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Psychological Flexibility and Cardiovascular Health Behaviors Among Filipino Outpatients: A Correlational Study

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Abstract: (1) **Background:** Psychological flexibility, the ability to adapt to changing demands while staying true to personal values, is linked to better health behaviors. However, its relationship with cardiovascular health behaviors, particularly in Filipino populations, remains underexplored. (2) **Aim:** This study aimed to examine the relationship between psychological flexibility and cardiovascular health behaviors among outpatients in Rizal, Philippines, focusing on BMI, smoking, physical activity, and dietary habits. (3) **Methods:** A cross-sectional, descriptive-correlational design was used with 100 outpatient participants from selected hospitals. Psychological flexibility was measured using the Acceptance and Action Questionnaire-II (AAQ-II), and cardiovascular health behaviors were assessed using a modified version of the American Heart Association's Life Simple 7 tool. Descriptive statistics and Pearson's correlation were applied. (4) **Results:** The findings showed that respondents had neutral levels of psychological flexibility. While most exhibited intermediate BMI and physical activity, dietary habits varied. A significant positive correlation was found between psychological flexibility and whole grain consumption. However, no significant associations were found with BMI, smoking, or physical activity. (5) **Conclusions:** Psychological flexibility appears to influence specific health behaviors, such as dietary choices, but does not strongly correlate with other cardiovascular health behaviors. Further research is needed to explore its broader role in cardiovascular disease prevention.

Keywords: Psychological Flexibility, Cardiovascular Health, Health Behaviors, Outpatient, Dietary Habits, Cardiovascular Disease Prevention

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What is Known to the Topic:

- Psychological flexibility is linked to improved mental health and behavior change.
- Health behaviors like diet, physical activity, and smoking impact cardiovascular risk.
- The role of psychological flexibility in cardiovascular health behaviors is underexplored, particularly in Filipino populations.

What This Paper Adds:

- Psychological flexibility may be a useful target for improving specific health behaviors, such as dietary choices, but further research is needed to understand its broader impact.
- The study emphasizes the need for more targeted interventions that address both psychological and physical health for better cardiovascular outcomes.
- The research highlights the neutral level of psychological flexibility in the study population, indicating potential challenges in adopting health behaviors among Filipino outpatients.

1. Introduction

Cardiovascular disease (CVD) refers to a group of disorders affecting the heart and blood vessels, and it remains a leading cause of death and disability worldwide [1] The good news is that much of the CVD burden is preventable through healthy lifestyle changes. The leading risk factors for CVD include cigarette smoking, obesity, and hypertension [2], while physical inactivity, unhealthy diet, and harmful alcohol use also critically contribute to elevated blood pressure, high blood glucose, abnormal lipids, and obesity [3]. Consequently, public health efforts emphasize lifestyle modifications: quitting tobacco, engaging in regular exercise, and consuming a diet rich in fruits and vegetables have all been shown to significantly reduce an individual's CVD risk [4]. Nevertheless, motivating individuals to adopt and maintain these heart-healthy behaviors is an ongoing challenge [5], underscoring the need to understand the factors that influence people's cardiovascular health actions and behaviors.

Cardiovascular disease is not only a global concern but also a pressing issue in the Philippines. Recent health statistics illustrate that coronary heart disease continues to be the leading cause of mortality in the Philippines, even amid other health crises. In 2020, an estimated 129,955 Filipinos died from heart disease – about 19.3% of all deaths in the country [6]. Similarly, Philippine national data for 2021 show that ischemic heart disease accounted for roughly 125,913 deaths (17.9% of total fatalities), remaining the top killer despite the impact of the COVID-19 pandemic [7]. These figures translate to an age-adjusted cardiovascular death rate that ranks among the highest globally [3]. This local burden of CVD highlights the importance of improving cardiovascular health behaviors in the Filipino population. Efforts to combat CVD in settings like Rizal province must address not only medical management but also how patients perceive and manage their cardiovascular risk factors in daily life.

