



RESEARCH PAPER

**Online Behavioral Advertising: Do Awareness and Privacy Concerns
Protect the Users**

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ABSTRACT

The Internet is subjugated by free web services that use advertising and other marketing tools for revenue generation. Targeted online advertising is among most extensively used tactic by these websites in which selective advertisements are displayed based on user's browsing behavior, socio-demographics, and interests. This trend has raised concerns due to the serious threats to the privacy. The main objectives of this study were to investigate the association between awareness regarding Online Behavioral Advertising (OBA) and Privacy Concerns among Users, the effect of awareness on buying behavior and to seek knowledge gap regarding awareness of OBA between socioeconomic segments. Data was collected via online survey (N=300). Findings confirmed a strong relationship between level of awareness regarding OBA, privacy concerns and effects of this association on attitudes and buying behavior of users (N=300, $p < 0.05$). Similarly, difference in awareness levels of users belonging to middle and upper-middle class was also found that confirmed the prevailing knowledge gap in the society (N=300, $p < 0.05$). The study highlights the need to design of recommends the academia to priotize digital media literacy of the users and policy makers in designing strategy related to privacy protection

KEYWORDS Awareness, Buying Behavior, Online Behavioral Advertising, Privacy Concerns

Introduction

With the advent of technology, people have started to rely more on the internet. With this facility, people are still unaware of how their information is unsafe while browsing through the internet. Technological advancement has benefited many like the advertisers who are in advantageous position while persuading online users repeatedly to buy their products. On contrary, people are having huge privacy concerns while still being unaware of being targeted by advertisers.

In this era of digital marketing, advertisers have developed many new methods and persuasion techniques to target potential customers. From among many other methods used for this purpose, OBA is the most common one. This method is used to collect data by depositing small text files called Cookies and is used for tracking the online behavior of the users. For example, websites the user frequently visited, time he/she spent, and activities done on the website. When a user visits a website, he/she is asked or required to accept the cookies to proceed, which are deposited by the website. On accepting this, the user allows the website to track his online behavior (e.g., shopping; searching; surfing). Cookies is a source for websites to get information about the user's interaction with the site (McDonald & Cranor 2010). Seeking online knowledge through search engines, e-shopping, and various different social media sources on gadgets provides a beneficial data source to the firms to have favorable target audience (Yan et al. 2009).

Data on this interaction between the user and websites allows the advertiser to design customized web pages, and prices of the products/ services and offers. (Steel, 2007). OBA thus allows Internet ad network companies for explicit and timely calculation of the interests and choices of the consumer at micro level and thus become able to predict their buying behavior. This exercise results in benefiting the advertiser by enabling them to reach a more targeted consumer, who are exposed selectively to those messages that were specifically designed for them (Shelton, 2012). Unlike traditional advertising, OBA is not exclusively based on demographics and psychographics. Instead, websites display digital advertisements on websites based on the deduced suppositions by the marketers about individual consumers, derived from their individual-level behavior in past.

Due to the established association between the relevancy of the advertised products and buying behavior, a handful amount is spent by the advertiser for these targeted advertisements (Beales, 2010). This relevance and effectiveness also provide an opportunity for websites to generate financial benefits and increase in revenues generation (Iyer et al., 2005). This is one of the major reasons for OBA to become the key trend in marketing (Hallerman, 2010). Consumers on the other hand have their own reservations. From the consumer's point of view, this marketing technique, however, is viewed differently who have a doubtful perspective (Turow et al., 2010). More than half of online users were found in favor of declaring online tracking as illegal (Alreck & Settle, 2007). Unexpectedly both young adults and older Americans were found equally concerned about their privacy (Hoofnagle, King, Li, & Turow, 2010). While advertisers are strongly convinced and in favor to promote the usage of OBA due to its main characteristic of relevancy, the violation of privacy is of grave concern for many (Bennett, 2011). This increased trend of OBA has raised many questions and a rising trend to study this phenomenon among scholars, including comparison of OBA with traditional targeting tactics (Summers et al., 2016).

Certain protection methods are also devised to turn the personalized ads off even for specific gadgets and devices including Opt-out and Tracking Protection Lists (TPLs) etc. Opt-out protects the privacy of users by telling the website not to install third-party advertisers and thus, disables third-party ad servers to track the users' preferences. Though even after 'optout' the user keeps on receiving advertisements, they, however, may not be relevant and are not fulfilling the interests of some third party (*What is an opt-out cookie?*, 2019). Methods like TPLs are created by companies like Albion and Privacy Choice, with an aim to assist consumers in understanding their online privacy and making choices accordingly.

