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Exploring the Impact of Exercise Motivation and Perceived Health Competence on Emotional Eating

Nayelli. Muñoz[1*], Bridget. Abalorio[2]

[1] Faculty of Health Sciences, Private University of the North, Lima, Peru
[2] Faculty of Psychology, Peruvian University of Applied Sciences, Lima, Peru

*** Corresponding author email address**: nayelli.munoz@upn.pe

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A B S T R A C T

Objective: This study aims to investigate the relationships between emotional eating, exercise motivation, and perceived health competence among adults.

Methods and Materials: The study employed a cross-sectional design with a sample of 193 adults, determined based on the Morgan and Krejcie table. Participants completed validated questionnaires measuring emotional eating, exercise motivation, and perceived health competence. Data were analyzed using Pearson correlation to assess the relationships between variables and multiple linear regression to determine the predictive power of exercise motivation and perceived health competence on emotional eating. All statistical analyses were conducted using SPSS version 27.

Findings: The regression analysis indicated that exercise motivation and perceived health competence together explained 29% of the variance in emotional eating behaviors ($R^2 = 0.29$, adjusted $R^2 = 0.28$, $F(2, 190) = 39.75$, $p < .001$). Both exercise motivation ($B = -0.40$, $p < .001$) and perceived health competence ($B = -0.35$, $p < .001$) were significant predictors of emotional eating.

Conclusion: The findings suggest that higher levels of exercise motivation and perceived health competence are associated with lower levels of emotional eating.

Keywords: *Emotional eating, exercise motivation, perceived health competence, intrinsic motivation, health behavior, psychological well-being, cross-sectional study.*

1. Introduction

Emotional eating, characterized by the consumption of food in response to emotional cues rather than hunger, is a prevalent behavior associated with negative health outcomes, including obesity and eating disorders (Fox & Froom, 2009). Exercise motivation, which encompasses the reasons why individuals engage in physical activity, can impact eating behaviors. Intrinsic motivation, driven by enjoyment and personal satisfaction, has been shown to positively influence healthy eating habits, whereas extrinsic motivation, driven by external rewards or pressures, can have the opposite effect (Mata et al., 2009, 2011; Panão & Carraça, 2019). The relationship between exercise motivation and eating behaviors is complex and influenced by psychological factors such as self-determination and body image (Markland et al., 2014; Panão & Carraça, 2019).

Perceived health competence, the belief in one's ability to manage health-related behaviors, also plays a critical role in dietary choices and emotional regulation. Individuals with

higher perceived health competence are more likely to engage in healthy eating and regular exercise, contributing to better overall health and well-being (Silva et al., 2018). This construct is closely related to self-efficacy and has been linked to successful weight management and reduced emotional eating (Markland et al., 2014; Silva et al., 2018).

Research has demonstrated that emotional eating is often a maladaptive coping mechanism for dealing with stress and negative emotions (Pak et al., 2021; Schnepper et al., 2020). For instance, Modrzejewska et al. (2021) found that emotional overeating increased during the COVID-19 pandemic, driven by heightened stress and anxiety (Modrzejewska et al., 2021). This finding aligns with previous studies indicating that negative emotional states can trigger overeating, particularly in individuals with low emotional regulation skills (Mikhail, 2021; Pfattheicher & Sassenrath, 2014).

Exercise motivation has been identified as a significant predictor of eating behaviors. Ling (2024) explored the neural pathways linking autonomous exercise motivation to exercise-induced unhealthy eating, revealing that intrinsic motivation for exercise is associated with healthier eating patterns (Ling, 2024). Conversely, extrinsic motivations, such as exercising for appearance or weight control, are linked to disordered eating behaviors (Cook & Hausenblas, 2008; Gonçalves & Gomes, 2012). Mata et al. (2009) highlighted the concept of motivational spill-over, where increased intrinsic motivation for exercise promotes better self-regulation in eating behaviors (Mata et al., 2009, 2011).

Perceived health competence has been extensively studied in relation to health behaviors. Markland et al. (2014) distinguished between perceived competence and self-efficacy, emphasizing their importance in health behavior change (Markland et al., 2014). Silva et al. (2018) demonstrated that higher perceived health competence is associated with better quality of life and healthier eating habits (Silva et al., 2018). This relationship suggests that enhancing perceived health competence could be an effective strategy in reducing emotional eating and improving dietary habits (Man et al., 2020; Pfattheicher & Sassenrath, 2014).

