

Behavioral Insights into Shopping Addiction: Emotional and Cognitive Drivers

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Abstract

This paper will seek to explain the behavioral underpinnings of shopping addiction, focusing on the emotional and cognitive drivers. It has explored the prevalence and serious impact of shopping addiction and highlighted the complexity of both the emotional and cognitive elements involved in triggering and sustaining the behavior. This paper also explores the role of emotional regulation in shopping addiction and suggests potential therapeutic implications that can be derived from deeper knowledge in this respect. The treatment options proposed include behavioral interventions, such as cognitive behavioral therapy (CBT) and mindfulness-based strategies. The new approaches in the use of technology in big data analytics and virtual reality applications for understanding and intervention in shopping addiction are briefly addressed. It concludes by stating that there needs to be more research carried out on online shopping behavior and e-therapies, effective prevention strategies, and all this while considering ethical concerns in behavioral data collection. Finally, this paper synthesizes cross-disciplinary research with a view to offering an integrated insight into shopping addiction and its treatment and points out the increased applicability of technological innovations in this field.

Keywords: *Shopping Addiction, Emotional Drivers, Cognitive Drivers, Behavioral Interventions, Mindfulness-Based Interventions, Emotional Regulation, Consumer Behavior*

1. Introduction

The prevalence of people who are addicted to shopping is rising. It is estimated that 10-15% of the urban US population is shopping-addicted, while shopping addiction in Spain is estimated at 5.8% of the population. When people have the urge to shop beyond limits, they might not be aware of their own behaviors. Nevertheless, shopping addicts prefer not to overcome the urges, simply because they choose to feel depressed from unfulfilled desires and anxiety, and somehow become trapped in an encouraged black hole. Workaholics often start out by meeting other people's expectations and, at best, are in the thrall of a desire for promotion, power, and influence, or a pressing wish to fulfill their obligations [1-6]. The resource was chosen due to a curious and arduous scenario regarding the accelerated ordering of shopping addiction in several outdoor

shops. Shopping addiction has gained even more connotations of a complicated nature when people study if and to what extent the better-off can afford to buy cheap baskets to satisfy the motivation of sharing with others. The capability to extend our understanding of shopping addiction, given its complex nature in light of emotional and cognitive drivers that operate in a high-valued environment as opposed to a low-valued scenario, will become a challenging issue in behavioral science. The very fact that people can exhibit behaviors toward addiction to standards and appearances should unveil a compelling insight into how these drivers can underlie adverse human consumption choices. This would assist individuals in making conscious choices that could positively affect their well-being and prevent serious implications for the economy [7-12].

Background and Significance

Compulsive buying is increasingly becoming a widespread phenomenon in most wealthy societies. This shopping addiction works on the same emotional and cognitive drivers as other types of behavioral addictions, and it can have substantial negative consequences for the physical health of the afflicted individual, and it can be emotionally detrimental for their relatives. Although there is a substantial body of research on shopping addiction, there are very few articles that focus on the role of emotions and cognitions [13-18]. Shopping addiction is a relatively new disease concept that classifies within the category of other so-called excessive behavioral addictions such as gambling, work addiction, and internet addiction. In the last decades, these behavioral addictions that stem from society's consumer culture have become a public health concern. From a psychological point of view, shopping addiction can develop because of a wide range of factors, including the society or family one is born into, psychological factors such as personality traits, and possibly also childhood traumatic experiences. A substantial part of those affected, in fact, experience a highly stressful event prior to their addiction, such as the loss of a job or a relationship. From an economic perspective, shopping addiction has been related to low self-esteem and low self-control, which trigger individuals to engage in such persistent and maladaptive behavior. Research has also shown that women spend more time shopping for clothes and tend to be more often involved in compulsive shopping, spending more than men on this type of goods. Moreover, research has shown that a high level of interpersonal problems is the best predictor of compulsive buying severity. However, more knowledge is needed. For example, there is no good understanding of how emotions drive impulsive consumption. To the best of our knowledge, there are only a couple of theories on how emotions drive such impulsive consumption. Moreover, nothing is known about which specific types of emotions will make individuals consume more. Therefore, this study critically examines how emotions and cognitions drive consumers' impulsive consumption [19-25].

