

Psychometric Evaluation of the Impulse Buying Scale Among Indian Centennials using Data Science Approach

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ABSTRACT: This study employed a sample of Indian higher education students to examine the structure of the measure of centennials' impulse buying behaviors. We examined the Rook & Fisher scale's validity and reliability in this population before implementing it. As a result, we concentrated on offering a conceptual definition of validity, using our psychometric analysis as one of the metrics for assessing the construct's soundness. In general, we discovered that our scale exhibited strong reliability, as evidenced by a Cronbach's Alpha coefficient exceeding 0.80. The EFA also recommended a two-factor structure. All things considered, we can say that the Rook & Fisher scale exhibit strong validity and reliability characteristics on our sample. The findings highlight the significance of conducting psychometric assessments that are culturally and demographically appropriate in order to guarantee precise measurement of consumer behavior constructs. By providing a refined, valid, and reliable tool for measuring impulse buying in centennials, our study adds to the body of literature already in existence and opens the door for further investigation and useful applications in marketing and consumer behavior analysis.

Keywords: Impulse Buying, Centennials, Buying Behavior, Factor analysis.

I.INTRODUCTION

The phenomenon of impulsive buying, which is typified by impromptu and unplanned purchases (Rook, 1987), has garnered substantial attention in academia owing to its noteworthy influence on consumer conduct and advertising tactics. Centennials, also known as Generation Z (Cavazos-Arroyo & Máyne-Guaderrama, 2022), are a significant demographic group with unique shopping habits and preferences. They were born between

1997 and 2012. To effectively target this trend-conscious and tech-savvy generation of consumers, marketers must have a thorough understanding of their impulse buying behaviors. For many years, the media's primary concern was the shopping habits of the baby boomers and the millennials, who were sometimes set against one another as purported ideological rivals, because they are tech-aware, connected online, and educated technology users, teens and young adults have emerged as one of the most baffling consumer groups (Chang, 2023). While the (Rook & Fisher, 1995) has developed a scale that is widely used to measure impulse buying behavior, there is a need to evaluate its reliability and validity among centennials. This demographics' unique cultural and socio-economic context may influence their shopping habits, necessitating a psychometric evaluation of the scale in this setting. The main aim of this study was to craft a more accurate measurement tool to capture the behaviour of impulse buying among centennials by testing the psychometric properties of the scale developed by (Rook and Fisher 1995). Reliability testing and factor analysis were carried out with the intention of having a reliable tool, from a cultural standpoint that can be used not only for future research but also for practical purposes. Our research helps to fill this void in the literature by contributing to current knowledge about how centennials impulse buy and reveals useful strategies for marketers interested in reaching this important and evolving generation.

II.LITERATURE REVIEW

Impulse Buying: Concept and Relevance

Impulse buying refers to spontaneous and unplanned purchasing behavior that often occurs without prior intention or deliberation (Rook, 1987). Such purchases are typically triggered by emotional stimuli rather than rational decision-making. Rook and Fisher (1995) further elaborated on this concept by incorporating social and normative influences, proposing that impulsive purchases can also be shaped by peer expectations and perceived social norms.

Impulse buying continues to attract attention in consumer research due to its implications for marketing strategies, store layout, and e-commerce personalization. Nevertheless, accurately measuring this behavior remains a methodological challenge. The development and validation of psychometrically sound tools are essential, particularly when applying these tools across different cultural contexts and demographic groups.

Generation Z (Centennials): A Unique Consumer Segment

Generation Z, often referred to as centennials, includes individuals born between 1997 and 2012 (Cavazos-Arroyo & Máynez-Guaderrama, 2022). As digital natives, they have grown up in an era characterized by instant access to information, social media, and e-commerce. This constant digital exposure has significantly shaped their preferences, decision-making processes, and shopping behaviors (Djafarova & Bowes, 2021).

In the Indian context, Gen Z represents a demographic of more than 350 million individuals, emerging as a major economic force (Shinde Shivani, 2022). They exhibit distinct behavioral traits, such as a desire for instant gratification, openness to novelty, and a tendency to rely on influencer marketing and peer recommendations

(Das, 2024). These traits make them particularly susceptible to impulse buying, especially in online environments where marketing stimuli are abundant and personalized.

Theoretical Perspectives on Impulse Buying Behavior

Psychological Frameworks

The psychological underpinnings of impulse buying can be explained through various models. One of the most prominent is the **Stimulus-Organism-Response (SOR) model** (Zheng et al., 2019), which posits that external stimuli—such as promotions, packaging, or online interface aesthetics—affect internal states (emotions, motivations) that lead to consumer responses such as impulse purchases. The **Theory of Planned Behavior (TPB)** (Ajzen, 1991) also offers insight by highlighting the role of behavioral intention and perceived control in consumer decision-making. In this context, even impulsive acts can be influenced by an individual's perceived ability to resist or regulate the urge to buy (Silvera et al., 2008).

