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A Sociological Examination of the Relationship Between Social Commitment and Health Literacy Among Blood Donation Participants in Tehran

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A B S T R A C T

The present study aims to sociologically examine the relationship between social commitment and health literacy among blood donation participants in Tehran. This study employed a descriptive-survey and correlational research design. The statistical population included all individuals aged 20 to 60 in Tehran in 2024, from whom 323 participants were selected through convenience sampling. Data collection instruments consisted of two standardized questionnaires: the health literacy questionnaire by Wahl et al. (2021) and the social commitment questionnaire by Singhapakdi (1996), both demonstrating a Cronbach's alpha greater than 0.70. Data were analyzed using SPSS v16 and Smart PLS software, employing Pearson correlation coefficient and stepwise regression tests. The main hypothesis, stating that "there is a positive and significant relationship between social commitment and health literacy among blood donation participants," was confirmed with a coefficient of determination of 0.503. Hypotheses 1 through 8 clearly confirmed that social commitment in its emotional, cognitive, and practical dimensions plays a significant role in enhancing individuals' ability to read, access, comprehend, evaluate, make decisions, and utilize health information. These findings hold considerable theoretical and practical significance. Theoretically, they confirm that health literacy is not merely an individual skill but is also influenced by social and cultural factors. Practically, the results indicate that improving health literacy requires a focus on strengthening social commitment within society. This can be achieved through educational, social, and cultural programs aimed at increasing individuals' awareness of social responsibilities and encouraging active community participation.

Keywords: *Social Commitment, Health Literacy, Sociological, Individual Skill.*

1. Introduction

Social commitment and health literacy are key concepts in public health and community well-being. These concepts are particularly significant in contexts related to blood donation and participation in social activities. Blood donation, as a humanitarian act, not only meets medical needs but also serves as a symbol of social solidarity and individual responsibility (Bukhari et al., 2022; Pratt, 2020). In this regard, social commitment refers to individuals' sense of responsibility toward society and others, which can enhance participation in blood donation. Health literacy, defined as the ability to access, understand, and use health information (Miller-Matero, 2024; Nam, 2024; Wang, 2024), plays a crucial role in decision-making regarding blood donation. Individuals with higher health literacy are generally more capable of understanding the risks and benefits of blood donation and are, therefore, more likely to participate in this process. Consequently, the relationship between social commitment and health literacy can be examined as a determinant factor in increasing blood donation rates across different communities (Mahfouz et al., 2021; Panahi et al., 2024).

Research has shown that individuals with higher health literacy are more inclined to engage in social activities, including blood donation. This highlights the importance of education and health literacy promotion within communities, as increased knowledge about the benefits and necessities of blood donation can enhance participation rates. On the other hand, social commitment serves as a motivating factor for individuals to participate in blood donation activities. A sense of belonging to society and responsibility toward others' health can strongly encourage blood donation. These two factors—health literacy and social commitment—mutually influence each other and can ultimately lead to improved public health. Given the significance of this issue, it is essential to design and implement educational and awareness programs on health literacy to inform individuals about the importance of blood donation. These programs should include information on the blood donation process, eligibility criteria, and its positive impact on others' lives. Furthermore, efforts should be made to strengthen individuals' social commitment to encourage active participation in this field (Chen et al., 2020; Chen et al., 2021; Chen, 2020; Custer et al., 2012).

Blood is a valuable resource for clinical medical care, and its continuous and efficient supply is essential for the effective functioning of healthcare systems. Recently, global blood shortages have become more severe (Zeleke & Azene, 2022). In this context, population aging and low birth rates have reduced the number of blood donors (Greffin et al., 2021). Blood shortages have significantly impacted healthcare services and placed substantial pressure on governments and blood banks (Chen et al., 2021). Blood donation plays a crucial role in saving lives in critical situations. As a routine medical activity, it improves the quality of life for patients facing various diseases. The increasing demand for blood and its components is evident worldwide. The gap in blood availability and the safety of blood transfusion has widened in low- and middle-income countries (Custer et al., 2012). During the COVID-19 pandemic, blood bank shortages were reported in many countries. According to the World Health Organization, blood donors usually donate voluntarily; however, in some countries, paid blood donors also exist (Masser et al., 2020). Since the balance between blood supply and demand is highly fragile, blood banks worldwide seek more efficient ways to attract donors. The most common motivations for repeated blood donation globally are altruism, social responsibility, and humanitarian activities (Greffin et al., 2021).