Research Objectives

A growing body of research indicates that various goods and services are excessively purchased or used, and addictive shopping has destructive effects on job performance and self-esteem. It is the psychological connection people possess to shopping and, by nature rather than only quantitatively obtaining, the quality involved in these activities that this paper seeks to explore. Our research has two main objectives motivated by our own experiences. First, we want to understand the emotional drivers of shopping behavior and especially to test the hypothesis that addictive shopping may be driven by emotions. Second, we want to understand how cognitive functions of the individual are linked with shopping intention and then shopping behavior, and to explore the possibility of doing something to decrease shopping addiction. Thus, our aim is to contribute insights into the psychological aspects of shopping [26-32]. We hope to address two major aims with this research. First, the analysis should provide clearer insights into the emotions driving shopping intention and ultimately shopping behavior. This should lead to better-targeted marketing. Second, it may give some implications regarding the efficiency of different kinds of interventions aiming to decrease shopping behavior and addiction to shopping. Here, we seek to educate individuals and the community about the extent and consequences of mental health issues and the increasingly significant levels of addictive shopping. Thus, the paper focuses on shopping addiction, and its aim is to find out what emotions drive people to go shopping. To structure the paper, a relevant review of both addiction and literature about shopping addiction was undertaken. A multidimensional approach is employed in the analysis. A questionnaire survey and consumer case studies form the basis of the data. Thus, data is collected from different sources and methods to triangulate the results in a structured manner. We believe the combined approach provides an important element to our results, and it is based on sound empirical data collection and informed analysis [33-38].

2. Understanding Shopping Addiction

Shopping addiction, also known as compulsive buying, pathological buying, or oniomania, is a phenomenon gaining increasing acceptance in scientific literature. Although distinct from ordinary shopping, shopping addiction is often conceptualized within a framework of impulse control behaviors. It is a growing field of study as it is expected during the pandemic — the general prevalence of using online services, more free time, telework, and more stress. Behavioral addiction to shopping is a function of behavioral, personal, and environmental factors. Characteristic impulsiveness and pleasure-seeking behaviors are central to understanding shopping addiction. Numerous psychological traits and features play a supplementary role in the formation and perspective of shopping addiction. Moreover, the focus of the etiological explanation of addiction has more recently shifted from desire to a restive or relevant information search. Many objects and factors play an important role in shopping addiction. Shopping addiction has become a concern in today's consumer culture because of emotional, cognitive, and behavioral components. The 19th century was referred to as an era of overconsumption, which can resonate with modern times insofar as people themselves are commodities. Today, brands appeal not only to the functionality of the product, but they offer narratives, the emotions of joy, excitement, love, and dreams so that they eventually become a part of consumer identity, the project of the self. Social media has also played its part in feeding the habit with influencers and friends who regularly post about luxury items and gadgets they have bought [39-44].

Definition and Conceptualization

From its historical root of being known as “the illness of the century” in the early 20th century, compulsive buying has become a shopper’s epidemic throughout contemporary consumerist Western society. With the advent of a favorable shopping environment due to e-commerce as well as brick-and-mortar shops providing a wide range of commodities and strong sensory stimuli, some consumers have moved from being susceptible to compulsively engaging in shopping behaviors. Similarly, other consumers can suffer from deficits in reward processes in the hedonic consumption domain, known as “shopping anhedonia,” where they are indolent shoppers and derive little pleasure from forever hunting the gratifying product experiences. In line, these dialectical phenomena have been discussed under different expressions such as compulsive buying, compulsive shopping, addictive buying, and shopping addiction [45-51]. Clinically, some of these terms may refer to a behaviorally driven disorder, which implies frequent preoccupation with buying and overwhelming urges to shop or spend compulsively. To achieve the purchase, affected individuals might recklessly spend exorbitant amounts of money or obtain credit cards to make purchases. While retail therapy, impulsive buying, and pathological buying are associated with unpleasant emotions or distress, only the last two behavioral expressions connote a psychological dependence that can bring about various destructive impacts on the buyer and third parties. Thus, based on psychological formulations and definitions, “addiction” typically refers to “compulsive repetition of a behavior despite adverse consequences.” A similar distinction between predominantly positive and negative predictors, as well as behavioral and emotional characteristics, has been summarized. In sum, the term addiction can easily refer both to behaviors that are readily recognized within the range of clinical psychopathology and day-to-day modern culture. Given the variations in psychological formulations, the term “shopping addiction” can therefore serve to communicate the study of harmful consequences of excessively strong and difficult-to-regulate desire for a desired consumer good [52-54].

