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# Rethinking the Concept of Healthy Living in Urban Neighborhoods During the Corona Pandemic era and after

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**ABSTRACT:** The neighborhood is considered as the center of thinking about the City. Neighborhoods have undergone changes in different eras based on different crises. The emergence of the Corona pandemic has caused immediate changes in the way of living and the creation of new demands in the last four years. The daily concerns caused by the pandemic have put the dwellers' physical, mental, and psychological health at risk. Therefore, the research's main goal is to rethink the concept of neighborhood health as required in the post-pandemic era. This research was developed based on the correspondence of experiences and literature of "contemporary neighborhood" and "pandemic concept." Based on theme base method, studies related to the "pandemic" were investigated to base the obtained data on the content matching of two concepts of the contemporary neighborhood and pandemic and to make it possible to realize the research goals.

Based on the findings, eighteen criteria related to place, ten related to biopsychology, and seven related to biomedicine have been promoted in contemporary urban planning. The summation of the criteria related to the contemporary neighborhood also confirms eighteen criteria. Examining the content of the basis of livability criteria in the pandemic era and the contemporary neighborhood shows that these two phenomena (chronological) not only do not have a fundamental conflict with each other in content, but the content coherence between the criteria is evident.

**Keywords:** *Contemporary Neighborhood, Pandemic, Place-Oriented, Health.*

## INTRODUCTION

The neighborhood has always been considered a turning point in planning and thinking about the City. In the past, neighborhoods had internal cohesion and spatial continuity and were in good condition regarding the homogeneity of the social fabric. Neighborhoods were mainly formed based on class, belief, or livelihood, and the worldview governing the neighborhood embodied a spatial/social boundary (Ketabollahi et al., 2021). In the past, neighborhoods played a role in the political development of society, and many national movements started from neighborhoods. The neighborhood can be considered a second home for people who, after their homes, spend an important part of their lives there and are familiar with it. The second home has lost its role and functional importance in today's contemporary neighborhood. Its conceptual framework has been shaken, and this factor has caused a decrease in the residents' sense of belonging to the contemporary neighborhood.

On the other hand, living in a contemporary neighborhood has become even more important due to the lifestyle change caused by the pandemic (Doostvandi et al., 2022) and thus requires more serious attention. Therefore, this research has two goals: firstly, to rethink the concept of the contemporary neighborhood as the biological center of the City based on two physical/spatial and social/economic components. Secondly, to rethink the concept of neighborhood health as required by the post-pandemic era, which needs to be studied by focusing on the post-corona neighborhood model (Fig 1).

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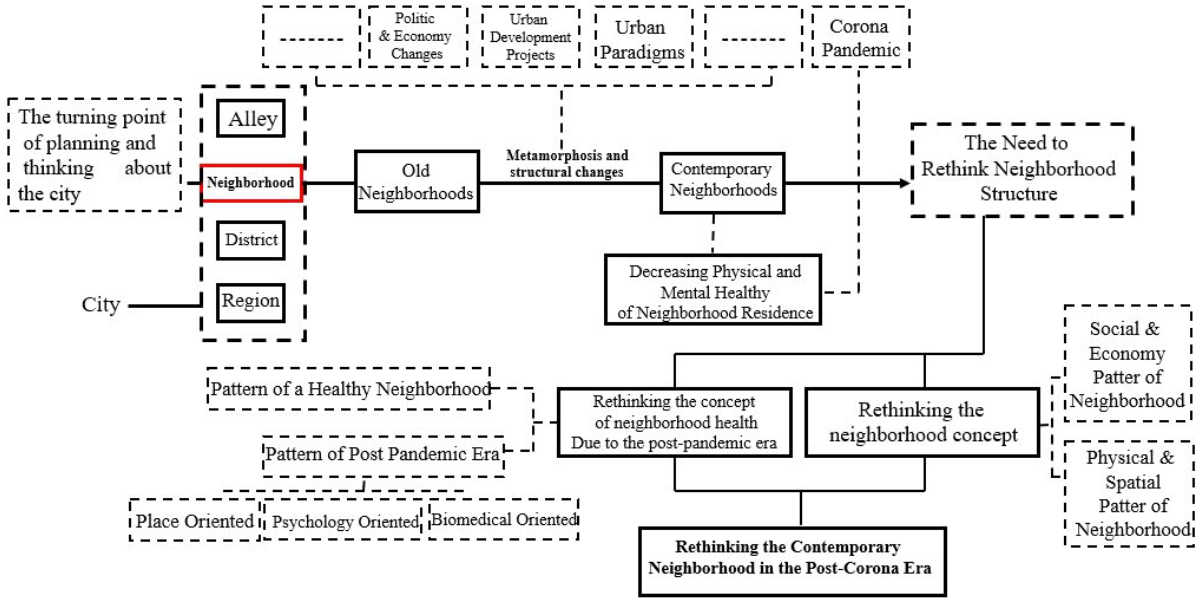


