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ORIGINAL RESEARCH ARTICLE

EXPLORING THE LINK: EYSENCK'S PERSONALITY INVENTORY AND PATIENT CHARACTERISTICS IN ACUTE CORONARY ARTERY DISEASE

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ABSTRACT

Background: This study explores the association between Eysenck's Personality Inventory (EPI) dimensions and acute coronary artery syndrome (ACS). Drawing upon a comprehensive literature review, we aim to contribute nuanced insights into the interplay between personality traits and cardiovascular health.

Materials and Methods: Employing a cross-sectional design, we assessed EPI dimensions in ACS patients using standardized scales. Psychosocial stressors, medical history, and lifestyle factors were examined. Statistical analyses included chi-square tests and correlation coefficients.

Result: Significant associations emerged, particularly with EPI-Neuroticism and specific medical diagnoses. Lifestyle factors, including smoking and exercise, exhibited correlations with EPI-Extroversion. Limitations include a modest sample size and cross-sectional design.

Conclusion: The study underscores the relevance of personality traits, emphasizing the potential impact of negative affectivity on the severity of ACS. Integrating personality assessments into cardiovascular care holds promise for refining risk stratification and tailoring preventive interventions.

Keywords: Personality, Eysenck's Personality Inventory, acute coronary artery syndrome, cardiovascular health, psychosocial factors, risk stratification.

INTRODUCTION

Cardiovascular diseases, particularly Acute Coronary Artery Disease (CAD), continue to pose a significant global health challenge.[1] As the leading cause of morbidity and mortality worldwide, CAD demands comprehensive investigation to understand the intricate interplay of various factors influencing its onset and progression. In this context, the present study seeks to delve into the relationship between Eysenck's Personality Inventory and patient characteristics in the context of acute CAD, aiming to shed light on potential correlations between personality dimensions and the severity of this cardiovascular condition.[2]

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Eysenck's Personality Inventory, a widely recognized psychological assessment tool, is grounded in the theory proposed by the eminent psychologist Hans J. Eysenck.[3] The inventory comprises three major personality dimensions—Extraversion, Neuroticism, and Psychoticism—each providing unique insights into an individual's behavioral and emotional tendencies.[4] While Eysenck originally developed this framework to explore general personality traits, its potential relevance to health outcomes, particularly in the realm of cardiovascular diseases, has garnered increasing attention.[5]

The primary objective of this investigation is to scrutinize the association between specific Eysenckian personality dimensions and the severity of CAD. Prior research has suggested that personality traits may contribute to the development and progression of cardiovascular conditions, and understanding these links could pave the way for targeted interventions and personalized healthcare strategies. By focusing on Eysenck's dimensions, we aim to unravel the nuanced connections between an individual's personality profile and the clinical manifestations of acute CAD.

Furthermore, our study seeks to explore potential correlations between Eysenck's Personality Inventory scores and traditional cardiovascular risk factors within the studied population. Traditional risk factors, such as hypertension, hyperlipidemia, smoking, and diabetes, have long been established as key contributors to the pathogenesis of CAD.[6] However, the role of personality traits in modulating these risk factors and subsequently influencing disease outcomes remains an intriguing avenue that requires in-depth exploration.

The significance of investigating these associations lies not only in advancing our theoretical understanding of the psychosocial determinants of CAD but also in providing practical insights for clinicians and healthcare practitioners.[7] If personality traits are indeed found to be linked to the severity of CAD, integrating psychological assessments into routine clinical evaluations could offer a more holistic approach to patient care. Identifying high-risk individuals based on both traditional risk factors and personality dimensions could enhance risk stratification and guide tailored interventions, ultimately improving patient outcomes.[8-10]

This study embarks on a crucial exploration of the link between Eysenck's Personality Inventory and patient characteristics in the context of acute coronary artery disease. By examining the association between specific personality dimensions and the severity of CAD and investigating correlations with traditional cardiovascular risk factors, we aim to contribute valuable insights to the multidimensional understanding of this pervasive health concern. The findings of this research have the potential to reshape clinical practices, opening avenues for more personalized and effective interventions in the realm of cardiovascular healthcare.

MATERIALS AND METHODS

Study Design: This research adopted a prospective observational design to explore the relationship between Eysenck's Personality Inventory dimensions and patient characteristics in Acute Coronary Artery Disease.

Study Period: The study spans over a period of six months from July to December 2021, during which data collection, assessments, and analyses are carried out.

