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## Article

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Future Business Journal

## Provided in Cooperation with:

Faculty of Commerce and Business Administration, Future University

*Suggested Citation:* Sofi, Shakeel Ahmad; Mir, Faizan Ashraf; Baba, Mubashir Majid (2020) : Cognition and affect in consumer decision making: Conceptualization and validation of added constructs in modified instrument, Future Business Journal, ISSN 2314-7210, Springer, Heidelberg, Vol. 6, Iss. 1, pp. 1-20,  
<https://doi.org/10.1186/s43093-020-00036-7>

This Version is available at:

<https://hdl.handle.net/10419/246640>

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RESEARCH

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# Cognition and affect in consumer decision making: conceptualization and validation of added constructs in modified instrument

Shakeel Ahmad Sofi<sup>1\*</sup>, Faizan Ashraf Mir<sup>2</sup> and Mubashir Majid Baba<sup>3</sup>

## Abstract

Cognition and affect have had stretched history of influencing the buying behaviour of an individual. The change in one of the dimensions leads to some proportionate change in corresponding factor, and a number of research studies have been carried out to ascertain the role of cognition and affect in consumer decision making. But most of the studies lack the evidence of scientific reliability and validity and nature of itemization in previous scales/papers has not been comprehensive as well. In the current endeavour, application of exploratory factor analysis and structure equation modelling has significantly tested the reliability and validity measures needed for impulsive buying scale that would largely facilitate different stake holders. This paper explores the process for how highly reliable and valid indicators of cognition and affect have been developed. The research design employed was a mixture of both exploratory and descriptive approaches that assisted author in classifying factors along with underlying items. Structured questionnaire was employed for the collection of data from the respondents. For validation and development of the modified scale, a set of reliable and scientific tools were employed included. Overall findings revealed that the instrument is vastly consistent and possesses both discriminant and convergent validity. Additionally, other reliability forms are on higher side which sustains the reliability of the scale. The current study will have larger credibility for researchers in the area of organizational behaviour, consumer behaviour and in other interdisciplinary areas.

**Keywords:** Reliability, Validity, Cognition, Affect, Impulsiveness

## Introduction

More often than not, purchasers settle on ample choices identifying with each component of their day to day life. In any case, a large portion of these goals are made without a lot of examination and just less accentuation is given to end results related with a specific choice. For the most part, in greater part of customer dynamic conditions, purchasers scarcely engage the sufficient level of data investigation. Or maybe, it would become tedious practice if all the purchasing choices involve the requirement for broad exertion. In any case, in opposition to it, in the event that all the buys are made generally, at

that point they would frequently have the affinity to be exhausting, dreary and would barely carry happiness or newness to a purchaser. The level of an effort that a customer practices for getting to the base of issue to a great extent relies upon the degree of his/her accuracy for choice measures, the extent of data he/she is as of now having about the item previously and the openness to the quantity of substitute choices [1].

Essentially buyers only from time to time have all the fundamental data or acceptably exact data or even a sufficient degree of intrigue or motivation to make the purported perfect judgment. It is hence that purchasers are constantly confined by their current abilities, unyielding conventions of life, by all accounts and aspiration forever, and by their constrained degree for understanding [1].

Consumers are always seen reluctant to engage themselves in expansive decision making for they have no

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time in the world and are thus always prepared to patch up just for good enough. For the most part, purchasers do not have the opportunity to look for options which limits their extension for settling on sound choice [2]. Past examinations in the field of consumer behaviour have made every effort to make a differentiation between the individuals who are rash purchasers and the individuals who are not [3, 4]. Despite the fact that such undertaking is costly and important in its methodology, it is not liberated from being dark and the way that pretty much everyone takes part in inconsistent suddenness and that even well unsurprising rash purchasers can and do have the control over their inclination now and again to control their lack of caution [5].

Hitherto, there have been number of attempts to develop scales for determining impulsiveness and reasons thereof. But it still requires immense workout for developing comprehensive framework that could facilitate different stakeholders in the estimation of impulsiveness across different consumer groups which the present study on scale development has fittingly taken into consideration [5].

Cognition and affect have had stretched history of influencing the buying behaviour of an individual. The change in one of the dimensions leads to proportionate change in corresponding factor. A plethora of research has been conducted to ascertain the cognition and affect of a consumer. But most of the studies lack the evidence of scientific reliability and validity. The nature of itemization in previous scales/papers has not been comprehensive as well. In the current endeavour, the application of SEM and EFA has brought some significant reliability and validity to the impulsive buying scale that would largely facilitate the academicians and corporate as well.

The present work on cognition and affect associated with an end user focuses on improved, validated and inclusive framework of scale development from consumer behaviour perspective. An attempt has been made to re-validate earlier developed scales in the subject of two psychological paradigms. In this study, a sample of 405 was selected and multi-stage sampling method was espoused to reach the ultimate sample unit.

This paper explores the process for how highly reliable and valid indicators of cognition and affect have been developed. The research design employed was a mixture of both exploratory and descriptive approaches that helped the investigator in classifying various factors of the study. Exploratory factor analysis was employed for classification of factors and items, confirmatory factor analysis was utilized to establish the reliability and validity of the proposed scale as was applied in study conducted by Sofi and Nika [6].

The current study was largely designed to modify and develop a scale for measuring impulsive buying behaviour among young consumers. The study is based on core objectives where primary focus has been to reframe the impulsive buying behaviour into two major psychological dimensions of cognition and affect. This also included methodical procedure of item exploration for various sub-constructs of cognition and affect and also to develop the construct for ascertaining buying tendency of a consumer. In this direction, an effort was also prerequisite and of absolute magnitude to validate different constructs of the modified scale and to test different constructs of the modified scale for its reliability.

The entire work is grounded on six progressive sections where “**Introduction**” section is based on introduction about the study, which proposes rationale and back ground of the study. Furthermore, “**Literature review and itemization**” section is focused on the literature review on the two psychological frameworks of cognition and affect and also includes discussion on research gap. “**Research methodology**” section discusses research methods employed for the development of scale and comprises of the results associated with EFA and CFA, and results of the pilot study are also part the section. Moreover, analysis along with results and discussion and conclusion is elucidated in “**Analysis**”, “**Results and discussion**” and “**Conclusion**” sections, respectively.

## **Literature review and itemization**

### *(How to diagnose impulsive buying)*

The process that has been adopted in this study for exploring different constructs of impulsive buying and buying tendencies has been comprehensively discussed as a part of literature review. Furthermore, itemization of impulsiveness has been classified into two major psychological components of affect and cognition.

### **Cognitive determinants**

Various traits of impulsive buying are required to be set apart so as to perceive the hasty purchasing conduct of youth. In past, incalculable exploration has led to investigate significant qualities of impulsive buying behaviour.

In prior research studies, a few traits have been recognized to gauge hasty purchasing inclinations of a purchaser. These develop to a great extent fit into two significant mental segments of cognition and affect. Few constructs including scant planning, prudence and cognitive deliberation and no prominence to potential results emerging from a specific purchase to a great extent decide the discernment of a shopper [5].

**Scant planning**

The level of chase with impulsive buyers is consistently on lower side, and they could scarcely stand to look for elective alternatives. The impulsive buyers do not have time on the planet to come out from their day by day calendar of meandering guilty pleasure. Youthful buyers all in all do not search for anything and do not incline towards arranging about explicit items during a shopping trip. Spontaneous buying behaviour crops up when buyers have un-conscientious crave to unexpectedly acquire a product [3, 7, 8]. More often than not, it is the desire for style that convinces spontaneous purchasers to superfluously buy the things prompting impulsive buying. A large portion of the prior investigations have discovered meager arranging as an essential segment related with impulsive buying. So inadequacy in arranging is without a doubt one of the noteworthy components that uncovers impulsive buying, yet the idea of arranging is as yet obscured and is subject to the situation as well [5].

**Prudence and cognitive deliberation**

Impulsive shoppers have the tendency to relate their unreasonableness to fragile and personal factor of indulgence and gratification. In a study related to the current topic and in particular to the mood-impulse buying relationship, impulse buying has been defined as an umbrella idiom that involves unpredictable, spontaneous and deliberate performances [9].

Weinberg and Gottwald [10] originally recognized that spontaneous shoppers display unrelenting push for emotions preoccupied with enjoyment, joy and eagerness. It was also confirmed that spontaneous buying behaviour also rests on the personality of an individual and that cognition cannot be the sole factor to discriminate the range of preferences. As per their views, even though processing of information plays pivotal role in the affirmation of buying decisions, but its heaviness is only miniscule than from that of emotions.