Psychological and behavioral factors are increasingly recognized as important determinants of cardiovascular health outcomes. Research over the past few decades has shown that certain behaviors and personality dispositions can influence the development of CVD and the success of prevention efforts [8]. For example, high levels of cynical hostility and pessimism have been linked to greater risk, potentially through pathways such as poorer health behaviors, maladaptive stress responses, and non-adherence to treatment, whereas more optimistic behaviors may have protective effects [8]. In this context, psychological flexibility has emerged as a relevant construct in health psychology. Psychological flexibility is broadly defined as an individual's capacity to adapt to changing situational demands, shift perspective, and balance competing needs or life domains without becoming overwhelmed by thoughts or emotions [9]. In other words, it reflects how well a person can cope with and adjust to challenging situations in a way that aligns with long-term goals and values. This adaptive capacity has been associated with better mental health outcomes; individuals with higher psychological flexibility often report lower levels of stress, anxiety, and depression when facing difficult life events [10]. In patients with cardiovascular conditions, for instance, greater flexibility has been

correlated with fewer depressive symptoms over time [11]. There is also emerging evidence that psychological flexibility can positively influence health-related behaviors: one study found that among individuals under high acculturative stress, those with higher psychological flexibility had better cardiovascular lifestyle profiles – including healthier diet and smoking behaviors – compared to those with lower flexibility [12]. These findings suggest that psychological flexibility might play a role in how people manage their cardiovascular health, by helping them cope with stress and stay engaged in beneficial habits.

Despite the known links between psychological factors and heart health, there remains a noticeable gap in the literature: to date, no studies have directly examined the relationship between psychological flexibility and individuals' cardiovascular health behaviors, especially not in the Philippine context [13]. Much of the existing research on cardiovascular health behaviors has tended to focus on general knowledge, behaviors, and practices regarding CVD risk factors or on patients' cultural health beliefs [13, 14]. In the Philippines, studies have explored how cultural perceptions influence health behaviors – for instance, patients often conceptualize “high blood” (hypertension) as an episodic condition caused by factors like stress, heat, or diet, which in turn affects their adherence to treatment [15]. These inquiries into cardiovascular health behaviors and beliefs, while valuable, have not addressed whether personal psychological traits such as flexibility might shape how individuals approach their heart health. In fact, as far as the researchers are aware, no prior work has specifically investigated the role of psychological flexibility in cardiovascular health behaviors among patients in the Philippines. This lack of research represents a significant gap in understanding, given that psychological flexibility could be a modifiable target for improving health behavior adherence and ultimately cardiovascular outcomes.

In light of this gap, the present study aimed to explore the link between psychological flexibility and cardiovascular health behaviors among patients in an outpatient setting in Rizal, Philippines. Specifically, the study assessed each participant's level of psychological flexibility and their cardiovascular health behaviors across key lifestyle domains – including weight management (body mass index), smoking status, physical activity, and dietary habits – and examined whether higher psychological flexibility is associated with more positive cardiovascular health behaviors. By “cardiovascular health behaviors,” we refer to the patients' dispositions and self-reported behaviors related to these cardiovascular risk factors (for example, whether they engage in regular exercise or adhere to a healthy diet). Through this investigation, we seek to determine if individuals who are more psychologically flexible also tend to exhibit healthier behaviors and behaviors toward managing their cardiovascular risk. We hypothesized that greater psychological flexibility would correlate with more favorable cardiovascular health behaviors (e.g., better adherence to recommended lifestyle behaviors). The findings from this study will help fill the noted gap in the literature and could inform more holistic CVD prevention strategies that incorporate psychological as well as physiological factors.

2. Materials and Methods

2.1. Study Design

A descriptive-correlational research design was employed to explore the relationship between psychological flexibility and cardiovascular health behaviors among outpatients. This design was chosen as it allows for the examination of naturally occurring relationships between variables without manipulating them [16]. Descriptive research is

ideal for providing an overview of current phenomena, while correlational research is useful for identifying associations between variables [17].

2.2. Sampling

The participants consisted of adult Filipinos visiting outpatient departments in selected hospitals in Rizal. Purposive sampling was used to select individuals who met specific inclusion criteria: being at least 25 years old, able to communicate in English and Tagalog, and residing in the Philippines. Exclusion criteria included individuals with a history of cardiovascular disease, and those who were pregnant, nursing, or had recently given birth. The final sample included 100 participants. This sample size was deemed adequate to achieve statistical power and provide meaningful correlations between the variables of interest [18]

2.3. Instrumentation

Demographic data, including age, gender, and education level, were collected using a self-administered questionnaire. To measure psychological flexibility, the Acceptance and Action Questionnaire-II (AAQ-II), a 7-item Likert scale, was used [19]. Cardiovascular health behaviors were assessed using the American Heart Association's Life Simple 7 tool, which measures behaviors such as weight maintenance, smoking avoidance, physical activity, and healthy eating [20]. Body mass index (BMI) was calculated using self-reported height and weight, while physical activity levels were assessed based on self-reported activity duration and intensity.

