



The Crucial Role of Psychosocial Factors in Cardiovascular Health and Illness: A Position Paper

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Qualitative Study

Abstract

Background: Psychocardiology explores the impact of symbolic, emotional, behavioral, and social factors on cardiovascular functions and vice versa. This holistic approach focuses on managing psychosocial predisposing factors, comorbidities, and interventions within cardiology. The guideline development involved a thorough literature review on psychocardiology, encompassing studies on psychosocial influences, communication strategies, and cultural competence in cardiovascular care.

Methods: Data were collected from peer-reviewed journals, clinical trials, and meta-analyses to create an evidence-based framework. Expert panels comprising cardiologists, psychologists, and communication specialists provided insights and validated the recommendations. The methodology also incorporated qualitative feedback from patient interviews and focus groups to ensure the guidelines address real-world challenges and patient perspectives.

Results: The guidelines highlight the importance of effective physician-patient communication, emphasizing the role of psychological factors in managing and treating cardiovascular diseases (CVDs). Psychosocial elements such as psychological flexibility, attachment styles, coping mechanisms, existential anxiety, and obsessive beliefs are closely linked to cardiovascular health, influencing both the incidence and progression of CVDs.

Conclusion: Addressing personality traits, emotion regulation, health and illness behaviors, and the communicative context, as well as fostering communication and cultural sensitivity in clinical settings, can improve diagnostic accuracy, treatment adherence, and overall patient satisfaction.

Keywords: Psychocardiology; Cardiovascular diseases; Psychosocial factors; Patient education

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Introduction

The Iranian guideline on psychocardiology reflects the official stance of the Cardiac Rehabilitation Research Center (CRRC) on managing the intersection of psychological and cardiovascular health. This regularly updated guideline is developed by a task force comprising professionals dedicated to the medical care of patients with these conditions. The task force extensively reviewed existing evidence on communication, diagnosis, treatment, prevention, and rehabilitation concerning psychocardiology.

Experts from the writing and reviewing panels were selected to represent diverse fields such as psychiatry, cardiology, psychology, and psychosomatic medicine. They provided declarations of interest to disclose any actual or potential conflicts. The guideline development was guided by scientific and medical knowledge, weighing the level of evidence and recommendation grades according to predefined scales.

The CRRC, the Psychosomatic Research Center, and the Danesh-e Tandorosti Institute supervised the guideline's preparation, ensuring it underwent rigorous expert review before final approval. The guideline aims to align real-life clinical practices with evidence-based recommendations, thus creating a feedback loop between clinical research, guideline formulation, and implementation.

Healthcare professionals should consider these guidelines thoroughly while exercising their clinical judgment. They should make informed decisions in consultation with patients and caregivers, respecting the applicable rules and regulations. The guideline emphasizes practical communication skills and systematic screening, particularly recommending this for psychiatrists, psychosomatic specialists, clinical psychologists, cardiologists, general physicians, family physicians, and emergency specialists. These professionals are expected to manage patients effectively and refer them to psychocardiology services as needed.

Cardiovascular diseases (CVDs) are a primary global health concern, significantly contributing to morbidity and mortality. While traditional risk factors such as hypertension (HTN) and diabetes are well-recognized, there is an increasing body of evidence highlighting the profound impact of psychological factors on the development of CVDs. Due to the complex interplay between CVDs and psychiatric disorders, there is an urgent need for the development of a comprehensive guideline for psycho-cardiology (Fritzsche et al., 2020).

Psycho-cardiology, an emerging medical field, examines the reciprocal effects of psychological factors and cardiovascular health. Chronic stress, specific personality traits, and social support are critical factors in cardiovascular health. Chronic stress, by creating an allostatic load and activating neuroendocrine pathways, can contribute to the onset of CVDs (Dar et al., 2019; Steptoe & Kivimäki, 2013). Moreover, personality traits such as Type A and Type D and alexithymia are associated with increased cardiovascular risk (Chaplin et al., 2023).

Social support is vital in cardiac patients' rehabilitation and overall well-being. Lack of social support is linked to unhealthy behaviors and poor outcomes post-myocardial infarction (MI) (Park et al., 2023). Addressing the social support needs of cardiac patients is essential for improving their health and quality of life (QOL). Moreover, depression is one of the most common psychological issues in cardiac patients, associated with unhealthy lifestyles and increased mortality risk (Sobolewska-Nowak et al., 2023). Prompt treatment of depression can lead to improved clinical outcomes for cardiac patients.

