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Psychological Features of the Level of Emotional Intelligence in Patients with Arterial Hypertension

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Abstract. Arterial hypertension is one of the most widespread chronic non-communicable diseases and a leading modifiable risk factor for cardiovascular morbidity and mortality. Alongside biological determinants, a growing body of research points to the role of emotional processes in the onset, course and control of elevated blood pressure. The purpose of this article is to analyse and systematise the scientific evidence on the psychological features of emotional intelligence in patients with arterial hypertension and to outline directions for psychological diagnostics and support of such patients. The study is designed as a narrative review structured according to the IMRAD format; international databases (PubMed, Scopus, Google Scholar) and national scientific sources published between 1990 and 2025 were analysed using thematic synthesis. The results show that emotional intelligence is consistently associated with better mental, psychosomatic and physical health; that patients with essential hypertension are more likely to show features of alexithymia, i.e. difficulties in identifying and describing feelings; and that anxiety, depression, suppressed anger and chronic stress are prospectively linked with the development of hypertension. On this basis, a psychological profile of hypertensive patients is described in terms of four branches of emotional intelligence: perception, use, understanding and regulation of emotions. Possible psychophysiological and behavioural mechanisms, including sympathetic activation, hypothalamic-pituitary-adrenal axis dysregulation, health behaviour and treatment adherence, are discussed. A set of validated assessment instruments and a design for an empirical study among patients in Uzbekistan are proposed. It is concluded that assessment and development of emotional intelligence should become a component of the comprehensive management of arterial hypertension.

Keywords: arterial hypertension, emotional intelligence, alexithymia, emotion regulation, psychosomatics, stress, anxiety, treatment adherence, health psychology.

Introduction

Arterial hypertension (AH) remains one of the most pressing problems of modern medicine and public health. According to the World Health Organization, the number of adults aged 30–79 years living with hypertension worldwide is estimated at about 1.3 billion, and only a minority of them have their blood pressure adequately controlled [1]. Hypertension is often called a “silent killer”, as it may develop for years without noticeable symptoms while gradually damaging the heart, brain, kidneys and blood vessels. Current clinical guidelines emphasise that successful management of AH requires not only pharmacotherapy but also lifestyle modification,

patient education and long-term adherence to treatment [2]. Each of these components depends substantially on the patient's psychological characteristics.

Since the classical psychosomatic works of the twentieth century, essential hypertension has been regarded as one of the diseases in which emotional factors play a significant role. Earlier theories linked elevated blood pressure to chronically suppressed hostility and an internal conflict between aggressive impulses and the need for social approval. Contemporary research has moved from such psychodynamic explanations towards empirically testable constructs: chronic stress, negative affectivity, anxiety, depression, anger expression styles, alexithymia and emotion regulation strategies [14; 15; 16; 18]. A common denominator of these constructs is the way a person perceives, understands and manages emotions, which is precisely what the concept of emotional intelligence describes.

The term "emotional intelligence" (EI) was introduced into scientific psychology by P. Salovey and J. Mayer, who defined it as the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions [3]. The concept gained wide popularity after the publication of D. Goleman's book [4], and in subsequent decades three main theoretical approaches were formed: the ability model of Mayer and Salovey [6; 22], the mixed model of R. Bar-On [5] and the trait model of K. V. Petrides and A. Furnham [7]. Despite theoretical differences, all of these approaches agree that EI includes the perception of emotions, their understanding and their regulation, and that it is related to adaptation, coping with stress and well-being.

Meta-analytic studies have shown that higher EI is associated with better mental, psychosomatic and physical health [9; 10; 23]. However, most of this evidence was obtained in general or student populations, while research on EI in specific groups of patients with chronic somatic diseases, including AH, is still fragmentary. Studies devoted to alexithymia, a construct conceptually opposite to several components of EI, are more numerous and indicate a higher prevalence of alexithymic features among patients with essential hypertension [12; 13]. In the scientific literature of Uzbekistan, the emotional sphere of patients with cardiovascular diseases has been studied mainly in clinical and psychiatric terms, and the emotional intelligence of hypertensive patients has not yet become a subject of systematic psychological research.