Insufficiency in cognitive forethought may result in superfluous decisions such as displeasure, lament, remorse feelings, financial tribulations and low self-esteem. These fallouts are the indicators of decisions being made out of hassle [6] and without any prudence and cognitive deliberation. Further, this rationalization supports the conviction that the propensity to purchase something on craze is conveyed by negligible cognitive efforts.

**No prominence to potential consequences**

Impulsive buyers are not really worried about the final products related with spontaneous purchasing choices, and spontaneous purchasers do not consider

the expenses related with such choices. Impulsive buyers are overall unreflective in nature. It is prompt delight that manages all the contending variables of levelheadedness and fulfilment of the quick joy is the bone of dispute inserted in impulsive buyers. As for the reason, impulse buying behaviour is a means of satisfying the short-lived desires [7, 8].

The idea of inclination to offer significance to adjacent prizes above distal prizes has been concentrated in the psychological systems of self-discipline [11]. In social sciences, impulsivity is conceptualized as the decision of quick, however, littler prizes over bigger postponed ones [12, 13]. The inclination to deform the evaluation of results gives in poise to allure feelings, which can be recognized as acting naturally focused, narcissistic, intolerant and narrow-minded, happy-go-lucky and missing a thoughtfulness for the upcoming events in life [5].

**Belief about impulsive buying**

Conviction shapes the focal piece of insight and of significant purchasing choices made by a typical purchaser. The conviction about impulsiveness is significant segment of impulsive buying since conviction about lack of caution would to a great extent decide the future purchasing expectation. The more grounded the conviction about incautious purchasing being unreasonable, the more slow the purchasing recurrence and the other way around. An impulsive purchaser hardly cares about the buying frequency, and his/her belief would negatively correlate with impulsive buying. There is each opportunity that a normal purchaser and impulsive buyer would give some distinction of supposition regarding conviction about impulsive buying [5].

**Affective determinants**

Affective determinants are hard to be estranged from its cognitive facets for the reason that the two psychological dimensions of affective and cognitive responses are reflected to be experienced concurrently and are strongly interrelated. The following sub-sections discussed here underneath have been adopted for item generation for affective dimensions of an impulsive buyer.

**Undesirable advocacy to buy**

A drive is a genuinely goal-oriented stage where an individual experiences feelings and physiological incitement and when need is induced, it incites the customer and channels him/her into the following phase of drive. As drive further increases, the energy for dynamic misrepresents, following predominant degree of association and data regulation. Shopper impetuses and need distinguishing proof go together and here motivating forces are promptings related with the items, administrations and

data that customers perceive the specific purchase will delight. Inducements also known as enticements can be reflected as enforcements that persuade the shopper's behaviour in the direction of heartwarming needs [14]. At the end, inducement is related to the need distinguishing proof stage, where promptings go about as impetus to thin the space between the genuine and foreseen stage. Purchasing motivations are outlined as an overpowering inclination to purchase just as mighty and emotionally animated and to be related with unrivaled potential for passionate incitement. So definitive, possible, purchasing urges take need over all the demonstrative or sound investigation relating to the buying choice. Hirschman [15] suggested that more often than not and in lion's share purchasing circumstances the customer's placid sentiments potentially impact the covered up hungers for that invigorate a sudden purchasing choice. The second the chase for want is set off, the desire gets so legitimate and tenacious that it orders immediate achievement. Customers are biased by an event of inside difference between both normal and stirring drives when a rushed purchasing motivation strikes [5].

#### **Cognitive dissonance**

It is as yet mysterious whether impulsive buyers go through post-purchase cognitive disequilibrium. Disequilibrium after buying would mean countering the rash purchasing conduct as post-purchase conflict, if any surfaces within the buyer will constrain the purchaser to examine about future purchasing choices. Yet, research in past has discovered that impulsive buying is restricted in centre and does not take part in any reflection about upcoming results emerging out of the reckless purchase. Be that as it may, after such purchase, negative feelings surface inside a customer, which change to a more elevated level of pressure and this post-purchase negativity along with stress is known post-purchase cognitive disequilibrium or cognitive dissonance [8, 16, 17] and is significant viewpoint related with estimation of impulsive buying conduct. These examinations in the field of impulsive buying indicate that, at the pre-purchasing stage, spontaneous purchasers might be progressively open to their sensations or mindset states. At the post-obtainment stage, spontaneous customers exhibit more incitement joined by sensations than do non-spontaneous end clients. The psychological cacophony manifests when the end clients take part in extreme interior trade of thoughts caught between purchasing driving forces and the soul of ability to restrict them. Rook additionally stated, giving up to purchasing tendencies may bring about inciting defenseless feelings contiguous the purchasing want. Subsequently, bargaining to passionate clashes and cacophony might be connected with unconstructive and

skeptical musings (for example, regret feeling or regretting self) that buyer may have in the wake of settling on a careless purchasing choice [5].

#### **Affirmative buying sensations**

It was initially emphasized that spontaneous buyers exhibit enlarged feelings of enjoyment, amusement, eagerness and joy [10]. Chang et al. [18] argued that consumers who had more positive emotional responses to the retail environment were more likely to make higher impulsive purchases [19]. Piron [20] came up with his recommendations that in-house stimuli refer to cravings, irresistible desires and domestic feelings that stimulate consumer's deep longing and force an unexpected purchase.

In a study conducted by Weinberg and Gottwald [10], that was designed to examine the role of emotions in non-spontaneous shoppers and spontaneous shopper, it was observed that impulsive buyers tend to be extremely engrossed, more thrilled and highly passionate than non-spontaneous purchasers which was also corroborated through other studies [6]. Studies conducted in past and findings associated with them have been documented in tabular form given below (Table 1).

#### **Research gap**

Most of the preceding efforts have been deficient in view of approaches adopted in general and statistical measures in particular which plays dominant role in the studies focused on scale development, and this inadequacy requires to be done away with the application of number of arithmetical procedures requisite for ascertaining psychometric properties of any scale. In addition and more importantly, the youth with varied level of cognition and affect are still at wide expanse and at opposite ends of the continuum. There is large deficiency in terms of factors of cognition and affect with reference to youthful consumers. Besides this, there is deficiency of reliable findings with regard to assessment of the degree of cognitive deliberation, scant planning and prominence on potential consequences arising from impulsive purchase in a comprehensive manner. In the same way, there is huge discrepancy with regard to affect determinants as of now, there have been only modest attempts to explore the scale of irresistible urge to buy, mood management, positive buying emotions and post-purchase disequilibrium or emotional conflict that occur as a result of spontaneous purchase among dissimilar youth having diverse personalities. Though there have been potential attempts by number of researchers to outline and frame out the components of cognition and affect, itemization in each of the constructs lacked comprehensibility.



**Table 1 Literature review in tabular form**

References	Findings/suggestions/conclusion
Clover [28]	Book, grocery and variety stores were the places where consumers more willingly purchased spontaneously, particularly book stores
Stern [17]	He identified four dissimilar categories of impulse buying as Reminder impulse buying, Pure impulse buying, Suggestion impulse buying and Planned impulse buying
Patterson and Cox [29]	They discovered that the shelf setting and shelf space, meticulously for things such as foodstuff, have had an influence on establishing spontaneous buying behaviour
Kollat and Willett [30]	They supported the argument that gender differences do not influence buying behaviour
Bellenger et al. [31]	It was discovered that consumer's spontaneity was prevalent, both across the population and product categories
Thaler and Shefrin [11]	The nature of predisposition to give importance to contiguous rewards above distal rewards forces an individual to impulsive buying
Weinberg and Gottwald [10]	Impulse buying transpires when the consumer's inspiration and impetus to purchase are strong enough to take priority over impediments of delight
Rook and Hoch [32]	They came up with improved research work on impulse buying wherein they identified interior psychosomatic stages that pressurize consumer to spontaneity
Iyer [33]	He affirmed that all impulse buying is at least unplanned, but all unplanned purchases are not essentially determined spontaneously
Piron [20]	He approved the role of autistic stimulant in inspiring spontaneous purchases
Rook and Gardner [9]	Defined impulse buying as an umbrella idiom that engrosses unreliable measures of unprompted and deliberate performances
Rook and Fisher [3]	They observed that credit cards make it easier to purchase things spontaneously
Dittmar et al. [34]	They revealed that music products and clothing were the most probable items to be purchased impulsively
Beatty and Ferrell [35]	There are multitude of supplementary situational and unpredictable factors such as money in hand and time accessibility that force spontaneous shopping
Wood [36]	An inverse association was identified between age and impulsive buying
Bayley and Nancarrow [37]	Immediacy attribute forces consumers to purchase spontaneously because they are always accompanied by pre-conceived notion that they get such opportunity only once
Youn and Faber [4]	Consumers are prejudiced by an occurrence of interior disagreement between both rational and arousing drives as soon as a hasty buying impulse strikes
Youn and Faber [4]	Revealed that spontaneity was found significantly associated with that of personality variable 'lack of control'
Shiv and Fedorikhin [38]	Impressed that when privileged possessions are limited, actions of a consumer are determined by lower-order developments
Jones et al. [7]	Consumers do not lean to look for additional information so as to construct fitting buying judgment
Verplanken et al. [39]	Revealed that that a universal impulsive buying propensity is robustly embedded in personality
Chang et al. [18]	Argued that consumers who had more positive emotional responses to the retail environment were more likely to make higher impulsive purchases
Sharma [22]	Adopted the conceptual framework of cognition and affect for exploring impulsive buying behaviour
Donnelly et al. [40]	They stated that conscientiousness was more probably to play a key part in scheduling for upcoming everyday expenditure
Muruganatham and Bhakat [19]	Consumers who had more positive emotional responses to the retail environment were more likely to make higher impulsive purchases
Bratko et al. [41]	Found that extraverts were motivated largely by the over lapping genetic manipulators during impulsive buying propensity

