

Compulsive Buying: Prevalence, Irrational Beliefs and Purchasing

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Abstract The aims of this study are to examine the characteristics of compulsive buying among college students at an American public university. More specifically we explored how irrational beliefs impact compulsive buying among this population; and, to investigate the types and frequency of consumer goods purchased by college students at an American public university. The study is based on data collected from a self-administered survey of 175 American college women. The results of this study showed that the prevalence of women are compulsive buyers was consistent with an earlier estimate using the Richmond Compulsive Buying Scale (27 %); irrational beliefs were associated with and predicted compulsive buying; and compulsive and non-compulsive buyers did not differ in the types of consumer goods purchased but in the frequency with which consumer goods are purchased. The study has significance by replicating the impact irrational beliefs have on compulsive buying. Such beliefs should be addressed in any preventative program targeting compulsive buying.

Keywords Compulsive buying · Irrational beliefs · Types of consumers goods purchased · Frequency of purchase

Compulsive buying is a complex maladaptive behavior that impacts many individuals in consumer-orientated societies. Despite its impact on the individual and society, there is no agreed upon definition of compulsive buying. Indeed, as early as the start of the twentieth century, there was little agreement on its classification; Kraepelin (1915) categorized compulsive buying as a variation of kleptomania whereas Bleuler (1924) related it to pyromania as well. The disorder received little attention until the 1990s when consumer researchers became interested in

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the topic. These researchers (e.g., O’Guinn and Faber 1989) revised and expanded Kraepelin’s and Bleuler’s definitions to operationalize compulsive buying as a form of compulsive consumption that occurs as a response to negative events and feelings, with compulsive consumption referring to a broader class of behaviors that are repetitive and often excessively performed to alleviate tension, anxiety, depression, or boredom (Solomon 2015). Clinical researchers attempted to further elucidate the maladaptive behavior; however, such attempts have only muddied the conceptual definition because of a lack of agreement on how to classify the behavior. Some clinical researchers have classified compulsive buying as either an addictive disorder (Hartston 2012), an affective disorder (Lejoyeux et al. 1995), a mood disorder (Kesebir et al. 2012), or an obsessive-compulsive disorder (Filomensky et al. 2012; Hollander 1993; Lourenço Leite et al. 2014). Perhaps because of its definitional ambiguity, compulsive buying is not included in the American Psychiatric Association’s Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (2013) or the International Classification of Diseases of the World Health Organization, 10th Edition (ICD-10; World Health Organization 2005) (Filomensky and Tavares 2015). However, the literature identifying compulsive buying as a serious disorder is growing in scale and detail (for a review, see Aboujaoude 2014).

Given the definitional ambiguity surrounding the concept, attempts have been made to reconcile the various definitions of compulsive buying. For example, Natarajan and Goff (1991) using a number of widely used definitions of compulsive buying defined it as:

. . . an addictive propensity and/or a compulsive trait, and arises from persistently assailing, repetitive motive(s) to buy (or perform a ritual of buying) which may or may not be irresistible and may or may not be pleasurable or relieving but that which is fundamentally disruptive to normal functioning. (p. 321)

Thus, at its core, compulsive buying is a chronic psychopathological disorder producing uncontrollable urges that has negative consequences for the individual which range from financial distress to marital problems to legal problems (Christenson et al. 1994; McElroy et al. 1994). Moreover, compulsive buyers are more likely to develop additional maladaptive behaviors such as eating disorders, substance abuse, and mood or anxiety disorders (Black et al. 1998).

Compulsive buying is thought to occur as a response to intrusive urges which produce high levels of negative affect (e.g., anxiety) for the individual (Kellett and Bolton 2009; Davenport et al. 2012). To alleviate the negative affect, it is thought compulsive buyers engage in purchasing behavior to feel better about themselves (Faber 2011; Thornhill et al. 2012). However, the change in mood is short-lived; compulsive buyers report feeling remorse, guilt, and shame following the compulsive buying episode (Black 2007; Lourenço Leite et al. 2014). It seems the act of purchasing, and not the products themselves alleviate compulsive buyers’ negative affective states. Consequently, compulsive buyers are not interested in the products they purchase (O’Guinn and Faber 1989) as the consumer goods are hidden from others, given away to others, or discarded after purchase (Derbyshire et al. 2014).