With the realization and increased concern among users regarding the violation of their privacy, certain coping approaches have also been devised. These are called confrontation strategies (Raman & Pashupati, 2004) which enables the user to master the Internet (McDonald & Cranor 2010, p.398). Some of these strategies are (a) knowing the privacy policies (b) installment of protective software and (c) browser settings like DNT (Do Not Track). Although sounds fascinating, research has not found these coping strategies highly successful in protecting the encrypted information in a sufficient manner to the consumers (Milne, Rohm & Bahl 2004; Berendt & Spiekermann, 2005). One significant reason behind this failure is the difference in privacy concerns due to the socio demographic diversity of the consumers. A fact ignored while addressing privacy concerns specifically very few empirical studies have explored the privacy attitude of young adults who make up a significant ratio of the users of internet. This study focuses on socio economic factor and intends to explore level of awareness of Online Behavioral Advertising among youth.

Literature Review

Despite gaining significant attention from the researchers and scholarly community, the term OBA did not have a clear definition but also lacks aggregated empirical findings. Kruikemeier & Borgesius (2017) addressed this concern and attempted to define OBA. The researchers also gave a pragmatic view of the findings of researches on OBA and developed

a framework. This framework determined and linked all factors (both advertiser and consumer related) that establish the consumer responses toward OBA. This study also overviewed the theoretical placement of OBA by introducing the assumptions that are used to explain consumers' reactions to OBA in the framework.

Studies regarding consumer's perceptions of OBA have shown mixed results. It not necessarily is viewed as something negative. While some users appreciated seeing more relevant advertisements and even purchased after viewing these ads, many found targeted advertising disturbing and disliked the plan of corporation to track their online activities (Cranor, 2012). Interestingly, despite being offensive towards OBA and considering it interference in their privacy, people also consider it useful. Though, it was information to many that their browsing history was being used to design messages (Ur et al., 2012).

The picture created by earlier research on coping behaviors has shown insufficient protection of consumers (Milne, Rohm & Bahl 2004; Berendt & Spiekermann, 2005). From among many other reasons, misinterpretation of the icons has been a major one. Many users misread the icons and were unable to correctly interpret the icons that were designed to warn them that their behaviors were being recorded and used for targeted communication. They believed that browsers and antivirus software could protect them from OBA.

Studies on privacy protection have focused awareness, understanding, and effectiveness of icons (Van Noort et al., 2013). Misinterpretations on part of the consumer regarding OBA privacy disclosure (e-g icons, taglines and landing pages aimed at informing the users about OBA and opt-out to reduce privacy concerns) have also reported similar results (Leon, et al., 2012). The ratio of respondents who could remember the advertisements and attached taglines for privacy disclosures was also low. Consumers rather misinterpreted and took opposite meanings of privacy disclosures. Instead of thinking privacy disclosures as a mean of opting out OBA, they thought that it will result in purchasing of advertised products (McDonald, & Cranor, 2010).

Both qualitative and quantitative methods were applied by researchers to seek the perceptions of consumers regarding online advertising and it was found that users hold misconceptions about the purpose of cookies and the effects that removing the cookies may cause. The study highlighted the need to overpass the gap between user's existing knowledge of privacy protection and required knowledge in this regard.

Another prominent research area has been the evaluation of the effectiveness (Cranor, 2012) and usability of the tools designed to reduce OBA (Leon et al., 2021). The findings of their laboratory study found serious flaws in the tested tools in terms of the usability. Difficulty in the configuration of the tools was another reported issue by the participants whereas assimilated settings were inconsiderably protective in most cases. Communication, confusing interfaces, and little feedback led many participants to believe that a tool was blocking OBA when they had improperly configured it to do so. Without being familiar with many advertising companies and tracking technologies, it was difficult for participants to use the tools effectively. Balebako et al. (2012) also studied the effectiveness of six available tools and found add-ons, Ghostery and Taco, cookie-based tools-blocking cookies, and opt-out cookies as the effective tools whereas Do Not Track headers was not found effective in limiting the behavioral targeting ads.