In the yester years, a number of studies have been conducted on smaller scale to diagnose the association between interior aspects of an individual and impulsive buying behaviour, but such consumer impulsive studies in past could only help categorize people as "spontaneous" or "cautious" consumers and forecast whether an individual might act impulsively, but these endeavours did not recognize the grounds for such impulsivity, nor did they account for how impulsively a person may act.

Therefore, the current work has bestowed academicians with a framework that would elucidate how intrinsic dimensions of a consumer can trigger needs for pleasure and manipulate urges to act impulsively and determine the buying tendencies towards a particular item.

Moreover, previous studies distinguished impulsive buying into two chief components of cognition and affect and reduced the overall study into constructs which lacked the universal reliability and validity. The

constructs merely consisted of few items that lacked the premise of generalizing and universalizing the results, and this has been fittingly accounted in the current study. A study on affect and cognition was conducted by Coley [21], which although distinguished cognition and affect into various sub-dimensions but was deficient in the utilization of higher statistical tools necessary for attaining reliable results and determining the validity of an instrument, and this limitation has been done away in the current endeavour through the application of higher order statistical measures. Lately, research study conducted by Sharma [22], adopted the conceptual framework of cognition and affect for exploring impulsive buying behaviour. Even though the two psychological components of cognition and affect were further divided into sub-constructs, but item adoption was not comprehensive and it was again taken care in the current study and the results of the present work in this regard can help researchers interested in the subject of impulsiveness, cognition and affect in future endeavours.

Therefore, the present work is an attempt to fill all these deficiencies and modified ABC Scale (Affect, Buying Tendency and Cognition) focuses on to frame out a model that would highlight in particular, the association between cognition, affect and the tendency to buy a particular product and on the whole would helpful to explicate the psychological paradigms of a consumer.

### Research methodology

It is an established fact that the appropriateness of the methodology chosen for a research determines the quality of research in management science especially in consumer behaviour because it involves investigating people from the psychological perspective. In this section, an effort has been made to present various parameters of research methodology employed in the current study.

### Research design

The research design included both explorative and descriptive approaches where former approach was employed for preliminary identification of the problem and then redressing the problem through the application of descriptive research design. Exploratory design was primarily adopted to explore different constructs, and data were collected through longitudinal design as data during preliminary instances did not achieve various reliability and validity measures. Several additions and deletions were made during various phases until the scale achieved desired model fit indices, reliability and validity measures.

### Sampling design

#### *Area of study and sample frame*

The area of study was Srinagar City, and data were collected from the institutes of higher learning that included Government Degree Colleges.

#### *Population for the Study*

The population above 18 years of age was considered as sample for the study. Majority of the population as said earlier included students studying in various colleges of the Srinagar city. The population was further divided into three groups of Early Adulthood (18–23), Middle Adulthood (24–29) and Late Adulthood (30–35).

#### *Sample size*

Selection of an optimum sample size is always the core issue that researchers face to make their study more reliable. Based on scientific research table and after ascertaining various measures prerequisite for sample size determination, a sample size of 405 was chosen for this study.

#### *Sampling method (technique)*

Multi-stage sampling was adopted for this study. Sample size being 405 was divided among 7 colleges in view of total strength of government recognized colleges in Srinagar city being 7 and furthermore, a sample of 58 from each of the college and a sample of 59 from one of the colleges were taken for appropriate sample distribution. Further, 20, 20 and 18 students were taken from three broader specializations including Basic Science, Non-medical and Humanities, respectively. In addition, systematic sampling was used for the selection of final respondents and was selected based on specific college identification mark.

### Instrument

Structured instrument (ABCS-Questionnaire based on Affect-Cognition-Buying Tendency Scale) consisted of three sections, Section A included demographic characteristics of the respondents, while as B comprised of impulsive buying behaviour variables and finally section 'C' included eight statements about buying tendencies for specified products. Apart from demographics which consisted of nominal scales, 5-point scale was adopted for rest of the items following the methodology of previous studies [6].

### Preliminary testing

A sample of 100 respondents was chosen from the University of Kashmir. The participants included students including both male as well as female from various

**Table 2 Cronbach alpha**

Cronbach's alpha	No. of items
.76	60

**Table 3 Inter-rater reliability**

Measures	Intra-class correlation	95% confidence interval	
		Lower bound	Upper bound
Single measures	.064	.047	.087
Average measures	.860	.817	.896

'Average measures Intra-Class Correlation' value in the above table is more than .70 and is highly acceptable (lower and upper bound also supported)

postgraduate streams. Furthermore, for equal representation, the sample was evenly distributed across various groups including Gender, Age, Income, Marital Status and Nativity.

#### **Assessment of scale properties/preliminary phase**

Assessment of scale properties is imperative both at the preliminary stage and during the course of main study. Before a research is conducted at larger scale, it becomes important to test both the reliability and validity of an instrument at lower scale.

**Reliability** Reliability of the questionnaire during pilot study was assessed mainly through overall Cronbach alpha, split-half reliability and inter-rater reliability. The findings associated with the results of three measures are discussed in the followings sub-sections.

**Overall Cronbach alpha** The "Cronbach alpha" associated with the pilot study calculated through SPSS is .76 which is much higher than the acceptable level in social science research [23] (Table 2).

**Inter-rater reliability** As with overall Cronbach alpha, inter-rater reliability results also supported the reliability of the instrument and are depicted in Table 3.

**Split-half reliability** Through the application of SPSS, 60 items were split into two portions with 30 items in each. The results show satisfactory correlation coefficients alpha yielded from the split-half reliability test and are shown in Table 4.

**Composite reliability** Composite reliability was also assessed during pilot study to support the reliability of the scale at lower level. It is clear from Table 5, composite reliability for all the factors is much higher than minimum

**Table 4 Reliability statistics—split half**

Cronbach's alpha		
Part 1	Value	.829
	No. of items	30
Part 2	Value	.824
	No. of items	30
Total no. of items		60

**Table 5 Composite reliability and average variance extracted**

	Composite reliability	Average variance extracted
I1	.93	.53
I2	.89	.59
I3	.89	.54
I4	.85	.52
I5	.85	.54
I6	.87	.53
I7	.77	.63
BB	.89	.51

acceptance level of .60 supporting the reliability of the instrument.

#### **Validity**

Before performing factor analysis on the data set collected during pilot study, normality of the data was assessed through skewness and kurtosis and for all the measures; skewness and kurtosis were within the range of  $\pm 1.96$ . Factor analysis was carried on data collected for factor extraction necessary for determining validity of the scale. Based on the results of factor analysis, 10 factors were extracted in total. Initially, a total number of items being 70 were reduced to only 60 items and rest of the items had to be deleted. Besides it, initial EFA on impulsiveness extracted 10 factors, but after examining rotated matrix only 8 could be retained.

**Face and content validity** During the course of preliminary investigations, the questionnaire was given to some research experts for their critical observation and suggestions. The validity of the instrument was examined through the application of *Face and Content Validity, Construct Validity, Convergent Validity and Discriminant Validity*. During preliminary investigation, the instrument was discussed with different experts for their critical analysis with reference to overall shape of the questionnaire



and their suggestions and changes were also incorporated in final framework.

