

“Socio-demographic differences in compulsive buying in Slovakia: A quantile regression approach”

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ARTICLE INFO	Ivana Ondrijova (2026). Socio-demographic differences in compulsive buying in Slovakia: A quantile regression approach. <i>Innovative Marketing</i> , 22(3), 87-99. doi: 10.21511/im.22(3).2026.06
DOI	http://dx.doi.org/10.21511/im.22(3).2026.06
RELEASED ON	Thursday, 30 July 2026
RECEIVED ON	Tuesday, 10 March 2026
ACCEPTED ON	Thursday, 09 July 2026
LICENSE	 This work is licensed under a Creative Commons Attribution 4.0 International License
JOURNAL	"Innovative Marketing "
ISSN PRINT	1814-2427
ISSN ONLINE	1816-6326
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

37



NUMBER OF FIGURES

0



NUMBER OF TABLES

2

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BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine
www.businessperspectives.org

Type of the article: Research Article

Received on: 10th of March, 2026Accepted on: 9th of July, 2026Published on: 30th of July, 2026

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SOCIO-DEMOGRAPHIC DIFFERENCES IN COMPULSIVE BUYING IN SLOVAKIA: A QUANTILE REGRESSION APPROACH

Abstract

This study examines socio-demographic and socio-economic differences in compulsive buying tendencies among adult consumers in Slovakia using a quantile regression approach. The analysis is based on a quota-based sample of 1,000 respondents aged 18 years and older. Data were collected in March 2025 through an online questionnaire survey administered by the professional research agency FOCUS. Compulsive buying was measured using a standardized 16-item Compulsive Buying Behavior scale evaluated on a seven-point Likert scale. The overall compulsive buying score was calculated as the arithmetic mean of all items, and the scale demonstrated high internal consistency. Quantile regression models were estimated at $\tau = 0.25$, $\tau = 0.50$, and $\tau = 0.75$ to examine whether socio-demographic and socio-economic factors operate differently across lower, medium, and higher levels of compulsive buying tendencies. The results indicate that unemployment is the most consistent socio-economic predictor of higher compulsive buying tendencies across the analyzed quantiles. Education shows a predominantly negative but less stable association, with statistically significant effects observed mainly at the median quantile for selected educational categories. Age is negatively associated with compulsive buying, particularly at the median quantile, while gender and personal income do not show stable statistically significant effects. The overall explanatory power of the models is limited, suggesting that socio-demographic characteristics capture only part of the variability in compulsive buying behavior. The study contributes to consumer behavior research by showing that quantile regression can reveal heterogeneous associations that may be obscured in mean-based models. At the same time, the findings should be interpreted as evidence of partial socio-demographic differences rather than as a comprehensive explanation of compulsive buying behavior.

Keywords

buying, compulsion, consumers, Slovakia, education, unemployment, quantiles

JEL Classification

D12, D91, M31

INTRODUCTION

Compulsive buying represents an important and increasingly relevant issue in consumer behavior research. It is generally understood as a repetitive and difficult-to-control pattern of purchasing behavior that may be associated with psychological distress, impaired self-regulation, financial problems, and negative social consequences (Black, 2001; Darrat et al., 2016; Müller et al., 2019). Although buying and shopping are common parts of everyday consumption, compulsive buying differs from ordinary or occasional impulsive purchases by its repeated character, reduced control over purchasing impulses, and potential harmful consequences for consumers.

The relevance of this topic has increased in the context of contemporary consumer markets. Consumers are exposed to a growing number of purchasing stimuli through online retail platforms, mobile appli-



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Conflict of interest statement:

Author(s) reported no conflict of interest

cations, social media, personalized advertising, and promotional campaigns. Digital shopping environments make purchasing faster, more accessible, and less dependent on time and place. According to Eurostat (2026), 78% of internet users in the European Union bought or ordered goods or services online in 2025, compared with 62% in 2015. This development illustrates the growing importance of digital consumption environments, which may create new conditions for problematic purchasing patterns among vulnerable consumers.

The social and economic importance of compulsive buying is also supported by prevalence estimates. A meta-analysis by Maraz et al. (2016) estimated the pooled prevalence of compulsive buying behavior at approximately 5% in the studied populations, while higher rates were identified in some specific groups, such as students and younger consumers. These figures indicate that compulsive buying is not only an individual psychological problem but also a broader consumer and social issue. It may affect financial stability, subjective well-being, family relationships, and long-term consumer decision-making.