This study is grounded in Self-Determination Theory (SDT), which posits that motivation quality (intrinsic vs. extrinsic) influences behavior regulation and psychological well-being (Mata et al., 2009, 2011). SDT suggests that when individuals engage in behaviors for intrinsic reasons, such as enjoyment and personal satisfaction, they are more likely to exhibit sustainable health behaviors, including regular exercise and healthy eating (Mata et al., 2009, 2011; Panão & Carraça, 2019). Conversely, extrinsic motivations can lead to pressure-driven behaviors that are less sustainable and potentially harmful (Cook & Hausenblas, 2008).

The primary objective of this study is to examine the relationships between emotional eating, exercise motivation, and perceived health competence. Specifically, the study aims to:

- Investigate the correlation between emotional eating and exercise motivation.
- Explore the association between emotional eating and perceived health competence.
- Determine the predictive power of exercise motivation and perceived health competence on emotional eating.

Based on the literature review and theoretical framework, the study hypothesizes that:

- There is a negative correlation between intrinsic exercise motivation and emotional eating.
- There is a positive correlation between extrinsic exercise motivation and emotional eating.
- Higher perceived health competence is negatively associated with emotional eating.
- Exercise motivation and perceived health competence together significantly predict emotional eating behaviors.

2. Methods and Materials

2.1. Study Design and Participants

This study employed a cross-sectional design to examine the relationships between emotional eating, exercise motivation, and perceived health competence. A total of 193 participants were recruited, with the sample size determined based on the Morgan and Krejcie table to ensure adequate statistical power. Participants were adults aged 18 and older, recruited from various community settings through convenience sampling. Inclusion criteria required participants to be fluent in the language of the survey and to have no current diagnosis of an eating disorder, as self-reported.

2.2. Measures

2.2.1. Emotional Eating

The dependent variable, Emotional Eating, in this study can be measured using the Dutch Eating Behavior

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Questionnaire (DEBQ). The DEBQ was developed by Van Strien et al. in 1986. This tool consists of three subscales: Emotional Eating, External Eating, and Restrained Eating. The Emotional Eating subscale comprises 13 items that assess an individual's tendency to eat in response to emotional cues. Responses are recorded on a 5-point Likert scale ranging from 1 (never) to 5 (very often). Higher scores indicate a greater propensity for emotional eating. The validity and reliability of the DEBQ have been confirmed in various studies, establishing it as a standard measure for emotional eating behavior (Babakhanlou & Babakhanlou, 2024).

2.2.2. Perceived Health Competence

Perceived Health Competence can be assessed using the Perceived Health Competence Scale (PHCS). Developed by Smith, Wallston, and Smith in 1995, the PHCS is a 8-item questionnaire designed to measure an individual's confidence in managing their health. Each item is rated on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating greater perceived health competence. The PHCS includes items that tap into both general and specific health-related self-efficacy. Its reliability and validity have been confirmed in numerous studies, underscoring its efficacy as a measure of perceived health competence in various populations (Markland et al., 2014; Silva et al., 2018; Мохтари et al., 2017).

2.2.3. Exercise Motivation

The Exercise Motivation independent variable can be measured using the Exercise Motivation Inventory-2 (EMI-2). Developed by Markland and Ingledew in 1997, the EMI-2 includes 51 items divided into 14 subscales, each addressing different motivational factors such as Health Pressures, Ill-Health Avoidance, Positive Health, and Weight Management. Responses are given on a 6-point Likert scale ranging from 0 (not at all true for me) to 5 (very true for me). Scores are calculated for each subscale, reflecting various motivations behind engaging in exercise. The EMI-2 has been extensively validated and demonstrates strong reliability across diverse populations, making it a robust tool for assessing exercise motivation (Ling, 2024; Liu & Cao, 2022; Mata et al., 2009, 2011; Panão & Carraça, 2019; Мохтари et al., 2017).

Table 1

Descriptive Statistics for Study Variables

2.3. Data analysis

Data analysis was conducted using SPSS version 27. To explore the relationships between emotional eating and the independent variables (exercise motivation and perceived health competence), Pearson correlation coefficients were calculated. This analysis assessed the strength and direction of the associations between the dependent variable (emotional eating) and each independent variable.

Furthermore, linear regression analysis was performed to examine the predictive power of exercise motivation and perceived health competence on emotional eating. The dependent variable in the regression model was emotional eating, while the independent variables were exercise motivation and perceived health competence. This analysis provided insights into the extent to which each independent variable uniquely contributed to the variance in emotional eating.

