
MULTIDISCIPLINARY MODEL FOR POPULATION ANXIETY ASSESSMENT WITHIN THE PUBLIC HEALTH PARADIGM UNDER MILITARY RISKS

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INTRODUCTION

The imperative of public mental health during protracted military conflicts emerges as a paramount vulnerability within national healthcare architectures. Amid war conditions, the civilian population experiences unrelenting exposure to existential danger, fundamental unpredictability, and catastrophic socioeconomic upheavals manifesting prominently in massive internal displacement, the loss of domestic security, and forced adaptation to volatile hosting environments¹. These structural stressors catalyze a profound, pervasive escalation of anxiety across all demographic strata, entirely transcending any geographical proximity to the actual front lines. Under such enduring, high-intensity distress, anxiety outgrows the status of a subjective psychological phenomenon or an isolated clinical symptom. Instead, it undergoes a qualitative shift, evolving into a collective, population-wide adaptive response that fundamentally reconfigures the daily functioning, systemic resilience, and resource capacity of a society subjected to long-term trauma.

Concurrently, within the public health framework, conventional paradigms frequently demonstrate substantial conceptual and practical friction when addressing distress shaped by the compounding crises of full-scale warfare. The historical trajectory of clinical psychology exhibits a distinct reliance on mono-paradigmatic frameworks that fluctuate sequentially or operate in parallel isolation, rarely achieving cross-theoretical convergence. Such rigid insulation effectively obscures a spectrum of critical neurobiological and psychological markers vital for both diagnostic precision and therapeutic efficacy. This diagnostic gap is further exacerbated by the severe limitations of classical diagnostic criteria; formulated originally for peacetime stability, they fail

¹ Nesterenko M. The Role of Environmental Factors in the Onset of Anxiety Disorders. *Current Issues and Advances in Modern Science : Proceedings of the International Scientific Conference* (Amsterdam, Netherlands, December 18, 2025). Bookmundo, 2025. P. 56–58. <https://doi.org/10.64076/iedc251218.08>.

to demonstrate relevance when applied to populations navigating long-term military risks.

A profound example of this misalignment is found in strict chronological mandates, such as the requisite six-month symptom duration traditionally demanded for diagnosing generalized anxiety disorders. For the population of Ukraine, which has endured years of perpetual, systemic threats, sustained anxiety represents an entirely adequate, reality-based response to an objectively perilous environment. Consequently, under the fluid and volatile conditions of active warfare, enforcing long-term chronological thresholds is not merely obsolete but operationally counterproductive. This clinical inertia invites a severe risk of over-pathologizing evolutionarily justified, protective alert mechanisms designed for human survival. Conversely, the absence of nuanced, situation-adapted screening instruments risks ignoring early somatic and neurohumoral exhaustion in individuals who urgently require timely, preventative scaffolding before a full-scale pathological anxiety consolidates and triggers irreversible personality maladaptation.

Consequently, the contemporary architecture of public health necessitates a decisive paradigm shift toward holistic, multi-level monitoring and preemptive intervention frameworks. Fragmented conceptualizations which scrutinize psychological schemas, biochemical indicators, or behavioral coping mechanisms in structural isolation demonstrate a fundamental incapacity to capture the intrinsically complex, interwoven matrix of population-wide distress. To mitigate pervasive diagnostic inaccuracies, prevent the irrational allocation of healthcare system resources, and counteract inappropriate mass pharmacotherapy, the scientific community is challenged to engineer an integrative diagnostic matrix. This analytical tool must operate a reliable differentiation between adaptive (normative) anxiety and destructive (pathological) anxiety. Such differentiation is achieved by evaluating the degree to which an individual preserves their psychological subjectivity (defined specifically as the individual's retention of internal control over elements that objectively remain controllable within their sphere of agency), maintains the capacity to compensate for depleted personal resources, and exhibits systemic behavioral flexibility amid external instability and perpetual real or potential threats.

The **objective** of this study is to substantiate an integrative, multidisciplinary systems model of population anxiety assessment tailored for the public health infrastructure, thereby establishing a rigorous conceptual framework for distinguishing between normative and pathological anxiety under the conditions of chronic military risks.

Research Methods²: *comparative analysis of paradigms* – applied to systematically examine the specific features of various mono-paradigmatic approaches to conceptualizing anxiety and to identify common structural elements for their integration; *modeling* – used to conceptualize anxiety as a holistic, multi-level adaptive mechanism of interaction between the individual and the environment; theoretical synthesis and generalization – employed to determine the markers and criteria of biopsychosocial anxiety diagnosis, integrating them into a unified multidisciplinary protocol for the public health system.

1. Epistemological Limitations of Mono-Paradigmatic Approaches to Anxiety in Public Health Contexts

Historically, the conceptualization of anxiety within the international biopsychosocial discourse has been characterized by profound paradigmatic fragmentation, resulting in an artificial schism between its somatic, psychic, and social determinants. Within the framework of macro-level monitoring in the public health system (particularly under the pressure of prolonged military sociogenic distress) attempts to rely on any single, isolated paradigm prove fundamentally irrelevant, methodologically restricted, and practically ineffective. To construct a viable and agile population-wide screening framework, there emerges an urgent epistemological necessity to critically evaluate how traditional mono-paradigmatic models reduce and isolate discrete dimensions of human functioning. Such artificial compartmentalization of a holistic anxiety phenomenon does not merely distort the diagnostic landscape; it directly conflicts with the complex requirements and challenges facing modern integrated public health infrastructure.

The **psychodynamic paradigm**, rooted in classical psychoanalysis and its subsequent ego-psychological and interpersonal evolutions (Z. Freud, K. Horney, H. S. Sullivan, A. Adler, C. G. Jung), accurately identifies anxiety as a fundamental psychic signaling system that alerts the organism to danger or threat³. From this perspective, anxiety functions as a marker of endogenous conflict or a subjective appraisal of a safety deficit within the environmental architecture. K. Horney's concept of basic anxiety, generated by a primary lack of security at the earliest stages of ontogenesis⁴, and Jung's conceptualization

² *Linguistic Note.* As the author is a non-native English speaker, the Gemini (Google) large language model was utilized as an AI-assisted translation and language editing tool to ensure academic phrasing, structural clarity, and adherence to international publication standards, while the author maintained full control over conceptual and scientific accuracy.

