

In urban planning, health should be addressed in its broadest sense, including environmental health, healthy habits, and factors which foster the general wellbeing of the public. From this perspective, health can be viewed as having environmental, lifestyle, physical, mental, and wellbeing determinants and outcomes.

Health Determinants

Health determinants are not the specific health outcomes themselves, but the wider lifestyle and environmental factors that are very closely linked to health.



Environmental

Healthy environments refer to the changes in the environment - such as pollution levels - that can have a direct impact on health.

01 - Air Pollution

Air pollution is a risk for mortality as well as specific diseases such as stroke, heart disease, lung cancer, pneumonia, and cataract. A healthy city should maintain healthy levels of PM 10; PM 2.5; Ozone and NO₂ - indicated by an AQI (Air Quality Index) level below 50. Levels are assessed by fixed or mobile recording points.

02 - Noise Pollution

Noise is an underestimated threat that can cause a number of health problems, such as sleep disturbance, cardiovascular effects, poorer work and school performance, hearing impairment, and stress. The WHO guidelines for night noise recommend less than 40 dB(A) of annual average (L_{night}) outside of bedrooms to prevent adverse health effects. Noise can be measured by decibels, with different measurements by day and night.

03 - Biodiversity

Healthy communities rely on well-functioning ecosystems. Human health and well-being are influenced by the health of local plant and animal communities, and the integrity of the local ecosystems that they form. They provide clean air, fresh water, medicines and food security. Biodiversity can be measured by sample site surveys.



Lifestyle

Healthy cities support healthy lifestyles and habits in areas that are key to holistic long-term health, like physical activity, socialising, and food habits.

04 - Physical Activity

Consists of minutes per week of moderate and vigorous physical activity (with a minimum of 150 minutes per week recommended for good health). Physical inactivity is the fourth most important risk factor for mortality worldwide, behind only high blood pressure, smoking and high blood sugar. Can be assessed objectively with accelerometers (ActiGraph) which are attached to people's waists for a week to obtain frequency, duration and intensity of activity. Subjective measurements using questionnaires provide additional detail. The most commonly used questionnaire is the International Physical Activity Questionnaire (IPAQ).

05 - Sedentary Behaviour

Sedentary behaviour is characterised by low energy expenditure while in a sitting, reclining or lying posture. Common sedentary behaviours include watching TV, playing video games, driving, and commuting. Evidence suggests that having a high level of sedentary behaviour negatively impacts health independent of other factors including body weight, diet, and physical activity. This is assessed using non-standardised questions about time spent sedentary during the previous seven days.

06 - Social Interaction

Healthy city design supports frequent social interaction, helping to build connections and communities that are important for health. The number and strength of your relationships affect your physical and mental health, with impacts on anxiety, depression, self-esteem and even the immune system. Social integration can be assessed by a perception survey.

07 - Food Habits

Urban design and planning can influence healthy eating habits by limiting or providing access to healthy or unhealthy foods. A healthy food environment includes access to fresh fruit and vegetables within a reasonable distance, and minimises fast food outlets. A healthy diet is crucial to all aspects of physical and mental health, from having sufficient energy, to growth and repair of the body, reducing the risk of type 2 diabetes, improving heart health, bone health, and maintaining a healthy weight. Perception surveys and food diaries can be used to monitor diets and food habits.

Direct Health Outcomes

Urban planning changes can also have direct health outcomes on specific physical and mental health conditions.



Physical

The physical health outcomes of urban planning changes range from general physical health to specific conditions such as heart disease.

08 - General Physical Health

General physical health refers to subjective, self-reported health status. It encompasses mental and physical health, and is predictive of objective health outcomes like disability, morbidity, and mortality. Respondents self-rate their health with example results ranging from poor, fair, good, very good, to excellent. Self-reported general physical health provides a relatively simple way to assess general health changes in an area over time.

09 - BMI

Body mass index (BMI) is a person's weight in kilograms divided by the square of their height in metres. BMI is an inexpensive and easy screening method for weight, and BMI is moderately correlated with more direct measures of body fat. A BMI of over 25 is considered overweight, and over 30 is obese. High BMI is strongly correlated with various metabolic and disease outcomes associated with high levels of body fat.

10 - Obesity

Obesity is defined as abnormal or excessive fat accumulation that presents a risk to health. Obesity is often measured by BMI, with a BMI of over 30 considered obese.

11 - Premature Mortality

Refers to the number of deaths that occur before the average age of death in a certain population. Mortality rates can be relatively easy to ascertain using population level data, making premature mortality a useful, if general, tool for measuring and comparing health outcomes between areas.

12 - Birth Outcomes

Morbidity indicators related to newborn health and birth outcomes include indicators such as mortality rate, low birth weight, preterm, low height, and low weight for gestational age. Birth outcomes can be measured using health data.

