The Online Behavioural Advertising Tripod: Understanding the Linkages between Users' Knowledge, Privacy Concerns and Customers' Attitude

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ABSTRACT

Online Behavioural Advertising (OBA) is a marketing technique of providing personalized advertisements to targeted customers, because it involves personal data collection that consumers feel privacy-conscious. This study aims to establish interlinkages between the knowledge about OBA, privacy concerns, customer atitude and OBA acceptance in the context of Indian consumers. Based on literature review, it was identified that the knowledge about OBA and privacy concerns are the two consumer-controlled factors. A study framework was developed to guide the study based on litererture review.

With the help of an online survey, a sample of 104 responses was collected and the results were identified with equal number of males and females. The results suggest that increasing the knowledge about OBA with reduction in the privacy concerns is the need of the hour. Marketers and other stakeholders must work to increase the knowledge about OBA among consumers. Reducing the privacy concerns could increase the positive attitude towards OBA. This will further increase the chances of OBA acceptance. The observations of the current study could be used by future researchers as well as by marketers while formulating their policies involving targeting advertising.

Keywords: Online behavioural advertising, Indian consumers, Privacy concerns, OBA acceptance, Attitude of customers.

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ثلاثية الإعلان السلوكي عبر الإنترنت: فهم الروابط بين معرفة المستخدم ومخاوف الخصوصية وموقف المستهلك

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ملخص

الإعلان السلوكي عبر الإنترنت (OBA) هو أسلوب تسويقي لتقديم إعلانات مخصصة للعملاء المستهدفين، لأنه يتضمن جمع البيانات الشخصية للمستهلكين الذين يشعرون بوعي بالخصوصية. تهدف هذه الدراسة إلى إنشاء روابط بين المعرفة حول OBA، ومخاوف الخصوصية، وموقف العميل، وقبول OBA في حالة المستهلكين الهنود. بناءً على مراجعة الدراسات السابقة، تم تحديد أن المعرفة حول OBA ومخاوف الخصوصية هما العاملان اللذان يتحكم فيهما المستهلك. وقد تم تطوير إطار للدراسة بناءً على مراجعة الأدبيات. وبمساعدة الاستبيان الذي تم إجراؤه عبر الإنترنت، تم جمع المعلومات من عينة تضم 104 من المستجيبين، وتم جمع النتائج من عدد متساوٍ من الذكور والإناث. تشير النتائج إلى أن زيادة المعرفة حول OBA مع تقليل مخاوف الخصوصية هي حاجة الساعة. ويجب أن يعمل المسوقون وأصحاب المصلحة الآخرون على زيادة المعرفة حول OBA بين المستهلكين. وقد يؤدي تقليل مخاوف الخصوصية إلى زيادة الموقف الإيجابي تجاه OBA. وسيؤدي ذلك إلى زيادة فرص قبول OBA. ويمكن استخدام ملاحظات الدراسة الحالية من قبل الباحثين المستقبليين وكذلك من قبل المسوقين في أثناء صياغة سياساتهم التي تتضمن استهداف الإعلانات.

الكلمات الدالة: الإعلان السلوكي عبر الإنترنت، معرفة المستخدم، مخاوف الخصوصية، موقف المستهلك، قبول الإعلان السلوكي عبر الإنترنت.

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1. INTRODUCTION

There is no secret that marketers are shifting their focus from traditional advertising practices to digitalized advertising practices. With the improvement of technology, the competition between advertisers has increased. Every advertiser/ marketer is trying to approach the relevant consumer to sell his/her products. Hence, digitalized advertising practices come handy to be tailored to individual preferences. These individual preferences are based on previous online surfing behaviour, commonly describing the functions of online behaviour advertising (Smit et al., 2014). This surfing behaviour includes persons' visits on an e-commerce website or simply checking of certain products or services online; their data is being recorded by marketers. Then, that data is used to create a personalized advertisement to deliver it to consumers. This phenomenon is known as "online behavioural advertising (OBA)". Almost all marketers and advertisers are currently utilizing this method to serve online advertisements (eMarketers, 2013). For this behavioural advertisement to work, data of individuals must be collected through cookies. These cookies are simply footprints of internet users. Tirtea, Castelluccia and Ikonomou (2010) defined cookies as "HTTP (Hypertext Transfer Protocol) cookies that are generated and modified by the server, stored by the browser and transmitted between browser and server at each interaction". When a person uses internet for any work; for example, reading blogs, visiting any webpage, purchasing any product, listing a song, all these activities are recorded by advertisers with the help of cookies. Then, this data is collected, stored by the advertisers and even sold among them.