**Construct validity** Both construct and discriminant validities have enormous importance in scale validation and scientific studies, and the results associated with both the validity concepts are discussed as under:

*Convergent validity*

Convergent validity shows whether items in a factor are converging in the particular factor. The higher the association of items in the particular factor, higher would be convergence. Convergent validity was assessed using AVE concept, and it could be seen (Table 5) that AVE is more than acceptable level of .50 for all the constructs [24, 25].

*Discriminant validity*

This form of validity indicates dissimilarity and constructs being different from each other. For assessing discriminant validity of the instrument at preliminary stage, Fornell and Larcker [24] procedure/formula was employed and it could be observed from the matrix represented below that for all the factors, square root of AVE is more than their correlation coefficient (Table 6).

**Analysis**

The data (at full scale) were initially analysed through SPSS for exploratory factor analysis, and finally AMOS was used for confirmatory factor analysis.

**Factor analysis**

To explore different factors that could be obtained by reducing overall 52 items into several meaning and compressive dimensions, exploratory factor analysis was employed. In all the scale development problems, factor analysis is fundamental and has to be carried on the data to extract number of correlated dimensions representing the whole set of observed items.

To start with, initially there were 60 items but for reliable results prerequisite for factor analysis and measurement model and for having lower loadings, eight items were omitted which reduced total number to 52 and 9 factors were produced by principal component analysis. After reviewing the 9 underlying factors, the items of impulsiveness produced eight factors. One factor had loadings lower than items in other factors and one stronger loading as well, but it was not taken for further analysis and hence impulsiveness produced only seven factors. In addition, the observed items of buying tendencies were factor reduced to 1 underlying construct.

**Comprehensive process of factor analysis**

At the very outset, the EFA analysis produced desirable results with KMO figures being .85 being much elevated than tolerable range of .50 and thus accordingly the assumption of null proposition that the *Correlation Matrix* is an identity matrix that was discarded by “Bartlett’s Test of Sphericity”. Following the EFA manoeuvre, the fairly accurate Chi-Square 18,601.835 with 4005 degrees of freedom, which is significant at .05 level ( $p < .05$ ). Thus, the EFA has been deemed to be suitable for analysing the correlation matrix as has been done in previous study [6].

**Number of factors**

Tables 7, 8 and 9 illustrate the application of principal component analysis to impulsive buying behaviour and impulsive buying tendencies problem. Under

**Table 7 KMO and Bartlett’s test**

Bartlett’s test of sphericity	
Kaiser–Meyer–Olkin measure of sampling adequacy	.857
Approx. Chi-Square	1.860E4
df	1326
Sig.	.000

**Table 6 Fornell and Larcker criteria**

	I1	I2	I3	I4	I5	I6	I7	BB
I1	.73							
I2	-.07	.77						
I3	-.08	.11	.74					
I4	.31	-.04	.15	.72				
I5	-.05	-.12	.07	-.02	.74			
I6	-.12	.06	.01	-.02	.19	.73		
I7	.65	-.10	.04	.17	-.16	-.13	.80	
BB	-.08	.70	.01	-.05	-.07	.06	-.18	.71

**Table 8 Communalities**

Item	Initial	Extraction	Item	Initial	Extraction	Item	Initial	Extraction	Item	Initial	Extraction
A1	1.000	.606	A14	1.000	.704	A27	1.000	.791	A40	1.000	.864
A2	1.000	.946	A15	1.000	.946	A28	1.000	.744	A41	1.000	.740
A3	1.000	.747	A16	1.000	.678	A29	1.000	.598	A42	1.000	.604
A4	1.000	.932	A17	1.000	.660	A30	1.000	.650	A43	1.000	.587
A5	1.000	.523	A18	1.000	.441	A31	1.000	.701	A44	1.000	.854
A6	1.000	.849	A19	1.000	.644	A32	1.000	.894	B1	1.000	.859
A7	1.000	.598	A20	1.000	.621	A33	1.000	.749	B2	1.000	.465
A8	1.000	.855	A21	1.000	.581	A34	1.000	.650	B3	1.000	.754
A9	1.000	.871	A22	1.000	.489	A35	1.000	.780	B4	1.000	.821
A10	1.000	.901	A23	1.000	.580	A36	1.000	.498	B5	1.000	.700
A11	1.000	.578	A24	1.000	.764	A37	1.000	.388	B6	1.000	.800
A12	1.000	.917	A25	1.000	.583	A38	1.000	.567	B7	1.000	.773
A13	1.000	.514	A26	1.000	.458	A39	1.000	.802	B8	1.000	.786

Extraction method: principal component analysis

**Table 9 Total variance explained**

Component	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	8.527	16.398	16.398	8.527	16.398	16.398	5.979	11.498	11.498
2	5.805	11.164	27.562	5.805	11.164	27.562	5.035	9.683	21.181
3	4.347	8.359	35.922	4.347	8.359	35.922	4.955	9.528	30.709
4	4.243	8.160	44.081	4.243	8.160	44.081	4.144	7.970	38.679
5	3.415	6.567	50.648	3.415	6.567	50.648	4.045	7.779	46.458
6	3.194	6.143	56.791	3.194	6.143	56.791	3.900	7.501	53.958
7	3.026	5.818	62.609	3.026	5.818	62.609	3.652	7.024	60.982
8	2.797	5.378	67.987	2.797	5.378	67.987	3.633	6.987	67.969
9	1.050	2.019	70.006	1.050	2.019	70.006	1.059	2.037	70.006
10	.949	1.825	71.831						
:	:	:	:						
:	:	:	:						
11	.901	1.732	73.563						
51	.046	.088	99.999						
52	.001	.001	100.000						

Extraction method: principal component analysis

communalities initial column, it can be seen that the communality for each variable from 1 to 52 is 1 as unities were inserted in the diagonal of the correlation matrix.

It can be seen from Tables 7 and 8 that the eigenvalues for every construct/factor expectedly are in the diminishing order ranging from construct/factor 1 to 52 with constructs/factors having eigenvalue greater than 1 only being retained (9 in this case) and which account to 70.006 per cent of the total variance.

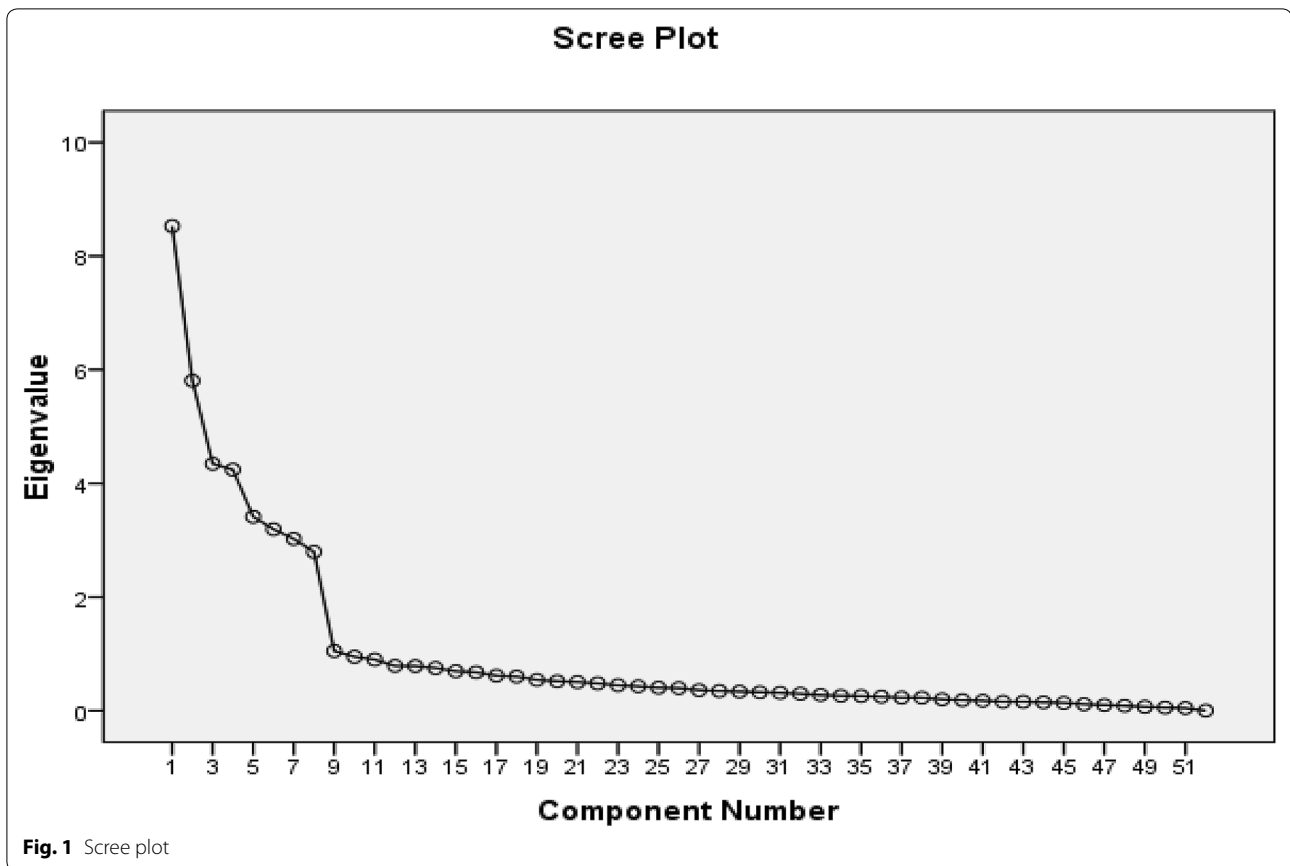
The scree plot evidently extracted 9 factors having eigenvalue above one (see Fig. 1), and rest of the