In response to the increased concern among consumers who are concerned with privacy interference by e-marketers' information collection practices, role of coping behaviors to protect privacy have been examined by researchers. Coping by approach refers to the strategies adopted to confront privacy invasion (Raman & Pashupati, 2004). Studies have focused on exploring the techniques which consumers use to cope with tactics of OBA (Ham, 2017). This survey based study (N = 442) examined the role of persuasion knowledge, cognitive appraisal, and cognitive processing of the consumers in coping with OBA. Results revealed an indirect association between persuasion knowledge and avoiding the ad, a

behavior that user adopt to prevent himself, throughout the cognitive evaluation process (perceived risks; perceived benefits; self-efficacy). The Privacy concerns partially intervene such associations with ad avoidance.

While existing literature generally suggests a lack of awareness of tracking and targeting among the consumers (Ur et al., 2012), some studies came up with entirely opposite findings which indicate a higher level of awareness (Alreck, & Settle, 2007). The researchers studied Consumer's level of knowledge and views regarding OBA, and the connection between their perceptions and shopping behaviors. Mostly negative, though not harsh reactions were reported toward the track. However, this disliking was not found to have a significant effect on online browsing and purchasing.

Focusing on particular geographical areas e-g Europe, and US, Smith et al. (2014) also studied OBA in a broader context that included all the aspects including knowledge, concerns, and coping behavior of the users. Online surveys found the users having insufficient knowledge equally, but different in privacy concerns. The need of a twin approach was recommended in communicating about OBA, not for the sake of informing but also to address specific segments of the population like old age and those with less-education ,who were found more anxious about their privacy .

Experiments and field studies have also been conducted to analyze OBA (Schumann, von Wangenheim, & Groene, 2014), suggesting the replacement of utilitarian (functional, practical) argument with (mutualism, collaboration) reciprocity argument for an increased acceptance of OBA. Mutualism can be a better option to increase acceptance of OBA, the researchers concluded. The study also suggested the website managers to achieve this target by giving awareness of the free services the users enjoy as a reciprocal to OBA.

Researchers interested in exploring the factors that determine the attitude of the users towards OBA (Kim & Huh, 2017) identified Perceived relevancy of ads and privacy concerns as the major determinants of the attentional, attitudinal, and behavioral responses to such ads. Few other user related factors of privacy concerns and preventive behaviors included, Comprehension, self-trust, and users 'level of conviction about being able to defend themselves (Wohn et al., 2015). The study measured the extent to which the user is concerned about privacy— including online identity stealing, wrong use of credit card information by websites, viruses sending out emails in the user's name, etc.

Studies have also aimed towards seeking the association between attitude toward OBA and online shopping (Sanje, & Senol 2012) and explored a positive attitude towards OBA among online shoppers. The study recommended the companies to use traditional advertising in addition to Web advertising due to the fact that online shoppers are also from publications and other conventional media (Teo, 2002).

A mixed attitude regarding the sharing of personal information has been reported, influenced by certain factors (Leon et al., 2013). The information that consumers were found comfortable sharing to be utilized for OBA included gender, country, web browser, operating system and pages they visited on a particular health website whereas they were not in favor to share private information like address, contact and credit card numbers. The identified factors that enhanced the willingness of the consumer to share their personal information included limiting data-detainment and scope-of-use policies. The popularity of the website and the ability of the users to review and modify their information had very little effect.

A review of the Literature on OBA and privacy concerns shows that researchers have studied this phenomenon from different perspectives and by applying multiple methods. Defining OBA, Coping strategies, Factors affecting attitudes towards OBA and association of OBA with different relevant variables have been main areas of concern. The significance of the researchers' topic is with respect of Pakistan's academic benefit. It will be a milestone

study as researcher was unable to find anything while reviewing literature with respect to Pakistan. This relatively new phenomena will not only help in introduction and testing of a new theory but will also open the association between awareness and privacy concerns. Users of the two major segments of the society will be benefited through this study.

Hypotheses

- H1: Greater level of awareness regarding OBA, greater will be privacy concerns among users.
 H2: The more users are concerned about privacy, the more it will affect the attitudes of users.
 H3: The more awareness regarding OBA, the more it will affect the attitudes of users.
 H4: Higher awareness regarding OBA, lower it will have inclination of users towards buying.
 H5: There is difference in awareness of OBA among users due to their socio-economic status

Research Methodology

The objectives of the study were to seek association between awareness regarding OBA, its effect on buying behavior, and privacy concern issues among users, survey method was appropriate and was used as a tool of data collection.

