PSYCHOSOCIAL STRESSORS AND CARDIOVASCULAR DISEASE RISK AMONG COMMUNITY HEALTH WORKERS IN FIKA, YOBE STATE, NIGERIA

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ABSTRACT

Cardiovascular diseases (CVDs) pose a global public health concern, necessitating a comprehensive understanding of the interplay between psychosocial stressors and cardiovascular risk factors. This study aims to assess the prevalence of cardiovascular diseases and explore the relationship between psychosocial stressors and cardiovascular risk factors in community health workers in Fika, Yobe State, Nigeria. The cross-sectional survey study using a structured questionnaire was administered to community health workers in selected primary healthcare centers in Fika. Key variables, including demographic characteristics, health behaviors, and stressors, were analyzed quantitatively. The majority (99.2%) reported not diagnosed with CVD, but blood sugar-related symptoms and cardiovascular symptoms were prevalent. Notably, family-related stress and health-related stress demonstrated potential associations with moderate-risk categories. In the context of the high-risk category, family-related stress, health-related stress, and life stressors exhibited statistically significant associations. Specifically, family-related stress (OR = 4.616, p = .004), health-related stress (OR = 91.645, p < .001), and life stressors (OR = 46.269, p < .001) were identified as significant contributors to high cardiovascular risk. This study highlights the significance of recognizing and addressing psychosocial stressors in the cardiovascular health of community health workers. Insights into specific stressors contributing to higher cardiovascular risk inform targeted interventions, shaping preventive strategies tailored to this population.

Keywords: Cardiovascular diseases, psychosocial stressors, community health workers, risk factors
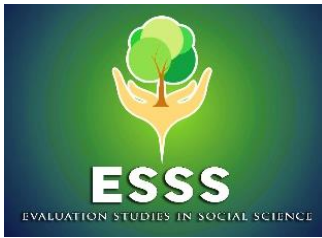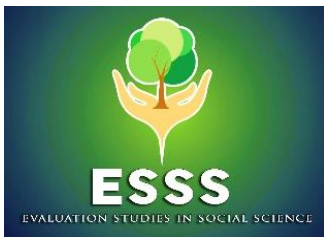
INTRODUCTION

Cardiovascular diseases (CVDs) encompass a range of disorders affecting the heart and blood vessels, contributing to a significant global health challenge with an annual toll of 17.9 million lives (Ambakederemo & Chikezie, 2018). In Nigeria, CVDs, notably hypertensive heart disease and cerebrovascular accidents, account for a substantial portion of out-of-hospital medical deaths (Olubiyi et al., 2022). Public health workers in North-Central Nigeria exhibit a generally low 10-year CVD risk, yet sudden deaths emphasize the importance of risk estimation among this population (Olubiyi et al., 2022). The burden of CVDs in Nigeria is heightened by a prevalent combination of hypertension, poverty, and an escalating incidence of prediabetes, necessitating a focus on modifiable risk factors like unhealthy eating and physical inactivity (Babatunde et al., 2020; Olubiyi et al., 2022). The World Health Organization (WHO) underscores the significance of addressing behavioral risk factors like unhealthy diet, physical inactivity, tobacco use, and harmful alcohol consumption to mitigate CVD risk (WHO, 2018). Poverty, stress, and hereditary factors are identified as underlying determinants, particularly in low- and middle-income countries like Nigeria (WHO, 2018). Psychosocial stressors, perceived threats overwhelming coping resources, independently associate with CVD based on degree, duration, and individual response (McEwen & Gianaros, 2010; Trofimiuk & Braszko, 2015). The prevalence of cardiovascular risk factors, including systolic hypertension, visceral obesity, diabetes mellitus, and smoking, is rising, contributing to the escalating CVD burden (Oladimeji et al., 2015). The poor diagnosis and management of ischemic heart disease exacerbate these challenges, emphasizing the need for comprehensive strategies and culturally suitable policies to minimize exposure to cardiovascular risk factors (Ojji & Ajayi, 2021). Understanding the association between psychosocial stressors and cardiovascular disease risk factors among community health workers in Fika, Yobe State, is crucial for developing effective preventive and management strategies. This comprehensive understanding is essential for addressing the challenges associated with CVDs and improving cardiovascular health outcomes in Nigeria. Hence, this study aims to assess the psychosocial stressors and cardiovascular disease risk factors among community health workers in fika

METHODS

Research Design and Location

This study employed a cross-sectional research design to assess the demographic characteristics, health behaviors, and stressors experienced by Community Health Workers (CHWs). The research was conducted within the dynamic and vital context of community health practitioners operating in selected primary healthcare centres situated in the Fika Local Government Area of Yobe State, Nigeria. The study focused on Fika, a local government area in Yobe State, Nigeria. This location was carefully chosen to examine health practices and challenges faced by community health professionals in this specific socio-cultural and

geographical context. Fika serves as a representative sample, offering insights into health-related issues and practices that reflect broader trends in the Nigerian healthcare system.