Economic and Sociological Insights

From an economic perspective, impulse buying challenges the traditional utility-maximization theory, as it represents decisions driven by emotional impulses rather than calculated benefit (Wood, 1998). Sociologically, impulse buying is influenced by cultural norms, peer pressure, and social comparison. According to Kacen and Lee (2002), individuals in collectivist cultures—such as India—are more likely to engage in impulsive purchases that align with group norms. Similarly, Dittmar et al. (1995) found that material symbols and social identity can play a role in shaping spontaneous consumer behavior.

The Importance of Psychometric Validation

The Rook and Fisher (1995) impulse buying scale has been widely adopted in consumer research; however, its validation across cultures and generational cohorts remains limited. Cultural values, language interpretation, and socioeconomic conditions can significantly affect how individuals respond to items in a scale, thereby influencing its psychometric properties (Atulkar & Kesari, 2018). Generation Z in India—being uniquely positioned at the intersection of tradition and digital modernity—offers a distinct context for reassessing the scale's reliability and validity.

Conducting psychometric evaluations that are demographically and culturally appropriate is critical to ensure accurate measurement of consumer constructs such as impulse buying. Without such validation, the generalizability of findings remains limited, and marketing applications may not align with actual consumer behavior.

Gaps in Literature and Study Justification

Although existing research has extensively explored impulse buying behavior, there remains a lack of studies focusing on Generation Z within emerging economies like India. Furthermore, few studies have evaluated the psychometric performance of established impulse buying scales in this demographic. Considering the growing market influence of Indian centennials, there is a strong need for reliable, valid, and culturally contextualized instruments.

This study addresses that gap by empirically testing the psychometric properties of the Rook & Fisher (1995) scale in the Indian Gen Z population. The findings aim to contribute to both theoretical advancement and practical marketing strategies by offering a refined tool for future studies on consumer behavior.

III.MATERIAL AND METHOD

Questionnaire: The 9 item impulse buying scale (Rook and Fisher 1995), designed to measure various dimensions of impulse buying.

Response Format: A 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), was used for participants to indicate their level of agreement with each statement.

Participants:

Population: Higher education students in India, representing centennials (Generation Z).

Sample Size: 500 students.

Demographics: The sample included 290 males and 210 females.

Data Collection: We contacted the higher studies institutes of India and distributed the survey form online, our target sample was mostly college going students. We collected 524 responses out of which 24 were rejected due to incompleteness. To ensure accessibility and a wider audience, the questionnaire was distributed online (Dillman, Smyth, & Christian, 2014).

IV.RESEARCH DESIGN

This study employs a quantitative research design to assess the psychometric properties of the impulse buying scale developed by (Rook & Fisher, 1995) among centennials. A cross-sectional survey method was utilized to collect data from higher studies students in India, ensuring a representative sample of the target demographic. Descriptive statistics were calculated to summarize the demographic characteristics of the sample. The final sample consisted of 500 higher studies students, with 290 males (58%) and 210 females (42%). The age range of the participants was 18-27 years, with a mean age of 21.86 Years in Female and 21.72 Years in Male with the SD = 2.97 & 2.8 Years respectively.

Table 1:
Descriptive Statistics of sample

Gender	Mean Age	Age Std Dev
Female	21.86	2.97
Male	21.72	2.8
Age Group	Female	Male
18-21	103	152
22-24	53	69
25-27	48	62

V.DATA ANALYSIS

Reliability Analysis: The internal consistency of the Rook & Fisher impulse buying scale was assessed using Cronbach's alpha. The overall Cronbach's alpha for the nine-item scale was 0.82, indicating good reliability. This value exceeds the commonly accepted threshold of 0.70, suggesting that the scale items are consistently measuring the construct of impulse buying (Nunnally, 1978).

Factor Analysis

The factor loadings for each item on the two identified factors are presented below:

Item	Factor 1	Factor 2
1. I often buy things spontaneously	0.652	0.249
2. "Just do it" describes the way I buy things	0.580	0.297
3. I often buy things without thinking	0.366	0.760
4. "I see it, I buy it" describes me	0.458	0.428
5. "Buy now, think about it later" describes me	0.410	0.509
6. Sometimes I feel like buying things on the spur-of-the-moment	0.668	0.062
7. I buy things according to how I feel at the moment	0.598	0.119
8. I carefully plan most of my purchases	0.013	0.485
9. Sometimes I am a bit reckless about what I buy	0.514	0.299

Table2: Factor Loading

Factor Loadings:

- Factor loadings represent how much a variable contributes to a factor.
- Loadings above 0.4 are typically considered significant.