Marketers claim that behavioural advertisements provide one-to-one communication, better customer-relationship management, better segmentation and targeting opportunities and provide the capacity to get quantifiable reactions in direct marketing (Kim et al., 2001; Baek and Morimoto, 2012). Also, according to Advertising Bureau (2016), advertisers see online behavioural advertising as one of the most relevant ways to reach potential audiences. The technique of personalized advertising is a better way of communication between marketers and customers (Kumar and Gupta, 2016). According to Beales (2010); OBA comes up with the most relevant and efficient advertisements. However, many targeted advertisements are highly unwelcome by customers. Some customers call it "creepy advertisements" (Moore et.al, 2015). Their reaction to this concept of advertisement is so harsh, because they are concerned about their privacy. Online behavioural advertisements are based on the past online activity of an internet user. So, issues related to privacy concerns are part and parcel of behavioural advertisements. According to Baek and Morimoto (2012), privacy concern can be defined as "a degree to which a consumer is worried about the potential invasion of the right to prevent the disclosure of personal information to others." As already described, the working of OBA requires the collection and usage of consumer data; it has raised privacy concerns among internet users. According to Bedi et al. (2017), web privacy affects the attitude of internet users and ultimately their behavioural intention. Hence, many regulatory bodies, like the Federal Trade Commission and e-Directive Principles; across the world are making laws in protection of consumer's privacy.

The concept of online behavioural advertising is not new (Boerman et al., 2017). But, the work done in this field is still in its nascent stages in India. Hence, a better understanding of the concept is lacking. Also, there has been a rise in the spending in digital advertising in India with 15.5% (Pahwa, 2017; Sama, 2019). With use of online advertising being on the rise, it is essential to know about the attitude of customers and the OBA acceptance. This study aims to gain a more profound understanding of the concept of online behavioural advertising. For this, firstly, the researchers try to define online behavioural advertising.

Different researchers have provided different definitions of OBA. According to McDonald and Cranor (2009), targeted advertising is nothing but the practice of collecting data from an individual's online activities and using the data to display selected advertisements. Balebako et al. (2012) described OBA as "a practice of tailoring internet advertising based on an individual's online history and behaviour". Smit, Noort and Voorveld (2014) explained OBA as personalized advertisements to last searching behaviour of customers on the web. Also, according to Alnahdi and Ali (2014), "Online behavioural targeting advertising enables the company to deliver the advertising to the specific group and helps firms get better information on consumer preferences". Boerman et al. (2017) noted that all definitions take two things in common: "(1) the monitoring of tracking of consumer's online behaviour and (2) the use of collected data to individual-target ads".

Based on this, the researchers took liberty in defining online behavioural advertising as "*an event of delivering advertisements to targeted customers, based on their past online activities (behaviour)*".

1.1 Objectives of the Study

Practitioners are using online platforms to capture the attention of users (Waheed et al., 2019). Every segment of advertisers, marketers, regulatory bodies and academicians has shown interest in online behavioural advertising. For this study, the researchers gathered data from different databases, like Jstor, ScienceDirect, Emerald, EBSCO, … etc. A keyword search was used, like online behavioural advertising, personalized advertising and privacy concerns. The researchers found that very little work has been done in India in this regard; as the majority of the work has been conducted in Australia (Hunt, 2016), the USA (Kim, 2014) and European nations (Smit et al., 2014). While, according to the researchers, the studies were at a rudimentary level in India, the researchers found some literature related to privacy concerns wherein the concept was tackled only at a surface level (Bandhopadhyay, 2018). The researchers failed to get any research on connsumer's knowledge of OBA, specifically in the context of India. The researchers also failed to find studies related to OBA acceptance in the Indian context. So, taking forward these gaps, the current study provides an insight into Indian consumers and OBA. Also, the study is a milestone in understanding the concept of OBA in terms of knowledge, privacy concerns and attitude of consumers towards OBA. Moreover, the current study tries to find out the influence of attitude towards OBA and OBA acceptance. Therefore, the following objectives are noted:

1. To understand Indian consumers' knowledge of OBA.
2. To find out to what extent Indian consumers are concerned about their privacy.
3. To understand the attitude of Indian consumers formed towards online behavioural advertising.
4. To find out the influence of the attitude towards OBA on OBA acceptance.

2. LITERATURE REVIEW

The researchers collected different papers and studies related to online behavioural advertising. Based on the objectives mentioned above, the search of the studies was only confined to knowledge about OBA, consumers' privacy concerns and attitudes towards OBA. OBA acceptance and OBA resistance (avoidance) were also seen.