Fig. 1: Statement Framework

## MATERIALS AND METHODS

The current research has an applied-developmental purpose. The nature of this scientific-review research is forward-looking in terms of time, and based on the correspondence of experiences and literature, the two fundamental concepts of "contemporary neighborhood" and the emerging concept of "pandemic" have been developed. The research method used in this study is thematic. Thematic content evaluation is a strategy and method of data simplification in which qualitative data are divided, classified, summarized, and reconstructed in a way that retains the most important index data during the research process.

Content evaluation is a process used to evaluate textual data, and it is one of the specialized methods in scientific data processing. It determines the presence of expected concepts and words in the text.

Studies related to the concept of "neighborhood" have examined two components: physical/spatial and social/economic, using resources on urban planning. Additionally, studies related to the "pandemic" were analyzed through ScienceDirect, Springer, Scopus, Elsevier, and PubMed searches, focusing on "biomedicine, biopsychology, and habitat." After reviewing 112 valid articles, data were obtained to describe the contemporary and pandemic neighborhood concepts and to achieve the research objectives.

The keywords used in finding articles include "neighborhood and neighborhood unit, Corona, Covid-19, pandemic, Salem city, Salem neighborhood," and a combination of these words. The validity of the publication (Q1 and Q2), the year of publication (2019 and onwards), and the expertise of the authors in the field of habitat and ecology (urban development, architecture, urban design and planning, sociology, and psychology) were the most important search filters for the authors (Fig 2).

Furthermore, to select sources, evaluate information and analyze the basic content related to the keywords, the authors consulted professors from the urban planning department of Milan Polytechnic University and the urban planning department of Tabriz Islamic Art University.

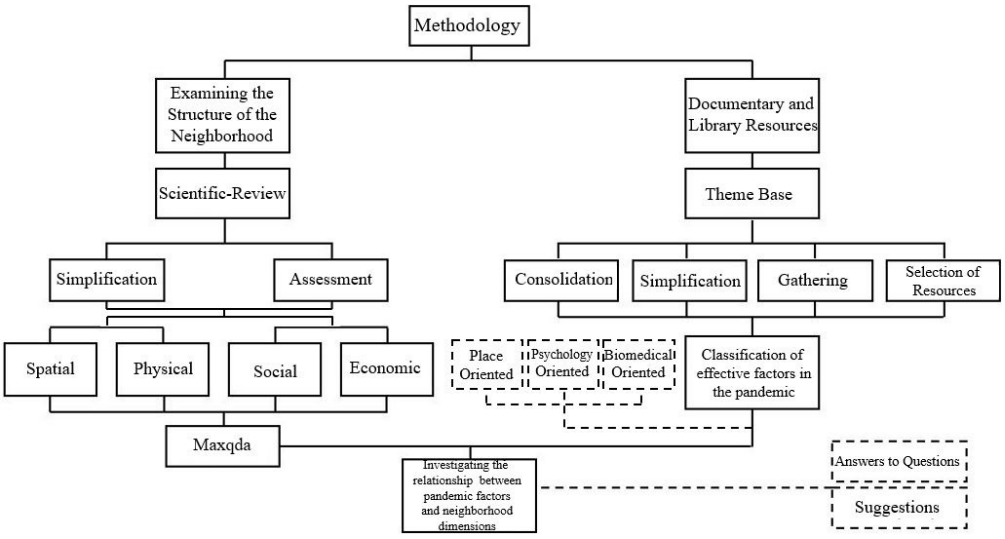


Fig. 2: Methodology Process

**Research Literature**

The review of previous research on the factors influencing the health of residents during the COVID-19 pandemic shows a wide range of human, health, and environmental factors, as demonstrated in the table below. These studies encompass a broad spectrum of factors (Table 1).