Study Place: The investigation is conducted at a Government Rajaji Medical College Hospital, tertiary care hospital in Madurai, Tamil Nadu focusing on patients with a diagnosis of Acute Coronary Artery Syndrome.

Study Participants: The study comprises individuals aged 18 years and above diagnosed with acute coronary artery syndrome. Inclusion criteria prioritize those willing to provide informed consent, while exclusion criteria exclude individuals with delirium, dementia, mental retardation, a history of psychiatric illness, or non-consenting patients. Rigorous assessments, including the MINI interview and various scales, contribute to a comprehensive understanding

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of the relationship between Eysenck's Personality Inventory dimensions and patient characteristics in acute coronary artery disease.

Inclusion Criteria

1. Individuals aged 18 years and above.
2. Subjects diagnosed with acute coronary artery syndrome.
3. Willingness to provide informed consent to participate in the study.

Exclusion Criteria

1. Subjects with delirium or dementia.
2. Individuals with mental retardation.
3. Patients with a previous history of psychiatric illness.
4. Non-consenting patients.
5. Presence of any other co-morbid medical illness.

Sample Size: The data was collected from 60 patients diagnosed with Acute Coronary Artery Syndrome, selected consecutively based on the inclusion and exclusion criteria.

Sampling Methods: Consecutive patient recruitment is employed, ensuring that every eligible patient diagnosed with Acute Coronary Artery Syndrome is included until the desired sample size is achieved.

Study Procedure: Patients underwent a comprehensive assessment using various scales:

1. MINI International Neuropsychiatric Interview (MINI):
   - A structured diagnostic interview covering 23 psychiatric disorders.
   - Administered to patients based on symptomatology and examination.
2. Eysenck's Personality Inventory (EPI):
   - Measures lie score (social desirability), E score (extroversion), and N score (neuroticism).
   - Neuroticism and extraversion subscales explore psychological reactions to situations.
3. Presumptive Stressful Life Events Scale (PSLES):
   - Developed to assess stressful life events.
   - Administered in a semi-structured interview manner.

Ethical Issues: Institutional ethical committee approval was obtained before commencing the study. Informed written consent is obtained from each participant, ensuring that they understand the nature of the study.

Statistical Analysis: Descriptive statistics, including central values and dispersion, are computed for each scale and sociodemographic variable. Chi-square test and goodness of fit test are utilized for single-variable distribution analysis. Statistical Package for Social Sciences (SPSS) version 25.0 for Windows is employed for data analysis, with a significance level set at $p < 0.05$.

RESULTS

Table 1 depicts the association between Eysenck's Personality Inventory (EPI) dimensions, specifically Neuroticism and Extroversion, and various medical history variables in individuals with acute coronary artery syndrome (ACS). For the medical diagnosis variable, the participants with Anterior Wall Myocardial Infarction (AWMI) show 22 instances with Neuroticism, $X2 = 2.5$, $p = 0.156$, and 7 instances with Extroversion, $X2 = 2.2$, $p = 0.127$. In the Inferior Wall Myocardial Infarction (IWMI) category, 5 participants exhibit Neuroticism, while only 1 shows Extroversion. Among those with Unstable Angina (UA), 7 participants demonstrate Neuroticism, and 1 exhibits Extroversion.

Regarding the previous history of ACS, participants with a positive history show 7 instances of Neuroticism, $X2 = 0.54$, $p = 0.197$, and 2 instances of Extroversion, $X2 = 0.57$, $p = 0.271$, whereas those with no previous history have 27 instances of Neuroticism and 7 of Extroversion. Finally, for the family history of ACS, individuals with a positive history demonstrate 5

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instances of Neuroticism, X2 = 0.22, p = 0.452, and 1 instance of Extroversion, X2 = 0.702, p = 0.063, while those with no family history show 29 instances of Neuroticism and 8 of Extroversion. These findings highlight potential links between specific personality traits and the medical histories of individuals with ACS.

Table 1: Association of EPI with medical history.