Previous research has examined compulsive buying from several perspectives, including psychological, emotional, sociocultural, and economic determinants. Studies have emphasized the role of negative emotions, anxiety, materialistic values, low self-control, social comparison, and exposure to marketing stimuli (Dittmar, 2007; Islam et al., 2017; Pellegrino et al., 2022). At the same time, socio-demographic and socio-economic characteristics such as age, gender, education, income, and economic activity are frequently discussed as possible factors associated with compulsive buying tendencies. However, empirical findings in this area remain inconsistent. Some studies suggest stronger compulsive buying tendencies among younger consumers or women, while others indicate that these differences may depend on psychological, cultural, or contextual factors (Maraz et al., 2016; Tarka et al., 2022).

This inconsistency points to an important scientific problem. Existing research often focuses on average relationships between socio-demographic characteristics and compulsive buying. Such an approach may overlook the possibility that these factors operate differently among consumers with lower, moderate, or higher levels of compulsive buying tendencies. In other words, the same socio-demographic characteristic may not have the same relevance across the entire distribution of compulsive buying behavior. This is particularly important because problematic consumer behavior is rarely homogeneous, and vulnerable consumer segments may differ not only in the level of compulsive buying but also in the factors associated with it.

The present study is situated within this research problem. It focuses on socio-demographic and socio-economic differences in compulsive buying tendencies among adult consumers in Slovakia. The Slovak context provides a relevant setting for this analysis, as consumer behavior in Central and Eastern European countries has been shaped by rapid market transformation, increasing digitalization of retail, and changing consumption patterns. Despite the growing international literature on compulsive buying, empirical evidence from Slovakia remains limited, particularly with regard to the heterogeneity of socio-demographic and socio-economic effects.

1. LITERATURE REVIEW

1.1. Conceptualization of compulsive buying

Compulsive buying, also referred to in the literature as compulsive buying disorder, oniomania, or buying-shopping disorder, represents a dysfunctional pattern of consumer behavior characterized by excessive, repetitive, and poor-

ly controlled purchasing impulses. It is usually associated with a persistent urge to buy goods that are not necessarily needed and with difficulties in regulating spending behavior (Black, 2001; Black, 2007; McElroy et al., 1994). Such behavior may result in negative personal, financial, and social consequences, including debt, interpersonal conflicts, psychological distress, guilt, and regret (Darrat et al., 2016; Manguiera Estanislau et al., 2025).

A key feature of compulsive buying is that purchasing behavior is not only excessive but also difficult to control. Individuals with higher compulsive buying tendencies often report intrusive thoughts related to shopping, strong urges to purchase, and repeated buying episodes despite awareness of possible negative outcomes. For this reason, compulsive buying has been discussed as a form of behavioral dysregulation related to impulse-control problems and behavioral addictions (Andreassen et al., 2015; Grant & Chamberlain, 2024).

It is important to distinguish compulsive buying from impulsive buying. Impulsive buying is usually spontaneous, situational, and triggered by immediate stimuli such as discounts, product presentation, or temporary emotional states. In contrast, compulsive buying represents a more persistent and repetitive behavioral pattern, often connected with emotional regulation and loss of control (Darrat et al., 2016). While impulsive purchases may occur occasionally without serious consequences, compulsive buying tends to be associated with repeated purchasing episodes that may exceed consumers' financial resources and negatively affect their well-being (Moon & Attiq, 2019).

In recent research, compulsive buying has also been discussed within the broader concept of buying-shopping disorder. This reflects the growing recognition that excessive buying may represent a clinically and socially relevant phenomenon, especially when it is accompanied by impaired control, emotional distress, and negative consequences (Müller et al., 2019; Müller et al., 2023; Wegmann et al., 2023). However, in consumer behavior research, compulsive buying is often examined as a continuum of tendencies rather than as a clinical diagnosis. Recent reviews also emphasize that compulsive buying remains an important conceptual and clinical issue, particularly in relation to the boundaries between impulsive, compulsive, and addictive forms of consumption behavior (Black, 2022; Weinstein et al., 2016).