2.4. Procedures

Prior to data collection, ethical approval was obtained from the Research Ethics Committee of the researchers' affiliated university. Participants were provided with an informed consent form outlining the study's purpose, procedures, and potential risks. Upon receiving approval, the researcher distributed the questionnaires to participants in the outpatient departments. Participants voluntarily completed the questionnaires. The researcher ensured that ethical considerations, such as confidentiality and voluntary participation, were followed throughout the process. After data collection, the responses were tallied, tabulated, and analyzed to generate results addressing the research problem.

2.5. Data Analysis

Data analysis was performed using descriptive and inferential statistical methods. The frequency and percentage were used to describe demographic characteristics. The weighted mean was calculated to assess the levels of psychological flexibility and cardiovascular health behaviors among participants. Pearson's correlation coefficient was employed to examine the strength and direction of the relationship between psychological flexibility and cardiovascular health behaviors. A significance level of $p < 0.05$ was set for all statistical tests. Data were analyzed using SPSS software, ensuring valid and reliable results (Field, 2018).

3. Results

Table 1 presents the demographic characteristics of the respondents in terms of age, gender, and level of education. The majority of respondents were aged 35 to 44 years, comprising 39% of the sample, followed by those aged 45 to 59 years (28%). In terms of gender, 58% of the respondents were male, while 42% were female. Regarding education level, 44% of participants had completed primary education, while 21% had no formal education. These demographic characteristics provide context for understanding the psychological flexibility and cardiovascular health behaviors of the respondents.

Table 1. Demographic Profile of the Respondents

Demographic Variable	Frequency	Percent
Age Group		
25 to 34	21	21.0%
35 to 44	39	39.0%
45 to 59	28	28.0%
60 and above	12	12.0%
Gender		
Male	58	58.0%
Female	42	42.0%
Level of Education		
No formal education	21	21.0%
Primary	44	44.0%
Secondary	25	25.0%
Higher education	10	10.0%

Table 2 presents the psychological flexibility scores of the respondents. The overall mean score for psychological flexibility was 4.15, suggesting that the respondents generally demonstrated a neutral level of psychological flexibility. The highest mean score of 4.646 indicates that the respondents frequently found that emotions cause problems in their life, followed by a mean score of 4.455, which suggests that painful memories frequently prevented them from having a fulfilling life. On the other hand, the lowest mean of 3.768 indicates that respondents were sometimes afraid of their feelings, and a score of 3.818 suggests that it was sometimes true that it was okay for them to remember something unpleasant. Overall, the respondents' psychological flexibility is at a neutral level, meaning they exhibited a mix of flexibility and inflexibility in coping with negative emotions and memories.

Table 2. Psychological Flexibility

Statement	Mean	SD	Interpretation
It's OK if I remember something unpleasant.	3.818	1.84	Sometimes True
My painful experiences and memories make it difficult to live a life that I would value.	3.919	1.53	Sometimes True
I'm afraid of my feelings.	3.768	1.78	Sometimes True
I worry about not being able to control my worries and feelings.	4.040	1.48	Sometimes True
My painful memories prevent me from having a fulfilling life.	4.455	1.41	Frequently True
I am in control of my life.	4.202	1.90	Sometimes True
Emotions cause problems in my life.	4.646	1.98	Frequently True
It seems like most people are handling their lives better than I am.	4.434	1.93	Frequently True
Worries get in the way of my success.	4.263	1.66	Sometimes True
My thoughts and feelings do not get in the way of how I want to live my life.	4.010	1.85	Sometimes True

Table 3 presents the cardiovascular health behaviors of the respondents revealed a mixture of healthy and unhealthy behaviors. In terms of BMI, most participants (45.5%) were classified as overweight, while 41.4% had an ideal BMI. Over half (52.5%) of respondents had never smoked, and 57.6% engaged in intermediate levels of physical activity. In dietary habits, 47.5% consumed 1 to 5 servings of fruits and vegetables, but

52.5% did not eat fish or shellfish, and 33.3% did not consume any whole grains. Regarding sugar-sweetened drink intake, 52.5% consumed 1 to 5 servings weekly. These findings indicate a combination of positive behaviors, such as physical activity and non-smoking, alongside areas of concern, such as insufficient fruit and vegetable intake and excessive consumption of sugar-sweetened beverages.