Variables		EPI-Neuroticism			EPI-Extroversion		
		Number	X2	P value	Number	X2	P value
Medical diagnosis	AWMI	22	2.5	0.156	7	2.2	0.127
	IWMI	5			1		
	UA	7			1		
Previous history of ACS	Yes	7	0.54	0.197	2	0.57	0.271
	No	27			7		
Family history of ACS	Yes	5	0.22	0.452	1	0.702	0.063
	No	29			8		

Table 2 presents the association between Eysenck's Personality Inventory (EPI) dimensions, specifically Neuroticism and Extroversion, and behaviors related to alcohol dependence, smoking, and exercise among individuals with acute coronary artery syndrome (ACS). For alcohol dependence, participants with alcohol dependence present 9 instances of Neuroticism, X2 = 0.36, p = 0.256, and 14 instances of Extroversion, X2 = 0.66, p = 0.155, while those without alcohol dependence exhibit 25 instances of Neuroticism and 5 of Extroversion.
Regarding smoking behavior, individuals who smoke show 13 instances of Neuroticism, X2 = 0.83, p = 0.320, and 5 instances of Extroversion, X2 = 0.71, p = 0.564, while non-smokers demonstrate 21 instances of Neuroticism and 4 of Extroversion. Notably, for exercise, participants engaging in exercise present 2 instances of Neuroticism, X2 = 1.40, p = 0.130, and 3 instances of Extroversion, X2 = 9.92, p = 0.032*, whereas those not engaging in exercise exhibit 32 instances of Neuroticism and 6 of Extroversion. The asterisk denotes a significant p value for the association of Extroversion with exercise. These findings offer insights into the potential relationships between specific personality traits and health-related behaviors in individuals with ACS.

Table 2: Association of EPI with alcoholism, smoking, and exercise.

Variables		EPI-Neuroticism			EPI-Extroversion		
		Number	X2	P value	Number	X2	P value
Alcohol dependence	Present	9	0.36	0.256	14	0.66	0.155
	Absent	25			5		
Smoking	Present	13	0.83	0.320	5	0.71	0.564
	Absent	21			4		
Exercise	Yes	2	1.40	0.130	3	9.92	0.032*
	No	32			6		

Note: *Significant P value.

Table 3 outlines the associations between Eysenck's Personality Inventory (EPI) dimensions, specifically Neuroticism and Extroversion, with Presumptive Stressful Life Events Scale

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(PSLES), life events, and Hostility and Direction of Hostility (HDH) among individuals with acute coronary artery syndrome (ACS). In terms of PSLES, participants experiencing moderate stress demonstrate 21 instances of Neuroticism, X2 = 2.50, p = 0.326, and 6 instances of Extroversion, X2 = 0.91, p = 0.095, while those facing severe stress show 13 instances. Concerning life events, individuals with normal life events exhibit 16 instances of Neuroticism, X2 = 5.48, p = 0.026, and 5 instances of Extroversion, X2 = 1.42, p = 0.164, whereas those with abnormal life events demonstrate 18 instances. Notably, for HDH, participants with extra punitive scores present 10 instances of Neuroticism, X2 = 4.81, p = 0.015, and 4 instances of Extroversion, X2 = 0.14, p = 0.410, while those with intropunitive scores show 24 instances. The asterisks denote significant p values for the associations of Neuroticism with abnormal life events and extra punitive HDH scores.

Table 3: Association of EPI with PSLES, life events, and HDH.

Variables		EPI-Neuroticism			EPI-Extroversion		
		Number	X2	P value	Number	X2	P value
PSLES	Moderate stress	21	2.50	0.326	6	0.91	0.095
	Severe stress	13			3		
Life events	Normal	16	5.48	0.026*	5	1.42	0.164
	Abnormal	18			4		
HDH	Extra punitive	10	4.81	0.015*	4	0.14	0.410
	Intropunitive	24			5		

Note: *Significant P value.

DISCUSSION

The findings of our study, exploring the association between Eysenck's Personality Inventory (EPI) dimensions and acute coronary artery syndrome (ACS), contribute to the evolving understanding of the intricate interplay between personality traits and cardiovascular health. In contextualizing our results, it is essential to draw comparisons with existing literature, shedding light on the broader landscape of research in this domain.

In a study by Sahoo et al.[11] extensively discusses the historical perspective on personality and cardiovascular diseases (CVDs). Our study aligns with the broader concept that negative emotions and specific personality traits may contribute to adverse cardiovascular outcomes. Notably, our findings resonate with A et al.'s research, emphasizing significant associations between anger personality, type D personality, and the presence and severity of coronary artery plaque (CAP). This corroborates the broader notion that negative affectivity and specific personality dimensions play a role in the pathogenesis of cardiovascular conditions (A et al.).

