

SYNOPSIS OF THE THESIS

**Factor Influencing Consumer Buying Behavior for Tussar
Silk**

Doctoral Thesis Submitted

**In partial fulfillment of the requirement for the award of
the degree of**

DOCTOR OF PHILOSOPHY

IN

MANAGEMENT

By

KUSUM KANAN MISHRA

UID No-19FMRCJHD01007

Under the Guidance of

Dr. BHAGABAT BARIK

(Research Supervisor)

Professor & Assistant Dean

ICFAI University, Jharkhand



ICFAI UNIVERSITY JHARKHAND RANCHI

December , 2024

CONTENTS

Sl. no.	Section	Page Number
1	Introduction	1-7
	1.1. Tussar Silk	3-4
	1.2. Consumer Buying Behaviour	4
	1.3. Factors Affecting Consumer Buying Behaviour	6
	1.3. Purchase Intention of Consumer	6-7
2	Review of Literature	7-9
	2.1. Consumer Buying Behaviour and Purchase Intention of consumers	7-8
	2.2. Theoretical Foundation of Study	9
3	Research Methodology	9-13
	3.1. Research Questions	10
	3.2. Objective of the Study	10
	3.3. Hypothesis of the study	10-12
	3.4. Research Design	12
	3.5. Pilot Survey	12-13
4	Data Analysis & Interpretation	13-23
	4.1. Respondents' demographic details	13-14
	4.2. ANOVA	14-18
	4.3. PLS-SEM	18-22
	4.4. SEM-ANN	22-23
6	Discussion	23-24
7	Conclusion	25
8	Bibliography	26-27

INTRODUCTION

The global fashion industry has witnessed a paradigm shift in recent years, driven by the increasing awareness of environmental issues and a growing demand for sustainable and eco-friendly products. This transformation has had a profound impact on consumer behaviour, as individuals are now more inclined to make ethical and sustainable choices when it comes to their clothing purchases. In this context, Tussar silk, a natural and sustainable silk variety, has emerged as a compelling option for eco-conscious consumers.

Currently, the Indian silk sector serves as a major player in the international market, with substantial growth potential anticipated in Tussar silk production due to its excellent fabric quality. Notably, there is a lack of relevant research in this domain. Given the rapid industrialization and consumerism, it becomes imperative for organizations to comprehend consumer preferences for Tussar silk products. This understanding will unveil the key dimensions influencing the preference for the Tussar silk brand, allowing companies in the Jharkhand region to make informed decisions and explore new opportunities. The research plays a crucial role in shaping strategies for organizations, creating awareness among consumers about Tussar silk products, and emphasizing the environmentally friendly nature of Tussar silk. In essence, the research contributes significantly to the development of strategies for organizations and benefits individuals, consumers, society, and the environment.

The current study aims to comprehend consumer purchase intention by incorporating various dimensions of consumer buying behaviour and analyzing their impact on overall buying behaviour. Within this framework, the study identifies the mediating role of influence in buying behaviour among different dimensions of consumer behaviour and purchase intention.

In the Jharkhand region, there is a notable absence of research work on Tussar silk, presenting an opportunity to contribute new findings and recommendations for both consumers and organizations. The novelty of this research work also has the potential to inspire research scholars, practitioners, and organizations to undertake future studies exploring various aspects of Tussar silk.

1.1. Tussar Silk

Tussar silk, also referred to as "wild silk" or "non-mulberry silk," originates from the cocoons of various silkworm species, primarily *Antheraea mylitta* and *Antheraea proylei*. In contrast to the large-scale cultivation of conventional mulberry silk, Tussar silk is predominantly produced

in decentralized settings, often in rural and forested areas of India. Its unique production process, characterized by minimal human intervention and reliance on natural vegetation, grants it a distinct sustainability advantage.

Beyond its eco-friendliness, Tussar silk is celebrated for its natural golden sheen, rich texture, and exceptional durability, making it a choice associated with both environmental consciousness and elegance in the fashion realm. With the growing consumer preference for sustainable and ethically sourced products, it becomes essential to examine the factors influencing their choices regarding Tussar silk. This thesis delves into the nuanced aspects guiding consumer decisions in the Tussar silk market, aiming to offer insights beneficial to the Tussar silk industry and policymakers in fostering sustainable and ethical fashion practices. Understanding the determinants of consumer buying behavior for Tussar silk enables businesses and stakeholders to adjust their strategies to meet evolving market dynamics, while consumers can make informed choices aligning with their values and preferences.

1.2. Consumer Buying Behaviour

Consumer buying behavior, a dynamic and intricate process, plays a pivotal role in the functioning of markets and the success of businesses. It encompasses the entire journey a consumer undertakes when making a purchase, from the initial recognition of a need or desire to the post-purchase evaluation. Understanding consumer buying behavior is essential for businesses, marketers, and policymakers to meet the demands of a diverse and evolving marketplace.

Consumer buying behavior, also known as consumer behavior, refers to the study of the processes and activities that individuals and groups undertake when selecting, purchasing, using, and disposing of goods and services (Solomon & Panda, 2004). In other words, Consumer buying behavior encompasses the actions and decisions made by individuals and households when they buy goods and services for their personal use (Webster Jr & Wind, 1972). It is a multifaceted process influenced by a wide array of internal and external factors. This behavior can vary significantly from one person to another, and even for the same individual, it may differ depending on the product, context, and circumstances. Therefore, understanding consumer buying behavior is crucial for businesses and marketers as it enables them to tailor their products, services, and marketing strategies to meet the needs and preferences of their target audience (Zhao et al., 2021).