Table 1: Summary of Previous Research Related to Pandemic and Neighborhood

| Indicator | Summary of the Research | Year | thinkers |
|---|---|---|---|
| Parks and green spaces | The researchers conducted a study to measure the impact of neighborhood parks on depression, anxiety, and loneliness. They found that in urban areas, having more neighborhood parks was associated with lower levels of depression and anxiety. This indicates that green spaces should be considered for future interventions during epidemics, as exposure to residential green spaces is linked to better mental and physical health. | 2022 | Bustamante et al. |
| Parks and green spaces, social deprivation | | 2020 | Sekar and Cornell. |
| | | 2021 | Venter et al. |
| Green and blue spaces | green and blue spaces, like lakes and rivers, have healing and spiritual benefits for the elderly. The elderly also value parks as places to socialize and interact with others. | 2021 | Finlay et al. a<br>Finlay et al. b |
| Social spaces | Exposure to green and open spaces, the possibility of establishing social relations while maintaining social distance, the cause of morale renewal, and the possibility of physical activities, especially during quarantine. | 2021 | Pouso et al. |
| | | 2020 | Derks et al. |
| | | 2021 | Dzhambov et al. |
| | | 2021 | Geng et al. |
| Public uses of passages, malls, cathedrals | | 2020 | Grima et al. |
| Interactive spaces | | 2021 | Heo et al. |
| Open and interactive spaces | | 2022 | Larson et al. |
| LandUses and open spaces | | 2020 | Lesser & Nienhuis. |
| | | 2021 | Levinger et al. |
| Having amenities, including open spaces | It examined the level of access to basic facilities such as safe drinking water, sewage disposal, access to hospitals, quiet houses, and population density, focusing on the marginal areas of the cities. | 2020 | Mitra et al. |
| permanent job | Investigating the relationship between economic and social factors in the formation and exacerbation of corona disease | 2021 | Soga et al. |
| Government support and public participation | | 2020 | Suzuki et al. |
| | | 2021 | Tomasso et al. |
| | | 2022 | Young et al. |
| The use of grounded theory in identifying the differences in areas infected with corona disease | _Focusing on the principle of the mode of the disease, including the identification of hot spots of the disease at the regional level<br>_Comparative investigation and relationship between the physical characteristics of the 22 districts of Tehran with the amount of information on disease prevalence and mortality | 2021<br>2020 | Lak et al.<br>Sharifi et al. |
| Density, occupancy level, height, number of residents of the building unit | Place factors such as density, dimensions, and the house's features have been considered. | 2020 | Ren et al. |
| Personal health and the environment | Biomedical review by criteria of age and sex, geography (regional geography, most prominently infections and deaths in London at the time), deprivation, ethnicity, occupation, inclusion in health groups, mortality in care homes, and co-morbidities. | 2020 | Public Health England |
| Depression and aggression | The effects of the Covid-19 quarantine on mental health highlights that it has a negative impact, especially on depression. However, stable neighborhood relationships have been found to moderate these effects, suggesting the significance of the social environment for mental health during this pandemic. The study underlines the importance of future research on how changes in social relationships affect individuals during such crises. | 2022 | O'Donnell et al. |

Continiue of Table 1: Summary of Previous Research Related to Pandemic and Neighborhood

