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Facts or belief: examining the effect of the cognitive dissonance on brand switching, purchase regret and satisfaction level

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Abstract

Purpose – This study aims to investigate the relative impacts of the cognitive dissonance on brand switching (BS) and satisfaction level (SAT) by considering the mediation role of purchase regret (PRG) in these relationships in an online shopping context.

Design/methodology/approach – The data was collected from 354 participants, and structural equation modeling and mediation analysis were conducted to test the conceptual model hypotheses.

Findings – The findings revealed that the cognitive dissonance positively affects PRG. Also, the study indicated a negative and nonsignificant relationship between cognitive dissonance and SAT and a negative significant relationship between cognitive dissonance and BS. In addition, a positive and significant correlation was found between PRG and BS. Furthermore, the results revealed that PRG mediates the relationship between cognitive dissonance and SAT.

Originality/value – This research provides a novel contribution by examining the impact of the cognitive dissonance on BS and SAT and uncovering the underlying mechanism of how and under what conditions cognitive dissonance promotes BS and SAT in an online shopping context.

Keywords Cognitive dissonance, Purchase regret, Satisfaction level, Brand switching, Online shopping context

Paper type Research paper

1. Introduction

Customers play a crucial role in the success of a business as they provide the revenue necessary for sustainability and growth through their purchasing decisions, and their feedback and

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opinions can shape the company's strategy and drive improvement. On the other hand, businesses are working to deepen their customer connections to create lasting, mutually beneficial partnerships through online shopping (Park *et al.*, 2015). Businesses pay close attention to consumers' negative and regretful feelings about their purchases and how decisions may be made to remove these bad emotions (Bui *et al.*, 2011). For many customers, decision-making has become a meticulous task and a significant source of uncertainty in their daily lives (Park *et al.*, 2015). Observing people's behavior, it is clear that individuals engage in a thorough thought process before making conscious decisions to avoid uncertainty when making a purchase (Wu *et al.*, 2018). As the current trend is to relate psychology with consumer behavior, cognitive dissonance is a modern occurrence in the history of psychology that has gained increasing attention (Dimoka, 2010). Cognitive dissonance focuses on how people behave when faced with contradictory ideas when making decisions (Özyörük, 2022). Therefore, it is crucial to understand the conditions under which brand switching (BS) or repeat-purchase decisions result in significant dissatisfaction (Inman and Zeelenberg, 2002). To prevent the undesirable mental state known as "cognitive dissonance," buying decisions are made by comparing the available options (Harmon-Jones and Mills, 2019).

The cognitive dissonance concept has been explored in relation to various variables, including future orientation, holistic thinking, risk perception (Özyörük, 2022), postpurchase decision-making (Sweeney *et al.*, 2000) and the need for cognitive closure (Sachdeva, 2022). However, despite the increasing importance of understanding cognitive dissonance, empirical research in this area is still in its early stages. The relationship between cognitive dissonance and its impact on BS, purchase regret (PRG) and satisfaction level (SAT) is not well understood. According to Pandey and Parmar (2019), further research on cognitive dissonance and its influence on customer attitudes and behavior is needed.

The current research topic, online shopping, was chosen for several reasons. First, online shopping is on the rise and expanding exponentially, with online sales accounting for more than 10.4% of total retail sales. This is predicted to increase to 24% by 2026 (Baluch, 2023). Second, global sales via social media platforms were estimated at US$992bn in 2022, and it is expected to increase even more in the future. Forecast predicts that the value of social commerce sales will reach around US$2.9tn by 2026 (Chevalier, 2022). Lastly, online shopping, which differs from traditional offline purchasing in physical stores, experienced a significant increase in the early 1990s (Cho *et al.*, 2006).