Prevalence of Compulsive Buying

The prevalence of compulsive buying is uncertain (Harvanko et al. 2013; Maraz et al. 2015) with estimates of American compulsive buyers ranging from 2 % to 16 %; more conservative estimates suggest that 2 % to 8 % of Americans are compulsive buyers (Black 2001; Faber and O’Guinn 1992), while less cautious estimates have identified 5 % to 16 % of Americans as

compulsive buyers (Magee 1994; Ridgway et al. 2008). Among American college students, the prevalence of compulsive buying is higher compared to the general population (Brougham et al. 2011). Estimates vary widely with some studies identifying 4 % (Harvanko et al. 2013), 9 % (Roberts and Jones 2001), 15 % (Yurchisin and Johnson 2004), and 20 % (Harnish and Bridges 2014) of college students as compulsive buyers with borderline compulsive buying rates as high as 44 % (Yurchisin and Johnson 2004).

Differences in prevalence estimates may be due to the measure used to assess compulsive buying because of how the developer of the instrument operationalized compulsive buying. For example, a widely used measure developed by O’Guinn and Faber (1989; Faber and O’Guinn 1992) is the Compulsive Buying Scale (CBS). The CBS is based on O’Guinn and Faber’s (1989) definition of compulsive buying as an obsessive-compulsive disorder, and assesses thoughts, emotions and behaviors before, during and after a shopping episode. However, the CBS has been criticized on a number of fronts including being outdated and culturally specific (Quinn and Roberds 2008). Thus, newer measures have been developed; one such measure is the Yale-Brown Obsessive-Compulsive Scale – Shopping Version (YBOCS-SV; Monahan et al. 1996) which is a clinician-rated scale adapted from the Yale-Brown Obsessive-Compulsive Scale. Newer self-report measures include: 1) the Edwards Compulsive Buying Scale (ECBS; Edwards 1993) which is based on the CBS, 2) the Questionnaire about Buying Behavior (QABB; Lejoyeux et al. 1997) which is based on McElroy et al.’s (1994) definition of compulsive buying which relates it to mood and anxiety disorders; and 3) the Richmond Compulsive Buying Scale (RCBS; Ridgway et al. 2008) which considers compulsive buying as both an impulse-control problem and an obsessive-compulsive disorder.

Irrational Beliefs

Ellis (1997) posited that psychological dysfunction is caused by irrational thoughts and beliefs. He described several irrational beliefs that make an individual vulnerable to emotional and behavioral disorders. The 10 irrational beliefs theorized by Ellis (1997) are: a) Demand for approval (i.e., the belief that I must be loved and cherished by everyone or I am not lovable); b) high self-expectations or perfectionism (i.e., the belief that I must do everything exceptionally well or I am not competent); c) blame proneness (i.e., the belief that I must rebuke others if they do not treat me well); d) frustration reactivity (i.e., the belief that I must condemn my life if things do not go my way), e) emotional irresponsibility (i.e., the belief that I have no control over my feelings and behaviors), f) anxious over-concern or worrying (i.e., the belief that because something is fearful or risky, I must constantly be worried and anxious about it); g) problem avoidance (i.e., the belief that I must avoid responsibility for difficulties in my life in order to be comfortable and content); h) dependency (i.e., the belief that I must depend on others because I cannot live my life alone); i) helplessness (i.e., the belief that I am controlled by my past; anything that once affected me must affect me in the present), and j) rigidity (i.e., the belief that I must strictly adhere to values and norms; if I do not I must suffer the consequences of my transgressions).