13 - Type 2 Diabetes

Type 2 diabetes is an impairment in the way the body regulates and uses glucose as a fuel. It is a chronic condition which results in too much sugar circulating in the bloodstream. Over time, diabetes can damage the heart, blood vessels, eyes, kidneys, and nerves. Type 2 diabetes can be measured using health data.

14 - Cardiovascular Diseases

Cardiovascular diseases (CVDs) are the leading cause of death globally, taking an estimated 17.9 million lives each year. CVDs are a group of disorders of the heart and blood vessels and include coronary heart disease, cerebrovascular disease, rheumatic heart disease and other conditions. Cardiovascular diseases can be measured using health data.

15 - Asthma and Respiratory Diseases

Asthma is a long-term condition affecting children and adults. The air passages in the lungs become narrow due to inflammation and tightening of the muscles around the small airways. Asthma and other respiratory diseases can be measured using health data.

16 - Functional Capacity

Functional capacity refers to the ability to carry out daily activities as needed. Amongst people with disabilities, functional capacity can be used to assess their ability to access their environment. Functional capacity can be measured by surveys or a Functional Capacity Evaluation.

17 - Accidents and Falls

Falls present a major challenge to active ageing. Falls, tripping and other personal injury accidents are a threat to health, particularly of older adults, and can reduce their ability to remain independent. Falls can be measured by self-reported survey, with additional information gathered by interview.

18 - Injury

Injury refers to physical harm caused by road traffic crashes. Injury frequency and severity can be measured using road traffic injury data and surveys.

19 - Pain

Pain refers to chronic pain conditions, pain-related disability, and pain-related challenges to physical functioning. Chronic pain can be measured using health data and surveys.

20 - Heat Stress

Heat stress includes a series of conditions where the body is under stress from overheating. Heat stress can result in heat stroke, heat exhaustion, heat cramps, or heat rashes. A heat index can be used to measure the likelihood of heat stress in an area.



Mental and Social

The importance of mental health is being increasingly recognised. Mental health can lead to further health issues such as premature death, however it can require relatively low investments to be treated.

21 - Stress

Stress levels can be increased due to environmental factors such as noise or flooding. Having access to a range of green and open spaces is proven to have a positive impact on reducing stress. Stress can be measured using perception surveys.

22 - Anxiety

Exposure to excess noise, such as traffic noise can lead to higher anxiety levels. To reduce anxiety levels, an urban environment should provide access to green open spaces as well as blue spaces, in proximity to residential areas. Anxiety can be measured using perception surveys.

23 - Depression

Depression can be affected in multiple ways by the urban environment: residential and economic density, access to green and blue spaces and quality of housing are all relevant factors. An indicator for measuring depression can be the number of prescriptions to antidepressants.

24 - Cognitive Function

Cognitive function refers to different mental abilities, such as the ability to learn, reason or problem solve. Street and location connectivity, access to facilities and services, green coverage and access to open spaces are all factors that impact cognitive function. It can be measured using the Colour Trails Test.

25 - Emotional Wellbeing

Emotional wellbeing refers to the ability to manage one's emotions and face stressful or challenging situations. Proximity to facilities and services, green coverage and a diversity of

green spaces can contribute to increased emotional wellbeing. This can be measured by carrying out perception surveys.

26 - Attention Deficit

Attention deficit can affect both children and adults, but is mostly diagnosed in children. Evidence proves that proximity and access to green open space can have a positive impact on children's mental wellbeing, including attention restoration. Attention deficit can be measured using the Rating Scale for Disruptive Behaviour Disorders.

27 - General Mental Health

Mental health is a state of wellbeing in which a person is able to cope with difficult moments in life and fully develop vital personal, community and socioeconomic functions.

An environment that promotes good mental health is one that guarantees proximity to a range of facilities and services (social, sport, leisure...), access to a variety of green and blue spaces, as well as universal access to quality housing. An indicator for mental health can be the number of people attended in primary care centres for mental and psychological disorders.



Wellbeing

Wellbeing is linked to one's physical, mental, emotional and social health. A state of wellbeing is one in which a person can successfully meet all their vital necessities and lead an enjoyable and fulfilling life.

28 - Perceived Safety

It is a subjective assessment of one's sense of safety, for example in relation to neighbourhood violence or crime. Physical characteristics of spaces that can determine people's perception of security are the level of maintenance, lighting and aesthetic quality as well as street connectivity. Perceived Safety can be measured using perception surveys.

29 - Perceived Quality of Life

It refers to one's own perception of the degree to which they feel healthy, comfortable and able to enjoy daily activities. It's mainly influenced by proximity and visibility of green spaces and quality of housing. Perceived Quality of Life can be measured using perception surveys.

30 - Happiness

Happiness is defined as a state of well-being and contentment. It can be linked to multiple factors of the built and urban environment, such as proximity to a range of facilities and services, access to green spaces and overall quality of the urban landscape.