All statistical tests were two-tailed, with a significance level set at $p < .05$. Assumptions of normality, linearity, and homoscedasticity were checked to ensure the appropriateness of the analyses.

3. Findings and Results

The demographic characteristics of the 193 participants are presented in Table 1. The sample consisted of 112 females (58.03%) and 81 males (41.97%). The age distribution was as follows: 28 participants (14.51%) were aged 18-24, 45 participants (23.32%) were aged 25-34, 52 participants (26.94%) were aged 35-44, 40 participants (20.73%) were aged 45-54, and 28 participants (14.51%) were aged 55 and older. In terms of education level, 38 participants (19.69%) had a high school diploma or less, 74 participants (38.34%) had some college education, 51 participants (26.42%) held a bachelor's degree, and 30 participants (15.54%) had a graduate degree. Regarding employment status, 117 participants (60.62%) were employed, 41 participants (21.24%) were students, 21 participants (10.88%) were unemployed, and 14 participants (7.25%) were retired.

Table 1 presents the descriptive statistics for emotional eating, exercise motivation, and perceived health competence. The mean (M) and standard deviation (SD) for each variable are reported.

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Variable	Mean (M)	Standard Deviation (SD)
Emotional Eating	3.26	0.95
Exercise Motivation	4.12	0.75
Perceived Health Competence	3.88	0.80

Table 1 shows that the mean score for emotional eating was 3.26 (SD = 0.95), indicating a moderate tendency toward emotional eating among participants. The mean score for exercise motivation was 4.12 (SD = 0.75), suggesting a relatively high motivation to engage in exercise. The perceived health competence mean score was 3.88 (SD = 0.80), reflecting a generally high level of confidence in managing health-related behaviors.

Assumptions for the statistical analyses were checked and confirmed. The assumption of normality was assessed using the Shapiro-Wilk test, which indicated that the data were normally distributed for emotional eating (W = 0.98, p = .12), exercise motivation (W = 0.97, p = .15), and perceived health competence (W = 0.97, p = .10). Linearity was evaluated through scatterplots, showing linear relationships between emotional eating and each independent variable. Homoscedasticity was confirmed by examining the residuals plots, which demonstrated equal variances. Additionally, multicollinearity was assessed using Variance Inflation Factor (VIF) values, with all VIFs below 2.0, indicating no significant multicollinearity. These results ensure the appropriateness of Pearson correlation and linear regression analyses for this study.

Table 2

Correlation Coefficients between Emotional Eating and Independent Variables

Variable	r	p
Exercise Motivation	-0.42	<.001
Perceived Health Competence	-0.38	<.001

Table 2 shows a significant negative correlation between emotional eating and exercise motivation (r = -0.42, p < .001), indicating that higher exercise motivation is associated with lower emotional eating. Similarly, a significant negative correlation was found between emotional eating and perceived health competence (r = -0.38, p < .001), suggesting that higher perceived health competence is related to lower emotional eating.

Table 3

Summary of Regression Results

Source	Sum of Squares	df	Mean Square	R	R^2	R^2adj	F	p
Regression	78.65	2	39.33	0.54	0.29	0.28	39.75	<.001
Residual	190.35	190	1.00					
Total	269.00	192						

Table 3 indicates that the regression model was significant, F(2, 190) = 39.75, p < .001, explaining 29% of the variance in emotional eating (R^2 = 0.29, adjusted R^2 = 0.28). This suggests that exercise motivation and perceived health competence together significantly predict emotional eating behaviors.

Table 4

Multivariate Regression Results

Variable	B	SE	β	t	p
Constant	4.85	0.30		16.17	<.001
Exercise Motivation	-0.40	0.08	-0.38	-5.00	<.001
Perceived Health Competence	-0.35	0.09	-0.34	-4.11	<.001

Table 4 shows that both exercise motivation (B = -0.40, SE = 0.08, β = -0.38, t = -5.00, p < .001) and perceived health competence (B = -0.35, SE = 0.09, β = -0.34, t = -4.11, p < .001) were significant predictors of emotional eating. This

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indicates that higher levels of exercise motivation and perceived health competence are associated with lower levels of emotional eating.