1.3. Factors Affecting Consumer Buying Behaviour

Consumer behaviour, a dynamic and multifaceted field, delves into individuals' daily purchase decisions, often driven by personal, psychological, social, and economic factors. These influences shape choices across a spectrum, from recognizing needs to evaluating options and product consumption or disposal. Solomon et al. describe consumer behaviour as an extensive domain, exploring intricate processes in choices for acquiring, using, or disposing of products, services, ideas, or experiences to satisfy needs and desires (Hogg et al., 2006; Peter et al., 1999). The field aims to decipher diverse motivations underlying consumer decisions in the ever-evolving market. Multiple factors affect the buying behaviour of consumers such as:

- a. **Personal Factors:** Consumer buying behaviour is significantly influenced by personal factors, where unique characteristics, preferences, and experiences play a pivotal role in shaping purchasing decisions (Ramya & Ali, 2016). Understanding these factors is essential for businesses and marketers to tailor products and strategies effectively. Key aspects include age and life stage, with preferences shifting—teenagers prioritizing fashion and technology, parents focusing on household and family-related products. Lifestyle choices, encompassing hobbies and activities, impact buying behaviour, such as those with an active outdoor lifestyle investing in sports equipment. Personality traits, like extroversion or introversion, guide product choices, while self-concept influences preferences and brand affiliations.
- b. **Social Factors:** Consumer buying behaviour is deeply influenced by social factors, recognizing individuals as inherently social beings whose choices are shaped by interactions, relationships, and broader societal influences (Bai et al., 2015). Insight into these social factors is crucial for businesses and marketers to understand consumer preferences, motivations, and decision-making processes. Key aspects include social groups, where shared values and norms impact consumer behaviour, such as fashion choices influenced by peer groups. Reference groups, both direct and indirect, play a role as individuals seek approval, favouring products endorsed by these groups. Social class, determined by factors like income and education, can impact preferences and brand choices, influencing decisions between luxury and value-priced products.
- c. **Psychological Factors:** Consumer buying behaviour is profoundly shaped by psychological factors such as perceptions, motivations, attitudes, and emotions (Joshi & Rahman, 2015). These internal aspects play a crucial role in guiding consumer choices,

making it essential for businesses and marketers to understand and leverage them effectively. Notably, perceptions are influenced by product attributes, quality, and branding, while motivations drive decisions based on consumer needs and desires. Attitudes toward products, brands, or services are pivotal in the decision-making process, prompting marketers to strategically shape and influence them through advertising and messaging.

- d. **Promotional Factors:** Promotion is a pivotal force in marketing, wielding considerable influence over consumer buying behaviour. Effective promotional efforts can sway consumers toward purchases, product trials, or brand preferences (Shrum et al., 1995). In examining these factors, advertising and messaging play a vital role. Messages must be clear, relevant, and aligned with consumer needs to impact buying decisions. Emotional appeals, such as humour or nostalgia, establish a profound connection with the audience. Discounts and price promotions leverage urgency through limited-time offers or bundled deals. Additionally, Loyalty programs with point systems or exclusive offers foster brand loyalty, while limited-time promotions emphasizing scarcity or urgency exploit the fear of missing out, especially in e-commerce. Free trials and samples mitigate perceived risks, prompting purchases.
- e. **Cultural Factors:** Cultural factors significantly shape consumer behaviour, encompassing a society's values, beliefs, customs, and norms. These influences determine the acceptability and desirability of products. Subcultures within larger cultural contexts, defined by shared characteristics, contribute to distinct consumption patterns. Recognizing these dynamics is crucial for businesses and marketers seeking effective engagement with their target audience (Robins, 2005).

1.4. Purchase Intention of Consumer

Purchase intention refers to a consumer's inclination or readiness to acquire a specific product or service, shaped by factors like product quality, price, brand reputation, consumer reviews, marketing initiatives, personal preferences, cultural impacts, and convenience (Morrison, 1979). Grasping purchase intention is vital for businesses, enabling them to customize marketing strategies and product development to effectively appeal to potential customers (Chen et al., 2010). This concept is an integral part of the broader consumer purchase decision process, encompassing stages such as recognizing a need, gathering information, evaluating alternatives, forming purchase intentions, making purchase decisions, and post-purchase

evaluation. Recognizing and influencing purchase intention is instrumental for businesses in enhancing sales and elevating customer satisfaction.

2. REVIEW OF LITERATURE

The section of the Literature Survey includes current knowledge, methodological contributions, and conclusions on a specific area of study. It typically addresses a research problem. It lays a solid foundation for ongoing study and helps the reader for future studies. Finding the research gaps, understanding the future implications of the topic of study, and learning about the prior studies of the current research are all aided by this information. To establish a framework of theoretical and conceptual basis, review analysis supports the ongoing study. Clarity, depth and breadth, synthesis of research, consistent methodologies, and evaluations are all qualities of good literature.

The research question that will be studied must first be framed. Getting the sources that are comparable to the related study is the second step. The third phase involves using the quality evaluation tools or established checklist to evaluate the preceding study's level of quality. The study's methodology, results, conclusions, and implications for the future should all be included. Finally, it ought to aid in understanding the issues raised by earlier investigations of a similar nature. The sources used to compile the literature for the current study include books, journals, reports, periodicals, official websites, government reports, newspapers, theses, and dissertations, among others.

The literature for the current research includes various subjects, theories and concepts related to Theory of buying behaviour, various factors that influence consumer purchase decision making process, such as personal factor, social factor, economic factor, cultural factor and other factors that shape buying behaviour of consumer. Apart from that relationship between these factors and purchase intention of customer towards Tussar silk is also being discussed in this chapter. The reviews are chronologically arranged and analysed to find out the research gap and proceed further to fulfil the gap of the present study.

2.1. Consumer Buying Behaviour and Purchase Intention of consumers

Consumer behaviour is a rapidly evolving field that explores the reasons behind consumers' product choices to satisfy their needs or wants. The American Marketing Association defines it as the dynamic interaction of affect and cognition, behaviour, and the environment in which humans conduct their exchange aspects of life. Marketers must understand and anticipate

consumer behaviour to succeed in the dynamic marketing environment, gaining advantages in achieving organizational objectives (Batra & Kashmi 2004). Analyzing why and how customers make purchases, considering factors such as consumer values, attitudes, belief systems, and perceptions, is crucial. In the 21st century, consumer behaviour is changing, becoming more interactive and reciprocal. The competitive and unstable market demands marketers to adapt to consumer lifestyle changes, brand loyalty challenges, and evolving preferences (Mishra & Devakumar, 2018). To gain a competitive edge, marketers must comprehend consumer needs, wants, demands, and behaviours. The complexity of consumer buying behaviour necessitates ongoing research to understand patterns deeply (A, 2019).

