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ORIGINAL RESEARCH

Association of Emotion Regulation, Self-Efficacy, and Health-Related Readiness to Change Among Patients with Chronic Conditions

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Background: Effective management of chronic conditions requires an understanding of psychological factors, particularly emotion regulation and self-efficacy, that influence patients' readiness to change. This study examined factors associated with health-related readiness to change among individuals with chronic conditions.

Patients and Methods: This cross-sectional study included 426 participants attending primary healthcare centers in Saudi Arabia. Data were collected using the Emotion Regulation Questionnaire-Short Form, General Self-Efficacy Scale, and Readiness-to-Change Scale. Bivariate and multivariate analyses were conducted using SPSS, with readiness to change specified as the primary outcome variable.

Results: Emotion regulation was positively associated with self-efficacy ($r = 0.381$, $p < 0.001$). Significant differences in emotion regulation were observed across living areas ($p = 0.021$) and physical activity levels ($p < 0.001$). Self-efficacy varied significantly across marital status ($p = 0.009$) and physical activity ($p < 0.001$). Readiness to change also differed across marital status ($p < 0.001$) and physical activity ($p < 0.001$). In regression analysis, physical activity emerged as the only variable significantly associated with readiness to change ($\beta = 0.124$, $p = 0.013$).

Conclusion: Among the examined factors, physical activity shows the strongest and most consistent association with readiness to change health-related behaviors. Emotion regulation and self-efficacy are also associated with behavioral readiness. These findings underscore the importance of promoting physical activity alongside psychological support to enhance readiness for behavior change in individuals with chronic conditions.

Keywords: self-efficacy, emotion regulation, lifestyle modification, chronic disease management, patient motivation, primary healthcare

Introduction

The growing prevalence of chronic conditions such as diabetes, heart disease, respiratory illnesses, and cancer presents a serious global health challenge.[1] These conditions impact not only physical health but also daily routines and overall lifestyle.[2] Chronic conditions represent a growing universal health issue, making effective self-care essential for improving health outcomes and sustaining long-term regulation. Management of these conditions often requires long-term changes in behavior, such as specific diets, exercise, and medication regimens, to address ongoing medical needs.[3] Additionally, living with a chronic illness can cause emotional stress, mental health struggles, and financial pressure.[4] For some, a diagnosis may disrupt life plans, limit social activities, and interfere with personal development.[5] Understanding these effects is key to providing better support and care for those affected.

Patients with chronic conditions often have complex medical needs that require better self-care, including the ability to manage symptoms, adhere to treatment recommendations, maintain healthy behaviors, and make informed decisions to support overall well-being. Patients diagnosed with a chronic illness often experience anxiety and stress, particularly if

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they feel unsupported.[6] Additionally, the emotional burden often revolves around pain, disability, treatment side effects, reduced physical functioning, social isolation, and financial concerns,[3] all of which can have substantial psychological consequences and should be addressed alongside physical health outcomes. Patients with chronic illnesses often experience lower self-esteem owing to the severity of their impairments, requiring diverse treatment strategies to address emotional regulation.[7] Emotion regulation strategies vary in their adaptiveness. Expressive suppression, which involves inhibiting emotional expression, has been associated with poorer emotional regulation and social functioning. In contrast, cognitive reappraisal—reframing the meaning of situations to alter emotional responses—is generally linked to more adaptive psychological outcomes and greater emotional resilience. Understanding these emotion regulation processes is critical for addressing emotional challenges faced by individuals living with chronic conditions.

Beyond clinical care, effective self-management of chronic conditions depends heavily on psychological factors. Emotion regulation, self-efficacy, and readiness to change are closely related constructs that shape how individuals respond to chronic illness and engage in health-related behaviors. Emotion regulation shows how individuals manage emotional responses to illness-related stress, self-efficacy reflects individual's confidence in their ability to perform self-management behaviors, and readiness to change represents people's motivation to initiate or sustain behavioral changes. These factors are particularly important for individuals with chronic conditions, who must continually adapt emotionally while sustaining confidence and motivation to support long-term health behavior change.