Sample

The primary participants in the study were community health practitioners actively engaged in healthcare delivery within the designated primary healthcare centers. Sample size of the study was determined using Leslie fisher's formula $N = \frac{z^2 pq}{d^2}$ (Pourhoseingholi et al., 2013)

for descriptive study of population less than 10000 with p as 50%, being the proportion from previous study. Z as 1.96 representing a 95% confidence interval. As a result, a total of 182 healthcare workers were recruited in this study.

Instrument

A self-administered questionnaire was used to obtain data from participating community health practitioners. Information obtained included socio-demographic characteristics, cardiovascular risk factors, cardiovascular history, blood sugar and psychosocial stressors. A significant component of the questionnaire focused on evaluating participants perceived psychological and social stressors. This involved the inclusion of Likert-scale questions and closed-ended queries designed to measure stress across various domains, including work-related stressors, daily life stressors, community or environmental stressors, financial stressors, and family stressors.

Ethics

Informed consent was obtained, and ethical approval was secured from ethics and clearance Committee of the University of Medical Science Ondo State.

Data Analysis

Descriptive statistics, including frequencies and percentages, were employed to analyze demographic data, health behaviors, and stressor prevalence among CHWs. Cross-tabulations and inferential statistics were utilized to explore relationships between variables, providing a comprehensive understanding of the study's focus. All data generated was analyzed using suitable software of special package for social statistic (SPSS Version 22.0)
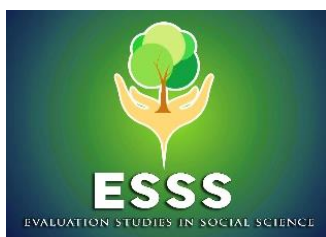
RESULTS

The demographic profile reveals interesting patterns. These demographic insights provide a foundation for understanding the study participants and may influence the interpretation of research findings. Table 1 presents the demographic characteristics of the study participants, including age, gender, years of experience, marital status, number of spouses, and family size. The findings reveal that the majority of participants fall within the age range of 36 to 45 years
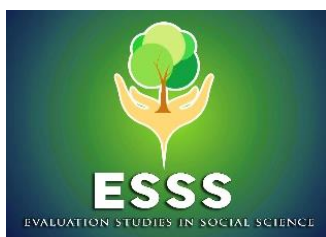
(28.4%), with males comprising a significant portion of the sample (76.5%). In terms of professional experience, a substantial number of participants reported 6 to 10 years of experience (30.3%). Marital status analysis indicates that the majority of participants are married (79.9%), while 20.1% are single. The distribution of the number of spouses shows that the highest percentage of participants have one spouse (52.3%). Family size varies, with the majority falling into the 3 to 5 member range (42.4%). These demographic insights provide a comprehensive understanding of the composition of the study participants, which is crucial for interpreting and generalizing study findings. The data can aid researchers and practitioners in tailoring interventions or strategies based on the specific characteristics of the target population.

Table 1
Demographic Characteristics of Participants

Variable	Category	N	%
	under 30 years	47	17.80
	31 - 35 years	42	15.90
	36 - 40 years	75	28.40
Age	41 - 45 years	74	28.00
	46 - 50 years	12	4.50
	51 - 55 years	8	3.00
	56 - 60 years	6	2.30
	Male	202	76.50
Gender	Female	62	23.50
	1 - 5 years	55	20.80
	6 - 10 years	80	30.30
Years of experience	16 - 20 years	50	18.90
	11 - 15 years	12	4.50
	21 - 25 years	8	3.00
	26 years and above	59	22.30
Marital status	Married	211	79.90
	Single	53	20.10
	None	39	14.80
	1.00	138	52.30
	2.00	58	22.00
Number of spouse	3.00	6	2.30
	4.00	12	4.50
	5.00	11	4.20
	1 – 2	70	26.50
Family size	16 and above	24	9.10
	3 – 5	112	42.40

