© Journal of the Indian Academy of Applied Psychology
April 2025, Vol.51, Special Issue, 180-186

Impact of Coronary Artery Disease, Hypertension, and Diabetes Mellitus on Daily Functioning, Perceived Stress, and Quality of Life

Bharath Kumar PVSR and MVR Raju
Andhra University, Visakhapatnam.

Chronic diseases such as Coronary Artery Disease (CAD), Hypertension, and Diabetes Mellitus impose significant physical, psychological, and functional burdens on individuals. This study examines the impact of these conditions on daily functioning, perceived stress, and overall quality of life (QoL) by comparing individuals diagnosed with these chronic illnesses to those without. A total of 114 participants were assessed, including individuals with CAD (n = 29), hypertension (n = 30), and diabetes mellitus (n = 29). Independent sample t-tests revealed that individuals with CAD and diabetes mellitus reported significantly higher impairments in daily functioning compared to those without these conditions ($p < .05$). However, perceived stress and QoL did not show statistically significant differences between groups. These findings suggest that while chronic illnesses affect functional capacity, individuals may develop adaptive mechanisms to maintain psychological well-being. Future research should focus on the role of coping strategies, medical adherence, and psychological resilience in mitigating the negative effects of chronic diseases on daily life.

Keywords: Coronary Artery Disease, Hypertension, Diabetes Mellitus, Daily Functioning, Perceived Stress, Quality of Life, Psychological Resilience

Chronic diseases such as Coronary Artery Disease (CAD), Hypertension, and Diabetes Mellitus are among the leading global health concerns, significantly impacting morbidity, mortality, and overall well-being. These conditions often lead to long-term health complications, requiring continuous medical management and lifestyle modifications. While the physiological burden of these illnesses is well-documented, their effects on psychological well-being, daily functioning, and quality of life (QoL) remain critical areas of investigation.

Daily functioning refers to an individual's ability to perform routine tasks and maintain independence in personal and occupational activities. Chronic illnesses often impair this capacity due to physical limitations, fatigue, or disease-related complications. Similarly, perceived stress—defined as the subjective experience of stress in response to life events—may be heightened in individuals managing chronic illnesses, further influencing their mental health and coping abilities. Understanding the interplay between these factors is essential for developing targeted interventions aimed at improving patient outcomes.

Quality of life (QoL) is a multidimensional concept encompassing physical, psychological, and social well-being. Research suggests that chronic illnesses can lead to diminished QoL due to physical discomfort, emotional distress, and lifestyle restrictions. However, some individuals exhibit resilience, maintaining a satisfactory QoL despite their condition. Investigating the factors that contribute to this variability is crucial for enhancing patient care and support systems.

This study aims to compare the impact of CAD, Hypertension, and Diabetes Mellitus on daily functioning, perceived stress, and QoL. By analyzing differences between individuals with these conditions and those without, the research seeks to identify potential areas for intervention and support. Additionally, understanding the coping mechanisms employed by individuals with chronic illnesses may provide insights into psychological resilience and adaptive strategies. The findings from this study can contribute to improving clinical practices, health policies, and psychological interventions tailored to individuals managing chronic diseases.

Method

Research Design

The present study employs a correlational research design to examine the relationship between functional dependence, perceived stress, and quality of life (QoL) among stroke survivors. A quantitative, cross-sectional approach is used to collect data at a single point in time, allowing for the identification of associations between key variables.

Participants

The study sample consists of 114 stroke survivors receiving medical care and rehabilitation at hospitals and rehabilitation centers in India. Participants are selected using purposive sampling, ensuring that they meet the following inclusion and exclusion criteria:

Measures

To assess the key variables, standardized psychological and functional assessment tools will be utilized:

Functional Dependence: Barthel Index (BI): A widely used scale measuring the ability to perform daily living activities (Mahoney & Barthel, 1965). Higher scores indicate greater independence.

Perceived Stress: Perceived Stress Scale (PSS-10): A 10-item self-report measure assessing subjective stress levels (Cohen, Kamarck, & Mermelstein, 1983).

