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Well-Being: Individual Public Health in Urban Areas

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ABSTRACT

This article aims to integrate eight established determinants of individual well-being into a single business-management-informed framework for urban public health, clarifying what a management lens adds to existing urban health models. This article employs a theory-oriented approach based on business management. This article analyzes digital health literature to generate the new concept of well-being in modern medicine and applies it to urban policy and planning. The analysis revealed eight key factors in individual public health: green spaces, urban environment, mental state, physical state, urban diet, urban resilience, stress control (external stressors), and financial management (internal stressors). From the perspective of service provision and urban policy formulation, our new concept of well-being enables public health professionals to apply it, in collaboration with local communities, in coordination with social care, in the development of effective personal public health policies, and in addressing healthcare interventions based on urban conditions and needs.

Keywords: business management skills, digital health literature, modern medicine, public health, urban studies

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INTRODUCTION

Classical well-being refers to a state of health and happiness, encompassing three foundational definitions: hedonic, eudaimonic, and equilibrium well-being.[1-3] Hedonic well-being is defined as subjective experiences that bring maximum pleasure, the frequent presence of positive emotions, and the avoidance of pain. Eudaimonic well-being is defined as optimal psychological functioning, self-actualization, human prosperity, emphasizing autonomy, adaptability to the environment, personal growth, and good relationships with others. Equilibrium well-being is defined as the balance point of an individual's resource pool in physical, mental, and social aspects in response to the challenges and demands faced, with the dynamic ability to adapt to a changing life. Meanwhile, their applications to entire urban cities and clinical interventions have a direct impact on the public health of their residents. This creates room for business management, specifically resource allocation, workforce and process design, and operational risk management, to collaborate in policies aimed at extending preventive and therapeutic healthcare infrastructure across urban residents, including strategic management, operational optimization, and corporate policies for 21st-century modern medicine.[4,5]

In addition, we analyzed the digital health literature using a theory-oriented approach based on management principles and evaluated the concept of well-being in 21st-century healthcare. Then, an integrative conceptual framework for individual well-being in urban public health was constructed, applicable to individual public health in urban areas. This framework's contribution lies in integrating eight independently supported determinants of well-being into a single management-actionable structure that assigns each factor to a level of intervention (individual, organizational, or urban-policy) and to a management mechanism through which it can be acted upon. Study findings indicated that this framework organizes eight established determinants of individual public health in urban areas: i) green spaces, ii) urban environment, iii) mental state, iv) physical state, v) urban diet, vi) urban resilience, vii) stress control, and viii) financial management. Figure 1 illustrates the modern definition of well-being in urban medicine.

CONTENT OF REVIEW

Strategic Approach for Literature Selection

Literature was identified through targeted searches of digital-health and public-health databases (e.g., PubMed, Scopus) combined with management and urban-studies sources, using search terms combining "well-being," "urban health," and each candidate determinant. Sources were retained where they met two criteria: (i) an empirically



Figure 1 Modern definition of well-being in urban medicine

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supported link to individual health or well-being outcomes, and (ii) a plausible point of intervention through business-management or policy action. The eight factors represent the subset of determinants most directly actionable through management and policy levers, rather than an exhaustive taxonomy of urban well-being. The eight factors operate at three levels: (1) contextual/environmental determinants (green spaces, urban environment, urban diet), describing the exposures individuals face; (2) individual capacities and practices (stress control, financial management), describing how individuals manage those exposures; and (3) outcomes and system-level conditions (mental state, physical state, urban resilience), describing resulting health status and the system's capacity to sustain it. Table 1 positions each factor within this structure.

Table 1 Conceptual levels of the eight well-being factors

Level	Factors	Description
Contextual/ environmental determinants	Green spaces, urban environment, urban diet	Describe the exposures individuals face.
Individual capacities and practices	Stress control, financial management	Describe how individuals manage those exposures.
Outcomes and system-level conditions	Mental state, physical state, urban resilience	Describe resulting health status and the system's capacity to sustain it.

Green Spaces

Individuals living in urban areas are characterized by two presences: socio-psychological and spatial demographic. Individual green spaces for public health are positioned as a lifestyle from the socio-psychological perspective. Exposure to individual green spaces (such as private gardens, residential yards, and small-scale, hyperlocal green structures) is a significant upstream determinant of public health. By contrast, macro-level green infrastructures (such as public parks and urban forests) have traditionally been the focus of epidemiological research. More recently, there is growing evidence that micro-level private residential green spaces provide a clear direct pathway to maintaining health. Early studies have shown that individuals with private gardens or residential yards have a lower prevalence of several clinical symptoms compared to those without exposure to green spaces.[6,7] Spending time in private green spaces benefits mental health and brain function, with supporting evidence from experimental studies, systematic reviews, and meta-analyses demonstrating significant positive effects on mood and cortisol reduction.[8,9] Past research indicates that regular interaction with private gardens helps lower clinical depression scores, alleviate psychological stress, and remedy mental fatigue.[8]