Few studies have explored cognitive dissonance in response to consumer behavior across different industries or in connection to brand relationships with customers (Oppewal, 2016; Banerjee and Ghosh, 2022; Majeed *et al.*, 2022; Özyörük, 2022). For instance, previous studies have investigated cognitive dissonance *vis-à-vis* customer responses in diverse industries, such as tourism (Majeed *et al.*, 2022), smartphone users (Demirgunes and Avcilar, 2017) and banking customers (Banerjee and Ghosh, 2022). Most studies examined the connection between cognitive dissonance and consumer reactions (Demirgunes and Avcilar, 2017). In addition, there is limited research in this field, and no studies have ever examined the link between BS, PRG, SAT and cognitive dissonance in online shopping. Therefore, the present study aims to investigate people's cognitive processes in the context of online shopping through social media sites (Park *et al.*, 2015). Lastly, the overwhelming majority of recent empirical studies about effect of online context on the customer in North Cyprus have been conducted in social media marketing, tourism context (Hayat and Ibrahim, 2021; Ibrahim, 2021; Ibrahim *et al.*, 2022). Therefore, there is a need to investigate how cognitive dissonance can affect the decision of consumers after purchasing the products in Cyprus.

The present study has multiple objectives. The first aim of this study is to explore the impact of the cognitive dissonance on PRG, BS and SAT; second, to investigate the relationship between PRG and SAT; third, to assess the relationship between PRG and BS; lastly, to test the mediator role of PRG in the relationship between cognitive dissonance and SAT.

2. Literature review

Cognitive dissonance refers to the mental distress or discomfort that people experience when faced with conflicting beliefs, ideas or standards (Majeed *et al.*, 2022). It occurs when an individual is faced with two ideas that cannot coexist (Festinger, 1957). Another study by Skelton and Allwood (2017) discovered that many different types of products are likely to elicit post-PRG. From the customer's perspective, their expectations can be characterized as their thoughts and feelings about the product or service based on what they need (Banerjee and Ghosh, 2022). This connection begins after the purchase is complete and customers start evaluating their options in the market; therefore, businesses always look for ways to strengthen their relationships with customers. As a result, customers may feel like they are being compared when choosing or purchasing from different brands. For instance, the consumer might think, "what if I had bought the red one?" Intense cognitive dissonance can lead to dissatisfaction and buyer regret (Sharifi and Rahim Esfidani, 2014).

Retailers have recognized the impact of online shopping activities on sales as the traditional market becomes increasingly competitive (Liao *et al.*, 2017). As the concept of cognitive dissonance gains attention across various academic fields, such as sociology and psychology, many scholars have examined its relevance to online consumer purchasing behavior (Özyörük, 2022). A study conducted by Pandey and Parmar (2019) found that various factors, including social, geographic and demographic factors, as well as a previous online shopping experience, familiarity with computer and internet technology, website design, product features, sales promotions, payment methods, the delivery speed of goods and after-purchase services, all influence consumers' online shopping behavior. Retailers have used the internet as a powerful tool for marketing to attract customers and drive visits. However, in-store transactions often require making decisions among a variety of options with limited or inadequate information about the products (Majeed *et al.*, 2022).

3. Theoretical framework

3.1 Cognitive dissonance theory

The cognitive dissonance theory was first developed by social psychologist Leon Festinger 50 years ago. According to Festinger's theory, discomfort arises when a person holds two or more connected but conflicting pieces. He referred to this uncomfortable state as "dissonance" (Harmon-Jones and Harmon-Jones, 2007). Since Festinger's (1957) introduction of cognitive dissonance theory, academics from various fields have used it to explain various consumer behaviors (Kim, 2011). Marketing experts and psychologists have conducted many studies to evaluate the cognitive dissonance theory (Oshikawa, 1969). Research on cognitive dissonance has gained renewed interest following (Harmon-Jones and Mills, 2019). Although the concept of cognitive dissonance has been used to explain consumer behavior in many research types since Festinger's (1957) book, no study has yet applied the theory to the online shopping sector (Kim, 2011).

