultural tradition by referring to Nissenbaum's "contextual integrity" that regulate the flow of certain types of information [42]. Other studies include boundary negotiation to meet societal and political expectations rather than individual norms, belief in privacy [3, 6], privacy situated in Quranic text, and use of paternalistic languages [3]. Besides social media, researchers also studied privacy perception in different contexts, including sexual harassment on social media [39], device sharing [47, 52], online communities [46] to indicate the gaps in current policy landscape and its' implication to users. Mohammad et al. [45] showed that users from Bangladesh exhibit different privacy perceptions and practices (e.g., female users reported family reputation as a key criterion for their self-disclosure on social media) compared to the literature on Western developed countries. Similarly, Sambasivan and Checkley et al. [47, 48] found that fewer women in South Asia own personal devices like laptops and phones than women elsewhere. They manage and control their privacy on shared phones through phone and app locks, content deletion, technology avoidance, and private modes on apps.

Understanding users' perception of targeted ads in the cultural, social, and economic context is crucial since it can influence their behavior differently, such as manipulating their purchase decision. It is also essential to explore their current practices and challenges around targeted ads to better design controls in preserving their privacy and improving user experience that fits their context. Most previous studies explored users' perception and practice of targeted ads from a Western perspective. To bridge the gap in the literature, we focus on the perception and practices of South Asian users from Bangladesh and India around targeted ads on social media and provide design implications.

3 METHOD

We conducted semi-structured interviews with 40 participants from Bangladesh and India between January and August 2022. Our interview protocol was guided by our research questions and supported by several prior studies [8, 9, 14, 55, 64]. Most of the previous work on people's privacy perceptions of general target ads is situated in Western developed countries, such as the US or Europe. Additionally, those studies focus on targeted ads on websites or various platforms, not specifically on social media [14, 55, 64]. Simultaneously, previous research on targeted ads in the South Asian context mainly explored marketing rather than privacy concerns [8, 9]. Our study endeavors to fill the research gap by exploring South Asian (India and Bangladesh) people's privacy perceptions of social media target ads. We started with a round of pilot studies (n=5) to test the interview protocol and explore South Asian people's understanding of targeted ads. After revising the interview protocol based on the findings of pilot studies, we conducted the final round of interviews (n=40). The study was approved by Institutional Review Board (IRB).

3.1 Participant Recruitment

To help reach a wide range of participants, we recruited through different methods: (1) snowball sampling from our contacts, (2) posting on our Facebook page, and (3) contacting directly by message. We selected participants based on the responses to our screening survey. Respondents were invited to our study if they met all three selection criteria: a) 18 years or older; b) are from Bangladesh and India; c) use social media at least once a week. In total, we received 136 responses from our screening survey. We contacted 113 of them via email based on our selection criteria. In total, 40 people agreed to participate in our study. Twenty-two participants were from word-of-mouth by our contacts, while 18 were from social media posts. We decided not to recruit further because no new insights emerged from our four latest study sessions, indicating a sign of theoretical saturation [40]. Our sample from India had a limitation: participants from India in our study are people who could speak one of the two official languages (English and Hindi) (section 5.3). Our research team member from India could only speak those two languages. Participation in our study was voluntary, and participants were allowed to quit anytime. Each participant received a \$10 Amazon e-gift card upon completion of the study. The whole interview study lasted about one hour. Table 1 presents the demographics of our participants.

3.2 Pilots

We conducted five pilots from Bangladesh and India to test our study design. We revised our interview questions based on pilot feedback and observation. Critical questions arose from pilots such as - "If participants cannot draw how targeted ads work, what could be alternative ways to help them?" Two participants were unable to conceptualize the drawing task into a sketch. It is because they lacked an understanding of targeted ads in social media; in fact, one of them had never heard of this terminology. As a solution, we decided to update our protocol and add an informational video

about targeted ads to educate participants. The video includes a quick overview of how targeted ads work and provides participants with adequate understanding if they have never heard of it. It highlights four primary concepts: (a) Possible content of targeted ads, including pictures, videos, music, news, etc.; (b) Services involved in targeted ads (i.e., search engines, social, email, etc.); (c) General functionality of how targeted ads work; (d) how targeted ads are organized based on user's interest. Another question arose when we asked participants to perform the screen-sharing task so that we could observe their current practice of ad setting usage. Most pilot participants were uncomfortable with screen-sharing. Pilot 5 said: *"this is a problem. There are some privacy and security issues. It will not be convenient for me to share the screen."* To address this concern, we added alternatives for screen-sharing activity. For example, if participants were uncomfortable with screen-sharing, we let them share screenshots of their ad settings on social media during the interview with the researcher.

3.3 Semi-Structured Interview Procedure

The privacy perceptions of users from South Asia (Bangladesh and India) and their management of targeted ads on social media are understudied. As a result, we decided to conduct an exploratory qualitative study to understand their perceptions through semi-structured interviews. At the beginning of the study, we received the participants' consent to conduct the study. Once they agreed, we proceeded with a semi-structured interview. We designed the interview script based on our research questions outlined in the introduction section 1. We added the interview script to the supplementary materials.

We divided the interview into four parts. In the first part, we asked about their experience with targeted ads on social media platforms and their perceptions of seeing certain ads based on online activities. Furthermore, we asked about social media-targeted ads' benefits, downsides, and concerns. Sample questions included, *"What is the first thing that comes to your mind when you hear 'advertising' in social media? How would you explain the purpose of social media ads?" "Can you remember an experience when you accidentally clicked on an advertisement that appeared on your social media? Can you briefly share that experience with us?" "Imagine given scenario, What information do you think online advertising companies can collect about you to show these targeted ads?"*

In the second part, we presented participants with a scenario to encourage them to think about how targeted advertisement work. We asked them to draw and think aloud about their understanding of targeted ads. *"Let us assume you visited (X/Y) online to look for shoes to purchase, and a few hours later, you visited (ABC) Social Media and saw an ad for similar shoes. Please draw on paper or tablet—What do you think happened in this scenario, and explain your drawing?"* Within this activity, we aimed to understand participants' **"mental model"** of targeted ads ecosystem.

Next, in the third part, we asked a series of questions to understand participants' management strategies for targeted ads on social media and handling unwanted ads. To get rich anecdotal data, we also asked about their personal experiences and stories of how they previously managed targeted ads. In this part of the interview, we also aimed for **"observing real-time ad management activities"**

by participants. Therefore, we asked them to **"zoom screen share and walk us through"** their social media news feed and show how they customize ad settings there and think aloud during the activity when they see any ads in the news feed. Example questions from this activity were - *"Can you please walk us through other settings and explain whether, how, and why you configure the settings, especially for these ads?"* As an alternative for participants uncomfortable with screen-sharing, we asked them to share screenshots of how they used ad settings on social media.