	6 – 10	58	22.00

Table 2

History of Cardiovascular Disease and Related Conditions

Item	Response	Count	%
Diagnosed to have cardiovascular disease, atherosclerosis, previous heart attack, and/or previous stroke	No	262	99.20
	Maybe	2	0.80
Experienced angina (heart pain) within the last 3 months	No	230	87.10
	Maybe	10	3.80
	Yes	24	9.10
Mother with Cardiovascular Disease at less than 65 years (high blood pressure, heart attack, angina, stroke, hardening of the arteries	No	224	84.80
	Maybe	14	5.30
	Yes	26	9.80
Father with Cardiovascular Disease at less than 55 years (high blood pressure, heart attack, angina, stroke, hardening of the arteries	No	218	82.60
	Maybe	20	7.60
	Yes	26	9.80
Parent with Type II Diabetes (adult-onset diabetes	No	222	84.10
	Maybe	31	11.70
	Yes	11	4.20

The majority of respondents (99.2%) reported no diagnosed cardiovascular disease. However, a small percentage (0.8%) indicated uncertainty (Maybe) in their diagnosis. Regarding recent angina episodes, the majority (87.1%) reported none, while 9.1% reported experiencing angina within the last 3 months. In terms of family history, 84.8% reported that their mothers did not have cardiovascular diseases before the age of 65. Additionally, 82.6% reported the absence of cardiovascular diseases in their fathers before the age of 55. Notably, a small percentage reported uncertainty (Maybe) about their parents' cardiovascular health. Concerning parental Type II Diabetes, 84.1% reported that neither of their parents had this condition, while 4.2% reported having a parent with Type II Diabetes. These findings suggest a generally low prevalence of diagnosed cardiovascular disease among the participants. However, the presence of uncertainty in responses emphasizes the need for clear communication and understanding of health conditions. Further research and targeted interventions may be warranted to address potential risk factors and promote cardiovascular health in this population.
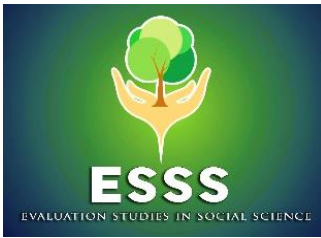
Table 3

Blood Sugar Levels and Cardiovascular Risk Factors

Item	Response	Count	%
feel your energy levels drop within an hour of eating	No	228	86.40
	Yes	36	13.60
experience cravings for sweets or chocolate? and /or	No	229	86.70
	Yes	35	13.30
have headaches or an inability to concentrate which is relieved by eating?	No	199	75.40
	Yes	65	24.60
Diabetic	No	258	97.70
	Yes	6	2.30

Table 3 presents data related to blood sugar levels and potential cardiovascular risk factors. The majority of respondents (86.4%) reported not feeling a drop in energy levels within an hour of eating, while 13.6% reported experiencing such a drop. Similarly, 86.7% of participants denied having cravings for sweets or chocolate, while 13.3% admitted to experiencing these cravings. A significant proportion of respondents (75.4%) reported not having headaches or an inability to concentrate relieved by eating, whereas 24.6% reported experiencing these symptoms. In terms of diabetes, the overwhelming majority (97.7%) of respondents stated that they are not diabetic, with only a small percentage (2.3%) confirming a diabetes diagnosis. The findings suggest that a considerable number of participants experience symptoms such as a drop in energy levels after eating, cravings for sweets or chocolate, and headaches or difficulty concentrating that is relieved by eating. These symptoms may be indicative of fluctuations in blood sugar levels, which can potentially contribute to cardiovascular risk. It is noteworthy that a small percentage of participants (2.3%) reported being diabetic. While this proportion is relatively low in the sample, it highlights the presence of individuals with a known diabetes diagnosis in the population surveyed.
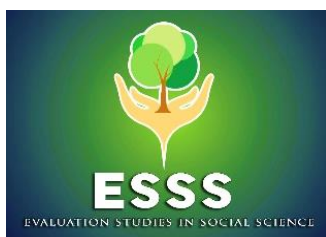
Table 4
Perception of Chest Pain and Cardiovascular Symptoms