| Indicator | Summary of the Research | Year | thinkers |
|---|---|---|---|
| Social cohesion, pedestrian spaces within the context of the neighborhood | Three dimensions of the neighborhood environment influence social connectedness: interaction with neighbors, involvement with neighborhood-based organizations, and pedestrian outdoor spaces. While 71% of participants felt a strong sense of belonging to their community, 39% reported feeling lonely. Many individuals relied on pre-existing social ties during the pandemic to maintain connections. However, voluntary participation in local activities was important for more isolated elderly individuals. The relative accessibility of connecting with others in their neighborhood helped reduce persistent loneliness. | 2022 | Ottoni et al. |
| Age, wealth/deprivation, and ethnicity | A study that examines the neighborhood-level reasons for Covid-19 deaths during the initial surge and peak of the U.K. epidemic in London from March to April 2020. The study used an innovative method called the difference-in-spatial-boundary method to analyze differences between neighborhoods that share a border. The findings suggest that higher deaths are associated with Asian and black ethnic groups, socio-economic disadvantage, large families (possibly due to overcrowding), and fewer individuals in younger age groups. The study reinforces the evidence that age, wealth/deprivation, and ethnicity are key risk factors for higher death rates from Covid-19. | 2020 | Harris |
| urban density and the spread of epidemic disease; travel, transportation, and global/local tensions; Socio-spatial inferences of distancing measures; Geographical locations, home areas and home ranges ؛ place attachment, personal space, and the manner of enjoying the place; The spatiality of emerging post-pandemic lifestyles/work | Investigating the relationship between the real and new normal based on three key factors: urban dynamics, urban dynamics, and work and life patterns. | 2020 | Salama |
| Background diseases and unhealthy lifestyles, such as tobacco and alcohol use | An investigation into the relationship between underlying diseases and unhealthy lifestyles, such as tobacco and alcohol use, and their impact on disease rates and mortality. | 2021 | National Conference of State Legislatures |
| The impact of Covid on the surrounding areas, | Investigating the situation of the surrounding areas after Covid-19, focusing on the City of Milan | 2022 | Petrillo & Pasqui |
| Proximity and "15-minute city" in peripheral areas | | | |
| With a focus on Italy and the effects of the pandemic on relationships and social status | | | |

City and health in the 1980s, the global approach of "Healthy Cities" was supported by the WHO, which focused on the relationship between urban planning and public health (Ketabollahi & Mirgholami, 2021, 4). health is more than just the absence of disease and disability. It is a state of physical, mental, and social well-being that recognizes the rights of every human being irrespective of their race, religion, political beliefs, economic status, or social situation. (WHO, 1998, 2)[1]. This definition from the World Health Organization challenges the common assumption that health matters should be left solely to health professionals (Barton & Tsourou, 2011).

"Health planning" is a new term that has emerged and is now used by urban planners who always seek to link the urban environment with urban residents' physical and mental health (Thompson, 2007, I). It is important to note that the concept of health in cities has evolved beyond individual health and hygiene and has acquired a new meaning that requires more specialized intervention from urban planners and designers.

The approach to a healthy city has gained double importance since the emergence of the pandemic crisis in 2019, and its impacts need to be examined with a focus on the neighborhood scale (Howell, 2013, 24).

Neighborhood during the emergence of COVID-19.

Since 1974, the role of environment design-related fields in people's living experience and health status has been considered. With the prevalence of pandemics, the importance of the environment, space, and place as human habitats has doubled. This period is called biolocation briefly. Therefore, biolocation seeks to create healthy places in the post-COVID era by achieving the achievements of biomedicine and psychobiology, and a dominant pattern at the level of cities and neighborhoods should replace this trend. This classification is based on the examination of intervention methods and common theories in the health sector, which, of course, nowadays, the focus is on the simultaneous use of all three elements in promoting public health (Fig 3).

Traditionally, cities have evolved to effectively and efficiently address public health and other security threats (Lai et al., 2020). The bubonic plague in the 18th century, the cholera epidemics in the 19th century, and the Spanish flu that emerged in the 20th century all demonstrated that non-pharmaceutical interventions could play a very important role in controlling pandemics and epidemics in cities (Dahlgren & Whitehead, 1991).

The coronavirus disease emerged in China in 2019 and is recognized as one of human history's most severe public health crises (Lai et al., 2020). Since the pandemic outbreak in Wuhan, monitoring the series of actions cities took in response to this disease indicates four distinct periods. The first was the obligation to close cities, the second was cautiously reopening public spaces, the third was utilizing public spaces for indoor activities, and finally, confronting a new situation referred to as the new normal or post-corona.