In the fourth part, participants begin by watching a brief 2 minutes **"informational video"** on **"targeted advertisement"** to learn more about how ads work. We decided to add an informational video based on the pilot study where some participants did not have prior knowledge of targeted ads. We selected a particular video (see supplementary materials) because it clearly explains the general idea of targeted advertisement. After watching the video, we tested participants' understanding of targeted ads by asking them two multiple-choice questions. Then, we revisited questions about participants' perception, understanding, and management of social media targeted ads from the first part of the interview to assess whether the tutorial video might have changed their original understanding of the targeted ads. We also asked participants if they would like to update anything in their **previous sketch** on their *"Understanding of Targeted ads."* In doing so, we could explore both their natural perceptions in practice (without the video tutorial) and their perceptions after they had a basic understanding of targeted ads (after watching the video tutorial). We briefly discussed this in the result section 4.7. We also asked three new questions about any negative aspects they perceived about the targeted ads ecosystem (e.g., information collection and sharing) and associated stakeholders. We aimed to indicate cultural, economic, and political differences in the perception of the South Asian population while their personal information is at stake.

We interviewed the participants over online communication platforms (e.g., Zoom, mobile audio call). One participant from Bangladesh had network bandwidth limitations to join a zoom call. Alternatively, we conducted an audio call over mobile. As discussed in section 3.2, we chose an alternative screen-sharing activity for this participant. This alternative activity was decided based on our pilot participants' response in case of individual privacy around real-time social media screen sharing with researchers. We asked this participant to browse her social media feed while we were on an audio call. We instructed the participant to think aloud about how she currently uses different ad settings to manage the advertisement when she sees one. We also asked this participant to take and share screenshots of ads and usage of ad-setting during/after the call.

Two authors who conducted the interview were natives of Bangladesh and India, spoke the local languages Bengali and Hindi fluently, and were familiar with the local culture and customs. With participants from Bangladesh, we conducted interviews in Bengali (the official language of Bangladesh) or English as per the participants' preference. Similarly, participants from India spoke a mix of English and Hindi, and interviews were conducted either in Hindi or English as participants felt comfortable. Each session took about 45-60 minutes.

3.4 Data Analysis

Study data were obtained primarily through Zoom audio/video/screen recording of the interviews upon participants' permission. We collected each participant's interview and think-aloud responses during the session. Two researchers, native Bengali and Hindi speakers, translated the transcriptions into English. We then performed thematic analysis on our transcriptions [18]. Two researchers independently read through 20% of the interview transcripts, developed codes, and compared them until we developed a consistent codebook. We met regularly to discuss the coding and agreed on a shared codebook before coding the remaining data. Once we finalized the codebook, two researchers divided the remaining interviews and coded them. After completing coding for all interviews, both researchers spot-checked the other's coded transcripts and did not find any inconsistencies. Finally, we organized our codes into higher-level categories. We calculated the inter-coder reliability (Cohen's Kappa = 0.88), which is considered good [20].

We followed an open coding and deductive analysis method to explore participants' perceptions, practices, and challenges of social media targeted ads. We grouped lower-level codes into sub-themes and further extracted main themes. We iterated this process to finally produce approximately 50 themes to interpret the results of participants' perceptions, concerns, individual experiences, and challenges with targeted social media advertisements. Some example themes are: "Influencer Based ads," "South-Asian consumerism and discounts," "Ad setting- Desktop vs. Mobile," "Fraud targeted on low-income population"

3.5 Participants

We interviewed 40 participants, 20 from Bangladesh and 20 from India. From Bangladesh, an equal number of males (M=10) and females (F=10) participated. From India, slightly more females (60%) participated than males (40%). Most participants from Bangladesh (65%) were in the 25-34 age range, five participants were in the 18-24 age range, and two were in 35-44 years. Most participants (60%) from India were in the 25-34 age range, while two were in the age range 35-44 years, two in 45-54, three in 55-64, and one in 65-74. Most participants from Bangladesh (65%) and India (60%) were in the 25-34 age range. For Bangladesh, 25% are in the age range of 18-25, and 10% is 35-44. None of the participants are more than 45 years old. In contrast, in India, 40% of the participants are distributed in the age range of 45-74. Participants had at least a high school degree. Bangladesh participants' educational status was diverse, which includes high school (10%), freshmen (5%), Bachelor's degree (40%), Bachelor of Medicine, Bachelor of Surgery (MBBS) (5%), professionals (5%), masters (25%), and doctorates (10%). From India, most of them (55%) had a Master's or a Professional degree, five had a Bachelor's degree, and four had a Doctorate. Participants from India (50% having a graduate degree) leaned towards a higher education status which can strongly or moderately be believed to be correlated to socioeconomic status (SES) [60]. Refer to Table 1 for demographic details.

4 RESULTS

In this section, we present findings related to participants' perception of targeted ads on social media, their management strategies,

and concerns about targeted ads. We also present participants' design suggestions for improving the ad experience.

4.1 Participants' General Impression and Experience

Impression of Targeted Advertisement. Participants from Bangladesh and India discussed several benefits of receiving ads, including exploring and comparing various product deals while affording a convenient and time-efficient shopping experience. However, participants also shared negative impressions of targeted ads, such as "*repetitive/annoying ads on the newsfeed*," and "*random ads in between or at the start of video*" P1B noted that- "*I was watching a video on Facebook for 10 minutes, in between, several ads for 10-15s interrupted my interest to watch the main video. It is so annoying.*" Participants from India contrasted how ads on social media platforms could help sustain small businesses while also becoming a playground for big companies' blatant **monopolization**. When we asked "*Is it useful for you to see ads that are tailored to your interests?*", participants responded affirmatively. Participants who responded "*Not all the time, Sometimes, No*" differentiated between two types of search activities, namely, search for contextual needs and general search. For instance, P3B noted: "*I believe they already have my profile and what I am searching. Sometimes what I search, not necessarily what I will actually purchase or be interested in (general search). AI shows some new suggestions based on those searches that are not really useful.*" Unlike contextual searches, she found it useless to see ads based on general searches because she did not do those searches intending to buy products.

Interaction with Targeted Advertisement. Participants discussed their experiences of interacting with targeted advertisements. Many participants clicked targeted ads to reconfirm the quality of the products based on product reviews, number of positive/negative reviews, and product details. P4B explained how he assesses an ad's authenticity based on reviews on the ads page, "*Facebook is not trustworthy considering the review or ranking process. [...] Many people, including myself on Facebook, don't buy products if there are not many reviews. Also, sometimes, competitors of similar products provide intentionally negative reviews. [...]*" He highlighted that consumers have to assess the reviews smartly because sometimes reviews can be intentionally corrupted (negative) by competitors to drive away business. Similarly, P15I noted another scenario when users click ads out of curiosity - "*Yes. Occasionally. It happens out of curiosity. The intro part of the ad is attractive. But when you visit, you find it is of no use.*". More than half of the participants from Bangladesh and India accidentally clicked ads for various reasons, such as the ineffective design of ads on mobile interfaces, deceptive "*skip button*" in video ads, and virus-infected devices redirecting to spam sites. P16B noted - "*Most often, some ads are lengthy (in videos) 8-9 s [...] then I tried to skip and accidentally clicked on the ads from mobile due to the small screen.*"

Information Used/Process to Show Advertisement. Participants from both regions provided an array of possible mechanisms to show targeted advertisements. The most common responses were browsing history within the social media platforms and external browsing activities, which confirmed existing literature [55]. Several participants mentioned the market basket/cluster employed