constructs/factors in twist-shaped were disqualified from further investigation.

**Determining items falling in the respective constructs/factors**

For this purpose, instead of component matrix, rotated matrix as shown in Table 10 was employed.

It is obvious that 8 factors could only be retained and 9th factor has only two items with loadings of Item A13=.541 but the same item loaded in factor 8 which is highly supported by the past literature and hence was



**Fig. 1** Scree plot

retained for factor 8 only as is indicated in rotated matrix (see Table 11).

Further, item (A23) has higher loadings in factor 8 than in factor 9 and is therefore retained for factor 8 only. The eight (8) underlying factors together explain 67.98 per cent of the data which are highly acceptable.

#### Testing statistical assumptions

For generalization of the findings, certain assumptions comprising of skewness, kurtosis, Q–Q plots and homoscedasticity were tested whose results are discussed in following section.

#### Skewness and kurtosis

Normality was explicitly demonstrated by the data as the skewness for the variables including cognition and affect was well within the range of  $\pm 1.96$ . Skewness was assessed across all indicators of impulsive buying behaviour (cognition and affect) and one variable of buying tendencies.

Kurtosis was also worked out in the present study, and kurtosis for majority of the variables was found within the range of  $\pm 1.96$ . Furthermore, it was observed that for all variables, kurtosis approached to zero but not to

absolute zero. Therefore, based on the findings of skewness and kurtosis, it could be assumed that the data are approximately normal.

#### Q–Q plots

Q–Q plots were also employed for examining the normality of the data. Following the analysis of the data, all Q–Q plots supported the normality assumption as the dots were found very close to central line with only little departure from the centre.

#### Homoscedasticity

Homoscedasticity is indicated if the variance of errors is same across all the levels of independent variables. It indicates that variance in the dependent variables does not come from the limited range of independent variables. The data that do not meet the assumption of same variance of errors suffer from heteroscedasticity. Heteroscedasticity can weaken the multivariate analysis raising the probability of type I error. The scatter plot of standardized predicted dependent variable against the independent variable (Residual) broadly shows a patternless cloud of dots, with no wider coning, and it stays

**Table 10 Component matrix**

Items	Component/factors									Items	Component/factors								
	1	2	3	4	5	6	7	8	9		1	2	3	4	5	6	7	8	9
A1		-.529								A27				.437			.417	.496	
A2	.403			-.429	.534					A28				.525					
A3				.422				-.490		A29				.430					
A4	.553		.441					-.496		A30		-.577							
A5										A31	.654								
A6	.440					.476	.458			A32	.680			-.417					
A7	.426									A33		-.571							
A8	.503		.462				-.465			A34	.583								
A9	.531		.418				-.483			A35	.665								
A10	.658				-.416					A36		-.423							
A11					.410					A37									
A12	.429			-.422	.501					A38	.436								
A13								.530		A39				.585					
A14			.406				-.473			A40				.573					
A15	.405			-.428	.534					A41		-.590							
A16					.482					A42	.626								
A17		-.592								A43						.437			
A18										A44	.479					.519	.436		
A19						.444	.420			B1	.568	.574	-.402						
A20	.448									B2	.465	.423							
A21				.402				-.430		B3	.487	.586							
A22										B4	.583	.542							
A23				.407					-.444	B5	.442	.561	-.401						
A24				.438				-.484		B6	.535	.571							
A25		-.495								B7	.530	.569							
A26		-.455								B8	.521	.554	-.424						

Extraction method: principal component analysis

(a) 9 components extracted

consistent when we move towards top confirming the assumption that data are Homoscedastic (Fig. 2).

**Results and discussion**

In this section, an effort has been made to test the data for exploring factors through exploratory factor analysis which were then confirmed through confirmatory factor analysis.

**Impulsiveness and its dimensions**

In rotated factor matrix (see Table 11), Factor 1 has higher loadings for the variables B1, B2, B3, B4, B5, B6, B7 and B8 and was labelled as buying tendencies for specified products (Buying Tendencies-BT).

In rotated factor matrix (Table 11), Factor 2 has higher loadings for the variables A7, A10, A31, A32, A34, A35 and A42 and having coherence for determining the degree of planning within the observed items, and the resultant factor was labelled as scant planning.

Further, Factor 3 has higher loadings for the items A1, A17, A25, A26, A30, A33, A36, A37 and A41 and was labelled as undesirable advocacy to buy.

Factor 4 has higher loadings for the variables A2, A11, A12, A15 and A16 and was labelled as affirmative buying sensations.

Factor 5 has higher loadings for the variables A4, A8, A9, A14 and A20 and was given the theme belief about impulsive buying.

Factor 6 has higher loadings for the variables A6, A18, A19, A38, A43, and A44 and was labelled as cognitive dissonance.

Factor 7 has higher loadings for the items A27, A28, A29, A39 and A40 and based on the review of the previous literature and researchers pragmatism, it was labelled as no prominence to potential consequences.

Factor 8 has higher loadings for the variables A3, A5, A13, A21, A22, A23 and A24 and was labelled as prudence and cognitive deliberation.

**Table 11 Rotated component matrix**

Item	Component/factors									Items	Component/factors								
	1	2	3	4	5	6	7	8	9		1	2	3	4	5	6	7	8	9
A1			.758							A27									.874
A2				.962						A28									.843
A3								.856		A29									.655
A4					.937					A30		.783							
A5								.691		A31	.787								
A6						.902				A32	.919								
A7	.747									A33		.785							
A8					.899					A34	.777								
A9					.906					A35	.835								
A10	.927									A36		.673							
A11				.741						A37		.599							
A12				.941						A38						.715			
A13								.453	.541	A39								.876	
A14					.829					A40								.911	
A15				.962						A41		.820							
A16				.810						A42	.712								
A17		.780								A43						.746			
A18						.597				A44						.902			
A19						.793				B1	.918								
A20					.760					B2	.639								
A21								.713		B3	.860								
A22								.654		B4	.890								
A23								.599	-.435	B5	.830								
A24								.862		B6	.885								
A25		.721								B7	.869								
A26		.637								B8	.880								

Extraction method: principal component analysis

Rotation method: Varimax with Kaiser normalization

(a) Rotation converged in 6 iterations

To conclude the results of exploratory factor analysis, EFA has produced eight (8) underlying factors. During the process of EFA, some of the items were deleted and consequently added. It took three EFA repetitions to attain final factors for the study. Because of the space limitations, it was not possible to highlight all the repetitions in final set; hence, only final EFA results have been documented here. Now, factors generated through EFA are required to be tested through CFA as well which has been comprehensively discussed in “[Confirmatory factor analysis](#)” section.

