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ARE OLDER MEN PREDOMINANT CONSUMERS OF RAKIJA: EXAMINING CONSUMER ATTITUDES AND ACTUAL CONSUMPTION PATTERNS

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SUMMARY

The main goal of this study was to examine the perspectives of rakija consumers to ascertain whether older individuals and men have preference for this traditional drink compared to other options. The secondary objective was to assess the actual alcohol consumption patterns among the observed groups. To explore the variations in attitudes and consumption behaviors related to rakija, a research scale methodology was employed, and two hypotheses were formulated. The study was conducted in Serbia between December 2023 and March 2024, using a random sampling method. The research was carried out anonymously to ensure participant confidentiality, with voluntary participation from rakija consumers. A survey titled Consumer Attitudes about Rakija was completed by 620 individuals (n=620). The findings indicate that rakija is not predominantly consumed by older individuals but it is more commonly consumed by men. To the best of the author's knowledge, this is the first study on drinking patterns among rakija users based on a survey of rakija consumers. This study has successfully addressed the gap in the academic literature regarding rakija consumption by age and gender, which is the most significant contribution of this research.

Key words:

age, gender, consumer attitude, alcohol consumption, rakija

INTRODUCTION

The global market for alcoholic beverages is characterized by intense competition. Over recent decades, this transformative market has witnessed many changes in trends regarding consumer favorite drinks. Strong alcoholic beverages, wine, and beer have taken turns as favorites, while consumer preferences and marketing strategies continuously influence consumption trends. Changes have also been evident across gender and age groups of consumers, as both gender and age groups show distinct patterns of consumption. Rakija, a traditional Serbian drink, is not a global product as it is poorly represented in Serbian exports. It is a classic niche product, highly prevalent in the domestic market. This paper examines consumer attitudes toward rakija, focusing on whether it is predominantly consumed by older adults and men. Employing a survey with a sample size of 620 respondents, the study analyzes variations in attitudes and consumption patterns among different age and gender groups. This study revealed some notable variations in both attitudes and consumption patterns related to rakija. Finally, given that alcohol consumption can have detrimental effects on health and can lead to alcoholism, the study further explores the extent to which rakija is associated with binge drinking tendencies.

The alcoholic beverage industry has undergone two major transformations over the past four decades (Mosher, 2012). Between 1970 and 1997, beer emerged as the preferred beverage, overtaking distilled spirits and capturing a substantial market share. This shift was driven primarily by younger consumers, who favored beer and wine over distilled spirits traditionally associated with older generations. Consequently, market analysts at the time predicted a

gradual decline in the market for distilled spirits, due to changing demographics. However, these projections proved to be premature, as the late 1990s witnessed a reversal in young consumers' preferences, leading to a flattening of beer's growth and a rapid expansion of the distilled spirits market, particularly in the "white goods" category, including vodka, rum, and tequila. The underlying reasons for this reversal for the distilled spirits industry can be attributed to innovative marketing strategies aimed at younger audiences (Andry, 2021). The majority of alcoholic beverage purchases occur in the off-trade sector, which includes supermarkets and specialized shops (Ritchie, 2011). In the UK, this sector accounts for 80 % of the volume and 50 % of the value of all wine sales. Although some wine may be purchased for gifting purposes, most is intended for consumption at home rather than in public places. There is a prevalent belief that beverages available in the on-trade sector are generally more costly, especially compared to those in the off-trade sector.