2.1 Consumer's Awareness towards OBA

Though OBA is pervasive, its knowledge is not that widespread. The findings of Marrieiros et al. (2015), McDonald and Cranor, (2010) and Smit, Noort and Voorveld (2014) proved that consumers have less knowledge about OBA. According to Ur et al. (2014), internet users are not well aware of how they are being tracked by marketers. Ham and Nelson (2016) found that consumer's perception of knowledge about online

behavioural advertising depends upon how a person believes OBA has affected himself/herself (*vs.* others). Wohn and Sarkar (2014) found that computer novices lack knowledge of online behavioural advertising. McDonald and Cranor (2010) argued that people have less knowledge about the legal protection of their data. Likewise, people have wrong beliefs about marketers' right to share and sell information among them. It can be seen that OBA is ubiquitous, yet people have very little knowledge about OBA. These findings indicate that less knowledge about OBA could potentially lead to privacy concerns (Dwyer, 2007).

First of all, most of the studies related to awareness/knowledge of OBA were till the year 2016. As already stressed upon, none of the studies was conducted in India. So, a fresh study containing this concept is in demand. Based on this discussion, the following are the hypotheses to measure knowledge of consumers towards OBA.

Ho1: Males and females show similar knowledge about online behavioural advertising.

Ha1: Males and females show different knowledge about online behavioural advertising.

Ho2: There is no difference in knowledge of online behavioural advertising based on consumer's technical expertise.

Ha2: There is a difference in knowledge of online behavioural advertising based on consumer's technical expertise.

2.2 Privacy Concerns

The consumer's privacy concerns have become the main hurdle towards the acceptance of OBA as a marketing technique. Despite having less knowledge of online behavioural advertising, people feel that their privacy has been invaded (Smit, Noort and Voorveld, 2014). Anton, Earp and Young (2010) have proved how people are more concerned about personalization in customized browsing experience by monitoring purchasing patterns and targeted advertising. According to Baek and Morimoto (2012), privacy concerns have led to ad avoidance. Yang (2013)

stated that American consumers feel that implied social contracts will be breached after disclosing personal information and at this time, they will show privacy concerns and take government control. Wohn and Sarkar (2014) found the level of vulnerabilities of privacy concerns among computer novice users and experts. Lee et al (2015) showed that "the response of consumers to personalized services may vary significantly depending on the level of an individual's privacy concern and willingness to share information". Wang, Duong & Chen (2015) argued that internet users mostly show privacy concerns because of targeted advertising. Since marketers track consumers' behaviour and consumers feel that their privacy has been invaded and their data is being misused; regulatory bodies across the world have given their attention towards Online Behavioural Advertising. The Federal Trade Commission (FTC) proposed self-regulatory principles and article 29 of Data Protection Working Party of e-Directive Principles is working towards the protection of consumer privacy.

The argument among researchers in terms of privacy concerns goes on. Thus, in the current study, the researchers wished to understand the privacy concerns of Indians. So, the following hypotheses will check whether our respondents feel conscious towards their privacy or not.

Ho3: Males and females show similar levels of privacy concerns.

Ha3: Males and females show different levels of privacy concerns.

Ho4: There is no difference in consumers' privacy concerns based on their technical expertise.

Ha4: There is a difference in consumers' privacy concerns based on their technical expertise.

2.3 Attitude of Consumers towards OBA

The attitude of consumers towards online behavioural advertising depends upon their knowledge

about OBA and their privacy concerns in general. The overall attitude of consumers is very vague and mixed. Different practitioners, like Smit et al. (2014), McDonald and Cranor (2010), Turow et al. (2009), Turow et al. (2012), Sableman, Shoenberger and Thorson, have studied the attitude of consumers towards OBA. It is well seen that more privacy-conscious people tend to have a negative attitude towards online behavioural advertising as compared to less privacy-conscious people. In the European Advertising Consumer Research Report (2016), it was seen that OBA can deliver favourable advertising when consumers have control over it. It is often found that though consumers are conscious about the utilization of their personal information by marketers, they still enjoy benefits arising out of personalized advertisements (Marshall, 2014). Web users are very well affected by social-media advertisements in an unusual way (Al-Haddad et al., 2021; Marzouk, 2016).