Given the extensive and complex impact of psychological factors on

cardiovascular health, developing a comprehensive guideline for psycho-cardiology is imperative. This guideline should focus on the diagnosis and evaluation of patients with CVDs or psychosomatic symptoms and provide appropriate evaluation and treatment tools for managing psychological conditions associated with CVDs. Implementing such a guideline will help understand the intricate relationship between cardiovascular and mental health and enhance the quality of care provided to patients across various healthcare settings (Sumner et al., 2023; Sun et al., 2023).

Methods

The methodology section of the guideline on psychocardiology outlines the scope, search strategies, and organization of the writing committee.

Scope of the guideline: This guideline applies to adult patients presenting with chest symptoms (e.g., pain, palpitations, hyperventilation, dyspnea) diagnosed through standard methods and cardiac guidelines. Patients are referred to psychocardiology services for comorbid psychopathologies or functional cardiac symptoms. The categories of referees include all patients referred to cardiac rehabilitation services, adult cardiac patients with comorbid psychological disorders [diagnosed using the 4-item Patient Health Questionnaire (PHQ-4) and clinical judgment], and patients with functional cardiac symptoms.

The guideline emphasizes effective communication and systematic evaluation, including appropriate screening to identify psychological disorder comorbidities and somatic symptoms and to establish proper management plans. The goal is to develop convenient diagnostic methods and effective psychosocial interventions for cardiac diseases, to manage patients with functional heart complaints, and to promote coping strategies, deconditioning, and maximizing salutogenesis. Psychocardiology care is inherently patient-centered rather than disease-oriented.

Population, Intervention, Comparison, and Outcome (PICO) framework

Population: Adults with CVD referred to cardiac rehabilitation services or those with comorbid psychological problems or functional heart complaints (non-cardiac chest pain)

Intervention: Cognitive behavioral therapy (CBT), contextual therapies [mindfulness-based therapies, solution-focused brief psychotherapy, acceptance and commitment therapy (ACT)], mind-body control (relaxation, yoga, etc.), bodywork, multimodal interventions (integrative settings in cardiac rehabilitation), and psychopharmacotherapy

Comparison: Biomedical (cardiovascular) care

Outcome: Improvement in psychological outcomes (e.g., depression, anxiety), reduction in cardiac risk factors (e.g., HTN, diabetes, dyslipidemia, obesity), lifestyle modification (e.g., diet, physical activity, smoking), and reduction in morbidity and mortality

Search strategies: The recommendations are evidence-based, supported by an extensive evidence review covering the period from March 2008 to April 2018. The searches included studies, reviews, and evidence conducted on human subjects and published in English. Key search terms covered various topics related to CVDs, psychological disorders, therapies, and outcomes. The search identified 2432 records, with 132 deemed eligible for inclusion.

Additionally, the committee reviewed existing cardiovascular guidelines related to psychosocial matters from authoritative sources such as the American College of Cardiology Foundation (ACCF), American Heart Association (AHA), European

Society of Cardiology (ESC), Canadian Cardiovascular Society (CCS), and the National Heart Foundation of Australia (NHFA).

Organization of the writing committee: The committee comprised acknowledged experts in cardiac surgery, interventional cardiology, and mental health professionals skilled in evidence-based interventions, such as CBT. The guidelines emphasize that while some health professionals are trained in these interventions, many cardiologists, primary care clinicians, or nurse practitioners are not, often leading to a preference for medication over psychosocial treatments.

Document review and approval: Two external reviewers reviewed this document from the German Society for Psychosomatic Medicine and Medical Psychotherapy (DGPM) and the Psychosomatic Medicine and Psychotherapy Department of the University of Freiburg, Germany. All reviewers' information and comments were collected and distributed to the writing committee and considered in this document. The Administration of Health Standard and Tariff Ministry of Health, Treatment, and Medical Education of Iran approved this project for implementation.

Organization of the guideline: The overarching framework adopted in this guideline reflects the complementary goals of treating patients with CVD with known comorbid psychiatric problems, alleviating or improving symptoms, and prolonging life. This guideline is divided into three primary sections summarizing the communication, screening, and treatment approaches.

The influence of psychosocial problems on cardiovascular health: The psychosocial factors have a complex network of interactions with cardiovascular functions (Dar et al., 2019; Sobolewska-Nowak et al., 2023). Many factors, such as temperament, personality traits, attachment style, stressors, traumas, and affect regulation problems, can predispose cardiovascular problems (Sumner et al., 2023; Sun et al., 2023). On the other hand, cardiovascular problems may lead to psychological illnesses as a matter of hardship of coping with the cardiovascular illnesses and their burdens (Steptoe & Kivimäki, 2013).