1.2. Psychological, sociocultural and digital context of compulsive buying

Previous studies emphasize that compulsive buying is closely related to emotional, psychological, sociocultural, and digital consumption mecha-

nisms. Purchasing episodes are often triggered by negative emotional states such as stress, anxiety, dissatisfaction, loneliness, or low mood. In such situations, shopping may function as a short-term coping strategy that temporarily reduces emotional tension (Black, 2001; Eliyahu et al., 2025). However, this relief is usually temporary and may be followed by guilt, regret, or shame, which can reinforce a repetitive cycle of negative emotions and further purchasing behavior (Granero et al., 2016). Difficulties in emotional regulation, adverse childhood experiences, low self-control, anxiety, and depressive symptoms may therefore increase vulnerability to compulsive buying tendencies (David et al., 2024; Jain & Srivastava, 2023).

Compulsive buying is also shaped by consumer culture and the symbolic meaning of products. In consumer-oriented societies, individuals are exposed to messages linking material possessions with success, social status, attractiveness, and personal happiness (Dittmar, 2007). These cultural narratives may strengthen materialistic values, which have been repeatedly associated with problematic purchasing behavior (Islam et al., 2017; Pellegrino et al., 2022). Consumers with stronger materialistic values may perceive products as tools for social recognition, self-expression, or life satisfaction, which can increase susceptibility to excessive purchasing, especially when consumption compensates for psychological dissatisfaction or social comparison.

Digital retail environments further intensify these processes. Online stores, mobile applications, personalized advertising, influencer marketing, and social media platforms expose consumers to constant purchasing stimuli, reduce barriers to purchasing, and create continuous opportunities for impulse-driven consumption. Social media may also strengthen comparison with others and increase the perceived importance of material possessions. Fear of missing out (FOMO) represents one mechanism associated with digital consumption, as consumers may experience anxiety about missing attractive opportunities, products, or limited offers (Hussain et al., 2023). Similarly, exposure to advertising, peer influence, and social media content may strengthen materialistic beliefs and thereby increase vulnerability to compulsive purchasing behavior (Jameel et al., 2024).

Although psychological distress, emotion regulation, materialism, FOMO, and digital shopping exposure are important determinants of compulsive buying, they are not directly included in the empirical model of this study. They are discussed here to situate the analysis within the broader literature, while the empirical part focuses specifically on socio-demographic and socio-economic differences.

1.3. Socio-demographic and socio-economic determinants

Although psychological and sociocultural factors are central to understanding compulsive buying, socio-demographic and socio-economic characteristics may also contribute to differences in consumer vulnerability. Previous studies have examined variables such as age, gender, education, income, employment status, and family or social background (Darrat et al., 2016; Maraz et al., 2016; de Mattos et al., 2016).

Age is one of the most frequently discussed demographic factors. Compulsive buying tendencies are often reported more strongly among younger consumers. This may be related to identity formation, stronger exposure to digital retail environments, greater sensitivity to peer influence, lower financial experience, and a higher tendency toward impulsive decision-making (Darrat et al., 2016; Maraz et al., 2016). However, age effects may differ across cultural contexts and consumer groups.

Gender has also been widely examined, but empirical findings are not fully consistent. Some studies report higher compulsive buying tendencies among women, while others suggest that gender differences become weaker or non-significant when psychological and contextual factors are included in the analysis (de Mattos et al., 2016; Tarka et al., 2022). This indicates that gender may not operate as a direct determinant but rather in interaction with emotional, motivational, or shopping-related variables.

Education and economic activity may also be relevant. Lower educational attainment may be associated with lower financial literacy, reduced access to consumer information, and weaker ability to evaluate long-term financial consequences. Economic in-

activity, unemployment, or financial insecurity may increase stress and emotional vulnerability, which can contribute to problematic purchasing behavior. However, income alone may not fully explain compulsive buying, as subjective financial stress and perceived economic insecurity may be more important than objective income level (Jain et al., 2024).

These findings indicate that socio-demographic and socio-economic factors should not be interpreted as isolated causes of compulsive buying. Rather, they represent broader contextual characteristics that may increase or decrease vulnerability to problematic consumption, especially when combined with emotional, psychological, and sociocultural influences.

1.4. Research gap and hypotheses development

Existing research shows that compulsive buying is a multifactorial phenomenon shaped by psychological, emotional, sociocultural, demographic, and socio-economic factors. However, empirical evidence regarding the role of socio-demographic characteristics remains inconsistent. Some studies identify significant differences according to age, gender, education, or economic status, while others report weak or non-significant effects.

A key limitation of previous research is that many studies focus primarily on average relationships between predictors and compulsive buying. Traditional regression approaches estimate mean effects and therefore may overlook differences between consumers with lower, moderate, and higher levels of compulsive buying tendencies. This is important because problematic consumer behavior is unlikely to be evenly distributed across the population. The influence of socio-demographic and socio-economic factors may differ depending on the intensity of compulsive buying.

