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The Moderating Effect of Astrological Profile on The Relationship Between Personality and Impulsive Buying Behavior

A Thesis Submitted in Partial Fulfillment of the Requirement of the Degree of Masters in Business Administration

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APPROVAL

The undersigned certify that they have read and hereby recommend to Addis Ababa University, College of Business and Economics to accept the thesis titled "**The Moderating Effect of Astrological Profile on The Relationship Between Personality and Impulsive Buying Behavior**", submitted by Betselot Zenebe Tezera, in partial fulfilment of the requirements of the degree of Masters of in Business Administration.

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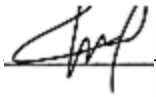
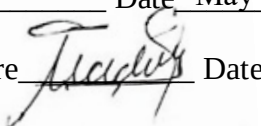
Name of Advisor Amare Abawa (Phd) Signature  Date May 31/2025

Name of Internal Examiner Asst. Prof. Tewodros Wuhib Signature  Date _____

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ABSTRACT

The general objective of the study is to assess the moderating effect of consumers' astrological profile on the relationship between personality and impulsive buying behavior. Using survey data from 404 respondents, the researcher applied PLS-SEM to assess the measurement model and determine path coefficients regarding direct relationships. Bootstrapping was used to test for significance for direct paths and MICOM was assessed after running Permutation Multi-group analysis to ensure multi-group analysis was valid to proceed to the assessment of moderation effect. The findings indicate that while openness to experience (β=0.262,f^2=0.065,p=0.000), conscientiousness (β=-0.281,f^2=0.088,p=0.000), agreeableness (β=-0.115,f^2=0.015,p=0.023) and neuroticism (β=0.323,f^2=0.115,p=0.000) were found to be significantly related to impulsive buying behavior, extraversion's relationship proved insignificant (β=-0.016,f^2=0.000,p=0.696). Regarding moderation effect, out of the five paths tested for moderation, astrological profile was found to moderate only the relationships of agreeableness (β_{fem}=0.147,β_{masc}=-0.299,p=0.000) and neuroticism (β_{fem}=0.376,β_{masc}=0.109,p=0.009) with impulsive buying behavior. These research findings' generalizability may be compromised regarding the use of convenience sampling, and the broad categorization of the moderating variable may blur the effects that may have proved significant in more specified categories. The insights from this study contribute valuable information to practically inform the decision-making of businesses and marketers, leading them towards an effort boost regarding those consumers that score high on personality traits that relate inversely to impulsive buying behavior and also theoretically adds to the pool of literatures related to consumer behavior and psychology, serving as a springboard for more methodologically robust and theoretically groundbreaking researches. Even though several studies have been priorly published exploring the relationship between personality and behavior, the moderating influence of astrological profile as a categorical variable is scarcely investigated, and almost entirely absent in Ethiopian context. Thus, this study may open doors to a more methodologically and theoretically advanced, and culturally informed investigations into the topic. Results relating to the moderating effect of astrological profile

Keywords: personality traits, impulsive buying behavior, astrology, multi-group analysis, PLS-SEM, MICOM, moderation effect

DECLARATION

I, Betselot Zenebe Tezera, hereby declare that this thesis entitled "**The Moderating Effect of Astrological Profile on The Relationship Between Personality and Impulsive Buying Behavior**" is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any university or equivalent institution. I also declare that the intellectual content of this thesis is the product of my own work, except to the extent that assistance from others in the research's design and conception or in style, presentation, and linguistic expression is acknowledged.

Signed: Betselot Zenebe 

Date: May 31/2025

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LIST OF ABBREVIATIONS

MICOM	Measurement Invariance of Composite Models
PLS-SEM	Partial Least Squares Structural Equation Modeling
MGA	Multi-Group Analysis
AVE	Average Variance Extracted
HTMT	Heterotrait-Monotrait Ratio
VIF	Variance Inflation Factor
CI	Confidence Interval

CHAPTER ONE

1. INTRODUCTION

This chapter starts by giving a brief introduction on background of study, followed by a brief of statement of the problem. It also includes the objectives (general and specific objectives), research questions, scope, significance, limitations and organization of the study. It introduces, as well, the concepts of personality, impulsive buying behavior, astrological profile and defines some operational terms.

1.1 Background of The Study

Consumer behavior has been a topic of research in psychology and marketing for decades, used to comprehend the psychological stimuli behind impulsive consumer behavior. Impulse buying, an unscheduled and spontaneous consumer purchase, is triggered by a number of variables such as personality, situational variables, and affect states (Jois & Pawar, 2024; Nyrhinen et al., 2023), and one of the most commonly applied frameworks for describing personality individual differences is the Five-Factor Model, comprising Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (McCrae & John, 1992).The dimensions have been widely studied for their potential to predict consumer behaviors, including consumption impulsiveness (Goldberg, 1999; Kang et al., 2024).

More recently, scholars have begun investigating non-traditional variables that are likely to influence consumer behavior. Astrological profiling, which is culturally embedded globally and has been hypothesized to influence personality and behavioral tendencies (Burns, 2018; Singh, 2024), is one such variable. Drawing extensively on Carl Jung's research, Psychological astrology foresees astrological signs being associated with personality and behavioral inclinations of individuals (Nikolett Kanász, 2024). Research like Mayo et al. (1978) and Mitchell (1995) has analyzed whether the use of astrological personality is applicable in consumer segmentation and decision-making.

Notwithstanding doubts regarding the scientific nature of astrology (Rensberger, 1975), there has been empirical research establishing relationships between astrological types and consumer behavior (Kwak et al., 2015; Mustafa & Olgun, 2011). Empirical support in this line suggests that individuals of various astrological signs may vary regarding impulsiveness for consumption.

1.2 Statement of the Problem

Although numerous studies have investigated the relationship between personality traits and impulsive buying behavior, findings have been mixed. For example, whereas some research indicates that Openness to Experience facilitates impulsive buying through heightened curiosity and exploratory behavior (Miao et al., 2019; Khan, 2021), others report a lack of empirical association (Parsad et al., 2019; Olsen et al., 2015). Likewise, Conscientiousness was either inversely related to impulsive purchasing because of self-control (Qureshi et al., 2024) or had no effect whatsoever (Rizki et al., 2022).

Due to these conflicting findings, it would appear valuable to examine additional variables that can moderate the impulsive buying-personality relationship. Astrological profiling has been employed as a potential moderating variable since some research speculates that people from different zodiac groups have different personality characteristics and behavioral inclinations (Mitchell & Hagget, 1997; Singh, 2024). Empirical evidence supporting this correlation is minimal and ambiguous. Although some studies have reported significant connections between astrological and personality profiles (Mayo et al., 1978; Singh, 2024), other researchers reported no such connections (Veno & Pamment, 1979; Steyn, 2011).

In addition, most of the research investigating these variables has been undertaken within Western contexts, with no, or minimal, investigation of the phenomenon within the Ethiopian consumer segment. That there is limited research in this cultural context and the clearly demonstrated evidence gap in the field justifies an empirical investigation of the moderating effect of astrological profiles on the association between personality traits and impulse buying behavior.

1.3 Objective of The Study

1.3.1 General Objective

The general objective of the study is to assess the moderating effect of consumers' astrological profile on the relationship between personality and impulsive buying behavior.

1.3.2 Specific Objectives

In line with the major objective, the specific objectives are:

1. To investigate the effect of Openness to Experience on impulsive buying behaviour.

2. To investigate the effect of Conscientiousness on impulsive buying behaviour.
3. To investigate the effect of Extraversion on impulsive buying behaviour.
4. To investigate the effect of Agreeableness on impulsive buying behaviour.
5. To investigate the effect of Neuroticism on impulsive buying behaviour.
6. To examine the moderating effect of Astrological profile on the relationship between personality traits and impulsive buying behaviour.

1.4 Research Questions

Deriving reason from the problem and directing focus on the basis of the objectives, the present research will seek to answer the following questions:

1. Does Openness to Experience affect impulsive buying behavior?
2. Does Conscientiousness affect impulsive buying behavior?
3. Does Extraversion affect impulsive buying behavior?
4. Does Agreeableness affect impulsive buying behavior?
5. Does Neuroticism affect impulsive buying behavior?
6. Does Astrological profile moderate the relationship between personality traits and impulsive buying behavior?

1.5 Scope of The Study

This study investigates the relationship between personality traits and impulsive buying behaviour, focusing on the moderating effect of consumers' astrological profiles. The objectives include examining the effects of Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism on impulsive buying behaviour, as well as assessing whether astrological profiles influence these relationships.

The study targets customers learning, working, or residing in Lemi Kura sub city who frequently visit one of the three purposively selected supermarkets: Queens Supermarket (Summit Branch), Shoa Supermarket (Summit Branch), and Lomyad Supermarket (Ayat Branch). These locations were chosen for their large customer bases.

The study examines three primary variables. The Independent Variable, Personality Trait is measured using the Five-Factor Model (McCrae & John, 1992). The Dependent Variable – Impulsive Buying Behaviour– is assessed using Rook and Fisher's Impulse Buying Scale (Rook

& Fisher, 1995). The Moderating Variable, Astrological Profile, is measured through respondents' date of birth, and mainly categorized into zodiac dualities and then other astrological classifications as well.

This quantitative study employs an explanatory design, collecting primary data through structured questionnaires. The data was analysed using SMARTPLS 4.0 to assess direct and moderating effects.

The study is geographically confined to Addis Ababa, focusing on urban retail settings. Data collection spanned three weeks.

1.6 Significance of The Study

This research has theoretical, practical, and methodological significance. Theoretically, this research adds to the growing literature in consumer psychology through the utilization of an unconventional moderating variable, astrological profile, in investigating personality and impulsive consumer behavior.

Practically, the research findings can help companies and marketers interested in improving consumer segmentation. With a significant moderating influence of astrology ascertained, marketers can utilize astrological concepts to tailor advertisement campaigns, product recommendation, and promotion initiatives based on the consumers' zodiac sign to augment other demographic data. Businesses, for example, can create astrology-inspired marketing campaigns, like those employed by McDonald's and Spotify (Hall, 2022; WGSN Insider, 2022), to reach customers on a more personal level.

Methodologically, this research fills an empirical and population lacuna in that it presents evidence from Ethiopian population, whereas the study in this area has been scarce. Thus, providing insights on whether astrological profiling has an influence on consumer behavior in various cultural and market settings.

1.7 Limitation of the Study

According to Ross and Zaidi (2019), limitations are weaknesses within a research design that may influence research outcomes. This research also is not without limitations.

First, the use of self-administered questionnaires may have caused social desirability bias, meaning that people may have answered in a way they thought seemed good, rather than how

they really felt or behaved (Gower et al., 2022), and as a result, their answers related to traits and behaviours may not be fully accurate. Second, while astrological categories appeared to have some moderating influence in the study, the concept has no a universally accepted definitional theory validated by the scholarly society (Pfeffer, 2023), thus, making it hard to apply the findings to people from different geographical locations or belief systems. Therefore, regarding generalizations made upon the samples' target population and the study's findings may be met with scepticism, particularly from researchers who dismiss astrology as a pseudoscience (Rensberger, 1975).

Third, the categorization of astrological signs into only two groups (masculine and feminine) may have oversimplified a system that is usually more detailed (Clarke et al., 1996) , meaning that some differences between signs may have been missed or not fully shown. In addition to that, the study's cross-sectional design, even though it shows how impulsive behaviour may be predicted by the big five personality traits, it does not show how impulsive behaviour might change over time, or how the relationship may be affected if other moderator variables like gender (which was unevenly represented in the sample) were introduced into the model. Finally, the use of convenience sampling in the study may compromise the generalizability of the study, allowing for unwanted selection bias.

1.8 Organization of the study

This research study is organized into five chapters: Chapter one presents the background of the study, statement of the problem, study objectives, research questions, scope, significance, and limitations of the study, organization of the study and definition of terms. Chapter two presents the literature review related to the topic under study. It further presents the theoretical review, empirical review and the conceptual framework. Chapter three deals with the research methodologies, which include study area description, research approach, research design, population and sampling techniques, data sources and types, data collection instruments and procedures, ethical considerations and data processing and analysis. Chapter four will present the findings of the study that includes data presentation, analysis, interpretation and discussion. Based on the findings of the study, the fifth chapter will present summary, conclusion, and recommendations for future research.

1.9 Definition of terms

Personality: A relatively stable set of characteristics, thought patterns, and behaviors that define an individual's adaptation to their environment (Alidemi & Fejza, 2021), often measured using the Five-Factor Model, which includes Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (McCrae & John, 1992).

Openness to Experience: The degree to which an individual is imaginative, curious, and open to new ideas (Rajavi et al., 2019).

Conscientiousness: A personality trait associated with organization, responsibility, and self-discipline (Judge et al., 2024).

Extraversion: A measure of how outgoing and socially active an individual is (Rajavi et al., 2019).

Agreeableness: The extent to which an individual is compassionate, cooperative, and empathetic toward others (Rajavi et al., 2019).

Neuroticism: The tendency to experience emotional instability, mood swings, and anxiety (Burroughs & Rindfleisch, 2002).

Impulsive Buying Behavior: The tendency of consumers to make unplanned purchases based on emotional responses, environmental cues, and personality traits (Jois & Pawar, 2024; Stern, 1962).

Astrological Profile: A categorization of individuals based on their zodiac signs, which are determined by the position of celestial bodies at the time of birth (Singh, 2024).

Astrological Duality: broad groups, traditionally known as masculine and feminine, formed when the zodiac signs are categorized into two, containing six signs each, (Woolfolk, 2012).

CHAPTER TWO

2. LITERATURE REVIEW

Machi & McEvoy (2022) define literature review as a written document that presenting a logically argued case founded on deep understanding of the current state of knowledge about the topic at hand in order to establish a convincing thesis to address the research question.

Thus, the present section establishes the framework through a comprehensive analysis of related theoretical and empirical literatures. Moreover, it deductively rationalizes the need for more research regarding the moderative role of consumers' astrological profile on the relationship between personality traits and impulsive buying behavior.

2.1 Theoretical Review

As defined by Vinz (2022), theoretical framework or review is a foundational review of existing theories serving as a roadmap for developing arguments the researcher intends to use in research. It is where researchers lay down the building blocks for their literature review, so that the reader gets a clear idea of the core concepts, theories and assumptions relating to the research aims (Jansen, 2023).

Thus, the present subsection provides the theoretical framework of the study, clearly defining the core constructs and theories and exploring the relationship amongst the independent variable: Personality; the dependent variable: Impulsive Buying Behavior, and the moderating variable: Astrological Profile.

2.1.1 Personality: Theory and Measurement

Watson & Greenberg (1998) highlight the multifaceted nature of personality defining it as the state of being a person, encompassing traits or character, as well as physiological, intellectual, emotional, and physical characteristics, particularly those perceived by others. Whereas Berdiayev (2024) defines it in rather philosophical terms as a creative act, rather than a natural state, boldly emphasizing its independence from nature and society. Several other authors preceding these have evidently attempted to define the term, and various theories were developed based on these attempts (Alidemi & Fejza, 2021). After having reviewed several theoretical publications on personality, Alidemi & Fejza (2021) laid out the definition of personality as a relatively stable and distinctive styles of thought, behavior, and emotional responses that

characterize an individual's adaptations to their environment, resulting from the interplay of biological and environmental factors.

Alidemi & Fejza (2021) discoursed some major theoretical approaches attempting to define personality. These encompassed the Psychoanalytic Theory, the Trait Theory, Social-Cognitive Theory, the Humanistic Approach and the Existential Perspective.

Existential Perspective views personality as a creative act, where individuals construct their identity through spiritual and ethical dimensions, emphasizing freedom and self-fulfillment (Berdiayev, 2024). Humanistic Approach, similarly, centers on subjective experiences and the potential for personal growth, emphasizing creativity and spontaneity (Alidemi & Fejza, 2021).

In subtle contrast, the Social-Cognitive Theory highlights the role of learning and cognitive processes in shaping personality, suggesting that behavior is influenced by environmental interactions. Complementing it, Psychoanalytic Theory emphasizes the influence of early childhood experiences and unconscious processes on adult personality, as proposed by Freud (Alidemi & Fejza, 2021). Lastly, the Trait theory, which happens to be the main focus of the present study, focuses on measurable characteristics that differentiate individuals, allowing for objective assessment of personality.

Umbrellaed under Trait theory is the Five Factor Model (McCrae & John, 1992), which is the most widely used and empirically supported model of personality traits in academic research (Chmielewski & Morgan, 2013). The five factors discoursed under the model are Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness (Goldberg, 1999; Kang et al., 2024). These are defined and their measurement outlined in the following paragraphs.

Rajavi et al. (2019) laid down the definition of the term openness as the degree to which a person is imaginative and interested in abstract ideas. Based upon the definition, the researchers shortened Donnellan et al. (2006)’s Mini IPIP scale. Thus, the scale contains three, seven-point Likert-type items.

Conscientiousness is a personality trait characterized by diligence, carefulness, and a tendency to be organized and responsible (Judge et al., 2024). Donnellan et al. (2006)’s Mini IPIP scale measures the variable using four, five-point Likert-type items.

Rajavi et al. (2019) laid down the definition of the term extraversion as the measure of how much a person tends to be talkative and gregarious. Based upon the definition, the researchers shortened Donnellan et al. (2006)'s Mini IPIP scale. Thus, the scale contains three, seven-point Likert-type items.

Rajavi et al. (2019) laid down the definition of the term agreeableness as the measure of how much a person is sympathetic and is concerned about others. Based upon the definition, the researchers shortened Donnellan et al. (2006)'s Mini IPIP scale. Thus, the scale contains three, seven-point Likert-type items.

Neuroticism is defined as the extent to which a person expresses emotional instability with symptoms such as wide mood swings, irritability, and nervousness (Judge et al., 2024). Donnellan et al. (2006)'s Mini IPIP scale measures the variable using four, five-point Likert-type items.

2.1.2 Consumer Behavior: Theory and Measurement

Consumer behavior consists of the actions involved in obtaining, consuming, and disposing of products and services (Blackwell, Miniard & Engel, 2001). Aldani (2025) argues that marketing mix initiatives play a crucial role in the management of consumer buying conduct through the combination of important factors known as the 4Ps: Product, Price, Place, and Promotion. Furthermore, Dheere et al. (2025) suggest an additional set of three elements, People, Process, and Physical Evidence, to be included in the model.

Bas and Kubilay (2016) discuss the six-stage buying process: Need Recognition, Information Search, Product Evaluation, Product Choice and Purchase, Post-Purchase Use and Evaluation, and Product Disposal, and note that consumers may not always pass through all the stages in a purchase decision, indicating the presence of multiple factors in consumer decision-making.

2.1.2.1 Factors Affecting Consumer Behavior. There are several important factors that affect consumer behavior, namely Cultural, Social, Personal and Psychological (Bas and Kubilay, 2016). These are described below in detail:

2.1.2.1.1. Cultural Influences. Culture significantly influences behavior and comprises a collective set of beliefs, artistic expressions, legal frameworks, moral standards, and traditions, thereby affecting consumer choices via both tangible and intangible values (Hawkins, Coney &

Best, 2004; Kotler et al., 2001). Subcultures, which may be formed around factors such as religion, nationality, geographic location, or ethnicity, transmit their beliefs and values across generations, consequently shaping consumer preferences (Burgess and Steenkamp, 1999). Social class, which is a structured division in society, plays an important role in influencing consumer lifestyles, media consumption, and buying habits (Jisana, 2014).

