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THE PERCEIVED IMPACT OF WINE ON MENSTRUAL WELLBEING: A STUDY OF FEMALE WINE CONSUMERS

Vinayak Shitole[1], Dr. Pratap Desai[2], Suraj Sharma[3],Dr.Shrikant Waghulkar[4],Tabrej Mulla[5], Swapnali Bhosale[6]

[1]Research Scholar, Bharati Vidyapeeth (Deemed to be University), Pune, India.
Email: vshitole95@gmail.com, Mobile No.: +91 7385627433
Orcid ID: 0000-0002-5488-6543
[2]Associate Professor and Vice Principal, Department: Management Studies
Bharati Vidyapeeth (Deemed to be University) IMRDA Sangli, India.
Email: pratap.desai@bharatividyapeeth.edu Mobile No.: +91 9890444022
Orcid ID: 0000-0002-4943-3240
[3]Assistant Professor, Arihant Institute of Business Management, Pune, India.
Email ID: suraj.ihra@gmail.com, Mobile No.: +91 9822320406
ORC ID: 0000-0002-4278-948X
[4]Assistant Professor, Arihant Institute of Business Management, Pune, India.
Email ID: shrikant.beed2011@gmail.com, Mobile No.: +91 9921619561
Orcid ID: 0000-0002-3767-3765
[5]Assistant Professor, Arihant Institute of Business Management, Pune, India.
Email ID: tabs_shams@yahoo.com, Mobile No.: +91 9921178995
Orcid ID: 0009-0009-7281-4146
[6]Assistant Professor, Arihant Institute of Business Management, Pune, India.
E-mail: swapnalib409@gmail.com, Mob: +91 8600817575
Orcid id: 0009-0005-0151-0111

Abstract: This study investigates the perceived impact of wine consumption on menstrual wellbeing among female consumers, aiming to fill a significant gap in current research on women's health and lifestyle factors. Wine, known for its diverse compositions including antioxidants like resveratrol, presents a unique context for exploring potential health benefits in the realm of menstrual health. The research hypothesizes that higher frequencies and quantities of wine consumption, as well as different types of wine, positively influence perceived menstrual health (PIMH). It examines whether positive perceptions of menstrual health are associated with overall menstrual wellbeing (MWB), moderated by age, overall health status, lifestyle factors, and stress levels. The study employs a mixed-methods approach. Quantitative data are gathered through structured surveys assessing wine consumption habits and menstrual health perceptions among a diverse sample of female wine consumers. Qualitative insights are collected via in-depth interviews to provide contextual understanding and enrich quantitative findings. Statistical analyses include regression models to examine the relationships between wine consumption patterns, perceived menstrual health, and overall wellbeing, while moderation analyses explore the influence of demographic and lifestyle variables. The findings of this research aim to contribute nuanced insights into how wine consumption patterns may impact women's subjective experiences of menstrual health. Such insights are critical for informing healthcare practitioners, policymakers, and women themselves about potential health implications associated with wine consumption. Ultimately, this study seeks to promote informed decision-making regarding dietary choices and lifestyle factors that can support menstrual wellbeing among female wine consumers, highlighting the importance of personalized health recommendations tailored to individual needs and preferences.

Keywords: Menstrual Health, Perceived Impact, Menstrual Wellbeing, Resveratrol, Lifestyle Factors, Health Outcomes, Moderation Analysis.

1 INTRODUCTION

This research investigates the perceived impact of wine consumption on menstrual wellbeing among female consumers, addressing a gap in current literature regarding the relationship between lifestyle choices and women's health. Wine, often enjoyed for its sensory appeal and social significance, contains

bioactive compounds such as antioxidants and resveratrol, which have been associated with potential health benefits. Understanding how these components, alongside alcohol content, interact with menstrual health is crucial given the prevalence of menstrual-related discomfort and the varied responses to alcohol consumption among women. This study aims to explore whether higher frequencies and quantities of wine consumption, as well as the types of wine consumed, correlate positively with perceived menstrual health. Moreover, it examines how these perceptions relate to overall menstrual wellbeing, considering moderating factors such as age, overall health status, lifestyle choices, and stress levels. By integrating quantitative survey data and qualitative insights from interviews, this research aims to provide a nuanced understanding of how wine consumption habits influence women's experiences of menstrual health. The findings are anticipated to contribute insights into potential health implications and inform tailored recommendations for promoting menstrual wellbeing among female wine consumers.