Cognitive dissonance is a psychological state of discomfort brought on by an imbalance in cognitions (e.g. two conflicting cognitions occurring at the same time) (Majeed *et al.*, 2022). This unpleasant state drives one to eliminate the problematic factor to restore cognitive balance (Banerjee and Ghosh, 2022). Three factors can cause dissonance, which can then motivate someone to find different methods to ease the tension. The first method of observation occurs after making a significant and difficult choice; the second method of observation occurs after being forced to say or do something that is against one's attitudes, opinions or beliefs; and the third method of observation occurs after being exposed to conflicting information (Oshikawa, 1969).

3.2 Regret theory

The regret theory posits that decision-makers experience regret after making a choice (Bui *et al.*, 2011). Regret is associated with low SAT and a high likelihood of switching brands in the future (Inman and Zeelenberg, 2002). It also occurs when individuals compare their actual experiences and outcomes with their initial expectations (Bui *et al.*, 2011). PRG is an unpleasant emotional state characterized by sadness related to misfortunes, limitations, losses, offenses, deficiencies and mistakes (Bui *et al.*, 2011). It also conveys the grief associated with the improper or abandoned product use (Akçi and Kilinç, 2016).

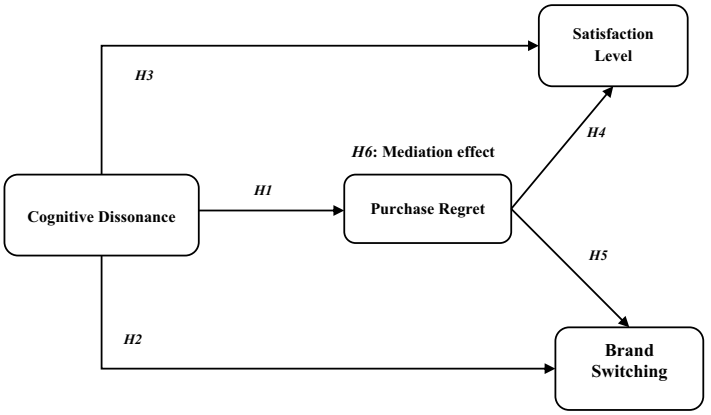
3.3 The model of study

The current investigation aims to bridge the gap in the existing literature by examining the phenomenon of cognitive dissonance within the context of online shopping, building upon the seminal work of Festinger(1957) and Bui *et al.* (2011). A conceptual model (depicted in Figure 1) has been formulated using established theories, such as cognitive dissonance theory and regret theory, illustrating the interrelations among the various constructs. The model proposes cognitive dissonance as the independent variable and examines its impact on BS and SAT (dependent variables), with the mediating effect of PRG.

4. Hypothesis development

4.1 Cognitive dissonance and purchase regret

The multidimensional scale of cognitive dissonance following a transaction can be used to determine whether or not a merchant is defrauding the buyer (Sweeney *et al.*, 2000). However, making thoughtful and correct decisions can decrease negative postdecision emotions and reduce decision costs, such as cognitive effort related to PRG, particularly in online shopping (Park and Hill, 2018). In addition, when making purchasing decisions,



Mediation effect

***H6*: Cognitive Dissonance – Purchase Regret- Satisfaction Level**

Figure 1.
The model of study

Source: Figure by authors

buyers often struggle to weigh various options with various benefits, features and characteristics. This study focuses on the factors that affect consumers' PRG (cognitive dissonance), in contrast to a study by Armstrong *et al.* (2008) that found that only price is significantly related to post-PRG. Therefore, the following hypothesis can be proposed:

H1. Cognitive dissonance positively influences PRG.

4.2 Cognitive dissonance and brand switching

Consumers often engage in shopping activities for psychological reasons to fulfill their needs (Akçi and Kilinç, 2016), and it is logical that feelings of regret influence their emotional state after making a purchase or nonpurchase. Regret is a negative emotion that leads to negative word-of-mouth, dissatisfaction and reduced intention to repurchase the brand (Lee and Workman, 2018). In addition, Wu *et al.* (2018) found that experiencing pleasure positively impacts intentions to switch to green brands, positively influencing green brand-switching behavior. This study used 613 questionnaires to gather data from consumers who had purchased environmental shampoos. Therefore, the following hypothesis is proposed:

H2. Cognitive dissonance positively influences BS.

