

**PREDICTING SHISHA SMOKING BEHAVIOUR  
AMONG UNIVERSITY STUDENTS IN NIGERIA:  
MODERATING ROLES OF MEDIA  
NORMALISATION AND DENORMALISATION**

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**UNIVERSITI SAINS MALAYSIA**

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NORMALISATION AND DENORMALISATION**

by

**ADU AGATHA OLUWAFUNMILAYO**

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## LIST OF ABBREVIATIONS

ITSS	Intention to Smoke Shisha
PEOS	Positive Evaluations of Shisha
IMFS	Internal Motives for Shisha
EMFS	External Motives for Shisha
IMP	Impulse to Smoke Shisha
BEHA	Shisha Smoking Behaviour
NTSM	Normalisation of Shisha through Pro-shisha Social Media Messages
DTMS	Denormalisation of Shisha through Anti-shisha Mainstream Media Messages
YS	Year of Study
EG	Ethnic Group
RSS	Rate of Shisha Smoking
LSS	Length of Shisha Smoking
HOC	Higher Order Constructs
LOC	Lower Order Constructs
AVE	Average Variance Extracted
VIF	Variance Inflation Factor
HTMT	Heterotrait-Monotrait Ratio of Correlations
$R^2$	Coefficient of Determination
$Q^2$	Predictive Relevance
$f^2$	Effect Size
SD	Standard Deviation
SE	Standard Error
CMB	Common Method Bias
EFA	Exploratory Factor Analysis
CFA	Confirmatory Factor Analysis
SPSS	Statistical Package for Social Sciences
PLS-SEM	Partial Least Squares-Structural Equation Modelling
SmartPLS	Smart Partial Least Squares

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**MERAMAL TINGKAH LAKU MENGHISAP SHISHA DALAM  
KALANGAN PELAJAR UNIVERSITI DI NIGERIA: PERANAN  
PENYEDERHANAAN NORMALISASI DAN DENORMALISASI MEDIA**

**ABSTRAK**

Belia adalah penentu masa depan masyarakat. Amalan menghisap shisha secara berterusan bukan sahaja membahayakan kesihatan, tetapi ia juga menjejaskan individu lain dalam masyarakat. Walaupun kajian lepas telah membuktikan hubungan antara dorongan dan tingkah laku menghisap shisha dalam kalangan belia, tidak banyak yang diketahui mengenai kesan dorongan ke atas belia yang menghisap shisha, serta bagaimana mesej yang dijana oleh media dapat mempengaruhi dorongan dan tingkah laku belia, sama ada dalam kategori pro-menghisap shisha atau anti-menghisap shisha. Bagi memenuhi jurang pengetahuan, kajian ini menggunakan teori tingkah laku PRIME untuk meneliti tingkah laku menghisap shisha sebagai suatu perlakuan yang terhasil dari dorongan untuk melakukannya pada sesuatu masa. Kajian ini menjelaskan peranan penyederhana, iaitu normalisasi shisha menerusi media sosial dan denormalisasi shisha menerusi pemekaan media, dengan memfokuskan kepada mesej pro-menghisap shisha dan anti-menghisap shisha. Survei telah dilaksanakan antara bulan Mei dan Ogos 2021 di enam buah universiti di Nigeria, sebuah negara yang mana amalan menghisap shisha dalam kalangan belia di institusi pengajian tinggi dinormalisasikan dan denormalisasi menghisap shisha juga adalah ketara, terutamanya menerusi akhbar dalam talian. Kajian ini menguji hubungan ramalan antara dorongan untuk menghisap shisha dan tingkah laku menghisap shisha, bersama dengan peramal dorongan (niat untuk menghisap shisha, penilaian positif terhadap shisha, motif dalaman terhadap shisha dan motif luaran terhadap shisha). Kajian ini juga melibatkan

kesan penyederhanaan normalisasi shisha menerusi media sosial dan demormalisasi shisha menerusi pemekaan media. Jantina, umur, tahun pengajian, kumpulan etnik, kadar menghisap shisha dan durasi menghisap shisha dimasukkan dalam faktor kawalan. Sampel kajian ini melibatkan seramai 695 responden menerusi kaedah persampelan bola salji dan data kajian telah dianalisis menggunakan PLS-SEM. Secara khususnya, SPSS versi 25 telah digunakan untuk menganalisis bahagian deskripsi bagi frekuensi, peratusan dan sisihan piawai responden serta taburan pembolehubah. PLS-SEM pula telah diaplikasikan menerusi SmartPLS versi 3 untuk menilai signifikan konstruk-onstruk dalam model pengukuran, model sruktur, dan analisis penyederhanaan. Dapatan kajian ini menunjukkan, motif dalaman iaitu solidariti, pencarian pembaharuan dan identiti penghisap shisha adalah pengaruh terhebat yang mendorong belia untuk menghisap shisha. Dapatan kajian juga membuktikan, dorongan untuk menghisap shisha adalah peramal kepada tingkah laku menghisap shisha dalam kalangan belia. Kesan penyederhanaan normalisasi shisha menerusi media sosial adalah signifikan kepada niat untuk menghisap shisha dan motif dalaman terhadap shisha, tetapi tidak signifikan kepada hubungan antara motif luaran terhadap shisha (pengaruh rakan sebaya dan pengaruh keluarga) dan dorongan untuk menghisap shisha. Ini bermakna, rakan sebaya dan ahli keluarga boleh mempengaruhi belia tanpa penglibatan dari pihak ketiga. Kesan penyederhanaan normalisasi shisha menerusi media sosial terhadap hubungan antara dorongan untuk menghisap shisha dan tingkah laku menghisap shisha adalah signifikan. Ini bermakna mesej anti-menghisap shisha yang memaparkan bahayanya memainkan peranan penting untuk mengurangkan tabiat menghisap shisha dalam kalangan belia. Implikasi teoretikal berdasar kepada teori tingkah laku PRIME membuktikan, walaupun normalisasi shisha menerusi media sosial meningkatkan dorongan untuk menghisap shisha dalam kalangan belia,

