THE INTERPLAY OF RELIGIOUS BELIEFS AND PERSONALITY TRIATS ON THE USE OF FOOD LABELS AMONG CONSUMERS

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Abstract

Food labels are information provided on food packaging and the individuals who purchase and consume those products are consumers. Food labels are essential for consumers, as they provide critical information about food products. This study investigates the complex interplay between religious beliefs, personality traits and the utilization of food labels among consumers. Cross-sectional survey design method was employed to gather data of 280 food product consumers across major shopping malls in South-East and South-South Nigeria using three questionnaires: Food Label Use Scale (FLUS), Religious Belief Inventory (RBI), and Ten Item Personality Inventory (TIPI) for assessing use of food labels, religious beliefs, and personality traits respectively. Findings indicated significant correlations between high levels of religious beliefs and personality traits (conscientiousness, neuroticism) influencing food label usage. Consumers with strong religious beliefs(β = .49, SE = .12, 95% CI = .45, .56) and conscientious personality tendencies (β = .70, SE = .18, 95% CI = .34, .44) exhibited heightened scrutiny of food labels, prioritizing health, ethical and environmental considerations while individuals with weaker religious ties and neurotic inclinations demonstrated diminished attention to labeling, emphasizing convenience and taste. The findings have implications for food manufacturers and policymakers to consider effective communication of nutritional information, promote informed consumption choices and foster a more transparent food industry.

Keyword: Consumer Behaviour, Food Labels, Religious Beliefs, Personality Traits, Decision-Making.

Introduction

Consumers are individuals or group that purchase and use products, services, or ideas to satisfy their needs and wants (Kotler & Armstrong, 2020). Recent research highlights the complexities of consumer behavior. Consumers are characterized by digital literacy – where consumers' online skills influence their purchasing decisions (Hynes & Wilson, 2020), sustainability – consumers prioritize environmental concerns (Peattite & Crane, 2017), and emotional connection –consumers seek emotional connections with brands (Havlena & Holak, 2019).Factors influencing consumer behavior are social media which influences consumer attitudes and purchases (Kaplan & Haenlein, 2020), cultural diversity which impacts consumer behavior, and personalization – consumers expect personalized experiences (Gertner, 2020). Recent research findings indicated that transparency and authenticity build consumer trust (Todorova et al., 2020), influencer endorsements impact consumer purchasing decisions (Lee & Watkins, 2019), and contactless payments (digital payments) influence consumer spending habits (Auer et al., 2020).

Food labels provide consumers with essential information about the nutritional content, ingredients, and safety of food products (Kotler & Armstrong, 2020). Food labels come in nutrition fact panel (NFP) which displays nutritional information (Carter et al., 2019), ingredient list which lists food ingredients (Lee & Watkins, 2019), health claims that highlight specific health benefits (Bekessy et al., 2018), and certification labels indicating compliance with standards (Carrington et al., 2020). Impact of food labels are consumer knowledge – labels increase consumer awareness of nutritional content (Todorova et al., 2020); purchase intentions – labels influence purchasing decisions (Lee & Watkins, 2019); and dietary choices – labels support healthy eating habits (Carter et al., 2019). Recent research highlights the significance of food labels in influencing consumer behavior such as label design which improve consumer understanding (Kaplan & Haenlein, 2020), front-of-pack labels (colour-coded labels) enhance nutritional awareness (Ares et al., 2020), and digital labels (QR codes) provide additional product information (Auer at al., 2020).

Religious beliefs refer to the spiritual convictions and principles that guide individuals' understanding of the world, their place in it, and their relationship with a higher power (Emmons & Paloutzian, 2003). Religious beliefs come in various types such as theism which is belief in a personal intervening God (Swinton, 2016), deism which is belief in a non-intervening creator God (Bruce, 2017), atheism which is rejection of belief in God or gods (Bullivant, 2013), and spirituality which is search for meaning and connection beyond material existence (Koenig et al., 2012). Religious beliefs have mental health impact – religious involvement predicts better mental health (Koenig et al., 2012), social behavior impact – religion influences pro-social behavior and cooperation (Norenzayan et al., 2016), and coping mechanisms impact –

religious beliefs provide coping strategies for life challenges (Pargament et al., 2017). Recent research explores the complex relationship between religion and neuroscience where religious experiences activate reward and social cognition networks (Newberg et al., 2018), cultural influence where religion shapes cultural values and norms (Cohen et al., 2019), and interfaith dialogue where interfaith interactions promote tolerance and understanding (Davidson et al., 2018).