³ Freud S. Inhibitions, symptoms and anxiety. Monograph Series of the Psychoanalytic Institute No. 8. Stamford, Conn.: Psychoanalytic Institute, 1927.

⁴ Horney K. The neurotic personality of our time. New York : W. W. Norton & Company, 1937.

of anxiety as an indicator of blocked individuation, offer profound insights into individual sensitivity and personal vulnerability. Moreover, these approaches highlight the constructive, evolutionary role of anxiety as a driving catalyst for personality development and the integration of individuality.

However, within the macro-level framework of public health during extreme military sociogenic distress, the psychodynamic approach proves operationally limited and inefficient. Its heavy reliance on latent, unconscious processes, the retrospective analysis of early childhood experiences, and highly subjective intrapsychic defense mechanisms renders it practically unsuited for unification and standardization required for mass screening. Public health operates on the premises of objective, scalable, precise, and rapidly verifiable parameters. It possesses neither the capacity nor the structural resources to deploy lengthy, individualized depth-psychology sessions to assess population-wide distress when millions of citizens simultaneously navigate a shared traumatic reality under the pressure of daily existential threats.

The **humanistic and existential paradigms** (K. Rogers, A. Maslow, R. May, I. Yalom) redirect conceptual focus toward the phenomena of incongruence, obstructed self-actualization, and immediate confrontation with the ultimate givens of existence – specifically death, freedom, isolation, and meaninglessness. Within a wartime milieu, existential anxiety does not represent a clinical pathology; rather, it manifests as an authentic, constructive responsive configuration to the violent dismantling of peaceful coexistence. A distinct dimension of anxiety analysis is unveiled through A. Maslow's⁵ Jonah complex defined as the evasion of one's own growth, which under military risks articulates itself in specific personality patterns such as the refusal to actualize latent potential due to a perceived untimeliness of personal achievements, the delayed life syndrome, or an acute dread of assuming leadership responsibilities under crisis conditions. Concurrently, existential dread as conceptualized by I. Yalom fundamentally reconfigures the functional role of anxiety under military challenges⁶, mutating it from a destabilizing agent into an epistemological portal for the radical reappraisal of values, the reconstruction of existential meaning, and the ultimate consolidation of lived experience in the face of perpetual peril.

The primary epistemological constraint of this theoretical school regarding public health monitoring resides in the absolute deficit of quantifiable psychometric or physiological criteria within its paradigm. While humanistic architecture establishes a crucial philosophical axiom (predicating that under

⁵ May R. *The meaning of anxiety*. New York: Ronald Press Company, 1950. <https://doi.org/10.1037/10760-000>.

⁶ Yalom I. D. *Existential psychotherapy*. New York : Basic Books, 2020.

military risks, the experience of anxiety constitutes a normal reaction to an abnormal situation) it fails to equip the public health system with operationalized, numerically measurable markers capable of differentiating individuals executing constructive adaptation from those whose intrapsychic mechanisms are undergoing catastrophic structural collapse and chronic maladaptation.

The **cognitive-behavioral paradigm**, evolving from early behavioral conditioning configurations (J. B. Watson, B. F. Skinner) to conceptual schema frameworks (A. Ellis, A. T. Beck, D. A. Clark)⁷ and contemporary metacognitive models of abstract rumination (E. Watkins, H. Roberts), equips psychological science with highly structured and empirically quantifiable diagnostic instruments. From this theoretical standpoint, anxiety is operationalized as the direct product of activated, maladaptive threat schemas, irrational core beliefs, and repetitive cognitive cycles that misinterpret benign environmental stimuli as harbingers of imminent peril.

Nevertheless, the cognitive-behavioral framework encounters a severe logical and epistemological contradiction when deployed for population monitoring under active military threats. Classical cognitive architectures define anxiety as an exaggerated or irrational reaction to a misjudged stimulus. However, when an entire population resides under a permanent, objective threat of daily missile strikes, artillery bombardments, and systematic infrastructure destruction, the cognitive anticipation of catastrophe emerges as a highly rational, fact-based mechanism. In this specific socio-political context, the cognitive threat schemas that trigger anxiety cannot be labeled as cognitive distortions; instead, they function as an adequate and mathematically precise reflection of the objective external parameters.

Consequently, the unadjusted application of standardized cognitive-behavioral screening metrics, lacking rigorous adaptation to wartime realities, inevitably catalyzes widespread hyper-diagnosis. This clinical inaccuracy falsely categorizes valid, survival-oriented cognitive alertness as a clinical disorder of pathological anxiety. Furthermore, an exclusive focus on cognitive re-framing completely overlooks the profound, exhausting physiological substrate that chronic psychological hyper-vigilance imposes on the physical matrix and general functioning of the human organism.

This physiological exhaustion falls squarely within the investigative domain of the **dispositional, neuropsychological, and psychoendocrine paradigms**. The dispositional approach (H. Eysenck, C. Spielberger) accentuates stable individual-typological properties of the personality, linking high constitutional trait anxiety

⁷ Beck A. T., Clark D. A. *Cognitive therapy of anxiety disorders: Science and practice*. Guilford Press, 2010.

to genetically predetermined low thresholds for limbic system activation, which articulates itself as a distinct neurobiological hypersensitivity to variables of uncertainty. The neuropsychological school, drawing upon J. LeDoux's two-system model of threat processing⁸, J. A. Gray's Behavioral Inhibition System (BIS), and modern concepts of predictive coding (A. Peters, K. Friston, L. Feldman Barrett)⁹, re-conceptualizes the neural architecture as an active prediction engine engineered to minimize metabolic energy expenditure and anticipate imminent danger. These insights are directly complemented by the psychoendocrine paradigm (B. Bandelow, R. Sapolsky)¹⁰, which monitors the prolonged hyperactivation of the hypothalamic-pituitary-adrenal (HPA) axis, mapping the destructive, neurotoxic consequences of chronic glucocorticoid and cortisol overexposure on brain morphology, specifically regarding the reduction of hippocampal volume and the impairment of prefrontal cortex executive regulation.