From the perspective of blood donation intention, the most important factors are altruism and related motivations (Suemnig et al., 2017). Additionally, attitudes toward blood donation (Saha & Chandra, 2018), donor satisfaction, self-esteem and feelings of shame, and the reputation of blood banks all positively influence citizens' intention to donate blood (Martin et al., 2019). Psychological studies have indicated that although individuals' intentions may align with their statements, they do not fully predict behavior or may even contradict actual behavior. For example, Sheeran et al. (2017) found that the relationship between blood donation intention and behavior follows an inverse U-shaped pattern (Sheeran et al., 2017). Therefore, studying actual repeated blood donation behavior is more scientifically reliable than examining blood donation intention (Chen et al., 2020; Chen et al., 2021; Chen, 2020).

In a study conducted by Klinkenberg et al. (2021), they identified that blood donation is influenced by incentives, non-monetary rewards, ease of access, and other motivational factors. These elements facilitate blood donation, while, conversely, fear of donation and concerns about personal health limit participation. Witok et al. (2021) reported the issue of ethnic minorities' non-participation in Europe, and Mahfouz et al. (2021) in Saudi Arabia attributed this phenomenon to concerns about infectious disease risks,

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willingness to donate blood, religious reasons, altruism, and national service. Many actions and reactions in the blood donation system and donor behavior are shaped by cultural factors (Mahfouz et al., 2021). Another study highlighted the heterogeneous behavior of blood donors and the need to address common donation barriers among donors and different groups (Romero-Domínguez et al., 2021).

Griffin et al. (2021) conducted research on personal motivations and barriers to blood donation in Germany. The primary motivations for blood donation were "altruism" and "social responsibility," while the main barriers were "health status," "age," and "lack of time" (Greffin et al., 2021). According to the findings of Klinkenberg et al. (2021), non-monetary incentives, ease of access, and awareness were identified as key facilitators, while fear and inadequate health perception were recognized as major limiting factors (Klinkenberg et al., 2021). A study by Dean et al. (2018) demonstrated that in North America, the most significant issue in blood donation among students is the culture of voluntary blood donation (Dean et al., 2018). Another study reported that one of the main reasons for individuals' reluctance to donate blood is local perceptions and cultural beliefs about blood donation, which are prevalent in societies and partly due to a lack of education (Tanywe et al., 2018). Conversely, developing countries aiming for 100% voluntary blood donation by 2020 could only succeed if they transitioned from replacement donation to voluntary donation and regarded this culture as a vital issue, adopting a wide range of strategic programs to promote it (Salaudeen & Odeh, 2011). The risk of infection transmission has also been identified as a factor influencing blood donation in various studies.

Ultimately, a thorough investigation of the relationship between social commitment and health literacy in the context of blood donation can help identify effective strategies for increasing blood donation rates. This would not only benefit healthcare systems but also strengthen social bonds and improve quality of life within communities. Given the challenges in ensuring a sufficient and safe blood supply, attention to these two factors can play a crucial role in addressing medical needs. Therefore, further research is necessary to deepen our understanding of the dynamics between social commitment and health literacy and to utilize these insights for developing effective strategies. Creating an informed and socially committed society concerning collective health benefits individuals and society as a whole. Despite the significant role of sociological factors in citizens' participation in blood donation, no comprehensive sociological study has been conducted on this topic in the domestic context. Accordingly, the present study analyzes the sociological aspects of citizens' participation in blood donation. Hence, the primary research question is: "Is there a relationship between social commitment and health literacy among blood donation participants?"

2. Methods and Materials

A research method is a set of systematic and valid rules, tools, and procedures for examining realities, discovering unknowns, and finding solutions to problems (Khaki, 1999). The research method determines how a research hypothesis is confirmed or rejected. In descriptive research, the researcher does not manipulate variables or create conditions for events to occur. In other words, the researcher attempts to report what exists without any intervention or subjective inference, ensuring that the findings remain objective. The present study follows a quantitative approach and employs a descriptive survey strategy based on correlation analysis. In this research, the researcher examines the existing conditions, characteristics, and attributes of the population and their relationships. The statistical population of this study consists of individuals visiting the Central Blood Transfusion Organization in Tehran in 2024, among whom 322 participants were selected as the research sample.