On the other hand, Purchase intention is the inclination or predisposition of a consumer to buy a specific product or service. It is influenced by various factors such as product quality, price, brand reputation, consumer reviews, marketing efforts, personal preferences, cultural influences, and convenience (Morrison, 1979). Understanding purchase intention is crucial for businesses to tailor their marketing strategies and product development to attract potential customers effectively (Chen et al., 2010). It is part of the broader consumer purchase decision process, which includes recognizing a need, gathering information, evaluating alternatives, forming purchase intentions, making purchase decisions, and post-purchase evaluation. Recognizing and influencing purchase intention helps businesses boost sales and enhance customer satisfaction.

2.2. Theoretical Foundation of Study

This section explores how individuals make decisions on spending money, considering preferences and financial constraints. The consumer theory encompasses decision-making, income determination, and cost assessment of goods and services. In the "choice problem," consumers aim to allocate income among various goods to maximize happiness. Economic, psychological, psychoanalytic, and sociocultural theories form the basis for understanding consumer behaviour. These theories relate to consumption laws, linking changes in consumption to income, spending habits, political conditions, and the economy. Insight into consumer behaviour aids vendors in predicting product demand and provides economists with a broader understanding of the overall economy. Various theories such as *Marginal Utility Theory*, *Income and Saving Theory*, *Stimulus-response Theory*, *Cognitive Dissonance Theory*, and *Socio-Cultural Theory* and others have been used for the present study.

Accordingly, the authors have proposed a theoretical framework that encompasses various factors that promote buying behaviour of consumer and therefore promote purchase intention of consumer towards Tussar silk products.

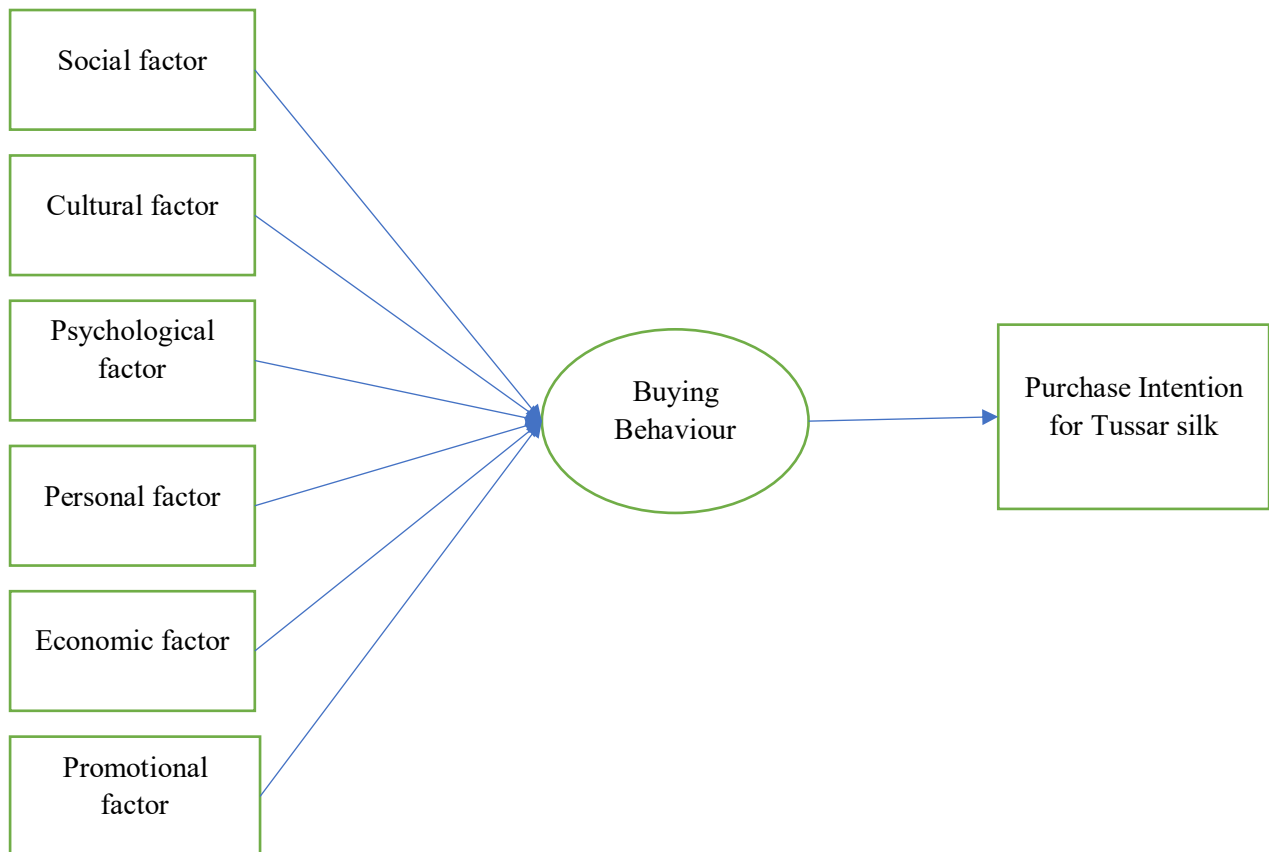


Figure 1: Theoretical framework

3. RESEARCH METHODOLOGY

This section is the methodological foundation, outlining the systematic approach to investigate factors influencing the purchase intention of Tussar silk. The research aims to comprehensively uncover the factors influencing consumers' purchase intention for Tussar silk, employing a sophisticated methodology encompassing research questions, objectives, variables, hypotheses, data collection methods, and statistical analysis. Adopting a deductive and positive approach, the study tests hypotheses grounded in existing theories, focusing on objective measurements and cause-and-effect relationships. A cross-sectional research design captures a snapshot of data at a specific time, reflecting dynamic consumer preferences. Primary data is collected through structured questionnaires administered to a carefully selected sample,

exploring consumer attitudes, perceptions, and socio-demographic characteristics influencing their purchase intention for Tussar silk.

3.1. Research Questions

To investigate the research framework and assess the factors influencing Consumer Buying Behaviour and Purchase Intention, this study examines following questions:

Q1. How different factors (Personal, Cultural, Psychological, Promotional and Social) influence Consumer Buying Behaviour regarding Tussar Silk products?