These biological and physiological frameworks equip the public health infrastructure with objective, quantifiable somatic biomarkers that purely psychological theories structurally lack. Yet, the methodological constraint of these models is inversely symmetrical to the limitations outlined previously: they operate within a framework of rigorous bio-reductionism. Conceptualizing population-wide anxiety merely as a manifestation of an overactive amygdala, an endocrinological depletion of the HPA axis, or a mechanical error in predictive coding strips the human experience of its psychological context and social agency. Crucially, such reductionism negates the very teleological essence of the anxiety mechanism – its primary, evolutionarily justified adaptive role.

Public health monitoring cannot, by definition, be reduced to mass laboratory cortisol assays or universal functional neuroimaging screenings, both of which remain economically utopian and logistically unfeasible under wartime conditions. More importantly from an epistemological standpoint, radical bio-reductionism overlooks the phenomenon wherein two individuals exhibiting identical thresholds of physiological and neurohumoral activation can display diametrically opposed levels of social, communicative, and occupational functioning, determined entirely by the unique configuration of their personality and individuality.

⁸ LeDoux J. E., Pine D. S. Using neuroscience to help understand fear and anxiety: A two-system framework. *American Journal of Psychiatry*. 2016. Vol. 173(11). P. 1083–1093. <https://doi.org/10.1176/appi.ajp.2016.16030353>.

⁹ Feldman Barrett L. *How emotions are made: The secret life of the brain*. Houghton Mifflin Harcourt, 2017.

¹⁰ Sapolsky R. M. *Why zebras don't get ulcers: The acclaimed guide to stress, stress-related diseases, and coping*. Macmillan, 2004.

The **praxeological paradigm** (M. Eysenck, H. Heckhausen, J. Mandler) investigates the mechanisms through which anxiety actively determines human activity, systemic efficiency, and social productivity. Rooted historically in the tenets of the Yerkes-Dodson law and extensively advanced within M. Eysenck's processing efficiency theory, this conceptual perspective explicates an ambivalent configuration of the anxiety response¹¹. On one hand, it operates as a severe cognitive interference that exhaustively depletes working memory capacity; on the other hand, it can function as a potent motivational catalyst that mobilizes latent intrapsychic resources to navigate and overcome environmental barriers. Within the macro-level population dimension, widespread anxiety can either catalyze profound social maladaptation via the total paralysis of adaptive behavior or, conversely, stimulate highly coordinated, prosocial patterns and civic mobilization designed for societal cohesion and collective survival.

Nevertheless, the primary methodological constraint of the praxeological framework resides in its exclusive focus on the final behavioral and occupational output. It fails to synthesize a comprehensive diagnostic map detailing the internal parameters of the anxiety phenomenon, specifically the somatic, neurohumoral, or psychological markers that directly mediate such external activity. This framework operates through retrospective verification, observing the collapse of productivity or social isolation only after they have already manifested as established behavioral facts. Consequently, it fails to intervene during the formative phases where destructive transitions could be preemptively managed. Such conceptual limitations directly conflict with the foundational mandates of the modern public health infrastructure, which prioritizes early, proactive, and preventive detection of population-wide threats to mental well-being and their timely elimination.

This epistemological critique of the eight mono-paradigmatic frameworks exposes a critical, unaddressed scientific gap within contemporary psychological science. The psychodynamic and existential traditions generate profound contextual and interpretative value, yet they fundamentally lack psychometric scalability and operationalized diagnostic criteria suitable for extrapolation to the general population. Conversely, the cognitive-behavioral school delivers highly verified metrics, which, under scrutiny, manifest operational limitations due to their incapacity to accommodate the objective validity of military hazards and precisely interpret responses that this paradigm undifferentiated labels as maladaptive anxiety. While the biological and neuroendocrine frameworks yield precise, objective biomarkers, they operate via radical bio-reductionism,

¹¹ Eysenck M. W., Derakshan N., Santos R., Calvo M. G. Anxiety and cognitive performance: Attentional control theory. *Emotion*. 2007. Vol.7(2). P. 336–353. <https://doi.org/10.1037/1528-3542.7.2.336>.

systematically ignoring personal subjectivity (agency) and individual variability, a dimension inherently characterized by the absolute absence of any linear dependence between a specific biochemical marker value and actual personality maladaptation. Finally, the praxeological paradigm captures the direct impact of anxiety on an individual's societal functioning, but functions purely *ex post facto*, thereby obstructing timely, preemptive intervention and the deployment of early prevention strategies.

For a public health infrastructure navigating chronic military risks, relying upon any single analytical dimension in isolation from the others proves dangerously obsolete and methodologically ineffective. Such conceptual insulation inevitably triggers either the false pathologization of normal, survival-oriented defensive responses or the failure to register early indicators of systemic psychophysiological exhaustion across the population, ultimately culminating in severe socio-demographic disruption, reduced occupational capacity, and the degradation of national human capital. Consequently, the contemporary architecture of public health demands a radical, systematic paradigmatic synthesis: the engineering of an integrative model wherein these historically competing frameworks cease their theoretical friction and instead operate as mutually reinforcing, hierarchically organized layers of a single, comprehensive population anxiety monitoring protocol¹².