Prevalence and Impact

Once perceived as a harmless habit of the idle rich, compulsive buying is now viewed as an addiction. Termed 'shopping addiction', this phenomenon first came to the attention of researchers in the early 1990s. Although it remains one of the least researched addictions, empirical evidence on the topic is available. It is predominantly a female issue, tending to occur in those under the age of 60 who work full-time and earn a larger income. It has been implicated in generating credit problems, criminal activity, and job loss. Recent statistics indicate that as many as 7% of all young people may suffer from this behavioral addiction. The association between shopping addiction and several comorbid conditions suggests that it would be classified as a disorder, rather than as a symptom subsumed under an existing diagnostic label [55-57]. There is no consensus on what impacts shopping addiction might have on individuals. Excessive buying can lead to

massive debts, divorces, legal issues, and overworked friends and family members. Those who suffer from shopping addiction have a greater rate of co-occurring psychological disorders, particularly anxiety and depression. Paradoxically, they appear less prone to substance abuse: instead of cocaine, tobacco, alcohol, or excessive food ingestion being used to recapture a 'natural' high or to decrease the pain of withdrawal. The prevalence of shopping addiction is expected to increase as the severity of the addiction tends to grow over time, as various adversities strengthen the role of the addiction or stimulate it further. Moreover, addiction severity might coincide with periods of economic growth whereby more discretionary income is available [58-62].

3. Emotional Drivers of Shopping Addiction

The emotional drivers of shopping can be addictive. In fact, shopping addiction exists on a continuum of compulsive buying behavior. Acting on an impulse or reward signal can be motivated by different emotions. Everyday negative emotions such as loneliness, anxiety, or depression are involved in implementing different motives, such as tension reduction, problem solving, and self-gratification. Often, emotional drivers do not develop unidirectionally but act bidirectionally. Loneliness makes it more probable that compensation is sought by shopping. However, frequent shopping does not change this emotional state either transiently or over a period. There is a small group of around 12% of women and 10% of men with buying behavior who show at least four maladaptive or addictive, and thus risky shopping patterns [63-68]. The relationship between negative emotions and shopping habits is complex. People following a plan do so despite negative emotions. The more people try to save, the more difficult it can be to regulate emotions. However, for nearly one-third of women and one in five men, emotional stimuli motivate shopping. Bargain hunting is presumably undertaken by people who enjoy saving money, and therefore, cheaper prices serve as a signal to increase their positive emotional state. Those subjects for whom shopping represents an emotional compensation for boredom, loneliness, or feelings of inadequacy rely primarily on the social rituals connected to shopping. These people are also most likely to be excessive buyers. Although compulsive buyers use shopping as a means to cope with depression, those with shopping addiction are more likely to compulsively use a sexual shopping medium to purchase from home while away [69-74].