Tools

A questionnaire containing close-ended questions was designed to collect the responses regarding awareness, attitudes, and privacy concerns of users. Responses ranged from 3 points to 5 points Likert scale.

Sampling

A sample of 300 respondents from the residents of Lahore was taken by the researcher. Random sampling was used to select respondents on the basis of following demographics.

Age= 18-35 years, Socio-economic Status= Lower middle & Upper Middle class

Statistical Analysis

Pearson Product moment Correlation Coefficient was used to seek association between Awareness of OBA and Privacy concerns whereas to compare the level of awareness between users belonging to middle and upper-middle class, Independent sample t-test was used.

A Pearson product-moment correlation coefficient was computed to assess the relationship between the level of awareness regarding OBA with privacy concerns among users. There was a positive correlation between the two variables, $r = 0.163$, $n = 300$, $p = 0.21$. The value of $p < 0.05$ which shows H1 is accepted that the more users are aware of OBA, the more they will have privacy concerns.

Correlation Test

Table 1
Correlation between Awareness of OBA and Privacy concerns among Users

		Total awareness	Total Concern
Total awareness	Pearson Correlation	1	.163*
	Sig. (2-tailed)		.021
	N	300	300
Total Concern	Pearson Correlation	.163*	1
	Sig. (2-tailed)	.021	
	N	300	300

* Correlation is Significant at 0.05 level (Sig 2tailed)

Table 2
Correlation between Privacy concerns and Attitudes towards OBA among Users

		Total awareness	Total Concern
Total awareness	Pearson Correlation	1	.251**
	Sig. (2-tailed)		.000
	N	300	300
Total Concern	Pearson Correlation	.251*	1
	Sig. (2-tailed)	.000	
	N	300	300

A Pearson product-moment correlation coefficient was computed to assess the relationship between the privacy concern the attitudes of users caused by OBA. There was a positive correlation between the two variables, $r = 0.251$, $n = 300$, $p = 0.000$ for a two tailed test. The value of $p < 0.01$ which shows H_2 is accepted that more users will be concerned about privacy, the more it will affect their attitudes.

Table 3
Correlation between Awareness regarding OBA and Negative Attitudes towards OBA among Users

		Total awareness	Total negative Attitude
Total awareness	Pearson Correlation	1	-.153**
	Sig. (2-tailed)		.030
	N	300	300
Negative Attitude	Pearson Correlation	-.153*	1
	Sig. (2-tailed)	.030	
	N	300	300

A Pearson product-moment correlation coefficient was computed to assess the relationship between awareness regarding OBA and attitudes of users. There was a negative correlation between the two variables, $r = -.153$, $n = 300$, $p = 0.030$ for a two-tailed test. Showing an increase in awareness regarding OBA decreasing the attitude

Table 4
Correlation between Awareness regarding OBA and Buying behavior of Users

		Total awareness	Total negative Attitude
Total awareness	Pearson Correlation	1	-.184**
	Sig. (2-tailed)		.009
	N	300	300
Negative Attitude	Pearson Correlation	-.184*	1
	Sig. (2-tailed)	.009	
	N	300	300

A Pearson product-moment correlation coefficient was computed to assess the relationship between awareness regarding OBA and buying behavior of users. There was a negative correlation between the two variables, $r = -.184$, $n = 300$, $p = 0.009$ for a two-tailed test. Showing an increase in awareness regarding OBA decreasing the attitude

Independent Sample t-test

An independent sample t-test was conducted to compare the level of awareness between users belonging to middle and upper-middle class socio-status.

Table 5
Comparison of Awareness regarding OBA among users on basis of their Socio-economic status

	Group Statistics				
	Institute	N	Mean	Std. Deviation	Sig
Awareness of OBA and similar Terms (Internet cookies, online Tracking, and behavioral targeting)?	Middle Class	118	63.73	21.079	.002
	Upper Middle Class	182	52.70	17.252	4

The significant (2-tailed) value is 0.000 which is less than $p=0.05$. For users belonging to the middle class ($M = 63.73$, $SD=21.07$) and for those of upper-middle background ($M = 52.70$, $SD=17.25$), showing statistically significant difference between the awareness levels of users belonging to different socio-economic class.