2. The Five-Level Matrix of Population Anxiety: Synthesizing Theoretical Paradigms with Diagnostic Markers

To bridge the profound epistemological fragmentation inherent in mono-paradigmatic approaches, this study substantiates an integrative, multi-level diagnostic matrix engineered specifically for population-wide anxiety screening under conditions of chronic military risks. Rather than conceptualizing theoretical paradigms as mutually exclusive doctrines, this model repositions them as complementary analytical prisms that validate discrete clinical and functional indicators of the psychic state. Through the systematic orchestration of these indicators into five distinct, vertically integrated strata – namely the phenomenological, somatic, neurohumoral, psychological, and behavioral-activity levels¹³ – the public health architecture is equipped with a highly scalable instrument tailored for the precise monitoring of macro-level distress (*see Figure 1*). Crucially, this structural configuration achieves population-wide

¹² Нестеренко М. В. Теоретико-методологічний аналіз парадигм концептуалізації тривожності в зарубіжній психології. *Габітус*. 2026. Вип. 83, т. 1. С. 49–56. <https://doi.org/10.32782/hbts.83.1.7>.

¹³ Нестеренко М. В. Компаративні критерії диференційної діагностики нормативної та патологічної тривожності: системний підхід. *Габітус*. 2026. Вип. 82, т. 2. С. 11–19. <https://doi.org/10.32782/hbts.82.2.1>.

tracking while fully maintaining the epistemic integrity of personal agency and the objective validity of external environmental hazards.

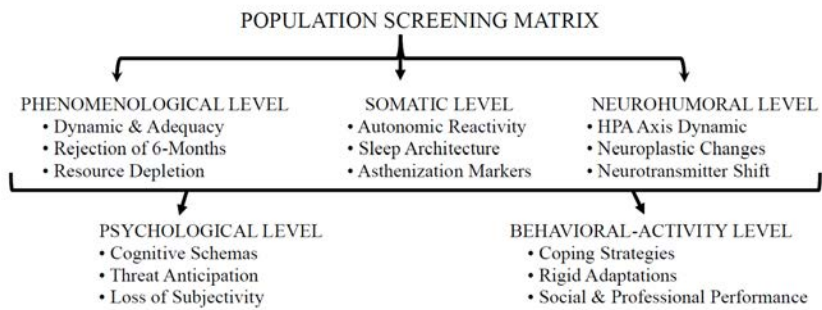


Fig. 1. Structural and hierarchical organization of the multidisciplinary population screening matrix

The Phenomenological Level. The first level of the proposed matrix focuses directly on the immediate phenomenological manifestations of anxiety within the population's consciousness, facilitating continuous tracking of the state's internal dynamics, situational adequacy, determination, and the velocity of personal resource exhaustion (Dynamic & Adequacy, Resource Depletion). Grounded in an existential-humanistic methodological framework, this dimension interprets anxiety under wartime conditions not as a maladaptive error or structural defect of the psyche, but as an authentic, evolutionarily justified response configuration to the destructive and threatening alterations within the objective external environment.

The pivotal methodological shift executed at this level is the decisive and uncompromised rejection of classical peacetime chronological thresholds, specifically the traditional six-month criteria. Under conditions of prolonged existential peril, waiting for a half-year milestone to verify an anxiety disorder proves operationally destructive to the public health architecture, as it paralyzes early intervention strategies. Consequently, instead of relying on a purely time-based duration, the core of differentiation shifts toward a structural-dynamic analysis of functional flexibility.

Normative (adaptive) anxiety is characterized by a distinct non-linear dynamic: it remains fluid, situationally determined, and contextually adequate. Acute peaks of distress materialize as a direct, protective reaction to specific threat events, subsequently transitioning into periods of de-escalation (subsiding drops) and relative, stabilizing plateaus. Crucially, while the

absolute baseline indices of population anxiety remain permanently elevated compared to a peacetime society, this undulating dynamic successfully mobilizes and channels metabolic energy for collective survival. Conversely, pathological anxiety experiences a total collapse of this homeostatic flexibility, decoupling from immediate external triggers to establish a rigid, autonomous, and monotonous functional pattern that accelerates the rapid, uncompensated depletion of the individual's vital life resources.

The Somatic Level. The second hierarchical configuration of the proposed matrix translates subjective psycho-emotional distress into objective, physiological parameters, intersecting directly with the dispositional and neuropsychological paradigms. Within population-wide macro-screening programs, exclusive reliance on psychometric self-report instruments introduces severe validation distortions driven by social desirability factors, defensive mechanisms of trauma-induced emotional numbing (psychic anesthesia), or socio-cultural stigmas surrounding mental health. The somatic dimension bypasses these diagnostic barriers through the objective registration of direct physical expressions: muscle tone, autonomic reactivity, gastrointestinal sensitivity, acoustic-sensory hyper-reactivity, chronobiological sleep rhythms, and markers of general psychophysiological asthenization.

Under the destructive pressure of perpetual military risks, the population's autonomic nervous system undergoes profound topological shifts. This model categorizes autonomic indicators based on the criteria of their functional proportionality and transience versus chronic rigidity. Normative somatic anxiety manifests as acute, transient sympathetic spikes (emergency tachycardia, tachypnea, and situational insomniac episodes occurring precisely during hostile bombardments or upon alert notifications via threat-monitoring channels), which demonstrate a clear trajectory toward regression and return to the individual homeostatic baseline once the immediate peril subsides or decelerates. Conversely, pathological somatic anxiety is characterized by a total collapse of this adaptive flexibility. It operates as permanent, uncompensated autonomic dysregulation, chronic gastrointestinal dysfunctions, persistent sensory hypersensitivity to benign ambient sounds, and deep structural destruction of the sleep architecture and its restorative phases. This continuous physiological strain verifies the exhaustion of the organism, equipping the public health infrastructure with explicit, empirical markers of population-wide asthenization.

The Neurohumoral Level. The third hierarchical layer of the proposed matrix penetrates the fundamental biological substrate of chronic distress, drawing directly from the psychoendocrine and neurobiological paradigms. This dimension focuses on the operational status of the hypothalamic-pituitary-adrenal (HPA)

axis, the fluctuating dynamics of cortisol and glucocorticoids, neurotransmitter shifts accompanied by receptor desensitization (specifically concerning gamma-aminobutyric acid, or GABA), and metrics of cortico-limbic connectivity and structural neuroplasticity.