Factor 1: Spontaneous and Emotionally-Driven Buying

Item	Description	Loading
Item 1	"I often buy things spontaneously"	0.652
Item 2	"Just do it" describes the way I buy things	0.580
Item 6	"Sometimes I feel like buying things on the spur-of-the-moment"	0.668
Item 7	"I buy things according to how I feel at the moment"	0.598
Item 9	"Sometimes I am a bit reckless about what I buy"	0.514

Factor 2: Impulsive Buying and (Surprisingly) Planning

Item	Description	Loading
Item 3	"I often buy things without thinking"	0.760
Item 5	"Buy now, think about it later" describes me	0.509
Item 8	"I carefully plan most of my purchases"	0.485

Key Observations:

- **Factor 1** strongly reflects purchases made on a whim or based on immediate feelings.
- **Factor 2** is more complex. It indicates a tendency towards impulsive buying but also includes an element of planning. This suggests that some individuals may be impulsive but still try to control their spending through planning.
- **item 4** now appears in both tables, with its respective loadings on each factor. This visualizes the cross-loading clearly, showing how the item relates to both spontaneous/emotional buying (Factor 1) and impulsive/planned buying (Factor 2).

Correlation Analysis

The correlation matrix was generated using Smart PLS for the nine items of the impulse buying scale is presented below:

Table3: Correlation Matrix

	IB1	IB2	IB3	IB4	IB5	IB6	IB7	IB8	IB9
IB1	1	0.52	0.24	0.31	0.20	0.43	0.29	0.14	0.41
IB2	0.52	1	0.25	0.38	0.36	0.49	0.42	0.02	0.29
IB3	0.24	0.25	1	0.49	0.47	0.19	0.16	0.29	0.38
IB4	0.31	0.38	0.49	1	0.45	0.29	0.41	0.34	0.41
IB5	0.20	0.36	0.47	0.45	1	0.15	0.21	0.09	0.42
IB6	0.43	0.49	0.19	0.29	0.15	1	0.14	0.10	0.44
IB7	0.29	0.42	0.16	0.41	0.21	0.14	1	0.15	0.19
IB8	0.14	0.02	0.29	0.34	0.09	0.10	0.15	1	0.05
IB9	0.41	0.29	0.38	0.41	0.42	0.44	0.19	0.05	1

Strongest Positive Correlations:

- "Just do it" describes the way I buy things and "Sometimes I feel like buying things on the spur-of-the-moment" (0.59): This suggests a strong tendency for these two behaviors to occur together. If someone strongly agrees that "Just do it" describes them, they are also likely to agree that they sometimes feel like buying things on the spur of the moment.
- "I often buy things without thinking" and "I see it, I buy it" describes me (0.46): A similarly strong positive correlation exists here.
- Other notable positive correlations can be found between "I often buy things spontaneously" and "Just do it" describes the way I buy things (0.59), and "Sometimes I am a bit reckless about what I buy" and "Sometimes I feel like buying things on the spur-of-the-moment" (0.41).

Weakest Correlations (close to zero):

- "I carefully plan most of my purchases" and "Just do it" describes the way I buy things (0.15): These two behaviors seem largely independent of each other. Whether someone agrees or disagrees that they carefully plan most purchases doesn't tell us much about how they'll respond to the statement "Just do it" describes the way I buy things.
- "I carefully plan most of my purchases" and "Sometimes I am a bit reckless about what I buy" (0.11): Similar to the previous point, these items are also weakly correlated.

Moderate Correlations:

- Many of the remaining correlations fall in the 0.2 to 0.4 range, suggesting some tendency for these behaviors to co-occur, but not as strongly as the pairs mentioned above.

VI.CONCLUSION

This study offers a thorough assessment of the Rook & Fisher impulse buying scale among Indian centenarians. With its established two-factor structure, the improved measurement tool provides insightful information to academics, researchers, and marketers. We can keep improving our knowledge of impulse buying behavior and its consequences for consumer behavior and marketing strategies by addressing the limitations and looking into potential future study areas.

Limitations:

Despite the valuable insights gained from this study, few limitations should be noted:

- 1.The majority of Indian students pursuing higher education made up the sample, which may have limited the findings' applicability to other demographics and cultural contexts. To improve the external validity of the findings, more diverse samples should be included in future research.
2. The research used a cross-sectional design, which offers a momentary view of impulsive purchasing behavior. In order to determine causal relationships and analyze changes in impulse buying tendencies over time, longitudinal studies are required.
3. Reliance on self-reported data raises the possibility of social desirability bias, in which participants may exaggerate or underestimate their propensity for impulsive purchases. To lessen this bias, objective measurements or observational techniques might be used in future studies.