So, it is clear that attitude is related to consumer's privacy concerns and knowledge about OBA. According to Boerman et al. (2017), outcomes of OBA in terms of attitude are dependent on certain factors that are controlled by marketers and by consumers, respectively. For the purpose of this study, the researchers have taken consumer-controlled factors based on knowledge and privacy concerns relying on past literature. This led to the following hypotheses:

Ho5*: Attitude towards online behavioural advertising is not related to consumer-controlled factors (a. knowledge and b. privacy concerns).*

Ha5*: Attitude towards online behavioural advertising is related to consumer-controlled factors (a. knowledge (positive) and b. privacy concerns (negative)).*

2.4 OBA Acceptance/Avoidance

According to Baek and Morimoto (2012), privacy concerns and ad irritation will lead to ad skepticism which will create online behavioural advertising avoidance. In addition to this, Boerman, Kruikemeier and Borgesius (2017) argued that there is an inverse relationship between

perceived personalization and ad avoidance. Also, Schumann, Wangenheim and Groene (2014) conducted an experiment in which there were two arguments: one, services given by websites are free in return for their data collection; two, relevant statements made saying that data collection is important to give personalized advertising. It was found that the first set of people was showing more OBA acceptance as compared to the second set of people. Li and Huang (2016) made a model for advertising avoidance; that model included privacy concerns. It is seen that privacy concerns affect OBA acceptance and resistance. There is some research, like Boerman et al. (2017), describing the inverse relationship between ad avoidance and perceived personalization and attitude. Also, it is seen that privacy concern is directly linked to behavioural intention (Tan et al., 2012; Ur et al., 2012; Setiowati and Dermawan, 2007; Kusumawati, 2017). Like other studies, Barnard (2014) also propounded that online behavioural advertising has a positive effect on purchase intention, but things like privacy may create negative effects on online behavioural advertising.

The researchers found that the literature was less in terms of OBA acceptance and avoidance. The researchers understand that there is a relationship between attitude and acceptance; this concept is in a nascent stage in the context of online behavioural advertising. So, we ought to measure the influence of attitude towards OBA on OBA acceptance.

Ho6*: There is no effect of attitude towards online behavioural advertising on OBA acceptance (avoidance).*

Ha6*: There is a positive effect of attitude towards online behavioural advertising on OBA acceptance.*

Based on the literature review, the authors of the current study take the liberty of making the following framework (see Figure 1). In the proposed framework,

the consumer-controlled factors include knowledge and privacy concerns. The present study tries to determine the relationship between these factors and attitude towards OBA; then, he influence of attitude on OBA acceptance and avoidance is investigated.
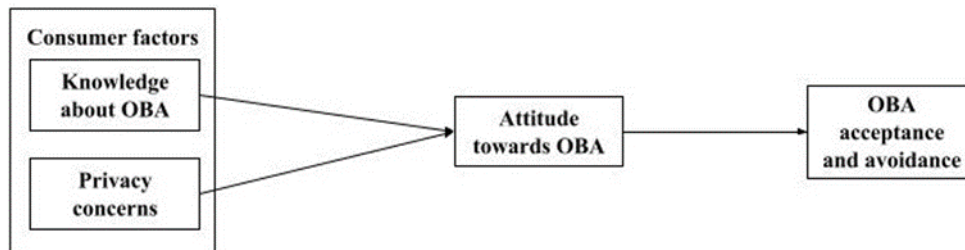

Figure (1)
Framework of the study

3. METHODS

3.1 Participants and Procedure

An online survey was conducted and the survey was closed when the numbers of female and male participants were equal. Also, the of computer type and technical experts were approximately equal, because our hypotheses 1, 2, 3 and 4 were based on these characteristics of the respondents. A total of 104 responses were collected.

It was found that 52 (50%) were female participants and 52 (50%) were male participants. Further, 36 (34.6%) were using the internet and computers for more than 10 years. 34 (32.7%) were using the internet and computers for 4 to 10 years and the rest 34 (32.7%) were using the internet and computers for less than 4 years.

It took 10-12 mins. on average to fill up the questionnaire. First of all, participants were asked to provide their gender and technical-usage years. In the paper of Wohan and Sarkar (2014), the years of computer and technical expertise were divided into three categories; expert (more than 10 years), semi-expert (4-10 years) and novice (less than 4 years). The same categories were taken by the researchers in this study as well. Then, the respondents were asked to mark their knowledge about online behavioural advertising and privacy concerns. Later, the questionnaire included statements to measure attitude. OBA acceptance and resistance were measured after defining OBA.

3.2 Measures

Knowledge about online behavioural advertising was measured using eight statements in random order on a 7-point scale; inspired by McDonald and Cranor (2010), Turow et al. (2009) and Smit et al. (2014).