However, the global consumption of beer is a dominant phenomenon today, accounting for 78.2% of all alcoholic beverages consumed (Nave et al., 2021). The beer industry is characterized by intense competition, high market concentration, and oligopoly, with a limited number of firms controlling significant market shares and ability to erect entry barriers for new entrants. Within the brewing industry, craft beer has emerged as a catalyst for a "flavor revolution" (Calvo-Porrá et al., 2020). Previously, beer was predominantly viewed as a beverage of the working class. Modern beer consumers, however, exhibit a diverse range of attitudes and a heightened appreciation for taste, which are attributes traditionally associated with the more esteemed, middle-class practices of wine consumption. This trend has given rise to a discernible cohort of "educated beer drinkers", elevating beer consumption to a status of greater cultural prestige (Thurnell-Read, 2018). In the United States, beer is the dominant alcoholic beverage consumed in excessive quantities, contributing significantly to binge drinking behaviors (Joo et al., 2021). Beer is followed by spirits and wine, with vodka standing out as the most widely purchased distilled spirit, constituting a significant 25% share of sales within the spirits industry (Musonera & Hemley, 2008). Despite competition from alternative products, such as beer and culturally specific beverages, as well as fierce competition within the industry, vodka manufacturers continue to adapt to consumer demands.

Rakija, as defined in Article 6 of the Serbian Law on Rakija and Other Alcoholic Beverages (Official Gazette of RS, No. 41/09), is classified as an alcoholic beverage produced by distilling fermented crushed fruit, pressed fruit, pomace or fruit marc, grapes, edible forest fruits, and other agricultural raw materials. It must contain a minimum ethanol content of 15% v/v and retain sensory characteristics specific to the raw materials used in its production. This traditional drink holds significance in Serbian culture, with šljivovica (plum brandy) particularly renowned as nationally recognized Serbian beverage (Adžić, 2023). Many cultures around the world have a rich history of consuming and crafting alcoholic beverages (McGovern, 2009). In late 2022, Serbian plum rakija, šljivovica, was inscribed on UNESCO's Representative List of the Intangible Cultural Heritage of Humanity. The term "traditional plum brandy" was included under the title "Social practices and knowledge related to the production and use of traditional plum brandy – šljivovica" (UNESCO, 2022).

Serbia is estimated to produce approximately 50 million liters of rakija, a traditional fruit brandy. However, a significant portion of the market, approximately 80%, functions without proper licensing. The Serbian rakija industry has not proven to be financially profitable. Moreover, the value of strong alcoholic beverages imported into Serbia exceeds the export value, contributing to a persistent negative trade balance in this sector (Adžić, 2021). The coverage ratio of imports by exports is approximately 33% (Đorović et al., 2012). Furthermore, Serbian distillers struggle to produce high-quality rakija, resulting in products with limited market demand. Although Serbia ranks among the top five global producers of plums, the export of plums and plum products remains insignificant. Consequently, the areas allocated for plum cultivation in Serbia have been decreasing (Matković, 2015). The economic importance of plum growth in Serbia is not as significant as in previous decades, with no potential for further development (Gazdić et al., 2024).

Numerous studies have demonstrated that the preferences and desires of wine consumers vary depending on their age, particularly within distinct generational cohorts (Qenani-Petrela et al., 2007). The wine consumer market can be broadly categorized into three primary generations: Baby Boomers (born between 1945 and 1964), Generation X consumers (born between 1965 and 1976), and Generation Y consumers (born between 1977 and 2000).

There are distinct variations in wine consumption patterns and sensory preferences between males and females, as well as across different generational cohorts, particularly Millennials and older consumers (Bruwer et al., 2011). While females tend to consume less wine and spend less money on it, they compensate for this by purchasing higher-priced bottles, which may serve as a risk-reduction strategy. Additionally, females exhibit a preference for white wine, particularly sweeter styles, at younger ages. They also strongly prefer medium-bodied wines over light and full-bodied wines. Sensory attributes, such as fruit tastes and aromas, are especially appealing to female consumers, along with significant influences from vegetative, wood/oak, and mouthfeel characteristics. In contrast, more males tend to prefer the aged characteristics of wine.

Barber (2009) investigated the correlation between market segmentation and consumer characteristics, focusing on intersection of product knowledge, gender, and purchase decisions. The chosen product for this study was wine, and the findings revealed that men possess greater actual and self-assessed knowledge of wine than women. However, men tend to rely on limited information sources when making purchase decisions. Additionally, their subjective knowledge of a product is more strongly influenced by past experiences compared to women. This suggests that men's beliefs about a product are shaped more by their personal experiences than their objective knowledge about the product. On the other hand, women tend to adopt a more comprehensive approach to information processing and are less concerned about social acceptance. The study also indicated that male respondents may avoid seeking information from personal sources. In fact, as their subjective knowledge levels increase, their reliance on these sources of information decreases.