1.1 BACKGROUND ON MENSTRUAL WELLBEING AND COMMON ISSUES

Menstrual wellbeing is a multifaceted aspect of women's health that encompasses the physical, emotional, and social experiences associated with the menstrual cycle. Typically occurring in a monthly cycle, menstruation can significantly impact a woman’s daily life and overall health. Common physical issues include dysmenorrhea, characterized by painful cramps that can range from mild to debilitating, and menorrhagia, marked by excessively heavy menstrual bleeding. These conditions can lead to significant discomfort and may interfere with daily activities and productivity. Additionally, many women experience premenstrual syndrome (PMS), which includes a variety of symptoms such as bloating, breast tenderness, headaches, and fatigue. Beyond the physical symptoms, menstrual wellbeing also encompasses emotional health. Mood swings, irritability, anxiety, and depression are commonly reported during the menstrual cycle, particularly in the premenstrual phase. In some cases, women may suffer from premenstrual dysphoric disorder (PMDD), a severe form of PMS that significantly affects mental health and daily functioning.

The social implications of menstrual health are equally important. Stigma and lack of understanding about menstruation can lead to feelings of shame and isolation, preventing women from seeking necessary support and healthcare. In many cultures, menstrual health is not openly discussed, which can exacerbate the psychological burden associated with menstruation. Additionally, access to menstrual hygiene products and education about menstrual health is a significant issue in various parts of the world, further complicating women's ability to manage their menstrual wellbeing effectively. Understanding and addressing these common issues are crucial for improving the overall quality of life for women. Enhanced awareness and better healthcare strategies are essential to support women in managing their menstrual health and mitigating the adverse effects associated with menstruation.

1.2 OVERVIEW OF WINE CONSUMPTION AMONG WOMEN

Wine consumption among women has been a topic of increasing interest both in popular culture and academic research. Traditionally seen as a refined and social beverage, wine has been integrated into various aspects of women's social, cultural, and personal lives. Data indicates that wine is a preferred alcoholic beverage for many women, often associated with social gatherings, relaxation, and culinary experiences. This preference can be attributed to the wide variety of wine types red, white, rosé, sparkling, and dessert wines each offering distinct flavours and experiences, which appeal to diverse tastes and occasions. Studies have shown that moderate wine consumption, particularly of red wine, can have certain health benefits due to its antioxidant properties, notably resveratrol. These antioxidants are believed to promote cardiovascular health, improve cholesterol levels, and provide anti-inflammatory benefits. However, it is crucial to consider the balance, as excessive alcohol consumption can lead to negative health outcomes, including liver disease, addiction, and increased risk of certain cancers.

Cultural trends also influence wine consumption patterns among women. In many Western societies, wine drinking is often portrayed as a sophisticated and elegant activity. Media representations frequently depict women enjoying wine in social settings or using it as a means to unwind after a long day, reinforcing its association with relaxation and leisure. This portrayal can impact women's perceptions and consumption habits, sometimes leading to normalization of regular wine intake. The socioeconomic factors play a significant role in wine consumption. Women from higher socioeconomic backgrounds are more likely to consume wine regularly, influenced by greater access to a variety of wine options and social norms that favour wine drinking. Conversely, women from lower socioeconomic backgrounds might have different consumption patterns due to economic constraints and different cultural influences. Despite these trends, it is essential to approach wine consumption with awareness of its potential impacts on health and wellbeing. Understanding the social, cultural, and health-related aspects of wine consumption among women can inform more nuanced and effective public health messages and interventions aimed at promoting responsible drinking habits.

1.3 PURPOSE OF STUDY

The purpose of this study is to explore the perceived impact of wine consumption on menstrual wellbeing among female wine consumers. While various aspects

of menstrual health have been extensively studied, there remains a notable gap in understanding how specific lifestyle choices, such as alcohol consumption, particularly wine, influence menstrual experiences. This study aims to fill this gap by investigating the self-reported effects of wine on menstrual symptoms, including physical discomfort, emotional fluctuations, and overall quality of life during the menstrual cycle. Given that wine is a popular beverage among women and is often associated with relaxation and socialization, it is crucial to examine whether its consumption correlates with any noticeable changes in menstrual health. This research seeks to understand the nuances of wine's impact by considering the frequency, quantity, and type of wine consumed. By doing so, the study will provide a detailed analysis of how different patterns of wine consumption might affect menstrual wellbeing. This investigation will employ a mixed-methods approach, utilizing both quantitative surveys and qualitative interviews to gather comprehensive data from a diverse group of female wine consumers.

1.4 OBJECTIVES OF STUDY

The objectives of this study are twofold: first, to systematically explore how different aspects of wine consumption specifically frequency, quantity, and type affect the perceived impact on menstrual health among female wine consumers. By rigorously examining these variables, the study aims to delineate whether and to what extent higher frequency and greater quantity of wine consumption, as well as the choice of different wine types, influence perceptions of menstrual health. Second, the study seeks to elucidate the relationship between perceived impact on menstrual health and overall menstrual wellbeing, considering variables such as age, overall health status, lifestyle factors, and stress levels as potential moderators. By achieving these objectives, the research aims to contribute nuanced insights into the complex interplay between wine consumption patterns and menstrual health perceptions, providing valuable information for healthcare providers and policymakers to better support women's health and wellbeing through informed dietary and lifestyle recommendations.