ID	Country	Gender	Age	Education	ID	Country	Gender	Age	Education
P1B	Bangladesh	Female	25-34	Bachelor's degree	P1I	India	Female	25-34	Bachelor's degree
P2B	Bangladesh	Male	18-25	Freshmen	P2I	India	Female	25-34	Bachelor's degree
P3B	Bangladesh	Female	25-34	Master's degree	P3I	India	Male	25-34	Professional degree
P4B	Bangladesh	Male	25-34	Professional degree	P4I	India	Female	25-34	Master's degree
P5B	Bangladesh	Female	35-44	Bachelor's degree	P5I	India	Female	25-34	Professional degree
P6B	Bangladesh	Male	25-34	Bachelor's degree	P6I	India	Female	25-34	Bachelor's degree
P7B	Bangladesh	Female	18-25	High school graduate	P7I	India	Female	25-34	Professional degree
P8B	Bangladesh	Female	25-34	Bachelor's degree	P8I	India	Male	25-34	Professional degree
P9B	Bangladesh	Female	25-34	Master's degree	P9I	India	Female	35-44	Master's degree
P10B	Bangladesh	Female	35-44	Doctorate degree	P10I	India	Female	25-34	Professional degree
P11B	Bangladesh	Male	25-34	Bachelor's degree	P11I	India	Female	25-34	Master's degree
P12B	Bangladesh	Female	18-25	High school graduate	P12I	India	Female	45-54	Doctorate degree
P13B	Bangladesh	Female	18-25	Bachelor's degree	P13I	India	Female	45-54	Doctorate degree
P14B	Bangladesh	Male	25-34	Master's degree	P14I	India	Male	65-74	Doctorate degree
P15B	Bangladesh	Male	25-34	MBBS	P15I	India	Male	55-64	Doctorate degree
P16B	Bangladesh	Female	18-25	Bachelor's degree	P16I	India	Female	25-34	Master's degree
P17B	Bangladesh	Male	25-34	Master's degree	P17I	India	Male	55-64	Master's degree
P18B	Bangladesh	Male	25-34	Doctorate degree	P18I	India	Male	55-64	Bachelor's degree
P19B	Bangladesh	Male	25-34	Master's degree	P19I	India	Male	35-44	Bachelor's degree
P20B	Bangladesh	Male	25-34	Bachelor's degree	P20I	India	Male	25-34	Master's degree

Table 1: Participant demographics and background.

by social media to suggest closely related product ads based on consumers' current purchase behavior or that of people in the same cluster, which also confirmed literature [62]. Participants also experienced "Ads retargeting" as P7I noted, "If I have made a google search, I see those ads appearing on Insta and FB." When asked about information collection by online ads companies, one-third of participants from Bangladesh indicated a slightly different list of information before and after watching the informational video about targeted ads. For example, before watching the video, P15B assumed ad companies collect information such as demographic info, mobile/email address, and group/cluster behavior (e.g., relatives added to social media accounts). However, after watching the video, he updated his responses to search history, page visits, and purchase history. Lack of understanding of how targeted advertising works possibly contributed to the difference in before and after responses. This supports the literature on the lack of privacy literacy in Bangladesh [26]. However, from India, few participants changed their responses after watching the video. For example, when we initially asked P4I whether ads were tailored, she responded 'no' because "It's not useful. Most of the time, it is useless because it constantly puts things on your face that you don't want. It shows products based on recent searches." Even though she noted that the ads are based on recent searches, she interpreted tailored ads in terms of the 'usefulness of the ads.' However, after watching the video, she agreed that ads are somewhat tailored, "Yes, but not entirely. Just because I choose to type something for a search does not define my personal interest. It could be random thought." After watching the video, she associated 'tailored Ads' with her 'personal interest' and not the 'utility' of an Ad.

4.2 Unique Perception of Targeted Ads

4.2.1 Format of Ads. Our participants identified a variety of ad formats, such as a combination of text and image content in social media feed [30], video advertisement [63], sponsors ads [29]. However, they also highlighted two novel ad formats: influencer-based ads and soft ad targeting.

Influencer Based Ad. Many participants from both regions pointed out the prevalence of influencer-based ads on different social media platforms, especially Instagram and Facebook. Participants emphasized "ingrained trust" towards product ads created by certain celebrities and internet personalities whom they follow and, in some cases, consider an idol. Thus, advertisements posted such 'trusted' celebrities positively impact their purchase decision. For instance, P3B shared "Shakib al Hasan's (cricketer) is a popular person worldwide with millions of followers. He promoted jukebox, Brac bank tara credit card ads. His ad inspired me as a cricket fan to get the card. Also, top people choose to promote ads of products with much consideration, so the product should be good." Participants from India also shared experiences with influencer ads but did not associate them with celebrity trust and brand value. For example, P4 shared that "On Instagram, I don't really see the ads for the products, but I see the reels and videos for that product from established influencers. Or see (food) recipe videos and reels from (other) influencers."

Soft Ad Targeting. Participants also shared how they experienced soft ad targeting through articles posted on Facebook from websites such as BuzzFeed and The Quint (from India). P6I shared, "I see posts from BuzzFeed and Quint - 'these are the 20 top skincare products' - that people are buying and that you should too." Inside

these articles, several products are listed with user reviews and links to buy through Amazon or other retailers. She continued that *“I am seeing posts for skincare products on buzzfeed, quint, vogue, etc, and I see one particular moisturizer appearing on all lists. And then Nyka starts showing ads for that moisturizer. Then I might end up buying it.”* She pointed out that when she notices a particular product repeated in all articles, it entices her to buy it.

4.2.2 Compare Targeted Ads on Various Platforms. Participants compared targeted ads on different platforms, mainly Facebook, Instagram, and YouTube. They differentiated based on three aspects- (1) **Relevancy and repetitiveness**, (2) **Users’ experience (e.g., interruption by ads)**, (3) **Ad categorization based on platform**.

Many participants indicated the efficiency of various social media ecosystems in generating relevant ads based on users’ interest profiles and online behavior. P15B compared YouTube vs. Instagram vs. Facebook and noted that *“On YouTube, the ads are very repetitive, even 2 ads in a row in videos, you cannot skip it, cannot minimize it, it forces me to see ads. YouTube ad is not relevant at all. Cooking items, dresses, daraz [...] are not relevant. On Instagram, I do not see ads, and it even has a system to block (ads) if you have multiple accounts on Instagram. On Facebook, I see mixed types -some are relevant, some are not.”* Several participants from Bangladesh also observed that ads from the native language were repeated more often compared to ads from international brands in English. P15B noted - *“I didn’t see much repetitive ads from international brands in english language. International, brands ads are okay, Samsung, Xiaomi, etc. Chaldal, pathao— those are repetitive.”*

Participants also explained the level of interruption caused by ads on different social media. Specifically, they noted the nature of Ads (static vs. video content) as a major cause of the interruption. P16I reported that YouTube ads cause more interruption than Instagram - *“Most prominent in YouTube. If I am watching a video and I don’t have a premium account, there are donation ads. Ads on Instagram and FB are static so it does not interrupt the flow.”*

