

Understanding Wine Consumption Behaviour in Lebanon Restaurants: The Role of Religiosity

Maya Daher^{1,2}

¹Department of Marketing, School of Business, Sagesse University, Furn El-Chebak, Lebanon

²Department of Marketing, School of Business, Lebanese International University, Beirut, Lebanon

Email: maya.massoud@liu.edu.lb

How to cite this paper: Daher, M. (2024). Understanding Wine Consumption Behaviour in Lebanon Restaurants: The Role of Religiosity. *American Journal of Industrial and Business Management*, 14, 1631-1657. <https://doi.org/10.4236/ajibm.2024.1412082>

Received: October 28, 2024

Accepted: December 14, 2024

Published: December 17, 2024

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Abstract

Numerous societies are impacted by the public health issue of wine consumption. Nevertheless, there is a dearth of research on the factors that influence the consumption of wine in developing societies. Consequently, the objective of our paper is to examine the influence of perceived risk, attitude, and Islamic religiosity on the behaviour of wine consumption in the Lebanese wine context. Data were collected from 591 wine consumers in Lebanon. A model was proposed that incorporates perceived risk, attitude, and religiosity variables in accordance with the Theory of Planned behaviour. We used the Partial least square/structural equation modelling technique to analyse the data. The results suggested that the primary factors influencing wine consumption behaviour are perceived behavioural control, attitude, subjective norms, health risk, psychological risk, and social risk. It also revealed that religiosity plays a critical role in influencing wine consumption behaviour. Our results have significant implications for scholars and businesses.

Keywords

Theory of Planned Behaviour, Perceived Risk, Attitude, Subjective Norms, Religiosity

1. Introduction

Worldwide wine revenues have steadily increased over the past decade, surpassing \$302 billion in 2017 and projected to reach \$423 billion by 2025 (Techo, 2021). Wine is a historically significant and extensively used alcoholic beverage. Moderate consumption is associated with significant health benefits, while excessive consumption is recognised as a significant risk factor for a variety of disorders. Nevertheless, the product is contentious due to the ambiguity of the recommended

dosage for optimal health (Gupta & Sajnani, 2020; Wright et al., 2023). This issue has been the subject of extensive research (e.g., Acuti et al., 2020), with a variety of experts analysing the factors that influence wine consumption. The findings emphasise the product's growing popularity as a segment and in consumer behaviour (Wright et al., 2023). The wines' geographical origin (Abdelmoety et al., 2022; Gupta and Sajnani, 2020), alcohol content (Zuckermann et al., 2024), or reputation, as indicated by the number of awards earned (Zuckermann et al., 2024), as well as the grape variety, vintage, and harvest origin (Wright et al., 2023), are the most commonly recognised characteristics. Additionally, prior research suggests that the types of wine consumed by consumers are substantially influenced by their socio-demographic characteristics, most notably age, gender, and income (Aboul-Dahab et al., 2021; Wright et al., 2023).

Lebanon's annual per capita wine consumption has decreased by 1.6% since 2014. In 2019, the nation's wine consumption per capita was 0.22 litres of pure alcohol, placing it at 92nd on a global scale (Statista, 2024). In Lebanon, wine research primarily concentrates on customer behaviour and information sources during the purchasing process, disregarding the factors that influence consumers' purchasing decisions. Furthermore, wine research in Lebanon has primarily focused on either intrinsic feature (sensory characteristics) (Agag, 2019; Koksai, 2021) or extrinsic attributes (Agag et al., 2020; Chalak et al., 2020), overlooking the analysis of the perceived benefits and risks associated with wine consumption (Agag & El-Masry, 2016; Zuckermann et al., 2024).

From the consumer's perspective, wine is generally considered a multifaceted product. Its consumption incorporates both advantages and risks (Danner et al., 2020). The dangers are related to the health hazards associated with consuming poor-quality wine or an excessive amount of wine, while the benefits are related to the selection of a wine that individuals enjoy. Numerous factors influence the purchasing decisions of customers with respect to wine. The level of doubt and concern that consumers experience regarding their purchasing decisions, which has been recently identified as perceived risk, is a substantial factor. Risk perception is a substantial personal attribute that influences the purchasing behaviour of wine (Agag et al., 2023a; Nassivera et al., 2020). Customers perceive a substantial degree of risk due to the wine's intricate and diverse composition. One approach that consumers can take to reduce the risk of purchasing substandard wine is to scrutinise the wine package for relevant information (Agag et al., 2023b; Santos et al., 2020). Retailers have been able to offer wine to consumers at reduced prices as a result of the relaxation of liquor licence (L-4D) regulations in Lebanon (Compés et al., 2022). This has made them more accessible, convenient, and prevalent. It has developed into cultural symbols and tourist destinations for wine enthusiasts (Compés et al., 2022).

Chalak et al. (2020) have previously shown that consumers' wine selection processes are influenced by a variety of factors. The majority of this research has been conducted in countries with a well-established wine market. In contrast to their

Western counterparts, recent research suggests that Lebanese consumers exhibit distinct shopping determinants and purchasing behaviour styles, despite the ongoing discourse regarding the consistency of customer preferences and purchasing behaviour across cultures (Agag et al., 2024a; Znaïen, 2021). The Lebanese wine industry is still in its infancy. Historically, the consumption of intoxicating beverages was considered a social taboo in Lebanese society; however, it is now regarded as a symbol of social progress, particularly among the younger generation. Additionally, youthful customers in their twenties are more inclined to experiment with a variety of beverages, which makes them more likely to try and consume wine than older customers, who are more likely to stick to the traditional use of hard liquor. However, there is a scarcity of information available on the purchasing habits of consumers in Lebanon, where the wine industry is still in its infancy.