Within the public health paradigm, neurohumoral monitoring explicates the latent, invisible transition from the phase of structural resistance to biological exhaustion and collapse. When a population experiences prolonged exposure to extreme wartime conditions, the HPA axis initially facilitates homeostatic adaptation: the hyper-production of cortisol and catecholamines mobilizes vital energy resources via accelerated glycolysis and heightened cognitive alertness. However, when the existential threat solidifies into a permanent baseline, this evolutionary mechanism undergoes severe degradation.

The diagnostic matrix differentiates functional states by tracking the transition from high-functioning stress tolerance to the toxic down-regulation of the receptor apparatus and the pathological flattening of the diurnal cortisol curve. The pathological transformation is characterized by a state of profound neurohumoral depletion, wherein the prefrontal cortex loses its top-down inhibitory control over the hyper-reactive amygdala. This neurobiological failure is compounded by a persistent neurotransmitter imbalance and the initiation of chronic neuroinflammation, which directly compromises hippocampal and prefrontal neuroplasticity. This biochemical shift mutates what was once an evolutionary survival mechanism into a rigid, self-destructive, and systemic biological pathology that locks the population into a state of chronic maladaptation.

The Psychological Level. The fourth layer of the proposed matrix evaluates the cognitive, affective, and self-regulatory dimensions of distress, integrating the cognitive-behavioral, psychodynamic, humanistic, and existential paradigms into a unified framework of psychological monitoring. This structural configuration categorizes specific cognitive schemas, patterns of threat anticipation, emotional processing styles, as well as the particularities of evaluative judgments, value orientations, and personal regulatory mechanisms.

The primary operational pivot of this level resides in the phenomenon of threat anticipation. Because the objective reality of warfare imposes immediate, lethal hazards onto the life, somatic health, and socio-economic well-being of the individual and their reference group, the isolated presence of catastrophic thoughts cannot be operationalized as a marker of pathology. The destruction inflicted by war is, by definition, literal and catastrophic; furthermore, the digital media ecosystem (specifically the consumption of traumatic vicarious content through social networks, including documented atrocities, the destruction of homes, and the deaths of humans and animals) establishes a pervasive phenomenon of secondary traumatization across society.

Consequently, the psychological level scrutinizes not the presence of fear itself, but the equilibrium between cognitive flexibility and rigidity in information processing, alongside the preservation of self-regulatory subjectivity. Normative psychological anxiety is distinguished by the retention of personal agency and multi-dimensional cognitive processing. The individual avoids hyper-generalization (such as the rigid cognitive bias that destruction is absolute), dichotomous thinking, and absolute cognitive distortions. While acknowledging objective hazards and experiencing an adequate affect of fear, the individual maintains the capacity for voluntary attentional shifting, differentiated risk appraisal, and the practical execution of context-dependent, rational decisions.

Conversely, pathological anxiety precipitates a total collapse of internal subjectivity. Psychological appraisal and self-regulation become encapsulated within rigid, hyper-generalized, and automated intrapsychic loops of the anxious state (such as unmanageable cycles of rumination and generalized worry). Objective external reality is completely filtered through a monotonous, immutable bias of imminent doom, culminating in a profound fragmentation of cognitive flexibility, the chaotic disruption of the emotional sphere, and the dismantling of the capacity for volitional behavioral control, ultimately causing a total collapse of the individual's status as an active, autonomous agent of their own life.

The Behavioral-Activity Level. The fifth hierarchical stratum of the proposed matrix monitors the externalized, practical executions of human life, aligning directly with the core tenets of the praxeological paradigm. This dimension evaluates how anxiety operationalizes within day-to-day coping strategies (*Coping Strategies*), defensive activities, action flexibility, as well as indices of social and professional performance (*Social & Professional Performance*), domestic functioning, and micro-social interactions (encompassing the nuclear family, friendship networks, and occupational collectives).

When conducting macro-level monitoring of large population groups subjected to military distress, the behavioral-activity level emerges as the definitive, ultimate indicator of systemic societal resilience. The analytical focus of the matrix is heavily directed toward the structural configuration of coping mechanisms. Normative behavioral anxiety generates fluid, adaptive, and functional actions – individuals proactively execute safety protocols in shelters, engage in mutual social support and civic volunteering, dynamically modify professional schedules to match volatile security conditions, and deliberately maintain baseline household and social routines.

Conversely, pathological transformation is verified by the manifestation of deeply rigid adaptations (*Rigid Adaptations*), alongside avoidant or regressive behavioral designs. This maladaptive shift encompasses progressive social

isolation (the severance or total absence of actions aimed at sustaining established interpersonal connections, combined with a subjective experience of alienation and loneliness within a group), severe occupational paralysis (the chaotic incapacity to organize workflows to accommodate ongoing military hazards, paired with a critical inability to fulfill baseline task volumes), or compulsive, non-functional safety behaviors (such as continuous, erratic scrolling of media channels, obsessive checking of monitoring systems, or irrational hoarding of goods without pragmatic necessity). These pathological iterations exhaustively consume the individual's chronological and metabolic energy resources without achieving any objective reduction in actual environmental risk. At this advanced stage, fragmented behavioral patterns cease to be an individual clinical problem and begin to directly threaten the economic, social, and logistical stability of the entire public health infrastructure¹⁴.

Integrating the Matrix into the Public Health System. By aligning these five distinct layers into a single, cohesive analytical matrix, the developed multidisciplinary model demonstrates that population-wide anxiety must never be evaluated, classified, or treated based upon an isolated symptom, linear chronological frameworks, or a reductionist focus on any single dimension of human functioning. A genuine pathology under conditions of prolonged military hazards is, first and foremost, a vertical, cross-level pattern of functional rigidity. It is verified precisely when chronic failure within the foundational neurohumoral and somatic levels rigidly locks the output psychological and behavioral-activity levels into a permanent, maladaptive loop, effectively stripping the individual of personal subjectivity and volitional control over their own life space.