Participants further categorized ads based on targeted users on various ad platforms. P3I compared how ad content and type differ on Instagram, YouTube, and Twitter. P3I noted- *“On Instagram, it picks up whatever conversations I have. E.g., shopping.[...] But Youtube throws ads at me based on the content I engage with on the platform. For Twitter, I see self-promotion’ ads. Also, get many crypto ads.”* P3I further claimed not to receive Ads on LinkedIn while he got ads on Instagram based on his web search - *“Whatever I search on Google appears on Instagram. My web search is feeding into my Instagram. However, on LinkedIn, I don’t see ads. Nobody is trying to sell clothes on LinkedIn. The purpose is also changing. They are trying to cater to professional needs.”*

4.2.3 South-Asian Consumerism and Discounts. People tend to make purchase decisions based on how much discount they would get, regardless of product quality or fraud risk. Some participants shared that they even lost their money in an attempt to secure large discounts on a product which ultimately turned out to be a fraudulent Ad. According to P15I- *South Asian consumerism and discounts: Esp in south Asian countries, the user checks for price. If there is a 50% sale on a product, then they just buy without checking for quality. E.g., in the case of sports shoes, if you compare the price tag for Nike or Adidas with other non-brand shoes, then you prefer the cheaper*

ones.” P15B similarly indicated product discount as a motivating factor - *“I am shopping savvy. I like product offers, prices, outlet near-house locations, and shopping for new offers. For me specifically, If I get to know about offers with 40-70% discount. I would go for it, I am okay with the quality.”* Prior work [4] has highlighted that individuals often follow the model of immediate gratification when making decisions, even if those decisions could risk their privacy. Similarly, these users were drawn by the immediate savings for their purchase.

4.3 Users’ Mental Model of Targeted Advertisement

To explain how companies might show ads to users, our participants generally shared two types of mental models. The most popular responses included multiple stakeholders, such as third parties and first parties (e.g., social media and shopping companies) exchanging data in users’ profile creation. Another common mental model involved an AI-driven concept which includes *“AI generated users’ cluster,”* *“AI design to nudge users with Ads,”* *“AI being confused with users who heavily searched”*. For example, P19B commented - *“I searched a lot of different items [...] The ads AI system might get confused. Maybe that’s why I don’t see useful ads since I searched too much.”* Some participants who mentioned AI-driven concepts specifically noted those as hypothetical notions. It ties back to how users think about algorithmic systems and how those systems function [41], which is not necessarily to be understood as a false belief, but rather, the way users imagine or perceive [12].

To further unpack users’ mental model, we provided participants with a detailed scenario to understand their thoughts about how targeted advertisement work and how information flows. We asked them to sketch their understanding and think aloud. We synthesized and conceptualized their sketches into broad categories -**(1) who tracks and collect users’ information on various platform, (2) how data is shared, and (3) how data is processed**. The first category includes data collection by browser cookies, connecting third parties with first parties, which confirmed previous literature [64]. We present the concept of data share and process here.

4.3.1 Data Shared by External App Configuration. Many participants believed that device app permissions enable the collection of users’ information, including audio, camera access, and microphone, to social media apps. This implicit user permission allows device manufacturers to share (essentially sell) users’ information with social media platforms, such as Facebook and Instagram. In this model, users’ device permission becomes the primary entry point for targeted ads. P16I explained *“Data is captured from my phone by these apps. The terms and conditions of these apps are hard to read, and users allow to access data. In another scenario -Data is saved by app 1. Shared by a common intermediary. It sells it to a different entity.”* P7I shared a similar mental model (Figure 1). Participants from Bangladesh also shared this mental model. P13B explained that within the device, apps could interact with each other via permission. For instance, online shopping apps can interact with Facebook to share users’ information. In another scenario, she noted that *“there could be another app in the same device collecting the information as third party and then, sharing those with Facebook app.”*

Finally, Facebook generates targeted Ads for the audience.” Figure 1 presents examples of this model.

4.3.2 Data Processed by Various Social Media AIs. Participants who proposed this model believed that various social media AI systems have a central mechanism (e.g., database) to process users’ information, such as online activity and keyword searches. For example, if a user’s behavior and search get updated on one social media, such as Facebook, the user’s interest database on Instagram will also update. Individual social media AI systems will then match new interests with old interests database to generate ads. P9B noted - “All AI of social media platform is connected and process data with updated user interest over time. If I never searched for shoes before and I searched for shoes on Facebook for the first time, it will be shared to Instagram, and their AI has a central system to match new information and process it.” Similarly, P5I explained how AI could share and process keywords across different platforms - “Google search shares my information with Instagram. Instagram takes key works from Google search, e.g., Fab India, Girl, Lehenga Choli (dress) for 2-year-old (product searched on Google). And then, they show ads based on these keys words using their algorithm. The system is smart to take the keywords and generate ads automatically.” Figure 2 present examples of this model.

4.4 Targeted Ads Management Strategies

4.4.1 No Use of Ad Privacy Setting. More than half of the participants in our study reported that they never used any existing advertisement controls on social media platforms. They attributed it to a lack of awareness and difficulty in discovering and using existing Ad settings. For example, P19B shared that ad settings are complicated to use and difficult to navigate. In his words- “I don’t think there is actually a good setting to control. The features are too much even to find out and use. Maybe the user experience is not good and not noticeable by users.” Even though some participants discovered the Ads setting, they argued that managing the ads setting is time-consuming or requires much effort. P8B noted that- “On Facebook, I never used any strategies. Using those options would take more time than using an ad blocker.” P13B preferred using ad settings on the mobile interface compared to the desktop because of the minimalist user interface on the former. She noted- “Preference list of ad setting is easier in mobile with the lesser option, the desktop version has too many options” Most participants didn’t find it necessary to manage ads settings and ignored existing settings. For example, P5I did not use any ad settings because she found ads useful. She said “I generally find ads useful. I really enjoy watching the ads. The power to buy products is in my hands.”

Most participants who did not use ad settings reported **scrolling down** or ignoring the ads. P2B commented that “If the ad is not relevant, I don’t care much, I just scroll down and go to the next topic or post that I am interested in.” Since the objective on social media is browsing posts, participants mentioned they skipped ads to save time. For example, P9I said that “I don’t use any ad settings. Instead, I just scroll past the ad because I don’t have time. Ads disrupt my flow.”

4.4.2 Use of Ads Setting. Participants from Bangladesh and India reported using a number of existing ad settings, such as hide, report, and video ad skip as well as self-formulated strategies, such

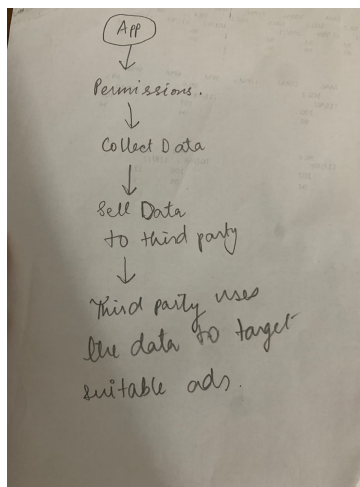
as unfollowing ad pages and turning off notifications to control advertisements in social media.