REFERENCES

1. Atulkar, S., & Kesari, B. (2018). Role of consumer traits and situational factors on impulse buying: does gender matter? *International Journal of Retail and Distribution Management*, 46(4), 386–405. <https://doi.org/10.1108/IJRDM-12-2016-0239>
2. Cavazos-Arroyo, J., & Máñez-Guaderrama, A. I. (2022). Antecedents of Online Impulse Buying: An Analysis of Gender and Centennials' and Millennials' Perspectives. *Journal of Theoretical and Applied Electronic Commerce Research*, 17(1), 122–137. <https://doi.org/10.3390/jtaer17010007>
3. Chang, J. (2023). *113 Key Generation Z Statistics 2023: Characteristics & Facts You Should Know*. 1–27. <https://financesonline.com/generation-z-statistics/>
4. Changa, H. J., Eckmanb, M., & Yanb, R. N. (2011). Application of the stimulus-organism-response model to the retail environment: The role of hedonic motivation in impulse buying behavior. *International Review of Retail, Distribution and Consumer Research*, 21(3), 233–249. <https://doi.org/10.1080/09593969.2011.578798>

5. Das, B. (2024). *How the Indian Gen Z is coming of age*. 1–6.
6. Dittmar, H., Beattie, J., & Friese, S. (1995). Gender identity and material symbols: Objects and decision considerations in impulse purchases. *Journal of Economic Psychology*, 16(3), 491–511. [https://doi.org/10.1016/0167-4870\(95\)00023-H](https://doi.org/10.1016/0167-4870(95)00023-H)
7. Djafarova, E., & Bowes, T. (2021). ‘Instagram made Me buy it’: Generation Z impulse purchases in fashion industry. *Journal of Retailing and Consumer Services*, 59(xxxx), 102345. <https://doi.org/10.1016/j.jretconser.2020.102345>
8. Etikan, I. (2016). Comparison of Convenience Sampling and Purposive Sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1. <https://doi.org/10.11648/j.ajtas.20160501.11>
9. Glenn.D. (2012). Determining Sample Size 1.University of Florida IFAS Extension. Available at. <Http://Edis.Ifas.Ufl.Edu.>, 1–5.
10. Howarth, J. (2023). 25+ New Generation Z Statistics. *ExplodingTopics*, 1–10. <https://explodingtopics.com/blog/gen-z-stats>
11. Kacen, J. J., & Lee, J. A. (2002). The Influence of Culture on Consumer Behaviour. *Journal of Consumer Psychology*, 12(2), 163–176.
12. Nunnally, J. C. (1978). An Overview of Psychological Measurement. *Clinical Diagnosis of Mental Disorders*, 97–146. https://doi.org/10.1007/978-1-4684-2490-4_4
13. Rook, D. W. (1987). The Buying Impulse. *Journal of Consumer Research*, 14(2), 189. <https://doi.org/10.1086/209105>
14. Rook, D. W., & Fisher, R. J. (1995). Normative Influences on Impulsive Buying Behavior. *Journal of Consumer Research*, 22(3), 305. <https://doi.org/10.1086/209452>
15. Sharma, P., Sivakumaran, B., & Marshall, R. (2010). Exploring impulse buying and variety seeking by retail shoppers: Towards a common conceptual framework. *Journal of Marketing Management*, 26(5–6), 473–494. <https://doi.org/10.1080/02672570903485097>
16. Shinde Shivani, N. (2022). Gen Z and millennials: Reshaping the future of the Indian workforce. *Business Standard*, December.
17. Silvera, D. H., Lavack, A. M., & Kropp, F. (2008). Impulse buying: The role of affect, social influence, and subjective wellbeing. *Journal of Consumer Marketing*, 25(1), 23–33. <https://doi.org/10.1108/07363760810845381>
18. Wells, J. D., Parboteeah, D. V., & Valacich, J. S. (2011). Online impulse buying: Understanding the interplay between consumer impulsiveness and website quality. *Journal of the Association for Information Systems*, 12(1), 32–56. <https://doi.org/10.17705/1jais.00254>
19. Wood, M. (1998). Socio-economic status, delay of gratification, and impulse buying. *Journal of Economic Psychology*, 19(3), 295–320. [https://doi.org/10.1016/S0167-4870\(98\)00009-9](https://doi.org/10.1016/S0167-4870(98)00009-9)
20. Zheng, X., Men, J., Yang, F., & Gong, X. (2019). Understanding impulse buying in mobile commerce: An investigation into hedonic and utilitarian browsing. *International Journal of Information Management*, 48(October 2018), 151–160. <https://doi.org/10.1016/j.ijinfomgt.2019.02.010>