Chronically ill patients may require additional communication, emotional support, educational resources, and community networks.[8] These measures could aid health literacy, boost confidence, and improve patient outcomes. Managing the complex medical needs of patients with chronic illnesses necessitates increased communication, which can support the quality of care provided.[9] Chronic diseases profoundly impact patients' independence and decision-making capacity, leading to a perceived loss of control.[10] Consequently, patients should adapt their lifestyles and adjust their thoughts and actions to cope with stressful situations and maintain their regulation.[11]

Self-efficacy which plays a vital role in the self-care of individuals with chronic conditions.[12] It empowers individuals to take an active role in their care by making informed decisions, adhering to treatment plans, and engaging in healthy behaviors that promote overall regulation.[13] Patients with chronic illnesses should adopt behaviors that effectively manage and adapt to their conditions. Health related-readiness to change is adopting new actions that support better health and disease management. Behavioral interventions that target risk factors and promote lifestyle changes can significantly improve health outcomes and quality of life.[14] Understanding the development and implementation of these interventions is crucial, as it supports their effectiveness and behavioral outcomes.[15]

In countries such as Saudi Arabia, chronic conditions constitute a major public health concern and contribute substantially to the national disease burden. The government has implemented several initiatives to address the growing burden of chronic conditions. These initiatives include promoting healthy lifestyles, increasing access to healthcare services, and offering disease management programs.[16] Furthermore, community-based programs play an important role by involving healthcare professionals, community resources, and patients with chronic diseases.[17] They offer various resources, such as education, peer support, lifestyle modification programs, and access to healthcare services.[18]

Despite these efforts, challenges persist due to factors such as a lack of awareness, resource constraints, cultural attitudes, and limited patient education, which continue to hinder effective self-care in Saudi Arabia and globally.[19] Collaborative efforts between stakeholders and patients are necessary to overcome these challenges and create a supportive environment for patients. Another issue in supporting patients' self-care for chronic illnesses is the lack of available research.[20] This gap could hinder the establishment of effective strategies needed to overcome barriers and improve self-care practices. Further, the lack of research supporting key psychological factors in chronic disease management remains a challenge. Therefore, this study aimed to examine the relationships between emotion regulation, self-efficacy, and readiness to change among individuals with chronic conditions, and to assess these relationships while controlling for relevant demographic variables. The findings would provide valuable insights that can help health care providers develop culturally sensitive interventions to better support patients and promote overall regulation.

Study Hypotheses

H1: Positive associations may exist between emotion regulation, self-efficacy, and readiness to change among individuals with chronic conditions.

H2: Demographic variables may be associated with emotion regulation, self-efficacy, and readiness to change.

H3: Emotion regulation and self-efficacy may be associated with readiness to change, while controlling for demographic variables.

Materials and Methods

Study Design and Setting

This cross-sectional study was conducted between September 2024 and February 2025 at primary healthcare centers in Saudi Arabia, which serve as the first point of contact within the country's healthcare system. These centers play a vital role in delivering accessible, community-based care and addressing a wide range of medical and psychological needs.[21] The study was conducted across several geographically diverse primary healthcare centers to enhance the representativeness of the sample. Because Arabic is the official language in Saudi Arabia, the questionnaire was translated into Arabic using a standardized forward–backward translation process to ensure linguistic accuracy and conceptual equivalence. The translated version was pilot tested in a small group of participants representative of the target population to assess clarity, cultural relevance, and comprehension prior to full-scale data collection. Feedback from the pilot phase was used to refine the items, ensure cultural relevance, and improve comprehension prior to full-scale data collection.

Data were collected through a combination of in-person and online methods. For in-person data collection, participants completed the questionnaire electronically at the healthcare centers under the supervision of a research team member, whereas online data collection was conducted via a secure web-based platform. Social media platforms were used to distribute the questionnaire link. To minimize potential duplicate responses, the survey platform restricted multiple submissions from the same device. Furthermore, a screening question at the beginning of the survey asked participants whether they had previously completed the questionnaire, allowing only those who responded "no" to proceed.