Privacy Concerns were measured using five statements in random order on a 7-point scale; inspired by Baek and Morimoto (2012) and Smit et al. (2014).

The attitude of consumers toward online behavioural advertising was also measured on a 7-point scale; inspired by Smit et al. (2014).

Online behavioural advertising acceptance and avoidance were measured using eleven random statements on a 7-point scale; inspired by Schumann, Wangenheim and Groene (2014) and Li and Huang (2016).

3.3 Exploratory Factor Analysis (EFA)

Exploratory factor analysis was used for construct validity. It shows that items that measure more than one construct must be eliminated from the study (Worthington and Whittakar, 2006).

Firstly, sample-adequacy and - correlation tests

were done. For sample adequacy, Kaiser-Meyer-Olkin (KMO) test was done. If the value of KMO comes between 0.60 and 0.70; the data is considered for further analysis (Netemeyer, Bearden et al., 2003). Initially, the value came to be 0.776, which was quite fine for the analysis, but some items needed to be extracted. Hence, after extraction of the items; know2, know3, know1, recoded attitude4, recoded attitude3 and recoded attitude6, the value of KMO raised to 0.841. Also, to measure the correlation, Bartlett's test was done and its results came to be significant. Table 1 shows the results of KMO and Bartlett's tests.

Table 1

Sample adequacy

KMO and Bartlett's Tests		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.841
Bartlett's Test of Sphericity	Approx. Chi-Square	2764.657
	df	253
	Sig.	0.000

Secondly, for factor extraction, the principal-component method was used and 6 items were deleted as explained above. These factors had loadings less than 0.65; in the current study, the researchers have taken loadings above 0.65.

Thirdly, there are 4 variables in the study. According to the cumulative percentage of variance, the 4 variables showed a variance of 77.692%; i.e., more than 77% of the variance can be explained by the 4 variables, as shown in Table 2. It is more than the percentage of 60% as explained by Hair and Anderson (1995).

Table 2

Total variance explained using principal-component analysis

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.377	49.465	49.465	11.377	49.465	49.465	8.270	35.955	35.955
2	2.743	11.927	61.392	2.743	11.927	61.392	3.843	16.710	52.665
3	2.136	9.288	70.680	2.136	9.288	70.680	3.085	13.415	66.080
4	1.613	7.012	77.692	1.613	7.012	77.692	2.671	11.612	77.692
5	0.941	4.093	81.785						
6	0.664	2.889	84.674						
7	0.644	2.802	87.476						
8	0.482	2.095	89.571						
9	0.472	2.050	91.621						
10	0.287	1.246	92.867						
11	0.266	1.155	94.022						
12	0.253	1.098	95.120						
13	0.227	0.988	96.108						

14	0.201	0.873	96.982					
15	0.169	0.736	97.717					
16	0.121	0.527	98.245					
17	0.097	0.420	98.665					
18	0.081	0.352	99.016					
19	0.067	0.289	99.305					
20	0.052	0.226	99.531					
21	0.050	0.215	99.747					
22	0.033	0.145	99.892					
23	0.025	0.108	100.000					
Extraction Method: Principal-component Analysis (PCA).								

Fourthly, for rotated components, the varimax technique was used and the loadings more than 0.50 were considered, which helped in reducing cross-loadings. Table 3 shows the cross-loadings.

Table 3
Rotated component matrix using varimax technique

Rotated Component Matrix				
	Component			
	1	2	3	4
Knowledge about OBA				
Your browsing history determines which ads you are going to see during your next visit			0.834	
Companies are allowed to store information about internet use, provided that it is not traceable to a person			0.826	
Companies create different user segments based on their internet behaviour and they show these groups targeted ads			0.815	
Online content and services can be offered for free because of online advertising revenues			0.831	
Privacy Concerns (recoded)				
I believed that personal data has been misused too often		0.684		
I worry about receiving ads in which I am not interested		0.774		
I am concerned about the potential misuse of personal data		0.833		
I feel that information has not been stored safely		0.786		
I feel uncomfortable when data is shared without permission		0.641		
Attitude towards OBA				
I prefer that websites show ads that are targeted to my interests				0.905
I prefer that websites offer discounts targeted to my interests				0.881
I prefer ads that are adjusted to my preferences				0.885
OBA Acceptance or Resistance				
I will not allow websites to evaluate my surfing behaviour	0.635			
I would not be willing to agree to an evaluation of my surfing behaviour	0.705			

I intentionally ignore any online behavioural advertising on the internet	0.776			
I deliberately ignore online behavioural ads when I am browsing on the shopping sites	0.804			
I deliberately ignore online behavioural ads when I open my mailbox	0.846			
Online behavioural ads are annoying	0.894			
Online behavioural ads makes me disturbed	0.781			
Online behavioural ads are unappealing	0.848			
If online behavioural ads pop up, I will close them	0.879			
I will remove/unsubscribe online behavioural ads	0.901			
I will take measures to avoid online behavioural ads	0.864			
Extraction Method: Principal-component Analysis. Rotation Method: Varimax with Kaiser Normalization.[a]				
a. Rotation converged in 6 iterations.				