While there has been a significant amount of research on the pandemic in urban areas, there is still limited research on how the pandemic operates at the neighborhood level. (Heo et al., 2020; Lee et al., 2021). Although there is limited research on the pandemic at the neighborhood level, it is believed that the built environment at small and medium scales, such as the neighborhood level and public spaces, can influence exposure to the spread of the disease. (Heo et al., 2020).

## Factors Affecting Living Experience During The Pandemic

### Place Oriented Factors Affecting Residents' Living Experience

It is important to study neighborhood characteristics as individuals spend significant time at home and in their neighborhoods. Living in a compact neighborhood can have several benefits, such as promoting physical activity, increasing social interaction, and sharing public amenities. However, if the density increases and causes overcrowding or increases face-to-face contact, it may lead to increased disease transmission during a pandemic. (Sharifi & Khavarian-Amsir 2020; Rocklov & Jodin 2020). One possible reason is that people living in denser neighborhoods, with more local amenities and walkability, may be better

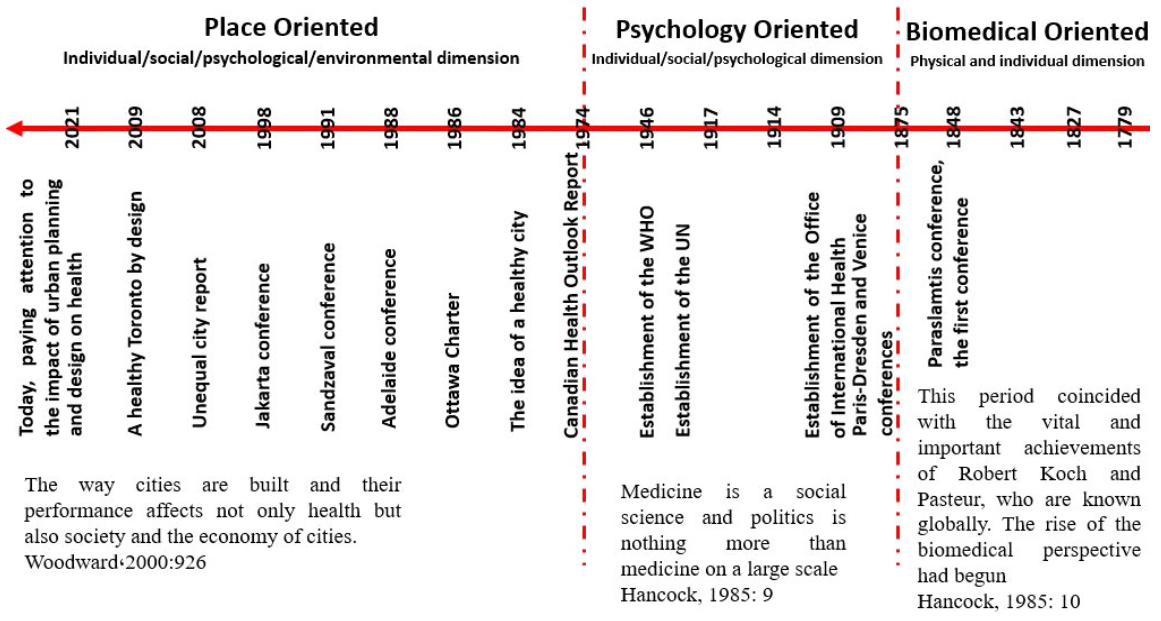


Fig 3: Evolution of the Concept of Health in the World

able to reduce their extensive mobility and maintain social distance. Two studies (Chan 2020) have shown that during social distancing restrictions, individuals living in dense areas reduce their trips more than those living in less dense areas.

Ashbar (2021) Various factors, such as better disease awareness, improved internet infrastructure for online options, and pedestrian access to essential stores in local areas, may contribute to a lower pandemic spread in compact neighborhoods. Additionally, living in a compact neighborhood can encourage physical activity. Urban areas tend to be denser than suburban areas and have better walkability than Western cities. (Sallis et al. 2016; Giles-Corti et al. 2016). It has been suggested that physical activity may enhance immunity (Neiman & Weintz 2019) and hence reduce the risk of contracting COVID-19 (Zhang et al. 2020). In addition to population density, several studies have examined other aspects of neighborhood design, such as the number of residential units in each building.