Furthermore, in cardiological care, treatment, and rehabilitation, many psychosocial factors can affect the communicative and behavioral aspects of patient management, and many psychosocial interventions can have positive effects on the psychological and even physical health condition of patients with CVD (Chaplin et al., 2023; Park et al., 2023).

Psychological factors affecting cardiovascular function: Stress Chronic stress, whether originating from mental or environmental sources, exerts a profound influence on cardiovascular health, contributing to conditions such as angina, heart attacks, and sudden death (Steptoe & Kivimäki, 2013). Furthermore, stress fosters unhealthy habits, including smoking and poor dietary choices (Orth-Gomér et al., 2000; Steptoe & Kivimäki, 2013). It disrupts homeostasis, initiates allostatic load, and activates neuroendocrine pathways (Chrousos, 2009; Esler et al., 2010; McEwen, 1998; Rozanski et al., 1999). Understanding these intricate mechanisms is pivotal for effective CVD prevention.

Personality and attachment style: Personality traits wield significant sway over cardiovascular health, with Type A and Type D personalities and alexithymia emerging as noteworthy risk factors (Bagby et al., 1994; Denollet, 2005; Smith & Gallo, 2001; Taylor et al., 2005; Taylor, 2011). Additionally, hostility and anger are closely associated with the development of CVD (Chida & Steptoe, 2009; Smith et al., 2004). Fortunately, effective treatments, such as CBT and cognitive behavioral

affective therapy (CBAT), exist to manage personality-related cardiovascular issues (Beck et al., 2024; Hofmann et al., 2012).

Salutogenesis and health resources in cardiovascular problems

Salutogenesis and sense of coherence (SOC): The concept of salutogenesis, introduced by Antonovsky, focuses on factors that support human health and well-being rather than on factors that cause disease (Antonovsky, 1996; Sagy & Antonovsky, 2000). Central to this concept is the SOC, which comprises three components: comprehensibility, manageability, and meaningfulness. A strong SOC helps individuals perceive stressors as understandable, manageable, and meaningful, thus promoting better health outcomes. Research indicates that a high SOC is linked to lower risks of CVD and all-cause mortality, better health-related QOL (HRQOL), and more effective self-management in patients with coronary heart disease (CHD) and heart failure (HF) (Eriksson & Lindström, 2006; Surtees et al., 2003).

To enhance patients' SOC, healthcare professionals should educate them about their illnesses, help them balance disease-related stresses, and encourage active participation in disease management. Interventions such as lifestyle changes, talk therapy, patient empowerment, and case management have proven effective in boosting SOC (Lindmark et al., 2005).

Psychological capital (PsyCap): PsyCap encompasses hope, self-efficacy, resilience, and optimism (HERO). This positive psychological state can be developed and strengthened, and it plays a crucial role in the well-being of patients with CVDs (Luthans et al., 2006).

1. *Resilience:* Defined as coping with and returning from adversity, resilience is crucial for managing long-term degenerative conditions like CVD. Identifying resilient personalities in cardiac patients and implementing strategies to boost resilience can improve prognosis (Southwick et al., 2005).

2. *Hope:* This involves a positive anticipation of the future and has been shown to significantly aid in coping with severe illnesses like CVD. Patients with higher levels of hope can better adapt to and manage their conditions (Snyder, 2002).

3. *Optimism:* Optimism, or the tendency to hold favorable expectancies for the future, has been linked to better subjective well-being, lower risk of rehospitalization, and healthier lifestyle choices among cardiac patients. It is a critical factor in the management and recovery of ischemic heart disease (IHD) (Scheier et al., 1989).

4. *Self-Efficacy:* This refers to a patient's confidence in their ability to perform health-related behaviors, influencing their engagement and success in managing health outcomes. Higher self-efficacy is associated with better adherence to medication, pain management, and exercise regimens (Bandura, 1997).

Comorbidity of psychiatric problems in CVD

Depression: The comorbidity of CVD and depression is a significant concern in psychocardiology. Research indicates that depression is highly prevalent among individuals with CVD, affecting approximately 17%-27% of cardiac patients. For instance, a cohort study revealed that after an MI, 18% of patients were diagnosed with major depression, and 27% with minor depression. A three-month follow-up showed that 83% of those with major depression continued to have either major or minor depression, and 36% of those with minor depression still experienced persistent depressive disorders (Hare et al., 2014).