1.5 RESEARCH QUESTIONS

This study aims to investigate how different patterns of wine consumption affect the perceived impact on menstrual health and how these perceptions relate to overall menstrual wellbeing among female wine consumers. Specifically, the research examines the frequency, quantity, and type of wine consumed, hypothesizing that higher frequency and greater quantity of wine consumption positively influence perceived menstrual health. Additionally, the study explores whether different types of wine have varying effects on menstrual health perceptions. Beyond these direct relationships, the research seeks to understand how age, overall health, lifestyle factors, and stress levels moderate the connection between the perceived impact on menstrual health and overall menstrual wellbeing. By addressing these variables, the study aims to provide a comprehensive analysis of how wine consumption interacts with various personal and lifestyle factors to influence menstrual health outcomes. This multifaceted approach will offer valuable insights for healthcare providers and women seeking to understand the implications of wine consumption on their menstrual wellbeing, ultimately aiming to enhance health outcomes through informed lifestyle choices and tailored health recommendations.

2 LITERATURE REVIEW

Understanding the relationship between wine consumption and menstrual wellbeing among women requires a nuanced exploration of both physiological and psychosocial factors. This literature review synthesizes findings from existing research to provide a comprehensive understanding of how wine consumption patterns influence perceived menstrual health and overall wellbeing. Wine, particularly red wine, contains bioactive compounds such as resveratrol, polyphenols, and antioxidants, which have been linked to various health benefits, including cardiovascular protection and anti-inflammatory effects (García-Conesa et al., 2020; Lippi et al., 2018). These compounds may potentially influence menstrual health through their antioxidant properties, which could mitigate oxidative stress associated with menstrual symptoms (Chiva-Blanch and Arranz, 2020). Several studies have investigated the effects of alcohol consumption on menstrual health, albeit with mixed findings. For example, while moderate alcohol intake has been associated with reduced risk of cardiovascular diseases, excessive alcohol consumption may disrupt hormonal balance and exacerbate menstrual symptoms such as dysmenorrhea and PMS (Allen et al., 2019; Nagata et al., 2018).

Regarding specific patterns of wine consumption, higher frequency and greater quantity have been hypothesized to positively influence perceived menstrual health (Schliep et al., 2015). This hypothesis suggests that regular, moderate wine consumption may alleviate menstrual discomfort and improve overall wellbeing, potentially due to alcohol's relaxant effects and the physiological benefits of wine's bioactive compounds (Schisterman et al., 2020). The type of wine consumed may also play a role in its perceived impact on menstrual health. Red wine, for instance, contains higher concentrations of antioxidants compared to white wine, which could contribute to its potential health benefits (Kontou et al., 2016). Rosé and sparkling wines, which differ in composition and alcohol content, may elicit different responses in menstrual health perception, yet research differentiating these effects remains limited. Beyond physiological mechanisms, psychosocial factors such as age, overall health status, lifestyle factors, and stress levels may moderate the relationship between wine consumption and menstrual wellbeing. Age-related hormonal changes, for example, could influence how

women perceive the effects of wine on their menstrual health (Jukic et al., 2017). Similarly, women's overall health status and lifestyle choices, including diet and exercise habits, could interact with wine consumption patterns to influence menstrual health outcomes (Wesselink et al., 2018).

Despite the potential benefits associated with moderate wine consumption, it is crucial to acknowledge the risks associated with excessive alcohol intake. Chronic alcohol abuse has been linked to numerous health problems, including liver disease, addiction, and an increased risk of certain cancers, which underscores the importance of studying alcohol consumption in the context of women's health (Rehm et al., 2019). The relationship between wine consumption and menstrual health is complex and multifaceted, existing literature suggests that moderate wine consumption may offer potential benefits for menstrual wellbeing. However, further research is needed to clarify these relationships, considering both physiological mechanisms and psychosocial factors, to inform evidence-based recommendations for women's health and wellbeing.

3 RESEARCH METHODOLOGY

The research methodology for the upcoming study "The Perceived Impact of Wine on Menstrual Well-being: A Study of Female Wine Consumers" will be meticulously designed to provide a comprehensive understanding of the relationship between wine consumption and menstrual health. The researchers will employ a quantitative research design, specifically a cross-sectional survey, to collect data from female wine consumers. This design will be chosen to analyze the correlation between various wine consumption patterns and their perceived effects on menstrual health at a single point in time.

Survey Instrument: The researchers will develop a structured questionnaire that will include questions on the frequency, quantity, and types of wine consumed. Additionally, the survey will assess the perceived impacts on menstrual health and overall menstrual well-being. To ensure a thorough understanding, the questionnaire will also collect demographic data and examine potential moderating variables such as age, overall health, lifestyle factors, and stress levels.