Role of Emotions in Shopping Behavior

It is widely argued that emotions can trigger and drive shopping behavior. Empirical studies show that consumers shop when they are in a positive mood, such as excitement, and they use it as a means to cope with a sad mood. Even though the mood regulation model might not apply to consumers with shopping addiction, it also shows that consumers who used shopping to regulate their mood indicated that they often returned from excessive shopping with buyer's remorse. This paper is an explorative attempt to further assess the viability of therapeutic approaches that target any of the described underlying causes by undertaking in-depth explorative interviews. A possible therapy target is to reduce the exuberant rewarding experience associated with shopping, as pointed out above [75-79]. Consumers often use shopping to manage their moods, to enhance their moods, or to deal with negative moods. This could, however, also include addictive consumers, that is, shopping addicts. In a prelude to exploring whether shopping addicts differ from regular consumers on the emotional and cognitive level, and to what extent their specific phenotypes can be identified that are relevant for consumer well-being development, an exploration of what feelings are typical for consumers and what feelings and motivations are associated with excessive shopping is necessary. Shopping addictive behaviors are problematic because they can lead to an excessive acquisition of more negative behavior in the long run. An analysis of therapy targets associated with causes integrating the characteristics of the consumer allows for the effective prevention of relapse. The perceived effectiveness of the therapy target can be accounted for to determine what application of the therapy is most viable [80-86].

Emotional Regulation and Shopping Addiction

Poor impulse control with respect to emotional states can additionally exacerbate the problem of shopping addiction. Put simply, individuals who are unable to manage their emotional states will be more likely to turn to shopping to seek relief from their negative emotions. Thus, buying is frequently triggered by negative

emotions. Dysfunctional negative emotional states are, by extension, highly systemically connected with addictive cycles and are pathological primary drives for loss of control over compulsive shopping. Furthermore, negative spins and active ruminations can also lead to anger, anxiety, boredom, and sadness, which are also experienced as states of significant tension that call for immediate reduction or relief. This is according to behavior regulation theories, which suggest that negative emotional states are controlled through immediate motivated action [87-89]. The therapeutic aspect of emotional regulation skills training has a large component in behavioral therapy, as such skills prove to reduce the probability of uncomfortable or negative emotions triggering other (more severe) types of dysfunctional behavior, such as aggressive outbursts or consumption of psychoactive substances. In the field of shopping and pathological buying, appropriate emotion regulation may enable the individual to resist the urge of another shopping trip or refrain from purchasing specific, expensive luxury items, or prevent the activation or inactivity of specific purchase-related thoughts. Emotion regulation training targets the adjustment of maladaptive emotional states, dysfunctional anxiety, or personality traits through purposes or means of disease-specific techniques. To do so, the training focuses on coping responses, such as the restructuring of dysfunctional, irrational individual beliefs; the skill of mental relaxation; and the enablement of mindful strategies to be employed in confronting anxiety-inducing dysfunctional thoughts and images. Therefore, deterrent response costs regulate buying impulses [90-92].

4. Cognitive Drivers of Shopping Addiction

Shopping addiction, much like other impulsive and compulsive behaviors, is informed by the presence of multiple cognitive biases that cause non-optimal decision-making, such as a lack of long-term orientation and irrational purchasing decisions. Such impulsive shopping can also be caused by covert emotional frustration that results in a loss of self-control, with increases in cognitive control functions of working memory, inhibitory control, attentional control, and emotion regulation becoming necessary. Indeed, studies have suggested that shopping addiction is linked to emotional problems, also exhibiting a range of cognitive biases during the decision-making processes involved [93-98]. Given that people with shopping addiction suffer cognitive deficits, it is plausible that they may also be driven by negative cognitive appraisals during decision-making and task performance more generally. These are known as cognitive distortions, such as irrational decision-making and an inflated sense of self. For example, people suffering from shopping addiction may exhibit an overestimation of the value of possessions or products, the optimism bias, which refers to underestimating the likelihood of negative events and overestimating the likelihood and desirability of positive outcomes, and loss aversion, or the overvaluation of expected gains combined with a minimized value of losses and potential harm. Ultimately, emotional responses are usually preceded by cognitive representations. That is why cognitions are of equivalent importance as emotions for understanding pathogenesis and maintenance in shopping addiction. It is therefore highly important to develop effective psychological interventions to change those cognitions for the treatment of shopping behavior compulsions, because it brings insights into designing therapeutic change for these compulsions. It is known that to change overwhelming negative emotions that lead to compulsive behavior, cognitive restructuring is mandatory for emotional work to be successful [99-104].