Depression not only impacts the psychological well-being of cardiac patients but also influences their physical health and disease progression. Major depressive disorder (MDD) is associated with harmful lifestyle choices such as smoking,

physical inactivity, and poor diet, which exacerbate cardiovascular conditions. Furthermore, depression is linked to increased mortality rates and poor cardiac outcomes. A study by Whooley et al. (2008) reported that patients with depression had an 80% higher risk of developing CVD or dying from it compared to those without depression (Whooley et al., 2008).

The relationship between depression and CVD is bidirectional. Depression can lead to the development of cardiovascular problems, and conversely, the stress of managing CVD can precipitate or worsen depressive symptoms. This cyclical relationship underscores the need for integrated treatment approaches that address both mental and physical health. Effective management of depression in cardiac patients can improve adherence to treatment regimens, enhance QOL, and reduce the risk of subsequent cardiac events. For example, a comprehensive cardiac rehabilitation program that includes psychological support, exercise, and dietary counseling has been shown to mitigate the negative effects of depression on cardiac health (Huffman et al., 2013).

Moreover, studies have demonstrated that treating depression in patients with CVD can significantly reduce the risk of future cardiac events. Behavioral interventions such as smoking cessation, increased physical activity, and weight management are crucial components of this therapeutic approach. The Heart and Soul Study found that depressive symptoms were strongly associated with poorer cardiac function and higher mortality rates, highlighting the importance of addressing depression to improve cardiovascular outcomes (Seligman et al., 2009).

In conclusion, the interplay between cardiovascular problems and depression necessitates a holistic approach to patient care. By integrating mental health services into cardiovascular treatment plans, healthcare providers can better support their patients, leading to improved overall health outcomes and enhanced QOL. This integrated care model is essential for addressing the complex needs of patients with comorbid CVD and depression (Davidson, 2010; Lichtman et al., 2014).

Anxiety: Anxiety disorders have a significant impact on cardiovascular health, contributing to increased morbidity and mortality. Anxiety can lead to a heightened cardiovascular response to stress, increased heart rate, and decreased heart rate variability, which are associated with a higher risk of CVD such as arrhythmias, cardiac ischemia, and sudden cardiac death (Tully & Baumeister, 2014). Furthermore, anxiety disorders are linked with physiological changes such as endothelial dysfunction, inflammation, and platelet aggregation, which further exacerbate cardiovascular risk (Roest et al., 2010).

Patients with anxiety disorders exhibit elevated levels of inflammatory markers like C-reactive protein (CRP), tumor necrosis factor alpha (TNF- α), interleukin 6 (IL-6), homocysteine, and fibrinogen, which are indicators of increased cardiovascular risk. Additionally, the dysfunction of the endothelial cells and higher platelet aggregation observed in anxious individuals contribute to the development and progression of CVD (Januzzi et al., 2000). These physiological changes are compounded by behavioral factors; anxious patients often engage in unhealthy behaviors such as smoking, poor diet, and physical inactivity, all of which are risk factors for CVD (Angazi et al., 2023; Darbani & Mirzaei, 2022; Januzzi et al., 2000; Shahamatinejad, 2021).

While treatment for anxiety disorders, including pharmacotherapy with selective serotonin reuptake inhibitors (SSRIs) and benzodiazepines and CBT, can improve the QOL and psychological well-being of patients, there is no conclusive evidence that

treating anxiety disorders reduces cardiovascular risks (Hare et al., 2014). Despite this, effective management of anxiety is crucial as it can improve adherence to treatment regimens and overall health outcomes, thereby potentially reducing the indirect effects of anxiety on cardiovascular health (Roest et al., 2010).

In conclusion, addressing anxiety disorders in patients with cardiovascular problems is essential not only for improving mental health but also for potentially mitigating some of the behavioral and physiological factors that contribute to CVD. Further research is needed to explore the direct impact of anxiety treatment on cardiovascular outcomes and to develop comprehensive care strategies that address both mental and cardiovascular health (Tully & Baumeister, 2014).

Posttraumatic stress disorder (PTSD)

PTSD, arising from life-threatening cardiac events, affects approximately 12% of cardiac patients. This condition leads to non-adherence, rehospitalization, and adverse events (Edmondson et al., 2012; Ladwig et al., 2017). Effective treatment of PTSD, particularly with CBT, stands as a pathway to enhanced outcomes (Birk et al., 2019).

Psychosocial aspects of cardiovascular health: An overview

CVDs encompass a complex web of risk factors, many of which are closely intertwined with psychological factors. Prominent among these are high blood cholesterol, high blood pressure, diabetes, prediabetes, overweight, obesity, smoking, alcohol consumption, lack of physical activity, unhealthy dietary choices, and stress. Recognizing this intricate interplay is paramount for healthcare providers as they endeavor to establish a transparent causal network connecting these factors to the occurrence of CVD (Rozanski et al., 2019; Rozanski et al., 2005; Rozanski et al., 1999; Yusuf et al., 2020).