denormalisasi shisha menerusi mesej media anti-shisha menunjukkan kesan sebaliknya yang dapat mengurangkan tingkah laku menghisap shisha dalam kalangan belia. Kajian ini mencadangkan, kerajaan, pembuat polisi dan media mainstream untuk menggunakan platform digital dalam usaha untuk meningkatkan pemekaan belia terhadap kepentingan untuk menjauhi tabiat menghisap shisha. Tambahan pula denormalisasi shisha lebih ketara dalam akhbar atas talian Nigeria. Kajian ini menggalakkan golongan profesional dalam media arus utama contohnya media penyiaran untuk menyokong usaha akhbar dengan menyebarkan mesej yang menyumbang ke arah denormalisasi shisha dalam masyarakat di Nigeria, khususnya dalam kalangan belia. Selain itu, dalam usaha menarik perhatian belia dan menghasilkan impak yang lebih luas, golongan profesional akhbar digalakkan untuk berusaha menambah baik mesej anti-shisha dengan menemubual pakar-pakar yang relevan. Pendapat pakar dapat menambahbaik nilai mesej, memperkayakan kedalaman mesej, serta menambahbaik impak mesej, dan seterusnya meningkatkan keberkesanan denormalisasi shisha.



**PREDICTING SHISHA SMOKING BEHAVIOUR AMONG  
UNIVERSITY STUDENTS IN NIGERIA: MODERATING ROLES OF  
MEDIA NORMALISATION AND DENORMALISATION**

**ABSTRACT**

Youth are the future of the society, but continuous shisha smoking among youth does not only threaten their health, but also that of all others in the society. While research has established the link between impulse and tobacco smoking behaviour among the youth, little is known about the effect of impulse on youth who smoke shisha, and how different media generated messages influence impulse and behaviour among this category of youth either by being pro-smoking or anti-smoking in nature. To fill this gap, this study applies PRIME behavioural theory to examine shisha smoking behaviour as the act of shisha smoking resulting from an impulse to smoke it at any given moment. The study elucidates the moderating roles of normalisation of shisha through social media and denormalisation of shisha through mainstream media in terms of pro-smoking and anti-smoking shisha related messages respectively. Survey was conducted between May 2021 and August 2021 in six universities in Nigeria, which is a country where shisha smoking is greatly normalised among the youth in tertiary institutions and denormalisation of shisha is also quite apparent, particularly in online-based newspapers. The study tested the predictive relationship between impulse to smoke shisha and shisha smoking behaviour, alongside certain predictors of impulse (intention to smoke shisha, positive evaluations of shisha, internal motives for shisha, external motives for shisha), while including the moderating effects of normalisation of shisha through pro-shisha social media messages and denormalisation of shisha through anti-shisha mainstream media

messages. Gender, age, year of study, ethnic group, rate of shisha smoking, and length of shisha smoking were also included as controlling factors. The study sampled 695 participants using a snowball sampling, and analysed the data by means of PLS-SEM. Specifically, SPSS version 25 was used to analyse the descriptive section for frequencies, percentages, mean, and standard deviation of the participants and variables distribution, while PLS-SEM was applied using SmartPLS version 3 to assess the significance of the model constructs through measurement model, structural model, and moderator analyses. The findings suggested that internal motives based on solidarity, novelty seeking, and smoker identity, exhibit the greatest influence on the youth's impulse to smoke shisha. Also, findings revealed that impulse to smoke shisha is the greatest predictor of shisha smoking behaviour among the youth. The moderating effect of normalisation of shisha through pro-shisha social media messages was significant for intention to smoke shisha, positive evaluations of shisha, and internal motives for shisha, but insignificant on the relationship between external motives for shisha (peer influence, family influence) and impulse to smoke shisha, suggesting that peers and family members can influence the youth without the involvement of a third-party. The moderating effect of denormalisation of shisha through anti-shisha mainstream media messages on the relationship between impulse to smoke shisha and shisha smoking behaviour was considerably significant, suggesting that anti-smoking media messages that educate on the dangers of shisha smoking plays an important role in minimising shisha smoking behaviour among the youth. Theoretical insights drawn from PRIME behavioural theory indicates that while normalisation of shisha through pro-shisha social media messages increases the youth's impulse to smoke shisha, denormalisation of shisha through anti-shisha mainstream media messages demonstrate a counteracting effect by minimising the youth's shisha smoking

behaviour. The study practically suggests for government, policy makers, and mainstream media, to incorporate digital platforms in their efforts to enlighten the youth on the need to shun shisha smoking habits. Not only this, considering that denormalisation of shisha is more visible in online Nigerian newspapers, the study encourages professionals in other mainstream media such as the broadcast media to complement the efforts of those in the newspaper medium by transmitting messages that can contribute to denormalisation of shisha in the Nigerian society, particularly among youth. Moreover, in order to attract the attention of more youth and make broader impact, professionals in the newspaper medium are encouraged to continuously improve their anti-shisha messages by persistently interviewing medically related experts. Expert opinions could increase the value of the messages, enrich the depth of the messages, and improve the impact of the messages, which could consequently enhance the effectiveness of denormalisation of shisha.

# CHAPTER 1

## INTRODUCTION

### 1.1 Background to the Study

This study examines the predictors of Nigerian youth's shisha smoking behaviour, while considering the moderating effects of normalisation of shisha through pro-shisha social media messages and denormalisation of shisha through anti-shisha mainstream media messages. Shisha, also known as hookah or waterpipe, is one of the various methods of tobacco smoking, whereby tobacco smoke is inhaled through the aid of a water basin and hose (Alqahtani, Goodfellow, Zimmerman, & Zavorsky, 2019). Other tobacco smoking methods include 'cigarette,' 'cigar,' 'snuff,' 'chewing,' 'dipping,' and 'snus' (Middha & Negi, 2019). Shisha is classified as a tobacco smoking method because more often than not, shisha smokers use the shisha device to smoke 'Nicotiana tabacum,' a kind of nicotine found only in tobacco leaves, and this habit is universally growing at a fast pace among youth (WHO Study Group on Tobacco, 2015). Hence, it is of importance to investigate the mounting rate of shisha smoking among youth as tobacco smoking is dangerous, accounting for more than '8 million' annual mortality rate, of which a high degree links to individuals who commenced smoking in their youth (WHO-FCTC, 2022). Research has suggested that perhaps, one of the reasons for shisha smoking prevalence among youth is due to its variety of flavours (e.g., vanilla, guava, etc) which 'masks' the original scent of tobacco (Gathuru, Tarter, & Klein-Fedyshin, 2015). However, the misconstrued believe that shisha is safer and less addictive, owing to its inherent water mixture, could be another reason for its prevalence among youth (Wong, Alias, Aghamohammadi, Aghazadeh, & Hoe, 2016).