Results and Discussion

The study aimed at finding the level of awareness regarding Online Behavioral Advertising, its effect on attitudes and buying behavior, and role of socio economic status in determining the level of awareness. Hypotheses were designed to check the mentioned objectives and were tested through the Pearson Product Moment correlation coefficient. The findings showed a positive relationship between the awareness of OBA and privacy concern thus accepting the hypothesis. It, therefore can be concluded that the more users are knowledgeable about OBA, the more they will be conscious of their privacy. Hence the hypothesis proved that users need to be greatly aware of OBA which will in return cause them to take steps for safeguarding their personal information. According to our research, the more that people are aware of how websites are tracking their online activities, and harvesting, sometimes even outright stealing, their personal information, the more inclined they become towards using protective measures, such as using stronger passwords , tightening their passwords, using secure VPNs, installing anti-virus apps etc in order to prevent this invasion of their privacy. These findings have highlighted the importance of digital literacy. No one would willingly be stolen out of their personal information, and hence helping people recognize the danger they are in can help them reduce the risk that their own ignorance poses to their privacy.

Privacy concern and the attitudes of users towards OBA were also found to have significant positive association. Majority of respondents agreed on considering privacy as important. This meant the users attitudes will be dependent on how browsers' offer them safety measures and protect online privacy. These findings are in association with the previous studies that reported a high ratio of the negative attitude towards OBA by those users who were concerned with their privacy. Feeling of being irritated or annoyed when shown targeted based advertisements was a major reported attitude among these users. Therefore, if the users will be regarding privacy protection methods, they won't have to face OBA based advertisements and will in turn create a positive attitude of users.

Study has explored the relationship of level of awareness of OBA on the attitudes of users. Findings came out with negative association which showed the increase in awareness results in the decrease of negative attitude towards OBA .The more users 'will be aware about OBA, the less it will affect their attitude. Tested the relationship between levels of awareness with OBA with respect to buying online. Findings showed a negative relationship between the two variables. Majority of respondents responded for OBA based advertisements effecting their buying behavior. If the users had higher awareness regarding

OBA, they had known the intentions of advertisers and would wisely buy keeping in mind the persuasion tactic. This study was conducted by the researcher to check level of awareness between people belonging to two main socio-economic classes (Middle and Upper). For checking the difference among levels of awareness, the researcher conducted an independent sample t-test which concluded to the difference between knowledge and awareness between both socio-economic classes which confirms that a knowledge gap prevails in our society. The phenomenon in the era of ICT's and internet is called Digital divide and refers to the unequal access to digital technology and the barriers and division it creates. From among three main types of digital divide i.e Access Divide, Use Divide and The Use Gap, the present study found Use gap..

Digital divide directly affects the rate of digital literacy. Little awareness on how to prevent or deal with online security scams, lack of familiarity with rules of online safety and ignorance of the opportunities awarded to benefit from information on how to best protect oneself online, results in more and more people falling prey to such practices like OBA. This digital divide, initially known as Knowledge gap is due to the basic communication skills and other factors associated with socioeconomic status also called Trans institutional factors (Severin & Tankard, 1992). The study also confirmed the role of trans institutional factors in widening the knowledge gap in society.

These findings have also supported the Persuasion Knowledge model. This model, which was the theoretical foundation of the study, proposes that knowledge of how persuasion works along with the knowledge of common persuasion tactics used by marketers, influences how people interpret, cope with and respond to said persuasion tactics. As soon as a user recognize to be targeted by some veiled persuasion objective, he/she activates his/her persuasion knowledge. This response allow the user to act and respond to the recognized tactic either by resisting or accepting it. The more familiar people are with persuasion tactics the easier it becomes for them to deflect the marketer's attempts to have any impact on their decision. The result is a decision that is completely free from the marketer's influence.

Conclusion

The day-to-day advancement in technology upgrades our gadgets and media usage, but the knowledge about it remains insufficient particularly among users belonging to low socio economic status. In countries like Pakistan, where Online Behavioral Advertising is relatively new and users are either unfamiliar with or lack knowledge of it. This results in misinterpretations and little or no use of privacy disclosures. Unnoticeable behavior causes the users to face the consequences, hence affecting their attitudes toward online buying. People still use technology for other purposes rather than attaining knowledge through it which creates a huge knowledge gap.

The persisting segmentation of knowledge in society could have been eradicated by technology but the situation remains the same. However, if the users consider the Internet not to be a well-regulated place for online users, they need to have considerable knowledge to take steps themselves to protect their online privacy. Once the users' will be aware of OBA, they will be responding to the ads tactfully.

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