This comprehension empowers physicians to address patients' emotions and behaviors that influence these risk factors. Moreover, it is a linchpin for disease prevention, relapse reduction, cost-effective treatment, and conserving valuable time (Kivimäki & Steptoe, 2018; Mendis et al., 2011).

Leveraging psychosocial resources

Within psycho-cardiology, it is imperative to adopt a holistic perspective that transcends the narrow focus on disease pathology to consider the individual, familial, and social resources available to patients. The incorporation of these resources into the treatment process is pivotal for the effective management of CVD. Family involvement, in particular, emerges as a cornerstone in promoting health behavior change and overall family well-being within the psycho-cardiology paradigm (Baumeister & Leary, 1995; Gallo et al., 2014). Furthermore, clinicians should emphasize coping resources such as social support, resilience, self-esteem, and SOC, given their substantial influence on the intricate relationship between stress and health (Heaney & Israel, 2008; Taylor, 2011).

Understanding illness perception

Patients often harbor irrational beliefs regarding their illnesses, coupled with fears that the healthcare system may dismiss their concerns. These beliefs can exert tangible effects on disease onset and indirectly contribute to treatment non-compliance. To ensure optimal outcomes, physicians must identify and address their patients' beliefs concerning their illnesses. When patients remain oblivious to these beliefs and their connections to their illness behavior, recovery may remain elusive. Patients may turn to alternative or traditional treatments outside the professional healthcare system, aligning more closely with their beliefs. However, they often experience a lack of improvement or even a deterioration of their condition

(Broadbent et al., 2006; Leventhal et al., 2011).

Furthermore, when patients confront illness or perceive a threat to their health, they actively construct cognitions and beliefs to make sense of their condition. These beliefs significantly influence how patients manage the situation, perceive their symptoms, adapt personal behaviors, undergo rehabilitation or treatment, and decide when to resume normal activities (Hagger & Orbell, 2003). Recognizing and addressing these cognitive constructs is paramount, as they permeate various stages of a patient's experience with heart disease. This includes attributing causes to the disease, interpreting symptoms, adapting personal behaviors, undergoing rehabilitation or treatment, and deciding when to resume normal activities (Leventhal et al., 2011).

The doctor-patient relationship

The nature of the doctor-patient relationship serves as the foundation for effective psycho-cardiology care. Four distinct control and communication patterns characterize these relationships (Roter & Hall, 1989):

Default: This pattern signifies a lack of control on either side, rendering it suboptimal.

Paternalism: This pattern is characterized by dominant physicians and passive patients. Physicians lead decision-making, believing patients may lack the necessary insight.

Consumerism: This approach emphasizes patient rights and clinician obligations. Physicians provide information, and patients choose interventions based on their values.

Partnership: Advocated as the most effective type of relationship, this pattern involves shared decision-making. Physicians and patients collaborate as equal partners, contributing to decisions and taking full responsibility.

The role of communication context

Several contextual factors significantly influence the doctor-patient relationship in psycho-cardiology (Epstein et al., 2005). The allocation of time and the nature of the environment play pivotal roles in determining the dynamics of the relationship:

Time and place: Therapists' thoughtful planning, considering time and place, optimize patient care. A constrained timeframe and an impersonal environment can steer the relationship toward paternalism, while more time and personalized surroundings encourage a participatory approach in psycho-cardiological interventions (Bensing, 2000; Street et al., 2009).

Clinical setting: The clinical setting significantly shapes the patient-doctor interaction and the outcomes of psycho-cardiology care. In doctor's office meetings, patients feel more at ease when time constraints are reduced, leading to improved communication and information exchange (Beckman & Frankel, 1984). It is important to note that patient satisfaction hinges more on the quality of the interaction and whether their objectives were met rather than the duration of the visit. Practical communication skills are pivotal for a physician's clinical success. In this regard, involving nurses in information exchange and practicing co-therapy can enhance patient satisfaction and compliance (Tyrer et al., 2015).

Outpatient setting: Statistics indicate that patients tend to forget a substantial portion of the information physicians provide in outpatient clinics. In public hospitals, patients often perceive themselves as passive recipients of care, with therapists and medications solely responsible for their treatment. In contrast, patient-centered treatments involve patients in decision-making throughout the treatment process, enhancing their sense of involvement and responsibility (Giesen-Bloo et al., 2006).