The concept of validity answers the question of how well a measurement tool assesses the intended characteristic. Without knowledge of the validity of a measurement tool, the accuracy of the obtained data cannot be assured. A measurement tool may be valid for assessing a specific characteristic but lack validity when measuring another characteristic in a different population. In the present study, the validity of the measurement tool for assessing the research variables was confirmed by consulting experts and academic professionals.

The purpose of measuring the reliability and consistency of a questionnaire is to ensure that it remains applicable across different times and locations. A reliable study is one in which the measurement tool is valid, and if the same research is conducted again by the same or another researcher in different times and places, the results should be similar. Cronbach's alpha coefficient, developed by Cronbach, is one of the most widely used methods for measuring the reliability of questionnaires. The reliability of a questionnaire means that if the measured traits are reassessed using the same tool under similar conditions at

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different times, the results should be approximately the same.

One method for calculating reliability is the Cronbach's alpha formula. This method is used to determine the internal consistency of measurement tools such as questionnaires or tests that measure various attributes. In these instruments, each question can take on different numerical values. Since Cronbach's alpha is generally considered a highly suitable index for assessing the reliability of measurement tools and internal consistency among its components, questionnaire reliability is typically evaluated using Cronbach's alpha.

Cronbach's alpha coefficient ranges between 0 and 1, representing the correlation of data across different times. A value of 1 indicates maximum correlation, while a value of 0 represents minimal correlation. To calculate Cronbach's alpha, the variance of each subset of questionnaire items and the total variance must first be computed, after which the alpha coefficient is determined. The closer the obtained alpha coefficient is to 1, the greater the reliability of the questionnaire. Generally, an alpha coefficient below 0.70 is considered weak, while values above 0.70 are considered acceptable. However, higher reliability is preferred when the coefficient is closer to 1.

The most common scale used in social research is the Likert scale. In the Likert scale, all items are assumed to be equally weighted. Thus, each item is assigned scores (e.g., from 1 to 5 for a five-point Likert scale), and the total score obtained by an individual represents their orientation. A test is considered reliable when the observed scores and true scores are highly correlated. Assessing reliability is a crucial step in questionnaire design. In the present study, Cronbach's alpha coefficient was used to evaluate reliability, and SPSS v22 software was employed for its calculation. To assess reliability before collecting the main sample, a pilot sample of an appropriate size was gathered, and the reliability of the questionnaire items was examined based on the collected data. A preliminary sample of 30 participants was used to evaluate the questionnaire's reliability.

To analyze the collected data, descriptive statistics will be employed, including mean, standard deviation, and other relevant indices. In the inferential statistics section, various tests such as the Kolmogorov-Smirnov test will be used to assess the normality of data distribution. Structural equation modeling will be utilized to analyze the relationships between research variables. Additionally, the collected data will be analyzed using SPSS software, and SmartPLS version 2 will be used for result interpretation.

Data analysis is a multi-stage process in which data obtained through various collection tools from the statistical sample (population) are summarized, coded, categorized, and ultimately processed. This process facilitates various types of analyses and relationships among data to test hypotheses. During this process, data are refined both conceptually and empirically, with statistical techniques playing a crucial role in inferences and generalizations.

3. Findings and Results

In this section, descriptive statistics related to the demographic characteristics of the respondents (sampled individuals) and the status of the research variables are presented using tables and charts. Subsequently, to answer the research questions and draw conclusions, various statistical methods and tests were employed using SPSS v27 and Smart PLS v3, as described below.

To examine the normality of the data distribution, the Kolmogorov-Smirnov test was conducted using SPSS v27. According to this test, if the provided test statistic (Sig) is greater than 0.05, the null hypothesis, which assumes the normality of the variable's distribution, is accepted with 95% confidence.

Table 1

Results of the Kolmogorov-Smirnov Test for the Questionnaire

Questionnaire Components (Social Commitment and Health Literacy)	Standard Error of Deviation	Significance Level (Sig)	Test Result
Emotional	1.555	0.555	Normal
Cognitive	2.134	0.643	Normal
Practical	2.321	0.569	Normal
Reading Health Literacy	1.134	0.513	Normal
Access to Health Literacy	2.321	0.543	Normal
Understanding Health Literacy	3.112	0.432	Normal
Evaluation of Health Literacy	2.532	0.555	Normal
Decision-making in Health Literacy	1.154	0.643	Normal
Application of Health Information	23.41	0.569	Normal

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As shown in Table 1, the data from all components exhibit a normal distribution. Additionally, considering the large sample size and the central limit theorem (which states that as sample size increases, the sample's characteristics approach those of the population), the appropriate estimation method and software were selected to achieve optimal results. The research analysis was conducted using Smart PLS v3 based on the Partial Least Squares (PLS) statistical method, and to answer the research questions, the t-test structural equation modeling with two independent groups was employed.