4.3 Cognitive dissonance with satisfaction level

Akçi and Kilinç (2016) investigated buyers' regrets after purchasing a similar product from another brand at a cheaper cost. Furthermore, customers who experienced disappointment often chose to exchange or return a product and expressed remorse or negative opinions about current and future customers (Akçi and Kilinç, 2016). In addition, the quality of connections between three distinct groups of people can be used to measure SAT rather than solely relying on the quality of the product (customer, product or service, and the provider of a product or service). Oppewal (2016) examined the effects of postpurchase reinforcement, conflicting information, cognitive dissonance, SAT and perceived service quality on consumers. A field experiment involving university students was conducted, and it was found that neither SAT nor perceived service quality was affected by the presence of choice-inconsistent information (Oppewal, 2016). Therefore, the following hypothesis is proposed:

H3. Cognitive dissonance negatively influences SAT.

4.4 Purchase regret with satisfaction level

The relationship between PRG and SAT has been extensively examined in various types of research. For instance, Bui *et al.* (2011) study involving a purchase decision scenario was conducted with a sample of 125 undergraduate students, and the results indicated that PRG decreases customer happiness and increases the inclination toward BS. In addition, negative emotions were found to partially mediate the relationship between PRG and SAT and the relationship between SAT and the level of rumination (Bui *et al.*, 2011). Another study by Liao *et al.* (2017), using data from 268 online shoppers, aimed to evaluate repurchase behavior and investigate how consumers' search efforts impact SAT and PRG. The findings suggest that PRG is predicted by search effort, confirmation of anticipation and alternative attractiveness, which influence SAT and repurchase intention (Liao *et al.*, 2017). Therefore, the following hypothesis is proposed:

H4. PRG negatively influences SAT.

4.5 Purchase regrets and brand switching

Previous research has emphasized the connection between cognitive dissonance and SAT (Sweeney *et al.*, 2000, p. 138). A study by Burton (2014) found that 20 female participants cited several regrets related to internet shopping, including unsuitable purchases, prolonged waiting times for goods and difficulties with returning items. Thus, cognitive dissonance occurs when consumer dissatisfaction and satisfaction are low, leading consumers to attempt to alleviate their negative feelings. As acquiring new customers is costlier than retaining current ones, understanding the causes of consumer complaints and switching intentions is crucial. Demirgunes and Avcilar (2017) investigated the impact of the cognitive dissonance on consumers' complaints and switching intentions. Therefore, the following hypothesis is proposed:

H5. PRG positively influence BS.

4.6 The mediation effect of purchase regret

Understanding the reasons for product returns is essential. One of these underlying causes is cognitive dissonance, and individuals who experience it may attempt to undo the effects of a regrettable choice by returning the item. For instance, the study of Powers and Jack (2013) investigates the impact of emotional dissonance and product dissonance, two forms of cognitive dissonance, on the frequency of product returns. The research used a survey of customers who have returned products. The results showed that the frequency of product returns was positively correlated with both emotional and product dissonance (Powers and Jack, 2013).

Dissatisfied customers are more likely to switch providers and spread negative word-of-mouth feedback, particularly if there is a problem with the service. However, according to a survey of 359 restaurant and 308 hotel managers, anger is not a factor in switching, whereas regret only influences switching and negative word-of-mouth but has no impact on complaints (Sánchez-García and Currás-Pérez, 2011). Therefore, the following hypothesis can be proposed:

H6. PRG will mediate the relationship between cognitive dissonance and SAT.