Personality traits refer to the relatively stable patterns of thoughts, feelings, and behaviors that define an individual's uniqueness (McAdams & Pals, 2006). Basic personality traits are big five personality traits which are openness, conscientiousness, extraversion, agreeableness, and neuroticism (Goldberg, 1990), and hexaco model which includes honesty-humility, emotionality, extraversion, agreeableness, conscientiousness, and openness to experience (Ashton & Lee, 2007). Impact of personality traits on job performance – personality traits predict job performance and career success (Barrick & Mount, 1991); mental health – personality traits influence mental health outcomes, such as depression and anxiety (Kotov et al., 2010); and relationships – personality traits shape interpersonal relationships and social interactions (Berry et al., 2000). Recent research explores the complex relationships such as gene-environmental interaction where genetic factors influence personality development through environmental interactions, neurobiological correlates where personality traits linked to specific brain regions and neurotransmitters (DeYoung et al., 2010), and personality change where personality traits can change through targeted interventions and life experiences (Hudson and Fraley, 2015).

Studies have been done on some of the variables in this study such as consumer behavior food labels – where Lee et al (2020) explored how food labels influence consumer purchasing decisions, considering personality traits and religious beliefs and Ares et al. (2020) examined the impact of nutrition labels on consumer food choices, taking into account individual differences in personality and religiosity; religious beliefs and food choices –where Menezes et al. (2019) investigated how religious beliefs shape food choices and eating habits among Muslims and Christians and Schwartz et al. (2018) studied the relationship between Jewish identity, religiosity, and kosher food consumption; personality traits and food preferences – where Goldberg et al. (2019) analyzed the association between personality traits (such as, openness, conscientiousness) and food preferences among young adults and Hudson et al. (2018) explored how personality traits influence food choices and eating habits in older adults; while Chan et al. (2020) examined how religious beliefs, personality traits, and food labels interact to influence consumer purchasing decisions and food choices and Kahle et al. (2019) investigated the impact of food labels on consumer trust, considering individual differences in religiosity and personality traits but none has been done on the interconnection or interrelatedness of the variables and this research is aimed

to study the interplay of religious beliefs and personality traits on use of food labels among consumers.

Methods

Participants

The participants for the study were 280 food product consumers found in selected shopping malls across South-East and South-South geopolitical zones of Nigeria. The participants were sampled based on purposive sampling method and inclusion criteria was – actively purchasing of food products in Shopping Malls.

Measures

Use of Food Labels: was assessed using Food Label Use Scale (FLUS) which evaluates consumers' frequency of using and understanding food labels. It was originally developed by Guthrie and colleagues in 1995 (Guthrie et al., 1995). Its revised versions adapted diverse populations (example, older adults, and adolescents) and updated to reflect changing labeling regulations (Lichtenstein et al., 2008). FLUS typically consist of 10-20 items, using Likert scales (example 1-5 or 1-7) to rate agreement or frequency. It measures various aspects or dimensions, such as frequency of checking nutrition facts, understanding of nutrition labels, use of labeling information for dietary decisions, and attention to specific nutrients (Byrd-Bredbenner and Grasso, 2010). Sum of item responses indicating overall food label usage and subscale scores reflect specific dimensions of food label use and higher scores indicate more frequent and effective use of food labels. FLUS demonstrated adequate internal consistency ($\alpha = 0.80 – 0.90$) and construct validity (Guthrie et al., 1995).

Religious Beliefs: was measured using Religious Belief Inventory (RBI) which is a psychological assessment tool designed to measure an individual's strength of religious beliefs, practices, and values (Hood, 2013). The purpose of RBI is to evaluate the intensity and nature of religious beliefs and it typically consists of 20-30 items, using Likert scales (example, 1-5 or 1-7) to rate agreement or frequency. RBI measures various dimensions or aspects, such as belief in God/higher power, religious practices (example, prayer, and attendance), scriptural authority, and spiritual experiences (Khan & Watson, 2016). Religious Belief Inventory was developed by Hood in 1970 to assess Christian beliefs but its revised versions were adapted for other religions (example, Islamic, Jewish) and non-religious populations (Hood and Williamson, 2008; RBI demonstrated adequate internal consistency ($\alpha = 0.85 – 0.95$) and construct validity (Hood, 2013). Sum of item responses indicating overall strength of religious beliefs, subscale reflect specific dimensions of religiosity, and higher scores indicate stronger religious beliefs.

Personality Traits: were measured using Ten Item Personality Inventory (TIPI) which is a brief, widely-used psychological assessment measuring five broad personality traits, it quickly assess individual differences in personality. TIPI was developed by Gosling et al (2003) to provide a concise alternative to linger personality assessments and it has 10 items, 2 items per trait. Using Likert scales (1-7) measuring extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience. TIPI has been validated across cultures and populations (Gosling et al., 2003; Herndon, 2008), and demonstrated adequate reliability (α = 0.65 – 0.85) and construct validity (Gosling et al., 2003). Total score are not calculated rather individual trait scores are used, and range from 2-14, with higher scores indicating stronger trait presence and scores reflect relative standing on each trait dimension (Jakobwitz & Egan, 2006).