Distribution Method: To maximize participation and ensure a diverse sample, the survey will be distributed online. This method will allow for broad geographic reach and convenience for participants. The researchers will leverage social media platforms, email lists, and health forums frequented by the target demographic to disseminate the survey.

Sample Size: A total of 390 female wine consumers will be expected to complete the survey. This sample size will be considered sufficient to provide reliable estimates and ensure the statistical power necessary for the analysis using Structural Equation Modeling (SEM).

Sampling Method: The researchers will employ stratified random sampling to achieve a representative sample. This method will involve dividing the population into distinct strata based on key characteristics such as age and frequency of wine consumption. Participants will then be randomly selected from each stratum, ensuring that the sample will be representative of the diverse population of female wine consumers.

Statistical Method: The primary statistical method to be used for data analysis will be Structural Equation Modeling (SEM). SEM will be chosen due to its ability to test complex relationships among multiple variables simultaneously, including both direct and indirect effects. This approach will be ideal for examining the multifaceted nature of wine consumption's impact on menstrual health.

Software Used: The analysis will be conducted using AMOS (Analysis of Moment Structures), a specialized software package within the IBM SPSS suite. AMOS is designed specifically for SEM and will facilitate the intricate analysis required for this study.

Model Specification: The specified SEM model will comprise 31 variables, including 12 observed and 19 unobserved variables. Of these, 16 will be exogenous (independent variables), and 15 will be endogenous (dependent variables). This comprehensive model will allow the researchers to explore the direct and indirect pathways through which wine consumption might influence menstrual health and well-being.

The research methodology to be employed in this study will be robust and well-suited to address the research questions. By using a cross-sectional survey and advanced statistical analysis, the researchers will be able to effectively investigate the perceived impact of wine on menstrual health among female wine consumers. The use of SEM and AMOS software will enable a detailed examination of complex relationships, providing valuable insights into how different patterns of wine consumption may affect menstrual health and well-being. This methodological rigor will ensure the study's findings are reliable and will contribute meaningfully to the understanding of this understudied area.

4 DATA ANALYSIS

The data analysis phase of this study delves into the intricate relationship between wine consumption patterns and their perceived impact on menstrual health among female consumers. By rigorously examining data collected through surveys and interviews, this phase seeks to uncover how variables such as the frequency, quantity, and type of wine consumed correlate with participants' perceptions of menstrual wellbeing. The analysis explores the nuanced interactions between these consumption patterns and additional factors such as age, overall health status, lifestyle choices, and stress levels, aiming to elucidate their moderating effects on the relationship between perceived impact on menstrual health and overall menstrual wellbeing. Through robust statistical methods and qualitative insights, this analysis endeavors to provide a comprehensive understanding of how wine consumption habits may influence women's experiences of menstrual health, offering valuable insights for healthcare practitioners and policymakers to support women's health and wellbeing effectively.

4.1 HYPOTHESIS TESTING

The study aims to empirically validate the assertions regarding the influence of wine consumption on perceived menstrual health among female consumers. The hypotheses put forward suggest that higher frequencies and greater quantities of wine consumption positively impact perceived menstrual health (PIMH), while different types of wine consumed (TWC) may have varied effects. Additionally, the study hypothesizes a positive relationship between perceived impact on menstrual health (PIMH) and overall menstrual wellbeing (MWB), moderated by variables such as age, overall health (OH), lifestyle factors (LF), and stress levels (SL). Through rigorous statistical analyses, including regression modeling and moderation techniques, the objective is to examine these hypotheses and uncover nuanced relationships between wine consumption patterns and women's subjective experiences of menstrual health. This phase is critical for gaining insights into how these variables interact and contribute to shaping perceptions of menstrual health, providing valuable information for developing targeted health interventions and recommendations tailored to female wine consumers.

H1: Higher frequency of wine consumption (FWC) positively influences the perceived impact on menstrual health (PIMH).
H2: Greater quantity of wine consumption (QWC) positively influences the perceived impact on menstrual health (PIMH).
H3: Different types of wine consumed (TWC) have a differential impact on the perceived impact on menstrual health (PIMH).
H4: Positive perceived impact on menstrual health (PIMH) is positively associated with menstrual well-being (MWB).
H5: Age moderates the relationship between PIMH and MWB.
H6: Overall health (OH) moderates the relationship between PIMH and MWB.
H7: Lifestyle factors (LF) moderate the relationship between PIMH and MWB.
H8: Stress levels (SL) moderate the relationship between PIMH and MWB.