Overall, previous research indicates that compulsive buying is a multidimensional consumer behavior phenomenon shaped by emotional, psychological, sociocultural, and socio-economic factors. However, the role of socio-demographic and socio-economic characteristics remains inconsistent across studies, especially when different levels of compulsive buying intensity are considered.

This indicates the need for an analytical approach that does not focus only on average effects but also captures heterogeneity across the distribution of compulsive buying tendencies.

The present study does not aim to provide a complete explanatory model of compulsive buying behavior. Instead, it focuses on a narrower but empirically relevant question: whether selected socio-demographic and socio-economic characteristics are associated with compulsive buying tendencies and whether these associations differ across the distribution of compulsive buying intensity.

Based on the theoretical background and previous empirical findings, the following hypotheses were formulated:

- H1: Educational attainment is associated with compulsive buying tendencies, but the strength and significance of this association may differ across quantiles.*
- H2: Economic status is associated with compulsive buying tendencies, with unemployment expected to be related to higher compulsive buying scores.*
- H3: The association between unemployment and compulsive buying is observable across different levels of the compulsive buying distribution.*
- H4: Socio-demographic and socio-economic characteristics show heterogeneous associations across the distribution of compulsive buying tendencies.*

2. METHODOLOGY

2.1. Research design

The study used a quantitative cross-sectional research design based on an online questionnaire survey. This design was selected because the study aimed to examine differences in compulsive buying tendencies among adult consumers according to selected socio-demographic and socio-economic characteristics. The research focused on the Slovak consumer population and analyzed whether the relationships between respondents' charac-

teristics and compulsive buying differ across various levels of compulsive buying intensity.

The empirical procedure consisted of four main stages. First, data were collected through a structured online questionnaire. Second, compulsive buying tendencies were measured using a standardized scale. Third, socio-demographic and socio-economic characteristics of respondents were coded for statistical analysis. Fourth, quantile regression models were estimated to identify whether the effects of selected predictors differ across the lower, middle, and upper parts of the compulsive buying distribution.

2.2. Data collection and sample

Data were collected in March 2025 through an online questionnaire survey. The survey was administered in cooperation with the professional research agency FOCUS, based in Bratislava, Slovakia. The agency was responsible for distributing the questionnaire among respondents from its online panel and for ensuring that the final sample corresponded to the basic structure of the adult population of Slovakia.

The research sample consisted of 1,000 respondents aged 18 years and older. Quota sampling was applied to increase the representativeness of the sample. The quotas were based on key demographic characteristics, including gender, age, education, marital status, and economic activity. The resulting sample therefore reflected the main socio-demographic structure of the Slovak adult population. No post-stratification weights were applied in the regression models; therefore, the results should be interpreted as based on a quota-based sample rather than as fully weighted population estimates. To increase transparency, the final sample structure is reported in Table 1. However, because detailed deviations from official population benchmarks are not quantified in the present study, the findings should be interpreted with caution as quota-based rather than fully representative population estimates.

The analyzed variables were selected because previous research suggests that compulsive buying tendencies may differ across population groups and may be associated with consumers' life stage, economic position, and social context.

Table 1. Research sample

Identification characteristic	Frequency	Percent
Gender		
Male	483	48.3
Female	517	51.7
Age		
18-24 years	85	8.5
25-34 years	171	17.1
35-44 years	202	20.2
45-54 years	174	17.4
55-64 years	159	15.9
65+ years	209	20.9
Education		
Primary education	57	5.7
Secondary education without graduation exam	317	31.7
Secondary education with graduation exam	383	38.3
University degree I (Bachelor)	42	4.2
University degree II (Master, Engineer, MD)	182	18.2
University degree III (PhD)	19	1.9
Marital status		
Single	256	25.6
Married	469	46.9
Long-term partnership (non-married)	146	14.6
Divorced, currently without partner	80	8.0
Widowed, currently without partner	49	4.9
Economic status		
Student	59	5.9
Employed	550	55.0
Self-employed, entrepreneur	82	8.2
Retired	205	20.5
Unemployed	79	7.9
Maternity/parental leave	25	2.5
Personal net monthly income		
Up to €500	27	2.7
€501 – 1,000	192	19.2
€1,001 – 1,500	396	39.6
€1,501 – 2,000	263	26.3
€2,001 – 2,500	97	9.7
More than €2,500	25	2.5
Size of place of residence (number of inhabitants)		
0-0.9 thousand	152	15.2
1-1.9 thousand	145	14.5
2-4.9 thousand	156	15.6
5-19.9 thousand	163	16.3
20-49.9 thousand	153	15.3
50-99.9 thousand	93	9.3
More than 100 thousand	138	13.8