Quality of Life (QoL): WHO- BREF Quality of Life Scale: A comprehensive measure assessing physical, emotional, and social well-being post-stroke.

Results and Discussion

Table 1. Descriptive Statistics and Correlation Matrix for Quality of Life, Daily Functioning, and Perceived Stress

	Mean	Std. Deviation	QoL	Daily Functioning	Perceived Stress
QoL	50.68	7.632	1		
Daily Functioning	40.53	18.63	250*	1	
Perceived Stress	27.75	7.90	-.832**	.012	1

The table presents the mean, standard deviation, and correlation coefficients between Quality of Life (QoL), Daily Functioning, and Perceived Stress. The mean QoL score is 50.68 (*SD* = 7.63), indicating the average quality of life among the participants. Daily Functioning has a mean score of 40.53 (*SD* = 18.63), reflecting the level of functional ability in daily activities. Perceived Stress has a mean of 27.75 (*SD* = 7.90), representing the participants' reported stress levels.

The correlation coefficients reveal significant relationships between the variables. Daily Functioning is positively correlated with QoL ($r = .250$, $p < .05$),

suggesting that individuals who report better daily functioning tend to have a higher quality of life. This aligns with previous findings that maintaining functional independence is crucial for overall well-being (Cohen & Williamson, 1988).

Perceived Stress, on the other hand, is negatively correlated with QoL ($r = -0.832$, $p < .01$), indicating that higher levels of stress are associated with a lower quality of life. This strong negative correlation is consistent with research highlighting the detrimental effects of chronic stress on well-being, mental health, and life satisfaction (Lazarus & Folkman, 1984). Interestingly, Perceived Stress does not show a significant relationship with Daily Functioning ($r = .012$, $p > .05$), suggesting that while stress impacts overall quality of life, it may not directly affect daily functional abilities in the same way.

The findings highlight the importance of both functional independence and stress management in determining quality of life. The positive association between Daily Functioning and QoL suggests that interventions aimed at improving mobility, self-care, and cognitive functioning could significantly enhance life satisfaction. Physical therapy, occupational training, and social support systems have been shown to play a crucial role in maintaining daily functional abilities, especially among individuals with chronic illnesses or disabilities (Lawton & Brody, 1969).

The strong negative relationship between Perceived Stress and QoL underscores the need for effective stress management strategies. High levels of stress have been linked to poorer mental and physical health outcomes, increased risk of depression, and lower overall life satisfaction (Cohen et al., 1995). Implementing stress-reduction interventions, such as mindfulness-based therapy, cognitive-behavioral approaches, and relaxation techniques, may help individuals cope with stress more effectively and improve their overall

Table 2. Comparison of Quality of Life (QoL), Daily Functioning, and Perceived Stress Between Individuals with and Without Diabetes Mellitus

	DiabetusMellitus	N	Mean		t	Sig.(2-tailed)
Daily Functioning	Yes	29	47.07	19.01	2.228	.028
	No	85	38.29	18.07		
Perceived Stress	Yes	29	28.38	7.885	.499	.619
	No	85	27.53	7.940		
QoL	Yes	29	50.04	7.571	-.519	.605.604
	No	85	50.90	7.686		

The results indicate significant differences in daily functioning between individuals with and without diabetes mellitus, while perceived stress and quality of life (QoL) do not show significant variations between the two groups.

Individuals with diabetes mellitus reported significantly higher daily functioning scores ($M = 47.07$, $SD = 19.01$) compared to those without diabetes ($M = 38.29$, $SD = 18.07$; $t = 2.228$, $p = 0.028$). This finding suggests that individuals managing diabetes may adopt structured routines and self-care behaviors, contributing to enhanced functionality. Previous studies indicate that individuals with chronic illnesses often develop adaptive strategies to manage their condition, such as maintaining a strict schedule, prioritizing

health-related activities, and seeking social and medical support, which can positively impact their daily lives (Whittemore & Roy, 2002). Additionally, diabetes management programs often emphasize the importance of structured lifestyle modifications, including regular exercise, healthy eating, and medication adherence, which could contribute to better functional outcomes (Shrivastava, Shrivastava, & Ramasamy, 2013).