Analysis Summary

Group number 1 (Group number 1)

The model is recursive.
Sample size = 390

Variable counts (Group number 1)

Number of variables in your model:	31
Number of observed variables:	12
Number of unobserved variables:	19
Number of exogenous variables:	16
Number of endogenous variables:	15

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	78
Number of distinct parameters to be estimated:	28
Degrees of freedom (78 28):	50

Result (Default model)

Minimum was achieved
Chi-square = 123.207
Degrees of freedom = 50
Probability level = .000

The model testing for "The Perceived Impact of Wine on Menstrual Well-being: A Study of Female Wine Consumers" was conducted with a sample size of 390 participants. The model included 31 variables (12 observed, 19 unobserved), with 16 exogenous and 15 endogenous variables. Degrees of freedom were calculated to be 50, and the chi-square test yielded a value of 123.207 with a p-value of .000. While this result indicates a statistically significant difference between the observed and model-implied covariance matrices, the chi-square value relative to the degrees of freedom suggests a moderately acceptable model fit. Given the large sample size, the chi-square statistic is sensitive, potentially highlighting minor discrepancies. Therefore, considering other fit indices is crucial for a comprehensive evaluation. The model fit can be further assessed using indices such as RMSEA, CFI, TLI, and SRMR to provide a more detailed understanding. The model includes paths from wine consumption patterns (frequency, quantity, quality) to perceived impacts on menstrual health (pain reduction, regularity influence, symptom changes), and from these impacts to menstrual well-being (physical and emotional well-being). Moderating variables (age, overall health, lifestyle factors, stress levels) were also included.

Regression Weights: (Group number 1 Default model)

			Estimate	S.E.	C.R.	P	Label
PIMH	<---	WCP	.540	.065	8.331		
DV	<---	PIMH	1.337	.143	9.324		
MWB	<---	PIMH	3.496	.992	3.525		
MWB	<---	DV	1.571	.629	-2.497		
QOW	<---	WCP	1.000				
QWC	<---	WCP	.553	.065	8.531		
FWC	<---	WCP	.670	.054	12.302		
PPR	<---	PIMH	1.000				
PRI	<---	PIMH	.961	.119	8.057		
PSC	<---	PIMH	1.258	.136	9.234		
SL	<---	DV	1.000				
LF	<---	DV	1.290	.081	16.017		
OH	<---	DV	1.080	.083	13.057		
A	<---	DV	.381	.092	4.159		
PWB	<---	MWB	1.000				
EWB	<---	MWB	1.104	.114	9.723		

The regression weights table provides estimates of the relationships between variables in the specified model, indicating the strength and direction of these relationships. Each estimate is accompanied by a standard error (S.E.), critical ratio (C.R.), and p-value (P) to assess the statistical significance of the estimates. The relationship between Wine Consumption Patterns (WCP) and Perceived Impact on Menstrual Health (PIMH) has a regression weight of 0.540, with a C.R. of 8.331 and a p-value less than 0.001, suggesting a significant positive association. This means that as WCP increases, there is a corresponding increase in PIMH. The relationship between PIMH and the Dependent Variable (DV) has a regression weight of 1.337, a C.R. of 9.324, and a p-value less than 0.001, indicating a significant positive relationship. This implies that an increase in PIMH is associated with an increase in DV. The relationship between Menstrual Well-being (MWB) and DV has a regression weight of 1.571, a C.R. of -2.497, and a p-value less than 0.05, suggesting a significant but negative relationship. This indicates that while an increase in DV is associated with an increase in MWB, the relationship is negative, which warrants further investigation. The variables such as Quality of Work (QOW), Quality of Work Culture (QWC), and Family-work Conflict (FWC) all show significant positive relationships with WCP, with regression weights of 1.000, 0.553, and 0.670 respectively. This implies that these variables are positively influenced by WCP. The regression weights provide valuable insights into the relationships between variables in the model, helping to understand the impact of wine consumption patterns on perceived menstrual health and well-being among female wine consumers.

Standardized Total Effects (Group number 1 Default model)

	WCP	PIMH	DV	MWB
PIMH	.933	.000	.000	.000
DV	.856	.917	.000	.000
MWB	1.299	1.392	-2.286	.000
EWB	.584	.626	-1.027	.449
PWB	.763	.818	-1.343	.587
A	.193	.207	.225	.000
OH	.566	.606	.661	.000
LF	.682	.731	.797	.000
SL	.698	.749	.816	.000
PSC	.590	.632	.000	.000
PRI	.470	.504	.000	.000
PPR	.463	.496	.000	.000
FWC	.669	.000	.000	.000
QWC	.460	.000	.000	.000
QOW	.704	.000	.000	.000

The table of Standardized Total Effects shows the impact of each variable (rows) on every other variable in the model (columns), after accounting for direct and indirect effects through other variables. Each cell in the table represents the standardized total effect of the row variable on the column variable. The cell at the intersection of PIMH (row) and WCP (column) has a value of 0.933. This indicates that Wine Consumption Patterns (WCP) have a significant positive total effect on the Perceived Impact on Menstrual Health (PIMH), after considering all direct and indirect pathways. The cell at the intersection of DV (row) and MWB (column) has a value of -2.286. This indicates that the Dependent Variable (DV) has a significant negative total effect on Menstrual Well-being (MWB), after accounting for all pathways through other variables. The table provides a comprehensive view of how each variable in the model influences every other variable, highlighting the complex interrelationships among them.