In contrast, shisha smoking is more dangerous and addictive compared to other methods of tobacco smoking (Ozga-Hess, Romm, Felicione, Dino, Blank, & Turiano, 2020). Smoking of shisha is usually done in a ‘group’ for up to ‘1 hour’ or more, hence, shisha smokers inhale more smoke during a smoking ‘session’ compared to a cigarette smoker for example, who smokes the cigarette in isolation within 5 minutes (Aboaziza & Eissenberg, 2015). Aside from this, shisha smokers are vulnerable to ‘toxic’ exposure due to the ‘charcoal’ used for keeping the smoke alight during smoking sessions (Alqahtani et al., 2019). Moreover, shisha is commonly smoked in public outlet like restaurants and cafés, such, it possibly contributes higher to second-hand smoking (Wong et al., 2016). This takes into account that tobacco is responsible for around ‘1.2 million’ annual mortality rates from second-hand smoking (WHO-FCTC, 2022), suggesting that people who do not smoke may become mortality victims through inhaling tobacco smoke in the public atmosphere. In recent time, the deadly Corona Virus Disease 2019 (COVID-19) also emerged as a transferrable disease associated with shisha (Shekhar & Hannah-Shmouni, 2020).

Worldwide, nearly ‘100 million’ youths smoke shisha, and the figures increase by ‘3.5%’ every year despite its related health risks (Ziaei, Mohammadi, Dastgiri, Viitasara, Rahimi, Jeddi, & Soares, 2016). This is evident among youth in North America and Middle East. For instance, in the USA, youth’s shisha smoking increased by ‘2%’ between 2010 and 2015 (Soulakova, Pham, Owens, & Crockett, 2018). In Canada, youth who smoke shisha increased by ‘42%’ between 2010 and 2013 (Abdullah, Costanian, Khanlou, & Tamim, 2017). In Iran and Palestine, shisha smoking reportedly increased by ‘26.3%’ and ‘23%’ among youth respectively (Nazzal, Al-Halaweh, & Musmar, 2020; Bashirian, Barati, Abasi, Sharma, & Karami, 2018). In African countries, primary data on youth’s shisha smoking behaviour are

still relatively small (WHO Study Group on Tobacco, 2015). Nonetheless, some studies have reported an upsurge in shisha smoking among youth in Egypt (66.3%) (Israel et al., 2003), South Africa (40%) (Daniels & Roman, 2013), Rwanda (26.1%) (Omotehinwa et al., 2018), Uganda (36.4%) (Aanyu et al., 2019), and Nigeria (44%) (Abraham et al., 2019).

In Nigeria, as only five emerging studies have examined shisha smoking among youth respondents, many areas still call for attention. Two of the five studies focused on undergraduate students (N=1000) from only one state (Rivers State), and found that majority of the students had poor knowledge of the risks associated with shisha while noting that flavoured shisha smoking was quite minimal among the participants (Jones & Okpako, 2021; Jones & Onyezere, 2021). One of the studies did not primarily focus on shisha, it compared between shisha and e-cigarette smoking among minimal number (N=20) of youth respondents in one state (Lagos State), discovering that many of the youth were more accustomed with shisha compared to e-cigarette, and mostly smoked for pleasure, stress relieve, and social acceptance (Osibogun et al., 2020). One of the studies which focused on shisha equally surveyed youth (N=818) from only Lagos State, and discovered a high prevalence of shisha smoking among the youth while unveiling that, although shisha was not significantly associated with anxiety, it had significant association with alcohol consumption, e-cigarette smoking, and poly-tobacco use (Erinoso et al., 2021). Additionally, majority of the youth in another of the studies were teenagers less than 14-year-old, many (47.5%) of whom were reportedly unaware of Head and Neck Cancer (HNC) as a health hazard of shisha smoking (Kanmodi et al., 2018). Consequently, it appears that factors that could influence youth's smoking behaviour such as impulse, motives, positive evaluations, and intention, are still understudied.

Mainly, existing studies have shown that shisha smoking is growing at a speedy rate among youth in Nigerian universities (Erinoso et al., 2021; Abraham et al., 2019). Existing studies have also shown that many of these youth who smoke shisha have favourable opinions on shisha, perceiving it as fun, less harmful, and socially acceptable (Jones & Onyereze, 2021; Osibogun et al., 2020). This suggest that shisha smoking may have become normalised among the Nigerian youth. Normalisation of shisha involves the perception of shisha smoking as acceptable and normal, instead of a hazardous behaviour that should be discarded (Grant & O'Mahoney, 2016). Social media (e.g., TikTok, YouTube) are platforms that can highly normalise shisha among youth, through numerous pro-smoking messages displaying shisha smoking as an enjoyable activity (Ben Taleb, Laestadius, Asfar, Primack, & Maziak, 2019). Nearly 80% of the Nigerian youth who are predominantly university students use social media on a daily basis (Tayo, Adebola, & Yahya, 2019). Hence, pro-smoking social media messages could be normalising shisha among the youth in Nigeria, and this may increase their tendency to smoke shisha. Nonetheless, the impact of normalisation of shisha through pro-shisha social media messages is still less known among the youth, as no known emerging study has investigated this aspect.

An existing study has shown that online-based Nigerian newspapers (e.g., Nation, Punch, Vanguard) are making efforts to denormalise shisha by using anti-smoking messages to educate on associated health risks like lung cancer and heart damage (Abraham et al., 2019). Denormalisation of shisha entails the discouragement of shisha smoking as normal behaviour by educating on its health risks (Sæbø & Scheffels, 2017). More than 60% of the Nigerian youth, particularly those in the university, prefer online-based Nigerian newspapers, and often read it daily (Ismail, 2018). Thus, shisha related anti-smoking messages in these newspapers could

contribute to denormalising shisha among the youth, and this may reduce their shisha smoking behaviour. However, little is known on the impact of related anti-smoking messages among Nigerian youth, as this aspect is still less explored in emerging studies.

The present study aims to contribute to the existing studies by investigating understudied factors such as impulse, motives, positive evaluations, intention, normalisation of shisha through pro-shisha social media messages, and denormalisation of shisha through anti-shisha mainstream media messages, so as to expand the understanding of shisha smoking behaviour among Nigerian youth.