Urban Environment

Individual environments were found to be significantly associated with well-being, including green spaces, indoor air quality, and area design; specifically, private green spaces and indoor air quality serve as key indicators of well-being within eudaimonic and hedonic frameworks. Research studies indicate that, on average, people spend 80% to 90% of their time indoors; therefore, achieving optimal well-being requires prioritizing indoor air quality.[10] Studies on neighborhood design indicate that walkable neighborhood arrangements and proximity to key locations help reduce the risk of depression and lower obesity rates by encouraging natural physical activity.[11]

Evidence supporting public health regarding the individual environment, accumulated from high-level epidemiological frameworks, shows that an individual's microenvironment has a deep and direct impact on chronic and acute health outcomes, often taking precedence over broader regional data. Examples include cardiovascular and metabolic pathways, respiratory and immune function, and epigenetic and cellular changes. In modern environmental epidemiology, the individual exposome, or the individual microenvironment, incorporates the direct physical, chemical, and constructed spaces an individual occupies daily (e.g., home, workplace, commuter vehicle, local neighborhood).[12] Table 2 summarizes the weight of evidence regarding an individual's well-being environment. The 'Moderate,' 'High,' and 'Strong' ratings reflect the authors' qualitative synthesis of the consistency and volume of evidence across the cited sources for each factor, presented as an indicative summary rather than a formal evidence-grading protocol (e.g., GRADE).

Table 2 Personal exposome impacts on well-being

Level of evidence	Individual microenvironment	Primary health outcomes
Moderate	Personal green spaces	Enhanced mental well-being, reduced obesity, and lower cortisol levels.
High	Personal air pollution ($PM_{2.5}$ and/or NO_2)	Respiratory disease, metabolic syndrome, and cardiovascular disease.
Strong	Personal indoor built quality	Asthma, respiratory tract infections, sick building syndrome.

Mental State

Evidence confirms a large-scale migration of individuals from rural areas to cities to acquire industry-related skills that lead to better employment and higher incomes. Numerous studies have shown evidence that an individual's public health and mental health status in urban workplaces depends on leadership behaviors, workload management, human capital strategies, organizational design, structural personnel policies, and organizational culture. Organizational business management plays a crucial role in driving collective and individual mental health.[13,14] Furthermore, management functions directly impact individual mental health status as a non-clinical public health intervention. Evidence from a high-quality systematic meta-review demonstrates moderate to strong empirical support for administrative preventive measures. Specifically, it has been shown that increasing employee discretion (control) over work tasks and establishing systems that allow for flexible shift selection significantly reduce common work-related mental health disorders.[15] This pattern reflects job design and control-latitude thory, which holds that health outcomes depend less on workload itself than on the degree of control employees retain over how that workload is performed. Furthermore, long-term financial and public health cost modeling indicates that ineffective management of workplace stressors leads to high levels of presenteeism, a situation where employees are physically present at work but unable to perform at full capacity due to mental health issues. This phenomenon incurs costs that are three times higher than an organization's direct medical expenses.[16]

Physical State

It has become clear that an individual's physical health in urban workplaces, like mental health as previously stated, is influenced by organizational business management. Evidence suggests that individual physical health can generally be improved through optimizing healthcare delivery systems, managing corporate wellness programs, and allocating resources to preventive medicine. A meta-analysis of digital health and behavioral interventions managed by corporate administrators provides strong evidence for workplace health promotion interventions, showing a modest but clinically significant increase in physical activity and a reduction in chronic disease risk factors.[17] Furthermore, business management plays a pivotal role in driving public health initiatives aimed at improving individuals' physical health through efficient resource allocation, the implementation of structured health programs, and the enhancement of operational quality in both healthcare facilities and communities. This reflects resource allocation and operations management, the management discipline concerned with allocating limited resources across competing demands to maximize operational output and quality. Managerial decisions to enhance digital infrastructure and efficiency directly contribute to individual health outcomes, particularly during public health emergencies. Thus, effective workplace management facilitates the translation of macro-level policies into tangible improvements in individual physical health (such as reducing body mass index, decreasing infection rates, and lowering blood pressure).

Urban Diet

Urban diets have a significant impact on individual well-being. Traditional dietary patterns emphasizing high-fiber foods are being replaced by diets rich in highly processed foods, animal protein, refined carbohydrates, and added sugars. These changes in urban foods characterize the nutrition transition for fast-food consumption in urban areas. Various empirical studies, including epidemiological and residents-based studies, have clearly demonstrated a link between urban dietary habits and health status.[18]

Evidence suggests that urban foods are a double-edged sword. While they offer consumers a wider range of dietary choices and help reduce malnutrition rates, they simultaneously create environments conducive to obesity and are a key driver of non-communicable diseases (NCDs) that negatively impact health-related quality of life.[19] Consequently, the prevalence

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of urban diets characterized by the consumption of highly processed foods and sugary beverages disrupts metabolic balance. When combined with a sedentary lifestyle, this leads to urban ill-being or poor health outcomes in urban areas, increasing the risk of NCDs, type 2 diabetes, abdominal obesity, and high blood pressure.