Before participation, individuals were informed about the study's purpose and assured of the confidentiality of their answers. Participation was voluntary, and no personal identifiers were collected. Informed consent was obtained implicitly, because participants were informed at the beginning of the survey that by completing the questionnaire they agreed to participate. The questionnaire was designed to be easy, user-friendly, and accessible to a wide range of participants to minimize response burden and enhance completion rates. Once the responses were collected, the researchers carefully reviewed all submitted questionnaires for completeness and accuracy before analysis and excluded responses with substantial missing data, if available.

Sampling Process

Participants were recruited using a convenience sampling approach, enabling efficient data collection from individuals readily available at the healthcare centers. This method is commonly used in healthcare research because of its practicality, especially in settings where time and resources are limited.[22] It has also been shown to be appropriate for exploratory and observational studies conducted in real-world clinical environments. Adult patients living with one or more chronic conditions were included in the study. Individuals who were unable to complete the questionnaire independently were excluded to ensure the reliability and validity of self-reported data. Furthermore, patients were excluded if they were diagnosed with mental health disorders or cognitive impairments that could interfere with their ability to understand the questionnaire or conduct an accurate self-assessment. The estimated minimum sample size was 377, with a proportion of 50%, a 95% confidence interval, and a 5% margin of error, using the Raosoft sample size calculator (http://www.raosoft.com/samplesize.html).

Instrumentation

The study assessed emotional regulation, self-efficacy, and readiness to change using three reliable survey tools: the emotion regulation questionnaire-short form (ERQ-S), general self-efficacy scale, and readiness-to-change scale.

Emotion Regulation Questionnaire-Short Form

The Emotion Regulation Questionnaire-Short form is a 6-item scale designed to measure two emotion regulation subscales: expressive suppression and cognitive reappraisal.[23] The ERQ-S was selected owing to its brevity, strong psychometric properties, and suitability for use in primary healthcare and chronic disease populations. Each subscale is scored on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree), with higher scores indicating more frequent use of the respective strategy.[23] The ERQ-S demonstrated good reliability (Cronbach's alpha = 0.88) in the present study.

General Self-Efficacy Scale

This scale, originally developed by Jerusalem and Schwarzer in 1979,[24] is a ten-item questionnaire and is widely used in psychological research to assess a person's confidence in their ability to handle difficult or unfamiliar situations. The scale focuses on how confident individuals are about their ability to manage challenges and solve problems. Scores ranged from 10 (not at all true) to 40 (exactly true), with higher scores indicate a stronger sense of self-efficacy, which has been linked to better emotional resilience, motivation, and overall psychological regulation. In our study, the scale showed strong internal consistency, with a Cronbach's alpha value of 0.90.

Readiness-to-Change Scale

The readiness to change scale is a 10-item instrument used to assess an individual's preparedness to adopt or maintain health-related behavioral changes.[25] This scale was selected because readiness to change is a central construct in chronic disease self-management, particularly for behaviors such as physical activity and lifestyle modifications. It is based on the Transtheoretical Model (TTM) developed by Prochaska and DiClemente,[26] which conceptualizes behavior change as a staged process. Scores ranged from 10 (have been maintaining this behavior) to 50 (not interested in this lifestyle behavior), with the note that scores were reverse-coded so that higher values represented greater readiness to change. This scale is often used in health-related research, such as studies on quitting smoking, starting an exercise routine, and dietary changes.[25] This helps researchers and healthcare workers understand whether someone is just thinking about making a change, getting ready to do it, or already implementing it. This knowledge enables tailored support, increasing the likelihood of successful and sustained behavior change. The scale showed Cronbach's alpha of 0.87.

Data Analysis

All analyses were performed using SPSS (version 30). First, we conducted a common method bias assessment using Harman's single-factor test to detect possible data bias, which accounted for <50% of the total variance, indicating that bias is unlikely to be a concern. Next, we examined the dataset for missing values, outliers, and normality assumptions before analysis to ensure the accuracy and validity of the statistical results. Missing data, when present, were handled using listwise deletion. Outliers were evaluated by inspecting data distribution and inspecting extreme values. Normality was assessed using the Shapiro–Wilk test, which indicated no significant deviation from normality ($p > 0.05$); no issues were detected in any of these areas.