2.3. Measurement instrument

Compulsive buying was measured using the Compulsive Buying Behavior scale. The scale consisted of 16 items measured on a seven-point Likert scale. The respondents indicated the extent to which each statement corresponded to their purchasing behavior and attitudes. The items captured several aspects of compulsive buying, including impulsive purchasing tendencies, emotional motives for shopping, loss of control over buying, feelings of guilt after purchases, and problematic aspects of financial behavior.

The dependent variable used in the analysis was the overall compulsive buying score, labelled as CBB_Total. This score was calculated as the arithmetic mean of all 16 items. The measurement of compulsive buying was grounded in established compulsive buying scales and screening approaches developed in previous consumer behavior research (Valence et al., 1988; Faber & O'Guinn, 1992; Ridgway et al., 2008). Higher values indicated stronger compulsive buying tendencies. In this study, the scale was used as a quantitative measure of compulsive buying tendencies rather than as a clinical diagnostic tool.

All questionnaire items used to measure compulsive buying were evaluated on a seven-point Likert scale ranging from 1 = strongly disagree, 7 = strongly agree, where higher values indicated stronger compulsive buying tendencies.

The internal consistency of the scale was assessed using Cronbach's Alpha. The value of Cronbach's Alpha was 0.90, indicating a high level of reliability. This result suggests that the items measured a coherent latent construct and were suitable for further statistical analysis.

2.4. Data analysis

The data were analyzed using quantile regression. This method was selected because compulsive buying tendencies may not be evenly distributed across the population. Traditional regression models estimate average effects and may therefore overlook differences between consumers with lower, moderate, and higher levels of compulsive buying. Quantile regression enables to exam-

ine whether the same predictor has different effects at different points of the dependent variable distribution.

Three quantile regression models were estimated for the dependent variable CBB_Total: $\tau = 0.25$, $\tau = 0.50$, and $\tau = 0.75$. The first model examined the lower part of the compulsive buying distribution, the second model examined the median, and the third model examined the upper part of the distribution. This approach enabled the identification of potential heterogeneity in the relationship between socio-demographic characteristics and compulsive buying tendencies.

Before estimating the models, categorical variables were recoded into dummy variables. Reference categories were selected to allow meaningful interpretation of coefficients. Multicollinearity was assessed using variance inflation factors. The VIF values were below 5 in all models, indicating that multicollinearity was not a serious problem. The statistical significance of regression coefficients was evaluated using p-values. The model results were interpreted separately for each quantile in order to identify whether the effects of predictors differed across levels of compulsive buying intensity.

Statistical analyses, including reliability assessment and quantile regression modelling, were conducted using the R statistical software.

2.5. Ethical considerations

The study was conducted in accordance with the principles of research integrity and ethical responsibility. Respondents participated voluntarily and anonymously. The questionnaire did not collect personally identifiable information, and the data were analyzed only in aggregated form. The research procedure followed the principles of transparency, reliability, and responsible data processing in accordance with the European Code of Conduct for Research Integrity (ALLEA, 2024).

3. RESULTS

The testing of hypotheses *H1* to *H4* is based on the data summarized in Table 2, which presents quantile regression estimates for the dependent vari-

able CBB_Total at three points of the distribution ($\tau = 0.25$; 0.50 ; 0.75). The modeling aimed to examine whether respondents' identification characteristics and their socioeconomic status explain differences in tendencies toward compulsive buying and whether the strength of these effects varies across different parts of the scale distribution.

Education shows a predominantly negative association with CBB, indicating that respondents with higher educational attainment exhibit lower levels of compulsive buying compared to individuals with primary education, particularly at the median quantile (e.g., Master's degree: $\beta = -0.513$, $p = 0.016$, $\tau = 0.5$). Hypothesis *H1* receives partial support. The coefficients for education are predominantly negative, suggesting a tendency toward lower compulsive buying scores among respondents with higher educational attainment. However, statistically significant effects are observed only for selected educational categories and mainly at the median quantile. Therefore, education should be interpreted as a differentiated rather than a stable predictor of compulsive buying.