2.1.2.1.2. Societal Influences. Social influences, including reference groups, family relationships, and social roles, are at the core of shaping consumer behavior. Reference groups are attitudinal and expectational standards of behavior and therefore assist individuals in establishing social norms (Hawkins, Best & Coney, 2001; Schiffman & Kanuk, 2001; Levy & Weitz, 2008; Churchill & Peter, 1998; Engel, Blackwell & Miniard, 1995). Reference groups can be classified as primary, secondary, dissociative, or aspirational. Family roles significantly affect consumer purchasing behavior, where the family roles could be husband-dominant, wife-dominant, joint, or individualized (Engel, Blackwell & Miniard, 1995; Hawkins, Coney & Best, 2004). Moreover, an individual's role and status in social groups, organizations, and family may also decide whether they will make a purchase (Jisana, 2014).

2.1.2.1.3. Individual Influences. Personal characteristics, including lifestyle, economic situation, occupation, age, personality, and self-image, significantly influence consumer behavior (Jisana, 2014). Age significantly affects consumer inclinations because various stages of life,childhood, single adulthood, and parenthood, create demands for various products. Occupation also shapes buying habits; for example, a marketing manager will purchase business formal attire, whereas a manual laborer will purchase utilitarian work clothes (Jisana, 2014). Economic status, including income and savings, are essential determiners of buying power and make marketers adapt based on economic conditions (Kotler & Armstrong, 2014). Lifestyle, as the manner in which an individual lives and his or her activities, views, and hobbies, also influences their purchasing behavior (Jisana, 2014). Marital status is one of the demographic factors that may influence the consumer's buying behavior (Attreya, 2018). A study by Sharma and Pahuja (2020) found that marital status, coupled with age and gender, significantly affects impulse buying behavior. Furthermore, personality traits like dominance, aggressiveness, and self-confidence may impact buying behavior; however, the relationship between consumer personality traits and buying decisions is complicated (Tanner et al., 2023).

2.1.2.1.4. Psychological Determinants. There are four primary psychological forces that influence consumer behavior: motivation, perception, learning, and attitudes and beliefs (Bas and Kubilay, 2016). Motivation is a stimulus for buying behavior, as in the case of Maslow's hierarchy of needs, in which lower-level needs such as food and shelter have to be fulfilled prior to pursuing upper-level needs such as esteem and self-actualization (Kotler & Armstrong, 2014). Perception, which is the recognition and interpretation of sensory information, varies with each individual, influencing product choice based on selective attention, distortion, and retention (Kotler & Armstrong, 2014). Attitudes and beliefs, which are stable, predict consumer behavior, although marketers can modify them through specific marketing (Jisana, 2014).

2.1.2.2 Impulse Buying Behavior. Impulse buying behavior refers to spontaneous purchases driven by emotional states, personality traits, and external influences (Jois & Pawar, 2024). Though it is reported to be increasingly facilitated by online and mobile shopping environments (Nyrhinen et al., 2023), it evidently can happen in traditional retail settings, vulnerable to environmental or social impacts (Devi et al., 2023).

Some notable theories found to relate to Impulse Buying Behavior in scholarly publications are Theory of Planned Behavior (TPB) (Küçükkambak & Çelik, 2024; Li & Kang, 2023; Rahmasari & Sugiyanto, 2024), and Stimulus-Organism-Response (S-O-R) Theory (Safeer, 2024; Sen, 2024).

Theory of Planned Behavior has been widely applied to discover individuals' shopping intentions and behaviors (Li & Kang, 2023). It generally posits that intentions, influenced by attitudes, subjective norms, and perceived behavioral control, predict an individual's likelihood of engaging in specific behaviors (Grigoropoulos, 2024). The Stimulus-Organism-Response (S-O-R) theory, on the other hand, posits that external stimuli influence an individual's internal processes leading to behavioral responses (Wang et al., 2022) such as impulsive buying behavior (Sen, 2024).

Bridging the theory of Planned Behavior and Stimulus-Organism-Response, The Impulse Buying theory posits that consumers make unplanned purchases driven by strong emotional factors and external stimuli (Ari, 2023). Stern (1962) defines impulse buying as a purchase a shopper makes that has not been planned in advance. The author broadly classifies impulse buying into four,

namely, ‘Pure’ Impulse Buying, ‘Reminder’ Impulse Buying, ‘Suggestion’ Impulse Buying, and ‘Planned’ Impulse Buying.

Stern (1962), in a publication titled ‘The Significance of Impulse Buying Today’, defined these broad classifications unambiguously. ‘Pure’ impulse buying was portrayed by Stern (1962) as the novelty or escape purchase which breaks a normal buying pattern, whereas ‘Reminder’ Impulse Buying referred to the buying that occurs when a shopper sees an item and remembers prior experience with the product, or the knowledge of it, sparking the impulse purchase. ‘Suggestion’ Impulse Buying was noted to occur when a shopper sees a product for the first time and visualizes a need for it, even though they have no previous knowledge of the item, whereas ‘Planned’ Impulse Buying referred to the buying that occurs when the shopper enters the store with some specific purchases in mind, but with the expectation and intention to make other purchases that depend on price specials, coupon offers, and the like.

Aligning with Stern (1962)’s theory of impulse buying, Rook & Fisher (1995) defined impulse buying as a consumer’s tendency to buy spontaneously, unreflectively, immediately, and kinetically; proposing that traits such as ‘impulsivity’ that reflect the urge to act spontaneously, have a significant positive effect on impulse buying. Based on such proposition and definition, the authors developed a scale to measure Buying Impulsiveness. The scale has been since widely in use in scholarly literature, in various cultural contexts, to measure Impulsive Buying Behavior (Bessouh et al., 2015; Dias et al., 2021; Godelek & Akalın, 2018; Puspitasari et al., 2022; Revilla et al., 2016).

The Scale (Rook & Fisher, 1995) contains nine, five-point Likert-type items. Regarding the scale’s validity, a confirmatory factor analysis was used to provide evidence that the measure was an acceptable model.

2.1.3 Astrological Profile

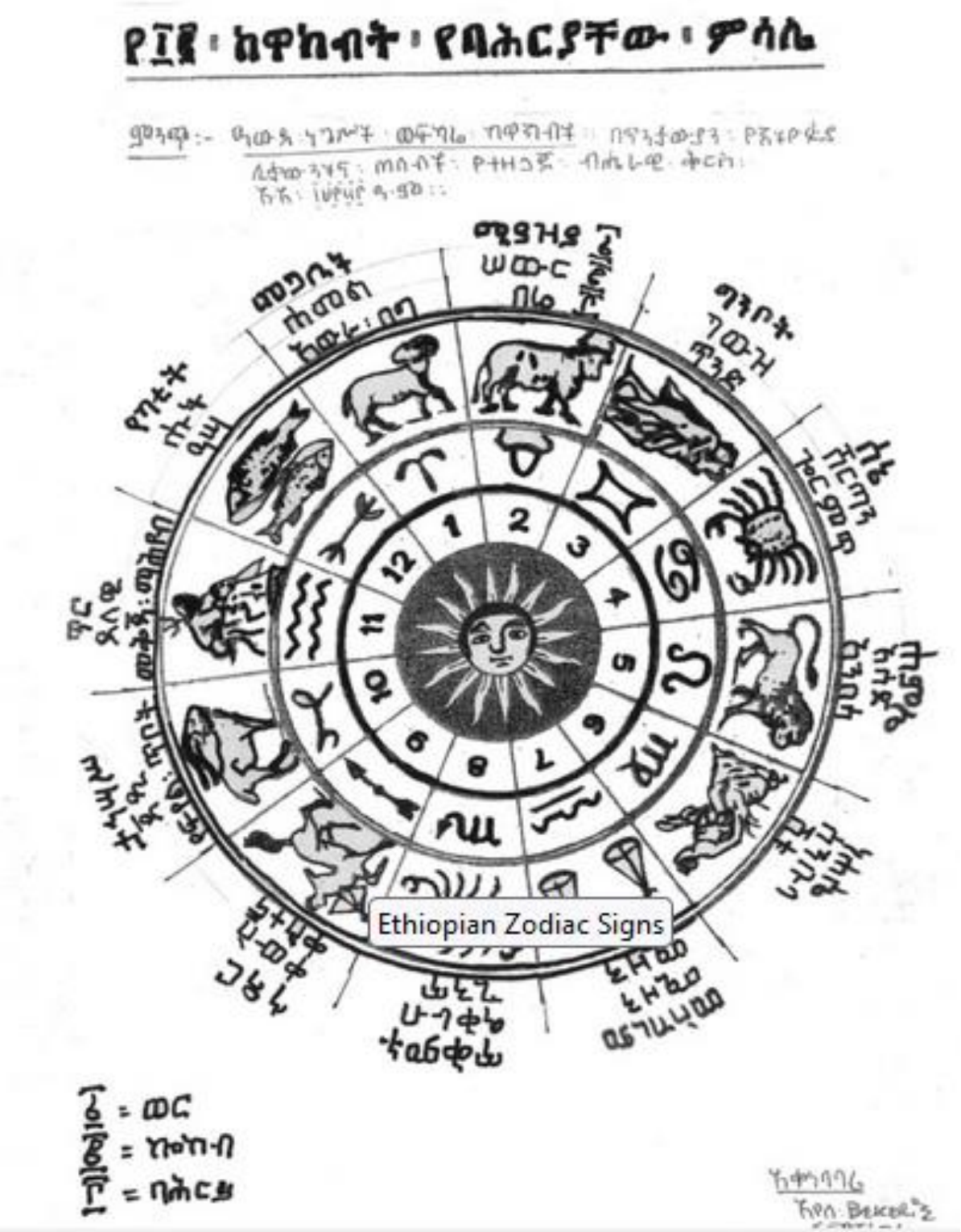
Astrology is a science based on ancient cosmology that focuses on the effect of the movements and positions of stars on human personality and behavior (Singh, 2024). Its historical foundations can be traced back to ancient societies where celestial observations and interpretations were used to explain earthly phenomena, including human behavior (Rao, 2024), and it has significantly influenced various civilizations, shaping science, literature, religion, and art (Burns, 2018).

In Ethiopia, the astrological practices are believed to have been influenced by ancient Babylonian astrology (Brown, 2000). Ethiopian astrology is referred to, by local astrologers, as 'Hasabe Kewakibit' and by foreigners, as Ethiopic Astrology (Tigabu, 2014). It involves the study of celestial movements for the various purposes such as travel, agriculture, and understanding human behavior.

Ethiopian astrology, due to its ancient origins and unchanging nature, is not as widely disseminated to the public as modern astrology is. It had been passed down to a limited number of individuals, and is absent from formal educational curricula (Tigabu, 2014).

Awde Negest (1953) is an Ethiopian astrological book that details on behavioral portraits of individuals based on their zodiac signs (See Figure 1), which bear slightly modified or localized names of the zodiac signs used by the widely popularized western astrology.

Figure 1: Ethiopian Zodiac Wheel



(Source: Ethiopian Journal, 2008)

Historical and mythological records further emphasize Ethiopia's connection to astrology. According to Greek mythology, Ethiopia was home to the legendary King Cepheus, Queen Cassiopeia, and their daughter, Princess Andromeda, who were immortalized through constellations named "Royal Family", comprising of stars named after each (Tigabu, 2014). Again, historical accounts attributed to Lucian & Harmon (1936) credit Ethiopians as the original inventors of astrology, noting that they named the planets descriptively based on their perceived qualities. This foundational knowledge was said to have latter been transmitted to the Egyptians, who are often credited with advancing the science of astrology (Jackson, 2017; Parker, 2007).

It's a common thing for people to confuse the word astrology with astronomy (Plait, 2002) because in times preceding the seventeenth century, astrology and astronomy were often practiced together as one discipline, and their separation did not emerge until the Scientific Revolution. Back then, famous astronomers such as Galileo Galilei and Johannes Kepler were fairly receptive to the Idea of Astrology and barely considered it unscientific (Jeans & Cohen, 2001; Rutkin, 2018). Galileo even taught it in universities (Rutkin, 2018). But by the end of the 17th century, the academic recognition astrology had had started to wane (Kassell, 2010). By 1975, astrology was deemed as a scientifically unacceptable art of charlatans by 186 Top Scientists who gathered to, once and for all, dismiss astrology from the realm of science (Rensberger, 1975). Thus, astrology became a relatively marginalized research area in the pool of scholarly publications (Pfeffer, 2023).

Throughout history, lay recorded, various types of astrology that thread connection with modern science. Medical astrology, also known as Iatromathem served as a diagnosis tool in the ancient world, determining optimal treatment timing and predicting the durations of illnesses by associating celestial bodies with certain body parts or disease (Yale, 2023). There exist records of renowned Greek physicians such as Hippocrates and Galen incorporating astrological concepts into their understanding of health and disease (Heidari, 2023).

The other type of astrology that can be linked to modern science, specifically psychology, is psychological astrology (Woodwell, 2019). Its upon its ground that 'AstroPsychology Theory' was bred. AstroPsychology theory is a theory majorly based on the works of the psychologist Carl Jung (Nikolett Kanász, 2024), which proposes that astrology plays a role in understanding human behavior (Andrikopoulos, 2024), merging astrological insights with psychological

theories (Woodwell, 2019). Several scholars have published articles linking astrology to human personality and behavior, based on this AstroPsychology theory (Andersson et al., 2022; Kapoor, 2024; Mayo et al., 1978; Mitchell, 1995; Pathak & Holani, 2020; Rooij, 1999).

The essential foundation upon which astrological systems are built is the zodiac, which is defined by Parker (2007) as a celestial circle encompassing the apparent paths of the Sun, Moon, and planets. Dividing it into twelve mathematically equal parts gives us the zodiac signs (Woodwell, 2019).

According to Clarke et al. (1996), astrology majorly depends on 3 signs to determine a person's personality or behavior, namely, the sun sign, moon sign and rising sign. The sun sign relates to a person's core identity, while the moon sign reflects the emotional nature of subjects. The rising sign or ascendant on the other hand indicates the outward behavior and first impression of a person as perceived by others.

The main focus of the present study happens to be the Sun sign, which is the sign used to draw the widely popularized horoscopes published at the back of magazines (Hartmann et al., 2006). Mitchell (1995) published an article proposing that Sun signs of consumers had the potential to be used as segmentation variables, and several articles were published following the lead, attempting to empirically support or refute the proposition, most of which had complementary findings (Baş & Kubilay, 2016; Mustafa & Olgun, 2011; Özkan, 2013; Pathak & Holani, 2020).

The sun sign of a person refers to the Zodiac sign in which the Sun is located at the time of birth (Woodwell, 2019), and it can be easily inferred from a person's date of birth (Mitchell, 1995). Mitchell & Haggett (1997), in their study suggesting that sun sign astrology may as well be used as an additional variable in market segmentation, presented a table listing and describing the sun signs matching them with their corresponding psychological characteristics, which will be further discussed below:

Aries (March 21 - April 19). Aries people are self-assured, independent, and active. They are stubborn and persistent but generally reticent of their feelings. Aries are social, yet selfish at times.

Taurus (April 20 - May 20). Taurus is patient, tranquil, and stubborn. They are domestic and loving with a very high security awareness. They can be possessive, though.

Gemini (May 21 – June 20). Geminis are imaginative, adaptable, and inquisitive. They are communicative, rational, and extroverted and like variety in life. They are good company due to their imagination and adaptability.

Cancer (June 21 – July 22). Cancer people are emotional and sensitive, tending to be most often pessimistic and insecure. They are perceptive and imaginative but tend to be moody and worried.

Leo (July 23 – August 22). Leos are ambitious, proud, and willful. They aspire to authority and trust but are devious in pursuing the same. Their confidence turns them into a natural-born leader.

Virgo (August 23 – September 22). Virgos are practical, logical, and health-conscious. They are responsible and active but excessively worried. Their perfectionism compels them to double-check every step of the way.

Libra (September 23 – October 22). Libra people are diplomatic, level-headed, and gentle. They are good negotiators but lack decisiveness. They are natural peacemakers due to their balanced nature.

Scorpio (October 23 – November 21). Scorpios are ambitious, confident, and intense. They are probably stubborn or bitter but are highly motivated by goals. They are not sociable by nature but leave a lasting impact on others due to their intensity.

Sagittarius (November 22 – December 21). Sagittarians are liberal, impulsive, and inventive. They like things outdoors and new experience. Risk is their passion but one they seek out for the sake of adventure.

Capricorn (December 22 – January 19). Capricorns are cautious, practical, and persistent. They prefer things ordered and order well respected but come across as unemotional or risk-averse. Their severity is what makes them pursue success.

Aquarius (January 20 – February 18). Aquarians are thoughtful, creative, and intelligent. They are quirky and truthful and shy. Their unstable nature is because of the need to be unique.

Pisces (February 19 – March 20). Pisces people are sympathetic, emotional, and dreamy. They are unfounded or indecisive but versatile in coping with difficulties. Their empathetic nature draws them strongly to others' feelings.

The twelve zodiac signs outlined above can also be classified into various groupings depending on different numerical divisions (Woolfolk, 2012). These are divisions into two (dualities), three (triplicities), four (quadruplicities), and six (polarities), each grouping representing a unique aspect of astrological classification.

2.1.3.1 Dualities. When the zodiac signs are categorized into two groups of six signs each, the dualities are formed (Woolfolk, 2012). These groups are traditionally known as masculine and feminine and their characteristics corresponds to the dual nature of the masculine/feminine, diurnal(day)/nocturnal(night), odd/even, and positive(yang)/negative(ying) (Mayo et al., 1978; Rooij, 1994; Woodwell, 2019; Woolfolk, 2012).

Woolfolk (2012) explains and describes details pertaining to the dualities per se:

The first duality signs, i.e., Aries, Gemini, Leo, Libra, Sagittarius, and Aquarius, are described as masculine, day or diurnal, odd, and positive. They are normally outer-directed and gain power through action. They are external in their activities and relations and tend to express outwardly in the dramatic and forceful manner. Their positive nature encourages them to engage actively with their surroundings, seeking to make an impact through their actions.

In this regard, the second group consists of Taurus, Cancer, Virgo, Scorpio, Capricorn, and Pisces, which are all feminine, nocturnal, even, and negative. These signs tend to be self-sufficient in nature and derive their power from their internal resources. They are inward-looking and tend to be preoccupied with operations that are internal and may come across as reserved or inward-focused. They gain their strength by being capable of accessing their internal sources, hence being able to withstand problems with resilience and depth.

2.1.3.2 Triplicities. When the zodiac signs are categorized into four groups of three signs each, the triplicities are formed (Woolfolk, 2012). Each triplicity corresponds to one of the classical elements: Fire, Earth, Air, and Water), and these elements represent fundamental characteristics of the signs they govern, and are discussed below as portrayed on Mitchell (1995)'s work.

The Fire triplicity consisting of Aries, Leo, and Sagittarius is characterized by passion and inspiration. The signs are typically energetic and passionate, and as such have a tendency to drive

their endeavors with huge passion and imagination. Their passion is very infectious, inspiring the people around them.

In contrast, the Earth triplicity comprising Taurus, Virgo, and Capricorn is characterized by stability and practical ability. These signs are grounded and reliable, focusing on tangible achievements and building solid foundations. Their stability provides a sense of security and dependability.

The Air triplicity, consisting of Gemini, Libra, and Aquarius, is distinguished by intellectual ability. They are renowned to be curious and analytical in nature and tend to perform well in communication and relationships. Their rapid mental capacities make them comfortably handle complex ideas and relationships.