The demand for wines on a global scale has recently increased. Nevertheless, there is a scarcity of empirical data on the wine consumption habits and the associated risk/benefit perspectives of consumers in Lebanon (Agag et al., 2024b; Chaaban et al., 2022). Additionally, the impact of religiosity on purchasing decisions in the Lebanese context is still largely unexplored, with the majority of extant research focussing on the variables that influence customers' wine preferences and habits. Evaluation of the perceived advantages and disadvantages is typically necessary for wine consumption and purchasing decisions (Agnoli et al., 2016; Chaanine & Chaanine, 2018). As a result, the wine consumer's purchasing decisions are contingent upon the perceived comparative risks and benefits, which requires a more comprehensive assessment of wine consumption in the future. Moreover, in contrast to the socio-demographic characteristics of consumers themselves (Agnoli et al., 2016), the context, environment, and culture have been identified as the primary drivers of wine consumption in restaurants (Agag et al., 2024c). This study utilised the Theory of Planned Behaviour, a concept from behavioural economics, to analyse wine on-trade consumption. Consequently, it aimed to determine whether consumption intention actually influences behaviour and to identify the behavioural drivers and barriers that influence wine consumption in restaurants in Lebanon. Consequently, the objective of our paper is to investigate the subsequent inquiry:

RQ1: *Do perceived risk (I.e., health risk, psychological risk, and social risk) and attitude have a significant impact on consumer wine consumption behaviour?*

RQ2: *Does religiosity moderate the link between attitude, intention, and actual behaviour?*

The investigation is organised as follows. The theoretical framework concerning perceived risk, attitude and religiosity is illustrated in Section 2, which is followed by the development of the proposed conceptual framework and proposed research hypotheses. Section 3 delineates the study methodology and provides a detailed explanation of the data collection. The empirical findings are delineated in Section 4. The findings are presented in Section 5, which emphasises the

theoretical, methodological, and practical implications. The work concludes in Section 6, which outlines limitations and suggests avenues for further investigation.

2. Literature Review

2.1. Theory of Planned Behaviour

Ajzen (1991) developed the Theory of Planned Behaviour (TPB) to investigate human behaviour. It has been implemented in the field of behavioural economics to forecast a variety of behaviours, including entrepreneurial behaviour (Kautonen, Van Gelderen, & Tornikoski, 2013), sustainable behaviour from both the supply and demand sides (Liobikienė, Mandravickaitė, & Bernatoniene, 2016; Rezaei, Mianaji, & Ganjloo 2018), compliance with water usage restrictions (Agag & Eid., 2020), and consumption behaviour (A This theory's effectiveness is derived from its capacity to comprehend the manner in which individuals conduct in a variety of contexts, circumstances, and situations, as well as to identify potential obstacles and methods for promoting behavioural change. This is the first study to apply the constructs from TPB to wine consumption in the Lebanese market, to the best of our knowledge.

The Theory of Reasoned Action (TRA) as elucidated by Fishbein and Ajzen (1975) serves as the foundation of TPB. It posits that human behaviour, and in this paper, in particular the consumption of wine in a restaurant, is influenced by the intention to behave, which is the indication of respondents' readiness to consume wine in a restaurant. This intention is in turn driven by three constructs, or behavioural antecedents: 1) attitudes towards the behaviour, which refers to the degree to which the performance of the consumption behaviour is positively or negatively valued; 2) subjective norms, which refers to the perceived social pressure to consume wine in a restaurant; and 3) perceived behavioural control, which is given by respondents' perceptions of their ability to perform the behaviour. This final construct distinguishes TPB from TRA. It is incorporated into TPB on the assumption that certain behaviours are subject to "volitional control" and that it can also actively influence human behaviour (Ajzen, 1991). The construct of perceived behavioural control, which was introduced by TPB, is directly correlated with the availability of resources and opportunities for the behaviour under investigation (Ajzen, 1991). It represents the ease or difficulty of engaging in the behaviour under investigation. The absence of this component in TRA suggests that it is capable of analysing only behaviours that are entirely within the control of individuals. In 2004, Hansen, Jensen, and Solgaard conducted a study that evaluated the efficacy of the two methodologies in explaining consumption behaviour. The results indicated that TPB outperformed TRA. Therefore, our study employs TPB to identify and understand the main variables affecting wine consumption behaviours in Lebanese restaurants.

2.2. Wine Consumption in Restaurants

For years, the alcohol sector in Lebanon has been primarily dominated by stronger

spirits, including “whisky, vodka, rum, and beer,” while the Lebanese wine industry was essentially non-existent a decade ago (Agag et al., 2019; Danner et al., 2020). Between 2011 and 2019, the industry’s annual growth rate increased by 23.6 percent, resulting in a substantial increase in revenue (Aldossary et al., 2024; Santos et al., 2020). The global average of 4 litres per year is considerably higher than Lebanon’s per capita wine consumption of approximately 10 millilitres per year (Chalak et al., 2020). Increased disposable incomes, increased societal acceptance of alcohol across genders, enhanced internationalisation, and awareness of the fitness benefits associated with wine are among the factors that contribute to the significant growth potential of the nascent and largely untapped wine market in Lebanon (Chalak et al., 2020).

The restaurant industry in Lebanon has encountered numerous challenges in adapting to the evolving landscape of wine consumption. Additionally, the proliferation of international wine retailers, including “Jacob Creeks and Zinfandel,” has substantially expanded the scope of consumer wine behaviours in Lebanon (Alghamdi & Agag, 2023a; Gupta & Sajnani, 2020). The rules and codes of initiatives pertinent to wine services and commerce are regulated by policymakers in numerous nations, including the United States, Lebanon, Singapore, and France. In “France, wine professionals” comply with the “Appellation d’Origine Contrôlée system,” which guarantees the provenance and regulation of wine (Alghamdi & Agag, 2023b; De Toni et al., 2022). The National Wine Board in Lebanon, which is under the Ministry of Food Processing Industries, is responsible for the establishment of rules and regulations that will improve the quality and efficiency of the wine industry, as well as provide value to stakeholders (Alrawad et al., 2023; De Toni et al., 2022).