Hide / Report ads. Hiding Ads is a frequently used ad control by participants, mainly on Facebook. Participants found Hide ads settings to be a handy option to control the frequency of the ads if they are uninterested in some ads or annoyed by repetitive ads. P13I noted that- “I custom ads that I don’t receive ads for donations or prayers about recovering. Hide them from my newsfeed.” Some participants further mentioned that the Hide ad setting failed to meet their expectations of managing Ads. They still received ample repetitive ads even after using the Hide ad setting. For example, P7B noted that “Some pages send ads so frequently that if I refresh, I see the ad again. So (Hide ad) setting actually doesn’t work.” Compared to Hide ad control, participants did not frequently use Report ad Setting. P7B reasoned that she avoids using the Report ad feature because it is time-consuming, “why reporting Ads, such as misleading, spam, scam, etc. If I choose to report, then they will ask for so much information, so I don’t use the report option.” YouTube also has a similar control, i.e., “Don’t show content.”

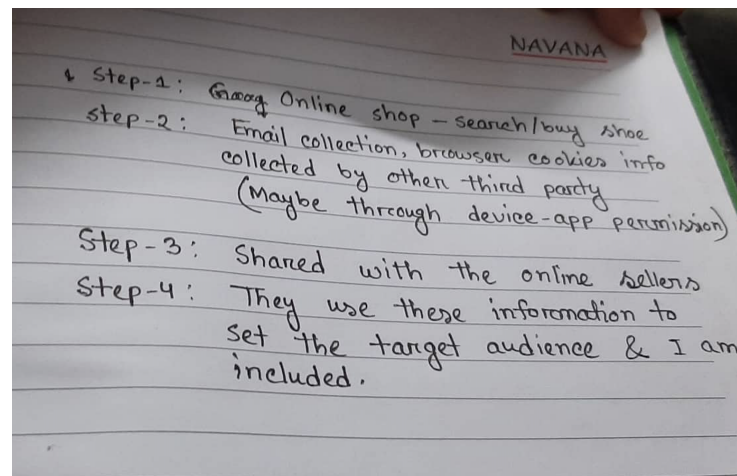
Self-formulated Ad controls. Participants mentioned their strategy to control ads, specifically muting ads on Facebook stories and unfollowing ad pages. P4B prompted to ad page and unfollowed the page with an expectation that he will not “Sometimes I unfollow if I don’t like repeated ads. I go to the ad page and unfollow the page.” Expanding on using the ad mute option on Facebook story, P7B noted- “I use mute ads, there are some ads coming from some pages with nude content in my facebook stories even if I didn’t like or follow those pages before.” Some participants also mentioned using speed-up settings in YouTube videos with the intention of skipping the Ad. P16B noted- “In video Ad, there is a feature of speeding up the video, I can now speed up the videos on Facebook like youtube.” Participants also explained how they managed ad permissions using device settings, hoping that it would also limit the ads. Specifically, P8I managed app permission settings by changing data access permission within iPhone settings. For each app, he applied different settings to access permission. For example, the screenshot 3(c) demonstrated the settings he applied for YouTube app with iOS permission. He further explained that “Now I am very mindful to turn the location off for an app that does not need it. Also, other features include microphone settings. If Uber requires my location, I understand. But if a news app requires my location or microphone setting, I turn it off.”

4.5 Concerns

4.5.1 Ad Fraud on social media. Multiple participants from India and Bangladesh experienced **online ad fraud**. While some participants mentioned how they received poor quality items or never received the item after purchasing, others highlighted how some fraudulent ads targeted people from a specific socio-economic class. For example, P17B pointed out that “ads are targeting the middle class to fraud them”. He shared how one of his friends invested a sizeable amount of his savings into a company he came across through Facebook ads. After the first installment payment, the company vanished with all his money. He suggested that a possible reason behind such frauds could be that “people are not educated in Bangladesh and poor and middle class and want to make money.

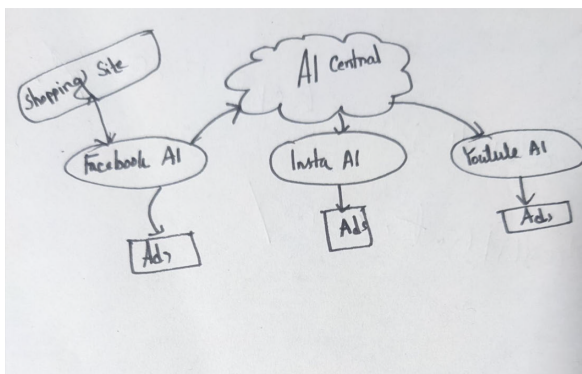


(a)



(b)

Figure 1: Data Shared by External App Configuration: when a user visits an online shopping store from a mobile device, it will share the user's information with other apps in their device, including social media apps, because of app permission mechanisms. Social media generate targeted ads based on the information received. Figure (a) is P7I, and Figure (b) is P13B.



(a)



(b)

Figure 2: Data Processed by Various Social Media AIs.: when a user visits an online shopping store and shares data with X1 social media, the user's interest profile is automatically updated with new information across X1, Y1, Z1 social media by the AI system. It then generates a targeted ad for the users. Figure (a) is P9B, and Figure (b) is P5I.

Those companies' targets are those non-educated people who don't know much about online fraud in the online space". Participants from India shared similar thoughts about how lack of computer literacy could make people easy victims of online ad fraud.

After the participants experienced ad fraud, they had **no means of redressal**. For example, P17I shared his experience of trying to reach out to Facebook for ad fraud, "I saw an ad on FB about some Bluetooth device in 2019. I thought it was a good price. I purchased it in cash on delivery. When I received it, it was poorly packaged, and it was a kind of fraud. I complained to FB and the company. They did not respond. I don't know what the role of FB in this situation is. I don't

know where I should go to register a complaint." He highlighted two interesting aspects: first, a consumer is unclear about whom to reach out to if they experience ad fraud. Second, consumer organically expects Facebook to take some action since it allowed a fraudulent ad to reach the audience on their platform. He further suggested that "Social media should also be aware of the quality of ads and products being advertised. Social media should check the quality of ads. Because otherwise, everyone will be behind social media that such fraudulent products are showing on their platform. It impacts FB's brand value.". In his view, Facebook should shoulder responsibility for the quality of ads it allows on the platform because users trust Facebook's