Particularly unemployed respondents exhibit higher CBB values compared with the reference group of students ($\beta = 0.642$, $p = 0.028$, $\tau = 0.5$). This pattern is consistent across quantiles and suggests higher reported compulsive buying tendencies among unemployed respondents. Hypothesis *H2* receives partial support. The results indicate that economic status matters primarily in the case of unemployment. Unemployed respondents report significantly higher compulsive buying scores than students across all analyzed quantiles. Other economically inactive groups, such as retired respondents or respondents on parental leave, do not provide equally robust evidence. For this reason, the findings should not be generalized to economic inactivity as a whole.

Unemployed respondents reported significantly higher CBB values than students across all analyzed quantiles: $\tau = 0.25$ ($\beta = 0.647$, $p = 0.020$), $\tau = 0.50$ ($\beta = 0.642$, $p = 0.028$), and $\tau = 0.75$ ($\beta = 0.785$, $p = 0.012$). The strongest coefficient was observed in the upper quantile, indicating that unemployment is particularly relevant among respondents with higher compulsive buying tendencies. Hypothesis *H3* is therefore supported.

Table 2. Relationship between selected identification characteristics and the Compulsive Buying Scale (CBB_Total) – quantile regression model

DV: CBB_Total	β (p-value) $\tau = 0.25$	β (p-value) $\tau = 0.5$	β (p-value) $\tau = 0.75$
(Intercept)	2.71 (<0.001)	4.012 (<0.001)	4.102 (<0.001)
Gender ref: male			
Female	0.037 (0.745)	−0.08 (0.427)	0.013 (0.895)
Education ref: primary			
Secondary (no graduation exam)	−0.268 (0.259)	−0.302 (0.095)	−0.044 (0.86)
Secondary (graduation exam)	−0.24 (0.34)	−0.395 (0.021)	−0.205 (0.414)
Bachelor's degree	−0.197 (0.543)	−0.413 (0.115)	−0.33 (0.33)
Master's degree	−0.375 (0.154)	−0.513 (0.016)	−0.26 (0.331)
Doctoral degree (PhD)	−0.297 (0.422)	−0.463 (0.176)	−0.223 (0.696)
Economic status ref: student			
Employed	0.303 (0.281)	0.443 (0.051)	0.364 (0.161)
Self-employed/entrepreneur	0.227 (0.515)	0.345 (0.245)	0.366 (0.244)
Retired	0.072 (0.833)	0.402 (0.149)	0.073 (0.815)
Unemployed	0.647 (0.02)	0.642 (0.028)	0.785 (0.012)
Maternity/parental leave	0.722 (0.057)	0.639 (0.076)	0.969 (0.068)
Personal net monthly income ref: up to €500			
€501 – 1,000	−0.025 (0.889)	−0.038 (0.808)	0.041 (0.795)
€1,001 – 1,500	−0.231 (0.196)	−0.097 (0.532)	−0.069 (0.689)
€1,501 – 2,000	−0.191 (0.495)	−0.001 (0.995)	0.043 (0.825)
€2,001 – 2,500	−0.094 (0.726)	−0.289 (0.269)	−0.484 (0.104)
More than €2,500	−0.649 (0.064)	−0.485 (0.317)	−0.085 (0.853)
Size of place of residence (number of inhabitants) ref: 0-0.9 thousand inhabitants			
1-1.9 thousand	0.117 (0.527)	0.025 (0.892)	0.261 (0.144)
2-4.9 thousand	0.169 (0.297)	−0.111 (0.508)	0.055 (0.703)
5-19.9 thousand	−0.018 (0.921)	−0.272 (0.082)	−0.169 (0.352)
20-49.9 thousand	−0.201 (0.285)	0.088 (0.702)	0.292 (0.09)
50-99.9 thousand	−0.023 (0.912)	−0.157 (0.512)	0.14 (0.51)
More than 100 thousand	−0.168 (0.372)	−0.208 (0.356)	0.11 (0.489)
Age	−0.005 (0.395)	−0.015 (<0.001)	−0.009 (0.084)

Note: VIF values were below 5 in all models; pseudo R^2 : $\tau = 0.25 = 0.041$, $\tau = 0.50 = 0.043$, $\tau = 0.75 = 0.047$.

Gender and income generally do not show statistically significant effects, indicating that differences between these categories are relatively weak. Age, however, demonstrates that higher age is associated with lower CBB values (e.g., $\beta = -0.015$, $p < 0.001$, $\tau = 0.5$), suggesting lower compulsive buying tendencies with increasing age.