Thus, there is a contradiction between the recognised importance of emotional factors in the development and course of AH and the insufficient systematisation of knowledge about the emotional intelligence of these patients. This determines the relevance of the present study.

The **aim** of the article is to analyse and systematise scientific data on the psychological features of emotional intelligence in patients with arterial hypertension and, on this basis, to define directions for psychological diagnostics and support of such patients. To achieve the aim, the following **tasks** were set: (1) to clarify the content and structure of the concept of emotional intelligence and the main approaches to its measurement; (2) to summarise evidence on the relationship between EI, alexithymia, negative emotional states and arterial hypertension; (3) to describe the psychological profile of the emotional sphere of hypertensive patients; (4) to analyse the mechanisms linking EI with blood pressure and to propose a design for an empirical study.

Materials And Methods

The study was conducted as a narrative (theoretical-analytical) review of the scientific literature. This design was chosen because the available research on EI and AH is heterogeneous in terms of theoretical models, measurement instruments and patient samples, which makes a narrative synthesis more appropriate than a quantitative meta-analysis at the current stage.

Sources and search strategy. The search was carried out in the international databases PubMed/MEDLINE, Scopus and Google Scholar, as well as in national scientific journals and dissertation abstracts of the Republic of Uzbekistan and the CIS countries. Publications from 1990 (the year the concept of EI was introduced) to 2025 were considered. Combinations of the following keywords were used: "emotional intelligence", "trait emotional

intelligence", "alexithymia", "emotion regulation", "anger expression", "anxiety", "depression", "psychological stress", "hypertension", "blood pressure", "cardiovascular disease", "treatment adherence", as well as their Russian and Uzbek equivalents.

Inclusion criteria. The review included: (a) theoretical works establishing the main models of EI and alexithymia; (b) psychometric studies describing validated instruments for measuring EI and related constructs; (c) systematic reviews and meta-analyses of the relationship between EI and health; (d) prospective, cohort and case-control studies and meta-analyses examining the relationship between emotional characteristics and AH; (e) clinical guidelines on the management of AH. Publications without peer review, popular literature and studies with unclear methodology were excluded from the analysis.

Data analysis. The selected sources were analysed using the method of thematic synthesis. At the first stage, the main findings of each source were extracted; at the second stage, they were grouped into thematic blocks; at the third stage, the blocks were compared and interpreted in the light of the four-branch ability model of EI (perception, use, understanding and management of emotions) [22]. Methods of theoretical analysis, comparison, generalisation and psychological modelling were also used. Since the review does not contain primary empirical data, no statistical processing was performed; the quantitative results of the primary studies are presented as reported by their authors.

Results

1. The concept and structure of emotional intelligence. The analysis made it possible to identify three main approaches to EI, which differ in their understanding of the nature of the construct and, accordingly, in methods of measurement. In the **ability model** of J. Mayer and P. Salovey, EI is considered as a form of intelligence, a set of cognitive abilities for processing emotional information. It includes four hierarchically organised branches: perception of emotions, use of emotions to facilitate thinking, understanding of emotions and management of emotions [22]. This model is measured with performance tests in which there are more and less correct answers, primarily the MSCEIT [6]. In the **mixed model** of R. Bar-On, EI is interpreted as a broad set of emotional and social competencies, skills and facilitators that determine how effectively a person copes with environmental demands, including intrapersonal and interpersonal skills, stress management, adaptability and general mood [5]. The **trait model** of K. V. Petrides and A. Furnham defines EI as a constellation of emotional self-perceptions located at the lower levels of personality hierarchies and measured with self-report questionnaires [7].