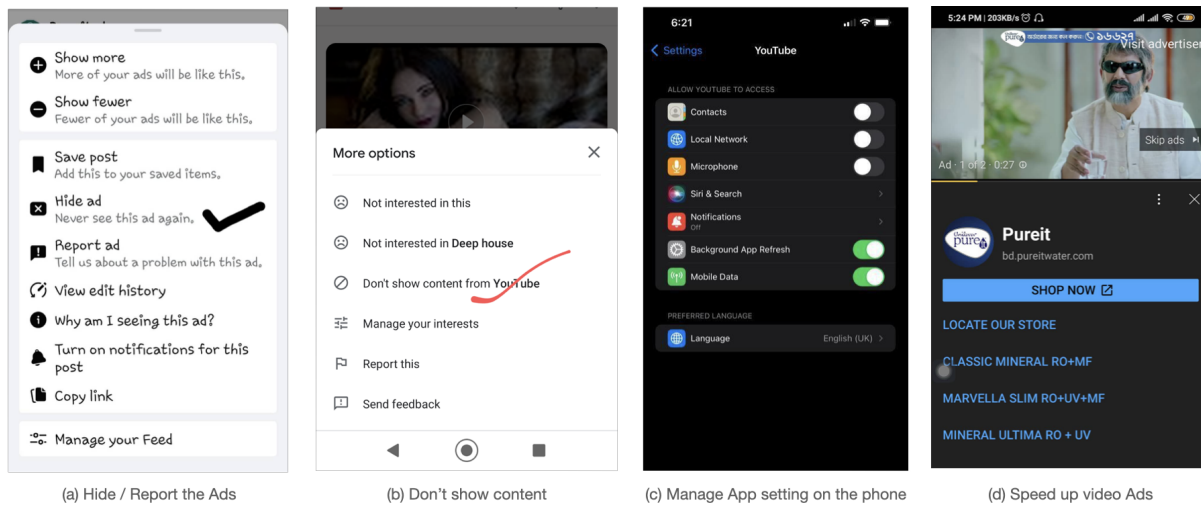


Figure 3: Ads controls used by participants; Figure (a) is Hide ads on Facebook; Figure (b) is Don't show content on YouTube; The participant in Figure (c) is limiting YouTube data access on iPhone; Figure (d) is skipping video ads.

brand when they buy products through ads on its platform. Sharing similar concerns, P4B discussed the importance of implementing existing regulations and possible ways to enforce those in validating ads' legitimacy. He expected Facebook to establish standards that distinguish entities and block ads from fraudulent entities. In his word - *"we don't enforce laws in our countries like western countries. Facebook can be customized to adopt those types of laws and create licensing processes with people who are conducting business."* He further highlighted the growing distrust of users towards Facebook, resulting from a lack of platform accountability/reliability.

4.5.2 Device Sharing and boundary management. Participants highlighted how **sharing of devices** with family members, especially with young children, could be a cause of concern. For example, P10I shares her laptop with her child. Sometimes she would use the laptop to watch some soap operas. She shared an example of how *If you watch a particular cable TV channel (online), you will see ads for those channels. E.g., soap opera v. bbc or educational channel. Some ads might not be suitable for kids.* She worries that when her child uses the same laptop, they might see ads for soap operas that may not be suitable for their age. On the same note, P8B shared an incident when sharing device (e.g., laptop, mobile phone) led to an embarrassing situation with her family members. Often her mom used her phone for social media log-in, mainly to be updated about national crises. She happened to click on a news ad *"Islamic dress policing"*, which redirected her to a porn video site creating an embarrassing situation for them. In her words - *"My mom, 50 years old, saw these ads, and it was so embarrassing for her. She thinks she saw it because she might see it before using my phone."*

4.5.3 Psychological manipulation and body-image issues. Several participants expressed annoyance at the **repetitive nature of ads** on social media platforms. They argued that it creates **psychological pressure** to buy products. For example, according to P6I *"It feels like they are creating a need for you, make you believe that you*

need it." Others argued that companies selling their products on platforms such as Facebook deeply understand users' preferences to entice them to buy more products. P15I highlighted that *They have deep knowledge about the psychology of users, e.g., in my case, I get ads for books. I also get ads for hiking and trekking. They attack you on your weaknesses.* Associating this scenario with the physical marketplace, P12B mentioned how social media ads adopted the characteristics of a salesperson who usually influence potential buyers to purchase certain products, even if they might not need them. She said - *"people in person can influence me to buy something in store. But online, Ads are showing things in repetitive ways.[...] I often buy things for fear of not getting the product if I wait. I buy things I don't need."* Female participants also argued that ads on social media platforms are **gender specific**. Sometimes they would receive ads on Instagram or Facebook targeted at losing weight or other fitness programs. For example, P5 shared that after she delivered a baby, she started getting ads on Instagram about weight loss programs for new moms. It constantly made her conscious about her weight and created *"mental pressure to buy health service to get fit."*

4.5.4 Listening/Reading personal conversations. The majority of participants from both countries suspected that their **conversations were tracked** by some entity. Participants identified three types of conversations being tracked, phone calls, in-person, and messages sent on communication apps such as WhatsApp and Messenger. P6I shared how she started receiving ads for a specific clothing brand on Facebook after her mom recommended it on a phone call. *"I was discussing a particular brand with my mom on the phone. I immediately started seeing the ads for that brand on FB. It is a little creepy. Things that you are referring to thru phone conversation - social media knows it. No privacy even in phone calls."*

In another instance, P7I shared how she started receiving travel-related ads after an in-person conversation with her brothers. *"I was discussing with brother (face-to-face) with our phones nearby*

about travel plans for international travel. After some time, I saw ads for tour packages on international travel.” P8I shared a similar experience and added “I have never given my consent to listen to my microphone.” Additionally, he also suspected that social media platforms read through his WhatsApp messages because according to him “Me and some friends were discussing which phone to buy on WhatsApp chat. Now we all see ads for that phone.” He argues that “WhatsApp claims that chats are encrypted, but the data still leaks out to show ads”. In a similar context, P11B expected his data to be dealt with differently when it’s public vs. private information on social media. He considered Facebook posts as public content and messenger text to be private. He expected Facebook not to use messenger texts to show ads. In his word- “Many say, Facebook is using those text data anonymously. But I don’t believe so. Public posts are public; Facebook can use them. But the messenger text is private, [...] when they are collecting without consent.”

4.6 Participant Suggestions on Privacy Designs

We asked our participants to suggest features of a magic tool that could help them manage ads on social media. Participants suggested various features, which we describe below.

4.6.1 User control and Experience. Participants suggested various design suggestions to see ads differently on the social media platform. Some participants preferred that ads should be **shown at specific times** of the user’s choosing. P5I reasoned that “Instagram sometimes throws ads at you even when you don’t want them. It can get irritating.” She proposed that there should be “A type of time setting. E.g., show me ads at a specific time duration.” Similarly, participants preferred to see ads in a separate window within the social media app. For example, P10I suggested “To have a dedicated page so that I can choose when I want to go there. Rather than putting it randomly and causing inappropriate situations for me. Tailored ads are good, but a dedicated page would help balance that.”

Some participants highlighted that they found existing ad feedback features from YouTube helpful. P1I explained, “YouTube ads sometimes deliver good ads, sometimes not. It sends surveys when you skip ads. I like YouTube asking about what ads I like.” Similarly, P15B suggested to adopt **existing features from other social media platforms**. As such, he compared the ad preference setting of Twitter and Instagram with Facebook - “On Instagram and Twitter there are options asking for user’s preferences from time to time. Facebook could also do something similar for relevancy. In crisis time, during covid, Facebook asked for a covid related survey before saving user’s status and preferences. Why not ask in ordinary situations, asking for preferences?”