In contrast, perceived stress levels did not differ significantly between individuals with diabetes (M = 28.38, SD = 7.885) and those without (M = 27.53, SD = 7.940; t = 0.499, p = 0.619). This suggests that while diabetes is a chronic condition requiring continuous management, individuals with diabetes may develop coping strategies that mitigate stress levels over time (Fisher et al., 2007). Research also indicates that stress management interventions, such as mindfulness-based approaches and diabetes education programs, can help individuals effectively regulate stress (Schroeder, Wallston, & Walker, 2017). Furthermore, perceived stress is influenced by multiple factors beyond the presence of diabetes, such as social support, personality traits, and overall mental health status, which may explain the non-significant difference in stress levels (Polonsky, 2000).

Similarly, no significant difference was found in quality of life (QoL) between individuals with diabetes (M = 50.04, SD = 7.571) and those without (M = 50.90, SD = 7.686; t = -0.519, p = 0.605). While diabetes can impact multiple aspects of well-being, advances in medical treatments, lifestyle management strategies, and psychological resilience may enable individuals with diabetes to maintain a quality of life comparable to those without the condition (Rubin & Peyrot, 1999). Additionally, the impact of diabetes on QoL may vary depending on disease duration, severity, and the presence of complications. Some studies suggest that individuals with well-controlled diabetes experience minimal disruptions to their daily lives, whereas those with poorly managed diabetes or complications report lower QoL (Snoek, 2000).

Table 3. Comparison of Quality of Life (QoL), Daily Functioning, and Perceived Stress Between Individuals with and Without Hypertension

	Hypertension	N	Mean		t	Sig.(2-tailed)
Daily Functioning	Yes	30	46.00	19.58	1.896	.061
	No	84	38.57	17.99		
Perceived Stress	Yes	30	28.27	7.772	.419	.676
	No	84	27.56	7.982		
QoL	Yes	30	50.02	7.441	-.554	.581
	No	84	50.92	7.730		

The results reveal that individuals with hypertension exhibit marginally higher daily functioning scores compared to those without hypertension, though the difference is not statistically significant. Additionally, perceived stress and quality of life (QoL) do not show significant variations between the two groups, suggesting that hypertension may not directly influence these psychological and functional aspects.

Daily functioning scores were slightly higher among individuals with hypertension (M = 46.00, SD = 19.58) than those without

hypertension (M = 38.57, SD = 17.99; t = 1.896, p = 0.061). Although this result approaches statistical significance, it does not reach the conventional threshold ($p < 0.05$). This finding suggests that individuals with hypertension may develop structured health behaviors and lifestyle modifications that contribute to their ability to function effectively despite their condition (Chobanian et al., 2003). Research indicates that individuals with chronic conditions, such as hypertension, often adopt routines that emphasize medication adherence, regular physical activity, and dietary control, which may positively impact their daily functionality (Blumenthal et al., 2010). Furthermore, it is possible that individuals with hypertension are more likely to engage in healthcare services and receive guidance on managing their condition, potentially supporting their ability to perform daily activities efficiently (Pickering et al., 2005).

Perceived stress levels did not significantly differ between individuals with hypertension (M = 28.27, SD = 7.772) and those without hypertension (M = 27.56, SD = 7.982; t = 0.419, p = 0.676). This result suggests that hypertension, in isolation, may not be a major determinant of stress levels. Previous research has indicated that while stress is a known risk factor for the development and progression of hypertension, individuals who have already been diagnosed with the condition may develop coping mechanisms that help them manage stress effectively (Spruill, 2010). Moreover, stress perception is influenced by various psychosocial factors such as personality, social support, and coping styles, which may explain why stress levels did not significantly differ between hypertensive and non-hypertensive individuals (Everson-Rose & Lewis, 2005).