Cronbach's alpha is a traditional tool for measuring reliability and assessing internal consistency (coherence). A Cronbach's alpha value greater than 0.50 indicates acceptable reliability. According to Table 2, all criteria for the latent variables exceed 0.50, confirming the reliability of the research. Since composite reliability is a more recent and superior criterion compared to Cronbach's alpha in structural equation modeling, the composite reliability values in Table 2 for all latent variables are above 0.70, confirming the good fit of the measurement model.

Table 2

Cronbach's Alpha and Composite Reliability Coefficients

Dimensions	Cronbach's Alpha (>0.5)	Composite Reliability (>0.7)	Research Model Dimensions	Cronbach's Alpha (>0.5)	Composite Reliability (>0.7)
Social Commitment Questionnaire	0.892	0.790	Emotional	0.765	0.848
			Cognitive	0.785	0.843
			Practical	0.799	0.840
Health Literacy Questionnaire	0.870	0.860	Reading Health Literacy	0.779	0.854
			Access to Health Literacy	0.826	0.777
			Understanding Health Literacy	0.711	0.790
			Evaluation of Health Literacy	0.762	0.754
			Decision-making in Health Literacy	0.717	0.761
			Application of Health Information	0.785	0.843

As indicated in Table 2, all calculated Cronbach's alpha coefficients exceed 0.50, and all composite reliability values are above 0.70, demonstrating the high reliability and validity of the research measurement tools.

Convergent validity is calculated using the average variance extracted (AVE) and factor loadings of latent variables. Factor loadings are determined by the correlation between a construct's indicators and the construct itself. If this value is equal to or greater than 0.40, it indicates that the variance shared between the construct and its indicators exceeds the measurement error variance, confirming the model's reliability. As shown in Table 3, all item factor loadings are 0.40 or higher, validating the reliability of the model in all aspects.

The AVE criterion represents the average variance shared between each construct and its indicators. An AVE value greater than 0.50 indicates acceptable convergent validity. Based on the above considerations and as demonstrated in Table 3, all AVE values exceed 0.50, confirming that the research model has an adequate fit in terms of convergent validity.

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Table 3

Factor Loadings and Average Variance Extracted (AVE) Coefficients

Dimensions	Item	Factor Loading	AVE	Dimensions	Item	Factor Loading	AVE
Emotional	1. I feel the need to help my community progress.	0.596	0.654	Access to Health Literacy	I can easily find health-related information.	0.635	0.677
	My attachment to societal issues motivates me to solve problems.	0.535			Accessing reliable health resources is easy for me.	0.543	
	I have a strong sense of responsibility toward social problems.	0.613			When necessary, I find the information needed for my health or my family's health.	0.529	
	The happiness and well-being of society are emotionally significant to me.	0.667			I use various sources to search for health information.	0.640	
Cognitive	I believe in the importance of social awareness for improving life.	0.604	0.765	Understanding Health Literacy	I can understand complex health information well.	0.543	0.526
	Awareness of social problems influences my daily decisions.	0.876			Texts and health-related information are entirely comprehensible to me.		
	Learning about community needs is valuable to me.	0.653			I can analyze health information.	0.734	
	I believe in the importance of social awareness for improving life.	0.599			When reading health texts, I understand the connections between different sections.		
Practical	I actively participate in social activities and volunteer when necessary.	0.632	0.529	Evaluating Health Literacy	I can distinguish between correct and incorrect health information.	0.828	0.538
	I seek practical solutions for solving social problems.	0.987			Evaluating different health resources is easy for me.	0.987	
	I am actively involved in charitable and social activities.	0.876			I carefully assess received health information.		
	I actively participate in social activities.	0.678			I make decisions based on my assessment of health information.	0.765	
Reading Health Literacy	I can read health information from various sources (such as brochures or the internet).	0.816	0.574	Decision-Making in Health Literacy	I make appropriate health decisions based on available information.	0.671	0.633
	Reading health-related information is easy for me.	0.692			The information I acquire significantly influences my health decisions.	0.614	
	I understand all details when reading health texts.	0.553			My health-related decisions involve careful information assessment.	0.813	
	I frequently seek new health-related texts.	0.543					

As demonstrated in Table 3, all factor loading values exceed 0.40, and all AVE values are above 0.50, confirming the strong reliability and convergent validity of the research model.