The global alcoholic beverage market is subject to constant fluctuations. China has emerged as the dominant player in the global alcoholic beverage sector, with a sales volume of 45 billion liters of alcohol (Pingali, 2011). Notably, China's alcoholic beverage market is undergoing significant transformations, as an increasing number of consumers are exploring options beyond domestic beer and baijiu, shifting their preferences towards foreign wines and spirits. This shift is primarily driven by middle-class demographic and women, who are shaping the current purchasing trends. Similarly, in India, alcohol companies are attracted to the growth opportunities driven by the younger generation, women, and the emerging middle class (Esser & Jernigan, 2015).

In the past, there was a global trend of males consuming significantly more alcohol than females. Nevertheless, recent research has revealed a noteworthy shift in this pattern, particularly within the millennial generation, where alcohol consumption rates among females are now comparable to those of males (Weightman et al., 2019). This transformation can be attributed to several factors, including reduced costs and increased accessibility of alcohol, as well as greater women freedom. For instance, as many women have entered the professional workforce, they increasingly participate in social drinking occasions with colleagues after work.

Based on previous research findings, the following hypotheses for statistical testing were developed:

H1: The consumption of rakija is significantly influenced by age.

H2: The consumption of rakija is significantly influenced by gender.

The detrimental effects of alcohol have become a significant concern for global public health authorities. Alcohol misuse is responsible for approximately 3 million deaths worldwide, accounting for 5.3% of all fatalities (World Health Organization, 2020). Nevertheless, the influence of alcohol misuse on the average life expectancy in Serbia appears to be minimal. Alcohol-related mortality reduces life expectancy by 0.63 years for males and 0.15 years for females in Serbia (Marinković, 2020). Drinking habits in Serbia align with the southern European or Mediterranean style, characterized by regular yet moderate alcohol consumption, primarily during meals and in social settings with friends and family (Adžić, 2023).

Binge drinking is commonly defined as the act of consuming four, five, or more alcoholic beverages by individuals of either gender during a single occasion. According to alcohol consumption rates, a psychographic analysis of alcohol consumption among college students (Shim & Maggs, 2005) divided college students ($n = 669$) into four distinct categories: nondrinkers/seldom drinkers (17%), social drinkers (43%), typical binge drinkers (25%), and heavy binge drinkers (14%). In contrast, a qualitative study (Mcintyre et al., 2016) of consumers who deliberately abstain from alcohol consumption identified three primary themes underlying avoidance behavior. The first theme pertains to the challenges that individuals encounter when consuming or purchasing alcohol. The second theme is related to cultural stereotypes and social influences that shape individuals' attitudes toward alcohol consumption. The final theme addresses the characteristics of alcoholic beverages that individuals associate with their reasons for avoiding alcohol.

MATERIAL AND METHODS

The primary aim of this research is to assess the attitudes of rakija consumers to determine whether older individuals and men prefer this traditional beverage over others. The secondary objective was to evaluate the actual alcohol consumption among the observed groups. To investigate the differences in attitudes and consumption habits regarding rakija, a research scale approach was employed, leading to the formulation of two hypotheses:

H1: The consumption of rakija is significantly influenced by age.

H2: The consumption of rakija is significantly influenced by gender.

The first scale, named rakija is a drink for the elderly, is labeled R-ELDER (Tab. 1). This scale comprises two statements. The first statement suggests that rakija does not appeal to young people. The second statement directly

states that rakija is a drink intended for elderly people. The main objective of this composite R-ELDER scale is to examine H1. The second scale, named rakija is a drink for men, is labeled R-MEN and also consists of two statements (Tab. 1). The first statement implies that rakija does not attract women. The second statement directly states that rakija is a drink for men. The primary objective of this composite R-MEN scale is to assess H2. Participant attitudes were evaluated on a 7-point scale, with one indicating complete disagreement and seven indicating complete agreement.