Q2. How does Consumer Buying Behaviour influence the purchase intention for Tussar Silk products?

Q3. How does demographic background (Age, Gender, Income level, Occupation, family size and marital status) affect Consumer Buying Behaviour and Purchase Intention for Tussar silk products?

3.2. Objective of the Study

This study critically examines various factors and their impact on Consumer Buying Behavior and Purchase Intention for Tussar Silk products, including the influence of consumers' demographic profiles. The research objectives are meticulously designed to align with this overarching theme and are outlined as follows:

- To examine how different factors (Personal, Cultural, Psychological, Promotional, and social) influence Consumer Buying Behaviour regarding Tussar Silk products.
- To understand how Consumer Buying Behaviour influences the purchase intention for Tussar Silk products.
- To understand the relationship between demographic factors such as age, income, occupation, family size, marital status, and Consumer Buying Behaviour as well as Purchase Intention concerning Tussar Silk products.

3.3. Hypothesis of the study

Based on the aforementioned objectives these hypotheses have been formulated:

H1: There is a significant impact of Personal Factors on the Consumer Buying Behaviour regarding Tussar Silk products.

H2: There is a significant impact of Cultural Factors on the Consumer Buying Behaviour regarding Tussar Silk products.

H3: There is a significant impact of Psychological Factors on the Consumer Buying Behaviour regarding Tussar Silk products.

H4: There is a significant impact of Promotional Factors on the Consumer Buying Behaviour regarding Tussar Silk products.

H5: There is a significant impact of Social Factors on the Consumer Buying Behaviour regarding Tussar Silk products.

H6: There is a significant impact of Consumer Buying Behaviour over Purchase Intention for Tussar Silk products.

H7a: There is a significant impact of different gender on Consumer Buying Behaviour regarding Tussar Silk products.

H7b: There is a significant impact of different age groups on Consumer Buying Behaviour regarding Tussar Silk products.

H7c: There is a significant impact of income level on Consumer Buying Behaviour regarding Tussar Silk products.

H7d: There is a significant impact of occupation on Consumer Buying Behaviour regarding Tussar Silk products.

H7e: There is a significant impact of different family size on Consumer Buying Behaviour regarding Tussar Silk products.

H7f: There is a significant impact of marital status on Consumer Buying Behaviour regarding Tussar Silk products.

H8a: There is a significant impact of different gender on Purchase Intention regarding Tussar Silk products.

H8b: There is a significant impact of different age level on Purchase Intention regarding Tussar Silk products.

H8c: There is a significant impact of different income level on Purchase Intention regarding Tussar Silk products.

H8d: There is a significant impact of different occupation on Purchase Intention regarding Tussar Silk products.

H8e: There is a significant impact of different family size on Purchase Intention regarding Tussar Silk products.

H8f: There is a significant impact of different marital status on Purchase Intention regarding Tussar Silk products.

3.4. Research Design

The study employs a descriptive, quantitative, and cross-sectional research design to comprehensively explore factors influencing consumer behaviour and purchase intention for Tussar Silk products. The descriptive aspect provides a detailed portrayal, while the quantitative strategy involves structured surveys for numerical data collection. The cross-sectional design captures a snapshot of consumer dynamics at a specific moment, offering nuanced insights. Data was collected from Jharkhand's diverse population, with cultural richness and varied demographics; further, a single respondent is considered as a sampling unit in strategically chosen locations across major Jharkhand cities. Participants, aged 18 to 60 and beyond, include consumers, buyers, or prospective consumers/buyers of Tussar silk products, ensuring a comprehensive exploration of consumer perspectives. Sample size determination employs G*Power analysis, Cochran's formula, and the 10 times rule of thumb, with the final sample size fixed at 770 for robust statistical analyses. Convenience sampling is chosen for its practicality and efficiency, allowing data collection from easily accessible and willing participants despite potential sampling bias. A standardized questionnaire, in hard copy and Google form, is administered in pre-fixed locations to eliminate biases and maintain objectivity, emphasizing rigorous and unbiased data collection.

3.5. Pilot Survey

In the preliminary phase of this research, 140 consumers, constituting around 20% of the overall sample size, were purposefully selected for the pilot study. Data collection was conducted through a combination of questionnaire administration and personal discussions. The collected feedback underwent a thorough examination to identify and address potential issues, including ambiguities and challenging questions. Additionally, the time taken by participants to complete the survey was assessed for reasonability, evaluating responsiveness and the necessity for any re-scaling. To enhance respondent engagement and streamline the survey process, a rigorous review resulted in a refinement of the questionnaire, condensing its original 9-page structure to a more concise and focused 6-page format. This revision aimed to

ensure that essential factors for response adequacy were retained while optimizing the survey's efficiency.

4. DATA ANALYSIS & INTERPRETATION

This section thoroughly analyses the data amassed during the investigation into consumer behaviour regarding Tussar Silk products. Its multifaceted nature encompasses a thorough demographic profile and employs a spectrum of statistical techniques to derive comprehensive insights. Initiating the analytical discourse is an exploration of demographic attributes, meticulously detailing the gender, age, education, occupation, marital status, income, and family particulars of respondents. This comprehensive profiling sets the stage for subsequent analyses. The chapter systematically progresses with statistical examinations. It employs the normality test to examine the nature of the data collected. The reliability analysis safeguards the consistency of measurement scales, while rigorous checks for common method biases fortify the integrity of findings against potential distortions. The quantitative dimension unfolds with non-parametric ANOVA results, dissecting relationships between demographic variables with Consumer Buying Behaviour and the Purchase Intentions of Tussar Silk products. This prefaces more intricate analyses involving Structural Equation Modelling (SEM) and Artificial Neural Network (ANN). Within SEM, an exhaustive examination ensues, covering the reliability and validity of the measurement model and unravelling intricate relationships within the structural model. Further scrutiny involves mediation analysis, shedding light on latent factors influencing the purchase intention of Tussar Silk. The exploration extends into Artificial Neural Networks, navigating non-linearities and discerning the significance of diverse factors shaping consumer behaviour. This chapter concludes with a synthesis, encapsulating the richness of analytical findings and their broader implications. It stands as the analytical epicentre of the thesis, offering profound insights into the intricate dynamics steering consumer behaviour in the Tussar Silk product domain.