### **1.1.1 Study Context**

With focus on Nigerian youth, this study investigates shisha smoking behaviour as the act of shisha smoking resulting from an impulse to smoke it at any given moment (West & Brown, 2013). Impulse is reportedly the strongest determinant of youth's addictive behaviour (Kelishadi et al., 2007; Dawe et al., 2004). This links to tobacco smoking which is an addictive behaviour (Bahelah et al., 2019). Addictiveness to tobacco smoking is strongly caused by impulsive smoking among many youths, including those who smoke shisha (Lydon-Staley & Geier, 2018; Kale & Cooper, 2018). When impulse arises, resultant behaviour tends to instantly occur due to a feeling of urgency to immediately satisfy the craving (Barratt, 1993). This rationale on addictive behaviour is rooted in the PRIME behavioural theory by Robert West (West, 2007) which served as the theoretical lens in the present study.

PRIME refers to plan, response, impulse, motive, and evaluation. Mainly, the theory explicates that intention to carry out an action (or plan), encouragement from inner or outer environmental influences (motives), and positive evaluations (or positive beliefs), can induce impulse (or disinhibition), which in turn causes addictive



behaviour (or response) (West, 2007). Meanwhile, intention to avoid an action, discouragement from inner or outer environmental influences, and negative evaluations (or negative beliefs), can induce self-restraint (or inhibition), which can consequently lead to cessation of addictive behaviour (West & Brown, 2013). So far, studies have mostly adopted PRIME from the perspectives of tobacco smoking cessation. For instance, in Netherlands, use of internal-based and external-based techniques to discourage smoking was reportedly highly effective in reducing the urge to smoke among the respondents (n=23) (Troelstra, Kunst, & Harting, 2019). Also, in England, through cessation-oriented strategies motivated by PRIME theory, '50%' of the respondents (n=31566) who participated in a smoking cessation campaign made efforts to quit smoking (Brown, Kotz, Michie, Stapleton, Walmsley, & West, 2014). Considering the theory's relative newness (Ahmad et al., 2019), focusing on the cessation dimension could limit the theory's relevance to impulse.

Hence, the present study proposes a predictive model relevant to examining intention, positive evaluations, and those internal (e.g., solidarity, novelty seeking, smoker identity) and external (e.g., peer influence, family influence) motives that may influence irrational response (impulse), which may in turn induce shisha smoking behaviour among youth. This takes into account that impulse is the strongest cause of tobacco smoking among youth (Lydon-Staley & Geier, 2018), suggesting that irrationality may be the leading cause of shisha smoking behaviour among Nigerian youth. Intention refers to the willingness to smoke shisha (Tombor et al. 2015). Positive evaluations denote the values or beliefs that an individual relates to an action which enables him to justify such actions (Singh et al., 2017). Solidarity is the feeling of togetherness which propels shisha smokers to smoke more within social groups rather than isolated (Bayertz, 1999). Novelty seeking explains the tendency to smoke

shisha due to the varied smoking experience it offers (Hertel & Mermelstein, 2012). Smoker identity describes the emotional state wherein shisha smokers embrace the act of smoking shisha as an important fragment of their personality (Ahmad et al., 2019). Peer influence involve motivation to smoke shisha from friends and other persons within similar age bracket (Akl et al., 2015). Family influence indicate motivation to smoke shisha from parents, siblings, or other relatives (Al-Rawi et al., 2018).

Furthermore, this study investigates normalisation of shisha through pro-shisha social media messages as a factor in the external environment that may enhance impulse to smoke shisha among youth. Studies indicate that messages pertaining to shisha on social media platforms such as Instagram, Twitter, Facebook, etc., are mainly pro-smoking, depicting shisha smoking as a normal and social activity that is fun and pleasurable rather than a dangerous act which threatens the health (Ben Taleb et al., 2019; Allem, Dharmapuri, Leventhal, Unger, & Cruz, 2018). Globally, '71%' of the youth are subscribed to more than one social media platform (Greenhow, Chapman, Marich, & Askari, 2017), and '88%' are reportedly daily users of social media (Smith & Anderson, 2018). In Nigeria, many youths in the university habitually utilise social media on a daily basis (Tayo et al., 2019). As studies have shown that social media pro-smoking messages can normalise shisha, and intensify impulse to smoke shisha among youth (Singh et al., 2017; Gathuru et al., 2015), this study aims to elucidate the moderating role of social media normalisation of shisha in increasing the impulse to smoke shisha among Nigerian youth.

Inversely, the present study also adapts PRIME theory from the angle of cessation by examining denormalisation of shisha through anti-shisha mainstream media messages. Anti-shisha messages through the mainstream media can denormalise tobacco, and decrease tobacco smoking behaviour in the society,

especially among youth (Sæbø & Scheffels, 2017). That is, anti-smoking media messages that educate on the risks of tobacco can create the awareness that, tobacco smoking is not normal (denormalisation), and this can minimise youth's smoking behaviour (Owusu et al., 2017). In terms of shisha, research has shown that exposure to shisha-related anti-smoking media messages effectively denormalise shisha among youth, and consequently minimising their shisha smoking behaviour (Stevens et al., 2019). Denormalisation of shisha through anti-shisha mainstream media messages is evident in Nigeria, specifically in online newspapers (Abraham et al., 2019). For instance, in *The Nation*, a report contained warnings by medical experts detailing shisha as highly dangerous, comprising 36% higher 'tar,' 15% higher 'carbon monoxide,' 70% higher 'nicotine,' and may cause 'impotence' due to compositions of its 'fruity flavours' (Eno-Abasi, 2019). However, there is sparse research on whether this can minimise shisha smoking behaviour among youth in Nigeria (Abraham et al., 2019). Therefore, with focus on online newspapers, this study investigates the moderating role of denormalisation of shisha through anti-shisha mainstream media messages in minimising shisha smoking behaviour among Nigerian youth.