Participants also suggested that social media apps should have an option for users to **filter ads based on their interests**. For example, P12I shared that there should be an “Option for users to see certain kinds of ads. They should not bother me with ads I don’t want.” It would help her to filter irrelevant ads. Similarly, P12B shared her experience of receiving Ads with educational resources for Bachelor’s admission while she was already a senior-year undergraduate student. She indicated Similarly, P3I and P13I wanted to filter repetitive ads. P3I explained “If I am done with buying a certain product, then the ads should stop. E.g., I am done with buying a phone,

but they still show me ads for other phones.” He found the repetitive nature of ads annoying and useless.

Participants from Bangladesh suggested having compatible advertisement management settings across devices. P11B encountered issues while using the skip button on his phone, which seemed to be working well on his laptop “I used the Cross button, and it is too small to click from mobile phone (Facebook video ads).”. Although he was aware of Facebook’s ad settings, he found them ambiguous to use. He preferred **minimalist Ad settings**- “Facebook already has so many options and features. adding more features, I don’t think will work for me.”

4.6.2 Mitigating fraud & User Education. Participants from both countries experienced ad fraud on social media platforms. They suggested that social media platforms should verify ads and filter spam ads. For instance, P5I suggested that social media platforms could add “Some icon to show that the ad is not spam, e.g., similar to a blue tick on Twitter to show that the user is not bot”. P4B suggested adopting Facebook’s existing public figure “**account validation process**” and “**blue tick mark**” for ad verification - “When someone creates a page and signs up for ads within Facebook, Facebook can validate if those are the real seller. Like Facebook has some blue tick options in different validated public figure pages.” Another design suggestion from P12B was creating a **ranking system for advertisements** in similar categories based on certain metrics such as the number of positive reviews. She suggested that it will guarantee a certain level of trust towards advertisements- “Facebook can create a ranking of same category ads based on a number of positive or negative reviews. It will make the ads more trustworthy.” Participants also highlighted the need for increased user **awareness and computer literacy** in the South Asian region. For instance, P15I highlighted that, “Consumers must become more intelligent, esp in south Asian countries. Because of a lack of computer literacy, people just get attracted to ads instead of going thru our intelligence, that is what we want. Hence we get confused and order things we don’t want. Technology is present, but user intelligence is lacking.”

4.6.3 Policy and Transparency. Several participants suggested that social media platforms should be transparent about tracking user activities across the internet and seek user consent to be tracked online. P1I explained, “I would like Instagram to ask me if I am comfortable sharing activities on specific website when I am browsing it. Instagram should make the data sharing policy explicit at the beginning of using the app. They should be clear about what websites they track and not track and not hide in verbose language.” Others suggested that social media platforms and related stakeholders should create industry standards around data sharing between social media platforms and third-party companies. Similarly, P20B speculated that social media profits from users’ information and should be transparent. We also found that some participants did not want to see any ads on the social media apps because that would disrupt the flow of using the app or would not be useful.

4.6.4 Design Preferences for Ad Explanation. To explore participants’ design preferences for ad management, we asked if they would like to see an explanation of why they see certain ads. Surprisingly, the majority of participants from both countries preferred

not to have an ad explanation. Some participants felt ad explanation was unnecessary since they already knew how to manage ads through existing settings. For example, P19I said that *“Not really. Because even if I get an explanation, it will not have any purpose. I can block ads I don’t want to see.”* Some participants indicated that ad explanations could cause anxiety when companies collect a large amount of user information. P1I mentioned that *“I am not much interested in getting the explanations because it might ‘freak’ me out.”* P20B similarly highlighted that *“I would not, it might make me worried that they are collecting such info.”* Even though some participants were interested in seeing Ad explanations, they were concerned that companies could provide misleading information. Participants did not trust companies to provide them with accurate explanations. It could further confuse users and propagate misinformation. A small number of participants prefer to have ad explanations for certain ads instead of all to avoid information overload. P3B noted that *“I am okay with minimum ads; overload is not acceptable. Having ad explanation for each ad will be an overload.”*

4.7 Targeted Ads Perception: Before & After Educational Video

As discussed in method section 3.3, we revisited questions about participants’ perception, understanding, and management of social media-targeted ads from the first part of the interview to assess whether the tutorial video impacted their original understanding of the targeted ads. A few participants from Bangladesh and India added or updated some details after watching the educational video. One example is from Bangladesh, where P5 mentioned an array of data collection by advertisement companies, including *“email address, recovery email address, id, interest, search, friend’s id”* before the video. However, after the video, she updated her response and added *“cookies”* to the initial response. She mentioned being unaware of cookies and how they worked in the context of the targeted advertisement before the video. Similarly, P7I from India remembered cookie use after watching the video. She further shared her experience comparing cookie notifications in UK and India while each website in the UK asks for cookie preference, even small restaurants. Similarly, for the drawing task after the video, two participants slightly updated their sketches based on the scenario after they watched the video.

5 DISCUSSION

Our results provide insights into how participants from Bangladesh and India perceive targeted ads on social media platforms (RQ1), manage ad privacy settings (RQ2), and share concerns emanating from targeted ads (RQ3). Our work contributes to two understudied perspectives: (1) under-researched populations (people in Bangladesh and India) and (2) targeted ads on different social media platforms. In this section, we first compare findings from prior work on ad privacy with our study findings. Then we provide design and policy recommendations to improve users’ targeted ads experience and privacy on social media platforms.

5.1 Key Findings

5.1.1 Users’ perception of targeted ads on social media platforms. Early work found that people tend to have a mixed or negative

attitude toward targeted ads, with most users opposing third-party tracking [37, 54, 55]. However, in the contemporary globalized context, people are willing to embrace the benefits of target advertisements with conditions such as *“deliver the ads really interests me”* and *“I have enough control over information tracking”* [5, 14]. Confirming and extending prior studies, our participants from India and Bangladesh had positive and negative impressions of targeted ads. In line with the results of Agarwal’s study [5], low ad quality, such as showing irrelevant, fraudulent, and embarrassing ads, is the main reason for the negative feeling of targeted ads. It contrasts with the findings of early work that attributed pervasive tracking as the leading privacy concern. Furthermore, one unique finding of our work is that participants’ attitudes toward OBA are complex and depend on the context, such as advertisement type and which social media platforms are showing ads.

Prior work in the western context has reported various ad formats on social media platforms, such as a combination of text and image content, [30], video ads [63], and sponsored ads [29]. Our participants identified **two novel/emerging ad formats**, influencer-based ads, and soft ad targeting via articles. In particular, our participants connected *“ingrained trust”* with influencer-based ads but not with other types of ads.

Our results showed that participants tend to **compare ads’ categories**, relevancy, repetitiveness, and interruption of browsing activities on various platforms, including Facebook, Instagram, and YouTube. Their attitudes toward targeted ads on different platforms changed based on the evaluation of the metrics mentioned above. For example, participants reported impatience with YouTube ads since ads on YouTube are hard to skip and highly repetitive.

5.1.2 Users’ mental model of targeted ads on social media platforms. Our participants from both countries lacked a nuanced understanding of how targeted ads work, which conforms to previous works [5, 37, 55]. When asked to describe how targeted ads work, they shared five mental models, three of which are reported in the prior works situated in the western context: third-party data collection, first-party data collection, and browser cookie collection [64].