Overcrowding in households is a constant risk factor for COVID-19 (Barker, 2020). Several COVID-19 studies have included household size (Emeruwa et al., 2020; Cromer et al., 2020; Nguyen et al., 2020) or crowding (Emeruwa et al., 2020; Bryan et al., 2020; Cromer et al., 2020) and all have reported a positive association. Housing design features that may reduce transmission include low-rise building structures (Megahed & Ghoneim, 2020), sufficient space to reduce overcrowding and allow for working from home Kang et al., 2020; Megahed and Gonim, 2020), and ventilation (Megahed & Gonim, 2020). Overall, findings suggest that the social-economic status of residents is likely a more important factor than the type of housing (Zhang et al., 2022, 10). Factors related to urban form and physical characteristics of the built environment, such as density, accessibility, design and configuration of urban infrastructure such as street networks and transportation, employment and service location, and the location and distribution patterns of other urban services such as recreational facilities, hospitals, restaurants, supermarkets, places of worship, also affect the spread of the pandemic (Lai et al., 2020; Lak et al., 2020; Megahed & Ghoneim 2020; Mollalo et al., 2020). Among the urban form factors (i.e., physical environment, land use, and public transportation facilities), the strongest relationship with the disease incidence in neighborhoods is related to land use. Pharmacies had the strongest association with the incidence of COVID-19, followed by local shopping centers and retailers. The positive relationship between land use factors and the number of COVID-19 cases indicates that these factors can be fundamental determinants of overall neighborhood losses. This is where better access to the internet and the promotion of online shopping can be prioritized in this regard. The fact that disease clusters are in areas with lower socio-economic status once again underscores the need for actions to reduce social and economic inequalities in the City.

### Biomedical-Oriented Factors Affecting Residents' Living Experience

The approach taken by countries in dealing with the COVID-19 pandemic varied and significantly affected planning and the incidence and mortality statistics. Most initial studies have been conducted in the United States or China, which have adopted different strategies to combat the pandemic. The United States adopted a mitigation strategy, including the closure of non-essential businesses and schools reopening in May. About half of the states had introduced mask mandates by August 2020 (Chen et al., 2021). In contrast, China adopted a strict containment strategy with quarantine in cities with cases, testing, and sample isolation. Therefore, these differences may also affect how the neighborhood environment affects the transmission of COVID-19 on a smaller scale. Universal vaccination, social distancing, adherence to health guidelines such as frequent washing and disinfecting of surfaces and hands, and wearing masks were essential in reducing disease transmission and have been added to residents' living experiences in all countries over the past five years. Many health issues affect different age groups and regions in various cities during the pandemic. One of these issues is the age and underlying diseases of individuals.

Lacan (2020) found that individuals over 65 who suffer from other chronic illnesses and have limited ability to perform independent household tasks are particularly vulnerable to COVID-19. Additionally, Lipi et al. (2020) argued that factors such as being male, over the age of sixty, and having pre-existing health conditions (such as chronic diseases like diabetes, high blood pressure, chronic respiratory diseases, cancer, and cardiovascular disorders) are determinants of the incidence and death rates caused by COVID-19.

### Psychosocial Factors Affecting Residents' Living Experience

Many studies show that considering some auxiliary variables such as average income (Credit, 2020; Nguyen et al., 2020), insurance status (Cromer et al., 2020), poverty rates (Bryan et al., 2020; Cromer et al., 2020; Nguyen et al. 2020), and composite criteria (DiMaggio et al., 2020; Birenbaum-Armeleli & Chassida, 2020) age, lifestyle status, racial differences, and underlying diseases can indirectly impact the severity of the situation. Social cohesion is likely one of the factors that can play a key role in protecting overall mental health and responding to pandemics (Ehsan & De Silva, 2015; Henderson et al., 2021).