Research on wine consumption in restaurants concentrates on the significance of the environment (Alsuwaidi et al., 2022) and the information that customers prioritise when reviewing a wine list. Durham, Pardoe, and Vega-H (2004) emphasise the significance of price, sensory characteristics, and grape variety, in addition to origin. Jaeger, Danaher, and Brodie (2010) emphasise that grape variety, geographical region, and food pairing are the most significant factors in the decision-making process of highly engaged wine customers, which is consistent with this study. Corsi, Mueller, and Lockshin (2012) distinguish various customer segments based on the significance they assign to various types of information in the wine list. In other examinations, the impact of other individuals on the selection of wine in restaurants is examined. Alsuwaidi et al. (2022) emphasises the significance of sommeliers in the development of a restaurant’s wine inventory and in influencing customers’ decisions regarding which bottle of wine to order.

2.3. Conceptual Framework and Hypotheses Development

Based on Theory of Planned Behaviour (e.g., Ajzen, 1991) and prior research on wine consumption (e.g., Alyahya et al., 2023a; De Toni et al., 2022; Gupta & Sajnani, 2020), our study seeks to examine the influence of perceived risk, attitude,

and intention on customers wine consumption behaviour in Lebanese restaurants.

Figure 1 shows the conceptual framework of our study.

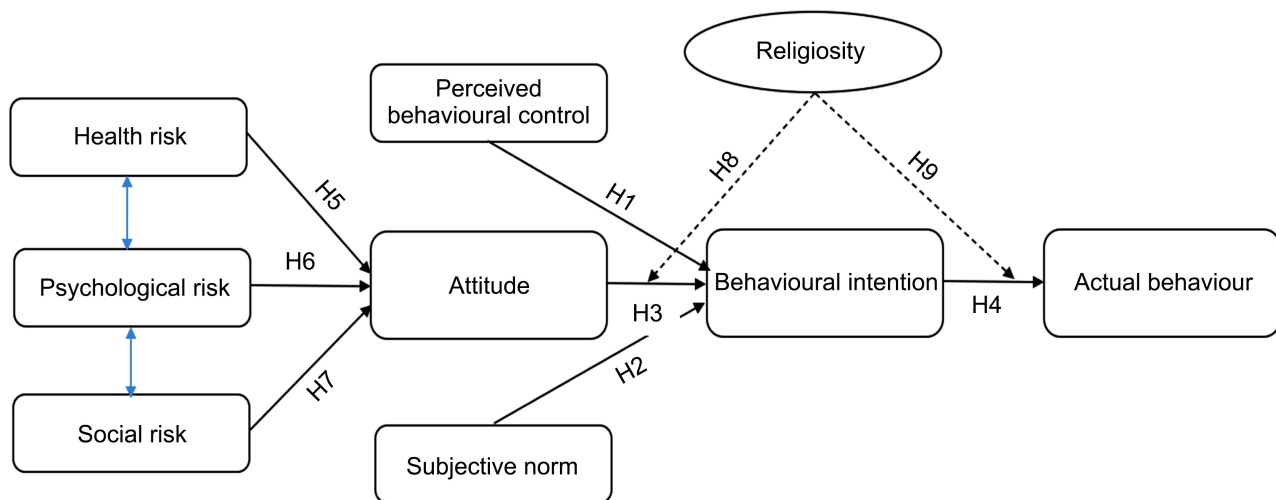


Figure 1. Research model.

2.3.1. The Theory of Planned Behaviour Variables

The model does not always incorporate perceived behavioural control when analysing wine consumption, and as a result, TRA is implemented. For example, [Van Zanten \(2005\)](#) examined wine consumption in Australia, [St James and Christodoulidou \(2011\)](#) examined Southern Californian consumers, and [Capitello, Agnoli, and Begalli \(2015\)](#) examined Italian consumers. These studies consistently demonstrate that attitudes have a positive impact on the intention to consume wine, and they are more significant than subjective norms in determining this intention. In 1995, Thompson and Vourvachis conducted an analysis of wine consumers in the United Kingdom, also utilising TRA. They concluded that subjective norms are more influential than attitudes in determining consumer intentions to consume wine. In the decision-making process of selecting wine at a restaurant, sommeliers and other significant individuals are instrumental ([Alyahya et al., 2023b](#)). Additionally, the influence of others on daily life and decisions is significant in Confucian cultures, such as the Lebanese.

The research conducted by [Agnoli, Capitello, and Begalli \(2016\)](#), which is the first to apply TPB to wine consumption, confirms that perceived behavioural control plays a role in influencing both intentions to consume wine and wine consumption itself in a novice wine market. However, it is found to be less significant than attitudes and subjective norms. The same results are observed in [Maksan, Kovačić, and Cerjak \(2019\)](#), who employ an extended TPB to investigate the impact of customer ethnocentrism on the purchase of domestic wine in Croatia, and in [Caliskan, Celebi, and Pirnar \(2021\)](#), who investigate the consumption of organic wine in Türkiye. The literature acknowledges that ordering wine at a restaurant is frequently more distressing than purchasing wine in off-trade channels, which confirms that customers perceive a greater degree of risk. Consequently, it

is a behaviour that is significantly influenced by perceived behavioural control (Alyahya et al., 2023c; Lacey, Bruwer, & Li, 2009). Yang and Choi (2022) conducted the initial examination on wine consumption in restaurants using an extended TPB. However, subjective norms are confused with perceived behavioural control, and numerous items are designed to analyse wine pairings with food without considering the restaurant venue. TBP posits that behaviour is also directly influenced by perceived behavioural control. The theory is confirmed by the limited number of examinations that have examined this relationship in the context of wine consumption (Agnoli, Capitello, & Begalli, 2016; Alzaidi & Agag, 2022; Eid et al., 2019; Maksan, Kovačić, & Cerjak, 2019). Therefore, our study proposes the following hypotheses:

H1. Perceived behavioural control has a significant impact on behavioural intention.

H2. Subjective norm has a significant impact on behavioural intention.

H3. Attitude has a significant impact on behavioural intention.

H4. Behavioural intention has a significant impact on actual behaviour.