Cognitive Biases and Shopping Behavior

Another relevant field of psychological research used to explain the peculiar behavior of shopping addicts is the approach driven by cognitive theories. According to this perspective, compared to non-addicts, addicted individuals are characterized by a distorted pattern of information processing, which eventually leads to irrational compulsive behaviors. Indeed, the literature has provided evidence for a set of cognitive biases significantly influencing consumption choices. Here, these cognitive biases are mapped into existing research on shopping behavior and illustrated with examples from shopping scenarios [105-111]. Cognitive biases, like the anchoring bias, the availability heuristic, the confirmation bias, and many others, may lead to irrational consumer choices. For instance, most individuals have a strong marketing-induced preference for a price ending in 5 or 9, at a lower absolute price. However, when a non-rounded price is offered, people also pick that option for the psychological reason that it looks less expensive compared to another price. Moreover, they are usually too optimistic about the expected value of a lottery or the expected profits in all forms of gambling and investing. These biases need not occur alone; they often coexist, making identification very hard. The

prospect theory, as well as new marketed studies, shows how easy it is to provoke cognitive blindness by inducing a related effect for one attribute of the product while obfuscating another feature, which might be more essential from a rational viewpoint. Accordingly, it will be quite difficult to predict people's choices. Studies have mainly focused on the general implications of cognitive biases for financial decision-making. However, the current research extends this perspective focusing on consumer psychology about shopping behavior. It is assumed that these cognitive biases are constant across different contexts. For those policymakers and marketers who intend to provide and improve people's online shopping habits and experiences, it also requires them to understand these cognitive biases. Otherwise, people may be affected by irrational compulsive behaviors. So, the educational intervention measures that help consumers know their cognitive biases could be one feasible measure when indicating these tendencies [112-119].

Decision-Making Processes in Shopping Addiction

Shopping addiction is an underestimated behavior that has been shown to result in serious psychological harm and can elicit significant distress in affected individuals. One reason shopping choices can be poorly made is that multiple cognitive and emotional factors come into play, above and beyond the individual's susceptibility to temptation. Although shopping is typically seen as a hedonic behavior, this research is based on evidence for an interplay between cognitive and emotional aspects during shopping choice, more specifically during decision-making. Mapping this interplay will allow us to offer explanations and predictions regarding how shopping decisions, especially those concerning non-essential items which are at the root of shopping addiction, can be altered or improved [120-124]. We propose a cognitive framework in which making shopping choices consists of several sequential steps. Each step, and the individual's success at it, is determined and evaluated by different aspects of cognitive and/or emotional control. At each step, the major mechanism or process involved is the control of impulse or the act of restraint. Every choice, offered at each decision step, has an emotional significance which elicits affect from the shopper. By exploring these cognitive and emotional processes, we aim to explain choice overload and decision regret, their association with compulsive buying, and an explanation of how these processes lead to the paradoxical evidence from the literature on regulators of choice. Consequently, we will show how delays are integrated into decisions generically and how, with respect to purchasing, they particularly allow an individual to practice delaying gratification or succumbing to impulse by managing their emotional response while maintaining focus on their broader goals. For those whose self-regulatory structures have already been damaged or led them to an interest in shopping, managing their emotional shopping response could become a convenient target for a potential behavioral intervention or the goal of therapy [125-130].