Finally, the Water triplicity of Cancer, Scorpio, and Pisces is all sensibility and intuition. They are very emotional and compassionate signs and would rather trust their instincts to navigate the challenges of life. Their sensitivity also makes them very attuned to other people's feelings, enabling them to form strong emotional bonds.

2.1.3.3 Quadruplicities. When the zodiac signs are categorized into three groups of four signs each, the quadruplicities or sign modes are formed (Woolfolk, 2012). These quadruplicities: Cardinal, Fixed, and Mutable represent different qualities that define how a zodiac sign interacts with the external world, and are discussed below as portrayed on Mitchell (1995)’s work.

The Cardinal signs, Aries, Libra, Cancer, and Capricorn, are extrovert in nature. They are initiators and starters and prefer to take control in new ventures and tend to speak out freely. They are habitual initiators and always eager to start new projects or ventures because they are extroverts.

Conversely, the Fixed signs, Taurus, Scorpio, Leo, and Aquarius, are stubborn in belief. Once they have formed an opinion or committed themselves to a course of action, they cannot be easily diverted. This makes them consistent and dependable but obstinate.

The Mutable signs, including Gemini, Sagittarius, Virgo, and Pisces, are flexible. They are easy-going and versatile, and easily adapt to new situations and views. They can easily move from one

environment and challenges to another without any problems, thus being highly capable of coping with change.

2.1.3.4 Polarities. When the zodiac signs are categorized into six groups of two signs each, the polarities or the opposites are formed (Woolfolk, 2012). These signs express opposite characteristics. Woolfolk (2012) defines and discusses characteristics related to the polarities as such:

Firstly, Aries and Libra form a polarity where Aries is self-oriented, focusing on personal goals and independence, while Libra is partnership-oriented, emphasizing harmony and balance in relationships.

The second polarity is Taurus and Scorpio. Taurus is personally property oriented, wanting material security and stability, while Scorpio is legacies and common property oriented and tends to concentrate on intensity and depth in a relationship.

The Gemini and Sagittarius is the other polarity. Gemini is self-expression oriented, living on communication and curiosity, while Sagittarius is philosophy and higher mind oriented, wanting bigger horizons and wisdom.

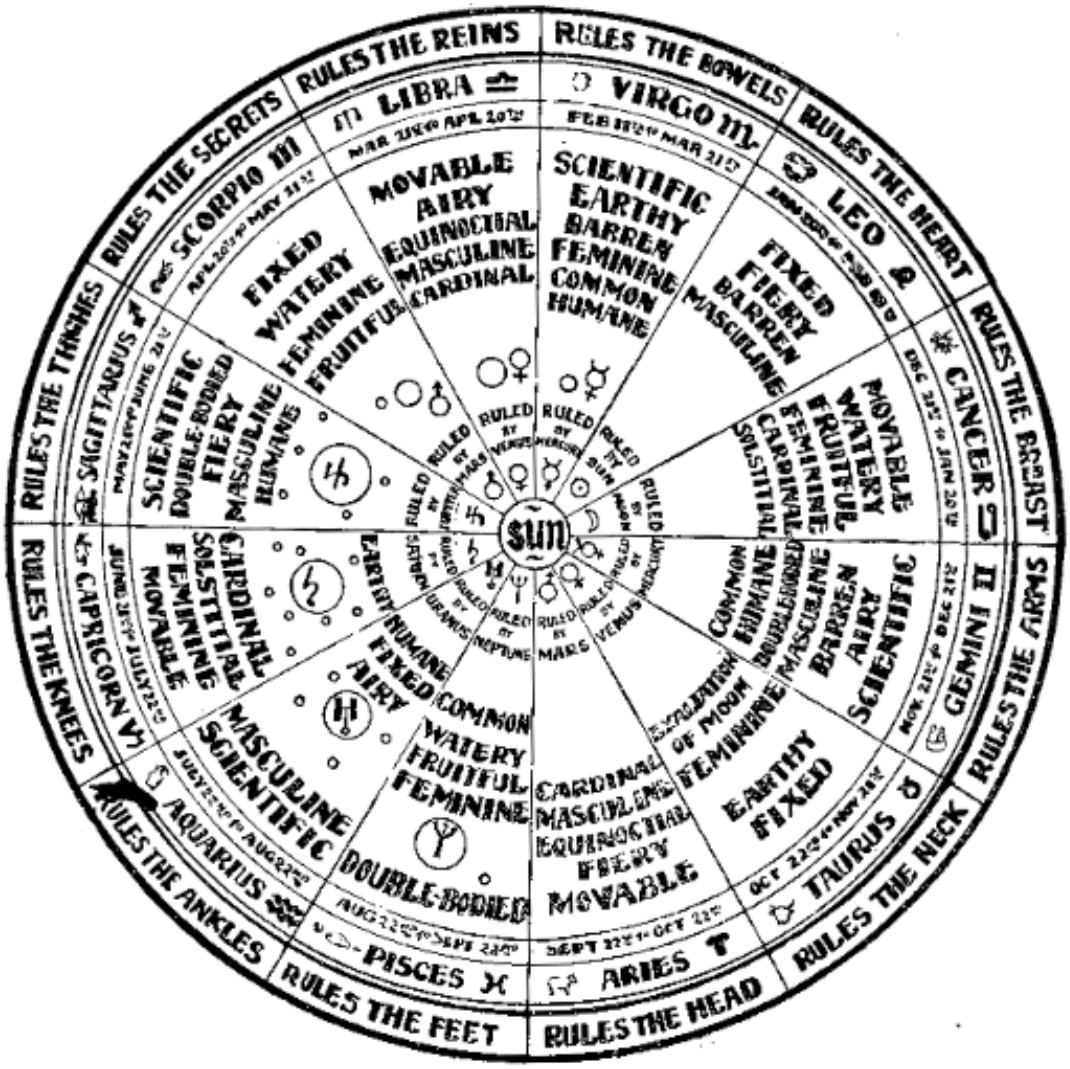
Cancer and Capricorn is a polarity wherein Cancer is home and family focused, valuing family and domesticity, and Capricorn is career and public life focused, valuing career success and public standing.

The Leo and Aquarius polarity brings Leo to be individually pleasure and creativity focused, valuing limelight and artistic imagination, and Aquarius to be focused on hopes and big-picture ideals, valuing humanitarian ideals and collective progress.

Finally, Virgo and Pisces is a polarity where Virgo is work and self-oriented, seeking perfection and prudence, and Pisces is dream and self-illusion-based, apt to explore the realms of fantasy and intuition.

The Astrological profile of a person includes but is not limited to information regarding the person's sun sign, duality, triplicity, quadruplicity and polarity (See figure 2).

Figure 2: Astrological Profiling



(Source: White, 1904)

In the case of sun sign astrology, in order to infer information about a person's sun sign duality, triplicity, quadruplicity, or polarity, we use the date of birth of the person to decide which zodiac sign the sun dwelt in at the time of the person's birth, and use that sign to decide which category of signs it falls under (White, 1904).

2.1.4 Astrology and Business

Astrology has, over the course of its history, been linked with various business practices and strategies, stretching from ancient records to contemporary marketing methodologies. A case in point here is that of J.P. Morgan, a pioneer of America's corporate finance and Wall Street, who

was notoriously renowned for his quote, "Millionaires don't use astrologers; billionaires do" (Woods, 2024). The quote, as popular in financial as well as astrological quarters, has been published in magazines like 'Time' and the 'San Francisco Chronicle' (Weiss, 2008). Morgan's remark is typical of the perception by some influential individuals that astrology can offer great input into decision-making.

Likewise, Donald Regan, the previous U.S. Secretary of Treasury, pointed out the overall ubiquity of the utilization of astrology in monetary networks by expressing, "It's common knowledge that a large percentage of Wall Street brokers use astrology" (Woods, 2024). This consideration substantiates the centuries-long utilization of astrology as a means in high-pressure monetary settings. John Kenneth Galbraith, a renowned economist and diplomat, provided satirical commentary on economic forecasting by jokingly suggesting that its main purpose was "to make astrology respectable" (Davidson, 2005; Weiss, 2008).

In modern business, astrology has also found a niche in marketing and recruitment practices, serving a part in hiring activities (Astrea Recruitment,2024). It has also been growing in importance as a viable marketing strategy, with companies using its popular culture to effectively attract customers (Astrea Recruitment, 2024). Mitchell (1995) posited that astrology can be applied in market segmentation with the combination of demographic information and psychographic insight—knowledge of consumers' lifestyle and behavior—to design more focused strategies. Modern brands have tapped into this potential, with many having identified a "white space" for astrology-focused campaigns as a way to connect with their target market (WGSN Insider, 2022). A good example is Spotify, which demonstrated this trend through its "Audio Birth Chart," linking musical artists to users' sun, moon, and rising signs, and thus blending astrological principles with personalized music experiences.

Various brands have utilized astrology-themed marketing initiatives in a bid to boost consumer interaction. In March 2022 to May 2022, established brands such as McDonald's, Kraft Mayo, and Del Taco introduced astrology-themed initiatives, an indicator of the rising popularity of astrology as a branding tool (Hall, 2022). The initiatives reflect the elastic use of incorporating astrology when designing successful marketing campaigns aligned with consumers' tastes and prevailing cultural trends.

2.2 Empirical Review

2.2.1 Openness to Experience and Impulsive Buying Behavior

The findings of previously conducted studies regarding the relationship between openness to experience and impulse buying are divergent. While some studies (Khan, 2021; Miao et al., 2019; Pacheco et al., 2024; Rizki et al., 2022) found openness to experience to be a positive predictor of impulse buying behavior, others (Altınkan & Armağan, 2024; Astutik et al., 2020; Parsad et al., 2019) could not find a significant relationship between the variables. Olsen et al. (2015) found openness to be a strong predictor of variety seeking tendency, but found it to be unrelated to impulsive buying tendency. Aligning with Olsen et al. (2015)'s findings, Parsad et al. (2019), upon having found openness to be negatively associated with social conformity, suggested that it may not predict impulsive buying behavior positively, since social conformity was found to be positively associated with impulsive buying behavior.

As opposed to Olsen et al. (2015) and Parsad et al. (2019), Ningrum & Widanti (2023), having modelled openness as a moderator influencing the relationship between sales promotion and impulsive buying, found that it has a positive intensifying influence on impulsive buying variable. In support to Ningrum & Widanti (2023), Pacheco et al. (2024) brought forth evidence regarding Openness's positive influence on impulse buying tendency, in the context of online shopping.

The potential gaps detected through the review of literatures on the topic are empirical and population gaps. The empirical gap stems from contradictory findings of previously conducted researches, whereas the population gap stems from the lack or insufficiency of studies exploring the relationship between openness and impulsive buying behavior in Ethiopian context.

Therefore, given these insights about previous empirical findings and detected gaps, the following hypothesis is developed:

H1: Openness to Experience has a significant effect on impulsive buying behavior.

2.2.2 Conscientiousness and Impulsive Buying Behavior

The findings of previously conducted studies regarding the relationship between conscientiousness and impulse buying behavior are conflicting. While some studies (Khan, 2021;

Pacheco et al., 2024; Qureshi et al., 2024) found significant relationship between the variables, others (Altınkan & Armağan, 2024; Rizki et al., 2022) have reported otherwise.

Regarding the direction of relationship between conscientiousness and impulsive buying behavior, researchers' reports are contradictory. Miao et al. (2019) reported that their findings failed to support a hypothesis that proposed that conscientiousness and impulsive buying behavior have a negative relationship. As opposed to Miao et al. (2019), Qureshi et al. (2024) found that conscientiousness was negatively associated with impulsive buying. On the same year, in support to the findings of Qureshi et al. (2024), Pacheco et al. (2024) reported having found that conscientiousness negatively influences impulse buying tendency, in online shopping context.

The potential gaps detected through the review of literatures on the topic are empirical and population gaps. The empirical gap stems from divergent findings of previously conducted researches, whereas the population gap stems from the lack or insufficiency of studies exploring the relationship between conscientiousness and impulsive buying behavior in Ethiopian context.

Therefore, given these insights about previous empirical findings and detected gaps, the following hypothesis is developed:

H2: Conscientiousness has a significant effect on impulsive buying behavior.

2.2.3 Extraversion and Impulsive Buying Behavior

The findings of previously conducted studies regarding the relationship between extraversion and impulse buying behavior are contradicting. While some studies (Khan, 2021; Pacheco et al., 2024; Raza et al., 2022; Rizki et al., 2022) found a significant relationship between the variables, others reported otherwise (Altınkan & Armağan, 2024).

Miao et al. (2019) reported that their findings failed to support a hypothesis that proposed that extroversion and impulsive buying behavior have a positive relationship. In contrast, Khan (2021) and Rizki et al. (2022) argued that extraversion positively impacts impulsive buying behavior. Pacheco et al. (2024), in support to both, reported to have found that extroversion has a positive impact on the impulse buying tendency, in online shopping context.

The potential gaps detected through the review of literatures on the topic are empirical and population gaps. The empirical gap stems from contradictory findings of previously conducted

researches, whereas the population gap stems from the lack or insufficiency of studies exploring the relationship between extraversion and impulsive buying behavior in Ethiopian context.

Therefore, given these insights about previous empirical findings and detected gaps, the following hypothesis is developed:

H3: Extraversion has a significant effect on impulsive buying behavior.

2.2.4 Agreeableness and Impulsive Buying Behavior

The findings of previously conducted studies regarding the relationship between agreeableness and impulse buying behavior are conflicting. Some studies (Altınkan & Armağan, 2024; Rizki et al., 2022) found significant relationships between the variables, while others (Olsen et al., 2015) reported to have not detected a relationship.

Miao et al. (2019) reported that their findings failed to support a hypothesis that proposed that agreeableness and impulsive buying behavior have a negative relationship. As opposed to Miao et al. (2019), Khan (2021) reported that the study's findings failed to support a hypothesis that proposed that agreeableness and impulsive buying behavior have a positive relationship.

Regarding the direction of relationship between the variables, researchers' reports are contradictory. Rizki et al. (2022) found that agreeableness has a positive impact on impulsive buying behavior, whereas Altınkan & Armağan (2024) reported a significant negative relationship between agreeableness and impulsive buying behavior.

The potential gaps detected through the review of literatures on the topic are empirical and population gaps. The empirical gap stems from contradictory findings of previously conducted researches, whereas the population gap stems from the lack or insufficiency of studies exploring the relationship between agreeableness and impulsive buying behavior in Ethiopian context.

Therefore, given these insights about previous empirical findings and detected gaps, the following hypothesis is developed:

H4: Agreeableness has a significant effect on impulsive buying behavior.

2.2.5 Neuroticism and Impulsive Buying Behavior

The findings of previously conducted studies regarding the relationship between neuroticism and impulse buying behavior are divergent. Some studies (Khan, 2021; Miao et al., 2019; Pacheco et

al., 2024; Qureshi et al., 2024; Raza et al., 2022) found significant relationships between the variables, while others (Altınkan & Armağan, 2024; Rizki et al., 2022) reported to have not detected a relationship.

Regarding the direction of relationship between the variables, researchers' reports are contradictory. While Khan (2021), Raza et al. (2022), and Qureshi et al. (2024) had found neuroticism to have a positive impact on impulsive buying behavior, others such as Pacheco et al. (2024) had reported a significant negative relationship between the variables.

The potential gaps detected through the review of literatures on the topic are empirical and population gaps. The empirical gap stems from divergent findings of previously conducted researches, whereas the population gap stems from the lack or insufficiency of studies exploring the relationship between neuroticism and impulsive buying behavior in Ethiopian context.

Therefore, given these insights about previous empirical findings and detected gaps, the following hypothesis is developed:

H5: Neuroticism has a significant effect on impulsive buying behavior.

2.2.6 Astrological Profile's Relationship with Impulsive Buying Behavior and Personality

The findings of previously conducted studies regarding the relationship between consumers' astrological profile and impulse buying behavior, even though scarce in number, indicate the presence of significant relationship. Mustafa & Olgun (2011), after having used the date of birth of respondents to build their astrological profile which was treated as a categorical variable, did statistical analysis to reach the conclusion that water zodiac groups exhibited the least impulsive behavior. Kwak et al. (2015), five years later, found supportive evidence, positively emphasizing the proposition that those that aren't born under water signs were more likely to engage in impulsive purchasing than those born under water signs. Moreover, Kwak et al. (2015) had used additional category of even/odd signs in profiling consumers, and the findings indicated that odd signs were positively associated with consumer's impulsive buying tendencies.

Regarding published studies exploring the relationship between consumers' astrological profile and personality, the findings appear to be timely dispersed and evidentially contradicting. Some studies (Mayo et al., 1978; Singh, 2024) found association between the variables while others (Steyn, 2011; Veno & Pamment, 1979) failed find evidence of relationship.

Regarding the relationship between certain astrological profile categories and specific personality traits, studies have reported contradicting empirical findings. Mayo et al. (1978) after having employed the Eysenck Personality Inventory to infer the personality traits of consumers, attempted to detect their association with certain categories in respondents' astrological profile. The findings revealed that extraversion relates to being born under odd-numbered zodiac signs, and that the neuroticism level for people born under water signs tends to be higher than those born under other signs.

Replicating Mayo et al. (1978)'s study in the southern hemisphere, Veno & Pamment (1979), attempted to see if the results would match. But the findings were rather contradictory. Veno & Pamment (1979), refuting Mayo et al. (1978)'s claims, reported to have found no significant relationship between astrological profiles of consumers and personality traits.

Decades later, Steyn (2011), utilized Taylor & Bruin (2006)'s Basic Traits Inventory to build the personality trait profile of 65,268 South African respondents, in attempt to examine its association with their astrological profile, and failed to report empirical proof regarding the influence of the signs on personality traits. Several years later, Singh (2024) conducted a comparative study to investigate the potential correlation between consumers' astrological profile and personality traits within the framework of the Big Five model. The researcher reported that the findings implied a potential correlation between 'fire signs and extraversion' and 'water signs and neuroticism', moreover declaring that these correlations might vary across cultural traditions.

The potential gaps detected through the review of literatures on the topic is empirical and population gap. The empirical gap stems from divergent findings of previously conducted researches, whereas the population gap stems from the lack of studies exploring the relationship of consumers' astrological profile with consumer personality and impulsive buying behavior in Ethiopian context.

Therefore, given these insights about previous empirical findings and gaps detected, the following hypotheses were formulated:

H6a: The relationship between openness and impulsive buying behavior is significantly moderated by Astrological Profile of consumers.

H6b: The relationship between conscientiousness and impulsive buying behavior is significantly moderated by Astrological Profile of consumers.

H6c: The relationship between extraversion and impulsive buying behavior is significantly moderated by Astrological Profile of consumers.

H6d: The relationship between agreeableness and impulsive buying behavior is significantly moderated by Astrological Profile of consumers.

H6e: The relationship between neuroticism and impulsive buying behavior is significantly moderated by Astrological Profile of consumers.

2.3 Conceptual Framework

The various elements portrayed under this heading include personality traits: openness, conscientiousness, extraversion, agreeableness and neuroticism, all representing dimensions of the independent variable; impulsive buying behavior, representing the dependent variable, and consumers' astrological profile representing the moderating variable.