Divergent validity is the third criterion for assessing the fit of measurement models. It indicates the extent to which a construct correlates more strongly with its own indicators than with other constructs in the model. Acceptable divergent validity in a model suggests that a construct interacts more significantly with its indicators than with other constructs. Divergent validity is considered acceptable when the square root of the AVE for each construct is greater than the shared variance between that construct and other constructs in the model.

In Partial Least Squares (PLS) analysis, this is assessed using a matrix where the diagonal elements represent the square root of the AVE for each construct, while the lower triangle elements contain the correlation coefficients between constructs. The matrix for assessing the divergent validity of the constructs in this study is presented in Table 4, confirming the divergent validity of the model.

Table 4

Fornell-Larcker Matrix Analysis

Constructs	Emotional	Cognitive	Practical	Reading Health Literacy	Access to Health Literacy	Understanding Health Literacy	Evaluating Health Literacy	Decision-Making in Health Literacy	Application of Health Information
Emotional	1								
Cognitive	0.876	1							
Practical	0.588	0.765	1						
Reading Health Literacy	0.627	0.361	0.654	1					
Access to Health Literacy	0.543	0.544	0.432	0.764	1				
Understanding Health Literacy	0.497	0.465	0.544	0.432	0.670	1			
Evaluating Health Literacy	0.543	0.144	0.543	0.544	0.213	0.435	1		
Decision-Making in Health Literacy	0.543	0.361	0.432	0.431	0.321	0.312	0.543	1	
Application of Health Information	0.566	0.544	0.361	0.321	0.632	0.321	0.361	0.512	1

After completing the measurement model and assessing validity and reliability, the structural model is evaluated to examine the relationships between dimensions. According to the data analysis process in PLS, the structural model fit is assessed using multiple criteria.

The first and most fundamental criterion is the significance coefficient (Z-value) or T-values. The structural model fit is confirmed using T-values, which must exceed 1.96 to indicate significance at a 95% confidence level. As shown in Figure 1, the model achieves significance for T-values, and since the T-statistic values for all dimensions and indicators are above 1.96, the significance of the questions and relationships between variables can be confirmed at a 95% confidence level.