5. Methodology of the study

5.1 Study population and sample

The population of the present study comprised of postgraduate students (master's and PhD students) at Girne American University in Cyprus who actively purchase items online through social media platforms. The university has a diverse student body of over 20,000 students from around the world enrolled in various undergraduate, graduate and doctoral programs. It offers both master's (approximately 30 programs) and PhD (approximately 15 programs) programs in fields such as business, law, engineering and social sciences. The population of our study consisted of 2,600 master's and PhD students, obtained from the database of the Institute of Graduate Studies at Girne American University. To achieve the purpose of this study, the quantitative analytical survey was adopted to test the proposed theoretical model. The self-administered method is more popular in the Cyprus context and achieves a high response rate in such a university context (Ibrahim *et al.*, 2022). The pilot study was applied by distributing 30 copies of the survey to make sure that the

statements are understandable and well defined, the language was clear, the population reaction to the questions suites the planned meaning, and after that, the required modifications will make. Instagram and Facebook as social media platforms were used to understand the customers' online purchase behaviors. To ensure the eligibility of the respondents to complete the questionnaire, relevant screening questions were used to exclude those students who did not purchase online from social media platforms and who were not postgraduate students (master's or PhD students). This study ensured that the target population contained respondents or customers who fulfilled the following screening criteria: (1) being a master's or PhD student; (2) having experience in online shopping; and (3) having purchased from social media platforms (Instagram and Facebook) one month before data collection. Only those who provided appropriate responses to the initial screening questions were eligible to participate in the rest of the questionnaire.

Consistent with previous studies, according to Kaden (2006) guidelines, a good sample size for marketing research is 300. However, to boost reliability, the researchers gave out 600 questionnaires and performed this face-to-face (hand-delivered) with the university students. All master's and PhD courses are held between 18:00 and 21:00, and it helps us to distribute more questions. The screening question was applied first to 600 participants; only 419 respondents were invited to answer questions about their experience with online shopping on social media sites. Our methodology in this study is consistent with previous studies that examined the effect of social media sites on customer behavior (Ibrahim, 2021; Ibrahim *et al.*, 2022). The author received 419 completed questionnaires and then omitted 65 due to missing data. In addition, Hair *et al.* (2017) suggested that any case with over 50% missing data should be removed from the collected observations. Following this recommendation, 65 respondent cases were excluded due to not answering more than half of the questions.

Furthermore, a self-administered survey was used to compile a convenience sample of 354 students, with a five-point Likert scale ranging from strongly disagree to strongly agree was used for the quantitative portion. The convenience sampling method is used because it is easy to access and quickly gather data from the population of interest. According to Babbie (2017): "Convenience sampling is useful when the researcher is unable to identify all members of a population or when obtaining a sample through other methods would be too time-consuming or expensive." Reasons for using a convenience sample include time constraints, cost-effectiveness and availability. The measurement items of questionnaire were adopted from various scholars (see Table 2).

6. Results

6.1 Demographic

For data analysis, only 354 valid replies were selected. The majority of the research participants (239) were men. The most significant percentage was in the 22- to 30-year age group (70.6%), followed by the 31- to 40-year age group (19%). For education level, most of the study participants were master's students (70%), followed by doctorate students (23%). The majority of the population are master's students in MSC (70.1%), followed by PhD students (23.4%) and MBA master students (6.6%). The faculty of business has the largest number of individuals (215), followed by the faculty of architecture (38), tourism (39), law (24), engineering (28) and communication (10). Most of the population is single (77.4%), while 22.6% are married (see Table 1).

6.2 Validity and reliability analysis

The confirmatory factor analysis was used to verify the instrument, convergent and discriminant validity of the constructs of the study. As a result, the current study applied

Gender		
Male	239	67.5%
Female	115	32.5%
Age		
22–30	250	70.6%
31–40	68	19.0%
41–50	26	7.6%
Over 50	9	2.5%
Education		
Master's student (MSC)	248	70.1%
PhD student	83	23.4%
Master's student (MBA)	23	6.6%
Faculty name		
Faculty of business	215	60.7%
Faculty of architecture	38	10.7%
Faculty of tourism	39	11%
Faculty of law	24	6.7%
Faculty of engineering	28	7.9%
Faculty of communication	10	2.8%
Marital status		
Single	274	77.4%
Married	80	22.6%