The main analysis was performed in several steps. First, univariate analysis was conducted to examine individual variables, such as age, gender, and answers to individual questions, to obtain a general overview of the sample characteristics and variable distributions. Next, bivariate analyses, including independent samples *t*-tests, Pearson's correlations, and one-way ANOVA, were conducted to examine associations and group differences in the study variables. For the ANOVA analysis, homogeneity of variances was assessed using Levene's test, with no significant violations being detected ($p > 0.05$).

Finally, multivariate analysis (including multiple linear regression) was used to examine the associations between emotion regulation, self-efficacy, and readiness to change, while controlling for potential confounding variables. Categorical variables with three or more categories were collapsed into binary categories to ensure adequate model

stability and sufficient cell sizes. Standard regression assumptions (linearity, normality of residuals, homoscedasticity, and multicollinearity) were evaluated using residual diagnostics and summary statistics, with no violations identified. Given the exploratory and associational nature of the study, results were interpreted cautiously, emphasizing the effect sizes rather than p-values only. This approach allowed for a deeper understanding of the patterns within the data. A p-value less than the significance level (typically $p<0.05$) is considered significant.

Results

Univariate Analyses

Among the 426 participants (Table 1), the average age was 48.76 years (standard deviation (SD) = 16.91), with a range of 18 to 91 years. The majority (over 90%) were Saudi nationals, and 38.3% were women. Most participants (75.4%) were married. Regarding education, 31.7% had a bachelor's degree, while 23.0% had completed secondary school. Nearly half of the participants (45.3%) reported a monthly income below 4000 SAR, whereas 28.6% earned more than 7000 SAR.

Table 1 Sample Characteristics (N= 426)

Characteristics	Frequency	Percent (%)
Gender		
Male	163	38.3
Female	263	61.7
Nationality		
Saudi	393	92.3
Non-Saudi	33	7.7
Marital status		
Single	72	16.9
Married	321	75.4
Divorced	16	3.8
Widow (er)	17	4.0
Education level		
Less than high school	173	40.6
High school education	98	23.0
Bachelor's degree	135	31.7
Postgraduate degree	20	4.7
Income level (Saudi Riyal)		
<4000	193	45.3
4000–7000	111	26.1
>7000	122	28.6
Living area		
Rural	41	9.6
Governorate	37	8.7

(*Continued*)

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Table 1 (Continued).

Characteristics	Frequency	Percent (%)
City	348	81.7
Physical activity level		
Never	43	10.1
Once a week	38	8.9
Three times a week	193	45.3
Everyday	152	35.7
Frequent Internet use		
No	115	27.0
Yes	311	73.0

Regarding where they lived, 81.7% resided in urban areas. In terms of physical activity, the most common routine was exercising three times a week, as reported by 45.3% of the participants, while 35.7% said they exercised daily. Internet use was common, with over 70% reporting regular usage, though 27.0% reported using it only occasionally. Regarding the survey scores, the average emotional regulation score was 30.77 (SD = 6.85; range = 6–42), self-efficacy averaged 32.56 (SD = 5.56; range = 10–40), and readiness to change had a mean score of 35.36 (SD = 7.25; range = 10–50). Data were collected using an online survey distributed via a web-based link; therefore, the exact number of individuals who received or viewed the survey invitation could not be determined, and a response rate could not be calculated.

Bivariate and Multivariate Analyses

Three bivariate analyses were run to examine the relationships between key variables. First, an independent samples *t*-test was used to compare emotional regulation across groups. No significant differences in emotional regulation were observed between Saudi and non-Saudi participants (p=0.088), between men and women (p=0.217), or based on frequency of internet use (p=0.342). However, when examining self-efficacy levels, gender was the only factor with a significant difference (p=0.001), with male participants reported slightly higher confidence than females. For readiness to change, significant differences were found only with frequent internet use (p=0.002). Detailed results are provided in Table 2.