The diagrammatical expression of the conceptual framework portrays all the variables mentioned above, and is presented below:

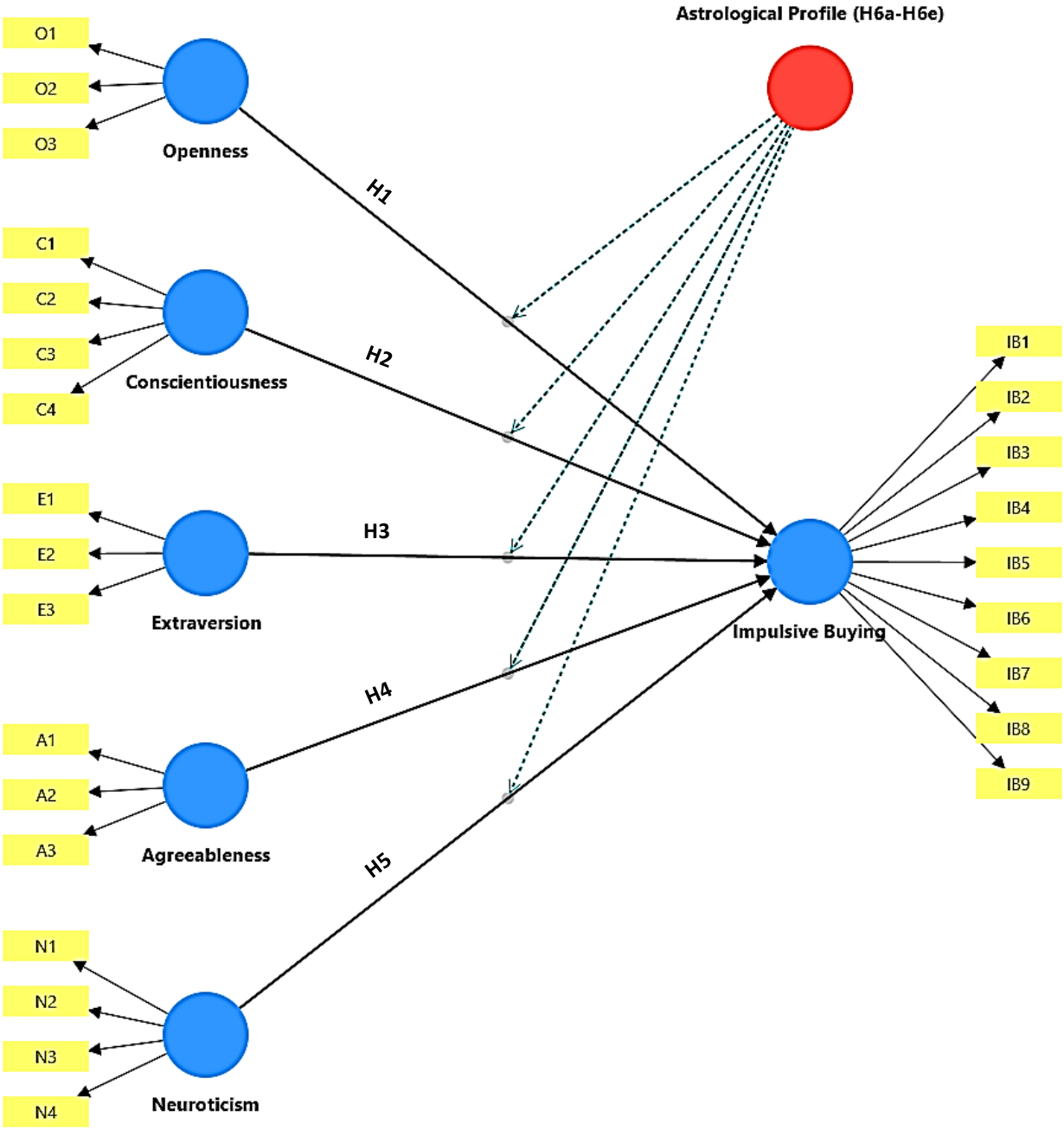


Figure 3: Conceptual Model

CHAPTER THREE

3. METHODOLOGY

The present section deals with the research methodology, constituted of subsections informing readers on the research's study area, approach, design, population and sampling techniques, data sources and types, data collection instruments and procedures, ethical considerations and data processing and analysis.

3.1 Description of the Study Area

The study is geographically focused on Lemi Kura Sub-City, located in Addis Ababa, Ethiopia. The target population comprises consumers residing in Lemi Kura who frequently visit one of three selected supermarkets: Queens Supermarket (Summit Branch), Shoa Supermarket (Summit Branch), and Lomyad Supermarket (Ayat Branch).

These supermarkets were selected due to their strong reputations and relatively large customer bases compared to other, less well-known alternatives in the area. The researcher considered that the high foot traffic at these locations would facilitate access to a sufficient number of potential respondents. Furthermore, individuals who learn, work, or reside within the sub-city are likely to shop at one or more of these supermarkets, making them strategically relevant for data collection.

3.2 Research Approach

Creswell & Creswell (2023) define quantitative research as an approach for testing objective theories by examining the relationship among variables, which in turn can be measured typically on instruments, so that numbered data can be analyzed using statistical procedures. Basing the selection of a research approach upon the stated definition, the present study aims to assess the moderating effect of consumers' astrological profile on the predictive relationship between personality and impulsive buying behavior.

3.3 Research Design

Research designs are types of inquiry within research approaches that provide specific direction for procedures in a research study (Creswell & Creswell, 2023). Thus, the research design opted for to guide the present study is a non-experimental design, particularly the explanatory research design.

Since the aim of the present study is to explain quantitatively, the predictive relationship between consumer personality and impulsive buying behavior, considering the moderative influence of consumers' astrological profile, the selected design appears to perfectly fit the intent of the study.

3.4 Population and Sample

Due to the absence of a reliable sampling frame and limited access to complete data representing the number of adults that qualify to participate in the study, the target population of this study was considered infinite. In such cases, it is appropriate to determine the minimum sample size using Cochran's (1977) formula for an infinite population (Ahmed,2024):

$n_0 = Z^2.p.(1-p)/e^2$

Where,

n_0 = sample size

Z = z-value from z-table

p = percentage of population

e = confidence interval

Given a 95% confidence level, the z-value is 1.96. The proportion 'p' was set to 0.5 to maximize the required sample size under uncertainty, and the margin of error 'e' was set at 0.05. Substituting these values into the formula yields:

$N_0 = 1.96^2.0.5.(1-0.5)/0.05^2 = 384.16$

Based on this calculation, the minimum sample size required to ensure statistical representativeness is 384 respondents.

3.4.1 Sampling Technique

This study employed a non-probability convenience sampling technique to recruit participants within the selected sub-city. Participants were not pre-identified but were approached in real-time at or near the premises of the three targeted supermarkets. To ensure the relevance of the responses, a screening question was applied to confirm that only individuals who self-identified as customers of either Queens (Summit), Shoa (Summit), or Lomyad (Ayat) supermarkets were included in the sample.

While convenience sampling tends to limit the generalizability of findings introducing selection bias, it was deemed appropriate for this exploratory study, given the time constraints and the need for practical access to respondents within near bounds of the natural shopping environments.

3.5 Data Sources and Types

Data essential for the conducting of the present study was collected from customers of either of the three purposively selected supermarkets, and both the data type and data sources were of primary nature. Nominal data was collected to gain demographic insights and also measure the moderating variable; and ordinal data, to measure the main variables on a Likert scale.

3.6 Data Collection Instrument and Procedure

3.6.1 Data Collection Instrument

The data collection instrument to be used in the present study was designed based on insights from literatures reviewed, to measure the three main variables of the study: personality (the independent variable), impulsive buying behavior (the dependent variable), astrological profile (the moderating variable), and gather essential demographic data of respondents.

The questionnaire was thus structured into three parts. The first part gathered demographic data and data about the moderating variable. The second part measured the independent variable, personality, through five measurable dimensions, using standardized questionnaires for each, and the third part measured the dependent variable, impulsive buying behavior, using a standardized scale.

Information regarding the Supermarket often visited by respondents and demographic data was collected, in nominal form, on the first part. The demographic data gathered included gender (male/female), marital status (single/married) and occupational status (student/employed/unemployed).

The data later used to build the respondent's astrological profile was collected in the format DD/MM, through the first part of the questionnaire. The date of birth of the respondents was used to determine under which duality group they fall, and the categories were later used to test for the moderation effect of astrological profile.

The data regarding respondents' personality, were measured ordinally through five dimensions through standardized scales (See Table 1), through the second part of the questionnaire. Out of the five scales measuring the dimensions, a couple were 5-point Likert scales (Conscientiousness and Neuroticism) whereas the remaining three were 7-point Likert scales (Openness, Extraversion, and Agreeableness). Jebb et al. (2021) found that even though 7-point scales offer slightly higher internal consistency, the difference between 5-point and 7-point scales in terms of reliability and validity is often negligible, especially when the questions are well-constructed. Thus, the researcher adapted the 7-point Likert scales into 5-point Likert scales.

Table 1:Personality Data Collection Instrument

Dimensions	Scales	Number of Items	Items	Type Before Adaption	Source
Openness	Shortened Mini IPIP scale	3	O1. I see myself as someone who has a vivid imagination. O2. I see myself as someone who is interested in abstract ideas. O3. I see myself as someone who has a good imagination.	seven-point Likert-type items.	Rajavi et al. (2019)
Conscientiousness	Mini IPIP scale	4	C1. I get chores done right away. C2. I often forget to put things back in	five-point Likert-type items.	Donnellan et al. (2006)

Dimensions	Scales	Number of Items	Items	Type Before Adaption	Source
			their proper place. (R) C3. I like order. C4. I make a mess of things. (R)		
Extraversion	Shortened Mini IPIP scale	3	E1. I see myself as someone who is the life of the party. E2. I see myself as someone who talks a lot. E3. I see myself as someone who talks to a lot of different people at parties.	seven-point Likert-type items.	Rajavi et al. (2019)
Agreeableness	Shortened Mini IPIP scale	3	A1. I see myself as someone who sympathizes with others' feelings. A2. I see myself as someone who	seven-point Likert-type items.	Rajavi et al. (2019)

Dimensions	Scales	Number of Items	Items	Type Before Adaption	Source
			feels others' emotions. A3. I see myself as someone who is really interested in others.		
Neuroticism	Mini IPIP scale	4	N1. I have frequent mood swings. N2. I am relaxed most of the time. (R) N3. I get upset easily. N4. I seldom feel blue. (R)	five-point Likert-type items	Donnellan et al. (2006)

Regarding Impulse buying behavior, ordinal data was collected using Rook and Fisher (1995)'s Impulse Buying Scale (See Table 2), comprised of 9 five-point Likert type items. The data regarding Impulse buying behavior was collected through the third part of the questionnaire.

Table 2: Impulse Buying Data Collection Instrument

Scale	Number of Items	Items	Type	**Source**
Impulse	9	I1. I often buy things spontaneously.	five-point,	Rook and

Scale	Number of Items	Items	Type	**Source**
Buying Scale		I2. "Just do it" describes the way I buy things. I3. I often buy things without thinking. I4. "I see it, I buy it" describes me. I5. "Buy now, think about it later" describes me. I6. Sometimes I feel like buying things on the spur of the moment. I7. I buy things according to how I feel at the moment. I8. I carefully plan most of my purchases. (R) I9. Sometimes I am a bit reckless about what I buy.	Likert-type items.	Fisher (1995)

To enhance clarity for respondents and accommodate the native language of respondents, the questionnaires were translated into Amharic, and used alongside the English. To ensure the validity of the translated items, a back-translation process was employed prior to the inclusion of the items. A back-translation method involves re-translating the translated text back into the original language to identify any discrepancies and ensure accuracy (Tyupa, 2023). Moreover, linguistic experts reviewed both versions to confirm their equivalence.

In order to minimize the risk of receiving biased responses, leading information about what is being measured through date of birth was not included in the instrument.

3.6.2 Data Collection Procedure

Data collection for this study employed a self-administered hybrid approach. Respondents were provided with a printed version of the structured questionnaire for reading the survey items, and

a digital device (smartphone or tablet) for entering their responses. This method allowed participants to review the questions on paper while inputting their answers directly into the Notepad application on the provided digital device.

The survey was conducted in person within the designated sub-city by the researcher and five trained enumerators. Participants were approached in areas surrounding the three purposively selected supermarkets (Queens, Shoa, and Lomyad) in Lemikura sub-city, and screened using a preliminary question to ensure they were actual customers. Only individuals who met the eligibility criteria and gave verbal informed consent were included in the study.

The enumerators provided participants with instructions on how to complete the questionnaire; however, responses were self-entered. Data were recorded in comma-separated values (CSV) format, allowing for direct import into Microsoft Excel for subsequent analysis. This method minimized data entry errors, reduced paper consumption, and streamlined the data cleaning process. Each enumerator was expected to collect responses from at least 77 participants to meet the required sample size. Responses collected by the researcher served either to exceed the sample threshold or to compensate for any unusable data gathered by the enumerators. The entire data collection process was completed over a period of three weeks.

3.7 Ethical Consideration

Ethical considerations are fundamental to the integrity of any research endeavour. According to Scribbr (2023), ethical considerations encompass a set of principles that guide researchers in the design and implementation of their studies. These principles include, but are not limited to, voluntary participation, informed consent, anonymity, and confidentiality.

In this study, ethical standards were strictly upheld throughout the data collection process. Participants were treated respectfully and informed of their rights, including the right to withdraw from the study at any point without penalty or consequence. Informed consent was obtained prior to survey participation, ensuring that respondents understood the general purpose of the study and the nature of their involvement. All responses were kept confidential and data were anonymized. By adhering to these ethical guidelines, the research maintained integrity.

3.8 Data Processing and Analysis

The data collected from participants was imported to excel, cleaned and coded therein to be analyzed using Smart PLS 4.0. Descriptive statistics were computed to summarize demographic characteristics and provide insights into distributional nature of the data relating to the main variables.

To examine the hypothesized relationships among the constructs in the model, Partial Least Squares Structural Equation Modelling (PLS-SEM) was used. PLS-SEM was selected due to its suitability for predictive modelling, its robustness in handling complex models with reflective constructs, and its capacity to work with non-normally distributed data (Hair et al., 2021).

The analysis proceeded in several stages to assess the measurement and structural models, as well as to test for moderation effects via multi-group analysis.

3.8.1. Measurement Model Evaluation

The reliability and validity of the measurement model were evaluated using several criteria. Indicator reliability was first assessed by inspecting the outer loadings of individual items. To assess internal consistency reliability, Cronbach's alpha, composite reliability (ρa), and composite reliability (ρc) were examined. Convergent validity was established through the average variance extracted (AVE) for each construct. Discriminant validity was assessed using both the Fornell–Larcker criterion and the Heterotrait–Monotrait ratio (HTMT).

3.8.2. Structural Model Evaluation

Once the measurement model met the validity and reliability requirements, the structural model was evaluated. Path coefficients were estimated using bootstrapping with 5,000 resamples. Significance of structural paths was determined based on t-statistics, p-values, and bias-corrected 95% confidence intervals.

Model's explanatory power was examined using R^2, and effect sizes (f^2) were also computed to assess the individual contribution of each independent variable. Multicollinearity was assessed using Variance Inflation Factor (VIF) values.

3.8.3 Moderation Analysis: Multi-group Permutation Testing

To examine the moderating effect of astrological sign classification (feminine vs. masculine), a permutation-based multi-group analysis was conducted. This method allows for testing of path coefficient differences across groups without assuming equal variances or distributional similarity (Hair et al.,2021). Prior to MGA, Measurement Invariance of Composite Models (MICOM), a prerequisite for moderation analysis using MGA (Cheah et al., 2020), was assessed in three steps, step one assessing configural invariance, step two assessing compositional invariance, and step three assessing equality of composite mean values and variances.

CHAPTER FOUR

4. RESULTS AND DISCUSSION

4.1 Demographic Characteristics of Respondents

As shown in Table 3, a total of 404 individuals participated in the study. Regarding customers relating to the three select supermarkets, most respondents were from Queens Supermarket (n = 230, 57%), followed by Shoa Supermarket (n = 100, 25%) and Lomyad Supermarket (n = 74, 18%). The sample was predominantly female, comprising 80% of the respondents (n = 325), while male respondents accounted for 20% (n = 79) of the total sample. Regarding marital status of respondents, majority of respondents were single (n = 329, 81%), with a smaller proportion identifying as married (n = 75, 19%). Such distribution may reflect the younger age or student-dominated nature of the sample. The occupational status of participants appears to fit the age profile suggested above, since majority of the samples were students (n = 269, 67%). Employed individuals constituted 31% (n = 126), while only 2% were unemployed (n = 9), further indicating that the sample is heavily weighted toward an academic or early-career demographic.

Respondents were also classified according to astrological sign (based on their reported birth date and month), into feminine and masculine groupings, each comprising approximately half the sample (feminine: n = 201, 50%; masculine: n = 203, 50%). Feminine signs included those under the Earth (Virgo: n = 40, Taurus: n = 30, Capricorn: n = 33) and Water elements (Cancer: n = 33, Scorpio: n = 29, Pisces: n = 36). Masculine signs were drawn from Fire (Aries: n = 34, Leo: n = 37, Sagittarius: n = 29) and Air signs (Libra: n = 31, Gemini: n = 38, Aquarius: n = 34).

Table 3: Demographic Characteristics of Respondents

Demographic Variable	Groups	Frequency	Sub Groups		Categories		Total	Percent
Supermarket	Queens	230						57%
	Lomyad	74					404	18%
	Shoa	100						25%
Gender	Male	79						20%

Demographic Variable	Groups	Frequency	Sub Groups		Categories		Total	Percent
	Female	325					404	80%
Marital Status	Single	329					404	81%
	Married	75						19%
Occupational Status	Student	269						67%
	Employed	126					404	31%
	Unemployed	9						2%
Astrological Sign	Feminine	201	Earth	103	Virgo	40		50%
					Taurus	30		
					Capricorn	33		
			Water	98	Cancer	33		
					Scorpio	29		
					Pisces	36		
	Masculine	203	Fire	100	Aries	34	404	50%
					Leo	37		
					Sagittarius	29		
			Air	103	Libra	31		
					Gemini	38		
					Aquarius	34		

4.2 Descriptive Statistics

According to Bhandari (2023), descriptive statistics may be categorized into three, the first category is concerned with distribution relating to frequency of each variable, as is presented in

subsection 4.1. The second and third categories are respectively concerned with central tendency relating to averages of values, and variability relating to how spread out the values are.

Thus, the central tendency and variability related statistics are presented in this subsection, as shown in table 4. The variables in focus include five independent variables (Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism) and one dependent variable (Impulsive Buying Behavior).

Table 4: Descriptive Statistics

	Mean	Median	Observed min	Observed max	Standard deviation	Excess kurtosis	Skewness	Number of observations used	Cramér-von Mises test statistic	Cramér-von Mises p value
Agreeableness	-0.000	0.250	-2.704	1.982	1.000	-0.775	-0.385	404.000	1.182	0.000
Conscientiousness	-0.000	-0.097	-1.886	1.902	1.000	-1.368	-0.163	404.000	2.188	0.000
Extraversion	-0.000	0.199	-2.389	2.030	1.000	-0.386	-0.542	404.000	0.945	0.000
Impulsive Buying	0.000	0.026	-2.095	2.070	1.000	-0.850	-0.138	404.000	0.240	0.002
Neuroticism	-0.000	0.154	-2.485	2.019	1.000	-0.742	-0.237	404.000	0.389	0.000
Openness	-0.000	0.231	-2.258	2.013	1.000	-0.585	-0.274	404.000	0.613	0.000

As shown in table 4, all variables were standardized (M=0, SD=1) before analysis to ensure comparability. Medians were found to range from -0.097 (Conscientiousness) to 0.250 (Agreeableness), indicating minor asymmetries in the distributions. The range of approximate observed values (-2.7 to +2.0) indicate a reasonable spread of responses without evidence of extreme outliers.