Procedures

The study was approved by the Health Research Ethical Committee of Federal Medical Center Umuahia, Abia State. The researchers presented the ethical approval to administrative heads of notable selected shopping malls in South-East and South-South Nigeria. Participating consumers were drawn from those actively shopping food products with labels inside the shopping malls and showed interest to participate upon been approached and explained what the research was about; and shoppers willing to participate signed an informed consent form indicating their willingness to participate in the study. The questionnaires were distributed to them and took an average of 15 minutes to complete.

Design and statistics

The study applied cross-sectional research design. SPSS version 25 was used for data analysis. Pearson's correlation (*r*) analysis was conducted among the study's demographic variables, predictor and independent variables, while multiple regressions were applied. Demographic variables (age, gender, marital status, number of children, and occupation) were included as control variables in regression models. The Macro PROCESS approach for SPSS automatically executes computations, runs the analysis, and produces more meaningful results.

Results

Table 1 showed the demographic characteristics of 280 participants and they comprised of 97 (34.6%) male and 183(65.4%) female with a mean age of 46.5 (SD = 19.14). Substantial number of the participants were single (40.7%) and 39.3% attained tertiary education level. Slightly close to half of the participants were civil/public servant (40.7%) and 38.9% of them have between 1 to 3 children.

Table 1: Demographic and Characteristic of the Participants

Variables	N	%	Mean	SD
Age	18 – 75		46.5	19.14
Gender				
Male	97	34.6%		
Female	183	65.4%		
Marital Status				
Married	106	37.9%		
Single	114	40.7%		
Divorced	18	6.4%		
Widowed	42	15.0%		
Education				
No Formal Education	32	11.4%		
Primary Education	65	23.2%		
Secondary Education	73	26.1%		
Tertiary Education	110	39.3%		
Occupation				
Student/Unemployed	89	31.8%		
Artisan/Business	77	27.5%		
Civil/Public Servants	114	40.7%		
Number of Children				
None	75	26.8%		
1 – 3	109	38.9%		
4 - 6	67	23.9%		
7 and Above	29	10.4%		

Note: SD – Standard Deviation

The findings in the correlation table (Table 2) showed correlation analysis conducted to examine the relationships between various factors and use of food labels among consumers. The results revealed several significant correlations: Positive correction was found between gender and religious beliefs ($r = .07$, $p < .01$), gender and use of food labels ($r = .04$, $p< .01$). This suggests that females are more religious and exhibits higher religious beliefs than males; also, females use food labels than their male counterparts. Number of children positively correlated religious beliefs ($r = .12$, $p < .01$) and use of food labels ($r = .15$, $p < .01$). This indicates that more number of children elicits higher religious beliefs and peculiar usage of food labels than individuals with lesser number of children or none. Education positively correlated use of food labels ($r = .24$, $p < .01$) which indicates that education levels of an individual affects their usage of food labels. Religious beliefs correlated use of food labels ($r = .06$, $p < .01$) which indicates that individuals with higher religious beliefs are motivated to understand food labels than those who have scored low on religious beliefs. Personality traits correlated religious beliefs ($r = .20$, $p < .01$) and use of food labels ($r = .54$, $p < .01$); which explains that individuals who scored high on conscientiousness tend to

be more religious than individuals who scored high on other personality dimensions (such as neuroticism); also, individuals with high conscientiousness personality traits utilized food labels adequately than individuals with high scores on other personality traits.

Table 2: Mean, standard deviation and correlations of demographic factors, religious beliefs, personality traits, and use of food labels

Variables	1	2	3	4	5	6	7	8
1. Gender	-							
2. Marital Status	-.12	-						
3. Education	.18	.10	-					
4. Occupation	.15*	-.32*	.23	-				
5. No of Children	.27*	.12	.09*	.02	-			
6. RB	.07**	.08	-.32	.07*	.12**	-		
7. PT	.10	.16*	-.12	.02	.14*	.20**	-	
8. UFL	.04**	-.23*	.24**	-.33	.15**	.06**	.54**	-

**p < .01(two-tailed); *p < .05(two-tailed). Gender (0 = male, 1 = female).
Note: RB = Religious Belief; PT = Personality Traits; UFL = Use of Food Label.

The results presented in Table 3 reveal the predictive relationships between various factors and use of food labels. The findings indicate that gender (β = .08, SE = .03, 95% CI = .12, -.09) and education (β = .22, SE = .06, 95% CI = .14, -.39) are positive predicator of use of food labels. This suggests that individuals' gender (been a male or female) and ones' level of education denotes the individuals' effective use of food labels. Religious beliefs (β = .49, SE = .12, 95% CI = .45, .56) and personality traits (conscientiousness) (β = .70, SE = .18, 95% CI = .34, .44) are strong predicator of use of food labels. This suggests that individuals with higher levels of religious beliefs tend to use food labels effectively than individuals with lower levels of religious beliefs while those individuals with higher scores of conscientiousness personality traits efficiently use food labels than those with lower conscientiousness personality scores but scored high on other personality traits (such as neuroticism).