Otero-López and Villardefrancos (2014) have indicated that compulsive buyers, compared to non-compulsive buyers, scored higher on problem avoidance, and used less active problem solving and cognitive restructuring strategies. Additionally, because compulsive buying can lead to financial distress (Dittmar 2004), awfulizing or “catastrophic thinking” (Zinbarg et al. 2006) may be more likely to occur among compulsive buyers than non-compulsive buyers (i.e., compulsive buyers may fear that they would no longer be loved – divorced – if their

spouses discovered their purchases and bills). In addition, compulsive buyers may have lower levels of frustration reactivity. Harrington (2005) reported that overspending on unnecessary things was correlated with frustration reactivity (i.e., intolerance of negative emotions, lack of delayed gratification, and frustrated goals). Recently, Harnish and Bridges (2014) explored how compulsive buying is associated with irrational beliefs among college students at an American university. They found that irrational beliefs, specifically problem avoidance (i.e., avoiding decisions and taking responsibility for one's actions) and rigidity (i.e., guilt associated with deviations from strict values), were associated with and predicted compulsive buying. This body of work supports the notion that compulsive buying is an escape from the causes of anxiety and negative emotions (Davenport et al. 2012). Because of this, promising models of treatment have focused on disrupting and changing the thoughts of compulsive buyers (Benson and Eisenach 2013; Benson et al. 2014; Müller et al. 2013).

Frequency and Types of Products Purchased

The extant research identifying the frequency and types of products purchased by compulsive buyers is incomplete and dated. Faber and O'Guinn (1989) found that clothing and cosmetics were purchased in compulsive buying episodes, while Black (2001) indicated that clothing, jewelry, and make-up were compulsively purchased among women compulsive buyers. As Dittmar (2001) argued, it appears that the type of consumer goods purchased by compulsive buyers is used not only to regulate their emotions (i.e., to reduce anxiety and negative mood state it produces), but to self-enhance (i.e., gain social status), and express an important aspect of one's self (i.e., one's ideal self). According to this perspective, when a consumer purchases a good, the consumer internalizes the symbolic qualities associated with the product (Belk 1984). Thus, it should not be surprising that compulsive buying is correlated with materialism (Harnish and Bridges 2014; Yurchisin and Johnson 2004) and that materialists make more compulsive purchases (Dittmar 2005).

Goal of the Current Research

Because college students are in the process of becoming financially independent from their parents (Brougham et al. 2011), place a greater value on financial status (Pryor et al. 2007), are more materialistic (Twenge and Kasser 2013), and are more likely to use credit cards for discretionary items in addition to paying for tuition, books, and related supplies (Sallie Mae 2009) than past generations, in the present study, we focused on this segment of the population. We wished to replicate the findings of Harnish and Bridges (2014) because irrational beliefs may be central to the amelioration and treatment of compulsive buying.

Method

Participants

Data were obtained from 297 undergraduate students enrolled in introductory psychology at a large, northeastern public university in the U.S. Approximately, three-fifths of the respondents were women (59 %), while two-fifths were men (41 %). Almost all respondents were single, never married (98 %), with 1 % or less of the respondents married (.3 %), separated (.7 %), or

divorced (1 %). The majority of respondents were of European descent (62 %), with those of African (9 %), Asian (6 %), Hispanic (4 %), Middle Eastern (1 %) and “other” (18 %) decent represented. The average age of respondents was 19 years old ($SD = 2.87$). The majority of the respondents were U.S. citizens (96 %) with 1 % or less of the respondents citizens of China (1 %), India (1 %), Brazil (.3 %), Hong Kong (S.A.R.) (.3 %), Malaysia (.3 %), Pakistan (.3 %), and Zambia (.3 %). The study was approved by the university’s Institutional Review Board, and all participants consented to the study.

Procedure

Respondents were recruited by a male undergraduate research assistant who visited introductory psychology classes to provide a brief description of the study and asked for student participation. After the request was made, he distributed a handout containing more information about the study and the URL of the survey. The information sheet read as follows:

The purpose of the study is to explore the personalities of shoppers and the products that they buy. You will be asked to complete two personality measures, a questionnaire exploring what products you have purchased in the past 6 months and a demographic questionnaire. The survey will take approximately 15 minutes to complete. In exchange for your participation, you will receive extra credit toward your course grade. You do not have to participate in this research to earn extra credit. Please see your course instructor for an alternative. If you would like to participate, please enter the following URL in your favorite web browser (e.g., Firefox, Internet Explorer). Thank you in advance for your help.