2.3.2. Perceived Risks

The wines that are available in a variety of restaurants and cafes throughout Lebanon satisfy the “entertainment, enjoyment, and consumption needs” of customers on a daily basis; however, their consumption also involves certain risks (De Toni et al., 2022; Eid et al., 2020). Customers anticipate specific levels of risk in each purchasing decision in order to pursue a variety of benefits (Gupta & Sajjani, 2020). Consequently, the concept of risks and benefits perceptions can be employed to elucidate the customer’s selection of services or products. Koksall and Seyedimany (2023) found that the consumption of wine is influenced by the perceived risks and benefits, which are determined by the joy associated with the benefits and the outrage associated with the risk. The process of consumer perceptions regarding wine is multifaceted, as it involves the consideration of a variety of internal and external factors (Lu & Shi, 2024; Nakkash et al., 2018). From the customer’s standpoint, wine is frequently perceived as a multifaceted item. It incorporates both advantages and hazards (Elbaz et al., 2018; Seyedimany & Koksall, 2022). Perceived risk is the cumulative effect of prospective outcomes, the uncertainty associated with purchasing decisions, and the consequences of engaging in an undesirable activity (Bashir et al., 2021; Elbeltagi & Agag, 2016; Naja et al., 2021; Rahman & Soesilo, 2018; Sawang et al., 2023). There is no specific meaning, despite the fact that previous examinations (Elhoushy et al., 2020; Hamdy et al., 2024; Laradi et al., 2024; Seyedimany & Koksall, 2022) have proposed a variety of models to depict the risk dimensions in customer purchase behaviours. Nassivera et al. (2020) formulated the peril concept by comprehending four categories of “risks: hazard, time, money, and ego.” Nassivera et al. (2020) subsequently expanded this classification to encompass six fundamental risk categories: “physical, functional, social, financial, psychological, and time risk.”

Nakkash et al. (2019) were the first to introduce the concept of “risk and benefit perception” in the context of investigating consumer purchasing behaviour. Nassivera et al. (2020) further developed the two-aspects model into a multi-aspects concept that is widely used. This concept evaluates the “physical, social, psychological, financial, and performance risks” associated with consumer purchasing decisions, and it serves as the theoretical lens for this paper. The probability of adverse, detrimental, and negative outcomes for consumers and the culture that result from the purchasing behaviours of wine is the definition of risk perceptions in our investigation. Social risk includes harmful effects on self-esteem and/or self-image (Zeenny et al., 2024), social alienation that results from adverse emotions resulting from excessive drinking (Nakkash et al., 2019; Selim et al., 2022), and diverse religious convictions regarding wine consumption (Nassivera et al., 2020). Certain researchers contended that the conduct of manifested objects or services can generate a concept of intricate social risk (Zeenny et al., 2024). Similarly, the psychological hazards associated with wine behaviours include an increased likelihood of depression, diminished self-esteem (Sharkasi & Agag, 2024; Zeenny et al., 2024), and violent behaviour post-consumption (Mitri et al., 2022; Shaalan et al., 2022). Mitri et al. (2022) have demonstrated that customers’ attitudes towards wine consumption can be influenced by low scores of risk perceptions and high scores of benefit perceptions regarding an article. Consumer behaviour is influenced by the perceived risks and advantages, as consumers engage in actions that govern their behavioural objectives (Nakkash et al., 2019; Shehawy et al., 2018). Therefore, we suggest the following hypotheses:

H5. Health risk has a negative impact on customers’ attitudes towards wine.

H6. Psychological risk has a negative impact on customers’ attitudes towards wine.

H7. Social risk has a negative impact on customers’ attitudes towards wine.

2.3.3. Religiosity

In the past, certain religions, such as Judaism and Christianity, considered moderate wine consumption to be customary, while others, like Islam, prohibited it (Outreville, 2021; Shehawy et al., 2024). The relationship between religious piety and alcohol-related behaviours varies across different religious affiliations and denominations (Howland, 2019). As a result, the specific teachings of each faith have an impact on the opinions of consumers of various religious affiliations and those who are non-religious regarding alcohol consumption. Thematic analysis conducted by Yang et al. (2024) demonstrated that attitudes towards alcohol consumption and intoxication were less favourable among Jews than among “Protestants in the United Kingdom.” Specifically, Jews considered alcohol consumption to be permissible only during religious celebrations, whereas “Protestants” supported drinking in secular social settings, such as pubs.

Prior research has underscored the importance of religion (Mitri et al., 2022; Wood et al., 2021) or general attitudes towards alcohol consumption and abuse

(Crawford, 1987; Sharkasi et al., 2025; Youssef et al., 2022). Nevertheless, no study has specifically examined religious attitudes towards drinking (RPdrink) and intoxication. In the past, scales that evaluate general attitudes towards alcohol have been employed; however, none have employed a scale that concentrates on religious perceptions of drinking and drunkenness. This approach could provide a more precise understanding of the relationship between individual religious beliefs and attitudes towards wine consumption behaviour.

In comparison to their non-religious counterparts, religious consumers generally demonstrate less favourable attitudes towards alcohol consumption and intoxication. The latter not only possess the most favourable perceptions but also engage in higher levels of alcohol consumption (Najjar et al., 2016). The prohibition of alcohol consumption in Islam is supported by compelling evidence (Bareham et al., 2019), and reports from the “World Health Organisation” indicate that Muslim societies have the lowest levels of alcohol consumption, if any (Fitouchi et al., 2023). Additionally, prior research has consistently demonstrated that Catholics consume alcohol at a higher rate than any other Christian group (Badanta et al., 2020). Baptists have historical conventions that prohibit alcohol consumption, while “Catholics” do not (Dazzio et al., 2023). Therefore, we suggest the following hypotheses:

H8. Religiosity moderates the link between customers’ attitudes towards wine and behavioural intention.

H9. Religiosity moderates the link between behavioural intention and actual behaviour.