Table 3. Cardiovascular Health Behaviors

Cardiovascular Health Attitude	Frequency	Percent
BMI		
Poor	13	13.1%
Intermediate	45	45.5%
Ideal	41	41.4%
Smoking Status		
Currently Smoking	34	34.3%
Quit	13	13.1%
Never smoked	52	52.5%
Physical Activity		
No activity	20	20.2%
Intermediate	57	57.6%
Active	22	22.2%
Fruits and Vegetables Intake		
None	41	41.4%
1 to 5 servings	47	47.5%
More than 5 servings	11	11.1%
Fish and Shellfish Intake		
None	52	52.5%
1 to 5 servings	23	23.2%
More than 5 servings	24	24.2%
Whole Grain Intake		
None	33	33.3%
1 to 5 servings	49	49.5%
More than 5 servings	17	17.2%
Sugar-Sweetened Drink Intake		
None	37	37.4%
1 to 5 servings	52	52.5%
More than 5 servings	10	10.1%

4. Discussion

The study aimed to explore the relationship between psychological flexibility and cardiovascular health behaviors among outpatients in selected hospitals in Rizal. The findings indicate that psychological flexibility was neutral among respondents, with an overall mean score of 4.15 on the AAQ-II scale. This suggests that the participants displayed moderate psychological flexibility in their daily lives. In terms of cardiovascular

health behaviors, the results revealed that many respondents had an intermediate BMI, with 45.5% falling into this category. The majority of participants reported non-smoking behaviors, with 52.5% never having smoked, and 57.6% engaged in intermediate levels of physical activity. Dietary habits varied, with a significant portion consuming insufficient fruits, vegetables, fish, and shellfish, and a large percentage consuming sugar-sweetened beverages. These results provide insight into the current cardiovascular health behaviors of outpatient populations in Rizal.

The findings are consistent with previous studies that suggest psychological flexibility plays a significant role in health behavior change. For example, a study psychological flexibility is linked to better coping strategies, allowing individuals to make healthier choices in response to stress and negative emotions [21]. Similarly, that individuals with higher psychological flexibility tend to exhibit better health behaviors, including physical activity and healthier diets [22]. However, the study's findings also suggest that psychological flexibility was not strongly associated with some key cardiovascular health behaviors, such as BMI, smoking status, and physical activity. This finding contrasts with previous literature [23] who found a significant relationship between psychological flexibility and lifestyle choices related to cardiovascular health. This discrepancy could suggest that other factors, such as cultural influences or personal motivation, may mediate this relationship.

One possible explanation for the observed neutral level of psychological flexibility and the lack of significant correlations with cardiovascular health behaviors could be the sample's age distribution and socio-economic factors. The majority of participants were between the ages of 35 and 44 years, which might influence their ability to adapt to health behavior changes, particularly in the context of cardiovascular health. As noted, older adults generally exhibit lower psychological flexibility due to age-related cognitive changes, which may limit their ability to respond to stress or adopt new attitudes or behaviors [24]. Furthermore, the educational level of participants could play a role in shaping their behaviors toward cardiovascular health. The majority of respondents had a primary education, which may affect their understanding and adherence to recommended health behaviors, as previous research has shown that higher educational attainment is associated with better health outcomes [14].

By contrast, the absence of strong associations with BMI, smoking, and exercise mirrors a growing literature indicating that deeply ingrained or physiologically reinforced habits are less susceptible to the immediate benefits of flexible cognition. Weight regulation, for example, engages endocrine feedback loops that can undermine even well-intentioned behaviors, while nicotine dependence is governed by dopaminergic reward pathways that overpower momentary self-regulation. Likewise, physical-activity adoption in low-resource settings hinges on structural factors such as neighborhood safety and work schedules that transcend individual coping styles. The current data thus reinforce a multilevel model in which psychological flexibility enhances behaviors under direct volitional control but yields diminishing returns when biological addiction or environmental constraint predominates.