The information sheet also contained contact information for the first author should potential respondents have questions about the research. No one contacted the first author with questions. All respondents completed the measures via the Internet at their convenience outside of class and received extra credit for their participation.

Measures

Respondents completed the Richmond Compulsive Buying Scale, (RCBS; Ridgway et al. 2008), the Irrational Beliefs Inventory (IBI; Koopmans et al. 1994), an inventory of consumer goods purchased over the past six months, how frequently the consumer good was purchased, and a demographic questionnaire. The RCBS (Ridgway et al. 2008) is a 6-item scale that surmounts shortcomings associated with older measures of compulsive buying (see Ridgway et al. 2008). Using a 7-point scale that ranged from 1 (*strongly disagree*) to 7 (*strongly agree*), respondents indicated their agreement on three obsessive-compulsive buying items (e.g., “My closet has unopened shopping bags in it” and three impulse control buying items (e.g., “I buy things I don’t need”). Scores ranged from 6 to 42. Cronbach’s alpha was .86.

The IBI is a self-report measure designed to identify irrational cognitions that has good psychometric properties (Bridges and Harnish 2010; Bridges and Sanderman 2002). It is answered via a 5-point scale and consists of five subscales plus a total score. Responses to the IBI were summed (scores ranged from 103 to 192). Cronbach’s alpha was .82 for the overall measure. Additionally, summed scores were calculated for each of the five subscales (i.e., Problem Avoidance, Rigidity, Worrying, Need for Approval, Emotional Irresponsibility). Koopmans et al. (1994, p. 17) defined Problem Avoidance as “irrational cognitions concerning making decisions, taking risks and taking responsibility. People who have a high score on this

factor hold that it is easier to avoid difficulties and problems than to face them.” An example item is “I avoid facing my problems.” Cronbach’s alpha was .76 for this subscale. Rigidity according to Koopmans et al. (1994, p. 17) was marked by “rigid thoughts and norms people hold for themselves and for others. A high score reveals feelings of guilt and attribution of guilt, punishment and blame for mistakes, sins or deviations from strict values and norms.” An example Rigidity item is “People should observe moral laws more strictly than they do.” Cronbach’s alpha was .68 for the Rigidity subscale. Koopmans et al. (1994, p.17) defined Worrying as “worrying over possible misfortune and possible future accidents.” An example Worrying item is “I worry a lot about certain things in the future.” Cronbach’s alpha was .74 for this subscale. Koopmans et al. (1994, p. 17) described Need for Approval as “being in need for approval of others and reflects fear of not being accepted and respected by others or fear of failing in front of other people.” An example item, “I want everyone to like me” illustrates this dimension. Cronbach’s alpha was .83 for the Need for Approval subscale. Finally, Koopmans et al. (1994, p. 17) defined Emotional Irresponsibility as “ascribing emotions to external causes instead of to oneself.” An example item is “A person won’t stay angry or blue long, unless he keeps himself that way.” Cronbach’s alpha was .70 for the Emotional Irresponsibility subscale.

The inventory of consumer goods that assessed purchasing and frequency of purchase consisted of 32 items from the International Standard Industrial Classification of All Economic Activities (ISIC; United Nations 2008). The ISIC is an international reference classification of productive activities that provides “a set of activity categories that can be utilized for the collection and reporting of statistics according to such activities” (United Nations 2008, p. iii). See Table 1 for the categories and items included in the survey. The items were selected to reflect the likely interest in consumer goods among respondents and not all economic activities reflected in ISIC. The demographic questionnaire asked respondents for their gender, age, marital status, race, nationality, and religion.

Results

Because of anticipated gender differences in compulsive buying (Mueller et al. 2011; Shoham and Brenčić 2003), male and female respondents were compared on demographic information. There were no statistically significant differences between men and women on the demographic variables (all p 's > .20). Women reported significantly higher levels on the RCBS ($M = 19.46$, $SD = 9.11$) than men ($M = 13.80$, $SD = 6.02$) indicating a higher tendency toward compulsive buying, $t(295) = 6.01$, $p < .001$, $\eta^2 = .11$. To further explore this finding, using Ridgway et al.’s (2008) recommendation of classifying individuals who scored 25 or higher on the RCBS as compulsive buyers, 3 % ($n = 4$) of males and 27 % ($n = 48$) of females in the sample were identified as compulsive buyers. Because of the small number of men classified as compulsive buyers, the subsequent analysis will focus on women. Women who met the criteria for compulsive buying were significantly less likely to be Caucasian, but more likely to be single (see Table 2).