4.1. Respondents' demographic details

For data collection, the structured questionnaire of the study was administered in the four prominent cities of Jharkhand, India and mainly seven basic demographic criteria were considered to represent a broad profile of the total sample of the respondents, i.e., Gender, Age Level, Marital Status, Employment Category, Income Level, Number of family members and City of the Respondents (See Table 1 for further reference).

Table 1: Demographic Profile of Respondents

Variable	Indicator	Frequency	Percent
<i>Gender</i>	Male	466	60.52%
	Female	304	39.48%
	Total	770	100.00%
<i>Age</i>	18 to 30 years	507	65.84%
	31 to 43 years	240	31.17%
	44 to 56 years	21	2.73%
	57 years & above	2	0.26%
	Total	770	100.00%
<i>Marital Status</i>	Married	537	69.74%
	Unmarried	233	30.26%
	Total	770	100.00%
<i>Occupation</i>	Business	219	28.44%
	Government Sector	181	23.51%
	Private Sector	293	38.05%
	Professional (including Self-employed and Free-lancer)	75	9.74%
	Retired	2	0.26%
	Total	770	100.00%
<i>Income level</i>	40k to 60k	307	39.87%
	60k to 80k	378	49.09%
	80k to 1 lakh	77	10.00%
	1 lakh & above	8	1.04%
	Total	770	100.00%
<i>Family Size</i>	2 to 4	583	75.71%
	4 to 6	177	22.99%
	6 to 8	10	1.30%
	Total	770	100.00%

4.2. ANOVA

B In statistics, data distributions need to be normal and the population of the data should be homogenous in nature. However, in real-world scenarios, on account of complex and non-normal data distributions, nonparametric tests are used as an alternative method to parametric

tests to analyse the data. Due to this reason, they are sometimes referred to as distribution-free tests.

Since our study data do not meet the requirement of normal distribution, we have used the Mann-Whitney U Test (alternative for Independent sample t-test) for analysing the gender and marital status of the respondents and the Kruskal Wallis Test (alternative for ANOVA) for analysing age level, occupation, income level and family details of the respondents.

Mann-Whitney U Test: To evaluate the significant difference between gender and marital status of the respondents.

Gender of Respondents and Consumer Buying Behaviour and Purchase Intention of Tussar Silk Products

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The distribution of CBB_avg is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	.395	Retain the null hypothesis.
2	The distribution of PI_avg is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	.561	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

For Consumer Buying Behaviour, the tests revealed insignificant differences in the buying behaviour of males and females [$U = 68284$, $z = 0.851$, $p = 0.395$, $r = 0.0317$ (small effect size)]. Similarly, for Purchase Intention, the tests revealed insignificant differences in the males and females [$U = 69090$, $z = 0.582$, $p = 0.561$, $r = 0.2097$ (small effect size)] (Cohen, 1992). Hence, both the hypotheses (there is a significant difference between males and females in their Consumer buying behaviour & Purchase Intention) are not supported.

Marital Status of Respondents and Consumer Buying Behaviour and Purchase Intention of Tussar Silk Product

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The distribution of CBB_avg is the same across categories of Marital_status.	Independent-Samples Mann-Whitney U Test	.582	Retain the null hypothesis.
2	The distribution of PI_avg is the same across categories of Marital_status.	Independent-Samples Mann-Whitney U Test	.147	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

For Consumer Buying Behaviour, the tests revealed insignificant differences in the buying behaviour of married and unmarried [$U = 61012$, $z = 0.550$, $p = 0.582$, $r = 0.0198$ (small effect size)]. Similarly, for Purchase Intention, the tests revealed insignificant differences in the married and unmarried [$U = 58477$, $z = 1.451$, $p = 0.147$, $r = 0.0523$ (small effect size)] (Cohen, 1992).

Hence, both the hypotheses (there is significant difference between married and unmarried for their Consumer buying behaviour & Purchase Intention) are not supported.

Independent sample Kruskal Wallis Test: To evaluate significant differences in Consumer buying Behaviour and Purchase Intention across different age levels, occupation categories, income levels and family details.

Age of Respondents and Consumer Buying Behaviour and Purchase Intention of Tussar Silk Products

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The distribution of CBB_avg is the same across categories of Age.	Independent-Samples Kruskal-Wallis Test	.934	Retain the null hypothesis.
2	The distribution of PI_avg is the same across categories of Age.	Independent-Samples Kruskal-Wallis Test	.879	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

For the four age levels (18 to 30 years, $n = 507$; 31 to 43 years, $n = 240$; 44 to 56 years, $n = 21$; 57 years and above, $n = 2$), the tests revealed insignificant differences (Asymp. Sig = 0.934)

for Consumer Buying Behavior and insignificant differences (Asymp. Sig = 0.879) in respect of Purchase Intention.

Hence, both the hypotheses (there is a significant difference across different age levels of respondents for their Consumer buying behaviour & Purchase Intention) are not supported.

Occupation of Respondents and Consumer Buying Behaviour and Purchase Intention of

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The distribution of CBB_avg is the same across categories of Occupation.	Independent-Samples Kruskal-Wallis Test	.961	Retain the null hypothesis.
2	The distribution of PI_avg is the same across categories of Occupation.	Independent-Samples Kruskal-Wallis Test	.908	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Tussar Silk Products

For the five occupation categories (Business, n = 219; Government sector, n = 181; Private sector, n = 293; Professionals, n = 75 and Retired, n = 2), the tests revealed insignificant differences (Asymp. Sig = 0.961) for Consumer Buying Behavior and insignificant differences (Asymp. Sig = 0.908) in respect of Purchase Intention.

Hence, both the hypotheses (there is a significant difference across different occupation categories of respondents for their Consumer buying behaviour & Purchase Intention) are not supported.