## **1.2 Statement of Problem**

### **1.2.1 Limited Understanding of Certain Factors Constituting the Impulse to Smoke Shisha among Youth**

Despite the great deal of academic research on unhealthy behavioural motives, positive evaluations, and intention among youth smokers (Eshah & Froelicher, 2018; Bunnell et al., 2015; Hertel & Mermelstein, 2012; Combrink et al., 2010; Falomir & Tomei, 2001; Paavola, Vartiainen, & Puska, 1996), less research have considered these aspects in terms of their linkage to impulse among youth shisha smokers. These aspects are even less known in Nigeria, as shisha smoking motives, beliefs, and intent among

the youth remain widely unexplored in emerging studies (Jones & Okpako, 2021; Kanmodi et al., 2018). Addictive actions can often be preceded by internal (inner environment or feelings) and external (outer environmental sources) motives, intention, and positive evaluations which may trigger an impulse towards the behaviour at any particular moment (West & Michie, 2019). Understanding these factors among youth who smoke shisha could contribute to solution planning in cessation-oriented efforts (Gathuru et al., 2015). The current study contributes to existing literature by critically examining the process through which internal and external behavioural motives, intention, and positive evaluations may influence impulse to smoke shisha, which may consequently influence shisha smoking behaviour among youth.

### **1.2.2 Scant Use of the Impulsivity Dimension of PRIME Theory in Past Studies**

PRIME theory has been invaluable in studies examining tobacco smoking intervention and cessation evaluation (Troelstra et al., 2019; Brown et al., 2014), however, while the theory has been useful in the assessment of tobacco, its underlying relevance to understanding how impulse may influence tobacco smoking behaviour remains unclear. It is of importance to demonstrate the theory's significance not only to rationality (inhibition), but also irrationality (impulse), as both angles affect tobacco smoking in independent manner (Sniehotta et al., 2014). Hence, the current study adapted PRIME theory in a proposed model relevant to communication research to assess factors that may influence impulse to smoke shisha among youth, and thereby cause their shisha smoking behaviour. Specifically, the proposed model examines intention to smoke shisha, positive evaluations of shisha, internal motives for shisha (solidarity, novelty seeking, smoker identity), and external motives for shisha (peer

influence, family influence), as factors that may influence impulse to smoke shisha among youth (Ahmad et al., 2019; Al-Rawi et al., 2018; Akl et al., 2015; Tombor et al. 2015). Also, the model examines normalisation of shisha through pro-shisha social media messages as a moderator which increases the relationship between intention, positive evaluations, internal motives, external motives, and impulse to smoke shisha among youth (Gathuru et al., 2015). In addition, from the angle of inhibition, the study assesses denormalisation of shisha through anti-shisha mainstream media messages as a moderator that may weaken the relationship between impulse to smoke shisha and shisha smoking behaviour, therefore, minimising shisha smoking behaviour among youth (Stevens et al., 2019). By so doing, this study contributes a more synthesised understanding to the literature on the significance of PRIME theory to examining addictive behaviour such as shisha smoking among youth.

### **1.2.3 Disadvantageous Role of Normalisation of Shisha through Pro-shisha Social Media Messages among Youth**

This study has been developed on the premise that social media normalisation of shisha can intensify impulse to smoke shisha among youth. This is based on evidences showing that, shisha smoking on social media (e.g., Facebook, Twitter, Instagram) is vastly depicted like a normal behaviour rather than an ‘abnormal’ one due to its injurious nature to health (Ben Taleb et al., 2019; Allem et al., 2018). Shisha smoking is more often portrayed as a nightlife activity, social activity, as well as relaxing, desirable, fun, and pleasurable on social media platforms (Guidry et al., 2017). This suggest that shisha-related pro-smoking messages are numerous on social media. Studies have shown that, pro-smoking messages can normalise shisha smoking, and increase impulse among youth (Sadeghi et al., 2019; Zhu, 2017). Many of the Nigerian youth, especially those in the university, regularly make use of social media

daily (Tayo et al., 2019), hence, there is the possibility for social media pro-smoking messages to normalise shisha, and heighten impulse among these youth. Subsequently, this current study evaluates whether normalisation of shisha can strengthen impulse to smoke shisha among Nigerian youth. Even though many studies in the literature have addressed social media role in tobacco smoking, less studies have assessed it as a variable that can intensify youth's impulse to smoke shisha by means of a proposed model adapted from PRIME theory. In this way, this study not only contributes to the development of PRIME theory especially in the area of impulse assessment, it also contributes to the numerous debates on the role of social media in instigating tobacco smoking among youth.

#### **1.2.4 Impact of Denormalisation of Shisha through Anti-shisha Mainstream Media Messages requires Further Investigation among Youth**

This study proposes that denormalisation of shisha through anti-shisha mainstream media messages may minimise shisha smoking behaviour among youth. In terms of tobacco, denormalisation refers to the act of enlightening individuals on the adverse consequences of tobacco, so as to create the awareness that tobacco smoking is not normal behaviour, but an 'abnormal' one, due to its potential harm to healthy living (Asbridge et al., 2016). The mainstream media employ anti-smoking messages to educate on the risks of tobacco, in an attempt to denormalise tobacco smoking, and thereby minimise the behaviour (Brennan et al., 2014). Studies have shown that anti-smoking media messages can denormalise tobacco smoking, and consequently reduce tobacco smoking behaviour, especially among youth (Martino et al., 2018; Owusu et al., 2017). In Nigeria, efforts to denormalise shisha are apparent in online newspapers, as these newspapers constantly contain shisha-related anti-smoking messages (Abraham et al., 2019). For instance, anti-smoking messages in *The*

*Guardian* and *Vanguard* warned on the hazards of shisha by emphasising its higher compositions of nicotine (70%), tar (36%), and carbon monoxide (15%), as well as ability to cause respiratory damage and even impotence due to toxic components embedded in its numerous flavours (Akoni, 2021; Eno-Abasi, 2019). Even though there is continuous need for more cessation-oriented media messages in relation to shisha smoking in Nigeria, the effectiveness of existing anti-shisha messages in online newspapers remain unknown (Abraham et al., 2019). Hence, this study investigates the moderating role of denormalisation of shisha through anti-shisha mainstream media messages based on efforts in online newspapers. The likelihood that many Nigerian youth may have come across anti-shisha messages in online newspapers is high, as majority of these youth, particularly those in the university, have a preference for reading newspapers online, and tend to read it daily (Ismail, 2018). This confirms prior findings showing that up to ‘90%’ of youth prefer gathering information online, and ‘39%’ would rather obtain or validate information through online newspapers (Lauridsen & Sporrang, 2017).