Pearson's correlation analysis was performed to explore the relationships between continuous variables. The results showed a significant positive correlation between emotional regulation and self-efficacy levels (r=0.381, p<0.001). There was also a significant negative correlation between age and readiness to change (r=−0.169, p<0.001) (Table 3). In addition, one-way analysis of variance (ANOVA) was used to examine emotional regulation across groups with three or

Table 2 Mean Differences Between Main Variables and Some Demographics

Variable Mean Differences (t-test)	Binary Categories	Emotional Wellbeing *M (SD)*		p-value	Self-Efficacy *M (SD)*		p-value	Behavioral Change *M (SD)*		p-value
Gender	Female	30.3	6.99	0.217	32.1	5.98	*0.001	35.3	7.41	0.243
	Male	31.4	6.58		33.1	4.74		35.3	7.02	
Nationality	Saudi	30.6	6.95	0.088	32.5	5.60	0.089	35.1	7.37	0.107
	Non-Saudi	32.3	5.29		32.7	5.06		37.4	5.30	
Internet use	No	29.5	6.41	0.342	32.3	4.62	0.137	33.2	5.58	*0.002
	Yes	31.2	6.96		32.6	5.87		36.1	7.64	

Note: * p<0.05.
Abbreviations: M, Mean; SD, Standard Deviation.

Table 3 Relationship Between Continuous Variables

	Age	Emotional Regulation	Self-Efficacy	Behavioral Change
Age	1			
Emotional Regulation	−0.047	1		
Self-efficacy	−0.011	*0.381	1	
Behavioral Change	*-0.169	0.032	0.024	1

Note: * p<0.05.

more categories. The analysis revealed significant differences based on living area (F [2, 425] = 3.903, p=0.021) and physical activity (F [3, 425] = 8.818, p<0.001). Self-efficacy levels also differed significantly depending on marital status (F [3, 425] = 3.910, p=0.009) and physical activity (F [3, 425] = 9.313, p<0.001). Similarly, readiness to change varied significantly by marital status (F [3, 425] = 6.307, p<0.001) and levels of physical activity (F [3, 425] = 8.890, p<0.001). Further descriptive details are presented in Table 4.

Table 4 Main Variables and Demographic Variables Using One-Way Analysis of Variance

	Variable	Categories	Mean	SD	F Value	P-value
Emotion regulation	Living area	Rural	31.24	5.76	3.903	0.021*
		Governorate	27.78	9.01		
		City	31.02	6.65		
	Marital status	Single	30.81	7.50	1.109	0.345
		Married	30.76	6.66		
		Divorced	32.93	7.44		
		Widower	28.58	6.97		
	Education	Less than high school	30.11	6.11	0.478	0.752
		High school education	30.94	7.44		
		Bachelor's degree	31.20	7.16		
		Postgraduate degree	31.50	6.93		
	Income	<4000	29.98	7.14	2.303	0.101
		4000–7000	31.39	5.68		
		>7000	31.42	7.27		
	Physical activity	Never	27.67	9.87	8.818	<0.001*
		Once a week	28.60	6.62		
		Three times a week	30.36	6.45		
		Everyday	32.68	5.79		
	Variable	Categories	Mean	SD	F Value	P-value

(*Continued*)

Table 4 (Continued).

	Variable	Categories	Mean	SD	F Value	P-value
Self-efficacy	Living area	Rural	33.58	4.51	0.773	0.462
		Governorate	32.43	6.59		
		City	32.45	5.55		
	Marital status	Single	32.31	6.04	3.910	0.009*
		Married	32.79	5.32		
		Divorced	33.56	5.35		
		Widower	28.23	6.60		
	Education	Less than high school	32.53	5.13	0.675	0.611
		High school education	32.38	6.11		
		Bachelor's degree	33.02	5.77		
		Postgraduate degree	31.00	7.54		
	Income	<4000	32.14	5.49	1.518	0.220
		4000–7000	33.29	4.15		
		>7000	32.54	6.64		
	Physical activity	Never	29.76	7.15	9.313	<0.001*
		Once a week	29.97	5.81		
		Three times a week	32.74	5.28		
		Everyday	33.76	4.84		
	Variable	Categories	Mean	SD	F Value	P-value
Behavioral change	Living area	Rural	35.19	5.91	0.321	0.726
		Governorate	36.27	7.44		
		City	35.28	7.39		
	Marital status	Single	37.23	8.08	6.307	<0.001*
		Married	35.25	6.95		
		Divorced	35.81	7.06		
		Widower	28.94	5.98		
	Education	Less than high school	34.68	6.22	2.184	0.070
		High school education	35.83	7.65		
		Bachelor's degree	36.34	8.33		
		Postgraduate degree	36.50	6.80		

(*Continued*)

Table 4 (Continued).