3. Methodology

3.1. Sample and Data Collection

The research propositions were investigated in this paper using a survey-based examination methodology. An online questionnaire was developed, which included enquiries about the background information of consumers and the identified variables. The questionnaire was developed using valid scales from prior studies, as detailed below. A professional research agency with access to 1.4 million customers in Lebanon was employed for our examination. Data were gathered in March 2024. A screening question was included that indicates that the consumers had experience with wine consumption in Lebanese restaurants. Using the random sampling technique, we distributed 1000 surveys. A total of 614 responses were received. 591 responses were considered valid for further analysis after the exclusion of 23 absent values, resulting in a response rate of 59.1%. The demographics of the respondent are presented in **Table 1**.

An online survey was implemented to contact a total of 591 consumers. Of the 591 consumers, 306 were male (51.7%) and 285 were female (48.30%). The majority of consumers (42.15%) were between the ages of 23 and 27 and held post-graduate degrees (master’s and doctorate) (56.0%). Data were gathered from a variety of locations in Lebanon.

Table 1. Sample profile.

Variable	Categories	Frequency	Percentage
Gender	Male	306	51.70
	Female	285	48.30
Age	18 - 22	135	22.84
	23 - 27	180	30.45
	28 - 32	93	15.73
	33 - 40	82	13.87
	Above 40	101	17.09
Education	Bachelor's degree	259	43.82
	Master's degree	106	17.93
	Diploma	161	27.24
	Other	65	10.99
Discretionary monthly income in dollars	<500	268	45.34
	500 - 1000	195	32.99
	1000 - 1500	56	9.47
	Above 1500	72	12.18

3.2. Measures

The study variables were measured using a well-established and reliable scales from prior research. Items from previous studies (e.g., Gupta & Sajnani, 2020; Yeung & Morris, 2001; Tester et al., 2010) were employed to assess “perceived risk” (i.e., physiological risk, psychological risk, and social risk). The scales from previous examinations (e.g., Agnoli & Outreville, 2024; Ajzen, 1991; De Toni et al., 2022; Wu et al., 2014) were employed to evaluate “attitude, perceived behavioural control, subjective norm, behavioural intention, and actual behaviour”. Additionally, a scale from Swimberghe et al. (2011) was employed to evaluate religiosity. Lastly, a scale devised by) was employed to assess behavioural intentions. A cohort of ten academic staff members was employed to conduct face and content validity. Additionally, a pilot test was implemented to evaluate the reliability and validity of the study’s metrics. For the pilot test, we employed a sample of 60 consumers. Our questionnaire was revised and modified in accordance with their feedback. A five-point Likert scale was employed to assess all scales.

The sample demographics in **Table 1** are consistent with those of prior studies conducted in wine consumption contexts (e.g., Chi et al., 2021; Gupta & Sajnani, 2020). Additionally, the acquire sample size of 419 exceeds the recommended minimum of ten times the maximum number of links associated with any latent variable in the proposed model, irrespective of whether they are internal or external model associations (Hair et al., 2023). The permissible cutoff value of 0.60 was

surpassed by the “Kaiser-Meyer-Olkin value” of 0.89, as indicated by this study. The employing of a data compression method can yield advantageous results, as evidenced by the significant result of the “Bartlett’s test of sphericity” ($\chi^2 = 1471.604, p < 0.01$).

3.3. Common Method Bias and Non-Response Bias

A common method bias is likely to arise in business studies when participants are hesitant to attempt appropriate responses or fail to provide accurate answers (Podsakoff et al., 2012: p. 534). In order to reduce the impact of “common method bias,” the current investigation was developed and examined with the implementation of numerous precautionary measures. At first, we implemented a “Harman one-factor” test to investigate the potential impact of “common method bias.” Our analysis suggests that the covariance cannot be attributed to a single component. Secondly, in order to ensure that our questionnaire yielded precise results, we specifically selected individuals who possessed the necessary experience and understanding of the subject matter (i.e., “wine consumption users”). In order to assess “common method bias,” a “marker variable approach” was implemented. The test did not reveal any significant differences in the relationships between the research factors, and the partial associations decreased ($r = 0.02$) (Podsakoff et al., 2012). The complexity of the study model employed in our investigation led us to query whether the respondents could have anticipated the results. Additionally, we took measures to guarantee the privacy and security of the data we collected, and we disclosed this information to the respondents, emphasising the importance of providing true responses to the questionnaire items. Additionally, we conducted a test of “variance inflation factors” and determined that “multicollinearity” is not appropriate to influence our justification of the results. This is supported by a “maximum VIF” of 1.490, which is considered acceptable.

Furthermore, in order to assess the presence of “nonresponse bias” in our dataset, we conducted a comparative analysis of the attributes of the participants in comparison to those of the consumers in the mailing database. The criteria consisted of income, gender, and age. The chi-square test did not identify any discernible patterns of response bias. Additionally, we investigate late-response bias by conducting chi-square tests on early (“first two weeks”) and late (“last two weeks”) responses, in addition to nonresponse. The results indicated that there were no statistically significant variances.

3.4. Analysis Technique

The data analysis was conducted using Partial Least Squares (PLS) in the Warp-PLS 7.0 package (Kock, 2022). PLS is suitable for the investigation due to its ability to evaluate a measurement model for the theoretical model, its ability to manage small samples, and its lack of assumptions regarding data normality (Kathuria et al., 2018). The measurement properties of constructs were the primary focus of the initial stage of data analysis. By factor-analyzing items classified under their

respective construct and examining the item-total correlations for all constructs, we evaluated the convergent and discriminant validity of each construct.