Table 1. Research scales

Label	Name	n	Mean	SD	Cronbach's alpha
R-ELDER	Rakija is a drink for the elderly scale	395	3.13	1.422	0.606
NotForYoung	Rakija does not attract young people	395	3.10	1.525	
ForOld	Rakija is a drink for the elderly	395	3.16	1.819	
R-MEN	Rakija is a drink for men scale	395	3.00	1.513	0.695
NotForWomen	Rakija does not attract women	395	2.93	1.611	
ForMen	Rakija is a drink for men	395	3.08	1.837	

The study was carried out in Serbia between December 2023 and March 2024, using a random sampling method. Participation was voluntary and anonymous to ensure participants' confidentiality. Data were collected electronically utilizing a Google Forms-created questionnaire. Prior to taking part in the study, each participant agreed that the collected data can be used for academic research purposes. A survey titled Consumer Attitudes about Rakija was completed by 620 individuals ($n = 620$). By employing the sample size calculation formulas of Israel (2013) and Krejcie & Morgan (1970), the precision level or sampling error was determined to be less than 5% based on the sample size and population size. The results were statistically significant and reliable, with the standard 95% confidence level (within two standard deviations of the mean).

There were two sections in the questionnaire. The initial section was designed to collect important demographic data, while the subsequent section included two research scales: rakija is a drink for the elderly (R-ELDER), and rakija is a drink for men (R-MEN). To ensure the reliability of the scales, reliability analysis and principal axis factoring were carried out. The survey's closed-ended questions were nominal, ordinal, and scale in terms of measurement. The data analysis was performed with SPSS version 25 and JASP version 0.18.3, utilizing descriptive statistics and inferential parametric methods, including t tests and discriminant analysis.

RESULTS AND DISCUSSION

From the initial sample of 620 participants, twelve individuals below the legal age were excluded, resulting in a working sample size of 608 participants. Within this sample, female participants were more numerous than male participants, with 328 females and 279 males, accounting for 54% and 46% of the sample, respectively. One participant chose not to disclose gender. The participants' ages ranged from 18 to 77 years, with an average age of 42.45 years and a median age of 44 years. The majority of the participants (490 individuals or 81%) were employed, and a significant majority of the participants (476 individuals or 79%) held a college degree. Urban residents constituted 86% of the sample (522 individuals), while 15% (90 participants) were engaged in agricultural activities. Of the total of 608 participants, a notable proportion (93 individuals, or 15.30%) reported abstaining from alcohol consumption. As the primary focus of this study revolved around the attitudes of rakija consumers, we expressed our appreciation to this group of participants and discontinued further questioning. Among the remaining 515 participants, a significant subset of 120 individuals, or 23.30%, reported not consuming rakija, thus rendering it unnecessary to further inquire about their attitudes toward this beverage. Consequently, the final subset of rakija consumers comprised 395 individuals. Within this group of rakija consumers, 56 respondents, or 14.18%, expressed dislike for rakija despite consuming it. The average monthly consumption of rakija among the participants was 0.58 liters, with a standard deviation of 0.965.

Common method bias can occur when the same measurement approach is used for both the independent and dependent variables. In research studies that depend on self-reported data regarding sensitive topics, such as alcohol consumption, there is an even greater potential for bias. To address this issue, scholars use Harman's single-factor test. The findings revealed that a single factor accounted for 39.64% of the data variability, which is below the 50% threshold, suggesting the absence of common method bias (Aguirre-Urreta & Hu, 2019; Kock et al., 2021). Additionally, Cronbach's alpha values exceeded .06, as indicated in Table 1, validating the dependability of both scales for further statistical examination (Ahdika, 2017).