	Variable	Categories	Mean	SD	F Value	P-value
	Income	<4000	34.52	6.98	2.369	0.095
		4000–7000	35.90	5.19		
		>7000	36.18	9.00		
	Physical activity	Never	33.90	11.53	8.890	<0.001*
		Once a week	32.68	7.71		
		Three times a week	34.40	6.12		
		Everyday	37.64	6.33		

Note: * p < 0.05.
Abbreviation: SD, Standard Deviation.

Table 5 Regression Analysis for the Behavioral Change Variable

Model	Unstandardized Coefficients		Standardized Coefficients	t	P-value
	B	Std. Error	Beta		
(Constant)	37.733	4.447		8.485	<0.001
Age	−0.061	0.036	−0.143	−1.729	0.085
Gender	0.215	0.750	0.014	0.287	0.774
Nationality	−1.973	1.303	−0.073	−1.514	0.131
Internet use	2.027	1.254	0.124	0.124	0.107
Marital status	0.577	0.938	0.034	0.034	0.539
Education level	−1.197	1.269	−0.068	−0.943	0.346
Income level	0.916	0.795	0.063	1.152	0.250
Living area	−1.400	0.943	−0.075	−1.484	0.138
Physical activity level	2.298	0.926	0.124	2.482	*.013
Emotion wellbeing	−0.010	0.056	−0.009	−0.171	0.864
Self-efficacy	−0.023	0.069	−0.018	−0.334	0.739

Note: * p<0.05.

We conducted a multiple linear regression analysis to identify the variables associated with readiness to change within the sample. The overall model was found to be significant ($F [11, 425] = 2.740$, $p=0.002$; $R^2=0.068$). Among the various variables examined, only physical activity was significantly associated with readiness to change. It had a standardized coefficient of 0.124, with a significance value of 0.013 (see Table 5).

Discussion

This study was conducted to examine the relationships between emotional regulation, self-efficacy, and readiness to change among individuals with chronic conditions, and to assess these relationships while controlling for relevant demographic variables. Our main analyses showed that neither gender nor frequency of internet use had significant associations with emotional regulation. However, self-efficacy levels differed significantly by sex, aligning with previous research suggesting

that men often felt higher confidence and self-esteem, possibly because of cultural and social influences.[5] In addition, frequent internet use was associated with greater readiness to change, suggesting that digital engagement may play an important role in supporting behavioral change, especially for individuals with limited access to in-person healthcare services.[15]

Pearson's correlation analysis showed a positive relationship between self-efficacy and emotional regulation, indicating that people who feel emotionally well are more likely to feel confident. This finding supports earlier research linking emotional regulation with self-efficacy.[27] In contrast, the analysis revealed a significant negative relationship between age and readiness to change, suggesting that older individuals may be less likely to report higher readiness to change in bivariate analyses compared with younger adults. However, this association was attenuated after adjustment for covariates, indicating that age-related differences may partly reflect confounding by health status, lifestyle factors, or unmeasured disease characteristics. Long-standing habits may be more deeply established, and age-related factors—such as reduced behavioral flexibility or perceived barriers to change—may reduce motivation to adopt new behaviors. These interpretations should be considered as hypothesis-generating, particularly given the cross-sectional study design and lack of information on disease type and severity.

One-way ANOVA showed that emotional regulation varied significantly by place of residence, with urban residents reporting better emotional regulation than those in rural areas. This association should be interpreted cautiously, because it reflects group-level differences rather than causal effects. Although urban environments may offer greater access to healthcare services, resources, and social support, unmeasured factors—such as socioeconomic status, digital access, or differences in chronic conditions burden—may also confound this relationship.[25] These results generate hypotheses on the role of the environmental context and highlight the importance of considering environmental factors in future research and in the design and evaluation of health promotion programs, rather than as direct evidence for intervention effectiveness.