4. Results

4.1. Measurement Model

We conducted numerous assessments to assess the “reliability, convergent validity, and discriminant validity” of all study variables in order to confirm their validity and reliability. The reliability was evaluated at both the factor and indicator levels. We evaluated the “Cronbach Alpha” (CA) and “Composite Reliability” (CR) values at the factor level, verifying that they exceeded the 0.70 threshold (Nunnally, 1978). We evaluated whether factor-to-item loadings exceeded the minimum threshold value of 0.70 at the item level, and all results met this criterion. In order to evaluate the acquisition of “convergent validity,” we conducted an analysis of AVE values to verify that they exceeded the minimum threshold of 0.50. The lowest recorded value was 0.518. Consequently, we verified the “discriminant validity” of the instrument using three distinct methodologies. In accordance with the “Fornell-Larcker criterion,” the initial analysis evaluated the square root of each variable’s AVE to determine whether it exceeded its maximal association with any other variable. The second evaluated whether the outer loading of each item exceeded its cross loading with the other factors used in the examination (Henseler et al., 2015). Third, we employed the “heterotrait-monotrait ratio (HTMT),” a metric that Henseler et al. (2015) proposed as a more effective indicator of “discriminant validity.” Strong “discriminant validity” is indicated by all values exceeding the lower criterion of 0.85. Table 2 and Table 3 illustrate the aforementioned results, which suggest that all measures are legitimate for subsequent analyses and that each item effectively represents its corresponding variable.

Table 2. Measurement statistics of construct scales.

Constructs/Observed Items	Standardized Loadings	Mean	Standard Deviation	Cronbach's α	CR	AVE	t-value	Skewness	Kurtosis
Health risk									
Hangover	0.949	2.320	1.038				22.12	-1.34	1.15
Damage to liver and kidneys	0.931	2.373	1.425	0.931	0.959	0.506	25.37	-1.30	1.56
Anxiety about an illness/sickness	0.905	2.078	1.210				21.07	-1.56	1.61
Illness due to bad wine consumption	0.977	2.412	1.559				18.16	-1.49	1.72
Psychological risk									
Damage to self-esteem	0.919	2.568	1.442	0.909	0.946	0.617	26.107	-1.54	1.44
Aggressive behaviour	0.956	2.431	1.516				20.439	-1.21	1.61
Depression	0.971	2.409	1.490				22.106	-1.78	1.32

Continued

Social risk									
Loss of self-respect	0.930	2.190	1.156				21.207	-1.31	1.08
Social disconnect after hefty wine consumption	0.951	2.534	1.099	0.943	0.966	0.548	27.120	-1.37	1.21
Religious beliefs related to wine consumption	0.933	2.107	1.421				20.445	-1.22	1.27
Attitude									
Negative consequences/Positive consequences	0.961	2.441	1.410	0.928	0.971	0.599	20.342	-1.41	1.51
Not pleased/Pleased	0.946	2.374	1.536				19.128	-1.72	1.64
Not enjoyable/Enjoyable	0.920	2.120	1.263				31.292	-1.33	1.26
Subjective norm									
Most people whose opinion is important to me think...	0.918	2.238	1.589				19.832	-1.51	1.54
Most people I know think...	0.954	2.452	1.310	0.937	0.958	0.692	22.123	-1.37	1.61
People around me think I should not/should consume wine in a restaurant in the next month	0.938	2.129	1.410				28.195	-1.42	1.49
Perceived behavioral control									
For me, drinking wine in a restaurant in the next month will be Extremely Hard/Extremely Easy	0.943	2.12	1.28				21.78	-1.29	1.02
Drinking wine in a restaurant in the next month will entirely depend on me Totally disagree/Totally agree	0.961	2.06	2.12	0.949	0.968	0.588	22.90	-1.78	1.56
If I want to drink wine in a restaurant in the next month, I will Extremely unlikely/Extremely likely do so	0.938	2.35	2.10				28.10	-1.08	1,18
Religiosity									
Religious beliefs are especially important to me because they answer many questions about the meaning of life	0.962	2.82	1.67	0.920	0.937	0.690	18.20	-1.12	1.43

Continued

It is important to me to spend periods of time in private religious thought or prayer	0.981	2.10	1.32				11.29	-1.78	1.12
My religious beliefs lie behind my whole approach to life	0.944	2.44	1.10				17.34	-1.32	1.21
Religious beliefs influence all my dealings in life									
I spent time trying to grow in understanding of my religious beliefs	0.970	2.12	1.67				21.27	-1.09	1.89
Behavioral intention									
I will buy larger quantities of wines in the coming months	0.959	2.23	1.13				23.12	-1.54	1.39
I will consider wine as my first purchase option concerning other categories of beverages	0.932	2.29	1.52	0.931	0.952	0.701	25.21	-1.21	1.51
I intend to increase the volume of wine consumption	0.980	2.54	1.21				19.54	-1.54	1.43
I will encourage friends, neighbors and/or relatives to buy and consume wine	0.943	2.08	1.10				24.20	-1.41	1.10

Table 3. Discriminant validity of the correlations between constructs.

Constructs	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Health risk	0.711	0.610	0.430	0.553	0.441	0.437	0.521	0.431	0.593
(2) Psychological risk	0.349	0.785	0.489	0.634	0.604	0.349	0.438	0.327	0.427
(3) Social risk	0.510	0.439	0.740	0.413	0.519	0.512	0.540	0.438	0.421
(4) Attitude	0.559	0.442	0.443	0.774	0.432	0.508	0.470	0.321	0.337
(5) Perceived behavioral control	0.460	0.419	0.589	0.534	0.767	0.413	0.349	0.477	0.219
(6) Subjective norm	0.348	0.516	0.438	0.447	0.523	0.831	0.512	0.549	0.520
(7) Religiosity	0.430	0.602	0.443	0.338	0.608	0.314	0.831	0.468	0.433
(8) Behavioral intentions	0.419	0.447	0.329	0.512	0.377	0.479	0.320	0.837	0.428
(9) Actual behaviour	0.521	0.512	0.612	0.439	0.601	0.513	0.438	0.522	0.810

*The diagonal values are the squared root of the (AVE) of the latent variables and indicates the highest in any column or row;

*Values below the diagonal represents the constructs' (HTMT) ratios.