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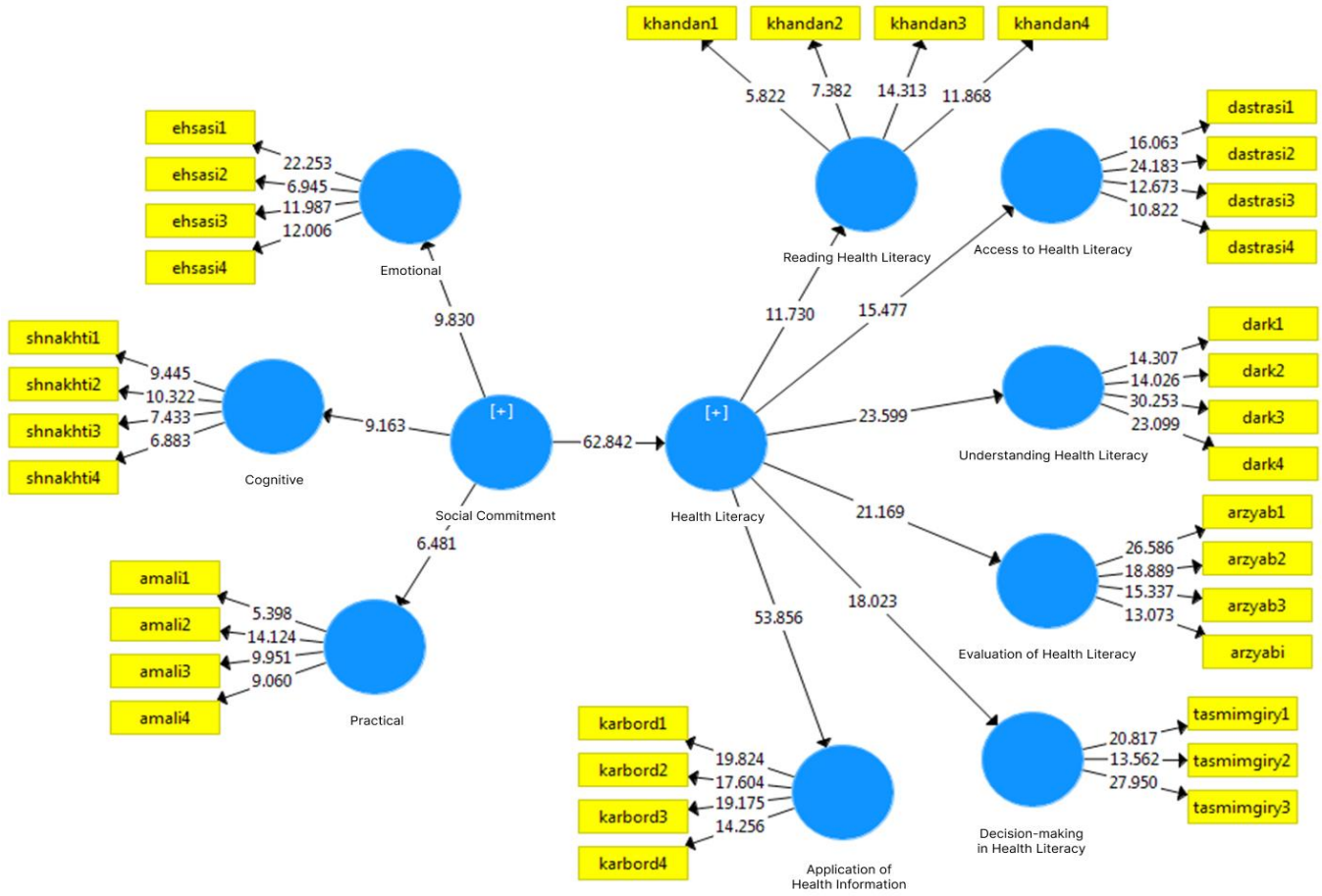
Figure 1

T-Value Significance Coefficients



The second criterion for evaluating the structural model fit is the R^2 coefficient, which represents the percentage of variance in a dependent variable explained by independent variables. In other words, it measures the extent to which variations in the dependent variable result from the influence of independent variables. R^2 values of 0.19, 0.33, and 0.67 are considered weak, moderate, and strong, respectively. As shown in Figure 1, the lowest R^2 value is 0.330 for the emotional dimension and 0.376 for understanding health literacy, while all other dimensions have R^2 values equal to or greater than 0.67, indicating a strong fit of the structural research model. The R^2 coefficients for all research dimensions are presented in Table 5.

Table 5

R^2 Values for Research Model Dimensions

Variable	R^2 Value	Research Model Dimensions	R^2 Value
Social Commitment	-	Emotional	0.330
		Cognitive	0.654
		Practical	0.484
Health Literacy	0.729	Reading Health Literacy	0.585
		Access to Health Literacy	0.697
		Understanding Health Literacy	0.376
		Evaluating Health Literacy	0.432
		Decision-Making in Health Literacy	0.488
		Application of Health Information	0.743

As indicated in Table 5, the structural model exhibits strong explanatory power, confirming its adequacy in explaining the relationships between variables.

The third criterion for assessing the structural model fit is the Q^2 indicator, which determines the predictive power of the model. The Q^2 values for an endogenous construct are categorized into three levels: 0.02, 0.15, and 0.35, representing weak, moderate, and strong predictive power, respectively.

According to Table 6, the Q^2 values for the dimensions of social commitment and health literacy exceed 0.15, indicating a moderate to strong model fit. Given that the Q^2 value for understanding health literacy is 0.432, which is above 0.35, it can be concluded that understanding health literacy has the strongest predictive coefficient among the research dimensions.

Table 6

Structural Model Fit Using the Q^2 Indicator

Dimension	SSO	SSE	1-SSE/SSO	Research Model Dimension	SSO	SSE	1-SSE/SSO
Social Commitment				Emotional	1375.000	965.457	0.298
				Cognitive	2475.000	1939.201	0.216
				Practical	1375.000	991.658	0.279
Health Literacy				Reading Health Literacy	1432.000	654.457	0.310
				Access to Health Literacy	1342.000	653.201	0.395
				Understanding Health Literacy	1231.000	991.658	0.432
				Evaluating Health Literacy	2200.000	765.296	0.213
				Decision-Making in Health Literacy	3219.000	765.296	0.254
				Application of Health Information	18760.000	765.296	0.321

After evaluating the measurement models and analyzing the data in PLS, the researcher can examine and test the research hypotheses to reach research findings.

