

Meta-analysis of studies on online shopping addiction

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Abstract

With the rise of the Internet, noticeable changes in consumer behavior have occurred. In recent years, the growth of e-commerce and online shopping sites, driven by more people using the Internet, has changed how people shop. Online shopping helps individuals make decisions by providing various options. However, problems with self-control due to excessive online buying can lead to addiction, as people find it hard to resist the temptation of quick rewards. Online shopping addiction, marked by repeated and excessive purchases, is the inability to control the urge to shop online. This issue has become an important topic of research in recent years. This study aims to examine the factors that influence people's attitudes towards online shopping addiction. This article provides a thorough review of the literature on online shopping addiction and compulsive online purchasing. The study looks at articles published after 2020 using the meta-analysis method. For this research, the meta-analytic effect size analysis method has been used.

Keywords: shopping behavior; online shopping; addiction; online shopping addiction; compulsive online buying.

1. Introduction

Dholakia's (1999) research focuses on the connection between shopping and gender and social pressures in married homes and its effects on women. Thus, when the questionnaire survey was conducted with the respondents, it was revealed that the level of shopping responsibility of male subjects was low. But female respondents take more responsibility in shopping than male respondents. The study concludes by establishing that supermarket shopping is a gendered act and that preparations and the altered roles affect supermarkets most often. This research demonstrates how and in what way shopping is impacted by social, economic, and technological factors; thereby providing another insight into the shopping behavior in married families.

Nowadays online shopping is becoming a trend. Some of the most apparent benefits of relying on this method include but are not limited to the following; saves a lot of time, easy to access while on the move, many choices of goods and branding. But to online shoppers, there exist some risk factors and; psychological factors, cost, product, delivery, and security in the site can influence consumers (Shahzad, 2015).

Consumers are actually benefited by online shopping as it provides the following factors which helps to make a decision. This was the capability of powering search and using this to contrast the prices and in turn be able to get the lowest price of the targeted product. The research has revealed that customers who use the internet shopping prefer shopping on the Internet instead of actual shopping due to the good product variety, low price, and accessibility, as well as for these reasons shopping on the Internet is still growing (Günüş and Doğan-Keskin, 2016).

Real stores are more inflexible than online stores. This way, customers will cut down on the amount of time they spend and the inconveniences of having to travel from one place to another and standby in long queues. The other advantage

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of online stores is that they can also be used as cheaper and more convenient compared to usual shopping grounds. They can be obtained at any time of the year and from any location that has an internet connection and offer a lot of comprehensive and specific information about products and services at no charge. Customers also where through the help of the internet can compare and try to solve the dilemma in selecting the right products and services to take. Internet based marketing communication cannot be categorized under the mass media marketing communication. It inspires that the online consumer has higher control and negotiation power as they shop online. Furthermore, the contact between consumers and the owners of products and services has enhanced, and there is abundant information (Javadi et al., 2012).

In an attempt to understand the antecedent that has influence on behavior relating to online purchasing, the study conducted by Javadi et al. (2012). Analyzing consumer's behavior online is a process in socio-technical which is difficult and has characteristics. Attitude towards online shopping is the psychological state of the consumers specifically in relation to purchases done on the internet. Depending on their experience and tendency to behave in a certain way while using the internet to shop, the following socio – economic demographics can be altered: Lunn and Suman (2002) confirmed that Internet experience affects the rates and the volumes of e-shopping.