Two unique mental models reported by our participants are a) data shared by external app configurations/permissions and b) data processed by various social media AIs. The first mental model refers to implicit permission (default on) of mobile devices’ information collection, such as audio, camera, and microphone. Participants believe mobile manufacturers could share/sell this collected information to social media platforms and generate target ads. For the second mental model, participants claimed that various social media platforms’ AI systems share one central database. The AI system could collect user behavior data on one social media platform (e.g., Facebook) and could be used to recommend target ads on other platforms (e.g., Instagram). Prior studies (e.g., [10, 16]) in the western context reported that users desire interpretable explanations about targeted ads. In contrast, most of our participants **did not want explanations** for targeted ads because they believed the explanations could lead to misinformation or were simply unnecessary.

5.1.3 Users’ controls of targeted ads on social media platforms. Similar to prior work in the western context, some participants used existing ad settings, such as hiding or reporting ads [24, 25], or

scrolling or skipping irrelevant ads [55]. Participants also highlighted an interesting **South Asian consumer tendency** to buy discounted products without checking for the seller's legitimacy or product quality upon viewing the ads. Acquisti et al. [4] highlighted that individuals tend to make privacy myopic decisions and reveal personal information in exchange for immediate gratification, such as a reward or a heavily discounted product. However, such decisions could lead to ad fraud targeted at specific socio-economic classes or people with low computer literacy and awareness.

5.1.4 Users' concerns of targeted ads on social media platforms. Several studies [38] reported multiple user concerns about targeted ads, including an extensive range of information collection, pervasive monitoring, and inaccurate profiling. Agarwal's study showed that Indian users worry about advertisers misusing collected information. For example, advertisers may use their phone number to send spam texts and marketing calls. Our participants reported similar concerns. However, they shared other unique concerns situated in their cultural context and lived experiences. For instance, some female participants reported receiving gender-specific targeted ads leading to body image issues while also experiencing privacy infringement due to device sharing with family members such as children. Additionally, participants mentioned that the repetitive nature of ads created psychological pressure to shop. They also suspected that social media platforms constantly track users' conversations.

5.2 Design Implications

Redesign the skip ad option. Our participants mentioned scenarios where the "skip button" did not work as expected on both desktop and mobile interface. It redirected them to the Ad page outside of social media. This behavior is similar to clickjacking, where clicking on a link or a close button would redirect the users to an ad or a malicious site [19]. The skip ad button could be designed to skip/close the ad as one would expect. Furthermore, many participants mentioned accidentally clicking ads from mobile UIs due to the non-compatible features of social media across different devices (e.g., desktop vs. mobile). Considering [22]) responsive design guidelines [23] could make users' ad experience better.

Verify legitimate ads and sellers. Several participants from both countries fell for fraudulent ads they encountered on social media platforms. Currently, social media platforms (i.e., Facebook) primarily focus on fact-checking and political ad disclosure [15]. Participants reported losing money by purchasing low-quality or fake products from social media scam ads, which indicates a lack of regulation and quality control. Individuals have limited resources to filter scam ads with existing features, such as "report ads" button on Facebook and Instagram, etc. We suggest that social media could incorporate features to assess the quality and verify the legitimacy of ads. For example, social media platforms could combine Natural Language Processing model and human evaluation to build a scam ads detection system. Verified ads on platforms could include an icon (e.g., a tick mark) to separate them from scam ads.

In-platform features for explicit consent for app permissions. Many participants expressed their suspicions and concerns

about social media platforms monitoring messenger texts, accessing cameras, and listening via microphones to generate ads. We also observed our participants using phone settings on their mobile devices to configure app permissions for social media platforms, such as location and microphone. However, configuring these app permissions outside the social media platforms was considered time-consuming for our participants. We suggest two alternatives to increase the effectiveness and transparency of app permissions. First, social media apps/sites could show the list of permissions (i.e., location) and allow users to set/change preferences within social media sites to increase accessibility. Second, social media apps/sites could ask users for explicit consent to collect certain information via device permissions and integrate explanations of why they are collecting permissions. It could provide another opportunity for users to make a just-in-time informed decision in the data collection process. Prior studies [13, 33] suggest that users value transparency and are more likely to accept app permissions if provided with explanations.

Redesign UI of ads user feedback on social media. Our results show that participants find it difficult to gain useful information from other users' comments on ads. It is because the positive and negative comments were mixed, and the overall feedback on the product's quality is hidden in disorganized comments. Social media could provide ranking indicators (i.e., the percentage of positive and negative reviews) that can allow users to interact with ads and make informed purchase decisions.

Improve Discoverability of Existing Ad Settings Participants preferred transparency about the data-sharing mechanism between third parties and social media platforms to show them targeted ads and how users could manage related permissions. They suggested that social media platforms share a list of involved entities and let users control it. Even though some social media platforms offer similar ad controls, they are riddled with discoverability and usability issues [25]. For instance, the Ad Preferences page on Facebook provides options for users to see fewer ads in their news feed and customize ad topics ('Ad topics'). However, the 'Ad Preference page' is separated from the news feed and hidden in settings. More than half of our participants self-reported never using existing ad controls on social media platforms because of a lack of awareness and difficulty in discovering existing Ad settings, similar to [25]. We suggest that social media platforms could integrate these controls in a menu on the corner of an ad to improve accessibility. While interacting with an ad on Facebook, users could tap on the three-dot menu next to each ad to access the ad control that allows them to see it less often.

Data tracking transparency and threshold. Participants were unclear about the data sharing mechanism between third parties and social media platforms to show them targeted ads. Users are often given a binary control to choose whether Facebook can use data from partners to show personalized ads without clearly explaining the data-sharing process. Social media platforms could improve the transparency of ad settings by clearly defining different types of third parties involved and explaining the underlying data-sharing process. For instance, they could use bullet lists to visualize the data shared with various third parties and allow more fine-grained control for users to choose the third party they want to enable data sharing.

5.3 Limitations and Future Work

Our exploratory study has some limitations. First, we only recruited from two South Asian countries. Therefore, our findings may not be representative of users from other South Asian countries. Second, for participants from India, our sample data only included people who could speak either English or Hindi since the researcher interviewing them could only speak those two languages. However, India is a diverse and vast country with over 22 languages spoken in different parts of the country. The inclusion criteria of participants from India may have further added limitations with certain socio-economic statuses.

Furthermore, researchers recruited participants through word of mouth and posts on their social media accounts. Therefore the recruited participants are limited to the socio-economic and educational circles of the researchers. In other words, we cannot claim that our findings will necessarily represent the user populations in India and Bangladesh in general. Future work could mitigate these limitations by conducting large-scale survey studies. Lastly, our study only surfaced a set of design ideas rather than deeply exploring such ideas. Future studies could conduct co-design sessions to generate more design ideas and dive deeper into those ideas.

6 CONCLUSION

We conducted semi-structured interviews with participants from two South Asian countries, Bangladesh and India, to explore their perceptions, practices, and concerns related to targeted ads on social media platforms. We found that participants uniquely positioned their perception of targeted ads by comparing it across different social media platforms, often relying on influencer-based ads for purchase decisions, etc. While they indicated concerns and challenges, such as fraudulent ads and poor user experience, surprisingly, they value controls over transparency in the case of Ad management settings. We provided design implications to mitigate those challenges.

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