The analysis also revealed significant associations between levels of physical activity and all three key variables: emotional regulation, self-efficacy, and readiness to change. Participants who engaged in regular physical activity reported better emotional health, greater self-efficacy, and a stronger willingness to make changes. These findings are consistent with earlier research showing that physical activity is closely linked to better mental health and a greater ability to adopt healthier behaviors.[28] Marital status also had a significant association with self-efficacy levels, suggesting that social support, particularly from a spouse, plays an important role in building or strengthening self-esteem.[29] Supportive social relationships play a key role in promoting mental regulation and emotional resilience.[30]

Multiple linear regression analysis showed that the age was not retained as a significant variable of readiness to change, indicating that the negative association observed in bivariate analyses did not persist after adjusting for other covariates. In contrast, physical activity was found to be significantly associated with readiness to change. This supports previous research suggesting that physically active individuals are more likely to adopt healthier behaviors, possibly because of their positive effects on both physical and mental regulation.[25] These findings highlight the importance of including physical activity in programs aimed at improving health outcomes, especially for individuals with chronic conditions. Encouraging regular movement can be a powerful tool for supporting behavioral change and promoting long-term wellness.[23]

This study has some limitations. Because of its cross-sectional design, infer causal relationships or changes over time cannot be inferred.[31] The participants were selected through convenience sampling; therefore, the findings may not reflect the experiences of the wider population. In addition, the study focused only on patients who visited primary healthcare centers for treatment, which may have excluded people with different health behaviors or needs. Finally, because the data were derived from self-reported questionnaires, the possibility of self-reporting bias existed.

Study Implications

These findings offer preliminary, hypothesis-generating insights for education, research, and healthcare practice. In educational settings, the observed associations between physical activity and psychological variables—such as self-efficacy, emotion regulation, and readiness to change—suggest potential areas for further investigation, particularly regarding the role of health and wellness programming in schools and universities. Rather than implying causal effects, these findings indicate that promoting physical activity and emotional resilience early in life may be associated with healthier long-term behavioral patterns. Observed differences across gender and marital status highlight the need for future studies to clarify the underlying mechanisms, including how life experiences and social contexts may shape self-efficacy levels.

In clinical practice, physical activity emerges as a key tool for readiness to change, indicating its relevance as a correlate of behavioral readiness rather than intervention strategy. These results generate hypotheses regarding how physical activity, alongside environmental and social factors such as place of residence and access to support systems, may relate to readiness to change among individuals managing chronic conditions. Given the modest predictive power of the models, the findings underscore the importance of further research using longitudinal or experimental designs. Future studies could build on this work by testing targeted interventions, examining digital health environments, and assessing their differential impact across diverse and underserved communities.

Conclusion

This study highlights the associational role of psychological factors, particularly emotional regulation and self-efficacy, in relation to behavioral readiness among patients with chronic conditions. The findings indicate that emotional regulation and self-efficacy are associated with readiness to change health-related behaviors. Given the cross-sectional design and modest proportion of variance explained by the models, these results should be interpreted cautiously. Although the findings may help inform future research directions, integrating emotional health strategies and personalized support should be considered as hypotheses to be tested rather than as evidence-based intervention recommendations. Addressing barriers related to access, social support, and individual differences represents important contextual aspects for future investigation, particularly in the design and evaluation of health promotion programs. A patient-centered approach that considers psychological factors, such as emotional regulation, remains a priority for future research aimed at understanding—rather than prescribing—mechanisms underlying chronic disease self-management. Longitudinal and experimental studies are needed to determine whether, and through which mechanisms, emotional regulation causally contributes to health-related readiness to change.

Data Sharing Statement

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Ethics Approval and Consent to Participate

The institutional review boards of King Saud University (Reference #: KSU-HE-24-686; dated August 15, 2024) approved this study. Informed consent was obtained from all participants. All experiments were performed in accordance with the declaration of Helsinki.

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Disclosure

The authors declare that they have no competing interests in this work.

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