Regarding distribution shape, all variables were found to have negative skewness, ranging from from -0.138 (Impulsive Buying) to -0.542 (Extraversion). According to Turney (2022a) skewness in the measure of asymmetry of a distribution, indicating that its left and right side fail to mirror each other. A distribution is said to have a right (positive) skewness if its longer on the right side of its peak, and left (negative) skewness if its longer on the left side of its peak (Turney,2022a). Since, the skewness value of our data falls in the negative, we may infer that the distribution tends to be longer on the left side of its peak.

Continuing to draw interpretation about distribution shape, excess kurtosis values were found ranging from –0.386 to –1.368. Turney (2022b) defines kurtosis as the measure of tailedness of a distribution, and excess kurtosis as the tailedness of distribution relative to a normal distribution. The same author discusses that excess kurtosis values can be categorized into three groups based on their excess kurtosis values: mesokurtic (0), Platykurtic (Negative) and Leptokurtic (Positive), their distributional descriptions being normal, uniform, and laplace respectively. Based on these insights, we may interpret our negative excess kurtosis values (-0.386 to -1.368) as distributions falling under the platykurtic category which may be described as uniform distribution. Additional inference we may make based on the values include the thin-tailedness of the distribution and low outlier frequency (Turney,2022b).

Although we inferred from the excess kurtosis and skewness values about the normality of the distribution, we found interpreting Cramér-von Mises test as complementing information. According to Withanawasam et al. (2016) we may reject the hypothesis that the data is normally distributed if the Cramér-von Mises p-value is lower than the significance level. Thus, according to these insights, since all variables' Cramér-von Mises p-value is lower than the significance level (0.05), we infer that none of the variables follow a normal distribution at an alpha level of 0.05.

The absence of normality in these distributions lead the researcher to consider a non-parametric estimation technique, particularly PLS-SEM.

4.3 The PLS-SEM Algorithm, Bootstrapping, Permutation Multi-group Analysis and MICOM

Hair et al. (2021) describe Partial Least Squares Structural Equation Modelling (PLS-SEM) as a composite-based method of estimating structural equation models whose goal is to maximize endogenous latent variables' explained variance. In the present study, the PLS-SEM algorithm served as the primary analytical technique to estimate the scores of all latent variables within the model, which were subsequently used to calculate the path relationships among constructs (Hair et al., 2021). According to Hanafiah (2020), the approach of PLS-SEM is similar to that of basic regression analysis since it explains variance as does regression, but happens to be more advantageous for being able to handle various independent variables at once even having detected multicollinearity.

Since the analysis did not rely on distributional assumptions, bootstrapping, a non-parametric resampling technique (Hair et al.,2021), was employed to determine the standard errors of model coefficients by drawing a large number of subsamples from the original dataset and estimating the model for each subsample.

Regarding the moderation analysis, Multi-group Analysis (MGA) was used to test whether structural relationships differ significantly across groups, in our case, feminine vs. masculine astrological profiles. According to Hair et al. (2021), MGA is particularly appropriate when the moderator is categorical and is hypothesized to affect all structural paths. While several approaches to MGA exist, the present study adopted the permutation-based MGA approach. Measurement Invariance of Composite Models (MICOM) procedure was performed, prior to conducting MGA, to verify whether meaningful group comparisons could be made (Hair et al.,2021).

In summary, three core analytical procedures were conducted to evaluate the measurement model, structural model, and moderation effects, and those are: PLS-SEM algorithm, bootstrapping, and permutation-based multi-group analysis preceded by the MICOM procedure. The detailed results and interpretations of these analyses are presented in the subsequent sections on measurement model assessment, structural model evaluation, and moderation effect testing.

4.4 Measurement Model Assessment

In Partial Least Squares Structural Equation Modelling (PLS-SEM), measurement models (outer models) represent the part of the path model that specifies the relationships between latent constructs and their observed indicators (Hair et al.,2021).

This study employed reflective measurement models, in which the indicators are viewed as manifestations or effects of an underlying latent construct, and causality flows from the construct to its indicators, implying that changes in the latent variable are expected to lead to changes in all associated indicators (Hair et al., 2021). In such models, PLS-SEM, estimates indicator loadings based on correlations between indicators and their respective latent variables, and this estimation technique is appropriate because the indicators are assumed to be highly correlated and interchangeable (Hair et al., 2021; Hanafiah,2020).

Thus, measurement model assessments discussed in subsequent subsections include: Reliability (Indicator Reliability and Internal Consistency Reliability) and Validity (Convergent Validity and Discriminant Validity).

4.4.1 Reliability

According to Creswell & Creswell (2023), reliability refers to the consistency and stability of measurement encompassing the internal consistency of item scores (whether responses are consistent across items within the same construct), the stability of scores over time (test-retest reliability), and the consistency in test administration and scoring.

This study primarily focused on internal consistency reliability, evaluated at both the indicator level and construct level.

4.4.1.1 Indicator Reliability. Indicator reliability refers to the extent to which an individual item (indicator) reflects its associated latent construct, and is calculated as the square of the standardized outer loading (Hair et al., 2021). According to Hair et al. (2021), a loading of 0.708 or higher is generally considered acceptable, as it implies that at least 50% of the indicator's variance is explained by the underlying latent construct.

Table 5: Indicator Reliability

Indicators		Outer loadings
A1 <- Agreeableness	I see myself as someone who sympathizes with others' feelings.	0.899
A2 <- Agreeableness	I see myself as someone who feels others' emotions.	0.891
A3 <- Agreeableness	I see myself as someone who is really interested in others.	0.893
C1 <- Conscientiousness	I get chores done right away.	0.815
C2 <- Conscientiousness	I often forget to put things back in their proper place. (R)	0.873
C3 <- Conscientiousness	I like order.	0.851
C4 <- Conscientiousness	I make a mess of things. (R)	0.880
E1 <- Extraversion	I see myself as someone who is the life of the party.	0.819
E2 <- Extraversion	I see myself as someone who talks a lot.	0.806
E3 <- Extraversion	I see myself as someone who talks to a lot of different people at parties.	0.763
IB1 <- Impulsive Buying	I often buy things spontaneously.	0.787
IB2 <- Impulsive Buying	"Just do it" describes the way I buy things.	0.792
IB3 <- Impulsive Buying	I often buy things without thinking.	0.791
IB4 <- Impulsive Buying	"I see it, I buy it" describes me.	0.841
IB5 <- Impulsive Buying	"Buy now, think about it later" describes me.	0.789
IB6 <- Impulsive Buying	Sometimes I feel like buying things on the spur	0.765

Indicators		Outer loadings
	of the moment.	
IB7 <- Impulsive Buying	I buy things according to how I feel at the moment.	0.811
IB8 <- Impulsive Buying	I carefully plan most of my purchases. (R)	0.826
IB9 <- Impulsive Buying	Sometimes I am a bit reckless about what I buy.	0.828
N1 <- Neuroticism	I have frequent mood swings.	0.788
N2 <- Neuroticism	I am relaxed most of the time. (R)	0.840
N3 <- Neuroticism	I get upset easily.	0.746
N4 <- Neuroticism	I seldom feel blue. (R)	0.795
O1 <- Openness	I see myself as someone who has a vivid imagination.	0.810
O2 <- Openness	I see myself as someone who is interested in abstract ideas.	0.785
O3 <- Openness	I see myself as someone who has a good imagination.	0.786

As we may infer from table 5, all indicators demonstrated loadings above the commonly accepted threshold of 0.70, confirming that they reliably reflect their respective latent constructs, establishing indicator reliability.

4.4.1.2 Internal Consistency Reliability. Internal consistency reliability assesses the extent to which items within the same construct yield similar responses. It reflects whether the indicators consistently measure the same underlying latent variable, based on the strength of inter-item correlations (Hair et al., 2021; Creswell & Creswell, 2023).

Internal consistency is typically gauged by way of three statistical measures, i.e., Cronbach's Alpha, Rho A (ρ_a) and Composite Reliability (ρc), whose magnitudes are intended to be above

the minimum threshold of 0.7 necessary for their validation (Hair et al.,2019). It's worth mentioning that, among the three metrics formerly discussed as measures of internal consistency, Rho A (ρ_a), is the most relied upon by scholars, for its more accurate estimate of true reliability, unlike Cronbach's alpha, which tends to underestimate, and composite reliability, which tends to overestimate internal consistency related reliability values (Hair et al.,2021).

Table 6: Internal Consistency Reliability

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)
Agreeableness	0.875	0.878	0.923
Conscientiousness	0.877	0.878	0.916
Extraversion	0.712	0.714	0.839
Impulsive Buying	0.931	0.933	0.943
Neuroticism	0.803	0.806	0.871
Openness	0.706	0.707	0.836

As may be inferred from table 6, Impulsive Buying, the dependent variable, was found to have the highest reliability, with $\alpha = 0.931$ and $\rho_c = 0.943$, implying consistent response patterns across its nine items. Agreeableness and Conscientiousness also demonstrated very high internal consistency, with composite reliabilities above 0.90. Extraversion and Openness showed acceptable but lower reliability, with α values of 0.7 and 0.71, which still fall within the acceptable range for exploratory research (Hair et al.,2019).

Summing it up, all six constructs exceeded the recommended threshold for all three reliability metrics, indicating strong internal consistency reliability across the measurement model.

4.4.2 Validity

In quantitative research, validity refers to the degree to which evidence and theory support the interpretations of test scores for their intended purpose. It answers the question of whether the instrument accurately measures what it purports to measure (Creswell & Creswell, 2023).

In this study, validity was established through convergent and discriminant validity assessments discussed in subsequent subsections.

4.4.2.1 Convergent Validity (AVE). Hair et al (2021) defined convergent validity as a subtype of construct validity that evaluates whether items intended to measure the same construct are indeed highly correlated and share a high proportion of variance. In reflective measurement models, it is assessed using Average Variance Extracted (AVE), which quantifies the amount of variance a construct captures from its indicators relative to the amount due to measurement error (Hair et al., 2021). Computed as the mean of the squared loadings of each construct's indicators, an AVE value of 0.50 or higher usually indicates adequate convergent validity, signifying that a construct explains at least 50% of the variance in its indicators (Fornell & Larcker, 1981).

Table 7: Construct Validity

	Average variance extracted (AVE)
Agreeableness	0.800
Conscientiousness	0.731
Extraversion	0.634
Impulsive Buying	0.646
Neuroticism	0.629
Openness	0.630

As may be inferred from table 7, agreeableness demonstrated the strongest convergent validity (AVE = 0.800), suggesting remarkable alignment among its indicators. The dependent variable, Impulsive Buying also met the AVE criterion (0.646), affirming that its measurement is both statistically and theoretically robust. Extraversion, Neuroticism, and Openness all exhibited moderate to strong convergent validity (AVEs between 0.629 and 0.634), which is well above the minimum threshold.

Summing it up, all constructs surpassed the recommended AVE threshold of 0.50, confirming that each latent variable captures a substantial proportion of variance from its associated indicators.

4.4.2.2 Discriminant Validity. According to Hair et al. (2021), discriminant validity refers to the extent to which a construct is empirically distinct from other theoretically distinct constructs (McLeod,2024) in the model, ensuring that each latent variable captures phenomena not represented by other constructs, thus confirming the uniqueness of the measured concepts. Discriminant validity, in the present study, was assessed using HTMT and Fornell-Larcker Criterion, the former of which happens to be more acceptable in the research society than the latter (Hair et al.,2021)

4.4.2.2.1 Heterotrait–Monotrait Ratio (HTMT). According to Henseler et al. (2016), the HTMT is a modern and more stringent method for evaluating discriminant validity, defined as the ratio of the average correlations across constructs (heterotrait-heteromethod) to the average correlations within the same construct (monotrait-heteromethod). Though the recommended threshold for conceptually distinct constructs is <0.85, a more lenient threshold of <0.90 may be used for closely related constructs (Hair et al.,2021).

Table 8: Discriminant Validity HTMT Ratio

	Heterotrait-monotrait ratio (HTMT)
Conscientiousness <-> Agreeableness	0.548
Extraversion <-> Agreeableness	0.490
Extraversion <-> Conscientiousness	0.503
Impulsive Buying <-> Agreeableness	0.448
Impulsive Buying <-> Conscientiousness	0.729
Impulsive Buying <-> Extraversion	0.533
Neuroticism <-> Agreeableness	0.038
Neuroticism <-> Conscientiousness	0.676

Neuroticism <-> Extraversion	0.563
Neuroticism <-> Impulsive Buying	0.693
Openness <-> Agreeableness	0.746
Openness <-> Conscientiousness	0.722
Openness <-> Extraversion	0.848
Openness <-> Impulsive Buying	0.779
Openness <-> Neuroticism	0.631

As shown in table 8, all HTMT values are well below the 0.85 threshold, providing strong evidence of discriminant validity across all construct pairs.

4.4.2.2.2 Fornell–Larcker Criterion. The Fornell–Larcker Criterion assesses discriminant validity by comparing the square root of the Average Variance Extracted (AVE) of each construct with the correlations between that construct and all others in the model, and discriminant validity is established if a construct's AVE square root is greater than any of its inter-construct correlations (Fornell & Larcker, 1981).

While the Fornell–Larcker criterion has been widely used, some credible studies (Henseler et al., 2015; Hair e al,2021) suggest it may lack sensitivity in detecting discriminant validity issues, especially when indicator loadings are similar. Nevertheless, it is reported here to complement the more reliable HTMT results.

Table 9: Discriminant Validity Fornell-Larcker Criterion

	Agreeableness	**Conscientiousness**	**Extraversion**	**Impulsive Buying**	**Neuroticism**	**Openness**
Agreeableness	**0.895**					
Conscientiousness	0.480	**0.855**				

Extraversion	-0.384	-0.397	**0.796**			
Impulsive Buying	-0.406	-0.662	0.435	**0.804**		
Neuroticism	-0.025	-0.567	0.426	0.604	**0.793**	
Openness	-0.586	-0.568	0.600	0.634	0.478	**0.794**

As shown in Table 9, the diagonal elements (bolded) represent the square roots of AVEs and are consistently greater than the off-diagonal inter-construct correlations, thereby satisfying the Fornell–Larcker condition for discriminant validity.

Summing up, the demonstration of empirical distinction of each latent construct in the model from the others through both HTMT analysis and Fornell-Larcker criterion provides a solid support for the discriminant validity of the measurement model.

4.3 Structural Model Assessment

According to Hair et al. (2019), once the measurement model assessment is satisfactory, one may proceed to assessing the structural model. The structural model refers to the component of the PLS-SEM model that includes the latent constructs and the hypothesized relationships among them derived from theory and prior empirical evidence, assessing the strength and significance of the direct and indirect relationships specified in the model and tests the study's hypotheses (Hair et al., 2021).

This section evaluates the structural model by examining the path coefficients, significance levels, and the explanatory power of the model in predicting the dependent variable (Impulsive Buying).

4.3.1 Multicollinearity Check (VIF)

According to Hair et al. (2019), collinearity must be examined before assessing structural relationships, lest it biases the regression results. A common metric used to assess multicollinearity is Variance Inflation Factor (VIF) which is a diagnostic metric used to assess the presence and severity of multicollinearity among predictor constructs in the structural model,

which usually occurs when predictor variables are highly correlated, potentially distorting the estimation of path coefficients by inflating their standard errors (Hair et al., 2021).

According to Hair et al. (2019), for collinearity issues not to exist, the derived VIF values are expected to be higher than 0.2 and lower than 5. However, some scholars recommend a stricter upper threshold of 3.3 for greater rigor (Diamantopoulos & Siguaw, 2006).

Thus, in this study, the evaluation of potential collinearity among the Big Five personality traits as predictors of Impulsive Buying was calculated for each path in the structural model through the VIF metric, and the results are presented in table 13

Table 10: Variance Inflation Factor (VIF)

	VIF
Agreeableness -> Impulsive Buying	2.194
Conscientiousness -> Impulsive Buying	2.186
Extraversion -> Impulsive Buying	1.662
Neuroticism -> Impulsive Buying	2.201
Openness -> Impulsive Buying	2.562

As shown in the table above, all VIF values fall well below the conservative threshold of 3.3, indicating no significant multicollinearity among the predictor constructs. The lowest VIF was observed for Extraversion (1.662), suggesting minimal collinearity, whilst Openness registered the highest VIF (2.562), yet still within acceptable bounds.

Thus, these findings confirm that the path coefficients in the structural model are estimated with precision, and that multicollinearity does not compromise the model's explanatory power or the interpretation of individual predictor effects.

4.3.2 R-Squared (R^2)

Hair et al. (2021) defines the coefficient of determination (R^2) as the proportion of variance in a dependent construct that is explained by its independent predictors within a structural model, which serves as an indicator of the model's explanatory power for a particular outcome variable.

R^2 may as well be referred to as predictive power (Rigdon,2012). Thus, based on the guideline for interpreting R^2 values, values of 0.75, 0.5 and 0.25 may translate as substantial, moderate and weak (Hair et al.,2019) predictive power. However, Hair et al. (2021) advises consideration of R^2 values in the context of model complexity and the field of study.

In this study, the predictive accuracy of the of the structural model was evaluated through examination of R^2 statistic for the dependent variable, Impulsive Buying. The value was computed by regressing the endogenous construct on five exogenous variables: Agreeableness, Conscientiousness, Extraversion, Neuroticism, and Openness.

Table 11: R-Squared

	R-square	R-square adjusted
Impulsive Buying	0.587	0.582

As shown in table 11, the model explains 58.7% of the variance in Impulsive Buying, with an adjusted R^2 of 58.2%, accounting for model complexity and number of predictors.

Thus, an R^2 of 0.587 in the present model demonstrates a moderate to strong level of explanatory power, implying that personality traits collectively account for a meaningful proportion of variability in impulsive buying behaviour.

4.3.3 Direct Effects

The path model is defined by as a visual representation of the hypothesized relationships among constructs, serving as the blueprint for empirical testing using structural equation modelling (SEM), where each path corresponds to a testable hypothesis (Hair et al., 2021). The path model of this study is presented in Figure 4, and shows the direct effects of independent variables on the dependent variable before bootstrapping. Hair et al. (2021) defines direct effect as the relationship between two constructs that is depicted by a single arrow in the path model, indicating a hypothesized unmediated connection.