For clinical health psychology, the distinction between ability EI and trait EI is important. Ability EI reflects what the patient is able to do with emotional information, while trait EI reflects how the patient perceives his or her own emotional abilities and typical emotional behaviour. The meta-analytic data show that trait EI measures usually show stronger associations with health indicators than ability measures [10], which partly reflects the overlap of trait EI with personality traits and current emotional well-being. Therefore, in studies of patients with AH, it is advisable to combine instruments of both types.

2. Emotional intelligence and health. N. S. Schutte and colleagues in a meta-analytic investigation found that higher EI is associated with better mental health, psychosomatic health and physical health, with the strongest relationship observed for mental health [9]. A later, more comprehensive meta-analysis by A. Martins, N. Ramalho and E. Morin confirmed these results on a larger body of studies and showed that the strength of the relationship depends on the measurement approach: it is greater for trait and self-report measures than for ability tests [10]. M. Zeidner, G. Matthews and R. Roberts, analysing the "EI–health–well-being nexus", emphasised that EI can influence health through several pathways: through the choice of more adaptive coping strategies, through a lower intensity and duration of negative emotional reactions to stress, through the quality of social relationships and through health-related behaviour [23]. These pathways are directly relevant to AH, in which stress reactivity, behaviour and social support are recognised risk and protective factors.

3. Alexithymia as a deficit of emotional intelligence in hypertension. The term "alexithymia" denotes difficulties in identifying and describing one's own feelings, difficulties in distinguishing between feelings and

bodily sensations of emotional arousal, and an externally oriented style of thinking [11]. Conceptually, alexithymia corresponds to a deficit of the perception and understanding branches of EI, and empirical studies show a substantial inverse relationship between these constructs. The most widely used instrument for its assessment is the Toronto Alexithymia Scale (TAS-20) [20].

A. Jula, J. K. Salminen and S. Saarijärvi, in a study of middle-aged men with untreated essential hypertension and normotensive controls, found that alexithymic features were more common in hypertensive patients, and concluded that alexithymia may be considered a facet of essential hypertension [12]. M. A. Lumley, L. C. Neely and A. J. Burger, in a review of the assessment of alexithymia in medical settings, showed that alexithymia is associated with a range of somatic conditions and with patterns of health behaviour and use of medical care, and recommended taking it into account in the treatment of patients with chronic diseases [13]. From the standpoint of EI, this means that a significant proportion of patients with AH may have a reduced capacity to recognise their emotional states and to distinguish them from bodily symptoms. Such patients tend to describe stressful experiences through somatic complaints ("headache", "pressure in the chest") rather than emotional categories.

4. Negative emotional states and the risk of hypertension. T. Rutledge and B. E. Hogan, in a quantitative review of prospective studies, showed that psychological factors such as anger, anxiety, depression and their combinations predict the subsequent development of hypertension, although the effect sizes are modest [14]. Y. Pan and co-authors, in a systematic review and meta-analysis of epidemiological studies, found a significant association between anxiety and hypertension, both in cross-sectional and in prospective studies [15]. L. Meng and colleagues, summarising prospective cohort studies, concluded that depression increases the risk of incident hypertension [16]. A. Steptoe and M. Kivimäki, analysing the relationship between stress and cardiovascular disease, emphasised the role of chronic work and life stress, social isolation and acute emotional triggers in cardiovascular risk [18].

These data are important for understanding EI in AH, because the ability to understand and regulate emotions is one of the factors that determine how often and how intensely a person experiences anxiety, depressive states and anger, and how long these states persist. In other words, low EI can be regarded as a psychological vulnerability factor that increases the burden of negative emotions, which, in turn, are linked with elevated blood pressure.

5. Psychological profile of the emotional sphere of patients with AH. Generalisation of the analysed data allowed us to describe the probable features of the emotional sphere of hypertensive patients in terms of the four branches of EI (Table 1). It should be emphasised that this profile is a theoretical generalisation based on the literature and requires empirical verification in each specific sample.