Urban Resilience

Ocean and climate changes directly affect urban areas and their residents by intensifying the urban heat island effect, leading to higher temperatures and poorer air quality, which directly affects the well-being of city residents. Urban resilience directly promotes individual well-being by reducing environmental exposure, strengthening social support networks, and protecting critical medical and physical infrastructure during systemic crises. Empirical evidence indicates that a city's capacity to cope with, adapt to, and recover from systemic disasters and chronic stressors helps prevent psychological trauma, reduce the incidence of circulatory and respiratory diseases, and promote hedonic well-being of its residents.[19,20] Because cities are built upon ecosystems, infrastructure, and communities, directly impacting individual well-being, evidence from peer-reviewed studies highlights three vital domains: ecosystem resilience and climate change mitigation, infrastructure adaptability and healthcare continuity, and social and community resilience. Table 3 shows key focus areas in urban resilience. The ratings follow the same qualitative approach as Table 2.

Stress Control

An important factor is external stressors, which are unpredictable and uncontrollable stressors that individuals living in urban areas experience from urban sources, such as air pollution ($PM_{2.5}$), urban heat island, road noise, urban overcrowding, inequality in access to services, and traffic congestion. Individual public health well-being in urban areas can be managed through business management skills to cope with those external stressors. Evidence shows that successful management of external stressors may achieve the best urban well-being. For example, studies have reported that quantifying existing heat stress predictions using business decision-making that incorporates multiple uncertainties can lead to the individualization of urban heat stress management. The success of management can serve as a potential indicator of how effectively adaptive strategies will mitigate future heat stress.[21] This decision-making process illustrates risk management under uncertainty, the management principle of allocating resources and adapting strategy in the absence of complete information about future conditions. At the individual level, the 4 A's technique for well-being and stress control is to avoid what can be avoided, alter what can be changed, accept what cannot be changed, and adapt by adjusting expectations.[22]

Table 3 Key areas of well-being in urban resilience

Level of evidence	Individual urban resilience	Primary health outcomes
Moderate	Built environment and critical infrastructure.	Access to healthcare and utility services for health equity, and private spaces (e.g., housing and private gardens) that promote well-being.
High	Social interconnection, governance, and behavioral health safety.	Healthy lifestyle choices (e.g., exercise and diet), primary care services (e.g., mental health, reduced waiting times), and improved access to care for reducing health inequalities.
Strong	Pandemic preparedness, equitable healthcare, and nature-based solutions.	Preventing infectious spillovers, reducing risks of chronic diseases, and protecting socially vulnerable people from environmental and structural disasters.

Financial Management

Internal stress frequently arises from the thoughts individuals experience when managing their finances. Research suggests that what matters is not the amount of income, but how that income is managed, sustained, and used as a lifelong mitigation strategy. This reflects household financial risk management, the practice of managing income volatility and unexpected shocks to protect long-term financial stability. The study examined shocks and stress tests imposed on high-net-worth households and the remaining low-income households. Foreign and domestic commodity prices, import taxes, import exchange rates, and indirect taxes were used as parameters for consumption and savings. The results show that all shocks except savings exert a bearish force on consumption. Regarding savings, the trend is different. High-income households show positive savings,

while low-income households show negative savings.[23] Urban individual financial management directly optimizes individual public health and well-being by mitigating financial stress, which lowers cortisol levels and reduces chronic disease risks. Effective consumption enables urban residents in resource-rich but high-priced metropolitan areas to access high-quality healthcare, nutritious food, and safer housing. Evidence regarding direct health impacts indicates a link between reduced financial stress and lower blood pressure, thereby decreasing the risk of cardiovascular disease. Furthermore, sufficient individual possessions directly reduce the prevalence of clinical anxiety and depression, alleviating mental distress.[24,25]

CONCLUSION

Individual well-being in urban medicine is defined from the perspective of individual public health in urban areas. This integrative conceptual framework was formulated using theory-oriented management skills derived from analysis of digital health literature. As a result, this framework organizes green spaces, urban environment, mental state, physical state, urban diet, urban resilience, stress control (external stressors), and financial management (internal stressors). Therefore, the results of this study suggest that these eight well-being factors help urban residents maintain their public health well-being even when they are free from disease or infirmity. These eight factors interact directly: environmental exposures (green spaces, urban environment, urban diet) shape the individual capacities needed to manage stress and finances, which in turn influence mental and physical health outcomes, while urban resilience conditions how quickly a system recovers when any of these are strained. Green spaces, urban environment, and urban resilience are primarily addressable at the urban-policy level; stress control and financial management are addressable at the individual or household level, often through employer or community-based programs; and mental state, physical state, and urban diet sit at the intersection of individual behavior and organizational or policy context. This layered view lets public health professionals and urban planners target interventions to the level at which they will be most effective.

Conflict of Interest

The authors declare no conflict of interest, no personal relationships, and no financial interests that have influenced the research reported in this paper.

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