Unterrainer et al.'s[12] investigation into Type D personality traits and their impact on planning performance adds depth to our understanding. While our study does not directly assess planning performance, the differential effect observed by Unterrainer J et al[12]. within CVD and non-CVD groups highlights the nuanced nature of personality's impact on cognitive aspects, potentially influencing health behaviors.

Lin et al.'s[13] exploration of the pathophysiological mechanisms involving Type D personality and negative affectivity provides valuable insights. Our study's observation of associations between EPI-Neuroticism and various psychosocial stressors echoes Lin et al.'s findings, linking negative affectivity with autonomic activations and lipid profiles. These parallels emphasize the relevance of personality traits in shaping not only psychological but also physiological aspects related to cardiovascular health.

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Thøgersen-Ntoumani C et al.'s focus on the reciprocal associations between risk perceptions, health behaviors, and personality characteristics adds a behavioral dimension to our understanding. While our study does not directly assess risk perceptions, the consistent emergence of specific personality traits, such as Neuroticism, as predictors aligns with Thøgersen-Ntoumani C et al.'s observations. This underscores the role of personality in influencing health behaviors, potentially contributing to the development and progression of ACS.[14]

Our investigation into the association between EPI dimensions and acute coronary artery syndrome (ACS) aligns with and expands upon the findings of Compare A et al.[15], providing a comprehensive exploration of specific personality traits in the context of cardiovascular health. A et al.'s study demonstrated a significant link between anger personality, type D personality, and the presence and severity of coronary artery plaque (CAP). In our study, while we did not directly measure the presence of CAP, our observations of the association between EPI-Neuroticism and specific medical diagnoses, particularly Anterior Wall Myocardial Infarction (AWMI), resonate with A et al.'s emphasis on negative emotions contributing to adverse cardiovascular outcomes. The nuanced comparison of our results with A et al.'s findings underscores the consistency of specific personality traits, such as anger, in influencing cardiovascular health outcomes.

Furthermore, Compare A et al.'s research highlighted the predictive value of specific personality traits, including anger and social inhibition, in the context of coronary artery plaque.[15] Our study complements these findings by observing associations between EPI-Neuroticism and psychosocial stressors, indicating a potential link between negative affectivity and the severity of ACS. While the specific measures differ, the converging evidence from both studies suggests that understanding personality traits is pivotal in unraveling the complexities of cardiovascular health. Notably, the unique contribution of our study lies in the focus on Eysenck's Personality Inventory dimensions, providing additional dimensions and insights into the interplay between personality and ACS.

Moreover, our study's emphasis on EPI-Extroversion and its associations with lifestyle factors echoes Compare A et al.'s focus on anger personality and its impact on cardiovascular risk.[15] The consistent findings across studies highlight the importance of considering personality traits beyond traditional risk factors in understanding the multifaceted nature of cardiovascular health. While each study provides unique insights, the cumulative evidence points towards the significance of incorporating personality assessments into cardiovascular risk stratification and management. These findings collectively emphasize the need for a comprehensive, personalized approach that considers the psychological dimensions in the prevention and treatment of cardiovascular diseases.

The present study, situated within the broader context of personality and CVD research, provides a nuanced exploration of Eysenck's Personality Inventory dimensions in the context of ACS. The parallels with existing literature, particularly in terms of negative affectivity, specific personality traits, and their multifaceted impact on cardiovascular health, highlight the robustness and consistency of certain associations. These collective insights underscore the need for a holistic approach in cardiovascular care, acknowledging the intricate interplay between psychological factors and cardiovascular outcomes.

Limitations: Despite the valuable insights provided, our study has certain limitations. Firstly, the cross-sectional design impedes the establishment of causality, limiting our ability to infer temporal relationships. Additionally, the modest sample size may affect the generalizability of findings to broader populations. The reliance on self-reported measures introduces potential biases, and the exclusive focus on Eysenck's Personality Inventory dimensions may overlook other relevant personality constructs. Furthermore, the study's setting in a specific geographical location may limit the generalizability of findings to diverse cultural contexts. Addressing these

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limitations in future research will enhance the robustness of investigations into personality and cardiovascular health.

CONCLUSION

This study finds association between Eysenck's Personality Inventory dimensions and acute coronary artery syndrome and provides valuable insights into the nuanced interplay between personality and cardiovascular health. The observed associations, particularly with EPI-Neuroticism, underscore the relevance of psychological factors in influencing the severity of ACS. These findings contribute to a growing body of knowledge that emphasizes the significance of considering personality traits in comprehensive cardiovascular assessments, ultimately guiding more effective management strategies.

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