Table 1. Probable features of emotional intelligence in patients with arterial hypertension (theoretical generalisation)

EI branch	Probable features in AH	Evidence base
Perception of emotions	Difficulties in identifying one's own feelings; confusion of emotional arousal with bodily sensations; reduced attention to emotional signals	Alexithymia studies [11; 12; 13]
Use of emotions	Limited use of emotions to guide thinking and decisions; rational, externally oriented style	Alexithymia construct [11]; EI theory [22]
Understanding of emotions	Insufficient understanding of the causes and dynamics of one's emotions and their links with stress and blood pressure	Alexithymia studies [12; 13]; health pathways [23]
Management of emotions	Predominance of suppression; accumulation of anger, anxiety and depressive states; less use of reappraisal	Emotion regulation [17]; prospective risk data [14; 15; 16]

6. Instruments for assessing EI and related constructs. The analysis of the literature made it possible to select a set of validated instruments that can be used in the psychological examination of patients with AH (Table 2). Their combination makes it possible to evaluate both the actual emotional abilities of the patient and his or her emotional self-perception, as well as the level of alexithymia and current emotional state.

Table 2. Instruments recommended for assessing emotional intelligence and related constructs in patients with AH

Instrument	Construct / model	Format	Source
MSCEIT V2.0	Ability EI, four branches	Performance test, 141 items	[6]
EQ-i	Mixed model of emotional-social intelligence	Self-report	[5]
TEIQue	Trait EI	Self-report	[7]
Schutte Self-Report EI Test (SSEIT)	EI based on the Salovey–Mayer model	Self-report, 33 items	[8]
TAS-20	Alexithymia	Self-report, 20 items	[20]

For the conditions of Uzbekistan, it is important that the instruments used are adapted and validated in the Uzbek and Russian languages, and that age, education and cultural norms of emotional expression are taken into account during interpretation.

Discussion

The results of the review make it possible to consider emotional intelligence as an integrative psychological factor that links together previously separate lines of research on the emotional sphere of hypertensive patients: alexithymia, negative affectivity, anger expression and coping with stress. Several mechanisms through which EI can influence the development and course of AH can be identified.

Psychophysiological mechanism. Emotions are accompanied by activation of the sympathetic nervous system and the hypothalamic-pituitary-adrenal axis, which leads to an increase in heart rate, vascular tone and blood pressure. In healthy regulation, these reactions are short-lived. If a person poorly recognises and regulates emotions, negative states persist longer and recur more often, and cardiovascular activation becomes prolonged. According to A. Steptoe and M. Kivimäki, it is precisely the chronic nature of stress and the impaired recovery after stress that are important for cardiovascular risk [18]. J. Gross's process model of emotion regulation distinguishes antecedent-focused strategies, such as cognitive reappraisal, and response-focused strategies, such as expressive suppression [17]. Suppression reduces the outward expression of emotion but does not reduce, and may even increase, physiological arousal. This corresponds to the classical psychosomatic idea of "suppressed anger" in hypertension and allows it to be reformulated in terms of modern emotion regulation research. Patients with a developed management branch of EI are more likely to use reappraisal and problem-focused coping, which, in the terms of R. Lazarus and S. Folkman, reduces the perceived threat of the stressful situation [19].

Behavioural mechanism. EI influences health-related behaviour. People with difficulties in regulating emotions more often use smoking, alcohol, overeating, especially of salty and high-calorie foods, and physical inactivity as ways of reducing emotional tension. These behaviours are well-established risk factors for AH [2]. In addition, depression is known to be a risk factor for non-adherence to medical treatment [21]. Since AH requires lifelong medication, regular blood pressure monitoring and lifestyle change, the emotional resources of the patient directly influence whether the doctor's recommendations will be followed.

Communicative and social mechanism. The interpersonal components of EI, such as understanding the emotions of others and managing relationships, determine the quality of the patient's social support and the doctor–patient relationship. A patient who is able to express concerns, ask questions and understand the doctor's emotional messages is more likely to form a partnership with the doctor. Social isolation and low social support, in turn, are recognised cardiovascular risk factors [18].