To determine the participants' attitudes toward age differences in rakija consumption, the R-ELDER scale was subjected to a series of t tests to ascertain significant mean differences between the selected variables in the study

sample. For the purpose of these tests, the continuous variable age was divided into two nearly equal groups. The median of the dataset, which is 44 years old, was used as the basis for this division. The younger group ($n = 302$) included participants aged 18 to 43 ($n=300$), while the older group ($n = 306$) included participants aged 44 to 77. There were no significant differences in attitudes between these age groups ($t(393) = 0.352, p = .725$). Similarly, no significant differences were observed based on gender $t(392) = -0.650, p = .516$, education $t(393) = -1.157, p = .248$, employment status, $t(393) = -1.160, p = .247$, engagement in agriculture, $t(393) = 1.613, p = .107$, or residence in rural and urban areas, $t(393) = -1.354, p = .177$. Moreover, no significant differences were found between consumers of rakija who enjoy drinking it and consumers who do not $t(392) = 0.677, p = .499$.

To determine potential differences in actual rakija consumption reported by respondents based on their age, the correlation between age and rakija consumption in liters was examined using Pearson product-moment correlation coefficient. The analysis revealed a nonsignificant relationship between age and rakija consumption $r = 0.08, n = 395, p = 0.114$. Subsequently, differences between two groups of respondents grouped by gender and the continuous rakija consumption in liters were explored using an independent samples t test. The results indicated that, on average, there were no significant differences in rakija consumption between younger and older participants $t(393) = 1.315, p = 0.189$, contradicting hypothesis H1.

To examine the participants' attitudes toward gender differences in rakija consumption, the R-MEN scale was subjected to a series of t tests to identify potentially significant mean differences between the selected variables in the study sample. There were no significant differences between the two groups of participants according to gender $t(392) = -1.261, p = .208$, education, $t(393) = 1.005, p = .315$, employment status, $t(393) = 0.108, p = .914$, engagement in agriculture, $t(393) = 0.666, p = .506$, or residence in rural and urban areas, $t(393) = 0.023, p = .982$. Similarly, no significant differences were found between consumers of rakija who enjoy drinking it and consumers who do not $t(392) = 0.579, p = .563$.

However, a significant difference was identified between the two groups of participants based on their age $t(393) = 2.212, p = .028$. The findings from the t test indicated that the attitudes of 219 individuals in the older group of participants ($M = 3.155, SD = 1.525$) significantly differed from the attitudes of 176 individuals in the younger group of participants ($M = 2.818, SD = 1.481$). The participants aged 44-77 years believed that rakija is a drink for men, which significantly differed from the belief held by participants aged 18-43 years. The effect size of the mean difference was relatively small, $d = .224$. Additionally, an independent samples t test was conducted to compare the consumption of rakija between men ($n = 231$) and women ($n = 163$) in the sample. On average, men ($M = 0.707, SD = 1.005$) consumed more rakija than women ($M = 0.402, SD = 0.877$), confirming hypothesis H2. This mean difference of 0.305 liters was found to be statistically significant $t(374.674) = 3.199, p = .001$. The effect size of the mean difference ranged between small and medium, $d = .323$.

A discriminant function analysis was performed to validate the H1 result. The quantity of consumed rakija served as the predictor, while gender served as the grouping variable. The overall significance of Wilks's lambda was $\Lambda = .976, \chi^2(1, n = 395) = 9.636, p = .002$, indicating that the predictor significantly differentiated between the grouping variables. The discriminant function exhibited an eigenvalue of .025 and a canonical correlation of .156. By squaring the canonical correlation, an effect size of $\eta^2 = .024$ was calculated. Accordingly, the quantity of rakija consumed could predict the gender of the consumer, although only approximately 2.4% of the variability in the scores for the discriminant function could be attributed to gender differences.