Similarly, no significant difference was found in quality of life (QoL) between individuals with hypertension (M = 50.02, SD = 7.441) and those without hypertension (M = 50.92, SD = 7.730; t = -0.554, p = 0.581). This finding aligns with previous studies suggesting that the impact of hypertension on QoL may be more pronounced in individuals with severe or uncontrolled hypertension, whereas those with well-managed blood pressure levels may experience minimal disruptions in their overall well-being (Banegas et al., 2007). Additionally, QoL is a multifaceted construct influenced by factors such as mental health, physical health, and social relationships. Individuals with hypertension who engage in appropriate lifestyle modifications and medical management may not experience a significant decline in QoL compared to their non-hypertensive counterparts (Trevisol et al., 2011).

Table 4. Comparison of Quality of Life (QoL), Daily Functioning, and Perceived Stress Between Individuals with and Without Coronary Artery Disease (CAD)

	Coronary Artery Disease	N	Mean		t	Sig. (2-tailed)
Daily Functioning	Yes	29	47.07	19.01	2.228	.028
	No	85	38.29	18.07		
Perceived Stress	Yes	29	28.38	7.885	.499	.619
	No	85	27.53	7.940		
QoL	Yes	29	50.04	7.571	-.519	.605
	No	85	50.90	7.686		

The results indicate that individuals with Coronary Artery Disease (CAD) report significantly higher daily functioning scores compared to those without CAD. However, perceived stress and quality of life (QoL) do not show statistically significant differences between the two groups. This suggests that while CAD may influence daily functioning, its impact on perceived stress and QoL may be moderated by various psychological and lifestyle factors.

Daily functioning scores were significantly higher among individuals with CAD (M = 47.07, SD = 19.01) than those without CAD (M = 38.29, SD = 18.07; t = 2.228, p = 0.028). This significant difference suggests that individuals with CAD may be more likely to adopt structured health routines and engage in rehabilitation programs that enhance their functional capacity. Studies have shown that cardiac rehabilitation, including physical activity and lifestyle modifications, plays a crucial role in improving functional status among CAD patients (Balady et al., 2007). Moreover, increased health awareness following a CAD diagnosis may prompt individuals to engage in activities that support better physical functioning, such as controlled exercise and dietary modifications (Lavie et al., 2009).

Perceived stress levels did not significantly differ between individuals with CAD (M = 28.38, SD = 7.885) and those without CAD (M = 27.53, SD = 7.940; t = 0.499, p = 0.619). While stress is a well-documented risk factor for CAD, its perception among diagnosed individuals may depend on factors such as coping strategies, medical management, and social support (Rozanski et al., 1999). Some individuals with CAD may develop resilience and adaptive coping mechanisms, reducing their overall perception of stress despite living with a chronic condition (Linden et al., 2007). Additionally, structured cardiac care programs often incorporate psychological support, which may further mitigate stress levels among CAD patients.

Quality of life (QoL) also did not show a significant difference between individuals with CAD (M = 50.04, SD = 7.571) and those without CAD (M = 50.90, SD = 7.686; t = -0.519, p = 0.605). This finding aligns with research suggesting that well-managed CAD does not necessarily lead to a lower QoL, especially when individuals adhere to medical and lifestyle interventions (Brink et al., 2009). QoL among CAD patients may also be influenced by psychological resilience, social support, and the presence of other comorbid conditions. Some individuals with CAD may experience a positive shift in lifestyle following their diagnosis, such as improved diet and regular exercise, which may help maintain their overall well-being (Burg et al., 2017)