5. Behavioral Interventions

Behavioral interventions in shopping addiction typically address therapeutic strategies. Cognitive-behavioral therapy (CBT) is the most effective treatment. First, CBT addresses maladaptive thoughts and behaviors by enabling patients to modify their thoughts. Different components are included in CBT, such as psychoeducation, self-monitoring, and exposure working with alternatives. These components can also target the emotional and cognitive drivers of shopping behavior. Mindfulness-based interventions, on the other hand, can help gain emotional regulation and self-awareness. Integrating basic principles of both therapies, a case conceptualization and a personalized treatment plan should be developed that is based on the individual patient's problems and experiences. It is an important aspect of the theory and therapy to integrate several factors and levels of explanation for shopping addiction. An integrative approach of experiential and scientific factors forms the basis for efficient diagnosis and treatment of shopping disorder [131-136]. The onset of treatment for problematic shopping behavior is beneficial. An overview and synthesis of pertinent research produced the following treatment recommendations as points of entry for planning the individual therapy: The patient should be informed about shopping addiction and its potential causal mechanisms and consequences. The primary aim of treatment is to alleviate shopping addiction and prevent relapse, but also to improve the patient's everyday life, facilitate psychological well-being, and foster confidence in the treatment process. A large selection of intervention programs has been developed in consumer research, which shows an initial scientific insight and background for addiction treatments. In the last ten years, many different intervention programs to mitigate shopping addiction have been conducted. Self-help treatments can support many shoppers

in solving their problems or developing positive changes in either frequency or level of problematic shopping or in emotional affective involvement [137-142].

Cognitive-Behavioral Therapy for Shopping Addiction

What are treatment options for individuals with problematic shopping habits? We propose that cognitive-behavioral therapy is an important tool to treat shopping addiction, as it targets the relevant cognitive and behavioral aspects. The aim of cognitive-behavioral therapy is to reduce shopping impulses and preoccupation with shopping and help patients gain control over spending habits. Cognitive-behavioral therapy denotes a wide range of psychological interventions, which are based on cognitive and behavioral theories. In therapy, dysfunctional cognitions are challenged and modified to prevent problematic shopping in response to emotional and cognitive triggers. The most common cognitive distortions include perfectionism, dichotomous thinking, maladaptive assumptions, feeling helpless to change unhealthy shopping behavior, and maladaptive buying beliefs. Cognitive-behavioral therapy also includes exposure to stimuli that trigger shopping impulses and response prevention. Patients can practice interventions highlighted in therapy sessions, and problem-solving methods improve patients' spending behavior. This approach, which includes concrete exercises and patient self-introduction techniques, specifically aims to help consumers "unlearn" or "unlink" the emotional attachment to consumer products, money, and erroneous beliefs in consumer culture. In this section, we provide an overview of cognitive-behavioral therapy treatment specifically designed for problematic buying behavior. We present an approach that is suitable for clients with any ethno-cultural background and educational level. Cognitive-behavioral therapy targets both behavior and the underlying cognitions; it gives direct practical advice and teaching of skills. The acquisition of "coping" strategies has been found to be important for change and can therefore help with emotional regulation. To evaluate the effectiveness of cognitive-behavioral therapy, we investigated the link between the reduction of cognitive distortions in the context of the compulsive buying cycle. Our data show that patients receiving cognitive-behavioral therapy show significantly lower urges to shop after participating in therapy [143-145].