3.4 Reliability of the Study

Cronbach's alpha was used to measure the reliability of the questionnaire. The value of Cronbach's alpha was greater than 0.70 for all the variables; hence, the measurement scales were said to be reliable (Hair et al., 2007). Table 4 shows the number of items used in the study.

Table 4
Reliability scores of study variables

Variables	Items at the beginning	Items deleted in EFA	Cronbach's alpha	Total no. of items left
Knowledge regarding OBA	8	3	0.845	5
Privacy concerns	5	0	0.892	5
Attitude towards OBA	6	3	0.902	3
OBA acceptance and resistance	11	0	0.968	11
Total no. of items	30	6		24

4. RESULTS AND ANALYSIS

4.1 Normality of the Data

Skewness and kurtosis were checked for normality analysis. We observed a fairly normal distribution of our latent variables. According to Kline (2010), the value of skewness and kurtosis should be below 3 and 10, respectively. In the current study, the highest value of skewness was 1.104 for one item of privacy concerns and the highest value of kurtosis was 1.123 for one item of attitude. But, both the said values belonged to the range given by Kine (2010). Hence, the data was found to be normal.

4.2 Confirmatory Factor Analysis (CFA)

After the data was found to be normal, the fitness of the model was checked through CFA (see Figure 2).

To increase the model fitness, two covariances were drawn on four items of OBA acceptance and resistance. The wordings of these items were quite similar. Hence, the model was fit for further analysis. The model chi-square was 0.00.

Hence, it was significant. Also, the value of CMN/df was 3.000 and that of SMRM was 0.0517 (<0.08; according to Kline, it is suitable). Hence, the model was said to be fit.
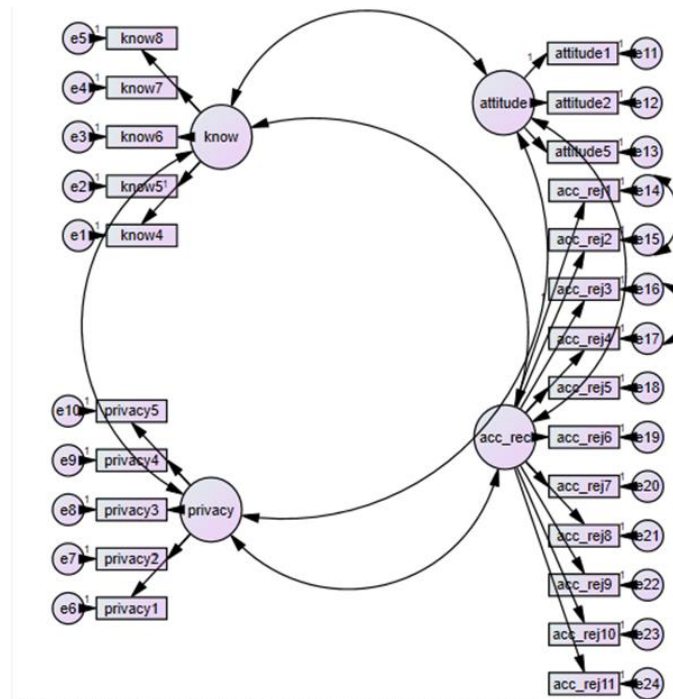

Figure (2)
Confirmatory factor analysis (CFA)

4.3 Testing Hypotheses

As already discussed, the researchers created a research framework after a thorough literature review. With the help of CFA (Confirmatory Factor Analysis), the model can be tested as fit for further analysis. Therefore, AMOS was used to check CFA, which helps in understanding the existing relationship between latent and observed variables.

After conducting CFA through AMOS, it was found, as shown in Figure 2, that four statements were making the model unfit. So, as a result, covariances for these statements were drawn (acc_rej1 with acc_rej2 and acc_rej3 with acc_rej4). After this, the model was fir for further analysis

and the data was imputed to SPSS for hypothesis testing.