Diagnostic mechanism. Alexithymic features reduce the patient's ability to notice the connection between emotional states and blood pressure fluctuations. Such a patient may not recognise stress as a cause of a hypertensive crisis and, conversely, may misinterpret emotional arousal as a somatic symptom. This complicates self-monitoring and may lead both to underestimation and to overestimation of symptoms [13].

The data of the review should be interpreted with caution. Firstly, most of the studies are cross-sectional, which does not allow a causal relationship to be established: lower EI may be not only a cause but also a consequence of living with a chronic disease, the diagnosis itself, side effects of medication and changes in lifestyle. Secondly, the relationship between EI and health depends on the measurement approach; self-report instruments partly reflect current mood, which inflates associations [10]. Thirdly, the effect sizes linking psychological factors and the development of AH are modest [14], which means that EI should be considered as one of many factors within a biopsychosocial model, not as an independent cause of the disease. Fourthly, cultural features of emotional expression, in particular norms of restraint in expressing negative emotions, may influence both the level of EI and the results of its measurement, which is especially relevant for Central Asian populations.

Practical implications. The results of the review substantiate the inclusion of a psychological component in the comprehensive management of AH. At the diagnostic level, it is advisable to include short screening instruments for alexithymia, anxiety and depression in the examination of patients with newly diagnosed or poorly controlled AH. At the level of intervention, programmes for the development of EI are promising: according to a systematic review by I. Kotsou and colleagues, EI can be developed through training, and such programmes have shown positive effects on well-being and health indicators [24]. For patients with AH, such training may include: recognising and naming emotions and distinguishing them from bodily sensations; keeping a diary that links emotional events with blood pressure measurements; learning cognitive reappraisal and constructive expression of anger; relaxation and breathing techniques; and developing communication skills with the doctor and family. These methods can be integrated into "schools for patients with hypertension" that operate in primary health care institutions.

Proposed empirical study design. To verify the theoretical conclusions in the conditions of Uzbekistan, we propose a comparative and correlational study. Participants: patients with stage I–II essential hypertension aged 35–65 years undergoing treatment in outpatient and inpatient institutions, and a comparison group of normotensive persons matched by sex, age and education. Methods: MSCEIT or an adapted ability-based EI test; a trait EI questionnaire; TAS-20; standard scales of anxiety and depression; a questionnaire on coping strategies; a treatment adherence scale; office and, where possible, ambulatory blood pressure measurements. Statistical analysis: comparison of groups, correlation analysis and regression modelling of the contribution of EI to blood pressure control and treatment adherence, controlling for age, body mass index, duration of disease and medication. The second stage could be a controlled study of the effectiveness of an EI development programme for patients with AH. Such a study would make it possible to obtain the first national data on this problem and to develop evidence-based recommendations for psychological support.

Conclusion

1. Emotional intelligence is a multidimensional psychological construct that includes the perception, use, understanding and management of emotions; it is studied within the ability, mixed and trait approaches, each of which has its own validated measurement instruments.

2. Meta-analytic data indicate a consistent positive relationship between EI and mental, psychosomatic and physical health. Patients with essential hypertension are more likely to have features of alexithymia, which

corresponds to a deficit of the perception and understanding branches of EI, while anxiety, depression and chronic stress are prospectively associated with the development of AH.

3. The probable psychological profile of a hypertensive patient includes difficulties in recognising and verbalising feelings, a tendency to confuse emotions with bodily sensations, insufficient understanding of the relationship between emotions, stress and blood pressure, and a predominance of suppression over adaptive regulation strategies.

4. EI can influence blood pressure through psychophysiological (prolonged stress activation), behavioural (risk behaviour and treatment adherence), communicative (social support and doctor–patient relationship) and diagnostic (self-monitoring) mechanisms.

5. Assessment and development of emotional intelligence should become a component of the comprehensive, biopsychosocial management of arterial hypertension. Empirical research on the emotional intelligence of hypertensive patients in Uzbekistan, using adapted instruments and the design proposed in this article, is a priority task for further study.

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