**Confirmatory factor analysis**

To examine composite reliability measures, path analysis, item loadings, error terms and to inspect various fit indices of the measurement model, confirmatory factor analysis was employed. It was particularly employed to establish various validity measures and for this purpose

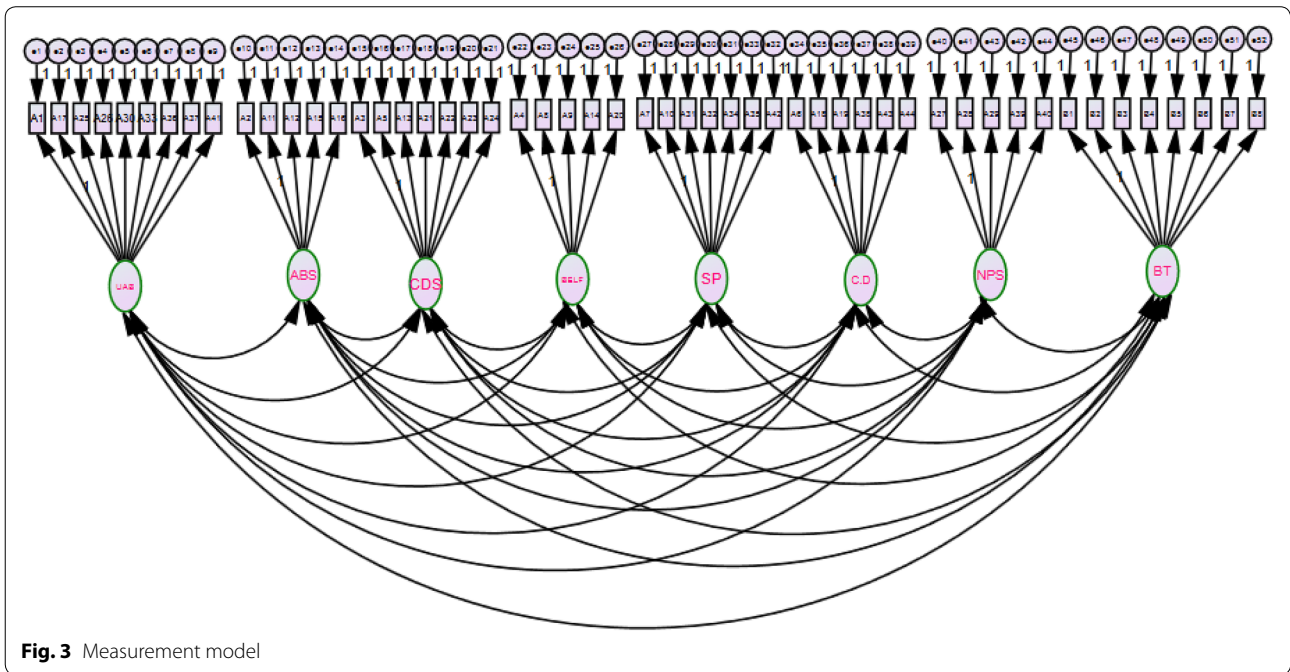
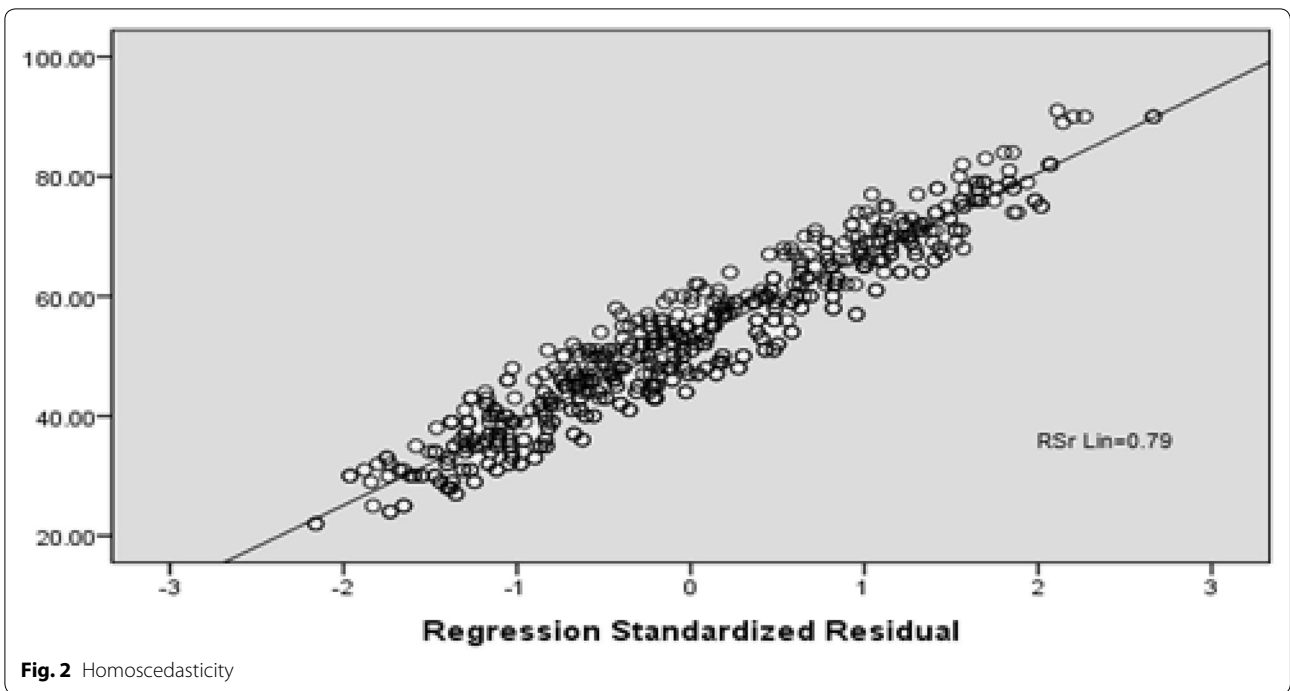
standardized regression weights and correlations were supplemented by CFA.

Confirmatory factor analysis was carried on the data using EFA results of observed items of impulsive buying and impulsive buying tendencies for specified products. The results of the measurement model being part of structural equation modelling have been expansively discussed below. Overall, the scale was found to be reliable and both the construct validity and discriminant validity were achieved for all the constructs.

**Measurement model of the study**

In the current study, the *Measurement Model* was based on the premise of EFA results and all the constructs were permitted to correlate with each other in a single measurement model to assess validity and reliability measures (please see Fig. 3) (Item loadings not visible can also confirmed from Table 16 of Appendix).





**Measurement model fit indices**

The *Fit Indices* of the current framework were well within the satisfactory level, and indicators investigated robustly were [Chi-square = 2454.304, Probability

level = .000 ( $p < .05$ )], and CFI was found to be .933, GFI was .91, AGFI = .81, NFI = .91, TLI = .92, PNFI = .92, RMR = .09, and RMSEA = .049.

**Reliability and convergent validity**

**Composite reliability**

Apart from model data fit requirements, various psychometric characteristics having relevance to scale development were also tested. As is demonstrated in Table 12, with reference to composite reliability (CR), it exceeded the desired cut-off value of .60; thus, it is logical to state that the ABC scale is robustly reliable in view of higher value of CR [6].

**Convergent validity**

For *Convergent Validity*, *Average Variance Extracted* was tested. It is clear from Table 16, the constructs have accomplished *Convergent Validity* for *Average Variance Extracted* being higher than minimum satisfactory level of .50. For Table 16, refer to “Appendix” for scale constructs along with their itemization.

**Discriminant validity**

*Discriminant Validity* was also tested through the intra-evaluation of square root of average variance extracted and correlation of the constructs [24]. It has been observed that for all the constructs, *Square Root of Average Variances* extracted was much larger than their *Correlation Coefficient* which confirmed *Discriminant Validity of the Instrument* (see Table 12).

**Common variance method**

In the current study for exploring common method variance, ‘Harman’s *One-Factor*’ diagnostic assessment was employed to classify the likely occurrence of undue errors. Furthermore, after employing exploratory factor analysis through the application principal component analysis with rotation being limited to Varimax method, all the underlying items were forced to one factor extraction. The outcome of single-factor exploration was found reliable as solitary factor resulted in 22.460 of the total variance thereby pointing probable nonexistence of common method variance. Furthermore, using AMOS 20,

all items were exposed to one factor examination and to explore fit of the *Confirmatory Factor Analysis Model*. Results in this case showed that single-factor model had fit issues, with approximate fit scores of  $\chi^2 = 760, p = 000$ ;  $GF = .641$ ;  $CFI = .591$ ;  $LI = .583$ ; and  $RMSEA = .131$ . Therefore, based on the results associated with one *Factor Extraction* and one *Factor Model Fit*, it was resolved that larger portion of the variance in this data is explained by the specific constructs with study being unaffected by common method variance [26].