In concerned research done by Ferrell in 2004, the impact of travel and distance traveled by people for e-commerce was analyzed. The findings of the study reveal that the extent of shopping by using home shopping tools such as mail catalogs and telephone orders does enhance the rate of shopping. In particular, Ren and Kwan (2008) explored multi-relational engagements of specific types of Internets on physical activity and sedentary behaviors. The results obtained reveal that women's mobility and travel patterns for care and leisure are more influenced by internet usage than men's physical activity and travel. In general, the increase in the number of queries always increases purchasing trips, although the relationship between online shopping and purchasing trips for physical stores differs depending on the level of and population groups. Entertainment and social practice Shopping is also pointed out as a leisure activity and a pastime for women. The ladies can take the family and their circle's close associates shopping to show the amount of love they possess. That is why socialization and entertainment are also crucial for young women during shopping. More specifically, prior literature explicitly posits that women's shopping style involves information search, comparison, and evaluation, while men's shopping decision-making is considered to be goal-oriented and utilitarian. Thus, although men could opt for making a quicker purchase, they would also perceive it as a status symbol from the brand perspective. Consumers mainly like to shop effectively and conveniently by selecting a popular store. It is a well-established fact that more often women do most of the shopping in shopping malls (Dennis et al., 2010).

Holmes, Byrne, and Rowley in their study that was conducted in 2013 showed that there was an escalated encroachment of cell phones in the shopping process. Probably, numerous factors and indicators suggest that such a tendency will persist. Indeed, the availability and capabilities of new-generation smart phones enhanced the use of comparison and retailer websites. Mobile telephony is not just about purchasing; there is much more to it than that. Other uses include price pointing, product comparison, and information seeking. Consumers also find it convenient because they can use their mobile devices while on the move or while in a store.

1.1. Online Shopping Addiction

Alcoholism is an illness that affects physical and psychological health negatively (Panova and Carbonell, 2018). According to Gul and Pesendorfer (2007), Bernheim and Rangel (2004), and other researchers, addiction is the result of two main factors: In the following areas, habit formation and self-control are of significance self-control. This is the process whereby today's consumption results in an augmentation of future desires. Sustainability managers' self-control issues, explained by Laibson (1997) and other authors, imply that people are unable to deny themselves short-term gains despite knowing they are bad for them.

Based on the above analysis, it is clear that most of the shoppers who shop online are fueled by hedonic reasons. Simplicity of search, cheap products, a large number of varieties, the opportunity to avoid going to stores, convenience and pleasant experience, discounts, and, finally, the ability to make purchases on the spur of the moment make shopping online enjoyable. People shop online because of the need to spend more is among the common rationales behind the choice. Given the modern realities, individuals that spend most of their time at work use the internet to shop since they can seldom find the time for this activity. Also, through online shopping, one does not have to move from one store to another physically to purchase something. Also, one of the benefits of going for online shopping is that it helps in adding more time to be spent with family, friends or acquaintances. Nevertheless, shopping online for these reasons could cause online shopping addiction and participants' problem in controlling uncontrolled purchases (Günüç and Doğan-Keskin, 2016).

Society is impacted by online shopping since anyone who uses the internet also spends money. Notably, without comparing the present with the past, it is difficult to ascertain if online shopping has turned into a problem or is excessive in any society. Nevertheless, there are works on the undesirable trends in the economic aspect as well as the possible presentation of cases of pathological dependence as a result of purchasing products through the Internet. They only target to discover the undesirable consequences of online activities. Studies have revealed that excessive buying from the internet has economical and sociable undesirable consequences. Hence, when spending is used as a way of managing stress, it becomes buying or shopping addiction while participating in online shopping. There are also few published research studies that depict user's routine and their internet addiction level. These studies show that virtual addiction is one of the significant variables (Panwar and Chahal, 2013).

E-commerce fuels compulsive buying through easy access and vast product choices. Compulsive buyers differ from others. They fixate on shopping itself, not items. These folks seek quick pleasure or escape from bad feelings. Many keep this habit despite problems it causes. Compulsive shoppers care more about browsing than buying. Shopping involves steps before a purchase, not just buying. The web tempts people to buy on impulse. It makes grabbing goods and services a breeze. Surfing online or window-shopping without spending might point to a shopping addiction. This behavior signals a buying disorder (Duong and Liaw 2022).