While the notion of antismoking media messages in denormalising tobacco may not be new in scholarly debate, it is less well studied as a moderator, particularly with regards to impulse and behaviour among youth who smoke shisha. Although past studies have shown that social media normalisation can enhance youth’s impulse to smoke shisha (Ben Taleb et al., 2019; Huang et al., 2017), there is less exploration on how normalisation may be countered through denormalisation based on anti-shisha media messages, especially as most past studies related to normalisation (e.g., Ben Taleb et al., 2019; Huang et al., 2017) and denormalisation (e.g., Stevens et al., 2019; Owusu et al., 2017) were independent of each other. By simultaneously examining both concepts within a single study, this research contributes a fresher perspective on

how social media normalisation of shisha can be denormalised through anti-shisha mainstream media messages, particularly among youth.

### **1.2.5 Summary of Understudied Research Areas on Youth's Shisha Smoking Behaviour**

To sum up, the current study is expected to fill different knowledge gaps in ways that contribute to the understanding of an unhealthy behaviour like shisha smoking among youth. It sheds light on impulsivity in relation to youth's shisha smoking behaviour. This is of relevance as researchers have mostly assessed impulse in line with cigarette smoking and other unhealthy behaviour like drug use and alcohol consumption rather than shisha smoking (Lydon-Staley & Geier, 2018; Cyders & Smith, 2008; Dawe et al., 2004). Impulsivity is an irrational urge to act on a behaviour at any particular moment, thereby signifying an action based on feelings of the moment rather than logical planning (West & Michie, 2019). This study attempts to address those elements that could influence a youth to be accepting of shisha smoking behaviour such that the youth may become susceptible to the impulse to act on associated behaviour whenever the opportunity arises. All these are examined in a proposed model adapted from PRIME theory. These elements include intention, positive evaluations, internal motives (solidarity, smoker identity, novelty seeking), and external motives (peer influence, family influence) (West & Brown, 2013). These are all elements that have been expounded by scholars in the literature but hardly in relation to impulsive response among shisha smokers. Also worthy of note is that no known study has adapted the PRIME theory in a proposed model to assess shisha smoking behaviour among youth, particularly from both angles of the theory, that is; irrationality (impulsivity) and rationality (inhibition).



It is worthy of mentioning that few studies have assessed solidarity in connection with impulsivity among shisha smokers. This study addressed it as the feeling or sense of oneness that shisha smokers share while smoking shisha with other people they know (Akl et al., 2015). Likewise, smoker identity has mostly only been assessed among cigarette smokers, as shisha smokers may deny having a smoker identity due to their habit of smoking more frequently within social groups (Bahelah et al., 2019). Nevertheless, this study assessed smoker identity, as it is recommended to examine how social smokers such as shisha smokers actually respond to a smoker identity (Ahmad et al., 2019). In addition, this study proposes that social media normalisation of shisha can act as a moderator that intensify impulse to smoke shisha among youth. It also proposes that denormalisation of shisha through anti-shisha mainstream media messages can weaken shisha smoking behaviour among youth.

These are all contributions that could fill knowledge gaps in the general literature on youth's shisha smoking behaviour. Even more so in Nigeria wherein emerging studies are still lacking theoretical and model rationale by not utilising theory, model, nor validating hypotheses. In fact, one of the emerging studies noted a lack of theory and model validation as weaknesses, and therefore suggested that further studies should consider using theoretical or model rationale to expand our understanding of shisha smoking in Nigeria (Lasebikan et al., 2019).

### **1.3 Research Objectives**

This study generally examined the predictors of shisha smoking behaviour among Nigerian youth. Specifically, it examined the predictive relationship between impulse to smoke shisha and shisha smoking behaviour, while also examining the effects of intention to smoke shisha, positive evaluations of shisha, internal motives for shisha

(e.g., solidarity, novelty seeking, smoker identity), and external motives for shisha (e.g., peer influence, family influence), on youth's impulse to smoke shisha. In this process, it assessed the moderating influence of normalisation of shisha through pro-shisha social media messages on impulse to smoke shisha. Moderating influence of denormalisation of shisha through anti-shisha mainstream media messages on shisha smoking behaviour was also evaluated. The specific research objectives for this study are outlined in the following:

1. To understand the relationship between intention to smoke shisha, positive evaluations of shisha, and impulse to smoke shisha among Nigerian youth.
2. To understand the relationship between internal and external motives for shisha and impulse to smoke shisha among Nigerian youth.
3. To investigate the relationship between shisha smoking impulse and shisha smoking behaviour among Nigerian youth.
4. To test the moderating role of normalisation of shisha through pro-shisha social media messages on the relationship between intention, positive evaluations, internal motives, external motives, and impulse to smoke shisha among Nigerian youth.
5. To test the moderating role of denormalisation of shisha through anti-shisha mainstream media messages on the relationship between shisha smoking impulse and shisha smoking behaviour among Nigerian youth.

#### **1.4 Research Questions**

This study seeks to investigate how impulse influence shisha smoking behaviour among youth by exploring the perspectives of PRIME behavioural theory to broaden our understanding of youth's shisha smoking behaviour. In particular, the study

investigates the predictors of shisha smoking behaviour, with focus on the detailed process which links media influence to shisha smoking behaviour among Nigerian youth. The proposed research questions for the study are as follows:

1. What is the relationship between intention to smoke shisha, positive evaluations of shisha, and impulse to smoke shisha among Nigerian youth?
2. What is the relationship between internal and external motives for shisha and impulse to smoke shisha among Nigerian youth?
3. What is the relationship between shisha smoking impulse and shisha smoking behaviour among Nigerian youth?
4. To what extent is the moderating role of normalisation of shisha through pro-shisha social media messages on the relationship between intention, positive evaluations, internal motives, external motives, and impulse to smoke shisha among Nigerian youth?
5. To what extent is the moderating role of denormalisation of shisha through anti-shisha mainstream media messages on the relationship between shisha smoking impulse and shisha smoking behaviour among Nigerian youth?