H4 receives partial support. The results indicate heterogeneity across quantiles for selected predictors, especially education, unemployment, age, and some income or residence categories. However, this heterogeneity is not systematic across all socio-demographic and socio-economic variables. Gender and income, in particular, do not show stable statistically significant effects. Therefore, the evidence supports the presence of differentiated associations across the distribution of compulsive buying tendencies, but only for selected predictors.

In summary, Table 2 suggests that tendencies toward compulsive buying are segmented along demographic and socioeconomic lines, although the effects are not equally strong across all predictors and quantiles. The results indicate that unemployment is relevant across the entire distribution, while education and age show more differentiated effects. Since psychological, attitudinal, and behavioral variables were not included in the present model, their role should be examined in future research.

4. DISCUSSION

The discussion interprets the findings within the broader literature on compulsive buying. However, it is important to emphasize that the empirical model includes only selected socio-demographic and socio-

economic variables. Psychological, emotional, cognitive, and digital consumption-related factors are discussed as possible explanatory mechanisms suggested by previous research, but they were not directly measured in the present study. Therefore, the interpretation of these mechanisms remains theoretical and should be treated as a basis for future research rather than as an empirical finding of this study.

The results of the study indicate that gender does not represent a strong direct determinant of compulsive buying, as gender differences remained minimal once other socio-demographic characteristics were controlled for. This finding is consistent with several recent studies conducted in Central and Eastern Europe, which suggest that gender effects in problematic buying behavior are often conditional rather than direct. In many cases, gender differences emerge only in interaction with psychological or contextual variables, particularly those related to emotional regulation or hedonic shopping experiences.

For example, research conducted among Polish university students showed that although women reported higher levels of compulsive buying, the effect was significantly moderated by hedonic shopping motives and emotional regulation processes. In this context, gender did not operate as an independent predictor but rather as a conditional moderator within a broader chain of psychological mechanisms (Tarka et al., 2022). Similar conclusions were reported in a longitudinal study examining problematic purchasing behavior before and after the COVID-19 pandemic, which found that the risk of compulsive buying was primarily explained by psychological factors and the purchasing context, especially the frequency of online shopping. Socio-demographic variables such as gender and age contributed only modestly to the explanation of behavioral differences (Adamczyk, 2024).

These findings correspond with the results of the present study, where gender did not show statistically significant effects in the regression models. Previous research also suggests that although gender differences may appear in certain samples, they rarely represent a universal or stable predictor of compulsive buying behavior. For example, a Polish validation study of shopping addiction reported higher scores among women, but a substantial proportion of the explained variance was associated with psychologi-

cal characteristics such as narcissism, self-efficacy, and social anxiety. In this context, gender appears to represent only one element within a broader system of psychological and behavioral determinants (Uzarska et al., 2023).

Evidence from studies focusing on younger consumers in Eastern Europe further emphasizes that problematic purchasing behavior is often shaped by a combination of materialistic values, negative emotional states, and self-evaluation processes. Gender differences may therefore occur in specific contexts, but they are unlikely to represent the central mechanism underlying compulsive buying behavior (Tarka & Kukar-Kinney, 2022). This interpretation is consistent with the broader literature, but the present study cannot directly test emotional or behavioral mechanisms. The low explanatory power of the socio-demographic models suggests that additional psychological and behavioral variables are likely needed to explain compulsive buying more comprehensively.

Another important result concerns the role of economic activity. The analysis revealed that unemployed respondents exhibited significantly higher levels of compulsive buying tendencies than students across all analyzed quantiles. This indicates that unemployment is a relevant socio-economic factor not only among consumers with lower or moderate compulsive buying tendencies, but also among those located in the upper part of the distribution. The strongest coefficient was observed in the upper quantile, suggesting that unemployment may be particularly important among consumers with more intensive compulsive buying tendencies.

This nuanced pattern corresponds with previous research emphasizing the heterogeneity of socio-economic influences on compulsive consumption. Studies show that the relationship between economic position and compulsive buying is complex and often depends on the interaction between financial stress, emotional distress, and consumption motivations. For instance, longitudinal analyses conducted during the COVID-19 pandemic demonstrated that economic conditions may influence compulsive buying behavior particularly when combined with psychological distress or uncertainty about future income (Maraz & Yi, 2022). Such findings help explain why broader indicators of economic inactivity may show stronger associa-

tions with compulsive buying than narrowly defined income categories.