4.2. Structure Model

The hypothesised relationships among the constructs in the research model were evaluated by examining the structural model, as the measurement model evaluation provided evidence of reliability and validity (Hair et al., 2013). Several measures were employed to assess the structural model proposed in the current study, in accordance with the recommendations of Henseler et al. (2012) and Hair et al. (2013).

The model accounts for 41% of the variance in consumer attitudes towards wine, 63% of the variance in behavioural intention, and 59% of the variance in actual behaviour. In order to evaluate H1-H9, we performed a structural equation model test described in Figure 1. The global fit indicators were satisfactory, with an APC of 0.169 and a p -value of less than 0.001, an ARS of 0.799 and a p -value of less than 0.001, an AARS of 0.763 and a p -value of less than 0.001, an AVIF of 2.169, and a GOF of 0.761.

Table 4 displays the estimated standardised structural coefficients for the hypothesised relationships between constructs and their significance. The results indicate that all hypothesised relationships are substantiated. The initial hypothesis, which asserted that perceived behavioural control significantly influences behavioural intention, was corroborated ($B = 0.39$, $p < 0.001$). Our results indicate that the relationship between subjective norm and behavioural intention is supported ($B = 0.53$, $p < 0.001$). The analysis demonstrated that attitude is correlated with behavioural intention ($B = 0.51$, $p < 0.001$). Furthermore, the actual behaviour is significantly influenced by behavioural intention ($B = 0.32$, $p < 0.001$). Therefore, H1-H4 were supported.

Table 4. Study results and hypotheses testing.

Paths	Beta Values (B)	p value	Results
H1: Perceived behavioral control → Intention	0.39	0.001	Accepted
H2: Subjective norm → Intention	0.53	0.001	Accepted
H3: Attitude → Intention	0.51	0.001	Accepted
H4: Intention → Actual behavior	0.32	0.001	Accepted
H5: Health risk → Attitude	-0.24	0.001	Accepted
H6: Psychological → Attitude	-0.48	0.001	Accepted
H7: Social risk → Attitude	-0.19	0.001	Accepted
H8: Attitude → Religiosity → Intention	0.36	0.001	Accepted
H9: Intention → Religiosity → Actual behavior	0.29	0.001	Accepted

As H5, H6 and H7 propose, the analysis revealed significant positive impacts of health risk ($B = -0.24$, $p < 0.001$), psychological risk ($B = -0.48$, $p < 0.001$), and

social risk ($B = -0.19, p < 0.001$) on customer's attitude towards wine consumption. Thus, H5, H6, and H7 were supported.

Regarding the moderating effect of religiosity, hypotheses 8 and 9 concerned the moderating effects of religiosity on the relationship between attitude, intention, and the actual behaviour. Our analysis revealed that religiosity moderates the link between attitude and intention ($B = 0.36, p < 0.001$). It also revealed that religiosity moderates the relationship between intention and actual behaviour ($B = 0.29, p < 0.001$). Consequently, H8 and H9 were supported.

5. Discussion and Implications

5.1. Discussion of Findings

The objective of this investigation was to develop and empirically evaluate a comprehensive model that would investigate the factors that influence the wine consumption behaviors of consumers. We suggested a model in which consumers' attitudes towards wine consumption are influenced by perceived risk (i.e., physiological risk, psychological risk, and social risk). Perceived behavioral control, subjective norm, intention, and attitude towards wine consumption serve as precursors to actual behavior. Lastly, the relationship between attitude, intention, and actual behavior is moderated by religiosity. The wine consumption behavior of clients in the Lebanese wine industry was well-explained by TPB, as indicated by the findings of wine consumption consumers ($N = 591$).

The results of this study confirm that customer intentions to purchase wine from Lebanese restaurants are significantly and positively influenced by TPB variables (i.e., attitude, perceived behavioral control, and subjective norms). Additionally, Gupta and Sajnani (2020) findings are validated in the context of wine consumption by acknowledging perceived risk as a factor in consumer attitudes towards wine consumption. The findings of this study underscore the significance of perceived risk in enhancing consumer intentions to purchase wine and definitively indicate that perceived risk is indispensable to consumer intentions to engage in wine consumption behavior within the Lebanese wine context. These findings corroborate the findings of Gupta and Sajnani (2020) regarding the substantial influence of perceived risk (i.e., physiological risk, psychological risk, and social risk) on consumer attitudes towards wine consumption. They also bolster the assertion that perceived risk is essential for enhancing consumer intentions to purchase wine. The analysis also revealed that religiosity is a key driver of consumer behavior in the wine context. These findings are consistent with previous studies that revealed that religiosity plays a critical role in consumer wine consumption behavior (Najjar et al., 2016).

The TPB is constructed on the Theory of Reasoned Action (TRA), and the wine literature employs both methodologies to comprehend wine consumption behaviour. Consequently, this investigation evaluates the efficacy of the two theories in explaining wine consumption in restaurants. It is anticipated that the TPB will yield superior outcomes to the TRA. The TRA application emphasizes that

individuals prioritize the opinions of others over their own attitudes towards the product when determining whether or not to consume wine in restaurants. Nevertheless, the intention to consume wine in a restaurant is significantly influenced by perceived control over behavior when TPB is implemented and incorporated into the model. The concept of risk is reinforced by the fact that the Lebanese culture is a risk-avoidance culture in this context (Hofstede, 1984).

5.2. Theoretical Implications

Multiple theoretical contributions to the literature on wine consumption behaviours are provided by our investigation. In this paper, the critical influence of religiosity on wine consumption behaviour was illustrated. The findings of analogous studies (e.g., Bareham et al., 2019; Gupta & Sajjani, 2020; Yang et al., 2024; Youssef et al., 2022) are closely aligned with the results of wine consumption behaviour (“preferences for alcoholic beverages, frequency of consumption, and purchasing channels”). The emergence of new customer demographics presents a business opportunity for wine producers and retailers in the international wine setting, which is characterised by increasing competition and a long-term decline in per capita consumption in societies with a historical background in wine production and consumption. The global interest in these consumer segments is on the rise, particularly in Lebanon (Howland, 2019; Mitri et al., 2022; Nassivera et al., 2020).