To explore the relationship between compulsive buying and irrational beliefs, total scores from each measure were correlated. Table 3 presents the correlations between the RCBS and the IBI and its subscales. Compulsive buying was positively related to irrational beliefs. Using the enter method, a significant model emerged, $F(1, 173) = 7.12$, $p = .008$. The model accounted for 4 % of variance (Adjusted $R^2 = 0.34$). As expected, compulsive buying was linked to total scores on the IBI. Because the IBI is multifaceted, it was decided to explore which subscales might be

Table 1 ISIC categories and items assessed in the survey

ISIC Category	ISIC Group Code	ISIC Item
Motor Vehicles	451	Automobiles Motorcycles Scooters
Food/Beverages/Tobacco	472	Food Non-Alcoholic Beverages Alcoholic Beverages Tobacco
Information/ Communication Tools	474	Computers Peripheral Units Software (Including Video Games) Radio and Television Equipment Stereo Equipment CD and DVD/Blu-ray Players and Recorders Video Game Consoles Photographic, Optical Equipment
Household Equipment	475	Electrical Household Appliances Furniture Carpets, Rugs, Wall or Floor Coverings Lighting Textiles (Including Fabrics, Knitting Yarn, and Haberdashery) Household Utensils and Cutlery, Crockery, Glassware, China and Pottery, Wicker goods Power and Hand Tools Hardware (Including Paints, Varnishes, Glass, Bricks, Wood and Other Construction Materials)
Cultural/Recreational Goods	476	Musical Instruments and Scores Sporting Goods (Including Fishing Gear, Camping Goods, Boats, and Bicycles) Books, Magazines, or Newspapers Office Supplies (Including Pens, Pencils, Paper, Stationary) Toys/Non-Electronic Games
Clothing/Footwear/Cosmetics	477	Clothing (Including Gloves, Ties, Umbrellas, and Leather Goods) Jewelry/Watches Footwear Perfume/Cologne Pharmaceutical, Medical, or Orthopedic Goods

the best predictor of compulsive buying. To assess the association between compulsive buying, Problem Avoidance, Rigidity, Worrying, Need for Approval, and Emotional Irresponsibility, total scores from each subscale of the IBI were examined. Table 4 summarizes the results of the standard regression analyses with scores of the RCBS as the dependent variable and subscale scores of the IBI as predictors. Using the enter method, a significant model emerged, $F(5, 169) = 3.87$, $p = .002$. The model accounted for 10 % of variance (Adjusted $R^2 = 0.08$). Compulsive buying was strongly linked to Worrying subscale score.

Before assessing the differences in consumer goods purchased between women classified as compulsive ($n = 48$) and non-compulsive buyers ($n = 127$), the number of consumer good categories was reduced from 32 to 6 by using the ISIC Group Code. Categories created using the

Table 2 Demographics of 175 women college students grouped by compulsive buying

Variable	Compulsive Buying	Non-Compulsive Buying	Statistic	<i>p</i> -value
Age				
Mean (\pm SD)	18.70 (\pm 2.10)	18.94 (\pm 3.49)	$t(170) = .45$.65
Gender				
<i>n</i> (% female)	127 (52 %)	48 (92 %)	$\chi^2 (1, N = 175) = 35.66$.00001
Marital Status				
Single <i>n</i> (% single)	123 (97 %)	48 (100 %)	$\chi^2 (1, N = 171) = 32.90$.00001
Religion				
Protestant <i>n</i> (% Protestant)	35	12	$\chi^2 (1, N = 47) = 11.24$.0008
Catholic <i>n</i> (% Catholic)	38	18	$\chi^2 (1, N = 56) = 7.14$.007
Race/Ethnicity				
Caucasian <i>n</i> (%)	26 (24 %)	81 (76 %)		
Non-Caucasian <i>n</i> (%)	17 (41 %)	24 (59 %)	$\chi^2 (1, N = 148) = 4.23$.04