- *For Hypothesis 1*

An independen-sample t-test was used (see Table 5). The calculated significance value came to be 0.311, which is greater than 0.05; hence, we accept the null hypothesis. Therefore, it is significant that males and females have similar knowledge of online behavioural advertising. The results were contradictory to the results of Smit et al. (2014), as they illustrated that females have less knowledge as compared to males.

Table 5
T-test for hypothesis 1

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
									Lower	Upper	
know	Equal variances assumed	0.336	0.563	-1.018	102	0.311	-0.16041	0.15764	-0.47308	0.15227	
	Equal variances not assumed			-1.018	100.417	0.311	-0.16041	0.15764	-0.47314	0.15233	

Independent-sample Test

- *For Hypothesis 2*

One-way ANOVA was tested (see Table 6). The significance value was 0.020 (<0.05); hence, we fail to accept the null hypothesis. Therefore, it is apt to say that the respondents of this study showed different levels of knowledge concerning their computer and internet expertise. The results were in line with the assumptions of the researchers, as these results were complementing the results of Wohn and Sarkar (2014).

Table 6
ANOVA for hypothesis 2

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
know	Between Groups	4.974	2	2.487	4.078	0.020
	Within Groups	61.597	101	0.610		
	Total	66.571	103			

- *For Hypothesis 3*

An independent-sample t-test was used (see Table 7). The significance value was 0.108 (>0.05). Therefore, we accept our null hypothesis. Hence, males and females have similar levels of privacy concerns. This was contrary to the past literature, wherein the researchers showcased that females tend to feel more privacy-conscious as compared to males (McDonald and Cranor, 2010; Smit et al., 2014; Wohn and Sarkar, 2014).

Table 7
T-test for hypothesis 3

		Levene's Test for Equality of Variances		t-test for Equality of Means							
Independent-samples Test											
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
									Lower	Upper	
privacy	Equal variances assumed	0.045	0.833	-1.622	102	0.108	-0.40316	0.24858	-0.08990	0.89622	
	Equal variances not assumed			-1.622	101.948	0.108	-0.40316	0.24858	-0.08991	0.89622	

- *For Hypothesis 4*

We used one-way ANOVA for testing this hypothesis (see Table 8). It was examined that the significance value was 0.013 (<0.05; p-value). So, it is clear that the respondents in the current study show different levels of privacy concerns concerning their technical experience. As explained by Wohn and Sarkar (2014), with an increase in the number of years concerning internet usage, the knowledge related to online behavioural advertising increases and so do the privacy concerns. Our study also shows the same.

Table 8
ANOVA for hypothesis 4

		Sum of Squares	df	Mean Square	F	Sig.
ANOVA						
privacy	Between Groups	13.843	2	6.921	4.532	0.013
	Within Groups	154.258	101	1.527		
	Total	168.100	103			

- *For Hypothesis 5(a & b)*

The researchers used Pearson's correlation test to test the relationships between privacy concerns and attitude towards OBA and between knowledge about OBA and attitude towards OBA (see Table 9). The significance values were 0.000 and 0.020 for knowledge and privacy concerns, respectively. Both values were less than 0.05. Hence, it could be said that there is a positive relationship between knowledge and attitude towards OBA. Furthermore, there is a negative relation between privacy concerns and attitude towards OBA.

Table 9
Correlation for hypothesis 5 (a & b)

		privacy	know
Attitude	Pearson Correlation	-0.201[*]	0.331[**]
	Sig. (1-tailed)	0.020	0.000
	N	104	104

So, one can assume that, if a person is privacy-conscious about the misuse of personal data, he/she will show a negative attitude. Also, the more a person knows about OBA, the more he/she will understand the

personalized effects of targeted advertisements and this might generate a positive attitude towards online behavioural advertising.

- *For Hypothesis 6*

We used the linear-regression test (see Table 10). The results were highly significant. The significance value (0.00) was less than 0.05. So, there is a positive effect of attitude towards OBA on OBA acceptance.

The independent variable was the attitude towards OBA and the dependent variable was OBA acceptance. It is clear from the analysis that respondents tend to showcase a positive attitude towards OBA and thus, they accept OBA as a marketing strategy, as beta came to be positive.

Table 10
Regression for hypothesis 6

Coefficients								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.842	0.306		9.273	0.000		
	attitude	0.265	0.068	0.359	3.889	0.000	1.000	1.000
a. Dependent Variable: OBA acceptance								

With a positive attitude towards OBA, an internet user will accept online behavioural advertising. There are more than 12% chances for the same, as shown in Table 11. The probability of variance explained by attitude is less, but it is significant, as Indian consumers are not well aware of the phenomenon of online behavioural advertising as explained in the coming section.