## **1.5 Scope of the Study**

In this study, the country of focus is Nigeria. This is because, despite the numerous associated health consequences of shisha smoking such as respiratory damage, impotence, cancer, amongst others (Middha & Negi, 2019; Alqahtani et al., 2019), preliminary studies on shisha smoking in the country have less studied youth's shisha smoking behaviour, particularly among those in the university. This takes into consideration that prior Nigerian-based study recommended the need to specifically examine shisha smoking behaviour among youth in the university as they constitute

the majority of the '44%' active shisha smokers holding the positive belief that shisha is a normal and safer method of tobacco smoking (Abraham et al., 2019). Many of the students who begin to utilise tobacco and other substances often eventually drop out of school due to a growing disinterest in rigorous academic work resulting from their use of tobacco and other drugs (Valkov, 2018), suggesting that shisha smoking may not only endanger youth's health, it could also cause them to lose focus in their academic growth. Hence, addressing factors like social media pro-smoking messages that may constitute normalisation of shisha smoking among youth is relevant in a country like Nigeria where shisha smoking may have become normalised among the youth, especially those in the university. Assessing the effectiveness of existing anti-smoking media messages in denormalising shisha by educating on the hazards of shisha smoking, may also help in suggesting ways to reinvigorate cessation efforts.

One Federal Capital Territory (FCT) and six geopolitical zonal areas exist in Nigeria. The geopolitical areas are: North Central (NC); North-West (NW), North-East (NE), South-South (SS), South-East (SE), and South-West (SW) (Nigeria Demographic and Health Survey, [NDHS], 2018). Abuja is the only city classified under the FCT while there are 36 States categorised under each of the six geopolitical zones (Vigna-Taglianti, Alesina, Damjanović, Mehanović, Akanidomo, Pwajok, Prichard, Kreeft, Virk, & Unplugged Nigeria Coordination Group, 2019). As it is still difficult to locate youth who smoke shisha in Nigeria (Mohammed et al., 2019), this study surveyed the youth in South-West geopolitical zone who smoke shisha and are in the university. This is based on a study showing that, there are more youth tobacco users in South-West (32.5%), as opposed to other zones; South-East (14.4%), South-South (11.6%), North-West (8.3%), North-Central (5.7%), and North-East (19.1%) (Oyewole, Animasahun, & Chapman, 2018). Moreover, recent studies found that

shisha smoking is low among university students in Rivers State (Jones & Okpako, 2021), but quite high among university students in Lagos State (Erinosa et al., 2021). Considering that Rivers State is located in South-South geopolitical zone, while Lagos State is located in South-West geopolitical zone of the country, the relevance of surveying the youth in South-West universities is further solidified.

Nigerian youth are described as male and female gender between ages 18-35 (Nigerian National Youth Policy, [NNYP], 2009). As a result, this study examines youth between ages 18-35 years who smoke shisha in South West zone universities. Although the study's focus was on youth in South-West zone, it is worthy of note that the survey focuses on university which is an academic institution that is heterogenous in terms of people and culture (Ismail, 2018). In other words, university is an academic institution that openly recruits all people from diverse background and tribe irrespective of its location. In view of this, the present study's findings could be generalisable to Nigerian youth who smoke shisha, as participants were surveyed within a setting that is culturally and socially diversified in nature.

## **1.6 Significance of the Study**

This study generates a comprehensive conceptual framework for shisha smoking behaviour among youth. PRIME behavioural theory opines that intent, positive evaluations, internal motives, and external motives, have the ability to influence impulse, and impulsiveness is the greatest predictor of addictive behaviour (West, 2007). Thus, the present study explicates how intention, positive evaluations, internal motives (solidarity, novelty seeking, smoker identity), and external motives (peer influence, family influence), influence youth's impulse to smoke shisha. It also demonstrates impulse as the strongest predictor of youth's shisha smoking behaviour.

As such, by employing PRIME theory in assessing an addictive behaviour like shisha smoking, this study broadens the general understanding of determinants of shisha smoking behaviour, especially among youth.

In addition, building on the perspectives of PRIME theory which explains that internal and external factors can influence impulse to act on addictive behaviour, this study demonstrated that certain messages (pro-smoking) generated from external platforms such as the social media may not only influence impulse, but could amplify impulse to act on addictive behaviour. In contrast, certain messages (anti-smoking) generated from external platforms such as the mainstream media may minimise addictive behaviour. As a result, this study incorporates normalisation of shisha through pro-shisha social media messages as a moderator which can enhance impulse to smoke shisha. On the other hand, it incorporates denormalisation of shisha through anti-shisha mainstream media messages as a moderator which can decrease shisha smoking behaviour. The combination of these two concepts complementarily explicates youth's online interactions with both social media and online-based mainstream media, and elucidates the roles of these interactions in influencing their shisha smoking habit. Consequently, this study contributes to the advancement of a developing theory such as PRIME, and also expands on the influential role of media influence among youth.

It is therefore expected that this study will assist in bringing out the novel means through which the causes of shisha smoking behaviour—which has become a worldwide protracted problem among youth— can be addressed in places where youth's shisha smoking behaviour has become a challenge to their health ecosystem. This study employs the Partial Least Squares (PLS) method to examine the predictors of youth's shisha smoking behaviour and their effects on the health ecosystem of

Nigeria as a nation. PLS is a multivariate statistical method that allows comparison between multiple response constructs and multiple explanatory constructs. It is one of the two second generation analytical method (the other being covariance-based SEM) which are mutually referred to as Structural Equation Modelling (SEM). This is methodologically significant as it helps in revealing the joint and individual effects of constructs in a model, hence, allowing the validation of the proposed model in the present study (Nguyen, 2020). Therefore, this study contributes to knowledge by utilising SmartPLS in its analysis, as the current study is one of the few studies on youth's shisha smoking behaviour that adopts this method of analysis, particularly in Nigeria where related emerging studies are yet to employ theoretically oriented explanations. The usage of PLS helped to enhance the understanding of the interconnectivity and interacting effects of all variables in the study.

Also noteworthy is that in measuring the study's variables, the study contributes to the development of the quantitative research instrument by using a 7-point measurement scale to test new items. Items were developed for five constructs namely, positive evaluations of shisha; solidarity; family influence; normalisation of shisha through pro-shisha social media messages; and denormalisation of shisha through anti-shisha mainstream media messages. These developed items may be useful for future researchers in investigating the arena of shisha smoking behaviour.