ISCI Group Code were Motor Vehicles (Group Code 451), Food/Beverages/Tobacco (Group Code 472), Information/ Communication Tools (Group Code 474), Household Equipment (Group Code 475), Cultural/Recreational Goods (Group Code 476), and Clothing/Footwear/ Cosmetics (Group Code 477). A series of chi-square tests were conducted; examining the results for the type of consumer goods purchased over the past six months, there were no statistically significant differences between women who were classified as compulsive buyers and those who were not. That is, compulsive buying and non-compulsive buying women did not differ in the types of consumer goods they purchased over the past six months. See Table 5.

To explore the differences in the frequency purchased, a series of *t*-tests were conducted. For all the analyses, Sidak-Bonferroni adjusted *p*-values were used to counter the effect of multiple testing with a family-wise alpha error set at .008. Results indicated a significant difference in the frequency of purchases between women classified as compulsive buyers and non-compulsive buyers for clothing (including gloves, ties, umbrellas, and leather goods, jewelry/watches, and footwear), $t(168) = -5.76$, $p = .0005$, partial $\eta^2 = .16$ and for food, beverages, and tobacco, $t(107) = -3.42$, $p = .001$, partial $\eta^2 = .10$. There were no other significant differences. See Table 6.

Table 3 Correlations between compulsive buying scale, irrational beliefs inventory, and irrational beliefs inventory subscale scores

Variable	RCBS	IBI	Worrying	Rigidity	Problem Avoidance	Demand for Approval
IBI	.20**					
Worrying	.26**	.80**				
Rigidity	-.02	.55**	.28**			
Problem Avoidance	.21**	.65**	.41**	.14		
Demand for Approval	.08	.76**	.57**	.26**	.39**	
Emotional Irresponsibility	.09	.25**	.12	-.15*	-.03	.04

* $p < .05$, ** $p < .01$

Table 4 Prediction of compulsive buying on problem avoidance, rigidity, worrying, need for approval, and emotional irresponsibility

Variable	B	SE B	β	<i>p</i>
Problem Avoidance	.26	.14	.15	.06
Rigidity	-.13	.13	-.08	.30
Worrying	.48	.16	.29	.002
Need for Approval	-.28	.16	-.13	.16
Emotional Irresponsibility	.11	.17	.05	.51

Discussion

The goal for the current research to replicate the findings of Harnish and Bridges (2014) who found irrational beliefs predicted compulsive buying among college students at an American university. Results revealed that 27 % of college women in our sample were classified as compulsive buyers. This figure is significantly higher than findings reported in Harvanko et al. (2013) who found the prevalence of compulsive buying among women college students was 4 %, Roberts and Jones (2001) who reported an incidence of 9 %, and Yurchisin and Johnson (2004) who noted a prevalence rate of 15 %. However, the current finding is not significantly different from the prevalence of compulsive buyers among college students at an American university (20 %) reported by Harnish and Bridges (2014). Thus, it seems that differing prevalence rates reported in the literature could be attributable to different measures used in assessing compulsive buying. Harvanko et al.'s (2013) measure included seven questions based on criteria proposed by Black et al. (1997) and McElroy et al. (1994). Roberts and Jones (2001) used Faber and O'Guinn's (1992) CBS while Yurchisin and Johnson (2004) used the ECBS (Edwards 1993). In the current research, the measure used to assess compulsive buying was Ridgway et al.'s (2008) measure. Prior research suggests that the Ridgway et al. (2008)

Table 5 Incidence of purchasing consumer goods between by compulsive buying and non-compulsive buying women

Variable		Compulsive Buying	Non-Compulsive Buying	<i>df</i>	χ^2	<i>p</i>
		<i>N</i>	<i>N</i>			
Motor Vehicles	Purchased	8	21	(1, <i>N</i> = 175)	.00	.98
	Not Purchased	40	106			
Food/Beverages/Tobacco	Purchased	42	115	(1, <i>N</i> = 175)	.35	.55
	Not Purchased	6	12			
Information/ Communication Tools	Purchased	8	15	(1, <i>N</i> = 175)	.72	.40
	Not Purchased	40	112			
Household Equipment	Purchased	30	65	(1, <i>N</i> = 175)	1.80	.18
	Not Purchased	18	62			
Cultural/Recreational Goods	Purchased	42	111	(1, <i>N</i> = 175)	.00	.99
	Not Purchased	6	16			
Clothing/Footwear/ Cosmetics	Purchased	44	117	(1, <i>N</i> = 175)	.01	.92
	Not Purchased	4	10			