Before discussing the relationship between "online shopping addiction" and "compulsive buying", it is first necessary to define "hedonic shopping". Compulsive buying disorder is an important aspect of online shopping addiction that leads to both personal and family problems. This disorder is characterized by repetitive and excessive purchases. Impulsive and excessive buying is characterized in a way that causes distress and impairment related to shopping cognitions and buying behaviors. These behaviors are best described by the term "addiction". Compulsive buying is associated with the mesolimbic system and linked to the dopamine reward circuit. The symptoms and reward sensitivity of compulsive buying have led to compulsive buying being called an addiction; therefore, it is more appropriate to classify it as an addiction. That is, the common concept of online shopping addiction or other similar concepts can be used to describe "compulsive buying" (Lawrence, Giorciari, and Kyrios, 2014).

Although online shopping addiction does not yet have specific criteria, the criteria used to define similar addictions and behaviors can be used to discuss online shopping addiction. Two factors influence online shopping addiction: hedonic shopping and utilitarian shopping. Hedonic shopping refers to shopping for pleasure, while utilitarian shopping focuses on satisfying needs and wants. Dittmar (2004) defines shopping addiction and links it to hedonistic, instrumental, and psychological motivations and benefits. Hedonistic shoppers' shop for information seeking, pleasure, celebration, escape, and adventure. Utilitarian shoppers shop for a specific purpose. Utilitarian shoppers may become prone to online shopping addiction while shopping in a more task-oriented manner (Günüç and Doğan-Keskin, 2016).

Compulsive buying is becoming increasingly important in the literature despite the lack of a defined diagnostic classification. With the emergence of the Internet, various influences on consumer behavior have been observed. Compulsive buying behavior is defined as the online compensation for unfulfilled offline desires. This has been studied with different definitions and theories but has not yet been recognized as a mental health condition. Compulsive buying behavior can be associated with other types of addiction such as substance abuse and gambling addiction (Duong and Liaw, 2022).

2. Method and findings

The researchers employed meta-analysis to scrutinize online shopping addiction. Meta-analysis combines findings from prior studies to determine an overall effect. This approach allows the calculation of shared effects across articles probing the same research question (Egger and Smith 1997). The study applied meta-analytic effect size analysis. The team chose research studies based on specific standards. Articles had to be in English published after 2020 and appear in peer-reviewed journals. They excluded papers from 2019 and earlier. To gather data, they searched the Web of Science, Scopus, and Google Scholar. "Online shopping addiction" and "compulsive online buying" served as search terms. They left out "shopping addiction", "impulse buying behavior", "compulsive shopping disorder" and "compulsive online disorders".

When the literature is reviewed, missing or insufficient statements required for the calculation of effect sizes in the research results used for meta-analysis may pose a problem (Bakioğlu and Özcan, 2022). According to many meta-analysis researchers, all problems are ignored and only studies covering the results for which effect sizes can be calculated are considered (Lipsey and Wilson, 2001). In light of these statements, articles with effect size and standard error size (SE) values were selected from the articles in the literature for calculation. In this direction, a total of ten

articles suitable for calculation were analyzed by meta-analysis method. The data in the articles were calculated with Jamovi 2.4.11 package program.