Income of Respondents and Consumer Buying Behaviour and Purchase Intention of Tussar Silk Products

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The distribution of CBB_avg is the same across categories of Income_level.	Independent-Samples Kruskal-Wallis Test	.003	Reject the null hypothesis.
2	The distribution of PI_avg is the same across categories of Income_level.	Independent-Samples Kruskal-Wallis Test	.037	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

For the four levels of monthly income (40k to 60k, n = 307; 60k to 80k, n = 378; 80k to 1 lakh, n = 77; 1 lakh & above, n = 8), the tests revealed significant differences (Asymp. Sig = 0.003) for Consumer Buying Behavior and insignificant differences (Asymp. Sig = 0.037) in respect of Purchase Intention.

Hence, both the hypotheses (there is a significant difference across different occupation categories of respondents for their Consumer buying behaviour & Purchase Intention) are supported.

Further, for post-hoc analysis the pair-wise comparisons was conducted to assess the particular monthly income level of the respondents which highlights significant differences with their Consumer buying Behaviour and Purchase Intention; the findings demonstrate that the following two monthly income levels- 80k to 1 lakh with 40k to 60k and 60k to 80k with 40k to 60k show significant results (p-value < 0.05).

Family Details of Respondents and Consumer Buying Behaviour and Purchase Intention of Tussar Silk Products

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The distribution of CBB_avg is the same across categories of No_family_members.	Independent-Samples Kruskal-Wallis Test	.778	Retain the null hypothesis.
2	The distribution of PI_avg is the same across categories of No_family_members.	Independent-Samples Kruskal-Wallis Test	.512	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

For the three categories of number of family members of the respondents (2 to 4, n = 583; 4 to 6, n = 177; 6 to 8, n = 10), the tests revealed insignificant differences (Asymp. Sig = 0.778) for Consumer Buying Behavior and insignificant differences (Asymp. Sig = 0.512) in respect of Purchase Intention.

Hence, both the hypotheses (there is a significant difference across different family members categories of respondents for their Consumer buying behaviour & Purchase Intention) are not supported.

4.3. PLS-SEM

The researchers utilized SmartPLS 4.0 for Partial Least Square Structural Equation Modelling (PLS-SEM) to analyze and validate hypothesized relationships in a dataset. PLS-SEM, a form of Structural Equation Modelling, was chosen for its adaptability to datasets with non-normal

patterns (Hair et al., 2011; Hair Jr et al., 2021; Wong, 2013). Unlike traditional methods like Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA), PLS-SEM offers heightened interpretability, providing a clearer understanding of predictors' significance and interconnections. Its robustness shines in complex models with numerous mediating and moderating effects, distinguishing it from CFA and EFA (Dash & Paul, 2021; Hair et al., 2013; Hair, Sarstedt, et al., 2014; Hair Jr et al., 2021; Jha et al., 2023). This choice reflects the researchers' commitment to a method aligning with their dataset's peculiarities, offering comprehensive insights into underlying relationships (Fornell & Larcker, 1981; Hair et al., 2010; Henseler et al., 2015).

Initially, the data underwent thorough checks for missing values, reliability, validity, and multicollinearity prior to hypothesis testing. The analysis proceeded in two steps using SmartPLS4.0. First, the measurement model was assessed, retaining constructs with satisfactory reliability and validity (11 items were removed due to low loading). Reflective structure items had suitable indicator loading (0.623 to 0.832), surpassing the 0.6 threshold (Dash & Paul, 2021), across all items (Table II). Construct reliability was confirmed through Cronbach's alpha (0.706 to 0.882) surpassing 0.70 (J. F. Hair et al., 2011). Further, Composite reliability ranged from 0.837 to 0.908, exceeding 0.60 (Fornell & Larcker, 1981), ensuring model construct reliability (Table II)

After establishing construct reliability, convergent validity was evaluated using Average Variance Extracted (AVE) approach. AVE for all constructs (ranging from 0.5 to 0.633) exceeded 0.5 (J. F. Hair et al., 2011, 2019) therefore, confirming the construct validity (Table II).

Table II: Constructs Details

	Factor Loading	Cronbach Alpha	Composite Reliability	AVE	VIF
Consumer Buying Behaviour		0.766	0.851	0.59	
CBB2	0.818				1.962
CBB3	0.767				1.765
CBB4	0.685				1.59
CBB5	0.794				2
Cultural Factors		0.882	0.908	0.588	
CF10	0.671				3.278

CF2	0.806				3.757
CF3	0.692				2.198
CF4	0.706				2.37
CF5	0.832				3.791
CF7	0.82				3.74
CF9	0.729				3.211
Personal Factor		0.743	0.839	0.569	
PF1	0.827				1.779
PF2	0.623				1.342
PF3	0.738				1.504
PF4	0.813				1.74
Purchase Intention		0.784	0.858	0.604	
PI1	0.735				1.772
PI2	0.768				1.831
PI3	0.661				1.399
PI4	0.923				2.537
Promotional Factors		0.874	0.899	0.5	
PrF10	0.747				2.355
PrF2	0.795				2.324
PrF3	0.738				2.148
PrF4	0.708				2.188
PrF5	0.654				2.099
PrF6	0.695				2.409
PrF7	0.701				2.357
PrF8	0.643				1.808
PrF9	0.669				2.165
Psychological Factors		0.874	0.9	0.502	
PsyF10	0.641				2.202
PsyF11	0.778				2.336
PsyF2	0.814				2.751
PsyF3	0.688				2.243
PsyF4	0.742				2.441
PsyF5	0.643				1.787
PsyF6	0.628				2.246

PsyF7	0.708				2.132
PsyF9	0.711				2.141
Social Factors		0.706	0.837	0.633	
SF2	0.863				1.833
SF3	0.71				1.183
SF4	0.807				1.717

Structural Model

During structural model evaluation, an initial assessment of collinearity involved examining the VIF values of items to prevent potential regression bias. Across all items in this study, VIF values remained <5 , adhering to the set threshold (J. F. Hair et al., 2019), indicating the absence of any collinearity issues (refer to Table II). The structural model portrays the relationships as paths among the constructs in the research model. The coefficient of determination (R^2) for CBB and PI stand 0.89, and 0.383 respectively. These R^2 values substantiate the model's predictive power within the sample, as they exceed the required threshold (J. F. Hair et al., 2011).