Emergency department: Emergency settings present unique challenges, including a stressful environment, differing perspectives, varying acuity levels, conflicting

therapy opinions, and time constraints. Studies reveal that a significant portion of emergency department patients believe that their care providers fail to consider the impact of their medical issues on their personal lives (Sun et al., 2023). In such high-pressure environments, expressing empathy and addressing patients' concerns is crucial for improving satisfaction and overall care (Bluth et al., 2016). In psycho-cardiology, acknowledging patient satisfaction as an integral care component is essential.

Patient's living situation: Research indicates that individuals living alone face an elevated risk of experiencing significant chest pain, heart attacks, and unexpected cardiac death compared to those living with roommates or partners (Hakulinen et al., 2018; Udell et al., 2012). Clinicians should consider a patient's living situation alongside established risk factors like sex and age when assessing their disease risk. Furthermore, growing evidence shows that social support improves CVD outcomes (Barth et al., 2010). Patients living with others, such as family or friends, exhibit higher adherence to HF medications and maintain better medication schedules than those living alone (Wu et al., 2008). Cultural sensitivity is imperative for clinicians working in contexts where linguistic barriers, ethnic rituals, and cultural values can impede communication and affect various aspects of care (Betancourt et al., 2003).

Physician-patient communication

Effective communication between physicians and patients is crucial in psychocardiology, significantly impacting diagnostic accuracy, treatment adherence, and overall patient satisfaction. The primary components of successful communication include reflecting, summarizing, patient education, reassurance, and breaking bad news. Each element is vital in building trust, ensuring understanding, and facilitating patient engagement in their treatment plans (Fogarty et al., 1999; Levinson et al., 2010).

Key communication skills

1. *Reflecting:* It involves restating and paraphrasing the patient's emotions and concerns. It helps build trust and ensures the patient feels understood, leading to improved alliance and adherence to treatment plans. Reflecting also assists clinicians in tailoring their communication style to meet the patient's needs (Hargie, 2010).

2. *Summarizing:* It validates the information gathered during consultations, helps structure the treatment plan, and strengthens the doctor-patient relationship. It reassures patients that their concerns are understood and that the treatment plan is well-founded. Summarizing also respects patient autonomy by involving them in decision-making (Silverman et al., 2013).

3. *Patient education:* Physicians must become educators to achieve shared decision-making, improve motivation and adherence, and support self-management. Effective patient education covers the continuum of disease management, from prevention to chronic disease management. Creative methods, such as reliable online resources and educational pamphlets, are essential for empowering patients (Osborne, 2012).

4. *Reassurance and breaking bad news:* Providing reassurance builds trust and comfort by acknowledging the patient's concerns and emotions. Breaking bad news is a complex task that requires empathy and adherence to specific protocols. It involves preparing for the conversation, understanding the patient's knowledge and preferences, and providing continuous support. Empathetic communication helps patients process their emotions and facilitates acceptance of their diagnosis and treatment plan (Baile et al., 2000; Ptacek & Eberhardt, 1996).

Cultural sensitivity

Cultural differences, including symptom expression and treatment adherence, can significantly influence the therapeutic process. Effective communication must be culturally sensitive, and diverse backgrounds and beliefs must be respected to avoid misdiagnosis and enhance the therapeutic alliance (Eslami & Hooshmandi, 2024; Rostami & Navabinejad, 2023). Understanding and incorporating cultural nuances into patient interactions can lead to more effective and personalized care (Betancourt et al., 2003; Saha et al., 2008).

In conclusion, mastering communication skills and being culturally sensitive are essential for optimizing patient care in psychocardiology. These skills not only improve patient satisfaction and adherence but also enhance the overall effectiveness of treatment, leading to better health outcomes.

Psychological assessment in cardiovascular care

The integration of psychological assessment in cardiovascular care boasts historical and cultural roots, with psychometrics tracing back to the concept of measuring the soul (*ψυχή*) as separate from the body (Mezzich et al., 1999). In contemporary practice, psychometric tests (PTs) offer three significant healthcare advantages:

Codification of etiologies and symptoms: PTs help codify the causes and symptoms of psychological disorders, aiding in diagnosis and treatment planning (American Psychiatric Association, 2022).

Standardization of scores: Standardized PT scores provide a quantifiable measure of a patient's psychological state, facilitating comparisons and tracking progress over time (Groth-Marnat & Wright, 2016).

Optimization of resource management: PTs assist in resource allocation by helping clinicians identify patients who would benefit most from psychological interventions (Hunsley & Mash, 2018).

Psychosocial risk factors in patients with CVD can be assessed through various means, including structured interviews, questionnaires, and 'single-item' questions (Rozanski et al., 2019). These assessment tools are essential for gauging the psychological aspects of cardiovascular health.