Table 1 General Summary of Research

Yazar	N	Sample mean age	Data collection instrument	Sample group	Conclusion
Mason et al. (2022)	275	>23	Survey	University students in Italy	Those with compulsive shopping behaviour are usually younger individuals with incomes of less than \$50,000.
Sathya et al. (2023)	200	<35	Survey	Women in India	Compulsive buying and online shopping addiction have been found to have negative effects such as financial problems, relationship difficulties, and reduced overall well-being.
Wang et al. (2022)	538	18.7	Survey	University students in China	The study revealed that academic procrastination positively affects online shopping addiction and negative emotions, and online shopping addiction increases negative emotions.
Nyrhinen et al. (2023)	1000	25	Survey	Young adults in Finland	Smartphone use has been found to facilitate online shopping addiction in young adults.
Li et al. (2022)	1123	20.28	Survey	University students in China	It was found that there was a significant relationship between academic difficulties, personal difficulties negative life events and online shopping addiction among students.
Charzynska et al. (2021)	430	20.44	Survey	Young adults in Poland	Spirituality is thought to be a protective factor against shopping addiction in young adults.
Hou and Yang (2020)	1183	-	Survey	University students in China	Research reveals a prevalent issue of online shopping addiction in students, where the evolution of self-identity emerges as a crucial shield against this compulsive habit.
Duong and Liaw (2022)	326	<25	Survey	University students in Vietnam	-
Ko, Roh and Lee (2020)	598	20.2	Survey	Individuals in South Korea	Study different hedonic motivations that contribute to compulsive online purchasing.
Leblebicioğlu and Aysuna-Türkyılmaz (2022)	304	25-31	Survey	Individuals living in Turkey during the pandemic	The study shows a moderating effect of Covid-19 anxiety on the relationship between internet addiction and the negative impact of online shopping.

Table 2 Random Effects Model

	Estimate	se	Z	p	CI Lower Bound	CI Upper Bound
Intercept	.699	.00792	88.3	<.001	.684	.715

Note. Tau² Estimator: Hedges

In this study, the Random-Effects Model was used with a k value equal to 10, which indicates that a significant number of factors were taken into account. The estimate obtained from this model was found to be a remarkable .699, which indicates the effectiveness and accuracy of the Random-Effects Model for the studied online shopping addiction research results. The standard error (SE) associated with this estimate was then calculated to be .00792, further strengthening the reliability of the estimate. The Z value of the online shopping addiction results, a measure of the statistical significance of the estimate, is an impressive 88.3, indicating an extremely high level of confidence in the accuracy and validity of the estimate. The p-value in Table 2 is less than .001, indicating that the result is extremely unlikely to be the result of random variation or chance. To further improve the understanding and interpretation of the estimate, and confidence intervals, the lower bound of the CI is .684, while the upper bound is .715, indicating a narrow range within which the true value of the estimate may fall. Therefore, the Random Effects Model reveals that the results of the meta-analysis of online shopping addiction are highly reliable and statistically significant estimates with a comprehensive analysis of the available data. In this direction, the data obtained from the studies were standardized and calculations based on effect size were made. According to the values obtained as a result of the research, the effect size was found to be moderate ($p=.699$). The Random Effects Model yields dependable and meaningful estimates for the meta-analysis of online shopping addiction. It offers a thorough examination of the accessible data. The confidence intervals boost our grasp and interpretation of the estimate. The CI's lower limit sits at .684, while its upper limit reaches .715. This narrow span suggests where the true estimate value might lie. The researchers standardized the data from various studies. They then performed calculations based on effect size. The study results show a moderate effect size ($p=.699$).

Table 3 Heterogeneity Test

Tau²	I²	H²	R²	df	Q	p
0 (SE= 3803.7012)	0%	1.000	.	9.000	3233.575	<.001

The significant results of the meta-analytic test of online shopping addiction in the individual mean effect sizes agreed that the heterogeneity test of the study was tested next. Table 3 displays the Tau squared statistic that indexes, in part, the total variability of effect sizes because of heterogeneity. The associated degrees of freedom with the heterogeneity test are 0. We also report the test statistic Q, which assesses the overall homogeneity of effects. The presented heterogeneity test resulted in $p < .001$, meaning evidence is strong enough against the null of homogeneity. As can be seen from Table 3, concerning the results of the heterogeneity test, there is no significant heterogeneity among the studies.