Mindfulness-Based Interventions

One complementary method to treat shopping addiction that has been receiving increasing attention in psychological research is the application of mindfulness-based interventions. Mindfulness practices, including meditation, deep and concentrated breathing techniques, and other reflective techniques, highlight the importance of inner coherence and self-regulation, as well as a recognition of one's own conscious thought and action. Even brief mindful pauses seem to enhance the psychological distance from emotionally loaded situations and promote the practice of self-awareness. Studies provide evidence that in daily life, mindful practices may enhance the capacity to observe, describe, act with awareness, and accept emotional and motivational drives. Mindful behavior is often proposed for stress reduction and the efficacy of cognitive regulation, factors that interconnectedly influence our behavior and can therefore be seen as important factors to reduce impulsive behavior [146-148]. In mental health conditions, some conflicting but supportive research for mindfulness-based interventions has been published, proving their utility. The description of these interventions is scarcely detailed in the research; therefore, it is difficult to precisely assign an intervention to studies. General mindfulness-based behavioral interventions with results regarding our topic of shopping addiction are also scarcely researched. There is evidence in a clinical sample that more general mindfulness techniques reduced specific emotional stimuli-driven impulses, comprising inferior neural processing and cognitive control regions. Our conclusion is that mindfulness could enable individuals to respond to, rather than react to, impulses by attempting to produce shifts in self-referential processing and affective experiences. We suggest integrating mindfulness practices into therapeutic treatment. Mindfulness may activate characteristic neural mechanisms that decrease emotional activation in response to addiction-related cues. More research is urgently recommended. Future studies should introduce mindfulness techniques that are known to address the target and trigger of impulsive shopping urges. Evidence is provided for stronger cognitive control and a downregulation of absence when individuals suppress their emotions. There is still much to be discovered about different strategies, timing of enactments, complexities of suppression, and phenomena related to control, such as thought suppression. This might be an interesting direction for further research efforts. Cognitive Behavioral Therapy does not measure changes only in coping strategies; it provides insights into addiction but does not address behavioral change or finding other coping strategies [149-153].

6. Technological Innovations in Understanding and Addressing Shopping Addiction

Technological innovations have brought fundamental changes to the ways we understand and address shopping addiction. On the one hand, digital footprints, online guidance, and e-health interventions are informing our understanding of consumer shopping patterns and habits. This expanding field quantitatively analyzes behavior at a neural level, collecting data via brain imaging techniques or alternative methods at the source. Big data analysis can trace or predict consumer habits, either in-market or inside drug and food retailers. On one hand, the consumer is always a potential buyer and not necessarily an addict, while on the other, hyper-consumerism, reduced impulse control, and tendencies of endorsement are among the main features highlighted within the consumer group [154-156]. Technology also captures insights into shopping addiction. Shopaholics are unaware of their condition and tend to underreport any problematic behavior. They show falsification and concealment of day-to-day shopping practices to deny or mitigate their problem. Psychological and behavioral insights provide an understanding of procedural warnings as a primary treatment method. Behavioral techniques and strategies are also particularly relevant in the case of commercial behavioral addiction, such as shopping addiction. As a result, behavioral insights are being applied as a targeted therapeutic strategy targeting both cognitive and emotional drivers in gameplay and addiction therapy. Virtual reality applications are used to expose patients to a controlled environment with a 'super-normal-stimulus/supernormal-reinforced addiction platform.' Virtual reality shopping scenarios affect shopping tendencies in terms of environmental manipulation and its mobile application extensions are immersive, cost-effective, and safe alternatives to existing inpatient programs that allow real-world and situation-specific exposure together with avoidance or cognitive strategies [157-160].

Real-time tracking or heat maps can inform treatment by identifying hotspot areas or times where the shopping tendency is highest; they can also give insights into lag times. The user also has a choice of products in real time. The information and stimuli can be processed on social media or via the available shopping apps. Wearable devices, smartwatches, and emotive bracelets also create potential for use in assisted technology: they can be used as an alarm – linking a pre-set physiological signature of emotional arousal to the user's smartphone for a 'pause' alert prior to purchase. It is also suitable for long-abstinent individuals to stimulate brain reward pathways by considering refreshment [160-163]. Technological innovations mainly avoid functional boundaries imposed by the volume of substance needed or consumed by one patient. Personalized tactile experiences, including virtual reality, artificial intelligence, and augmented reality, would be the trend in individualized therapeutic approaches. Innovative technology solutions facilitate real-time data analytics and are therefore considered scalable for use with wide coverage. Moreover, they can enable long-term shoppers to avoid the negatively perceived stigma long associated with shopping addiction, as they offer therapy under the claim of hyper-consumerism [164-166].