Effective treatment modalities

The treatment of psychosocial aspects in CVDs encompasses various approaches, including psychotherapy, psychopharmacotherapy, mind-body interventions, multimodal interventions, and more (Lichtman et al., 2014). Each modality has its merits and should be selected based on the patient's needs and the care context. Key considerations include:

CBT: CBT has significantly improved psychosocial factors, cardiac risk factors, lifestyle changes, and the prevention of recurrent cardiovascular events (Blumenthal et al., 2016; Ladwig et al., 2014).

Contextual therapy: This includes mindfulness-based therapies, solution-focused brief psychotherapy, and ACT, all of which have favorable effects on depression, anxiety, sleep, and overall QOL in patients with CVD (Grossman et al., 2004; Khoury et al., 2013).

Mind-body interventions: One integrative care model that has been shown to be effective in reducing heart rate and improving forgiveness and QOL in patients with CHD is bioenergy economy-based health improvement (BEHI) (Tavakolizadeh, Goli, Ebrahimi, Hajivosough, & Mohseni, 2023). Additionally, the BEHI program can moderate anxiety and depression and improve the heart's functional capacity (measured in metabolic equivalents, METs) by facilitating psychological and lifestyle

changes in post-myocardial infarction patients (Farzanegan, Hashemi Jazi, Derakhshan Jan, Sadeghi, & Roohafza, 2024). BEHI is a mindfulness-based and body-centered approach to care. Its main strategies include releasing body blockages, reprocessing energy-information flows, resonating the biofield, and opening the whole body to being, making it a transdiagnostic approach (Goli, 2018).

Multimodal interventions: Implemented within cardiac rehabilitation programs, multimodal interventions have extensive benefits on physical, psychological, and lifestyle factors in patients with CVD (Anderson et al., 2016; Clark et al., 2005).

Psychopharmacotherapy: Psychotropic medications are used to treat or manage mental disorders and psychiatric conditions in cardiac patients (Glassman, 2007).

Selecting the appropriate medication requires careful consideration of potential side effects and interactions with cardiovascular treatments, for example:

SSRIs have shown promise in reducing depression symptoms and improving inflammatory markers in cardiac patients (Glassman & Bigger, 2001; Glassman et al., 2002; Taylor et al., 2005).

Citalopram has effectively improved metabolic risk factors and somatic symptoms (Park et al., 2023; Steptoe & Kivimäki, 2013).

Tricyclic antidepressants (TCAs) should generally be avoided in patients with CHD due to their cardiac effects (Roose & Spatz, 1999).

Newer dual reuptake inhibitors [serotonin-norepinephrine reuptake inhibitors (SNRIs)] like venlafaxine may affect blood pressure and corrected QT (QTc) interval (Davidson, 2010).

Atypical antidepressants like bupropion and mirtazapine are safer for patients on anticoagulants/antiplatelet agents (Taylor et al., 2005).

Benzodiazepines may have varying effects on cardiac events and should be used cautiously due to dependence risk (Glassman & Bigger, 2001).

Buspirone is a preferred option for cardiac patients with anxiety due to its minimal side effects and no known adverse cardiac effects (Barth et al., 2010; Sobolewska-Nowak et al., 2023).

Psychosocial aspects of selected CVDs

The psychosocial aspects of CVDs are multifaceted and influence the onset and progression of various heart conditions. The following summary outlines vital psychosocial factors associated with specific CVDs, including coronary artery disease (CAD), HF, cardiac arrhythmias, HTN, congenital heart disease, and functional heart complaints.

CAD

Psychosocial factors play a significant role in the incidence and prognosis of CAD. Social isolation and lack of social support, as well as low socioeconomic status, are strongly linked to increased mortality and poor outcomes in patients with CAD (Barth et al., 2010). Specific personality types, such as Type D (characterized by negative affectivity and social inhibition) and Type A (characterized by hostility and anger), are associated with worse prognosis (Denollet, 2005). Additionally, depression, both significant and subsyndromal, significantly elevates the risk of CAD events and is prevalent in 20%-50% of patients with CAD (Hare et al., 2014). Gender-specific factors also contribute, with men experiencing high workloads and low rewards, while women face risks associated with family conflicts and caregiving responsibilities (Brotman et al., 2007). PTSD symptoms following acute cardiac events further increase the risk of recurrent cardiac events and diminish the QOL (Edmondson et al., 2012).