Table 6 Comparison between compulsive buying and non-compulsive buying women on purchasing of consumer goods

Variable	Women						<i>df</i>	<i>t</i>	<i>p</i>
	Compulsive Buying			Non-Compulsive Buying					
	<i>N</i>	<i>M</i>	(<i>SD</i>)	<i>N</i>	<i>M</i>	(<i>SD</i>)			
Motor Vehicles	11	2.14	2.12	23	1.5	2.08	32	−.82	.41
Food/Beverages/Tobacco	34	2.65	1.49	75	1.79	1.07	107	−3.42	.001
Information/ Communication Tools	37	4.10	2.51	92	2.94	2.27	127	−2.56	.01
Household Equipment	8	2.81	1.65	24	2.17	2.39	30	−.71	.48
Cultural/Recreational Goods	44	4.82	2.33	120	3.86	2.15	162	−2.48	.01
Clothing/Footwear/Cosmetics	46	6.37	2.48	124	4.16	2.12	168	−5.76	.0005

measure will identify more individuals as compulsive buyers than other clinical measures. Ridgway et al. (2008, p. 633) noted that their measure:

... classifies substantially larger percentage of consumers as compulsive buyers than the clinical screener, even though both groups exhibit similar buying tendencies and experience similar psychological harm. This difference is statistically significant and translates into an estimate that a substantively larger number of consumers might have a tendency to be compulsive buyers. The primary reason for the inability of the clinical screener to identify these additional people is its confounding of the financial consequences and income-related items with compulsive buying tendencies.

Until consensus emerges among researchers on which measure to use, estimates of compulsive buying will continue to vary, and in some cases, fluctuate widely.

Additionally, results revealed that women who met the criteria for compulsive buying were significantly less likely to identify themselves as Caucasian, but more likely to be single. This finding is consistent with results reported by Harvanko et al. (2013) who conducted a large scale survey among college students at a Midwestern university in the United States and found that respondents who were classified as compulsive buyers were less likely to be Caucasian, married, have a partner, be engaged or be in a committed relationship. Given that the type of consumer goods purchased by compulsive buyers is used not only to reduce anxiety and negative mood state, but to self-enhance and express important aspects of one's self (Dittmar 2001, 2005), it may be that single, non-Caucasian college students are attempting to internalize the symbolic qualities associated with particular products (i.e., image-enhancing products) in order to gain social status and acceptance. Additional research is needed to explore this possibility.

Irrational beliefs were correlated with and predicted compulsive buying replicating the findings of Harnish and Bridges (2014). However, in the current study, the Worrying subscale of the IBI was correlated with and predicted compulsive buying; in the Harnish and Bridges (2014) study, the Problem Avoidance and Rigidity subscales of the IBI predicted compulsive buying suggesting additional research is needed to determine what type of irrational belief may be predicting compulsive buying. The current results suggest it may be the case that some compulsive buyers do not experience guilt over their compulsive purchases; rather, they worry about the effect such purchasing episodes pose for them (i.e., perhaps these individuals worry about the debt they are incurring as a result of their compulsive buying). As Harnish and

Bridges (2014) noted, the types of irrational beliefs possessed by compulsive buyers may form a vicious cycle. In the current case, compulsive buyers worry over the purchases, they engage in additional purchasing episodes to reduce their anxiety caused by their irrational beliefs.

As in other research (e.g., Black 2007; Mueller et al. 2010), more women were found to be compulsive buyers than men, consistent with other impulse control disorders; women are more likely to suffer from kleptomania and trichotillomania, while men are more likely to suffer from pathological gambling, pyromania, and intermittent explosive disorder (Goldsmith and McElroy 2000). Faber (2011) noted that gender differences in compulsive buying may stem in part to cultural and socialization norms that dictate the likelihood of engaging in specific behaviors. In western society, sex roles dictate that women are more likely to perform shopping duties and therefore spend more time involved in this activity.