Big Data and Shopping Behavior Analysis

One of the most frequently mentioned reasons for the lack of generalizable research in the field of shopping addiction concerns the fact that the targeted sample is in the "catchment area of the researcher" – i.e., rather small and unrepresentative. This can be addressed in part by using large, unselected samples, with the correlating disadvantage that possible motives must conform to the questionnaire items. Big data are defined by the "3 Vs": volume, velocity, and variety. In terms of measurements, methodology, and comparison standards, data on consumer behavior and possible consequences of consuming are either inferred from participant self-reports or observed or measured. Typically, the contributing methods in behavioral shopping and purchasing research, analysis of online activities, focus on reaction-time measurements and shopping-basket/task performance. Ethical and technical considerations and guarantees in obtaining and analyzing this behavioral data were similarly addressed but are still largely unresolved [167-171]. E-commerce can directly test or utilize to integrate storewide and personalized approaches. Physical storefronts can offer possibilities to try and buy enhanced products. Using big data, modifiable risk factors at the population margin for shopping addiction could be identified, and triggers and risk factors for new cases can be identified. Ethically, practical prevention research would have to answer the questions of when and how to intervene adequately given the substantial overlap and possible transition from excessive to compulsive if shopping addiction severity were

included in a spectrum model. Finally, ethical aspects of collecting target product or health data for personalized prevention [172-176].

Virtual Reality Applications in Treatment

Most recently, two reports have reviewed treatment studies that included individuals with buying-shopping disorder and found ten relevant articles. Virtual reality is becoming an increasingly popular component of treatment studies, as it allows for exposure with response prevention in a controlled environment where the individual can confront his or her triggers without actual purchasing behavior. For example, virtual reality may allow for a reduction in the intensity of therapy sessions, where homework is practiced in virtual reality between sessions with a therapist. The immersive nature of virtual reality makes it an excellent vehicle for experiential learning, where avoidance motivation can be placed at a heightened level leading to successful application of coping strategies. Case studies have successfully used virtual reality in the treatment of shoplifting, hoarding disorder, and buying-shopping disorder [177-179]. Virtual reality environments can be tailored to the individual needs of a person seeking help for shopping addiction. For shopping, virtual reality applications could simulate a range of shopping scenarios, such as a grocery store, a clothing store, or an electronics store. By exposing individuals to a range of experiences, more generalizable reductions in craving may be achieved. An important safeguard in using virtual reality simulation of real-world conditions is the need to avoid ethically problematic testing of parental behavior. This simulator is designed to mimic the addict-inducing products of a particular retail establishment to a precise degree tailored to the privacy of individual patient treatment. However, care will be taken so that, as a simulator with deliberate specialized features, the session does not inadvertently violate hypothetical principles of the status of the individual in the real world, and yet the breadth of purchases which it is useful for simulating is robust [180-183].

7. Conclusion

We conclude that shopping addiction is best seen as addiction to buying and excessive buying; perspectives that allow integration of work from a variety of disciplines. We have considered these from either emotional or cognitive perspectives. Our emotional focus starts with mood regulation as the main path through which shopping addiction comes about. Disregard of the future and a lack of control over or failure of willpower in shopping are also part of the picture. Our cognitive perspective builds on shared insights from addiction research that the automatic as well as the reflective system is involved and has identified several ways in which attention and memory processing is biased towards shopping-related stimuli. Furthermore, the use of attentional and episodic future thinking is characterized by disturbances and deficits in shopping addiction. In either case, we propose that it is the interplay of the liabilities that someone has combined with a unique situation that allows shopping addiction to come about. Our work is not exhaustive and there are many avenues for further investigation based on our proposals. First, one strong focus which was absent from our paper concerns pure online buying as a new form of shopping, enabled by new technologies, and there is also a lack of research into prophylactic as well as therapeutic strategies, possibly also taking advantage of new technologies. Several research activities are needed. Specifically, with respect to therapy we still know very little and would like to know whether e-therapies may be helpful. There is a need for a clearer understanding of the mechanisms of perceived risk factors in the emergence and maintenance of online shopping addiction to develop effective prevention strategies. Finally, there is a need for an evidence-based intervention that can successfully problem shop at home to reduce the impact of virtual shopping addiction.

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