Variable	Response	N	%
Had any pain or discomfort in the chest	No	144	54.50
	Yes	120	45.50
Having pain when walking uphill or hurry	No	168	63.60
	Yes	96	36.40
Experience pian when walking at an ordinary pace on level ground	No	222	84.10
	Yes	42	15.90
Ever had a severe pain across the front of the chest lasting for half an hour or more	No	223	84.50
	Yes	41	15.50
Had shortness of breath either when hurrying on the level or walking up a slight hill	No	204	77.30
	Yes	60	22.70
Heart palpitations or headaches after certain foods	No	203	76.90
	Yes	61	23.10
Experience recurrent pain	Never	186	70.50
	Monthly or less	46	17.40
	Weekly	30	11.40
	Daily	2	0.80

Table 4 presents data on the frequency and percentage of cardiovascular symptoms reported by the surveyed individuals. Among the respondents, 54.5% reported not having any pain or discomfort in their chest, while 45.5% acknowledged experiencing such symptoms. Additionally, 63.6% of participants reported no pain when walking uphill or in a hurry, contrasting with 36.4% who reported experiencing pain under these circumstances. Furthermore, 84.1% of respondents did not experience pain when walking at an ordinary pace on level ground, while 15.9% reported such discomfort. A similar pattern emerged when assessing severe chest pain lasting for half an hour or more, with 84.5% reporting no such incidents, and 15.5% indicating a positive response. Shortness of breath during physical activity was reported by 22.7% of participants, whereas 77.3% did not experience this symptom. Moreover, 23.1% reported heart palpitations or headaches after certain foods, while 76.9% did not associate these symptoms with dietary intake. Regarding the frequency of recurrent pain, the majority (70.5%) reported never experiencing it. However, 17.4% reported monthly or less frequent occurrences, 11.4% reported weekly incidents, and a mere 0.8% reported daily recurrent pain. These findings suggest a notable prevalence of cardiovascular
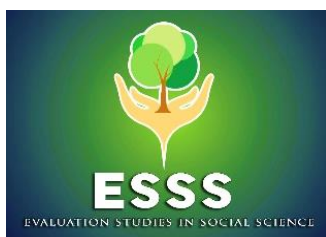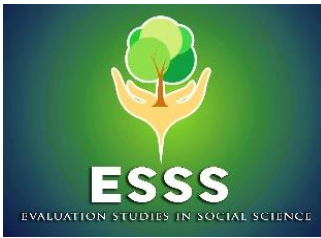
symptoms among the surveyed individuals, emphasizing the importance of further investigation and medical evaluation to assess potential underlying cardiac issues. The data provide valuable insights into the distribution of symptoms, aiding in the identification of patterns and potential risk factors for cardiovascular conditions.

Table 5
Systolic Blood Pressure

Blood Pressure Reading	N	%
Don't know	9	3.40
Less than 120 mm Hg	99	37.50
120 -129 mm Hg	100	37.90
130 -139 mm Hg	48	18.20
140 -160 mm Hg	8	3.00

The majority of participants (37.5%) reported having a blood pressure less than 120 mm Hg, while an equal percentage (37.9%) fell within the range of 120 - 129 mm Hg. A smaller proportion (18.2%) reported systolic blood pressure levels between 130 - 139 mm Hg. Only a minority of participants, 3.0%, reported blood pressure levels in the range of 140 - 160 mm Hg. Interestingly, a small percentage (3.4%) indicated that they did not know their blood pressure levels, highlighting a potential gap in awareness or monitoring among this subset of the population. These findings suggest a varied distribution of blood pressure levels within the studied population, with a significant proportion falling within the normal range

Psycho-Social Stressors Associated with Cardiovascular Disease Risk Factors

Table 6
Association Between Psycho-Social Stressors and Cardiovascular Disease Risk Factors