Table 1.
Demographic data

Source: Table by authors

fitness indices that consider the overall goodness of fit for the investigated model to analyze the validity of the measurement model (Hu and Bentler, 1999). Table 2 summarizes the measurement model and all factors and items. The standardized loading of the measures on their respective latent variables, which should be significant and at least 0.50, was used in this study to test convergent validity (Hair *et al.*, 2010a, 2010b). Two items were deleted during exploratory factor analysis because the low factor loading was less than the acceptable threshold of 0.5. For reliability analysis, Cronbach's alpha was used, and values ranged from 0.86 to 0.92 above the cutoff point 0.70, considered acceptable (Nunnally, 1978). The composite reliable (CR) scores are from 0.86 to 0.91, which is above the 0.70 recommendations in the literature (Hair *et al.*, 2010a, 2010b). Similarly, average variance extracted (AVE) values should be higher than 0.50 (Fornell and Larcker, 1981). Therefore, the values produced in our analysis have provided an overall indication of the measurement model's convergent and discriminant validity (see Table 2).

Table 3 shows that the square root of the AVE for each construct is larger than the relationships between this construct, which refers to a sufficient level of discriminate validity.

6.3 Hypothesis testing

We used the AMOS software to conduct a structural equation modeling (SEM) analysis and test their hypotheses. The results of the SEM analysis indicate that the model fit is good, as all of the goodness of fit indices reported values that are in line with commonly used standards in the literature ($CMIN^2/df = 2.15 < 3.00$; $GFI = 0.93 > 0.90$; $CFI = 0.97 > 0.90$; $NFI = 0.94 > 0.90$; $RMSEA = 0.06 < 0.08$; $PCLOSE = 0.12 > 0.05$) (Hu and Bentler, 1999). The results showed that cognitive dissonance has a significant positive effect on PRG ($\beta = 0.35$, $p < 0.001$),

Variables	Item	Loading	Cronbach's
Cognitive dissonance (Tanford and Montgomery, 2015)			0.87
	CD 1	0.68	
	*CD 2	–	
	CD 3	0.69	
	*CD 4	–	
	CD 5	0.65	
	CD 6	0.72	
	CD 7	0.82	
	CD 8	0.72	
PRG (Lee and Cotte, 2009)			0.89
	PRG 1	0.81	
	PRG 2	0.91	
	PRG 3	0.85	
	PRG 4	0.74	
BS (Zhang *et al.*, 2012)			0.92
	BS 1	0.70	
	BS 2	0.82	
	BS 3	0.93	
	BS 4	0.95	
SAT (Sharifi and Rahim Esfidani, 2014)			0.86
	SAT 1	0.83	
	SAT 2	0.90	
	SAT 3	0.78	

Note: *Items dropped from the study
Source: Table by authors

Table 2.
Summary of the measurement model

Variables	CR	AVE	MaxR(H)	CD	PRG	BS	SAT
CD	0.86	0.51	0.87	*0.71*			
PRG	0.89	0.68	0.91	0.25***	*0.83*		
BS	0.91	0.73	0.94	−0.020**	0.16**	*0.85*	
SAT	0.87	0.70	0.89	−0.010**	0.26***	0.45**	*0.83*

Notes: ***$p < 0.001$ (99.9% significance); **$p < 0.01$ (99% significance)
Source: Table by authors

Table 3.
Assessing discriminant validity

supporting *H1* (Table 3). However, the relationship between cognitive dissonance and BS was found to be negative and insignificant ($\beta = -0.08$, $p = 0.22$), thus failing to support *H2*. The study supports *H3*, which states that cognitive dissonance negatively affects SAT ($\beta = -0.05$, $p < 0.01$). The results also showed that PRG has a significant positive impact on BS, contradicting *H4* ($\beta = 0.30$, $p < 0.001$). Finally, *H5* was supported by the results, which showed a positive and significant relationship between PRG and SAT ($\beta = 0.16$, $p < 0.01$).