**Nomological validity**

Eight constructs/factors were split up into two factors of impulsiveness vis-a-vis positive and negative indicators. Prudence and cognitive deliberation, belief, scant planning (reversed) and no to potential consequences (reversed) were pooled together for their strength in determining rational decision making within an end shopper. Negative indicators of a consumer viz. affirmative buying sensations, undesirable advocacy to buy, emotional conflict (cognitive dissonance) and buying tendencies were pooled for having tendency to classify irrational and emotional buying behaviour of an end user [6].

In the current endeavour, the nomological validity was tested across positive indicators and negative indicators and model based on positive and negative indicators produced robust indices:  $\chi^2/df$ , root mean square error of approximation (RMSEA) and incremental fit indices like normed fit index (NFI), relative fit index (RFI), incremental fit index (IFI), Tucker-Lewis index (TLI) and comparative fit index (CFI) which were recorded as .083, .872, .863, .894, .886, .912 and .893, respectively. The negative regression weights (beta value =  $-.816$ ) and significant critical ratio (CR) values ( $-2.909$ ) of the relationship between positive and negative indicators confirmed the nomological validity of the scale.

**Table 12 Correlation matrix and square root of average variance extracted**

	CD	BELIEF	SP	NPS	ABS	UAB	CDS	BT
CD	.73							
BELIEF	.176	.75						
SP	.105	.278	.71					
NPS	.152	-.041	-.070	.74				
ABS	-.031	.085	.216	-.116	.74			
UAB	.035	.192	.173	-.112	.089	.71		
CDS	.065	.198	.208	-.115	.045	.176	.75	
BT	.111	.116	.225	.013	-.031	.081	.171	.73

**Table 13 Cronbach alpha score (overall)**

Constructs/dimensions (multi-item measure)	(Cronbach alpha— $\alpha$ )	No. of items	Scale
Affect cognition and impulsive buying tendencies scale (ABCS-overall)	.877	52	5 Point

**Table 14 Split-half reliability statistics**

Cronbach's alpha	Part 1	Value	.821
		No. of Items	26 <sup>a</sup>
	Part 2	Value	.827
		No. of Items	26 <sup>b</sup>
Total no. of items			52
Correlation between forms			.485

**Table 15 Inter-rater reliability**

	Intra-class correlation <sup>b</sup>	95% confidence interval	
		Lower bound	Upper bound
Single measures	.121 <sup>b</sup>	.105	.139
Average measures	.877 <sup>c</sup>	.859	.894

All the constructs have composite reliability which is above minimum level of (.6). Hence, the scale is reliable

#### Other forms of reliability

It would be unscientific and irrelevant not to test other reliabilities which share significance in studies such as the current endeavour on scale development. For this purpose, following reliabilities were examined to support composite reliability (CR).

- Overall reliability: this was tested through* Cronbach alpha coefficient whose value associated with ABCS which is .877 (Please See Table 13) (greater than .60; [27]).
- Split-half reliability* was also examined for the current scale. Through the application of SPSS, investigators evaluated and divided scale in two portions for ascertaining their degree of correlation and it resulted in satisfactory results as is demonstrated in Table 14.
- Inter-rater reliability:* For this purpose 'Average measures Intra-Class Correlation' was explored as is shown in Table 15. It may be noted that 'Average measures Intra-Class Correlation' value in Table 15 is higher than .70 and is well supported.

#### Conclusion

In the current endeavour, investigators have made rigorous efforts to identify items for the current scale (ABCS) which were further content validated and thoroughly tested for reliability. This study based on scale development is corroborated and has improved on past studies on the subject as factors/constructs have been modified on the whole and following the operation of various arithmetical procedures like SEM, and EFA, it has accomplished reliability of the multi-item scale that was wanting in past scales and their application has largely validated the current instrument as well. It will not be exaggeration to reaffirm that the current study on scale development would act as estimable source for corporate to envisage, how impulsivity shapes across varied youth having different buying tendencies? How level of cognition and affect and their determinants change across different consumer groups? Moreover, it would also facilitate corporate to realize, how degree of cognition and affect together determine the propensity to purchase impulsively the particular brand or an item?

To the researcher's awareness, this endeavour is the first of its kind to conceptualize and operationalize the association between impulsive buying behaviour and buying tendencies for particular shopping items in complex framework. In view of highly acceptable results associated with reliability and demonstration of convergent and discriminant validity necessitate that the process espoused for establishing the underlying relationship between affect, cognition and buying tendency scale (ABCS) is a unambiguously valid, within a solid theoretical base. Therefore, the current study bequeaths future researchers and marketing intelligence personnel with a legitimate measurement instrument to construct healthier theories on impulsiveness that consumers have for different products. Though the researcher has included only eight statements for determining impulsiveness for specific products, different products on each of the eight statements may be added in future and further analysed to explore how people will report their impulsiveness on each of the specified item.

It is appropriate to call that theoretically current attempt contributes in innumerable ways and in wider perception, this effort augments scientific community associated with an end consumer research with uncovered insights in consumer spontaneousness and predominantly related to impulsiveness while controlling the effects of psychological mediators.

It would be apposite to reaffirm that a plethora of research efforts have been made in yester years concerning psychological paradigms of a consumer vis-a-vis cognition and affect but most of them had restricted factors having only few number of items that reduced their property of generalizability across globe. The current research has modified constructs of impulsive buying vis-a-vis cognition and affect and buying tendencies for specific products among youth at large. In the current endeavour, validated and reliability tested measures in the subject of impulsive buying have been put forward. This work has greater bearing and acceptance in the areas of consumer domains and to make this study a unique one, a number of dimensions were extracted through the comprehensive mechanism of literature review and exploratory factor analysis and were item modified to evolve factors/constructs persistent with consumer behaviour.

The current work has bestowed academicians with a framework that would elucidate how intrinsic dimensions of a consumer can trigger needs for pleasure and manipulate urges to act impulsively and determine the buying tendencies towards a particular item. Also previous studies distinguished impulsive buying into two chief components of cognition and affect and reduced the overall study into constructs which lacked universal reliability and validity. The constructs merely consisted of fewer items that lack the premise of generalizing and universalizing the results, and this has been fittingly accounted in the current study. A study on affect and cognition was conducted by Coley [21], which although distinguished cognition and affect into various sub-dimensions but was deficient in the utilization of higher statistical tools necessary for attaining reliable results and determining the validity of an instrument, and this limitation has been done away in the current endeavour through the application of various higher order statistical measures. Lately, research conducted by Sharma [22] adopted the conceptual framework of cognition and affect for exploring impulsive buying behaviour. Even though the two psychological components of cognition and affect were further divided into sub-constructs, but item adoption was not comprehensive again and it was again taken care in the current study and the results of the present work in this regard can help researchers

interested in the subject of impulsiveness, cognition and affect in future endeavour.

Preceding studies on impulsiveness and buying tendencies have had explored relationship between the two aspects without any modification in items which have been mostly organizational behaviour oriented. In the present work, a number of impulsive buying behaviour dimensions were extracted through the comprehensive mechanism of literature review and exploratory factor analysis and were item modified to evolve factors/constructs persistent with consumer behaviour. Studies in past on impulsive buying have had exploited independent approach in the ascertainment of association between the variables which was again done away through the application of combined framework of measurement model. Furthermore, the items for the scale in the current study have been identified, content validated and reliability tested through entirely different process. This work improves on previous studies as constructs have been given new shape altogether and findings of the study could be a good source for different stakeholders to picture out, how impulsivity shapes across youth? How level of cognition and affect and their determinants change across different consumer groups? Furthermore, it would also facilitate them to realize, how the impulsiveness determines the propensity to purchase impulsively the particular brand or an item? To the researcher's awareness, this endeavour is the first of its kind to conceptualize and operationalize the association between items of impulsiveness and buying tendencies for specific products in complex framework. Higher reliability measures and significant results on convergent and discriminant validity demonstrated that the current model/scale utilized for measuring association between items of affect, cognition and buying tendencies is a reliable and valid. Therefore, the study offers researchers and marketing managers a legitimate framework that could be employed in future for better understanding the nature of impulsiveness and that consumers have for different products.

Research in past on impulsive buying itself and in association with buying tendency has been a subject of phenomenological shortcomings and largely failed to classify what essentially decides impulsiveness. In this research endeavour, following precise attempts by researchers, novel items and constructs have been appended to cognition and affect which is an achievement that will assist majority of stakeholders. The results of the current study are reliable and corroborate with earlier findings on impulsive buying and are distinguishable as well. These

findings on the other hand are impermanent and provisional by the composition of respondents in view of their sample and by methodological limitations [6].