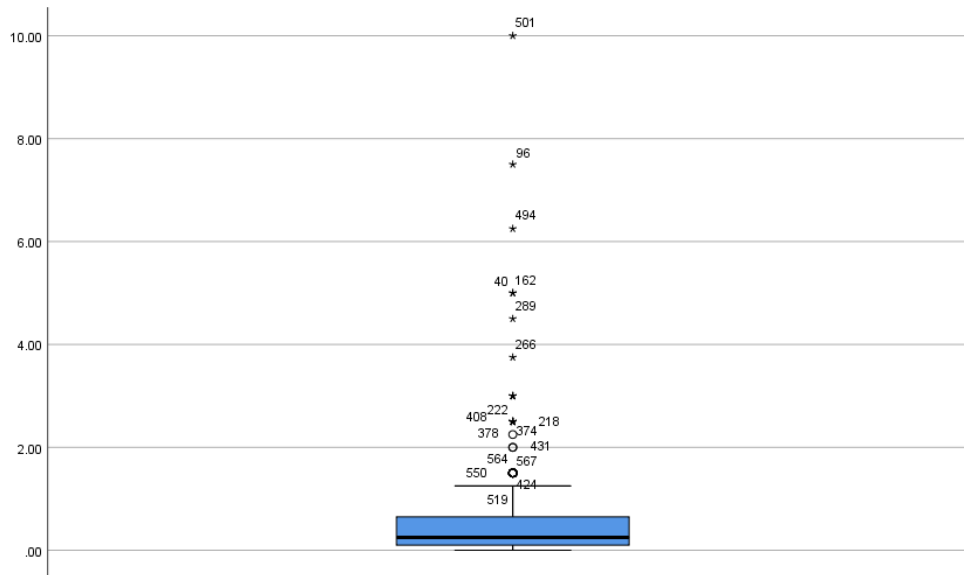


Figure 1. Boxplot of Rakija in liters per month

Statistical software enables easy identification of outliers on a boxplot graph (Fig. 1), which represent data points that deviate significantly from other observations. In this case, these outliers indicate binge drinkers, i.e. individuals who excessively consume alcohol. A commonly accepted criterion states that a data point is considered an outlier if it exceeds 1.5 times the interquartile range (IQR) above the third quartile, or below the first quartile (which is not relevant in this case). In other words, high outliers are defined as $Q_3 + 1.5 \times IQR$. In this study, high outliers amount to $0.7 + 1.5 \times 0.6 = 0.7 + 0.9 = 1.6$ liters per month. In the sample, 22 participants consumed more than 1.6 liters per month, ranging from two to ten liters. This group of binge drinkers accounted for 5.57% of the total sample. In terms of frequency, 19 (86.4%) binge drinkers who consumed 3.4 liters of rakija per month were men, and 3 (13.6%) were women, with an average consumption of 5 liters of rakija. The majority were older participants: 18 (63.6%) older consumers compared to 8 (36.4%) younger consumers. However, younger rakija binge drinkers consumed more rakija compared to elderly people, with 4.2 liters compared to 3.3 liters. Nevertheless, due to the small sample size of only 22 individuals, advanced inferential statistical tests could not be conducted.

Contrary to findings from previous studies (Bruwer et al., 2011; Qenani-Petrela et al., 2007), which identified distinct generational differences in alcohol consumption patterns, this study did not find a similar pattern in rakija consumption. Attitudes toward whether rakija is a drink limited to certain generations showed no differences among groups depending on their age, gender, education, employment status, agricultural engagement, or urban versus rural residency. The correlation analysis and analysis of the actual quantities of rakija consumed by different genders confirmed only that attitudes align with observed practices. Consequently, H1, which states that the consumption of rakija is significantly influenced by age, was refuted.

The results of this research indicated a positive change in attitudes regarding the role of women, including enjoying alcohol, as discussed by Weightman et al. (2019), in Serbian society. The findings reveal that both genders hold the view that the consumption of rakija, a traditional alcoholic beverage, is not restricted by gender. It was also found that respondents, regardless of their levels of education, employment status, engagement in agriculture, or residence in rural and urban areas, all shared the belief that gender should not be a determining factor in enjoying rakija.