6.4 Mediation analysis

To test the mediating effects, the present study used the bootstrapping procedure. The immediate effect results (Table 4) confirm that the direct effect between cognitive dissonance and SAT is statistically significant. Table 4 reveals statistically significant indirect effects of cognitive dissonance and SAT via PRG. However, cognitive dissonance

directly affects SAT when PRG is entered as a mediator effect. For *H6*, PRG partially mediates the relationship between cognitive dissonance and SAT ($\beta = 0.10, p < 0.01$).

7. Discussion

The results of the current study revealed the impact of the cognitive dissonance on the SAT, BS and PRG among university students. The results of study established a strong positive relationship between cognitive dissonance and PRG. The study found that customers' buying decisions are influenced by various forms of cognitive dissonance, leading to increased regret for online purchases. This aligns with previous research findings (Inman and Zeelenberg, 2002; Skelton and Allwood, 2017). Consumers were less likely to purchase when confronted with unfavorable evaluations and recommendations for a product or service online. However, favorable product reviews were found to be persuasive in encouraging consumers to make a purchase. In addition, increasing cognitive dissonance in university students was found to benefit PRG in the postpurchase stage.

Cognitive dissonance arises when an individual's thoughts, values or actions conflict, particularly when the negative effects of an action are immediately felt. This can lead to regret in the purchase (Kumar and Sharma, 2017). Our findings contradict this theory and demonstrate no clear association between cognitive dissonance and BS. This result is in contrast to the findings of Demirgunes and Avcilar (2017), which support a strong connection between cognitive dissonance and BS. The study examines the impact of the cognitive dissonance on consumers' complaints and switching intentions, emphasizing the importance of understanding why customers complain and switch brands (Demirgunes and Avcilar, 2017).

The current study's findings illustrate the detrimental impact of the cognitive dissonance on SAT. This outcome confirms the research findings of Sweeney *et al.* (2000), which indicate that the emotional aspect of dissonance is related to difficulties in evaluating the quality of items. Therefore, it is logical for a customer to seek additional information when they are unhappy or dissatisfied. The findings also support the *H3* that cognitive dissonance has a significant and detrimental effect on SAT. This result is consistent with other findings from the study of Bui *et al.* (2011) and Sharifi and Rahim Esfidani (2014). Customers attempt to alleviate the stress as they experience greater postpurchase anxiety. As a result, after making an online purchase, a buyer may experience unpleasant emotions such as dissatisfaction, anger and regret, which may discourage further purchases. +These emotions also increase the desire for knowledge, leading to dissatisfaction.

Surprisingly, the study findings show a positive significant relationship between PRG and SAT. This result contradicts other research showing that consumers will be unsatisfied

Table 4. Structural model hypotheses testing results

Direct relationships: paths from → to		Standard beta (β)	p-value	Decision
H1: Cognitive dissonance	PRG	+0.35	0.000	Supported***
H2: Cognitive dissonance	BS	−0.08	0.22	Not supported
H3: Cognitive dissonance	SAT	−0.05	0.00	Supported**
H4: PRG	SAT	+0.30	0.000	Not supported
H5: PRG	BS	+0.16	0.00	Supported**
Mediation findings		Estimate	p-value	
H6: Cognitive dissonance → PRG → SAT		0.10	0.00	Supported**

Notes: (+) positive relationship; (−) negative relationship; ***$p < 0.001$ (99.9% significance) ; **$p < 0.01$ (99% significance); NS: Not supported: p more than 0.10
Source: Table by authors

if a product performs less than expected. Specifically, regret decreases happiness levels and is a direct cause of decreased repurchase intentions (Inman and Zeelenberg, 2002).