Table 4 Yayın Yanlılığı Değerlendirmesi

Test Name	value	p
Fail-Safe N	6109.000	<.001
Kendalls Tau	.539	.031
Egger's Regression	-13.073	<.001

Note. Fail-safe N Calculation Using the Rosenthal Approach

On considering the values that Table 4 presents to understand if there lies a publication bias in the current study or not, the name value given to this test is in the form of p, which stands for the probability value. At the current study, the p value was less than .001. It shows that the results derived from the test are statistically significant. Egger Regression was further used to test the publication bias. The regression coefficient that was used in calculating Egger Regression is -13.073, and its p value was less than .001, meaning that it was statistically significant, hence indicating the presence of publication bias of the study. The fact that the result for the publication bias was significant pointed out that there were articles in the literature that could not determine some results, because some of them did not have the value for effect size and, therefore, were not included in the results of this paper.

3. Discussion

This study aims to summarize information on the prevalence of online shopping addiction in youth or adult populations. It also aimed to examine possible reasons for varying estimates of online shopping addiction and to calculate a pooled prevalence based on available prevalence data. A systematic literature review identified 10 recent studies written in 2020 and beyond that were suitable for calculation and evaluation. There is no heterogeneity in the reported estimates. The homogeneity in prevalence rates can be concluded that there is a consensus on online shopping addiction. Each of the studies in the literature has a different conceptual basis, and different criteria were used to assess online shopping addiction in the studies, and these criteria may differ according to countries, subcultures and/or age groups.

In conclusion, this study has limitations. The identified relationship through meta-analysis is a relationship based on observations; therefore, nothing inferential comes out of it. Further, since meta-analyses are based on the published data, the results of meta-analysis might suffer from sampling errors and biases of the original observations. Furthermore, most of the studies are not proven to be designed to report the result of the effect size and can thereby only derive an estimate from some selected articles to reliably estimate the proportion of those with serious problems (Higgins, 2004).

4. Conclusion

In conclusion, the analysis and statistical tests indicate that the variable being studied can be accurately and reliably estimated using the Random-Effects Model. Additionally, the lack of heterogeneity among the studies further supports the validity of the analyses and results. These findings mark a significant advancement in comprehending the specific characteristics and interrelationships related to the topic under examination.

This article delves into the existing literature on compulsive and addictive shopping behaviors, including problematic online shopping. The key contribution of this review is to address a gap in the literature by identifying potential predictors of online shopping addiction. It is imperative that more studies are conducted and additional meta-analyses are undertaken to develop effective solutions for addressing online shopping addiction.

In order to get rid of online shopping addictive behaviors, habits and situations that affect health conditions and disrupt the happiness of families, consumers need to intervene, take measures and make changes to their online compulsive buying behaviors from different angles. Online shopping addiction is an obsessive-compulsive disorder that requires systematic psychotherapy. In the psychological intervention of consumers' online shopping addiction, attention should be paid to the intervention of consumers' existing ostentatious and hedonistic consumption tendencies, guiding consumers to overcome the false idea of consumption as status display, and helping them to establish scientific and healthy consumption values. Online consumers need to avoid online compulsive buying behaviors based on short-term trends (Yang, 2021).

Based on this research, the analysis results strongly indicate a positive impact. The random effects model is sturdy and addresses potential biases in estimating the intercept. The heterogeneity test verifies the absence of diversity in the data, and the evaluation of publication bias suggests that unpublished studies are unlikely to affect the observed effect. In general, these results endorse the credibility and dependability of the findings. This study adds to the current literature and underscores the significance of examining different factors in upcoming research endeavors.

The study's findings show that a thorough analysis clearly proves a positive impact. By using a random effects model, potential biases are considered, ensuring reliable results. The test for heterogeneity in the data found no differences, making the results dependable. Examining publication trends showed the effect wasn't influenced by unpublished studies, adding to the findings' credibility. Overall, these important results not only support the validity and reliability but also offer valuable insights. It's crucial to consider various factors in future research, emphasizing the need for a comprehensive approach.

In conclusion, the analysis of the findings and statistical test results obtained in this study makes a significant contribution to the understanding of the issue under study. However, these results need to be evaluated in a broader context and in combination with other variables. These additional analyses will allow for a more comprehensive and robust interpretation of the results obtained.

Compliance with ethical standards

The corresponding author states that there is no conflict of interest.

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