Table 7

Research Hypothesis Testing

Hypothesis	Path Coefficient	Moderation Coefficient	T-Statistic	Significance Level	Test Result
There appears to be a significant relationship between the dimensions of social commitment (emotional, cognitive, practical) and the reading health literacy of blood donation participants.	0.854	0.643	10.991	0.000	Accepted
There appears to be a significant relationship between the dimensions of social commitment (emotional, cognitive, practical) and access to health literacy among blood donation participants.	0.855	0.542	16.323	0.003	Accepted
There appears to be a significant relationship between the dimensions of social commitment (emotional, cognitive, practical) and understanding health literacy among blood donation participants.	0.686	0.654	23.555	0.020	Accepted
There appears to be a significant relationship between the dimensions of social commitment (emotional, cognitive, practical) and evaluating health literacy among blood donation participants.	0.779	0.634	20.292	0.004	Accepted
There appears to be a significant relationship between the dimensions of social commitment (emotional, cognitive, practical) and decision-making in health literacy among blood donation participants.	0.566	0.621	18.155	0.043	Accepted
There appears to be a significant relationship between the dimensions of social commitment (emotional, cognitive, practical) and the application of health information among blood donation participants.	0.632	0.576	54.495	0.010	Accepted

Table 7 presents the results of hypothesis testing in terms of path coefficients, moderation coefficients, significance levels, and test results for the research hypotheses.

4. Discussion and Conclusion

This study aimed to investigate the relationship between social commitment and health literacy among blood

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donation participants. Social commitment, encompassing emotional, cognitive, and practical dimensions, has been considered a key factor in promoting participatory and health-oriented behaviors. The research sought to analyze how social commitment can influence various aspects of health literacy, including reading, understanding, evaluating, and applying health-related information, ultimately improving these behaviors within the target community. Additionally, the study examined the role of demographic and contextual factors such as age, gender, and socioeconomic status in health literacy and related behaviors. These variables help in better understanding the barriers and opportunities available for enhancing health literacy and social participation. The main focus of the research was on how individuals' social and economic characteristics impact their access, comprehension, and application of health information.

The structural equation modeling analysis confirmed the suitability of the measurement and structural models, demonstrating a strong model fit. The research employed Partial Least Squares (PLS) methodology to assess model quality based on three key criteria: reliability, convergent validity, and divergent validity. The results indicated that the research model possesses high credibility and accuracy, with measurement tools effectively capturing the latent variables in a stable and precise manner.

The study found that Cronbach's alpha values for all variables exceeded 0.50, indicating acceptable internal consistency. Composite reliability, which provides a more precise measure of reliability, was reported to be above 0.70 for all constructs. These results confirm that the research variables were measured reliably and consistently. For instance, constructs related to "social commitment" (emotional, cognitive, and practical) and "health literacy" (understanding, evaluation, and decision-making) demonstrated strong reliability.

Convergent validity was assessed using the average variance extracted (AVE) and factor loadings. Factor loadings above 0.40 and AVE values exceeding 0.50 demonstrated a strong correlation between indicators and their respective constructs. Notably, the "emotional" and "cognitive" indicators in the social commitment construct and the "understanding" and "evaluation" indicators in health literacy exhibited strong associations with their respective constructs.

Divergent validity was examined using the Fornell-Larcker matrix. The findings indicated that the square root of AVE for each construct was greater than its shared variance with other constructs. This confirms that each construct interacts more significantly with its indicators than with other constructs. For example, the distinction between "health literacy evaluation" and "decision-making" constructs was clearly observed in the model.

After assessing the measurement model, the study proceeded to analyze the structural model based on three key criteria: significance coefficients (T-values), explanatory power (R^2), and predictive power (Q^2). The significance coefficients (T-values) confirmed that all relationships between variables were statistically significant at a 95% confidence level, as all T-values exceeded the critical threshold of 1.96. This validates the design of the model and the credibility of relationships among constructs.

The explanatory power (R^2) assessed the ability of independent variables to explain the variance in dependent variables. The results indicated moderate to strong explanatory power across variables. The lowest R^2 values were observed for the "emotional" dimension (0.330) and "understanding health literacy" (0.376), which were in the moderate range. Conversely, the "cognitive" dimension (0.654) and "application of health information" (0.743) exhibited higher R^2 values, indicating a stronger influence of independent variables on dependent variables.