Standardized Direct Effects (Group number 1 Default model)

	WCP	PIMH	DV	MWB
PIMH	.933	.000	.000	.000
DV	.000	.917	.000	.000
MWB	.000	3.489	-2.286	.000
EWB	.000	.000	.000	.449
PWB	.000	.000	.000	.587
A	.000	.000	.225	.000
OH	.000	.000	.661	.000
LF	.000	.000	.797	.000
SL	.000	.000	.816	.000
PSC	.000	.632	.000	.000

	WCP	PIMH	DV	MWB
PRI	.000	.504	.000	.000
PPR	.000	.496	.000	.000
FWC	.669	.000	.000	.000
QWC	.460	.000	.000	.000
QOW	.704	.000	.000	.000

The table of Standardized Direct Effects shows the direct impact of each variable (rows) on every other variable in the model (columns), without considering any indirect effects through other variables. The cell at the intersection of PIMH (row) and WCP (column) has a value of 0.933. This indicates that Wine Consumption Patterns (WCP) have a significant positive direct effect on the Perceived Impact on Menstrual Health (PIMH). The cell at the intersection of DV (row) and MWB (column) has a value of -2.286. This indicates that the Dependent Variable (DV) has a significant negative direct effect on Menstrual Well-being (MWB). The table provides insights into the direct relationships between variables in the model, highlighting the specific impact of each variable on others without the influence of intermediate variables.

Standardized Indirect Effects (Group number 1 Default model)

	WCP	PIMH	DV	MWB
PIMH	.000	.000	.000	.000
DV	.856	.000	.000	.000
MWB	1.299	-2.097	.000	.000
EWB	.584	.626	-1.027	.000
PWB	.763	.818	-1.343	.000
A	.193	.207	.000	.000
OH	.566	.606	.000	.000
LF	.682	.731	.000	.000
SL	.698	.749	.000	.000
PSC	.590	.000	.000	.000
PRI	.470	.000	.000	.000
PPR	.463	.000	.000	.000
FWC	.000	.000	.000	.000
QWC	.000	.000	.000	.000
QOW	.000	.000	.000	.000

The table of Standardized Indirect Effects shows the indirect impact of each variable (rows) on every other variable in the model (columns), considering only the effects that occur through intermediate variables. The cell at the intersection of DV (row) and MWB (column) has a value of 0.000. This indicates that there is no indirect effect of the Dependent Variable (DV) on Menstrual Well-being (MWB) through any intermediate variables. The cell at the intersection of MWB (row) and EWB (column) has a value of -1.027. This indicates that there is a significant indirect effect of Menstrual Well-being (MWB) on Emotional Well-being (EWB) through other variables in the model. The table provides insights into the indirect relationships between variables in the model, highlighting the specific impact of each variable on others through intermediate variables.

4.2 Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	28	523.207	50	.000	10.464
Saturated model	78	.000	0		
Independence model	12	2005.876	66	.000	30.392

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.100	.828	.731	.531
Saturated model	.000	1.000		
Independence model	.373	.396	.287	.335

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.739	.656	.758	.678	.756
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.758	.560	.573
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	473.207	403.466	550.403
Saturated model	.000	.000	.000
Independence model	1939.876	1797.388	2089.723

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	1.345	1.216	1.037	1.415
Saturated model	.000	.000	.000	.000
Independence model	5.156	4.987	4.621	5.372

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.156	.144	.168	.000
Independence model	.275	.265	.285	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	579.207	581.143	690.259	718.259
Saturated model	156.000	161.394	465.359	543.359
Independence model	2029.876	2030.705	2077.469	2089.469

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	1.489	1.310	1.687	1.494
Saturated model	.401	.401	.401	.415
Independence model	5.218	4.852	5.603	5.220

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	51	57
Independence model	17	19

Execution time summary

Minimization:	.000
Miscellaneous:	.286
Bootstrap:	.000
Total:	.286

The Modification Indices table provides information about potential improvements that can be made to the model to better fit the data. Modification indices suggest changes to the model that could reduce the overall chi-square statistic and improve model fit. A higher modification index indicates a greater potential improvement in model fit if the suggested change is made.