		Cardiovascular risk			Total	χ^2	df	Sig
		Low risk	Moderate risk	High risk				
Financial Stress	Low	141	33	32	206	16.98	2	<0.001
		53.4%	12.5%	12.1%	78.0%			
	High	23	21	14	58			
		8.7%	8.0%	5.3%	22.0%			
Work-related Stress	Low	134	36	26	196	13.95	2	<0.001
		50.8%	13.6%	9.8%	74.2%			
	High	30	18	20	68			
		11.4%	6.8%	7.6%	25.8%			
Family-related Stress	Low	143	33	24	200	31.92	2	<0.001
		54.2%	12.5%	9.1%	75.8%			
	High	21	21	22	64			
		8.0%	8.0%	8.3%	24.2%			
Health-related. Stress	Low	146	27	18	191	61.65	2	<0.001
		55.3%	10.2%	6.8%	72.3%			
	High	18	27	28	73			
		6.8%	10.2%	10.6%	27.7%			
Daily-hassles minor stressors	Low	114	27	30	171	6.78	2	0.034
		43.2%	10.2%	11.4%	64.8%			
	High	50	27	16	93			
		18.9%	10.2%	6.1%	35.2%			
Community or Environmental Stressors	Low	118	30	30	178	5.10	2	0.078
		44.7%	11.4%	11.4%	67.4%			
	High	46	24	16	86			
		17.4%	9.1%	6.1%	32.6%			
Life Stressors	Low	113	33	18	164	13.56	2	0.001
		42.8%	12.5%	6.8%	62.1%			
	High	51	21	28	100			
		19.3%	8.0%	10.6%	37.9%			

Participants were categorized based on their cardiovascular risk levels (low, moderate, high) and the presence of different stressors (financial, work-related, family-related, health-related, daily hassles, community or environmental, and life stressors). Chi-square tests were employed to analyse. table 6 is showing the association between psycho-social stressors and cardiovascular disease risk factors. High proportion of the respondent with low financial stress,

work-related stress, family-related stress, health-related stress and life stressors are found to have low risk of cardiovascular diseases which is significant with p <0.001. The lack of a significant association with community or environmental stressors suggests the need for further exploration or consideration of other factors.

Psycho-Social Stressors Predictors of Cardiovascular Disease Risk Factors

Table 7
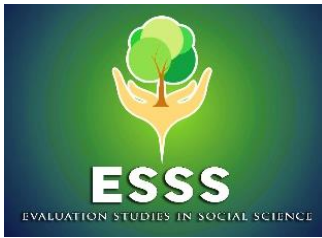*Multinomial Logistic Regression - Odds Ratios and Model Fit*

Cardiovascular risk		Odd ratio	Wald	df	Sig.	95% Confidence Interval for Exp(B)	
Moderate risk	Intercept	1.04	38.26	1	<.001		
	Family-related Stress (ref)	.44	2.63	1	.105	.86	4.85
	Health-related. Stress	.44	26.53	1	<.001	4.12	23.51
	Daily-hassles minor stressors	.48	.00	1	.961	.40	2.64
	Community or Environmental Stressors	.45	.12	1	.725	.49	2.82
	Life Stressors	.45	4.24	1	.039	1.05	5.99
High risk	Intercept	1.84	43.48	1	<.001		
	Family-related Stress (ref)	.53	8.31	1	.004	1.63	13.06
	Health-related. Stress	.68	43.60	1	<.001	23.97	350.37
	Daily-hassles minor stressors	.66	11.33	1	<.001	.03	.40
	Community or Environmental Stressors	.59	.03	1	.861	.28	2.89
	Life Stressors	.70	29.76	1	<.001	11.67	183.48

Cox and Snell R^2=.38, Nagelkerke R^2= .45, McFadden R^2= .26; -2 Log Likelihood 202.46, χ^2 = 125.62, df = 10, <.001

Multinomial logistic regression was also carried out to know the strength of the associations between psycho-social stressors and cardiovascular disease risk factors. Regarding the health-related stress, it shows they are tow times less likely to be moderately at risk of developing cardiovascular diseases. Concerning high risk, respondent with family- related stress are about two times less likely to be at risk of developing cardiovascular diseases. Respondent with health-related stress is about one and half less likely and respondent with daily-hassles minor stressors are one and a half less likely to be at risk of developing cardiovascular diseases. The pseudo-R-Square values indicated substantial explanatory power (Cox and Snell = .38, Nagelkerke = .45, McFadden = .26) (refer table 7).

DISCUSSION

The study uncovered that the majority of community health workers reported no diagnosed cardiovascular disease, aligning with the existing body of research that consistently indicates generally low rates of diagnosed disease in this specific population (American Heart Association, 2018; Niyibizi et al., 2023). However, a noteworthy finding was the presence of

a small percentage who expressed uncertainty about their diagnosis, signaling the necessity for further evaluation (MDoH, 2016). The family history data echoed this trend, suggesting a relatively low prevalence of cardiovascular disease among the parents of community health workers, a trend consistent with findings from other studies (Centers for Disease Control and Prevention, 2013). Blood sugar level-related symptoms, such as experiencing an energy drop after eating and cravings for sweets, were prevalent among participants, underscoring the potential impact of blood sugar fluctuations on cardiovascular risk, a correlation supported by previous research (MDoH, 2016). Similarly, cardiovascular symptoms like chest pain and shortness of breath were widespread, emphasizing the need for additional medical assessment—a recommendation in line with prior work in the field (Gaziano et al, 2015).