The practical deployment of this matrix within the contemporary public health architecture requires the institutionalization of a cascaded, two-tier national monitoring system, deliberately engineered to minimize the logistical burden on healthcare personnel and safeguard state financial resources.

The First Stage (Primary Digital Screening) is operationalized through the integration of automated express-assessment tools directly into national digital health ecosystems and patient-centered mobile applications. This tier monitors primary indicators of the psychological and behavioral-activity levels (including hyper-generalized rumination, collapse of cognitive flexibility, occupational paralysis, and social isolation) in immediate triangulation with self-reported disruptions in sleep rhythms.

¹⁴ Nesterenko M. Modern Challenges to Psychotherapy for Anxiety Disorders. *Ricerche scientifiche e metodi della loro realizzazione: esperienza mondiale e realtà domestiche* : Collection of scientific papers «ΛΟΓΟΣ» with proceedings of the VIII International Scientific and Practical Conference (Bologna, December 19, 2025). Bologna–Vinnytsia: Associazione Italiana di Storia Urbana & UKRLOGOS Group LLC, 2025. P. 205–208. <https://doi.org/10.36074/logos-19.12.2025.040>.

The Second Stage (Advanced Clinico-Autonomic Verification) is triggered programmatically upon the detection of cross-level rigidity markers during the initial tier. The individual is seamlessly routed to the primary healthcare sector, specifically to family physicians trained under global mhGAP protocols. At this nexus, the screening is reinforced by an objective appraisal of the somatic and neurohumoral strata, encompassing the clinical verification of autonomic reactivity, the mapping of objective psychophysiological asthenization markers, and, where clinically indicated, the evaluation of HPA axis depletion.

The operationalization of such a multi-level approach empowers public health authorities to decisively pivot away from generic, abstract, and highly inefficient mass mental health campaigns that frequently result in the unwarranted over-medicalization of society. Instead, this framework provides methodological scaffolding for highly targeted, precision-driven population screening protocols. These instruments are capable of rigorously differentiating between demographic segments executing successful adaptation to military hazards via sustained agency and natural mobilizational alertness, and those vulnerable cohorts characterized by pathological, uncompensated resource depletion who require immediate preemptive intervention.

3. PRACTICAL APPLICATION OF THE MULTIDISCIPLINARY MODEL FOR POPULATION SCREENING AND PUBLIC HEALTH MONITORING

The deployment of the integrative five-level matrix within the public health infrastructure necessitates a radical paradigmatic departure from traditional, passive clinical frameworks toward proactive, automated, and highly scalable mental health monitoring systems. Within a society subject to the continuous pressure of chronic military risks, the public health architecture cannot afford institutional inertia, waiting for individuals to exhibit fully consolidated, debilitating psychiatric conditions that trigger total occupational paralysis and profound psychosocial disability.

This operational challenge is further complicated by a distinct clinical paradox: an individual undergoing severe maladaptation specifically due to pathological anxiety rarely initiates an autonomous pursuit of professional care. The very architecture of their rigid state, defined by distorted cognitive schemas and the erosion of personal agency, causes any contact with medical or social institutions and indeed the very prospect of acknowledging vulnerability to be parsed by the psychic apparatus as an additional, unmanageable external threat.

Consequently, the practical operationalization of this multidisciplinary model strictly hinges upon the direct embedding of cross-level diagnostic markers into the existing national healthcare infrastructure, the total convergence with modern digital ecosystems, and a strategic reallocation of systemic resources aimed at the preemptive enhancement of population-wide resilience (*see Figure 2*).

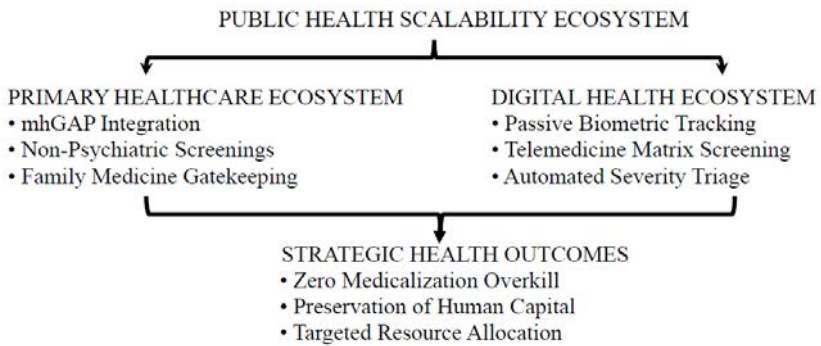


Fig. 2. Architecture and strategic health outcomes of the public health scalability ecosystem

The first operational configuration for the practical deployment of the developed five-level matrix is its systematic integration within the primary healthcare sector. Under conditions of prolonged warfare, family physicians, general practitioners, and pediatricians execute a critical institutional function, acting as the primary filter, router, and protective shield of the entire national healthcare architecture. Driven by the extensive implementation of the Ukrainian National Mental Health Program *How Are You? (Ty Yak?)* and the active adaptation of global mhGAP¹⁵ protocols into the domestic medical ecosystem, non-psychiatric medical personnel are equipped with a robust methodological scaffolding to execute rapid, non-psychiatric anxiety screenings across broad population cohorts.

Clinical realities within contemporary Ukraine demonstrate that individuals suffering from destructive, pathological anxiety almost never initiate autonomous contact with specialized mental health professionals (such as clinical psychologists or psychiatrists). Instead, they systematically overwhelm primary care facilities with complaints of a purely somatic and pseudo-cardiological nature, including chronic chest pain, transient arterial hypertension, uncompensated gastrointestinal distress, and persistent insomnia. By operationalizing the markers of our diagnostic matrix directly during a standard fifteen-minute consultation, a family physician is empowered to evaluate

¹⁵ World Health Organization. The mhGAP intervention guide for mental, neurological and substance use disorders in non-specialized health settings (version 2.0). World Health Organization, 2019.

not merely an isolated clinical symptom, but the cross-level rigidity of the patient's functional state (e.g., the synchronized triangulation of elevated muscle tone and compulsive media consumption with a distinct collapse of cognitive flexibility). This methodology allows the practitioner to differentiate normative, survival-oriented alertness from the onset of severe somatophysiological exhaustion, thereby optimizing patient routing and mitigating the diagnostic errors inherent in peacetime chronological frameworks.