Another landmark of this study was the application of higher order construct (HOC) analysis. HOC is defined as latent variables that are measured through other latent variables commonly referred to as lower order constructs (LOCs) (Duarte & Amaro, 2018). Two of the study's variables namely, internal motives for shisha and external motives for shisha are highly abstracted concepts, hence, the study analysed these concepts as HOC. In doing this, three LOCs (solidarity, novelty seeking, smoker

identity) were used to measure internal motives for shisha, while two LOCs (peer influence, family influence) were used to measure external motives for shisha. HOC analysis is still quite new in research (Nguyen, 2020); hence, this study expands the field of shisha smoking behaviour by adopting and expounding this method of analysis.

Finally, this study may be practically relevant to stakeholders such as teachers, students, librarians, Nigerian government, policy makers, National Universities Commission (NUC), as well as media agencies by increasing their understanding of shisha smoking motives, intention, positive evaluations, in relation to impulse and behaviour among youth. It can also inform on the effectiveness of anti-shisha messages in online newspapers in denormalising shisha, and contributing to shisha smoking cessation among youth. This could be applied to enhance health warnings in efforts to encourage tobacco smoking cessation among youth. This study's findings are vital in a country like Nigeria where much needed data regarding shisha smoking behaviour is quite limited.

## **1.7 Conceptual Definition of Variables**

Conceptual definition refers to the method of assigning theoretically-based meanings to the various concepts examined in research. It explains the meanings of the different employed concepts based on their exact usage in the study (Neuman, 2014). The key variables in this study are intention to smoke shisha, positive evaluations of shisha, internal motives for shisha (solidarity, novelty seeking, smoker identity), external motives for shisha (peer influence, family influence), impulse to smoke shisha, normalisation of shisha through pro-shisha social media messages,



denormalisation of shisha through anti-shisha mainstream media messages, and shisha smoking behaviour.

### **1.7.1 Intention to Smoke Shisha**

Intention refers to willingness (Perugini & Bagozzi, 2001). That is, the willingness to act on a behaviour (West, 2007). Therefore, intention to smoke shisha is considered as the willingness to smoke shisha. Being willing to smoke shisha can often stimulate impulse to smoke shisha at any given moment, especially among youth (Eshah & Froelicher, 2018). Impulsive shisha smoking among many youths is highly prodded by the intent to experience shisha smoking (Nazzal et al., 2020). Hence, this study considered intention as a factor that can influence youth's impulse to smoke shisha.

### **1.7.2 Positive Evaluations of Shisha**

Behaviourally, positive evaluations describe the benefits, merits, or gains that an individual ascribes to an action or activity (West & Brown, 2013). These ascribed benefits are such that enable individuals to justify their involvement in a behaviour, and this could induce the desirability to act on such behaviour at any certain moment (Ahmad et al, 2019). Over the years, positive evaluations like shisha being fun, relaxing, negligibly harmful and addictive have continuously influenced impulse to smoke shisha among youth (Singh et al., 2017; Akl et al., 2015). Hence, in this study, positive evaluations connote the qualities or beliefs that a youth may have attributed as benefits of shisha which may lead him or her to become prone to shisha smoking.

### **1.7.3 Internal Motives for Shisha**

Internal motives describe inner feelings or emotions (West, 2007). Internal-based motives have the ability to influence the urge to carry out an action at any point

in time (West & Brown, 2013). Pertaining to tobacco smoking, studies have shown that novelty seeking, solidarity, and smoker identity are influential internal-based motives among youth (Arshad, Matharoo, Arshad, Sadhra, Norton-Wangford, & Jawad, 2019; Ahmad et al., 2019; Bayertz, 1999). Novelty seeking refer to the instinct to experience and explore new things (Arshad et al., 2019). Solidarity denotes feelings of camaraderie, commonality, or togetherness (Bayertz, 1999). Smoker identity indicates the feeling whereby an individual perceives himself or herself as a smoker, that is, self-identifying as a smoker (Ahmad et al., 2019). To assess internal motives for shisha which is a highly abstracted concept (Hertel & Mermelstein, 2016), this study integrated novelty seeking, solidarity, and smoker identity as dimensions through which the vague or abstracted concept (internal motives for shisha) can be meaningfully observed. As a result, this study treated internal motives for shisha as a higher order construct (HOC). HOC refer to latent constructs that are measured through other latent constructs known as lower order constructs (LOCs) (Duarte & Amaro, 2018). This implies that novelty seeking, solidarity, and smoker identity are LOCs of internal motives for shisha. Moreover, since novelty seeking, solidarity, and smoker identity depict feelings or emotions that are varied from each other, their relationship with their HOC is formative in nature (disconnected in their definitions of internal motives for shisha). Hence, this study measured internal motives for shisha as a reflective-formative HOC. Reflective-formative HOC denote a formative relationship between the HOC and its LOCs, while the relationship between the LOCs and their observed variables or indicators is reflective in nature (indicators of LOCs harmoniously define the meaning of their associated LOCs) (Nguyen, 2020).

#### **1.7.4 External Motives for Shisha**

External motives signify influences that are from outer environment (West & Brown, 2013). Impulse to act on a behaviour can be elicited by external-based factors at any moment (West & Michie, 2019). In terms of tobacco smoking, studies have shown that peer influence and family influence demonstrate the highest sources of motivation among youth (Nazzal et al., 2020; Paavola et al., 1996). Peer influence refer to encouragement from friends, class mates, or people of similar age group (Nazzal et al., 2020), while family influence depict motivation from parents, siblings, or other relatives (Paavola et al., 1996). This study examined external motives for shisha by incorporating peer influence and family influence as its dimensions. Thus, just as the case with internal motives for shisha, this study handled external motives for shisha as HOC. External motives for shisha as a highly abstracted concept needed to be observed through more tangible concepts (LOCs). Thus, peer influence and family influence served as LOCs for external motives for shisha in this study. Specifically, since peer influence and family influence describe external motives in dissimilar manner, their relationship with external motives is considered as formative. Hence, this study treated external motives for shisha as a reflective-formative HOC. That is, there is a formative relationship between external motives for shisha and its LOCs (peer influence, family influence), while the relationship between the LOCs and their observed variables or indicators is reflective in nature (Duarte & Amaro, 2018).

#### **1.7.5 Normalisation of Shisha through Pro-shisha Social Media Messages**

Based on the perspectives of PRIME theory which explain that factors in the internal and external environment can influence impulse to act on addictive behaviour (West & Brown, 2013), this study built on this view by determining that, external-based domain like social media may not only influence impulse, but could intensify