HF

Patients with HF often experience high levels of depression and anxiety, which can exacerbate their physical symptoms and negatively impact their prognosis. The emotional burden of HF includes feelings of helplessness and fear about the future. These psychological factors can lead to poor adherence to treatment regimens and lifestyle changes, further complicating disease management (Riedinger et al., 2002).

Cardiac arrhythmias

Anxiety and stress are prevalent among patients with cardiac arrhythmias, particularly those with atrial fibrillation (AF). These psychosocial factors can trigger arrhythmia episodes and complicate treatment adherence (Freedland et al., 2003). Depression is also expected and is associated with a higher risk of adverse outcomes, including stroke and HF (Ladwig et al., 2014; Riedinger et al., 2002; Whooley et al., 2008).

HTN

Psychosocial stress, including work stress and lack of social support, significantly contributes to the development and progression of HTN (Qiu & Piskorz-Ryń, 2024; Rutledge & Hogan, 2002). Anxiety and depressive disorders are common among patients with HTN and can lead to poor blood pressure control. Effective management of stress through psychological interventions can improve HTN outcomes (Linden et al., 1996).

Congenital heart disease

Adults with congenital heart disease often face unique psychosocial challenges, including issues related to their identity, social relationships, and employment. Anxiety and depression are prevalent, affecting their QOL and adherence to medical care (Apers et al., 2015). Supportive psychosocial care is crucial in managing these patients (Kovacs et al., 2005).

Functional heart complaints

Patients with functional heart complaints, such as chest pain without a clear medical cause, often experience significant anxiety and stress. These symptoms can lead to frequent healthcare visits and invasive procedures, further increasing their anxiety and healthcare costs (Mayou et al., 1995). CBT and other psychosocial interventions can reduce symptoms and improve QOL (Kroenke & Swindle, 2000).

The psychosocial aspects of CVDs encompass a wide range of factors that significantly impact patient outcomes. Addressing these factors through comprehensive care strategies, including psychological interventions and social support, is crucial for improving overall health and QOL in patients with CVD.

Conclusion

Psychosocial aspects are critical in managing and treating cardiovascular diseases (CVDs), significantly influencing risk, patient perceptions, and treatment outcomes. To offer comprehensive and sustainable care, it is essential to integrate psychological assessment, effective communication, and various treatment modalities into cardiology settings. Stress and illness have reciprocal effects. Distress increases allostatic load and misdirects energy and information flow. Illness can also be a stressor, not only placing additional load on the body but also manifesting as a psychosocial or existential crisis or torment. Therefore, psychocardiology approach must consider trait, emotional, symbolic, and communicative factors, as well as cultural differences, living situations, and diverse clinical environments. Recognizing emotional and behavioral dysregulations as medical issues is crucial due to their impact on cardiovascular and metabolic load and neuroimmune dysfunctions. By

merging objective and phenomenological data with both pathological and salutogenic approaches, we can create psychocardiologic settings that improve patient outcomes, manage cardiovascular risks effectively, and enhance the quality of life for patients with CVDs.

Recommendations for future studies

1. *Psychosocial screening and assessment*: All patients with CVD should be regularly screened for psychosocial risk factors such as depression, anxiety, stress, and social support using structured interviews and validated questionnaires. Early diagnosis and treatment of neurodevelopmental issues in patients with congenital heart disease should be prioritized to improve functioning and QOL.

2. *Psychological interventions*: Implement evidence-based psychological interventions such as CBT, mindfulness-based therapies, and ACT to address psychological comorbidities in cardiac patients. Provide relaxation techniques, including yoga and progressive relaxation, to manage stress and improve overall well-being.

3. *Communication and cultural sensitivity*: Develop and enhance communication skills among healthcare providers to effectively engage with patients, particularly in delivering bad news and discussing treatment plans. Incorporate cultural sensitivity into patient interactions to improve adherence to treatment and patient satisfaction.

4. *Multidisciplinary approach*: Foster a multidisciplinary approach in cardiological care that includes collaboration between cardiologists, psychologists, social workers, and other healthcare professionals to address the comprehensive needs of patients with CVD. Ensure that mental health evaluations and appropriate referrals are made for patients requiring specialized psychological care.

5. *Patient education and support*: Provide patients and their families with education on the impact of psychosocial factors on cardiovascular health and the importance of adherence to treatment plans. Offer support groups and counseling services to help patients cope with the psychological burden of CVDs.

By adopting these recommendations, healthcare providers can enhance the effectiveness of cardiological care and improve the overall health outcomes for patients with CVDs. Integrating psychosocial factors into routine cardiovascular care is vital for addressing the complex interplay between psychological and physical health.

Conflict of Interests

Authors have no conflict of interests.

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