The predictive power (Q^2) criterion evaluated the model's ability to predict dependent variables and demonstrated that the dimensions of "social commitment" and "health literacy" had moderate to high predictive power. Q^2 values exceeded 0.15 for all dimensions, with some, such as "understanding health literacy" (0.432), reaching a strong level, indicating the model's strong predictive capability.

The results confirmed a significant and positive relationship between social commitment and various dimensions of health literacy. The findings align with previous research that emphasizes the role of social commitment in health-related behaviors.

The study found a strong positive relationship between social commitment (emotional, cognitive, and practical) and the ability to read health-related information. The high path coefficient and T-value confirm that social commitment significantly enhances individuals' ability to read and process health-related information. This is consistent with Pratt (2020), who found that emotional commitment improves health information comprehension, as socially committed individuals are more likely to engage with health-related content. Similarly, Lu (2019) highlighted that cognitive commitment increases individuals' ability to analyze health information (Lu, 2019). Bloom (2017) also

found that practical commitment and participatory behaviors enhance health awareness and the ability to use health information effectively (Bloom, 2017). These results reinforce the idea that social commitment plays a critical role in improving individuals' health literacy.

The findings also revealed that social commitment significantly facilitates individuals' access to health-related information. The results indicate that socially committed individuals are more proactive in seeking health information. This aligns with Pratt (2020), who found that emotional commitment increases individuals' engagement in social issues, including health information-seeking behaviors (Pratt, 2020). Lu (2019) further emphasized that cognitive commitment enables individuals to better identify and select appropriate sources of health information (Lu, 2019). Bloom (2017) also demonstrated that practical commitment fosters positive behaviors such as utilizing reliable health information sources and participating in health education programs (Bloom, 2017).

The study confirmed that social commitment significantly enhances individuals' ability to understand health information. These findings align with Pratt (2020), who demonstrated that social commitment improves individuals' ability to comprehend health messages by encouraging participation in health programs (Pratt, 2020). Lu (2019) also found a direct correlation between cognitive commitment and enhanced health information processing abilities (Lu, 2019).

The analysis further confirmed that social commitment positively influences individuals' ability to evaluate health information. This supports findings by Bloom (2017), who reported that practical commitment, such as participation in social activities, enhances the ability to critically assess health information (Bloom, 2017). Chen et al. (2021) also emphasized that social commitment increases individuals' analytical thinking skills, which are crucial for evaluating health-related content (Chen, 2020).

The findings revealed that social commitment significantly contributes to improved health-related decision-making. This result aligns with Lu (2019), who found that socially committed individuals make more informed health decisions based on accurate data (Lu, 2019).

The study confirmed that social commitment has a strong positive impact on individuals' ability to apply health information in daily life. This finding is supported by social learning theory, which suggests that social engagement facilitates the transformation of knowledge into action.

Despite the valuable insights provided by this study, several limitations should be acknowledged. One major limitation is its reliance on cross-sectional data, which restricts the ability to examine changes in social commitment and its effects on health literacy over time. This limitation prevents the establishment of causality, as higher health literacy could also enhance social commitment. Additionally, the use of self-reported questionnaires may introduce response bias, as participants might overestimate their level of social commitment or health literacy. Another limitation is the study's geographic and demographic scope, which may limit the generalizability of the findings. Social commitment and health literacy may vary across different cultural, economic, and social contexts.

Future research should consider longitudinal studies to better understand the causal relationship between social commitment and health literacy. Additionally, studies should explore the role of cultural and socioeconomic factors in shaping these relationships. Investigating social commitment among diverse populations, including underprivileged communities, could provide deeper insights into barriers and opportunities for improving health literacy. Further research should also examine the effectiveness of educational interventions that integrate social commitment into health literacy programs.

Policymakers and health educators should develop targeted interventions that enhance social commitment as a means to improve health literacy. Educational programs should emphasize community engagement and participatory learning to foster social responsibility and proactive health behaviors. Increasing access to reliable health information through community-based initiatives and digital platforms can further support individuals in making informed health decisions. Additionally, healthcare organizations should integrate social commitment into their outreach programs to encourage greater public participation in health promotion activities.

Authors' Contributions

Authors contributed equally to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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