In order to improve the dining and wine experiences of customers, retailers and producers should establish cohesive and inclusive policies that reduce the perception of risk. This can be achieved by implementing wine service and handling training and devising local protocols that are related to the identified risk variables. In order to enhance the wine consumption experience and thereby increase the likelihood of future purchases, they should make an effort to provide customers with all relevant information, such as “wine label identification,” “shelf-talkers,” and attentive wine markets.

This study expanded upon a previous investigation that demonstrated the correlation between religious affiliations and wine consumption (Nassivera et al., 2020) by examining the substantial influence of religiosity on wine consumption behaviours. The objective was to clarify the potential differences in wine perceptions among different religious groups. Our research has demonstrated that religion has a substantial impact on the consumption of wine, which is consistent with the findings of previous studies (Zeenny et al., 2024). Najjar et al. (2016) did not find an inverse correlation between a “Buddhist upbringing” and wine abuse in a sample of “Buddhist Thai men.” However, individuals who consumed larger quantities of alcohol exhibited lower levels of religious involvement and valued “the alcohol-prohibiting Precept” as one of the least significant. This may provide insight into the reasons why religiosity is a substantial predictor of wine consumption behaviour. The results may be attributed to cultural disparities in the practice of Islam in Lebanon. This study offers unique insights into the religious

perspectives of Islamic consumers on wine consumption, as there is a significant lack of research on the relationship between Islamic religiosity and alcohol-related behaviours.

5.3. Managerial Implications

This research has significant implications for retail managers. Astonishingly, the majority of consumers expressed a preference for local Lebanese wine when queried about their preference between international and local wine. This discovery contrasts with previous investigations that suggested consumers generally favour products from countries with a higher level of economic development (Naja et al., 2021). The reputation of wine is not a concern for Lebanese consumers, who have a more favourable perception of local domestic wines. This may be attributed to the consistent expansion and recognition of Lebanese “vineyards and wineries” in recent years, as well as improvements in wine consumption behaviours (Zeenny et al., 2024). Additionally, in response to a study inquiry regarding “value for money,” it was revealed that the majority of wine consumers rate Lebanese wines as having a higher value than “foreign brands.” This is due to the substantial import levies and state taxes that are imposed on foreign wines. This research promotes the internationalisation of “wineries” through a variety of legislative modifications that will make foreign brands more accessible and affordable in Lebanon. Consequently, this will cultivate an appreciation for these brands among Lebanese wine consumers. The dismantling of current trade blockades and the promotion of the growth of “wineries” through well-defined policies and consistent financial assistance may provide additional support. Wineries must recognise the potential of “social media” to cultivate enduring consumer relationships and improve product differentiation (Naja et al., 2021).

Practitioners in the hospitality industry must possess an understanding of consumers’ behaviour and behavioural antecedents in order to elucidate wine consumption in restaurants. This knowledge can be used to more effectively encourage customers to engage in wine consumption. Cultural issues are the primary reason for the constraints associated with ordering wine at a restaurant for individuals from Lebanon. The literature (Wang, 2017) suggests that the factors associated with a lack of control over ordering wine at the restaurant are not as closely linked to food matching as previously thought. However, food matching is a significant factor in the consumption of wine at restaurants.

What are the implications for practitioners? Beneficiaries, such as producers, distributors, and retailers, are confronted with the challenge of establishing a presence and securing market share in a rapidly expanding and substantial market. They must also pursue long-term growth and profit sustainability, develop competitive advantages through core capabilities to facilitate “strategic planning and execution,” promote and sell quality products by employing yield management principles, charge the appropriate price to the ideal customer at the optimal time and location, and foster brand loyalty while cultivating enduring consumer

relationships to support growth and prosperity. Adequate tools and information are necessary for stakeholders in the domain to accomplish these objectives. This research has substantial implications for managers in terms of promoting wine consumption behaviours through seven configurations.

The following suggestions for enterprises that are interested in expanding their market portfolio to include the wine industry demonstrate the practical implications. At the outset, they should leverage consumers' experiential perceptions of the products. Secondly, it is crucial to acknowledge that the consumer's immediate social environment is a factor; however, the most substantial impact is derived from personal evaluations of consumption behaviours. Third, a strategy that is designed to reduce risk perceptions should prioritise the mitigation of economic and functional risks in order to improve customer satisfaction. As a result, it is imperative to provide wine consumers with the necessary information to improve their capacity to assess the quality of the product. The fourth argument pertains to the importance of educating wine consumers to appreciate the internal cues of the product while also utilising external product signals.

The primary objective should be to improve the level of understanding that consumers have regarding wine. A campaign to educate the public on the appropriate pairings of various wine varieties with different meals could be initiated by "The Wine Industrialists' Association." This has the potential to improve the comprehension of wine and its application among individuals. In spite of the prohibition of television and radio advertising for intoxicating beverages, alternative media channels are still accessible for use. Retailers ought to frequently conduct wine tasting sessions in order to enlighten consumers and cultivate innovative wine varieties. This method may also increase the consumption of wine.

6. Future Research Directions and Limitations

Our investigation is similarly restricted by specific constraints that also offer opportunities for further investigation, as is the case with other studies. Our research did not account for "cross-cultural" factors; a comparative analysis of industrialized and developing nations would substantially improve the current corpus of knowledge. Secondly, the current investigation has an additional disadvantage with respect to the wine consumption environment. The findings of our paper are specifically about wine consumption in Lebanon; therefore, they may not be pertinent to all product segments. As a result, subsequent research should evaluate the validity of the provided model in relation to a specific product or service. The factors in this investigation were evaluated at a specific point in time. As a result, in order to verify the proposed conceptual framework, subsequent research should implement "longitudinal analysis." Ultimately, the proposed conceptual framework does not account for a significant portion of the differences in customer wine consumption behaviors, which is due to the absence of additional critical aspects. This suggests that there are opportunities for further investigation, such as opportunistic behavior and commitment with previous experiences.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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