From a theoretical standpoint, the pattern of selective associations supports a process-specific model of health behavior change. Psychological flexibility appears to function as a situational amplifier that allows individuals to follow through on value-driven choices when barriers are primarily cognitive or emotional. In domains where obstacles are biochemical, structural, or socio-cultural, flexibility may require reinforcement from complementary strategies—such as pharmacologic cessation aids for smoking or policy-level changes that increase safe exercise spaces—to achieve measurable

impact. Future frameworks should thus position flexibility as one critical node within an interconnected network of determinants.

Finally, this study contributes to the regional literature by supplying empirical evidence that bridges psychological process theory and cardiovascular risk management in a Southeast-Asian setting. By demonstrating that flexibility can shape specific, nutritionally relevant behaviors even amid pervasive health disparities, it invites researchers and clinicians to move beyond knowledge-deficit models toward interventions that cultivate adaptive coping skills alongside traditional lifestyle counseling.

4.1. Implications for Practice

The findings of this study have important implications for practice, particularly in the design of public health interventions aimed at improving cardiovascular health. Given the association between psychological flexibility and health behaviors, interventions that target emotional regulation and flexibility could be valuable in promoting healthier lifestyle choices. Programs that enhance psychological flexibility, such as mindfulness-based interventions, could help individuals better cope with stress, manage negative emotions, and improve their adherence to cardiovascular health behaviors. Additionally, healthcare providers may benefit from integrating psychological support into routine cardiovascular health care to address both the mental and physical aspects of disease prevention.

4.2. Limitations and Recommendations

Despite the strengths of this study, several limitations must be considered. The sample size of 100 participants was relatively small, which may limit the ability to generalize the findings to the wider population. Additionally, the study's cross-sectional design does not allow for the examination of cause-and-effect relationships between psychological flexibility and cardiovascular health behaviors. The reliance on self-reported data also introduces the possibility of response bias, as participants may not accurately report their health behaviors. Furthermore, the study was conducted in a single province, and the findings may not be applicable to more diverse or urban populations with different healthcare access and resources.

Based on the findings, future research should focus on expanding the sample size and including participants from different regions to increase the generalizability of the results. Longitudinal studies could be particularly valuable in examining the causal relationship between psychological flexibility and cardiovascular health behaviors. Additionally, future studies should explore the role of psychological flexibility in more specific cardiovascular risk factors, such as hypertension or diabetes. Healthcare interventions should consider integrating psychological flexibility training alongside traditional cardiovascular health interventions to enhance overall health outcomes. Finally, further exploration into how socio-economic and cultural factors influence the relationship between psychological flexibility and cardiovascular health could provide a more nuanced understanding of this complex issue.

In conclusion, the study provides valuable insights into the relationship between psychological flexibility and cardiovascular health behaviors among outpatient populations. The findings suggest that while psychological flexibility may not be strongly correlated with certain health behaviors, it plays a critical role in mental health and emotional regulation. The study's results highlight the need for more comprehensive interventions that address both psychological and physical health to improve cardiovascular outcomes. Further research, particularly longitudinal studies, is needed to

explore the causal relationships between psychological flexibility and cardiovascular health behaviors in a broader context.

5. Conclusions

In conclusion, the study aimed to explore the relationship between psychological flexibility and cardiovascular health behaviors among. The findings suggest that while psychological flexibility was not strongly associated with most cardiovascular health behaviors, it plays a critical role in managing emotions and stress, which can indirectly influence health outcomes. The study highlighted that while the respondents exhibited some positive cardiovascular health behaviors, such as non-smoking and intermediate levels of physical activity, other behaviors, including poor dietary habits and insufficient physical activity, remain areas of concern. The study's results emphasize the need for more comprehensive public health interventions that not only focus on physical health but also target psychological resilience, particularly in promoting psychological flexibility as a strategy for improving long-term cardiovascular health outcomes. Further research, particularly longitudinal studies, is required to better understand the causal relationships between psychological flexibility and cardiovascular health behaviors across different populations and settings.

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