Indeed, the present results suggest that economic status appears to be more relevant than income alone. Income categories did not demonstrate robust effects in the regression models, which supports previous findings that objective income levels are often weaker predictors of compulsive buying than subjective financial stress or perceived economic insecurity (Jain et al., 2024). Consumers experiencing financial instability or economic uncertainty may be more likely to use consumption as a coping strategy, even when their objective income levels are relatively similar to those of other consumers.

The findings also highlight the role of psychological and emotional mechanisms in explaining compulsive buying behavior. Previous studies suggest that negative emotional states, low self-esteem, and difficulties in emotional regulation may play a central role in driving compulsive purchasing patterns. For example, the research by Adamczyk (2024) indicates that psychological distress and online shopping frequency explain problematic buying behavior more strongly than demographic characteristics alone. Similarly, Kovács et al. (2022) demonstrated that emotion-focused coping strategies, such as self-blame or counterfactual thinking, significantly mediate the relationship between stress and compulsive buying tendencies.

The negative association between education and compulsive buying suggests that educational attainment may be connected with consumers' ability to evaluate purchasing decisions and their long-term financial consequences. Higher education may be associated with stronger financial literacy, more developed self-regulation, and greater awareness of marketing influences. Similarly, the negative relationship between age and compulsive buying indicates that younger consumers may be more vulnerable to problematic purchasing patterns. This may be related to lower financial experience, stronger exposure to digital shopping environments, and greater sensitivity to social comparison and promotional stimuli.

The growing importance of digital retail environments may further intensify these mechanisms. During the COVID-19 pandemic, online shopping behavior increased significantly, with consumers

spending more time browsing online stores and making more purchases compared with the pre-pandemic period. Research suggests that cognitive factors such as reduced working memory capacity and spontaneous decision-making styles may increase susceptibility to compulsive online purchasing behavior even after controlling for demographic characteristics such as age, gender, and income (Nori et al., 2022). These findings highlight the importance of considering broader cognitive and psychological mechanisms when interpreting variations in compulsive buying behavior, particularly in digital consumption environments.

The findings indicate that socio-demographic and socio-economic characteristics explain only a limited part of compulsive buying tendencies. The low explanatory power of the models suggests that psychological, cognitive, emotional, and behavioral mechanisms should be incorporated in future research to provide a more comprehensive explanation of compulsive buying behavior.

5. LIMITATIONS AND FUTURE RESEARCH

Several limitations should be acknowledged. First, although the study is based on a quota-based sample of 1,000 adult consumers in Slovakia, no post-stratification weights were applied in the regression models. Therefore, the results should be interpreted as quota-based estimates rather than fully weighted population estimates. Second, the empirical model includes only selected socio-demographic and socio-economic variables. Psychological, emotional, financial, and digital consumption-related variables, such as materialism, emotional regulation, financial stress, FOMO, social media exposure, and online shopping intensity, were not directly measured. Third, the explanatory power of the quantile regression models is low, which indicates that the included variables explain only a limited proportion of variability in compulsive buying tendencies. Finally, the cross-sectional design does not allow causal conclusions. Future research should combine socio-demographic predictors with psychological and behavioral variables and examine their effects across different levels of compulsive buying intensity.

CONCLUSION

The purpose of this study was to examine the relationship between selected socio-demographic and socio-economic characteristics and compulsive buying tendencies among adult consumers in Slovakia. The results indicate that compulsive buying tendencies differ across selected population groups, but these differences explain only a limited proportion of variability in compulsive buying scores. Unemployment emerged as the most consistent socio-economic predictor across the analyzed quantiles. Education showed a predominantly negative but less stable association, while age was negatively related to compulsive buying mainly at the median quantile. Gender and personal income did not demonstrate stable statistically significant effects.

The use of quantile regression provided a more detailed view of these relationships by showing that selected predictors do not operate uniformly across the distribution of compulsive buying tendencies. The findings therefore support the usefulness of quantile regression in identifying heterogeneous associations in consumer behavior research. At the same time, the low pseudo R^2 values indicate that socio-demographic and socio-economic characteristics alone cannot provide a comprehensive explanation of compulsive buying behavior. Future research should therefore combine socio-demographic predictors with psychological, financial, and digital consumption-related variables.

AUTHOR CONTRIBUTIONS

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ACKNOWLEDGMENT

Funded by the EU NextGenerationEU through the Recovery and Resilience Plan for Slovakia under the project No. 09I03-03-V04-00737.

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