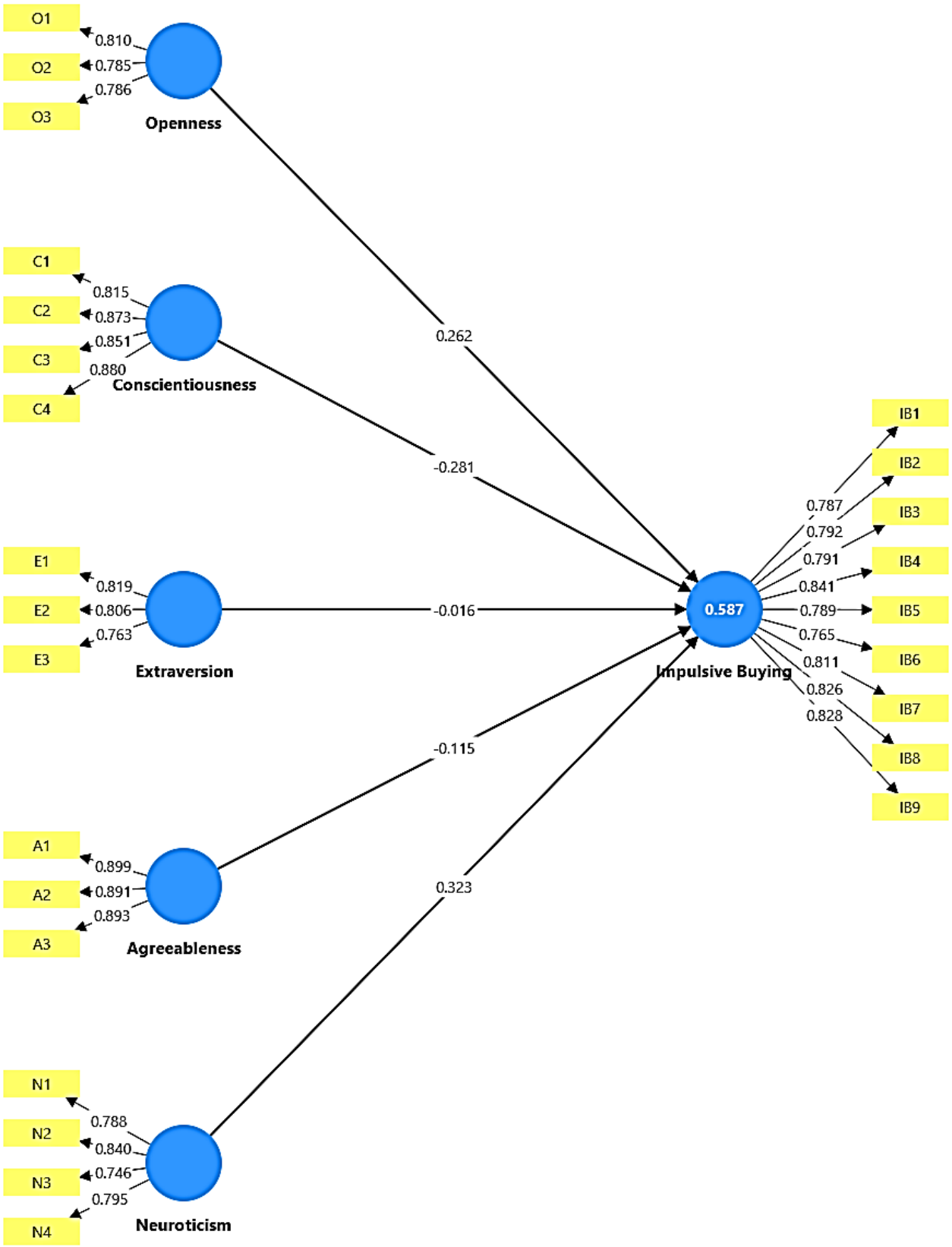


Figure 4: Path Model

In the present study, the direct effects of the Big Five personality traits (Agreeableness, Conscientiousness, Extraversion, Neuroticism, and Openness to Experience) on Impulsive Buying Behaviour were assessed using the PLS-SEM algorithm and bootstrapping. These analyses allowed for an evaluation of the path coefficients' significance, directionality, and magnitude. The results are discussed in detail in subsequent subsections.

4.3.4 Structural Path Significance in Bootstrapping

Hair et al. (2021) defines path coefficients as estimated path relationships in the structural model (between constructs in the model), corresponding to standardized betas in a regression analysis. Post determination of path coefficients, before the path coefficients could be interpreted, the data had to be bootstrapped with 5000 subsamples to allow for assessment of significance and to make up for the absence of distributional assumptions.

According to Cresswell & Cresswell (2023), a p-value of .05 or .01 is often considered indicative of statistical significance. Thus, the path coefficients were interpreted based these insights, evaluating the p-values of each path. Complementing result based on p-values, the robustness of the effect was assessed based on an expected absence of zero within the 95% bias corrected confidence interval (Hair et al.,2021).

Table 12: Bootstrapping Path Significance

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Bias	2.5%	97.5%
Agreeableness -> Impulsive Buying	-0.115	-0.114	0.050	2.281	0.023	0.002	-0.212	-0.014
Conscientiousness -> Impulsive Buying	-0.281	-0.284	0.054	5.241	0.000	-0.002	-0.385	-0.177
Extraversion -> Impulsive Buying	-0.016	-0.014	0.040	0.390	0.696	0.002	-0.097	0.062

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Bias	2.5%	97.5%
Neuroticism -> Impulsive Buying	0.323	0.323	0.049	6.555	0.000	-0.001	0.225	0.415
Openness -> Impulsive Buying	0.262	0.261	0.054	4.887	0.000	-0.001	0.163	0.373

The results in table 12 show that, Openness has a significant positive relationship with impulsive buying ($\beta = 0.262$, $p < .001$, CI [0.163, 0.373]), indicating the acceptance of Hypothesis 1. Neuroticism also was found to have a strong and significant positive relationship with impulsive buying ($\beta = 0.323$, $p < .001$, CI [0.225, 0.415]), leading to the acceptance of H5.

Conscientiousness, had a reversed directionality as compared to Openness and Neuroticism, since it was found to have a strong and highly significant negative relationship with impulsive buying ($\beta = –0.281$, $p < .001$, CI [–0.385, –0.177]). Implying the acceptance of H2. Similarly, Agreeableness was found to have a small but statistically significant negative relationship with impulsive buying ($\beta = –0.115$, $p = .023$, CI [–0.212, –0.014]), guaranteeing the acceptance of H4.

On the other end, Extraversion was the only variable that did not exhibit a statistically significant relationship with impulsive buying ($\beta = –0.016$, $p = .696$, CI [–0.097, 0.062]), indicating that H3 was rejected.

Summing up, four of the five proposed hypotheses regarding significant direct relationship between the dependent and independent variables were accepted.

4.3.5 Effect Sizes (f^2)

The f^2 effect size is a metric used to evaluate the relative impact of each independent variable on a dependent variable within the structural model, and it specifically assesses how much a predictor contributes to the explained variance (R^2) in the outcome construct when it is included in the model (Hair et al., 2023). Regarding interpretation of f^2 values, values of 0.35, 0.15 and 0.02 translate as large, medium, and small effect, and their magnitude is expected to align with

the strength of corresponding path coefficients (Cohen,1988). The alignment is demonstrated in table 12.

The predictive contribution of each Big Five personality trait on Impulsive Buying, is presented below:

Table 13: Effect Size

	f-square	Effect	Path Coefficients and P-values
Agreeableness -> Impulsive Buying	0.015	Negligible to Small	-0.115, **0.023**
Conscientiousness -> Impulsive Buying	0.088	Small	-0.281, **0.000**
Extraversion -> Impulsive Buying	0.000	None	-0.016, **0.696**
Neuroticism -> Impulsive Buying	0.115	Small to Moderate	0.323, **0.000**
Openness -> Impulsive Buying	0.065	Small	0.262, **0.000**

As shown in table 13, Agreeableness demonstrated a near-negligible effect ($f^2 = 0.015$), indicating that while statistically significant, its practical impact on impulsive buying is minimal. Conscientiousness and Openness had small effect sizes ($f^2 = 0.088$ and 0.065, respectively), implying that they play meaningful but not dominant roles in explaining variance in impulsive buying. The largest effect was that of Neuroticism ($f^2 = 0.115$), approaching the medium effect threshold, and indicating a relatively stronger individual influence on impulsive buying behaviour. As for Extraversion, it contributed no observable effect ($f^2 = 0.000$), consistent with the non-significant path coefficient reported in earlier subsections.

4.3.6 Moderation Effects

Apart from examining direct effects, this current study examines the moderator role of zodiac signs (divided into feminine and masculine) on the association between personality traits and impulse buying behavior. Hair et al. (2021) state that if a moderator is categorical and has to moderate all paths of the path model, then a Multi-group analysis would be the ideal choice to

examine moderation. Thus, the results of both MICOM (a prerequisite for Multi-group analysis) and permutation-based MGA will be discussed thoroughly in subsequent subsections.

4.3.6.1 MICOM. Given the potential for measurement differences across groups, the Measurement Invariance of Composite Models (MICOM) procedure was employed to ensure valid multi-group comparisons, and authorize proceedings to an interpretable multi-group analysis.

According to Hair et al. (2021), Step 1 of MICOM is configural Invariance, and it is by default established when Permutation MGA is run, ensuring that the same model structure is applied across groups. Step 2 relates to Compositional Invariance and assesses whether the correlations between composites are equivalent across groups. Equality of Composite Means across groups is assessed in step 3a, and equality of composite variances in step 3b. Table 14 presents results of all three steps.

Table 14: MICOM Result

	Step 1	Step 2			Step 3a			Step 3b			
Const	**Config Inv**	**Orig Corr**	**5% Quant**	**Comp Inv**	**M.Dif**	**CI (M)**	**Eq M**	**Var Diff**	**CI (Var)**	**Eq Var**	**Meas Inv**
Agr	Yes	0.998	0.993	Yes	1.564	-0.193, 0.194	No	-0.801	-0.210, 0.215	No	Partial
Consc	Yes	0.999	0.999	Yes	0.831	-0.200, 0.185	No	-0.515	-0.160, 0.165	No	Partial
Ext	Yes	0.991	0.976	Yes	-1.399	-0.184, 0.192	No	1.020	-0.258, 0.221	No	Partial
Imp Buy	Yes	1.000	0.999	Yes	-0.896	-0.192, 0.176	No	0.382	-0.218, 0.210	No	Partial
Neuro	Yes	0.997	0.996	Yes	-0.318	-0.193, 0.189	No	1.602	-0.220, 0.224	No	Partial
Op	Yes	0.999	0.992	Yes	-1.453	-0.194, 0.179	No	0.576	-0.230, 0.226	No	Partial

Note. Const.= Construct; Agr = Agreeableness; Consc = Conscientiousness; Ext = Extraversion; Imp Buy = Impulsive Buying Behvaior; Neuro = Neuroticism; Op = Openness; Config Inv = Configurational Invariance; Orig Corr = Original Correlation; 5% Quant = 5% Quantile; Comp Inv = Compositional Invariance; M.Dif = Mean Difference; CI (M) = Confidence Interval (Mean); Eq M = Equal Mean; Var Diff = Variance Difference; CI (Var) = Confidence Interval (Variance); Eq Var = Equal Variance; Meas Inv = Measurement Invariance

As shown in table 14 step 2, the original correlation of each construct was found to be greater than or equal to the 5% quantile, indicating compositional invariance (Henseler et al.,2016), also the permutation p-values exceeded the 0.05 threshold, complementing the finding, and thereby the major condition of partial measurement invariance was established (Hair et al,2021).

Moving on to step three, one may infer from table 14 step 3a and 3b, that the mean and variance difference values don't fall within their respective 95% confidence intervals, indicating that equality of composite mean and variance is not established. Permutation p-values of all constructs in step 3 falling below 0.05 further complemented the finding (Cheah et al., 2020).

Summing up the findings from all three steps, partial measurement invariance was found to be established, validating the subsequent multi-group analysis, which may be computed only if partial or full measurement invariance was established (Cheah et al., 2020).

4.3.6.2 Path Coefficients Post MGA. Permutation-based multi-group analysis was used to investigate whether the structural relationships between personality traits and impulsive buying are moderated by astrological sign classification (feminine vs. masculine signs). Hair et al. (2021) highlights that this method provides robust testing for differences in path coefficients between groups without assuming data normality.

Table 15: Post MICOM MGA

	Orig (G.Fem)	Orig (G.Masc)	Orig Diff	Perm M.D	2.5%	97.5%	Perm p val
Agreeableness -> Impulsive Buying	0.147	-0.299	0.445	0.002	-0.208	0.201	0.000
Conscientiousness -> Impulsive Buying	-0.173	-0.267	0.095	-0.002	-0.220	0.216	0.394
Extraversion -> Impulsive	-0.022	-0.099	0.077	0.002	-0.157	0.172	0.356

	Orig (G.Fem)	Orig (G.Masc)	Orig Diff	Perm M.D	2.5%	97.5%	Perm p val
Buying							
Neuroticism -> Impulsive Buying	0.376	0.109	0.267	-0.000	-0.198	0.203	0.009
Openness -> Impulsive Buying	0.196	0.114	0.082	-0.002	-0.224	0.206	0.486

Note. Orig (G.Fem) = Original (Group Feminine); Orig (G.Masc) = Original (Group Masculine); Orig Diff = Original Difference; Perm M.D = Permutation Mean Difference; Perm p val = Permutation p value

As may be inferred from table 15, agreeableness showed a statistically significant moderation effect (p = .000), and was found to be positively related to impulsive buying (β = 0.147) among individuals with feminine signs (water and earth sign), whereas for those with masculine signs (fire and air signs), the relationship proved to be negative and stronger (β = -0.299). Neuroticism also displayed a significant group difference (p = .009), and Its path coefficient was stronger in the feminine group (β = 0.376) compared to the masculine group (β = 0.109). But as for Conscientiousness, Extraversion, and Openness, they did not show significant group differences (p > .05), suggesting their effects on impulsive buying are consistent across astrological classifications.

4.3.7 Summary of Hypotheses Testing Results

Tabulated summary of the study hypotheses is presented below:

Table 16: Summary of Hypotheses Testing

DIRECT EFFECT		Tests Employed	Values	RESULT
H1	Openness to Experience has a significant effect on impulsive buying behavior.	PLS-SEM & Bootstrapping	t=2.281, p=0.023, CI= [-0.212, -0.014]	Accepted

H2	Conscientiousness has a significant effect on impulsive buying behavior.	PLS-SEM & Bootstrapping	t=5.241, p=0.000, CI= [-0.385, -0.177]	Accepted
H3	Extraversion has a significant effect on impulsive buying behavior.	PLS-SEM & Bootstrapping	t=0.390, p=0.696, CI= [-0.097 ,0.062]	Rejected
H4	Agreeableness has a significant effect on impulsive buying behavior.	PLS-SEM & Bootstrapping	t=6.555, p=0.000, CI= [0.225 ,0.415]	Accepted
H5	Neuroticism has a significant effect on impulsive buying behavior.	PLS-SEM & Bootstrapping	t=4.887, p=0.000, CI= [0.163 ,0.373]	Accepted
MODERATION EFFECT				
H6a	The relationship between openness and impulsive buying behavior is significantly moderated by Astrological Profile of consumers.	Permutation-based MGA	Permutation p-value=0.000	Rejected
H6b	The relationship between conscientiousness and impulsive buying behavior is significantly moderated by Astrological Profile of consumers.	Permutation-based MGA	Permutation p-value=0.394	Rejected
H6c	The relationship between extraversion and impulsive buying behavior is significantly moderated by Astrological Profile of consumers.	Permutation-based MGA	Permutation p-vaiue=0.356	Rejected
H6d	The relationship between agreeableness and impulsive buying behavior is significantly moderated by Astrological Profile of consumers.	Permutation-based MGA	Permutation p-value=0.009	Accepted

H6e	The relationship between neuroticism and impulsive buying behavior is significantly moderated by Astrological Profile of consumers.	Permutation-based MGA	Permutation p-value=0.486	Accepted

4.4 Discussion

This study investigated the direct influence of the Big Five personality traits on impulsive buying behavior and the moderating influence of astrological profile on their relationship within the Ethiopian context, addressing the detected empirical and population gaps based on literatures reviewed. The results discussed in preceding subsections, provide both confirmation and contrast to existing findings discussed in the empirical review section of the study. The findings are discussed thoroughly relative to other authors' findings in the subsequent paragraphs.

Consistent with several prior studies (Khan, 2021; Miao et al., 2019; Pacheco et al., 2024; Rizki et al., 2022), this study found that openness to experience significantly and positively predicts impulsive buying behavior ($\beta = 0.262$, $p < 0.001$), implying that imaginative individuals duly interested in abstract ideas (Rajavi et al.,2019) are more inclined toward unplanned purchases. The result gives weight to Ningrum & Widanti's (2023) argument that openness can reinforce impulsive buying behavior, especially in exciting shopping atmospheres, since it contradicts Olsen et al. (2015) and Parsad et al. (2019) findings challenging openness as an impulsive buying predictor since it was discovered to have a negative relationship with conformity.

As for Conscientiousness, Qureshi et al. (2024) and Pacheco et al. (2024) termed it as a significant predictor of impulsive consumption ($\beta = -0.281$, $p < 0.001$), thus supporting the notion that conscientious consumers deliberately and intentionally make plans and tend to be seen as responsible (Judge et al., 2024) and would hence be less likely to pursue impulsive consumption. The outcome is the opposite of the reverse outcome of Miao et al. (2019) since they had not yet created any significant connection.

Contrary to the expectations and prior findings (Khan, 2021; Rizki et al., 2022; Pacheco et al., 2024), this study found no significant relationship between extraversion and impulsive buying (β

= -0.016, p = 0.696), challenging the assumption that talkative and gregarious individuals (Rajavi et al, 2019) are inherently more prone to impulse purchasing.

Regarding agreeableness, the study found a significant negative relationship between it and impulsive buying behavior (β = -0.115, p = 0.023), in line with Altınkan & Armağan (2024) but in contrast with Rizki et al. (2022), who found a positive association, suggesting that individuals that are sympathetic and are concerned about others (Rajavi et al., 2019) are less likely to be impulsive in making purchases, possibly due to consideration of others in making purchase decisions.

The results obtained are in consonance with the assumptions of Trait Theory, which holds that personality traits are reasonably consistent throughout a person's life and engender long-lasting behavioral patterns (McCrae & Costa, 1999). The predictive connections found, evidenced in the negative correlation of Conscientiousness and Agreeableness with impulsive buying, and positive correlations found with Openness and Neuroticism, confirm the notion that long-standing psychological traits have a profound impact on consumer behavior across areas.

The relationship between neuroticism and impulsive buying tendency was found to be most significant (β = 0.323, p < 0.001), corroborating Khan (2021), Raza et al. (2022), and Qureshi et al. (2024) findings. This is proof of the hypothesis that people who are emotionally unstable, having symptoms of extreme mood swings, irritability, and nervousness (Judge et al., 2024), will be more impulsive in their buying, possibly coping through shopping. On the other end, the finding was found to contrast with the findings of Pacheco et al. (2024), who reported a negative relationship.

Impulse buying behavior associated with these traits is also demonstrated, by the Theory of Planned Behavior (Küçükkambak & Çelik, 2024; Li & Kang, 2023; Rahmasari & Sugiyanto, 2024), suggesting behavior may be determined by attitudes, subjective norms, and perceived behavioral control. Traits such as Neuroticism may decrease perceived behavioral control, hence susceptibility to impulse purchasing. Furthermore, the Stimulus-Organism-Response (S-O-R) framework (Safeer, 2024; Sen, 2024) describes the way in which external stimuli, i.e., shopping environments, combine with internal organismic states, i.e., personality traits, to elicit responses,

i.e., impulsive buying behaviors. Openness and Neuroticism are personality traits that can enhance the internal affective reaction to stimuli, thereby inducing spontaneous behavior.