Table 3: Hayes PROCESS macro results for predicting use of food labels by gender, education, religious beliefs and personality traits as a covariate

Variables	*B*	*SE*	B	*T*	*P*	95%*CI*
Gender	.18	.03	.08	.45	.004	[.12, .09]
Education	.10	.06	.22	.23	.002	[.14, .39]
Religious Beliefs	.35	.12	.49	2.36	.001	[.45, .56]
Personality Traits	1.02	.18	.70	1.23	.003	[.34, .44]

Discussion

The major goal of this study was to ascertain the interplay of religious beliefs and personality traits on the use of food labels among consumers. The positive association between gender and religious beliefs highlights the importance incorporating more women into religious affairs as they wield stronger beliefs system than men. Inculcating needed religious beliefs in women would likely lead to better choices of food products in that these women will buy food products wisely and as such enlightenment of food choices in religious settings is of utmost importance and beneficial. Gender associated with use of food labels which indicates that women are basically food caretakers in Nigeria (as well Africa)homes and as such taking time to understanding the food or food product they want to consumer or prepare is necessary and essential; also, awareness of food nutrition among women is strongly encouraged.

Education level correlated with use of food labels indicating that more educated people often use food labels probably because they are familiar with languages and jargons written on the food labels and they are aware of the need to understand food products before its consumption – all pointing towards literacy which is necessary for every individual in the society. Number of children associated with religious beliefs and use of food labels which implies that more children one has leads to high esteeming of religious beliefs maybe to have faith and hope for sustenance from a supreme being or to be a model to emulate for the children while usage of food labels can be accelerated with presences of more children because trying to economize the feeding of more mouths in the home, the individual tends to read food labels so as to know which food can be economical but yet wholesome for more persons.

Religious beliefs correlated with use of food labels which is consistent with previous studies (Menezes et al., 2019; Schwartz et al., 2018), where religiosity was associated with food choices. Thus, suggesting that the more a consumer is religiously inclined, the more conscious such individual is with food consumption which triggers the use of food labels. Personality traits correlated religious beliefs and use of food labels which is in keepings with Goldberg et al. (2019), Hudson et al. (2018), and Lee et al. (2020), who found that personality traits affects food preferences and food choices respectively. This denotes that some personality traits (such as conscientiousness) may likely encourage high levels of religiosity while other personality traits (such as neuroticism) may not foster religiosity; while some personality traits (such as openness to experience) may trigger inquisitiveness and thus encourage the use of food labels on the other hand, neurotic individual are most likely not to use food labels.

Religious beliefs predicted use of food labels; this present result is in consonance with similar studies (Bruce, 2017; Bullivant, 2013; Cohen et al.,

2019; Schwartz et al., 2018) which stated that religiosity predicts food label usages. This finding showed that religious beliefs predicted the use of food labels in such a way that the higher the religious beliefs the consumer experience the efficient the use of food labels. Religious leaders are advised to encourage worshippers on the choices of food that suits their beliefs as well as good for their health. To the health care expert, the need to align with religious leaders and collaborate with them such as creating awareness in their religious gatherings will be of greater importance, as this will lead to more and constant use of food labels as the usage of food labels in several ways assist in food choices and individual food preferences.

Personality traits predicted use of food labels, which is keeping with the past findings (DeYoung et al., 2010; Goldberg et al., 2019; Hudson and Fraley, 2015; Hudson et al., 2018; Krueger et al., 2019) which pointed some personality traits either encourages or discourages food preferences and choices. This revealed that the personality traits such as conscientiousness and openness to experience encourages varying food choices which leads to the use of food labels while other personality traits such as neuroticism and agreeableness deters food choices leading to non-use of food labels. Health care providers and formal caregivers are encouraged to suggest psychological assistance to individuals with neuroticism personality traits as this will likely affect their food consumption pattern leading to nutritional diseases and deficiencies.

Conclusion

This study sheds light on the crucial interplay of religious beliefs and personality traits on the use of food labels among consumers. The findings underscore the importance of adequate or balanced religious beliefs and having a healthy personality trait which enhances the use of food labels which in the other way round affects consumers' quality of life. These insights consumers with strong religious beliefs and conscientious personality tendencies exhibited heightened scrutiny of food labels, prioritizing health, ethical and environmental considerations while individuals with weaker religious ties and neurotic inclinations demonstrated diminished attention to labeling, emphasizing convenience and taste. The findings have implications for religious leaders, food manufacturers and policymakers to consider effective communication of nutritional information, promote informed consumption choices and foster a more transparent food industry.

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