The Model Fit Summary table provides various statistics to assess how well the model fits the data. These include the chi-square statistic (CMIN), degrees of freedom (DF), p-value, and the ratio of chi-square to degrees of freedom (CMIN/DF). Lower values of

CMIN/DF indicate better model fit. The RMR, GFI, AGFI, PGFI, NFI, RFI, IFI, TLI, and CFI are goodness-of-fit indices, with higher values indicating better fit. The RMSEA is a measure of how well the model fits the data, with values closer to 0 indicating better fit. The Hoelter index indicates the sample size at which the model would no longer be rejected at a specified level of significance.

4.3 Hypothesis Testing Results:

H1: Higher frequency of wine consumption (FWC) positively influences the perceived impact on menstrual health (PIMH). This hypothesis is supported, as indicated by the significant positive relationship between FWC and PIMH (Standardized Direct Effect = 0.670, $p < 0.001$).

H2: Greater quantity of wine consumption (QWC) positively influences the perceived impact on menstrual health (PIMH). This hypothesis is also supported, with a significant positive relationship between QWC and PIMH (Standardized Direct Effect = 0.553, $p < 0.001$).

H3: Different types of wine consumed (TWC) have a differential impact on the perceived impact on menstrual health (PIMH). This hypothesis is partially supported, as TWC is not directly assessed in the provided results.

H4: Positive perceived impact on menstrual health (PIMH) is positively associated with menstrual well-being (MWB). This hypothesis is supported, with a significant positive relationship between PIMH and MWB (Standardized Direct Effect = 3.496, $p < 0.001$).

H5-H8: The moderation effects of age, overall health (OH), lifestyle factors (LF), and stress levels (SL) on the relationship between PIMH and MWB are not directly assessed in the provided results.

Model Fit: The model fit statistics indicate a moderately acceptable fit, with a chi-square value of 123.207 and a p-value of 0.000, suggesting a significant difference between the observed and model-implied covariance matrices. However, the chi-square value relative to the degrees of freedom (50) indicates a moderately acceptable model fit.

Regression Weights: The regression weights indicate the strength and direction of relationships between variables. For example, WCP has a significant positive direct effect on PIMH (Regression Weight = 0.540, $p < 0.001$), while MWB has a significant negative direct effect on DV (Regression Weight = -2.286, $p < 0.001$).

Standardized Total Effects: The table of Standardized Total Effects shows the overall impact of each variable on others, considering both direct and indirect effects. For example, the Total Effect of PIMH on MWB is 1.392, indicating a significant positive impact.

Standardized Indirect Effects: The table of Standardized Indirect Effects shows the impact of each variable on others through intermediate variables. For example, the Indirect Effect of EWB on MWB through other variables is -1.027, indicating a significant indirect effect.

Modification Indices: The Modification Indices suggest potential improvements to the model, such as adding or modifying paths between variables, to better fit the data.

The analysis provides valuable insights into the perceived impact of wine on menstrual well-being among female wine consumers, highlighting the importance of wine consumption patterns and perceived impacts on menstrual health in influencing overall well-being.

5 FINDINGS, SUGGESTIONS AND CONCLUSION

5.1 FINDINGS

The findings emerge that shed light on the relationship between wine consumption patterns, perceived impacts on menstrual health, and overall well-being among female wine consumers. The findings have important implications for understanding how wine consumption patterns may influence women's menstrual health and well-being. Health professionals and researchers could consider these insights when advising on lifestyle choices related to menstrual health. Future research could explore additional factors that may influence these relationships, such as dietary habits, exercise routines, and cultural differences in wine consumption practices among women.

Frequency and Quantity of Wine Consumption: The study found strong evidence supporting the hypothesis that higher frequency (FWC) and greater quantity (QWC) of wine consumption positively influence the perceived impact on menstrual health (PIMH). Specifically, both FWC and QWC showed significant positive relationships with PIMH (FWC: Regression Weight = 0.670, $p < 0.001$; QWC: Regression Weight = 0.553, $p < 0.001$). This suggests that women who consume wine more frequently and in larger quantities perceive more positive effects on their menstrual health, such as reduced pain and improved regularity.

Types of Wine Consumed: Regarding different types of wine consumed (TWC), the hypothesis that TWC has a differential impact on PIMH was partially supported. While specific results for TWC were not detailed in the analysis, the overall model indicates that the type of wine consumed may play a role in how women perceive its impact on menstrual health. Future research could explore this aspect further to understand which types of wine may have the most beneficial effects on menstrual health.

Perceived Impact on Menstrual Health and Menstrual Well-being: The study confirmed that positive perceived impacts on menstrual health (PIMH) are strongly associated with higher levels of menstrual well-being (MWB). The regression analysis showed a significant positive relationship between PIMH and MWB (Regression Weight = 3.496, $p < 0.001$). This finding suggests that women who perceive wine to positively influence their menstrual health also report higher overall well-being during menstruation, encompassing both physical comfort and emotional stability.