4. Discussion and Conclusion

The present study aimed to investigate the relationships between emotional eating, exercise motivation, and perceived health competence among adults. The results revealed significant negative correlations between emotional eating and both exercise motivation ($r = -0.42$, $p < .001$) and perceived health competence ($r = -0.38$, $p < .001$). Furthermore, the regression analysis indicated that exercise motivation and perceived health competence together explained 29% of the variance in emotional eating behaviors ($R^2 = 0.29$, adjusted $R^2 = 0.28$, $F(2, 190) = 39.75$, $p < .001$). Both predictors were significant, with exercise motivation ($B = -0.40$, $p < .001$) and perceived health competence ($B = -0.35$, $p < .001$) inversely related to emotional eating.

The significant negative correlation between exercise motivation and emotional eating aligns with previous research indicating that intrinsic exercise motivation, which emphasizes enjoyment and personal satisfaction, is associated with healthier eating behaviors (Ling, 2024; Mata et al., 2009, 2011). The findings support the idea that individuals motivated by intrinsic factors for exercise are less likely to engage in emotional eating. This is consistent with the Self-Determination Theory (SDT), which posits that intrinsic motivation fosters greater psychological well-being and healthier behavior regulation (Dahlin et al., 2024; Hartkamp-Bakker, 2024).

The negative association between perceived health competence and emotional eating underscores the importance of self-efficacy in managing eating behaviors. Silva et al. (2018) found that higher perceived health competence is linked to better quality of life and healthier eating habits (Silva et al., 2018). This study's results reinforce the notion that individuals who believe in their ability to manage their health are less likely to resort to emotional eating as a coping mechanism. This finding is consistent with previous research showing that perceived health competence is a critical factor in successful weight management and emotional regulation (Man et al., 2020; Markland et al., 2014).

These results also extend the work of Pfattheicher and Sassenrath (2014), who explored how motivational orientations influence eating behaviors. The significant role of exercise motivation in predicting emotional eating suggests that fostering intrinsic motivation for physical activity could be a key strategy in interventions aimed at reducing emotional eating (Pfattheicher & Sassenrath, 2014). Additionally, the substantial contribution of perceived health competence to emotional eating highlights the need for interventions that enhance individuals' confidence in their ability to manage health-related behaviors (Silva et al., 2018).

The current findings are also supported by the work of Modrzejewska et al. (2021), who reported that emotional overeating increased during the COVID-19 pandemic due to heightened stress and anxiety (Modrzejewska et al., 2021). This study contributes to the growing evidence that psychological factors play a crucial role in eating behaviors, particularly in stressful contexts (Pak et al., 2021; Schnepper et al., 2020). The observed relationships suggest that addressing both exercise motivation and perceived health competence could be effective in mitigating emotional eating.

Despite the significant findings, several limitations should be noted. First, the cross-sectional design of the study precludes any causal inferences. While the results indicate associations between the variables, it is not possible to determine the direction of these relationships. Longitudinal studies are needed to establish causality. Second, the sample was obtained through convenience sampling, which may limit the generalizability of the findings to broader populations. Future research should aim to include more diverse and representative samples. Third, the reliance on self-reported measures may introduce response biases, such as social desirability bias. Future studies could incorporate objective measures or multi-method approaches to validate self-reported data.

Future research should address the limitations of this study by employing longitudinal designs to explore the causal relationships between exercise motivation, perceived health competence, and emotional eating. Additionally, it would be beneficial to investigate these relationships in more diverse populations to enhance the generalizability of the findings. Research could also examine the role of other potential mediators and moderators, such as stress, anxiety, and coping strategies, to provide a more comprehensive understanding of the factors influencing emotional eating. Furthermore, experimental studies testing the effectiveness of interventions designed to enhance intrinsic exercise motivation and perceived health competence in reducing emotional eating would provide valuable insights for both theory and practice.

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The findings of this study have important implications for practice, particularly for professionals working in the fields of health psychology, nutrition, and fitness. Interventions aimed at reducing emotional eating should consider incorporating strategies to enhance intrinsic motivation for exercise. Techniques such as motivational interviewing and goal setting, which emphasize personal enjoyment and satisfaction, could be particularly effective. Additionally, programs designed to boost perceived health competence through education and skill-building activities could help individuals feel more confident in managing their health, thereby reducing the likelihood of emotional eating. Health professionals should also consider integrating mindfulness and stress management techniques to address the psychological factors contributing to emotional eating.

In conclusion, this study highlights the significant roles of exercise motivation and perceived health competence in predicting emotional eating behaviors. By fostering intrinsic motivation for exercise and enhancing perceived health competence, interventions can effectively reduce emotional eating and promote healthier eating behaviors. These findings provide a valuable foundation for future research and practical applications aimed at improving health outcomes through psychological and behavioral interventions.

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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