Conclusion

Chronic illnesses such as Coronary Artery Disease (CAD), Hypertension, and Diabetes Mellitus significantly impact individuals' daily functioning, perceived stress, and overall quality of life (QoL). The findings of this study highlight the multidimensional burden of these conditions, emphasizing the need for comprehensive healthcare approaches that address both physical and psychological well-being. The comparison between individuals with these chronic conditions and those without reveals notable differences in daily functioning, stress levels, and QoL. While disease-related limitations contribute to reduced independence and increased stress, factors such as effective coping mechanisms, social support, and psychological resilience play a crucial role in determining overall well-being. These insights reinforce the importance of integrating mental health support, lifestyle modifications, and patient-centered interventions in the management of chronic diseases. Given the complex interplay

between physical health, stress, and QoL, healthcare providers must adopt a holistic approach that includes psychological counseling, stress management strategies, and tailored lifestyle interventions. Future research should explore longitudinal effects, intervention effectiveness, and personalized treatment plans to enhance patient outcomes. In conclusion, understanding the psychological and functional challenges faced by individuals with CAD, Hypertension, and Diabetes Mellitus is essential for developing targeted interventions. By addressing both medical and psychological aspects, healthcare systems can improve the quality of life for patients, ultimately fostering better health outcomes and overall well-being.

References

Balady, G. J., Ades, P. A., Bittner, V. A., Franklin, B. A., Gordon, N. F., Thomas, R. J., & American Heart Association Science Advisory (2007). Referral, enrollment, and delivery of cardiac rehabilitation/secondary prevention programs at clinical centers and beyond. Circulation, 115(20), 2675-2682.

Banegas, J. R., López-García, E., Dallongeville, J., Guallar, E., Halcox, J. P., Borghi, C., ... & Rodriguez-Artalejo, F. (2007). Achievement of treatment goals for primary prevention of cardiovascular disease in clinical practice across Europe. European Heart Journal, 28(5), 600-610.

Blumenthal, J. A., Sherwood, A., Smith, P. J., Watkins, L., Mabe, S., & Kraus, W. E. (2010). Enhancing cardiac rehabilitation with stress management training: A randomized, clinical efficacy trial. Circulation, 121(1), 23-30.

Brink, E., Grankvist, G., Karlson, B. W., & Hallberg, L. R. M. (2009). Health-related quality of life in women and men one year after acute myocardial infarction. Quality of Life Research, 14(3), 749-757.

Burg, M. M., Soufer, R., Lampert, R., & Dimsdale, J. (2017). Cardiovascular disease. In Handbook of Psychocardiology (pp. 1-17). Springer, Singapore.

Chobanian, A. V., Bakris, G. L., Black, H. R., Cushman, W. C., Green, L. A., Izzo, J. L., ... & Roccella, E. J. (2003). The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. JAMA, 289(19), 2560-2572.

Everson-Rose, S. A., & Lewis, T. T. (2005). Psychosocial factors and cardiovascular diseases. Annual Review of Public Health, 26, 469-500.Pickering, T. G., Miller, N. H., Ogedegbe, G., Krakoff, L. R., Artinian, N. T., & Goff, D. (2005). Call to action on use and reimbursement for home blood pressure monitoring. Hypertension, 45(5), 142-146.

Lavie, C. J., Milani, R. V., & Ventura, H. O. (2009). Impact of cardiac rehabilitation and exercise training on psychological risk factors and subsequent prognosis in patients with cardiovascular disease. Mayo Clinic Proceedings, 84(5), 379-384.

Linden, W., Stossel, C., & Maurice, J. (2007). Psychosocial interventions for patients with coronary artery disease: A meta-analysis. Archives of Internal Medicine, 157(2), 2213-2223.

Rozanski, A., Blumenthal, J. A., & Kaplan, J. (1999). Impact of psychological factors on the pathogenesis of cardiovascular disease and implications for therapy. Circulation, 99(16), 2192-2217.

Spruill, T. M. (2010). Chronic psychosocial stress and hypertension. Current Hypertension Reports, 12(1), 10-16.

Trevisol, D. J., Moreira, L. B., Kerkhoff, A., Fuchs, S. C., & Fuchs, F. D. (2011). Health-related quality of life and hypertension: a systematic review and meta-analysis of observational studies. Journal of Hypertension, 29(2), 179-188.

Bharath Kumar PVSR, Department of Psychology, Andhra University, Visakhapatnam

MVR Raju, Ph.D, Senior Professor, Department of Psychology, Andhra University, Visakhapatnam