Subsequently, the structural model's path coefficient underwent an assessment to determine the statistical significance of construct relationships. Hypotheses were examined through bootstrapping using 5000 bootstrap samples, no sign changes, and 95% bias-corrected confidence intervals. The outcomes of the path analysis are presented in Table III and Figure 3.

Table III: Hypothesis Testing

Hypothesis	Relationship	β- value	Standard deviation	t-value	P-value
H1	PF \rightarrow CBB	0.093	0.035	2.638	0.004
H2	CF \rightarrow CBB	0.204	0.034	5.982	0
H3	PsyF \rightarrow CBB	0.246	0.034	7.293	0
H4	PrF \rightarrow CBB	0.267	0.044	6.093	0
H5	SF \rightarrow CBB	0.177	0.03	5.977	0
H6	CBB \rightarrow PI	0.093	0.035	2.638	0.004

The path coefficient analysis reveals a significant positive impact of all the factors on the consumer buying behaviour of employees (Table III). Further, the relationship between Consumer Buying Behaviour and Purchase Intention has also resulted in significant (Table III).

4.4. SEM-ANN

The research employed a two-step approach, first utilizing SEM-PLS path analysis to identify crucial variables, and then employing an Artificial Neural Network (ANN) model. On account of presence of non-normal data distributions and intricate non-linear relationships between dependent and independent variables, the normalized importance of the relevant predictors of consumer's Purchase Intention (PI) has been ranked through artificial neural network (ANN) analysis (Liébana-Cabanillas et al., 2017).

The ANN hierarchical model comprises of input layer, hidden layer and output layer. In our study, the independent variables- PF, SF, PrF, PsyF, CF and CBB are taken in the input layer and the dependent variable employees' FWB is taken as the outer layer.

Firstly, the linearity of data has been assessed where it was found that the relationship between the independent variables and dependent variables is non-linear ($p < 0.05$).

Validation of ANN Model and Sensitivity Analysis

A 10-fold cross-validation approach is executed, wherein 90% of data points are allocated for network training, and the remaining 10% are earmarked for testing (Alam et al., 2021).

Root Mean Square Error (RMSE), indicator of predictive accuracy of ANN model is assessed for all 10 neural networks, both in training and testing data; the results from Table 3 reveal that the average RMSE values (training = 0.4821, testing = 0.4632) and their respective standard deviations (training = 0.0146, testing = 0.0627) within the neural network model are notably low, underscoring the high accuracy and reliability of the predictions.

To ascertain the order of variables in terms of their normalized relative significance to the dependent variable, a sensitivity analysis was employed (Stern & Garson, 1999). The sensitivity analysis revealed the importance of each predictor, whilst the significance of each independent variable indicated how much the value projected by the network structure differs with different independent variable values (Chong, 2013).

The results of ANN support PLS-SEM results; it is established that the most influential variable affecting consumer's Purchase Intention has obtained the highest normalised importance ratio in comparison to others.

Table IV: ANN Results

Sl.No	TRAINING			TESTING			TOTAL SAMPLE
	N	SSE	RMSE	N	SSE	RMSE	
1	693	169.459	0.49	77	12.036	0.375	770
2	691	169.06	0.49	79	16.95	0.511	770
3	684	159.345	0.467	86	22.5	0.57	770
4	678	161.267	0.476	92	19.931	0.394	770
5	689	163.709	0.476	81	17.449	0.47	770
6	693	158.638	0.458	77	18.569	0.411	770
7	689	163.551	0.475	81	20.712	0.463	770
8	695	173.098	0.499	75	15.202	0.42	770
9	690	174.364	0.506	80	18.406	0.497	770
10	688	166.366	0.484	82	17.333	0.521	770
Average		165.8857	0.4821		17.9088	0.4632	
Std Deviation		5.51568805	0.0146018		2.9247643	0.0626982	
Importance = PF (0.097); SF (0.114); PrF (0.128); PsyF (0.455); CF (0.053); CBB (0.154)							
Normalised_Importance = PF (21.82%); SF (25.87%); PrF (29.04%); PsyF (100.00%); CF (12.38%); CBB (35.72%)							

5. DISCUSSION

5.1. Discussion

The research undertaken focuses on comprehensively understanding and analyzing the factors influencing consumer behavior and purchase intention in the context of Tussar Silk products. The methodology employed encompasses both traditional statistical analyses, such as ANOVA and PLS-SEM, and modern techniques like Artificial Neural Network (ANN) modeling, ensuring a multifaceted exploration of the research questions.

ANOVA Analysis:

The non-normal distribution of the study data led to the adoption of nonparametric tests, specifically the Mann-Whitney U Test and the Kruskal Wallis Test. The analysis revealed that gender and marital status do not significantly impact consumer buying behaviour or purchase intention regarding Tussar Silk products. Similarly, age, occupation, and family details did not exhibit significant differences in influencing consumer behaviour or purchase intention.

Notably, income levels emerged as a significant factor affecting consumer buying behaviour, with post-hoc analysis pinpointing specific income ranges that demonstrated significant differences. This finding provides valuable insights into the nuanced relationship between income and consumer preferences for Tussar Silk products.

PLS-SEM Analysis:

The Partial Least Square Structural Equation Modelling (PLS-SEM) approach was chosen due to its adaptability to non-normal datasets. The analysis confirmed the reliability and validity of constructs, with satisfactory indicator loading, construct reliability, and convergent validity. The structural model's R² values demonstrated the model's robust predictive power within the sample.

The path coefficient analysis within the PLS-SEM revealed that all the examined factors (Personal Factors, Cultural Factors, Psychological Factors, Promotional Factors, and Social Factors) positively impact consumer buying behaviour. Additionally, a positive relationship was established between consumer buying behaviour and purchase intention.

SEM-ANN Analysis:

To delve deeper into the complex relationships, the research employed an Artificial Neural Network (ANN) model. The ANN analysis confirmed the non-linear nature of the relationships between independent and dependent variables. The sensitivity analysis further identified the most influential variable, aligning with the PLS-SEM results. This dual-method approach enhances the robustness of the findings, providing a comprehensive understanding of the factors influencing purchase intention.