The study also explored whether astrological profile moderates the relationships between personality traits and impulsive buying behaviour. Of the five moderated paths tested, only two showed significant moderation effects: The relationship between agreeableness and impulsive buying was found to be significantly moderated by astrological profile (Permutation $p < 0.001$), suggesting that consumers' zodiac group may influence how traits like sympathy and concern about others (Rajavi et al., 2019) impact their buying decisions. This supports early findings by Mustafa & Olgun (2011) and Kwak et al. (2015) indicating that zodiac elements may reflect behavioural tendencies.

The relationship between neuroticism and impulsive buying was also found to be significantly moderated (Permutation $p = 0.009$), reinforcing observations by Mayo et al. (1978) and Singh (2024) that water signs may display higher levels of neuroticism and, consequently, impulsivity. On the other end, moderation effects were not significant for openness, conscientiousness, or extraversion. These findings align with the skeptical conclusions of Steyn (2011) and Veno & Pamment (1979), who found no reliable empirical link between zodiac signs and personality traits.

The role of astrological profiles in moderating the personality-impulse buying relationship can be explained theoretically using the Astropsychology Theory, which bridges the gap between psychological principles and astrological symbolism. According to the Astropsychology Theory, planetary alignments affect personality trait expression and emotional inclinations (Singh, 2024). For instance, the increased impulsiveness among individuals characterized by water signs may be an indication of the sophistication and sensitivity of emotions typically associated with these astrological signs. However, we must point out that astropsychology is a controversial paradigm with little empirical backing, and its use must be considered exploratory in nature, rather than confirmatory.

These mixed results build ground for further investigation into the matter.

CHAPTER FIVE

5. SUMMARY, CONCLUSION, AND RECOMMENDATION

5.1 Summary

As may be noted from the findings, Openness to Experience, Conscientiousness, Agreeableness, and Neuroticism, were found to have significant direct effects on impulsive buying behavior, with conscientiousness, and agreeableness showing a negative relationship and neuroticism and openness to experience showing positive relationships. Extraversion, however, did not have a significant effect. Among the moderation tests, astrological profile significantly moderated only the relationship between agreeableness and neuroticism with impulsive buying. No significant moderating effects were observed for the other personality traits.

5.2 Conclusion

Research investigating the link between personality and impulse purchasing behavior has consistently produced inconclusive and culturally limited results. Therefore, there is a need to investigate this link to a greater extent and to incorporate additional moderating variables, including astrological profiling, in underrepresented environments like Ethiopia.

By exploring the impact of the Big Five personality factors on impulsive buying behavior, as well as the moderating role played by people's astrological sign categories (feminine versus masculine), this study established that certain personality factors, in this case, Conscientiousness and Agreeableness, are negative predictors of impulsive buying behavior. Conversely, Neuroticism and Openness to Experience emerge as positive predictors of this behavior. Additionally, the study confirmed the absence of a significant relationship between Extraversion and impulsive buying behavior. The lack of significance observed can be a consequence of cultural or situational disparities in extraversion expression and its influence on consumer behavior in Ethiopia. In contexts where public expression is governed by traditional norms or economic limitations, the anticipated spontaneity of extraversion cannot necessarily be reflected in impulsive consumption habits.

The inverse correlation between Conscientiousness and impulsive consumer buying behavior that is found on observation suggests that consumers that show higher conscientiousness levels are typically less susceptible to impulsive buying. As such, the discovery suggests that businesses and marketers should think about having separate approaches when targeting

conscientious consumers: perhaps by offering products that appeal to their self-disciplined and organized nature, since ads that aim to induce impulsive action might be ineffective on this group. At a consumer level, conscientiousness seems to be a protective characteristic, possibly keeping people safe from post-purchase remorse or fiscal tension.

On the other hand, the inverse correlation of Agreeableness with impulsive buying tendencies suggests that consumers high in agreeableness will be less prone to make impulse purchases. The result can be useful for consumers who desire to curb impulsive buying by being more interpersonally sensitive and thoughtful when making decisions.

Marketers may need to try harder to convince the agreeable ones, as they will be more prone to exhibit more caution or indecisiveness. Campaigns based on trust establishment and social value may prove to be most effective in targeting this very group.

In contrast, the positive relationship between Neuroticism and impulsive buying shows that individuals scoring high in neuroticism have a greater likelihood of making unplanned purchases. Although this trait can have a deleterious effect on consumer well-being, it also presents itself as an avenue for marketers to leverage this attribute through products that resonate emotionally and serve as coping mechanisms. Marketing strategies emphasizing emotional comfort, stress alleviation, or instant gratification stand to resonate with this group.

The positive correlation observed between Openness to Experience and impulsive purchasing mirrors the notion that consumers who are more open are likely to engage in unplanned purchasing activities. Marketers may not always view this behavior as negative, as open consumer may derive utility from trying new products. For marketers, it also portrays a potential avenue through which to attract open consumers by providing new products and casting purchases as new experiences. Positioning products as new or breakthrough would likely resonate well with this trait.

For the moderating role of astrological profiling, the research established that the influence of Agreeableness and Neuroticism on impulsive buying behavior was significantly different for individuals who were categorized under feminine and masculine astrological signs, whereas the relationships for the remaining traits were not moderated. One explanation for why Openness, Conscientiousness, and Extraversion are not moderated is that these dimensions are more under internal direction and less influenced by external or symbolic identity dimensions such as

astrological sign. That is, conscientious individuals, for instance, are perhaps always in control and goal-oriented irrespective of their astrological sign. Likewise, openness is a more experiential and cognitive trait that might not be highly sensitive to emotional and symbolic differences inherent in astrological types. For extraversion, situational and cultural forces operating in Ethiopia might overshadow any fine-grained astrological influences and thus dilute its relation with sign-based types.

The finding that Agreeableness is positively related to impulse buying in those with feminine signs, but negatively related in those with masculine signs, would suggest that marketers must consider making their campaigns gender and astrological subgroup-contingent. Such promotional targeting may be even more successful if they include both personality and astrological identity, especially in cultures where astrological opinion still carries social significance.

On the other hand, the greater influence of Neuroticism among individuals with feminine signs indicates that emotionally appealing marketing messages would be most effective for this group. These could include calls to emotional security, comfort, or reassurance, particularly for campaigns aimed at emotionally susceptible segments.

Nonetheless, astrological profiling has to be handled with care. Although the results provide initial support for its moderating role, as a psychological tool, astrology is empirically weak and prone to interpretational variability and cultural bias. Thus, any use of astrological results in consumer psychology or marketing has to be handled with care, refraining from spurious correlations without making decisions based on pseudoscientific premises.

Overall, the current study provides theoretical and practical significance to consumer psychology, marketing, and behavior research. In a nation that boasts cultural wealth and an extensive historical legacy of astrological philosophies (Lucian & Harmon, 1936), the usage of zodiac-based psychographics in marketing initiatives may turn out to be valuable for firms, particularly in relation to improving consumer segmentation and aligning marketing approaches with culturally relevant belief systems.

5.3 Recommendations for Future Research

Further studies could replicate this model in other cultures in which astrology holds varying symbolic or instrumental importance, to determine generalizability. Complementing that, the use of behavioral or observation data, for instance, purchase records, would be useful to reduce self-report bias and offer a less biased measure of actual consumer behavior. Because this was a cross-sectional study, future studies could use longitudinal designs to determine how buying behavior impulsivity changes over time, particularly as personality changes or as one goes through different stages of life or extrinsic influences. Moderation-wise, variables other than astrology, like gender, emotional intelligence, and financial knowledge could be explored as potential moderators. Furthermore, since this study used a rather broad categorization to represent the moderator variable, subsequent researches can test more fine-grained astrological categorizations (i.e., types of modality, elements, zodiacal signs) to see if more detailed categorizations offer greater explanatory power.

REFERENCE

Aldani, Muh. F. (2025). The Impact of Marketing Mix Strategies on Consumer Purchasing Decisions. https://doi.org/10.2139/ssrn.5130127

Alidemi, D. T., & Fejza, F. (2021). Theories of Personality: A Literature Review. *International Journal of Progressive Sciences and Technologies*, *25*(2), 194–200. https://doi.org/10.52155/ijpsat.v25.2.2857

Altınkan, D., & Armağan, E. (2024). The Effect of Consumer Personality Traits and Decision-Making Styles on Online Impulsive and Compulsive Buying Behaviors. *Journal of Business in The Digital Age*. https://doi.org/10.46238/jobda.1469380

Andersson, I., Persson, J., & Kajonius, P. (2022). Even the stars think that I am superior: Personality, intelligence and belief in astrology. *Personality and Individual Differences, 187*, 111389. https://doi.org/10.1016/j.paid.2021.111389

Andrikopoulos, L. (2024). *Jung and Twentieth Century Psychological Astrology*. https://doi.org/10.4324/9781003478379

Ari. (2023). Analisis Bibliometrik Terhadap Impulse Buying. *Jurnal Ilmiah Fokus Ekonomi Manajemen Bisnis & Akuntansi (EMBA)*, *2*(01), 108–111. https://doi.org/10.34152/emba.v2i01.733

Astrea Recruitment. (2024). *The Zodiac in the Workplace: How Companies Are Using Astrology for Hiring*. LinkedIn. https://www.linkedin.com/pulse/zodiac-workplace-how-companies-using-astrology-hiring-7imwf

Astutik, P. P., Chusniyah, T., & Ida Viatrie, D. (2020). Kepribadian Big Five terhadap Impulsive Buying Behavior pada Mahasiswi Fakultas Ekonomi dan Bisnis. *Journal An-Nafs: Kajian Penelitian Psikologi*, *5*(1), 54–63. https://doi.org/10.33367/psi.v5i1.951

Attreya, B. (2018). Consumer Buying Behaviour. Journal of Advances and Scholarly Researches in Allied Education, 15(9), 1–4.

Baş, M., & Kubilay, Y. (2016). The Effect of Astrology On Women s Buying Behaviour. *Journal of Business Research - Turk*, *8*(3), 283–283. https://doi.org/10.20491/isarder.2016.201

Berdiayev. (2024). Personality as a Creative Act. *PSIHOLOGÌÂ Ì SUSPÌL'STVO*, *1*(2024), 49–80. https://doi.org/10.35774/pis2024.01.049

Bessouh, N., Mir, A., & Iznasni, A. (2015). A Test of the Relationship Between Buying Impulsiveness and Impulse Purchases. *International Journal for Innovation Education and Research*, *3*(5), 73–81. https://doi.org/10.31686/ijier.vol3.iss5.361

Bhandari, P. (2023). *Descriptive Statistics | Definitions, Types, Examples*. Scribbr. https://www.scribbr.com/statistics/descriptive-statistics/

Blackwell, R. D., Miniard, P. W., & Engel, J. F. (2001). Consumer Behavior (9th ed.). South-Western Thomson Learning.

Brown, D. (2000). *Mesopotamian Planetary Astronomy-astrology*. Brill.

Bruner, G. C. (2009). *Marketing scales handbook. 5: Compilation of multi-item measures for consumer behavior & advertising research / Gordon C. Bruner* (Library Version). GCBII Productions, LLC.

Burgess, S. M., & Steenkamp, J.-B. E. M. (1999). Value Priorities and Consumer Behavior in a Transitional Economy. Marketing Issues in Transitional Economies, 85–105. https://doi.org/10.1007/978-1-4615-5009-9_5

Burns, W. (2018). *Astrology Through History*. https://doi.org/10.5040/9798400615580

Burroughs, J. E., & Rindfleisch, A. (2002). Materialism and Well-Being: A Conflicting Values Perspective. *Journal of Consumer Research*, *29*(3), 348–370. https://doi.org/10.1086/344429

Cheah, J.-H., Thurasamy, R., Memon, M. A., Chuah, F., & Ting, H. (2020). Multi-group Analysis using SmartPLS: Step-by-Step Guidelines for Business Research. *Asian Journal of Business Research*, *10*(3). https://doi.org/10.14707/ajbr.200087

Chmielewski, M. S., & Morgan, T. A. (2013). Five-Factor Model of Personality. *Encyclopedia of Behavioral Medicine*, 803–804. https://doi.org/10.1007/978-1-4419-1005-9_1226

Churchill, G. A., & Peter, J. P. (1998). Marketing: Creating Value for Customers. Irwin Mcgraw-Hill.

Clarke, D., Gabriels, T., & Barnes, J. (1996). Astrological Signs as Determinants of Extroversion and Emotionality: An Empirical Study. *The Journal of Psychology*, *130*(2), 131–140. https://doi.org/10.1080/00223980.1996.9914995

Cochran, W. G. (1977). *Sampling Techniques* (3rd Edition). John Wiley & Sons.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.

Creswell, J. W., & Creswell, D. J. (2023). *Research Design Qualitative, Quantitative, and Mixed Methods Approaches* (6th ed.).

Davidson, P. (2005). Galbraith and the Post Keynesians. *Journal of Post Keynesian Economics*. https://www.jstor.org/stable/4538962

Devi, S., Sharma, K., & Jain, S. (2023). A retrospection of research on impulse buying behaviour and future research directions. *International Journal of Bibliometrics in Business and Management*, *2*(4), 308–349. https://doi.org/10.1504/ijbbm.2023.137603

Dheere, F. S., Kiu Special, & Kiu Publication Extension. (2025). 7 Ps of Marketing:overview of Marketing. ResearchGate. https://doi.org/10.1098/gdshajsd

Diamantopoulos, A., & Siguaw, J. A. (2006). Formative Versus Reflective Indicators in Organizational Measure Development: A Comparison and Empirical Illustration. *British Journal of Management*, *17*(4), 263–282. https://doi.org/10.1111/j.1467-8551.2006.00500.x

Dias, S., Natividade, J. C., & Lincoln, S. (2021). Validity evidences of the Buying Impulsiveness Scale in the Brazilian Context. *Figshare*. https://doi.org/10.6084/m9.figshare.14269816

Donnellan, M. B., Oswald, F. L., Baird, B. M., & Lucas, R. E. (2006). The Mini-IPIP Scales: Tiny-yet-effective measures of the Big Five Factors of Personality. *Psychological Assessment*, *18*(2), 192–203. https://doi.org/10.1037/1040-3590.18.2.192

Engel, J. F., Blackwell, R. D., & Miniard, P. W. (1995). Consumer Behavior (8th ed.). Forth Worth, Dryden Press.

Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research, 18*(3), 382–388. https://doi.org/10.2307/3150980

Godelek, E., & Akalın, F. (2018). A Pre Study for Developing and Exploring An "Impulsive Buying Scale" for Turkish Population. *European Scientific Journal, ESJ, 14*(32), 72. https://doi.org/10.19044/esj.2018.v14n32p72

Goldberg, L. R. (1999). *A Broad-Bandwidth, Public-Domain, Personality Inventory Measuring the Lower-Level Facets of Several Five-Factor Models*.

Gower, T., Pham, J., Jouriles, E. N., Rosenfield, D., & Bowen, H. J. (2022). Cognitive Biases in Perceptions of Posttraumatic Growth: A Systematic Review and Meta-Analysis. *Clinical Psychology Review, 94*, 102159. https://doi.org/10.1016/j.cpr.2022.102159

Grigoropoulos, I. (2024). *Applying the Theory of Planned Behavior in Sexuality Education: Educators' Behavioral Intentions toward Sexuality Issues*. https://doi.org/10.32388/ksacnt

Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R*. Springer International Publishing. https://doi.org/10.1007/978-3-030-80519-7

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.

Hall, V. (2022). *If Brands Want to Connect with Astrology Fans, They Need to Get Serious About the Science Behind It*. Praytell.

Hanafiah, M. (2020). Formative Vs. Reflective Measurement Model: Guidelines for Structural Equation Modeling Research. *International Journal of Analysis and Applications*, *18*(5). https://doi.org/10.28924/2291-8639-18-2020-876

Hartmann, P., Reuter, M., & Nyborg, H. (2006). The Relationship Between Date of Birth and Individual Differences in personality and general intelligence: A large-scale study. *Personality and Individual Differences*, *40*(7), 1349–1362. https://doi.org/10.1016/j.paid.2005.11.017

Hawkins, D. I., Coney, K. A., & Best, R. J. (2004). Consumer Behavior Building Marketing Strategy. Boston Mcgraw-Hill/Irwin.

Heidari, G. (2023). Medical Astrology in Hippocrates and Galen's Medical Works. *Iranian Journal of Medical Ethics and History of Medicine*. https://doi.org/10.18502/ijme.v15i8.11814

Henseler, J., Hubona, G., & Ray, P. A. (2016). Using Pls Path Modeling in New Technology Research: Updated Guidelines. *Industrial Management & Data Systems*, *116*(1), 2–20.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A New Criterion for Assessing Discriminant Validity in Variance-Based Structural Equation Modeling. *Journal of the Academy of Marketing Science*, *43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Jackson, J. G. (2017). *Ethiopia and the Origin of Civilization: A Critical Review of the Evidence of Archaeology, Anthropology, History and Comparative Religion According to the Most Reliable Sources*. Martino Fine Books.

Jansen, D. (2023). *3 Essential Components Of A Literature Review—Grad Coach*. Grad Coach. https://gradcoach.com/literature-review-components/#2

Jeans, S., & Cohen, H. F. (2001). *Kepler, Johannes* (Vol. 1). Oxford University Press. https://doi.org/10.1093/gmo/9781561592630.article.14903

Jebb, A. T., Ng, V., & Tay, L. (2021). A Review of Key Likert Scale Development Advances: 1995–2019. *Frontiers in Psychology*, *12*, 637547. https://doi.org/10.3389/fpsyg.2021.637547

Jisana, T. K. (2014). Consumer Behaviour Models: An Overview. Sai Om Journal of Commerce & Management, 1(5). https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=ef54146370ef2e3e015f182092d8b816efbf4306

Jois, & Pawar, S. (2024). Impulse Buying Behavior in E-Commerce: Factors Influencing Spontaneous Purchases in Online Retail Environments. *International Journal for Multidisciplinary Research*, *6*(4). https://doi.org/10.36948/ijfmr.2024.v06i04.25849

Judge, S. T., Meyr, K. J., & Segerstrom, S. C. (2024). Conscientiousness and Pain Interference in Older Age. ˜ *The œjournals of Gerontology. Series B, Psychological Sciences and Social Sciences*, *79*(5). https://doi.org/10.1093/geronb/gbae024

Kang, W., Jeggan Tiego, Hellyer, P. J., Trender, W., Grant, J. E., Chamberlain, S. R., & Hampshire, A. (2024). Validation of an abbreviated Big Five personality inventory at large population scale: Psychometric structure and associations with common psychiatric and neurological disorders.

Comprehensive Psychiatry, *134*, 152514–152514. https://doi.org/10.1016/j.comppsych.2024.152514

Kapoor, D. A. (2024). *The Influence of Zodiac Signs on Personality Traits: A Cross-Cultural Analysis*. *1*(1).

Kassell, L. (2010). Stars, Spirits, Signs: Towards a History of Astrology 1100–1800. *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences*, *41*(2), 67–69. https://doi.org/10.1016/j.shpsc.2010.04.001

Khan, S. W. (2021). Impact of Five Personality Traits on Impulsive Buying Behavior. *Journal of Marketing Strategies*, *1*(1), 22–37. https://doi.org/10.52633/jms.v1i1.2

Kotler, P., & Armstrong, G. (2014). Principles of Marketing. Pearson.