There were no differences between compulsive and non-compulsive buyers in terms of the types of consumers goods purchased; however, there were differences in the frequency of goods purchased. Compulsive buyers purchased clothing (including gloves, ties, umbrellas, and leather goods, jewelry/watches, and footwear), and food, beverages, and tobacco more frequently than did non-compulsive buyers. These results suggest that consumption plays a more central role in the lives of college students who are compulsive buyers. However, given the cost of tuition and related educational expenses, college students who are compulsive buyers may be turning to credit cards to support their purchasing behavior. Indeed, given the easy access college students have to credit, credit card usage may facilitate spending. Roberts and Jones (2001) have demonstrated that credit card usage is associated with compulsive buying, while other research has found that compulsive buyers have a larger number of credit cards (O’Guinn and Faber 1989) and carry larger balances on their credit cards than non-compulsive buyers (Ritzer 1995).

Brougham et al. (2011) stated “[c]ollege students are at a high risk for becoming compulsive buyers based on a number of different factors. Their identity is still in the process of development; they have easy access to credit cards, limited financial knowledge, a present-oriented time perspective and they often lack responsibility for paying their own debt” (p. 84). However, college students may be especially likely to become compulsive buyers because of the irrational beliefs they hold which may be created by the environment in which they find themselves. Attending college is a socially stressful situation (Dyson and Renk 2006), and individuals tend to produce more irrational thoughts when in socially stressful situations compared to non-socially stressful ones (Davison and Zigelboim 1987). Thus, simply restricting access to credit cards, providing financial education to college students, changing their time perspective or taking ownership of their debt may not produce the intended result of reducing the likelihood of becoming a compulsive buyer. Rather, such actions should be supplemented with counseling to address the irrational beliefs (i.e., Problem Avoidance and Worrying) that predict compulsive buying. As noted earlier, a number of promising models of treatment have been developed that focus on disrupting and changing the thoughts of compulsive buyers (e.g., Benson et al. 2014; Müller et al. 2013).

Limitations and Future Directions

The current research has several limitations that should be acknowledged. First, the current project’s data are limited to self-report measures among college students at a large northeastern public university. Behavioral measures, in addition to self-reports, are needed to obtain a more accurate picture of the types of products and frequency of purchases made by compulsive

buyers. Electronic diary methods may be beneficial in this regard (for a review of diary methods, see Bolger et al. 2003). In addition to behavioral measures, research is needed to understand the impact irrational beliefs have on compulsive buying among students at other types of universities inside and outside the U.S. Second, the choice of the compulsive buying measure used may have over-estimated the prevalence of compulsive buying among college students. As noted by Harvanko et al. (2013) subsequent research may benefit from assessing the degree to which compulsive buying affects the individual. Doing so may differentiate between those for whom compulsive buying is a clinical disorder and those who might have a predisposition to become compulsive buyers. Finally, the sample is limited to one public university located in the U.S. Because of this, our findings cannot be generalized to the greater population of American college students.

Conclusion

The prevalence and characteristics of compulsive buying among college students was examined. Results suggested a higher estimate of compulsive buyers when using the Ridgway et al. (2008) measure compared to estimates which are based on clinical measures (e.g., Harvanko et al. 2013). In the current research, women classified as compulsive buyers were more likely to be single and less likely to be Caucasian. Additionally, irrational beliefs predicted compulsive buying, specifically those associated with Problem Avoidance and Worrying. Finally, compulsive and non-compulsive buyers did not differ in the type of consumer goods purchased but in the frequency these goods were purchased. Overall, the current findings contribute to the larger body of research exploring the characteristics of college students who meet the criteria for compulsive buying.

Compliance With Ethical Standards

Conflict of Interest Richard J. Harnish, K. Robert Bridges, and Joshua L. Karelitz declare that they have no conflict of interest.

Informed Consent All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000 (5). Informed consent was obtained from all participants for being included in the study.

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