The combination of ANOVA, PLS-SEM, and SEM-ANN analyses allows for a nuanced interpretation of the research questions. While ANOVA provides insights into the differences among demographic groups, PLS-SEM illuminates the intricate relationships between constructs. The inclusion of SEM-ANN ensures a thorough exploration of non-linear patterns and identifies the most influential variables.

6. PRACTICAL IMPLICATIONS

The exploration of factors influencing Tussar silk buying behaviour in the Jharkhand region extends impactful implications across diverse stakeholders. For Tussar silk producers and artisans, the research acts as a practical compass, offering valuable insights to tailor their

products and marketing strategies in alignment with evolving consumer preferences, thereby fostering the expansion of the Tussar silk market within the region. The economic dimensions unearthed in the study contribute not only to a nuanced understanding of buying behaviour but also inform strategies for sustainable economic development. By highlighting the intricate connection between buying behaviour and local livelihoods, the research provides a foundation for crafting initiatives that positively impact employment and economic stability.

In an eco-conscious era, the study encourages sustainable practices among Tussar silk producers. Cultural significance highlighted in the research aids in preserving local customs, and enriching product offerings. For businesses, the study aids in competitive positioning and consumer awareness through targeted marketing. Policymakers can formulate supportive policies, fostering industry growth. Insights into cultural trends offer opportunities for designers to create Tussar silk products aligned with consumer preferences. Understanding consumer choices facilitates product customization, innovation, and enhanced value, collectively fostering competitiveness, sustainability, cultural preservation, and economic growth in Jharkhand.

7. CONCLUSION

In conclusion, this comprehensive study aimed to unravel the intricacies of consumer behaviour and purchase intention within the Tussar Silk market. The research began by outlining clear objectives, including the examination of personal, cultural, psychological, promotional, and social factors influencing consumer choices, accompanied by a set of hypotheses to guide the investigation. The subsequent data analysis incorporated a diverse set of methodologies, ranging from ANOVA for demographic variations to PLS-SEM and SEM-ANN for a nuanced exploration of complex relationships. Notably, income levels emerged as a pivotal factor affecting consumer behaviour, a finding reinforced by both ANOVA and PLS-SEM analyses. The integration of Artificial Neural Network modelling added depth by highlighting non-linear patterns and emphasizing the most influential variables. Collectively, the findings provide valuable insights for businesses operating in the Tussar Silk industry, offering a strategic roadmap for marketing and policymaking. This study not only contributes to the existing body of knowledge but also lays the groundwork for future research endeavours in the dynamic realm of consumer preferences for Tussar Silk products.

Bibliography

- Alam, M. M. D., Alam, M. Z., Rahman, S. A., & Taghizadeh, S. K. (2021). Factors influencing mHealth adoption and its impact on mental well-being during COVID-19 pandemic: A SEM-ANN approach. *Journal of Biomedical Informatics*, 116(January), 103722. <https://doi.org/10.1016/j.jbi.2021.103722>
- Bai, Y., Yao, Z., & Dou, Y.-F. (2015). Effect of social commerce factors on user purchase behavior: An empirical investigation from renren. com. *International Journal of Information Management*, 35(5), 538–550.
- Chen, Y.-H., Hsu, I.-C., & Lin, C.-C. (2010). Website attributes that increase consumer purchase intention: A conjoint analysis. *Journal of Business Research*, 63(9–10), 1007–1014.
- Chong, A. Y. L. (2013). A two-staged SEM-neural network approach for understanding and predicting the determinants of m-commerce adoption. *Expert Systems with Applications*, 40(4), 1240–1247. <https://doi.org/10.1016/j.eswa.2012.08.067>
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155–159. <https://doi.org/10.1037/0033-2909.112.1.155>
- Dash, G., & Paul, J. (2021). CB-SEM vs PLS-SEM methods for research in social sciences and technology forecasting. *Technological Forecasting and Social Change*, 173(July), 121092. <https://doi.org/10.1016/j.techfore.2021.121092>
- Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1), 39. <https://doi.org/10.2307/3151312>
- Hair, J., Black, B., Babin, B., & Anderson, R. E. (2010). Multivariate data analysis 7th Pearson prentice hall. *Upper Saddle River, NJ*, 629–686.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139–152. <https://doi.org/10.2753/MTP1069-6679190202>
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>

- Hogg, M., Askegaard, S., Bamossy, G., & Solomon, M. (2006). *Consumer behaviour: a European perspective*.
- Joshi, Y., & Rahman, Z. (2015). Factors affecting green purchase behaviour and future research directions. *International Strategic Management Review*, 3(1–2), 128–143.
- Liébana-Cabanillas, F., Marinković, V., & Kalinić, Z. (2017). A SEM-neural network approach for predicting antecedents of m-commerce acceptance. *International Journal of Information Management*, 37(2), 14–24.
<https://doi.org/10.1016/j.ijinfomgt.2016.10.008>
- Morrison, D. G. (1979). Purchase intentions and purchase behavior. *Journal of Marketing*, 43(2), 65–74.
- Peter, J. P., Olson, J. C., & Grunert, K. G. (1999). *Consumer behavior and marketing strategy*.
- Ramya, N., & Ali, S. M. (2016). Factors affecting consumer buying behavior. *International Journal of Applied Research*, 2(10), 76–80.
- Robins, K. (2005). Tradition and translation: national culture in its global context. In *Enterprise and heritage* (pp. 29–52). Routledge.
- Shrum, L. J., McCarty, J. A., & Lowrey, T. M. (1995). Buyer characteristics of the green consumer and their implications for advertising strategy. *Journal of Advertising*, 24(2), 71–82.
- Solomon, M. R., & Panda, T. K. (2004). *Consumer behavior, buying, having, and being*. Pearson Education India.
- Stern, C., & Garson, G. D. (1999). Neural Networks. An Introductory Guide for Social Scientists. *Contemporary Sociology*, 28(6), 753. <https://doi.org/10.2307/2655607>
- Webster Jr, F. E., & Wind, Y. (1972). A general model for understanding organizational buying behavior. *Journal of Marketing*, 36(2), 12–19.
- Zhao, J., Xue, F., Khan, S., & Khatib, S. F. A. (2021). Consumer behaviour analysis for business development. *Aggression and Violent Behavior*, 101591.