Küçükkambak & Çelik. (2024). The buying impulse: Delving into the psychological depths of irresistible buying behavior. *Elsevier eBooks*, 231–250. https://doi.org/10.1016/b978-0-443-13437-1.00018-5

Kwak, H., Jaju, A., & Zinkhan, G. M. (2015). Astrology: Its Influence on Consumers' Buying Patterns and Consumers' Evaluations of Products and Services. In H. E. Spotts & H. L. Meadow (Eds.), *Proceedings of the 2000 Academy of Marketing Science (AMS) Annual Conference* (pp. 94–98). Springer International Publishing. https://doi.org/10.1007/978-3-319-11885-7_25

Le, N., Mai, N. T. B., Nguyen, N. Y. T., & Vu, H. N. T. (2024). Multi-Sensory Marketing and Impulsive Buying Behavior: The Role of Impulsive Buying Traits. *Emerging Science Journal*, *8*(5), 1764–1782. https://doi.org/10.28991/esj-2024-08-05-05

Levy, M., & Weitz, B. A. (2008). Retailing Management. Mcgraw-Hill Irwin.

Li, L., & Kang, K. (2023). Discovering online Chinese consumers' impulse buying in live streaming by the theory of planned behavior. *Journal of Economic Analysis, 3*(2), 121–133. https://doi.org/10.58567/jea03020008

Lucian, & Harmon, A. M. (1936). *Astrology* [Dataset]. Harvard University Press. https://doi.org/10.4159/DLCL.lucian-astrology.1936

Machi, L. A., & McEvoy, B. T. (2022). *The Literature Review: Six Steps to Success* (Fourth edition). Corwin.

Mayo, J., White, O., & Eysenck, H. J. (1978). An Empirical Study of the Relation between Astrological Factors and Personality. *The Journal of Social Psychology, 105*(2), 229–236. https://doi.org/10.1080/00224545.1978.9924119

McCrae, R. R., & John, O. P. (1992). An Introduction to the Five-factor Model and Its Applications. *Journal of Personality, 60*(2), 175–215. https://doi.org/10.1111/j.1467-6494.1992.tb00970.x

McLeod, S. (2024). *Discriminant Validity*. ResearchGate. https://doi.org/10.13140/RG.2.2.26919.56486

Miao, M., Jalees, T., Qabool, S., & Zaman, S. I. (2019). The Effects of Personality, Culture and Store Stimuli on Impulsive Buying Behavior. *Asia Pacific Journal of Marketing and Logistics, 32*(1), 188–204. https://doi.org/10.1108/apjml-09-2018-0377

Mitchell, & Haggett, S. (1997). Sun-Sign Astrology in Market Segmentation: An Empirical Investigation. *Journal of Consumer Marketing*, *14*(2), 113–131. https://doi.org/10.1108/07363769710166756

Mitchell. (1995). Using Astrology in Market Segmentation. *Management Decision*, *33*(1), 48–57. https://doi.org/10.1108/00251749510075383

Mustafa, G., & Olgun, K. (2011). The Effect of Astrology on Young Customer Behaviors. *Studies in Business and Economics*.

Nikolett Kanász. (2024). A Brief History of the Development of Modern Psychological Astrology. *International Journal of Jungian Studies*, *16*(2), 127–154. https://doi.org/10.1163/19409060-bja10035

Ningrum, R. A., & Widanti, A. (2023). The Effect of Shopping Lifestyle and Sales Promotion on Impulse Buying Moderated By Openness To Experience on Shopee. *International Journal of Management and Digital Business*, *2*(1), 14–29. https://doi.org/10.54099/ijmdb.v2i1.554

Nyrhinen, J., Sirola, A., Koskelainen, T., Munnukka, J., & Wilska, T.-A. (2023). Online antecedents for young consumers' impulse buying behavior. *Computers in Human Behavior*, *153*(108129), 108129. https://doi.org/10.1016/j.chb.2023.108129

Olsen, S. O., Tudoran, A. A., Honkanen, P., & Verplanken, B. (2015). Differences and Similarities between Impulse Buying and Variety Seeking: A Personality-based Perspective. *Psychology & Marketing*, *33*(1), 36–47. https://doi.org/10.1002/mar.20853

Özkan, B. (2013). *Is There Any Impact of Horoscopes on Luxury Consumption Trends?*

Pacheco, D. C., Isabel, A., Caldeira, S. N., & Dias, O. (2024). Building an Irresistible Shopping Experience: The Power of Personality, Subjective Well-Being and Parasocial Relationships on the Online Impulse Buying Tendency. *Smart Innovation, Systems and Technologies*, 399–408. https://doi.org/10.1007/978-981-99-9765-7_34

Pacheco, D. C., Isabel, A., Caldeira, S. N., & Silva, O. (2023). Online Impulse Buying Tendency—Impact of Psychological, Social, and Technological Factors. *Smart Innovation, Systems and Technologies*, 375–387. https://doi.org/10.1007/978-981-19-9960-4_33

Pacheco, D. C., Moniz, A. I. D. de S. A., Caldeira, S. N., & Silva, O. D. L. (2021). Online Impulse Buying—Integrative Review of Psychological Factors. *Perspectives and Trends in Education and Technology*, 527–536. https://doi.org/10.1007/978-981-16-5063-5_44

Parsad, C., Prashar, S., & Tata, V. S. (2019). Influence of Personality Traits and Social Conformity on Impulsive Buying Tendency. *International Journal of Strategic Decision Sciences*, *10*(2), 107–124. https://doi.org/10.4018/ijsds.2019040106

Pfeffer, M. (2023). Reassessing the Marginalization of Astrology in the Early Modern World. *The Historical Journal*, *66*(5), 1152–1176. https://doi.org/10.1017/s0018246x23000328

Plait. (2002). Bad astronomy: Misconceptions and misuses revealed, from astrology to the moon landing 'Hoax'. *Choice Reviews Online*, *40*(01), 40–0275. https://doi.org/10.5860/choice.40-0275

Puspitasari, D., Hafsah, S., Argiati, B., Putrianti, F., Psikologi, F., & Tamansiswa, S. (2022). Impulsive Buying Ditinjau dari Kontrol Diri pada Mahasiswi Penggemar K-Pop di Yogyakarta

The Relationship between Self-Control with Impulsive Purchases College Student K-Pop Fans. *JoPS: Journal of Psychological Students*, *1*(2). https://doi.org/10.15575/jops.v1i2.16977

Qureshi, F. H., Katarina Sokic, & Khawaja, S. (2024). *Impulsive Buying Tendencies and Personality: Cognitive and Affective Aspects*. https://doi.org/10.20944/preprints202409.2097.v1

Rahmasari & Sugiyanto. (2024). Perilaku Impulse Buying Konsumen pada Produk Lifestyle dengan Pendekatan Theory Of Planned Behavior. *Reslaj Religion Education Social Laa Roiba Journal*, *6*(11). https://doi.org/10.47467/reslaj.v6i11.3952

Rajavi, K., Kushwaha, T., & Steenkamp, J.-B. E. M. (2019). In Brands We Trust? A Multicategory, Multicountry Investigation of Sensitivity of Consumers' Trust in Brands to Marketing-Mix Activities. *Journal of Consumer Research*, *46*(4), 651–670. https://doi.org/10.1093/jcr/ucz026

Rao, D. D. (2024). *Astrological Zodiacs and Their Impact on Beliefs and Behavior: A Psychological Perspective*. *1*(1).

Raza, A., Asif, M., & Akram, M. (2022). Personal AND CULTURAL FACTORS INFLUENCING CONSUMERS' IMPULSE BUYING BEHAVIOR: A DEVELOPING COUNTRY PERSPECTIVE. *International Journal of Business Reflections*, *3*(2), 200–226. https://doi.org/10.56249/ijbr.03.01.34

Rensberger, B. (1975). 186 Top Scientists Dismiss Astrologers as Charlatans. *The New York Times*. https://www.nytimes.com/1975/09/03/archives/186-top-scientists-dismiss-astrologers-as-charlatans-scientists.html

Revilla, R. G., Acosta, C., & Reyna, C. (2016). ESTUDIOS DE VALIDEZ Y CONFIABILIDAD DE LA ESCALA DE COMPRA IMPULSIVA EN JÓVENES Y ADULTOS DE LA CIUDAD DE CÓRDOBA, ARGENTINA. *Ciencias Psicológicas*, 133–142. https://doi.org/10.22235/cp.v7i1.1054

Rigdon, E. E. (2012). Rethinking Partial Least Squares Path Modeling: In Praise of Simple Methods. *Long Range Planning*, *45*(5–6), 341–358. https://doi.org/10.1016/j.lrp.2012.09.010

Rizki, F. D., Chan, A., Barkah, C. S., & Tresna, P. W. (2022). The Impact of Big Five Personality towards Impulsive Buying Behavior. *IJEBD International Journal Of Entrepreneurship And Business Development eISSN 2597-4785 pISSN 2597-4750*, *5*(2), 216–228. https://doi.org/10.29138/ijebd.v5i2.1733

Rooij, J. J. F. (1994). Introversion-Extraversion: Astrology Versus Psychology. *Personality and Individual Differences*, *16*(6), 985–988. https://doi.org/10.1016/0191-8869(94)90243-7

Rooij, J. J. F. (1999). Self-Concept in Terms of Astrological Sun-Sign Traits. *Psychological Reports*, *84*(2), 541–546. https://doi.org/10.2466/pr0.1999.84.2.541

Rook, D. W., & Fisher, R. J. (1995). *Buying Impulsiveness Scale* [Dataset]. https://doi.org/10.1037/t02869-000

Ross, P., & Zaidi, N. B. (2019). Limited by Our Limitations. *Perspectives on Medical Education*, *8*(4), 261–264. https://doi.org/10.1007/s40037-019-00530-x

Rutkin, H. D. (2018). Galileo as Practising Astrologer. *Journal for the History of Astronomy*, *49*(3), 388–391. https://doi.org/10.1177/0021828618793218

Safeer. (2024). Harnessing the power of brand social media marketing on consumer online impulse buying intentions: A stimulus-organism-response framework. ˜ *The œjournal of Product & Brand Management*, *33*(5). https://doi.org/10.1108/jpbm-07-2023-4619

Schiffman, L. G. (2001). Consumer Behaviour. Prentice Hall.

Scribbr. (2023). *What are ethical considerations in research?* Scribbr. https://www.scribbr.com/frequently-asked-questions/what-are-ethical-considerations-in-research/

Sen, S. (2024). Influence of External and Situational Stimulus Factors on Impulse Buying: A Stimulus-Organism- Response Framework. *Indian Journal of Marketing*, *54*(5), 62. https://doi.org/10.17010/ijom/2024/v54/i5/173830

Sharma, R., & Pahuja, J. (2020). A Study on 'Consumer Buying Behavior Towards the Green Marketing Practices'. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3849995

Singh, D. N. (2024). *Astrology and Personality Traits: A Comparative Study*. *1*(1).

Stern, H. (1962). The Significance of Impulse Buying Today. *Journal of Marketing*, *26*(2), 59–62. https://doi.org/10.1177/002224296202600212

Steyn, R. (2011). Astrological Signs and Personality Differences. *Journal of Psychology in Africa*, *21*(3), 493–494. https://doi.org/10.1080/14330237.2011.10820488

Tanner, J. F., Raymond, M. A., & Schuster, C. (2023). Principles of Marketing. Ingram.

Taylor, N., & Bruin, G. P. D. (2006). The Basic Traits Inventory. *Psychological Assessment in South Africa*, 232–243. https://doi.org/10.18772/22013015782.21

Tigabu, T. (2014). Ethiopia: Talisman Zodiac With Visual Performance. *All Africa*. https://allafrica.com/stories/201408040823.html#:~:text=Ethiopian%20astrology%20is%20called%20Hasabe,and%20Computus%20(church%20calender).

Turney, S. (2022a). *Skewness | Definition, Examples & Formula*. Scribbr. https://www.scribbr.com/statistics/skewness/

Turney, S. (2022b). *What Is Kurtosis? | Definition, Examples & Formula*. Scribbr. https://www.scribbr.com/statistics/kurtosis/

Tyupa, S. (2023). A Theoretical Framework for Back-Translation as a Quality Assessment Tool | New Voices in Translation Studies. *Newvoices.Arts.Chula.Ac.Th*. https://newvoices.arts.chula.ac.th/index.php/en/article/view/150

Veno, A., & Pamment, P. (1979). Astrological Factors and Personality: A Southern Hemisphere Replication. *The Journal of Psychology*, *101*(1), 73–77. https://doi.org/10.1080/00223980.1979.9915054

Vinz, S. (2022). *The Theoretical Framework: What and How? | A Quick Guide*. Scribbr. https://www.scribbr.com/dissertation/theoretical-framework/

Wang, L., Zhang, S., & Naeem, S. B. (2024). Modeling the predictors of health information avoidance behavior: Implications from the stimulus organism response (S-O-R) theory. *Journal of Librarianship and Information Science*. https://doi.org/10.1177/09610006241290265

Wang, Y., Pan, J., Xu, Y., Luo, J., & Wu, Y. (2022). The Determinants of Impulsive Buying Behavior in Electronic Commerce. *Sustainability*, *14*(12), 7500. https://doi.org/10.3390/su14127500

Watson, J. C., & Greenberg, L. S. (1998). Humanistic and Experiential Theories of Personality. *The Plenum Series in Social/Clinical Psychology*, 81–102. https://doi.org/10.1007/978-1-4419-8580-4_4

Weiss, S. M. (2008). *Signs of Success: The Remarkable Power of Business Astrology*. AMACOM, American Management Association.

WGSN Insider. (2022). *Marketing to Stargazing Youth with Astrology*. https://www.wgsn.com/en/blogs/marketing-stargazing-youth-astrology

White, F. (1904). *A Guide to Astrology*.

Withanawasam, R., Whigham, P. A., Crack, T. F., & Premachandra, I. M. (2016). *An Empirical Investigation of the Maslov Limit Order Market Model*. ResearchGate; unknown. https://www.researchgate.net/publication/265099881_An_Empirical_Investigation_of_the_Maslov_Limit_Order_Market_Model#pf21

Woods, K. (2024). *The Benefits of Integrating Astrological Insights in Your Business Strategy*. C-Suite Network. https://c-suitenetwork.com/articles/the-benefits-of-integrating-astrological-insights-in-your-business-strategy/

Woodwell, D. (2019). *The Astrology Dictionary: Cosmic Knowledge from A to Z*.

Woolfolk, J. (2012). *The Only Astrology Book You'll Ever Need: Twenty-First-Century Edition*. The Rowman & Littlefield Publishing Group, Inc.

Yale. (2023). *Introduction · Yale University Library Online Exhibitions.* Onlineexhibits.Library.Yale.Edu. https://onlineexhibits.library.yale.edu/s/medicalastrology/page/introduction

APPENDIX

ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF MANAGEMENT

QUESTIONNAIRE

Dear Respondent,

This questionnaire is part of a research study examining the relationship between personality traits and consumer behaviour. Your participation will contribute to a better understand these dynamics. Thus, you are kindly requested you to fill this questionnaire honestly assured that the data will be used only for the intended academic purpose (for partial fulfillment of Degree of Masters of Arts in Business Administration). All responses will be treated confidentially and anonymously.

Thank You for your Cooperation.

Part 1: Demographic Information

Dear respondent, please put a tick mark, or blacken the box which represents your response.

1. I visit _____ supermarket more often than I do the others.

- ☐ Queens
- ☐ Lomyad
- ☐ Shoa

2. Gender

- ☐ Male
- ☐ Female

3. Marital Status

- Single
- Married

4. Occupational Status

- Student
- Employed
- Unemployed

5. When were you born? Please write your response in DD/MM format: _____

Part 2: Personality Scale

Dear respondent, please provide truthful responses to the questions presented, based on these ratings.

(1) strongly disagree

(2) disagree

(3) neither agree nor disagree

(4) agree

(5) strongly agree

You may put a tick mark on, or blacken the box which represents your response in the response table.

Item no.	Parameters	1	2	3	4	5
Openness						

Item no.	Parameters	1	2	3	4	5
O1	I see myself as someone who has a vivid imagination. (□□□□ □□□ □□ □□□ □□□□□ □□ □□□□□□□□)					
O2	I see myself as someone who is interested in abstract ideas. (□□□□ □□□ □□□ □□□□ □□□□□□ □□ □□□□□□□□)					
O3	I see myself as someone who has a good imagination. (□□□□ □□ □□□ □□□□□ □□ □□□□□□□□)					
Conscientiousness						
C1	I get chores done right away. (□□□□ □□□□ □□□□□□)					
C2	I often forget to put things back in their proper place (R). (□□ □□ □□□□□ □□□□□□□ □□□□ □□ □□□□ □□□□□□□)					
C3	I like order (□□ □□□ □□□ □□□□□□)					
C4	I make a mess of things. (□□□□□ □□□□□□□□□)					
Extraversion						
E1	I see myself as someone who is the life of the party. (□□□□ □□□ □□□ □□□□ □□ □□□□□□□□)					
E2	I see myself as someone who talks a lot. (□□□□ □□ □□□□□□□ □□ □□□□□□□□)					

Item no.	Parameters	1	2	3	4	5
E3	I see myself as someone who talks to a lot of different people at parties. (□□□□ □□□□ □□□ □□□□ □□□□□ □□□ □□ □□□□□□□ □□ □□□□□□□□)					
Agreeableness						
A1	I see myself as someone who sympathizes with others' feelings. (□□□□ □□□□ □□□ □□□ □□ □□□□□ □□ □□□□□□□□)					
A2	I see myself as someone who feels others' emotions. (□□□□ □□□□ □□□ □□□ □□□□□□□ □□ □□□□□□□□)					
A3	I see myself as someone who is really interested in others. (□□□□ □□□□□ □□□ □□□□□□□□ □□ □□□□□□□□)					
Neuroticism						
N1	I have frequent mood swing. (□□□□□ □□□ □□□□□□□)					
N2	I am relaxed most of the time (□□ □□ □□ □□□ □□ □□□)					
N3	I get upset easily. (□□ □□□□□□□)					
N4	I seldom feel blue. (□□□□ □□ □□□ □□ □□□□□□)					

Part 3: Consumer Behavior Scale

Dear respondent, please provide truthful responses to the questions presented, based on these ratings.

(1) strongly disagree

(2) disagree

(3) neither agree nor disagree

(4) agree

(5) strongly agree

You may put a tick mark on, or blacken the box which represents your response in the response table.

Item no.	Parameters	1	2	3	4	5
I1	I often buy things spontaneously. (□□□□ □□□□□ □□□□ □□□□□□)					
I2	"Just do it" describes the way I buy things. (□□□□□ □□□□□□□ □□□□ □□□□□□□ "□□□□□ □□□□□" □□□□ □□□)					
I3	I often buy things without thinking. (□□□□ □□□□ □□ □□□□□ □□□□□□)					
I4	"I see it, I buy it" describes me. ("□□□□ □ □□□□" □□□□ □□□□□□□)					

Item no.	Parameters	1	2	3	4	5
I5	“Buy now, think about it later” describes me. ("□□□ □□ □ □□ □□□□□□□□" □□□□ □□□□□□□□)					
I6	Sometimes I feel like buying things on the spur of the moment. (□□□□□ □□□□□ □□□□□□ □□□□□□)					
I7	I buy things according to how I feel at the moment. (□□□□□ □□□ □□□□ □□□□□□ □□□ □□ □□□□□ □□□)					
I8	I carefully plan most of my purchases. (□□□□□ □□ □□□□□ □□□□□□□)					
I9	Sometimes I am a bit reckless about what I buy. (□□□□□ □□□□□□ □□□ □□□ □□□□□ □□□)					