#### Limitations and directions for future research

Efforts have been made to make the study representative of the population and result oriented by choosing an optimal sample size but still following limitations are felt:

1. The unnoticed inhibition on the part of some consumers to divulge the true feelings which is a normal feature in such kind of surveys can be a limiting factor.
2. Researchers in future could employ intrinsic (personality) and extrinsic (advertisement) variables in combined framework to examine their impact on impulsive buying behaviour.
3. The conceptual frame work adopted in the present study could be employed on other consumer groups different from young people to explore their response on impulsive buying behaviour.
4. Cohort analysis on impulsive buying across several consumer groups in relation to different products could also be taken to study the change in impulsive buying behaviour over a period of time.
5. Though the researcher has included only eight statements for determining impulsiveness for specific products, different products on each of the eight statements may be added in future and further analysed to explore how people will report their impulsiveness on each of the specified items.

#### Abbreviations

EFA: Exploratory factor analysis; CFA: Confirmatory factor analysis; SEM: Structure equation modelling; ABC: Affect cognition behaviour; AVE: Average variance extracted; AMOS: Analytical moment of structures; SPSS: Statistical package for social sciences; KMO: Kaiser–Meyer–Olkin; CFI: Comparative fit index; GFI: Goodness of Fit Index; TL: Tucker–Lewis index; NFI: Normed fit index; AGFI: Adjusted Goodness of Fit Index; RMSEA: Root mean square error of approximation; RMR: Root mean square residual; CR: Composite reliability; SQRT (AVE): Square root of average variance extracted; CD: Cognitive dissonance; SP: Scant planning; NPS: No to potential consequences; ABS: Affirmative buying sensations; UAB: Undesirable advocacy to buy; CDS: Cognitive dissonance.

#### Acknowledgements

We are highly grateful to all the Anonymous Reviewers who have put in tremendous effort in shaping this research study.

#### Authors' contributions

SAS analysed and interpreted the consumer data regarding the retail attributes, psychological paradigms and the fast food consumption. FAM performed the literature review and was a major contributor in writing the manuscript. MMB helped in the application of various statistical tools, methodological part and also in the introductory portion of the research paper. All authors read and approved the final manuscript.

#### Funding

No funding was applicable to this study.

#### Availability of data and materials

The data sets used and analysed during the current study would be available from the corresponding author on reasonable request, and furthermore, all the data analysed during this study is included in the published article.

#### Competing interests

The authors declare that they have no competing interests.

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#### Appendix

See Table 16.



**Table 16 Constructs and statistics**

Theme/constructs	Items	Statements	Factors	Item loadings	Item errors	CR	(AVE)	SQR (AVE)
Undesirable advocacy to buy	A1	I always have the ambition to pay money for an article as fast as possible so as to cease the pain of buyinglessness	UAB	.71	.79			
	A17	I always experience helplessness when I see amazing and gorgeous items meant for marketing purpose	UAB	.76	.11			
	A25	The urge to procure something just draws nearer to me all at once and I am overwhelmed by the shopping decision	UAB	.69	.12			
	A26	I have the tendency to shop and spend large amounts of money during times of depression or emotional distress	UAB	.61	.22			
	A30	I always have the trouble in managing my buying desires	UAB	.74	.99			
	A33	I always try to buy the products I like	UAB	.79	.85			
	A36	When I go for shop trip, I make buying decisions on the spot	UAB	.58	.23			
	A37	I purchase excessive amounts of items that never get used	UAB	.50	.11			
	A41	I experience a rush or a feeling of joy before spending	UAB	.83	.55	.91	.53	.73
	Affirmative buying sensations	A2	When making new buy, I find myself charmed and pleased	ABS	1	.00		
A11		I purchase instantaneously to prolong my pleasurable sensation	ABS	.64	1.42			
A12		I take pleasure in the sensation of buying products spontaneously	ABS	.93	.28			
A15		Buying stuff in emergency gives me a sense of amusement and cheerfulness	ABS	1	.00			
A16		I experience sense of joy when I procure something hurriedly	ABS	.74	.93	.88	.57	.75
Prudence and cognitive deliberation		A3	I buy an item to satisfy my ego of superiority	CD	.84	.20		
	A5	I never run up large amounts of debt or buying unnecessary items	CD	.63	.44			
	A13	I am a vigilant and cautious buyer	CD	.38	.61			
	A21	When I pay money for things, I am more likely to be slow and thoughtful.	CD	.65	.48			
	A22	I have the tendency to think about quality of a product before I pay money for it	CD	.59	.45			
	A23	I have higher tendency to reject the products during shopping trip	CD	.55	.66			
	A24	I always purchase items wisely	CD	.86	.16	.87	.51	.71
	BELF	A4	Impulsive buying leads to addiction problems	BELF	.99	.03		
A8		When I consider about my buying behavior in general, I judge myself to be rational purchaser?	BELF	.89	.47			
A9		Impulsive buying largely affects budget of an individual	BELF	.93	.30			

**Table 16 (continued)**

Theme/constructs	Items	Statements	Factors	Item loadings	Item errors	CR	(AVE)	SQR (AVE)
Scant planning	A14	Impulsive buying disrupts every ones diet schedule	BELF	.76	1.03			
	A20	I believe impulsive buying needs to be avoided	BELF	.69	1.32	.85	.54	.74
	A7	When I leave for shopping, I never return with purchases that I had not anticipated to buy	SP	.68	.12			
	A10	I am the who for all the time makes planned purchases	SP	.96	.19			
	A31	When I'm feeling down, I never go out and purchase something hastily	SP	.78	1.02			
	A32	Usually, I make a list of items when I go for shopping	SP	.95	.25			
	A34	It takes me more time to complete all the purchases	SP	.77	.23			
Cognitive dissonance	A35	When faced with purchase decisions, I always take time to search for alternative buying preferences	SP	.83	.73			
	A42	I never break my budget by spending more than I have planned to	SP	.69	1.39	.89	.54	.74
	A18	Every now and then I feel let down by buying new stuff	CDS	.93	.26			
	A19	For me, buying is a means of reducing the everyday stress	CDS	.48	.35			
	A38	I experience mixed feelings of pleasure and guilt from buying something on impulse	CDS	.71	1.06			
	A43	Every now and then, I feel disappointed after buying things in a haste	CDS	.67	.46			
	A44	I always experience diverse feelings of happiness and shame after making buying decisions spontaneously	CDS	.72	1.03			
No prominence to potential consequences	A6	At times, I find myself in a state of nervousness as I purchase items in a hurry	CDS	.95	.20	.86	.51	.71
	A27	I experience some internal disagreement when buying recklessly	NPS	.82	.77			
	A28	I pay only after given due consideration to future consequences arising from the purchase of an item	NPS	.82	.82			
	A29	I use and eat up with proper diet schedule	NPS	.57	.11			
	A39	I will only buy items I require	NPS	.84	.74			
Buying tendency	A40	I never aspire to purchase goods that won't fix in particular season	NPS	.95	.254	.86	.57	.75
	B1	I purchase biscuits, chips, chocolates	BT	.93	.34			
	B2	I purchase biryani, barbeques, momos, berger, patties	BT	.61	1.28			
	B3	I purchase Lotion Creams, Shamos, Hair Oil, Gel Creams	BT	.83	.66			
	B4	I purchase Lengha, Kurtas, Trousers and other garments	BT	.90	.39			
	B5	I purchase shirts, pants, sweaters, Jackets	BT	.79	.75			
	B6	I purchase wrist watches, Belts, Shoes	BT	.88	.44			

**Table 16 (continued)**

Theme/constructs	Items	Statements	Factors	Item loadings	Item errors	CR	(AVE)	SQR (AVE)
	B7	I purchase Facebook, Whatsapp, GPRS, Calling packs	BT	.86	.58			
	B8	I purchase/consume cigarettes, Bedis	BT	.87	.53	.90	.53	.73

CR and AVE were calculated using following formulas

$$CR = \frac{\sum_{k=0}^n (\text{Item loadings})^2}{\left\{ \sum_{k=0}^n (\text{Item loadings})^2 + \left( \sum_{k=0}^n (\text{Error items}) \right) \right\}} \quad (i)$$

$$AVE = \frac{\sum_{k=0}^n \text{Item loadings}^2}{\left\{ \sum_{k=0}^n \text{Item loadings}^2 + \left( \sum_{k=0}^n (\text{Error items}) \right) \right\}} \quad (ii)$$

Received: 8 March 2020 Accepted: 18 August 2020

Published online: 30 August 2020

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