Concurrently, the second parallel configuration involves digital health ecosystems, which facilitate unprecedented scalability, automation, and decentralization of population-wide monitoring an operational necessity given the volatile security risks within Ukraine. The practical implementation of this model leverages the country's highly advanced digital infrastructure, where screening protocols can be seamlessly embedded into national health platforms (such as the Helsi digital ecosystem interfaces or integrative gateways within the state mobile application Diia).

The technological architecture of these digital health ecosystems operates not as a collection of fragmented services, but as an integrated, tri-component complex designed to systematically transform raw user inputs into validated clinical insights. Each nexus of this triad is responsible for a specific hierarchical stratum of the population monitoring protocol: ranging from the continuous tracking of physiological biomarkers to the linguistic and semantic analysis of the cognitive sphere, culminating in the mathematical calculations of personal maladaptation risks. Within the public health framework, the practical operationalization of this multi-layered tracking sequence is deployed via three interconnected functional modules:

- 1) Passive Biometric Tracking – algorithms embedded into consumer wearable technologies monitor the population's autonomic reactivity parameters, analyzing long-term dynamics of heart rate variability (HRV), oxygen saturation, and the structural integrity of deep sleep architecture specifically during nocturnal missile alert events.

- 2) Telemedicine Matrix Screening – during remote video consultations, specialized digital modules evaluate non-linear linguistic and paralinguistic markers, including speech tempo alterations and indices of semantic hyper-generalization (the persistent operationalization of absolutist verbal tokens such as “never”, “completely lost”, or “forever”), thereby verifying the cognitive encapsulation within automated threat loops.

- 3) Automated Severity Triage – via the cross-analytical synthesis of biometric data and cognitive markers, the digital infrastructure programmatically establishes the user's specific distress threshold. This automated triage detects latent, subclinical depletion of personal vital resources before the individual

recognizes the necessity of clinical intervention, programmatically deploying targeted digital self-regulation modules or prompting proactive communication from the primary healthcare provider.

From a strategic and macroeconomic perspective, the practical implementation of the developed multidisciplinary model serves as a vital institutional safeguard against widespread hyper-diagnosis (over-pathologization) and the systemic, irrational medicalization of the population. Traditional nosological models engineered for peacetime stability demonstrate an inherent tendency to misinterpret adaptive, survival-oriented cognitive and autonomic alertness as indicators of clinical pathology. This diagnostic error triggers immense, uncompensated pressure on pharmaceutical supply chains and clinical delivery networks, culminating in the widespread, unwarranted over-prescription of anxiolytics, sedatives, and antidepressants.

By applying our five-level matrix, the public health infrastructure is enabled to draw a rigorous distinction between an individual experiencing intense, yet normative anxiety (who successfully retains structural flexibility and cognitive agility, requiring merely community-based psychosocial scaffolding, informational guidance, or basic periods of decompression for natural self-recovery) and an individual suffering from pathological, maladaptive, and resource-depleting exhaustion that clinically demands multi-component, specialized intervention by an interdisciplinary team of experts.

Minimizing these events of diagnostic distortion directly ensures the realization of three core Strategic Health Outcomes:

1. Zero Medicalization Overkill: in a socio-political environment where the chronological duration of warfare is measured in years, the hyper-pharmacologization of the general population emerges as a critical threat to national security¹⁶. The matrix systematically counteracts the consolidation of mass pharmaceutical dependency and population-wide iatrogenic complications.

2. Targeted Resource Allocation: precision-driven, preventive differentiation actively protects the national healthcare budget. By shifting institutional focus toward early, subclinical prevention rather than late-stage treatment, the state eliminates the necessity of financing prolonged inpatient hospital stays, maintaining redundant bed-space, absorbing massive lost-productivity wages, and purchasing high-cost pharmaceuticals ex post facto.

3. Preservation of Human Capital: the systems model successfully transforms the public health architecture from a reactive mechanism that inertly manages established somatopsychic damage into a proactive, predictive engine.

¹⁶ Bandelow B., Michaelis S., Wedekind D. Treatment of anxiety disorders. *Dialogues in Clinical Neuroscience*. 2017. Vol. 19(2). P. 93 107. <https://doi.org/10.31887/DCNS.2017.19.2/bbandelow>.

By tracking anxiety patterns across five vertically integrated strata, healthcare administrators are equipped to design and deploy precision-targeted interventions ranging from mass digital prevention protocols and strategic communication campaigns engineered to maintain anxiety within normative, functional parameters, to intensive clinical care protocols for biological depletion. This highly structured scalability guarantees that even under the most volatile and destabilizing military risks, the social, economic, occupational, and psychological infrastructure of society preserves its core integrity, viability, and sovereign functional capacity.

CONCLUSIONS

The theoretical, epistemological, and methodological investigation conducted within this study establishes a foundational scientific architecture for the radical reorganization of public health strategies regarding population-wide anxiety monitoring and preemptive intervention under chronic military risks. The systematic integration of advanced psychological paradigms with multidisciplinary functional markers yields several definitive conclusions:

1. Overcoming Paradigm Isolation – the critical epistemological critique of the eight leading foreign paradigms of anxiety substantiates the methodological inadequacy of mono-paradigmatic approaches when applied to population-wide macro-level tasks. While the psychodynamic and existential-humanistic traditions generate profound interpretative and contextual value, they structurally lack psychometric and instrumental scalability. Conversely, the cognitive-behavioral, biological, and neuroendocrine frameworks deliver highly empirical metrics and precise biomarkers, yet operate via radical bio-reductionism, systematically ignoring personal subjectivity (agency) and the objective validity of military hazards. The proposed systems model successfully resolves this long-standing scientific gap by transforming historically isolated frameworks into mutually reinforcing hierarchically organized layers of a unified population anxiety screening protocol.