Table 11
R squared

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.359[a]	0.129	0.121	1.07460	0.129	15.122	1	102	0.000
a. Predictors: (Constant), attitude									

5. DISCUSSION

This study aims to understand OBA acceptance and resistance, considering knowledge regarding OBA, privacy concerns and attitude towards OBA. The results of the online survey showed that respondents were not knowledgeable about OBA (M=2.64, SD=0.80); which was complementing past research (McDonald and Cranor, 2009, 2010; Smit et al., 2014; Alrek and Settle, 2007). Also, both females and males have similar levels of knowledge, as explained earlier. Having said so, the mean and standard deviation of female respondents towards knowledge were 2.56 and 0.85, respectively. The mean and standard deviation of male respondents towards knowledge were 2.72 and 0.75, respectively. This clearly shows that there are negligible differences in knowledge between males and females.

The results were also clear about privacy concerns in a way that respondents were highly privacy-conscious about their information (M=1.89, SD=1.28). In addition to this, the researchers found that there is a moderate difference between males (M=4.84, SD=1.28) and females (M=4.45, SD=1.25) regarding their privacy concerns. This result was surprisingly different from those of previous literature (Smit et al., 2014; Pope and Lowen, 2009), because in those studies, the examined females tend to show more privacy concerns as compared to males. But, in the current study, the result was contradictory.

Knowledge is the key to understand online behavioural advertising. It was identified that our respondents were not knowledgeable and both males and females represent similar levels of knowledge about online behavioural advertising. The working of OBA, the data mining by businesses and personalized advertising were not well understood by customers. Also, In the context of India, it was found that both males and females tend to show similar levels of privacy concerns. These results are different from past literature, like Smit et al. (2014). However, new studies, like Segijn and Ooijen (2022), proved that in terms of online behavioural advertising, gender is not much significant to measure the knowledge of customers about OBA. Hence, it will be apt to say that gender-based analysis is not appropriate to understand online behavioural advertising and privacy concerns regarding it.

However, when technical expertise was considered, it was found that technical experience changes the knowledge and privacy-concern levels in respondents. Experts showcased moderately more knowledge (M=4.43, SD=0.86), as compared to semi-experts (M=4.2, SD=0.94) and novice (M=3.24, SD= 1.27), respectively. These results are very much correlated with past literature, like Wohn and Sarkar (2014). There is a significant difference between knowledge-concern gaps. The technical and internet experience increases the knowledge related to OBA. Similarly, the respondents showed a direct relation between privacy concerns and internet experience. Experts were minutely more privacy-conscious (M=1.61, SD=1.23) as compared to semi-experts (M=1.67, SD=1.08) and novice (M=2.42, SD=1.38). Experts tend to get annoyed more often with online behavioural advertising as compared to the other two groups.

Therefore, using technical expertise is a better way to identify the knowledge and privacy concerns of consumers regarding OBA.

6. CONCLUSION

The current study contributed to the untouched area of online behavioural advertising in the Indian context. Marketers and other stakeholders must work to increase the knowledge about OBA among consumers. This can be done by using overt information-collection techniques and by being open about the usage of the data. This will allow consumers to make a proper decision with respect to online behavioural advertising in terms of attitude. Reduction in the privacy concerns could increase the positive attitude towards OBA. This will further increase the chances of OBA acceptance. This study mentions no difference in the levels of knowledge and the levels of privacy concerns in terms of gender. Such information could be useful for marketers while formulating business policies related to targeted advertisements. Not only marketers, but also future researchers, could focus on other aspects like age, technical expertise, … etc. to understand online behavioural advertising rather than considering gender as a basis.

Moreover, the differences between privacy concerns and knowledge related to OBA in terms of technology and internet expertise were well explained in the current study. Keeping this in mind, the relevant businesses should make themselves more credible by reducing privacy concerns. With the reduction in privacy concerns, the benefits of OBA could be realized.

This study raised several questions: First, what other demographic and psychographic profiles could be there to affect the attitude of consumers. Second,

what steps are taken by consumers to protect their privacy? The current study takes consumer-related factors to check the attitude of consumers. Future studies could take marketer-related factors, like; covert or overt data-collection

techniques. Businesses should consider spreading awareness regarding OBA among customers. Also, the ways to protect privacy should be mentioned to customers.

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