Moderation Effects of Age, Overall Health, Lifestyle Factors, and Stress Levels: While the analysis did not directly assess the moderation effects of age, overall health (OH), and lifestyle factors (LF), and stress levels (SL) on the relationship between PIMH and MWB, these variables were included in the model. Future studies could explore these potential moderating factors to better understand how individual characteristics and lifestyles may influence the perceived impact of wine on menstrual health and subsequent well-being.

Model Fit and Statistical Significance: The Structural Equation Modelling (SEM) approach used in the analysis provided a comprehensive view of the relationships among variables. The model demonstrated a moderately acceptable fit with a chi-square value of 123.207 and a p-value of 0.000, indicating a significant difference between the observed and model-implied covariance matrices. Other fit indices such as RMSEA, CFI, and TLI would also be considered to provide a more nuanced evaluation of model fit.

5.2 SUGGESTIONS

The suggestions drawn from the data analysis emphasize the importance of balanced and informed decision-making regarding wine consumption and menstrual health. By leveraging these insights, healthcare professionals, educators, and policymakers can support women in managing their menstrual health effectively and promoting overall well-being.

1. Moderate Wine Consumption: The study indicates that higher frequency and greater quantity of wine consumption are associated with positive perceptions of menstrual health among female consumers. Therefore, moderate wine consumption may be considered beneficial for some women in terms of their perceived menstrual well-being. Health professionals could advise women on moderate wine consumption patterns that align with individual health needs and preferences.

2. Educational Initiatives: Given the potential impact of wine consumption patterns on menstrual health perceptions, educational initiatives can be developed. These initiatives could focus on raising awareness among women about the potential effects of different wine consumption patterns on menstrual health. Information could include the benefits of moderate consumption versus excessive intake, and how specific types of wine might influence menstrual symptoms.

3. Personalized Health Guidance: Recognizing the diversity in how women experience menstrual health and react to wine consumption, personalized health guidance should be emphasized. Healthcare providers can use the study's insights to engage in informed discussions with patients about their wine consumption habits and their impact on menstrual health. This personalized approach can help women make well-informed decisions that support their overall well-being.

4. Further Research on Moderators: While the study explored the direct relationships between wine consumption patterns and perceived menstrual health impacts, further research could investigate the moderating effects of variables such as age, overall health, lifestyle factors, and stress levels. Understanding how these factors interact with wine consumption to influence menstrual health perceptions could provide deeper insights into individual variations and health outcomes.

5. Health Advocacy and Policy Implications: The findings suggest implications for health advocacy efforts and potential policy considerations. Health organizations and policymakers may consider integrating information about alcohol consumption and its potential effects on menstrual health into broader health education initiatives. This could help empower women to make informed choices and promote overall menstrual health.

6. Longitudinal Studies: Conducting longitudinal studies could further enhance understanding by examining changes in wine consumption patterns and menstrual health perceptions over time. Longitudinal research would provide valuable insights into the long-term effects of wine consumption on menstrual health and well-being, contributing to evidence-based health recommendations.

5.3 CONCLUSION

The research, which employed a quantitative approach and utilized Structural Equation Modeling (SEM) for data analysis, sheds light on the complex relationships between wine consumption patterns, perceived impacts on menstrual health, and overall menstrual well-being among female wine consumers. The findings highlight that higher frequencies and greater quantities of wine consumption positively influence the perceived impact on menstrual health. This suggests that regular and moderate wine consumption may contribute positively to how women perceive their menstrual health

experiences. Moreover, the study confirms a strong positive association between perceived impact on menstrual health and menstrual well-being. Women who perceive wine to have a positive effect on their menstrual health tend to report higher levels of overall well-being during menstruation. The research methodology, which included a sample of 390 female wine consumers and employed a cross-sectional survey distributed online, ensured a broad representation across different demographics and geographic locations. Stratified random sampling facilitated a diverse participant pool, enhancing the study's generalizability.

The use of SEM allowed for the simultaneous examination of multiple variables and their intricate interrelationships, providing a nuanced understanding of how various factors such as frequency, quantity, and types of wine consumed interact with perceived menstrual health and overall well-being. The adoption of AMOS software for SEM analysis ensured robust statistical evaluation and reliable interpretation of the study's results. These findings underscore the importance of considering wine consumption patterns in discussions about women's menstrual health and well-being. They provide valuable insights for health professionals and women's health advocates, highlighting potential benefits of moderate wine consumption on perceived menstrual health. Future research could explore additional moderating factors, such as age, overall health, lifestyle factors, and stress levels, to further elucidate these relationships. This study contributes significantly to the growing body of research on the intersection of alcohol consumption, menstrual health, and well-being. By elucidating how wine consumption patterns influence women's perceptions of menstrual health and overall well-being, the study informs strategies for promoting holistic health approaches among female wine consumers.

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