2. The Imperative of a Multi-Level Matrix – the developed five-level matrix (encompassing and synthesizing the phenomenological, somatic, neurohumoral, psychological, and behavioral-activity strata) provides a holistic analytical optic for evaluating population distress. This diagnostic framework demonstrates that a genuine nosological pathology under conditions of warfare is determined neither by isolated clinical symptoms nor by linear peacetime chronological boundaries. Instead, it is characterized by a vertical, cross-level pattern of functional rigidity. When a chronic homeostatic failure within the foundational neurohumoral and somatic strata rigidly locks the output psychological and behavioral-activity levels into a permanent, automated loop,

personal subjectivity is compromised. Identifying this cross-level rigidity empowers public health authorities to detect the precise operational transition from sustainable, adaptive survival alertness to systemic, uncompensated resource-depleting exhaustion.

3. Rejection of Outdated Temporal Criteria – this study confirms that relying upon traditional peacetime chronological boundaries specifically (the rigid six-month symptom duration mandate) proves highly counterproductive and operationally destructive under active military operations. In a highly destabilized environment, fixed temporal frameworks generate widespread diagnostic inaccuracies, creating a critical risk of over-pathologizing natural, evolutionarily justified defensive alert mechanisms designed for human survival. The developed multidisciplinary model decisively shifts clinical focus away from time-based duration toward a structural-dynamic analysis of functional flexibility, non-linearity (manifesting as undulating peaks, drops, and plateaus), and the preservation of individual subjectivity and agency. This ensures that valid survival responses are insulated from unwarranted categorization as clinical mental disorders.

4. Public Health Scalability and Economic Security – the practical implementation of the validated five-level matrix through the primary healthcare sector (integrated within global mhGAP protocols and national mental health frameworks) and modern digital ecosystems (encompassing passive biometric tracking of autonomic reactivity and automated triage via telemedicine platforms) delivers a highly scalable, logistically optimized solution for macro-level population monitoring. By accurately differentiating normative adaptive anxiety from pathological resource depletion, this framework systematically counteracts the threats of over-pathologization and unwarranted mass pharmacotherapy across society. Consequently, it shields national pharmaceutical supply chains, optimizes the precision-driven distribution of healthcare capital, and directly facilitates the long-term preservation of national human capital during protracted military crises.

5. Theoretical and Applied Synergy of the Model – the core scientific novelty of this investigation resides in the creation of a seamless conceptual synthesis, wherein the historical insights of leading foreign psychological paradigms transcend the realm of isolated theory to operate as the methodological foundation for specific diagnostic strata. By mapping epistemological prisms directly onto empirical clinical markers, this model achieves the first synchronized triangulation of depth-personality dimensions (including self-regulatory subjectivity and cognitive schema flexibility) with objective physiological parameters (HPA axis dynamics and autonomic reactivity) within a unified public health monitoring algorithm.

The systemic framework established in this study opens new avenues for subsequent scientific exploration. A priority vector for future research entails the empirical validation of the developed five-level diagnostic matrix via large-scale longitudinal screening initiatives across diverse demographic and occupational cohorts (specifically focusing on internally displaced persons, veterans, and frontline primary healthcare personnel). Furthermore, significant scientific and operational value lies in the engineering and testing of specialized machine-learning algorithms optimized for automated severity triage; this technological evolution will enhance the predictive sensitivity required to identify subclinical linguistic and biometric markers of systemic resource exhaustion. The ongoing advancement of this model will facilitate the design of differentiated national preventive programs constructed to preserve societal mental capital throughout the post-crisis reconstruction period.

SUMMARY

The summary provides a comprehensive, structurally dense overview of the book chapter dedicated to the radical reorganization of public health mental health monitoring systems under the conditions of prolonged military conflicts, utilizing contemporary Ukraine as a critical context. The investigation systematically addresses the acute scientific gap generated by epistemological fragmentation among eight leading foreign paradigms of anxiety (psychodynamic, humanistic, existential, cognitive-behavioral, dispositional, neuropsychological, psychoendocrine, and praxeological), demonstrating their operational and methodological limitations when applied in isolation to population-wide macro-level tasks.

To dissolve these theoretical boundaries, an integrative systems model is engineered, transforming historically disconnected theoretical approaches into complementary, hierarchically organized vertical layers of a unified population screening protocol. The conceptual core of the study is a developed five-level diagnostic matrix that orchestrates clinical and functional indicators across distinct phenomenological, somatic, neurohumoral, psychological, and behavioral-activity strata.

The practical deployment of this matrix executes a decisive, uncompromised rejection of traditional, obsolete chronological boundaries (specifically the rigid six-month symptom duration rule), shifting the diagnostic focus toward evaluating cross-level functional rigidity and the collapse of personal subjectivity, defined specifically as the individual's retention of internal control over elements within their sphere of agency. The psychological dimension of the matrix explicitly incorporates the phenomenon of secondary traumatization induced by continuous consumption of vicarious traumatic content through digital media networks.

The study outlines the multi-tiered scalability of this matrix within the public health infrastructure, detailing its programmatic embedding into the primary healthcare sector (leveraging global mhGAP protocols and the Ukrainian National Mental Health Program “How Are You?”) and advanced digital health ecosystems (including state-level mobile interfaces such as “Diia” and “Helsi”). This technological architecture is operationalized via three interconnected functional modules: Passive Biometric Tracking of autonomic reactivity during nocturnal threat events, Telemedicine Matrix Screening of non-linear linguistic hyper-generalization, and Automated Severity Triage.

Ultimately, this multidisciplinary framework serves as a vital institutional safeguard to secure three core Strategic Health Outcomes: Zero Medicalization Overkill via the prevention of population-wide chronic pharmaceutical dependency, Targeted Resource Allocation through precision-driven subclinical prevention that protects the national healthcare budget, and the systemic Preservation of Human Capital, guaranteeing that society maintains its sovereign functional capacity and socio-economic integrity under chronic military risks.

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