The study identified variations in blood pressure levels among participants, with a small percentage expressing uncertainty about their blood pressure status, reinforcing the importance of regular monitoring and intervention (American Heart Association, 2018). Limited engagement in recreational activities and relaxation practices were reported by a significant number of participants, aligning with past research that identified opportunities to promote these areas for cardiovascular health improvement (MDoH, 2016). Furthermore, a substantial proportion reported no exercise, emphasizing the importance of encouraging regular physical activity—a sentiment echoed in multiple studies (Niyibizi et al., 2023). The study's investigation into psycho-social stressors revealed positive associations with cardiovascular disease risk factors. Financial, work-related, family-related, health-related, daily hassles, and life stressors showed significant relationships, underscoring the influence of psychosocial factors on cardiovascular health, a finding consistent with the broader literature (Niyibizi et al., 2013). However, unlike some past work, community and environmental stressors did not exhibit a significant correlation, highlighting the nuanced nature of these stressors within the context of cardiovascular health (American Heart Association, 2018).

In summary, while diagnosed cardiovascular disease was generally low among community health workers, the study identified prevalent symptoms and risk factors, aligning with existing literature. The influence of psycho-social stressors on cardiovascular health echoed prior findings, emphasizing the need for targeted interventions to promote well-being, a recommendation supported by various research sources (American Heart Association, 2018; Niyibizi et al., 2023; MDoH, 2016; Gaziano et al, 2015). Also, when the psychosocial stressors was crosstab with cardiovascular disease risk factors, the findings shows, that people with low financial stress, work-related stress, family-related stress and health-stress, have lower risk of developing cardiovascular risk and this can be associated to the fact that they have lower levels of hormones like cortisol and adrenaline, which can damage the cardiovascular system over time, and they are also less likely to use harmful coping mechanisms like smoking excessive alcohol consumption, or overeating.
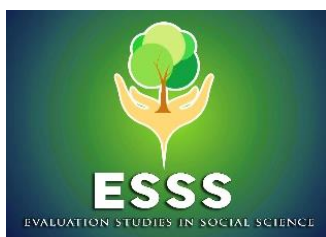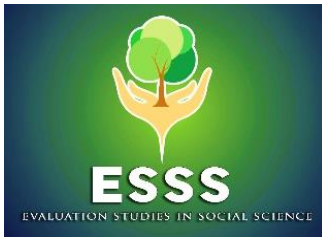
CONCLUSION

The implications of this study resonate significantly across theoretical frameworks, practical interventions, and public health strategies, particularly for community health workers. The identification of psycho-social stressors as significant contributors to cardiovascular risk signals a need for a paradigm shift in health models. The theoretical underpinnings of health assessment must now incorporate a nuanced understanding of the interplay between mental and physiological well-being among community health workers. From a practical standpoint, the findings not only reveal the multifaceted nature of cardiovascular risk factors but also offer a roadmap for actionable interventions. The study advocates for tailored programs addressing both traditional risk factors and specific stressors unique to community health workers, ensuring efficacy and relevance. On a broader public health scale, the study emphasizes the need to depart from a one-size-fits-all approach. Recognizing the unique needs of community health workers underscores the importance of customized health promotion efforts. Tailoring interventions to their context enhances effectiveness and contributes to the overall well-being of this vital workforce. In conclusion, by addressing psycho-social dimensions of cardiovascular risk, this research lays the groundwork for a holistic and tailored approach to health promotion, benefiting those dedicated to community health. While contributing to a healthier and more resilient healthcare workforce, the study acknowledges limitations, such as potential biases from self-reported data and constraints in establishing causal relationships due to the cross-sectional design. The study encourages future research with longitudinal designs, objective measures, and exploration of intervention efficacy to enhance understanding of cardiovascular health dynamics among healthcare professionals

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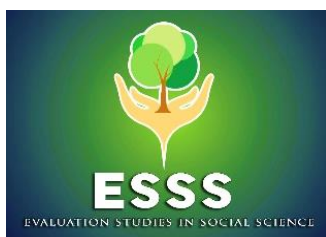
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