The results also show a positive relationship between PRG and BS. The ease of BS in online shopping will likely lead to increased PRG. Furthermore, online shopping allows for easy comparison of products' features, costs and payment options, as well as the ability to select the best products based on consumer reviews. However, one of the challenges encountered in evaluating products online is the inability to try or handle the product. This increases the likelihood of cognitive dissonance arising from dissatisfaction with the product. The findings reveal that when customers experience regret following an online purchase due to emotional and cognitive conflicts, it leads to negative consumer reactions, such as BS and dissatisfaction. Similarly, the final objective of the current study is to examine the mediating role of PRG on the relationship between cognitive dissonance and SAT in online shopping. In this regard, the results indicate that PRG has a partial mediating effect, as it mediates the relationship between cognitive dissonance and SAT. This suggests that cognitive dissonance can indirectly impact SAT in online shopping through PRG.

8. Theoretical implications

This study makes several contributions to the literature on online shopping. First, it incorporates SAT, BS and PRG as consequences of cognitive dissonance, which have received less attention in previous studies. This contribution is unique, as the role of SAT, BS and PRG as outcomes of cognitive dissonance has not been fully explored in existing online shopping literature. The study contributes to the marketing body of knowledge by examining the relationship between cognitive dissonance, SAT, BS and PRG in online shopping.

Second, within the online shopping context, no previous research has demonstrated the interactive effects of the cognitive dissonance on SAT, BS and PRG, and only a few researchers have investigated cognitive dissonance in the service industry. Our study helps deepen the understanding of how cognitive dissonance impacts customer responses in general, specifically in the context of online shopping. Third, the present research adds to the existing literature by proposing and empirically validating a novel model for investigating the influence of cognitive dissonance on various customer responses, such as SAT, BS and PRG, while considering the mediating role of PRG in the online shopping context.

9. Managerial and social implications

The findings of this study have important social and managerial implications for online retailers and marketers, especially in the context of social media shopping. Based on the findings, it is recommended that online retailers use social media apps to improve the customer experience by aligning customer expectations with the product received. This can be achieved by providing clear and accurate product information, ensuring that the product is of high quality and offering efficient and effective customer service. For instance, by studying and concentrating on reviews people post on the site, they must pay greater attention to the causes of consumers' unpleasant emotions and complaints and why they changed their brand preferences. In addition, retailers should regularly monitor customer feedback and respond promptly to address any issues to minimize the occurrence of PRG and reduce the likelihood of BS. To mitigate the impact of cognitive dissonance, retailers can offer postpurchase support and provide clear return or exchange policies. In terms of social implications, online retailers should prioritize the customer experience and minimize PRG to improve BS and SAT in the online shopping. As a result, online retailers should aim to reduce PRG by providing clear and comprehensive product information, offering hassle-free returns and refunds and fostering a sense of trust with their customers. In addition, with the

increasing use of social media for shopping, retailers can leverage the power of these platforms to reach and engage customers, fostering a positive brand image and ultimately contributing to the growth of the online retail industry.

10. Limitations and recommendations for future research

There are a few restrictions to this study. Applying the model study to online shopping is one of the major limitations. The study was limited to the online shopping through social media sites in North Cyprus, which may restrict the generalizability of the results. Future marketing studies could examine cognitive dissonance in different industries (e.g. luxury goods, automobiles and electronics) or different social media platforms. The sample of university students may not be representative of broader student or customer populations that engage in online shopping. The inclusion of nonstudent sample populations from diverse backgrounds may have expanded the scope of the research. As a result, results may be overgeneralized without taking into account variations in background and culture. Future research in cognitive dissonance might compare the differences in the level of globalization among countries (high global, less global) or the level of income for countries or different cultures (Eastern, Western). Future studies can explore the model with different age groups. However, as a second order for the dependent variable in the model with customer complaint reactions, future researchers might investigate the relationship between the components of cognitive dissonance as a whole (emotion, the wisdom of the purchase and anxiety over the bargain). It might be said that the current study substitutes a 10-item measure with a 22-item scale (Sweeney *et al.*, 2000) to gauge the degree of the cognitive dissonance experienced by customers after making an online purchase. In addition, the model with moderators like generation, product type and cultural diversity was not taken into account in the current study.

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