However, the findings of the study revealed significant differences in attitudes toward rakija between the two age groups. Specifically, older participants believed that rakija is a drink primarily for men. This belief was further supported by the actual amounts of rakija consumed by the participants, as subsequent analyses indicated that men consumed significantly more rakija than women. To determine the statistical significance of the gender differences in rakija consumption, both an independent sample t test and discriminant analysis were conducted. The results of these analyses confirmed that the differences in rakija consumption between men and women in the sample were indeed significant. This finding was consistent with previous studies mentioned in the literature review (Barber, 2009; Bruwer et al., 2011), which also reported distinct variations in alcoholic beverage consumption patterns between males and females.

Nevertheless, the effect size of the gender differences in rakija consumption was relatively modest, i.e. less than medium-sized. Additionally, only a small percentage (2.4%) of variability in the scores for the discriminant function

could be attributed to gender differences. Despite this relatively small effect size, the results still support hypothesis H2 that the consumption of rakija is significantly influenced by gender.

The study revealed that binge drinking is common among rakija consumers. Approximately 5.57% of consumers were identified as alcohol abusers, engaging in excessive and harmful drinking behaviors. However, the prevalence of heavy binge drinking among rakija users is relatively low compared to data from previous research. In fact, it is approximately 2.5 times lower than the 14% reported by Shim and Maggs (2005). This aligns with the findings on drinking habits observed in Serbia, suggesting that moderate alcohol consumption is more common (Adžić, 2023).

It should be noted the limited sample size of binge drinkers ($n = 22$) posed a significant limitation, making it impossible to draw statistically significant conclusions about age and gender differences. Despite this constraint, the findings highlight a substantial overrepresentation of older participants and men compared to their counterparts, suggesting that rakija consumption, especially binge drinking, seems to be more common among older men in Serbia.

CONCLUSION

The widespread popularity of rakija in Serbia is evident from both the respondents' perspectives and the analysis of the actual quantities of this national beverage consumed. Given the cultural significance of rakija in Serbian society, such findings were expected. The lack of variations in attitudes toward rakija consumption across different age groups suggests that this traditional drink is deeply ingrained in the culture and traditions of the participants, irrespective of their age or background. As a result, H1, which posited a significant influence of age on rakija consumption, was refuted.

However, rakija consumption is more common among men. Interestingly, all demographic groups of respondents, except older men, demonstrated progressive views on the role of women in society and rejected the notion that rakija should be primarily a drink for men. This suggests that societal norms and expectations regarding the role of women in relation to alcohol consumption are evolving. Nevertheless, since rakija is a highly alcoholic beverage, the observed gender differences in its consumption may not be unexpected. Very little research has been conducted on rakija, while studies that have shown gender parity in alcohol consumption have focused mainly on patterns of wine consumption. Additionally, a disproportionately greater percentage of men among binge drinkers is likely influenced the obtained result. As a result, H2, which hypothesized that rakija consumption is significantly influenced by gender, was confirmed.

The results of this study not only provide insights into the drinking habits of rakija consumers, but also emphasize the need for further research to investigate the underlying factors leading to binge drinking and alcohol misuse within this demographic group. Moreover, there is a call for initiatives to promote responsible alcohol consumption and educate individuals about the potential risks linked to excessive drinking.

To the best of the author's knowledge, this is the first study on drinking patterns among rakija consumers based on a survey of rakija consumers. This study has successfully addressed the gap in the academic literature regarding rakija consumption by age and gender, which is the most significant contribution of this research. Overall, this study provides a better understanding of the factors influencing alcohol consumption patterns, particularly in the context of traditional beverages. Further research is needed to explore the cultural and social factors that shape attitudes toward alcohol consumption and to develop targeted interventions adapted to the unique cultural context of specific drinks.

The primary limitation of this study is its focus on a single alcoholic beverage. Future studies that would include wine, beer, and other alcoholic beverages could address this limitation. Additionally, data on binge drinkers should be treated as an approximation, given the small proportion of binge drinkers in the sample and the aforementioned limitation of analyzing only one type of drink. The author posits that the calculated percentage may serve as an approximation of the lower boundary of the binge drinking population rather than a measure of the mean value.

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