In particular, positive social relationships in a neighborhood may be vital during times of crisis, as it facilitates shared goals, support, belonging, and a unified response, especially when individuals and other social groups are not available due to movement restrictions. Reviewed studies included longitudinal and cross-sectional designs. Longitudinal studies typically measured the mental health of participants before and during the first wave of COVID-19 (e.g., Niedzwiedz et al., 2021), while several cross-sectional studies compared mental health among individuals living under quarantine/isolation, heavily impacted areas of the pandemic, to those who were not affected or less affected by the pandemic or restrictions (e.g., You et al., 2020; Lee et al., 2020). To date, only one non-cohort study has been identified that compares individual-level changes in mental health before and during the pandemic. Thus, evidence is still emerging to determine the precise effects of quarantine on individuals' mental health.

Positive social connections and social cohesion are important for health outcomes, and Being part of a group with positive social connections and qualities such as belonging, shared purpose, and group support also supports mental health. Social support exists for various groups, including neighborhoods. Literature shows that the social aspects of neighborhoods, defined in various forms as neighborhood cohesion,

social capital, belonging, collective efficacy, disruption, and safety, have beneficial and protective effects on mental health and well-being (Ruiz et al., 2019). This highlights the significance of social environments during collective crises like pandemics. Studies indicate a positive link between community cohesion and resilience to natural disasters, though the strength of this relationship varies. (Townshend et al., 2015).

The relationship between humans and nature can also spread diseases, including those shared between humans and animals. Approximately two-thirds of human infectious diseases originate from domestic or wild animals. The emergence of the coronavirus is believed to be linked to an animal disease that has spread to humans. Conserving natural habitats, minimizing land use changes, and reducing pollution can help prevent the spread of such diseases. The United Nations Environment Programme has identified the unsustainable use of natural resources as a major factor in transmitting shared diseases between humans and animals. (UNEP, 2020).

In areas with seasonal floods or winds, unprecedented precipitation and extreme temperatures caused by climate change and rapid urbanization can overload inadequate drainage and sewage systems and accelerate the spread of waterborne diseases and infections. To reduce the emergence and spread of infectious diseases in the future and increase long-term health and resilience, emphasis should be placed on preserving and revitalizing green-blue networks and landscape corridors throughout the regions in land use and environmental planning (Brown & Mijic, 2019).

Green-blue networks help facilitate interactions between domestic and wild animals and humans and improve climate resilience, health, well-being, and biodiversity (Brown & Mijic, 2019). City density does not seem to be the sole factor contributing to the spread or mortality rate of COVID-19. Other factors, such as access to services, demographics, pre-existing health conditions, social infrastructure, and timely response measures, play a significant role. Density can facilitate connectivity and emergency response when appropriately supported by good design and adequate service provision. (Fang & Wahba, 2020).

The COVID-19 pandemic has resulted in a fast response at the neighborhood level by adapting public spaces to support emergency services. This has included setting up temporary hospitals, warehouses, and other facilities to improve neighborhood response capacity. The ability of public spaces to serve as a "public health center" has proven to be crucial during this time. (Aerts et al., 2020). Setting up health stations in public spaces is another way to raise public awareness and increase prevention and health. In general, multiple factors can influence the patterns of pandemic expansion, and the summary of studies conducted is shown in the following (Table 2 & Fig 4).

Table 2: Components and Indicators Effective in the Spread of the Pandemic at the Neighborhood Scale

| Resources | Sub-criterion | criterion |
|---|---|---|
| (Sharifi & Khavarian-Garmsir 2020; Wilkinson 2020) | Characteristics of the built environment | The quality of the residential area |
| (Bryan et al. 2020; Wilkinson 2020) | | Average housing area in the neighborhoods |
| (DiMaggio 2020; Wilkinson 2020) | | Building density |
| (Huang et al., 2020) | | building height |
| (Huang et al., 2020) | | View to the sky - the openness of the sky. |
| (Cromer et al 2020; Emeruwa 2020) | | Number of residential units in the building |
| (Brito et al 2020; Franch-Pardo et al 2020; Lai et al 2020; Liu et al 2020; Mollalo et al 2019; Sangiorgio & Parisi 2020) | Land uses | Land use composition |
| (Huang et al., 2020) | | Diversity of land use |
| (Franch-Pardo et al 2020; Jin et al 2020; Ren et al 2020) | | Several neighborhood centers (supermarket, bakery, grocery store.) |
| (Franch-Pardo et al 2020; Pourghasemi et al 2020; Ren et al 2020) | | The number of banks |
| (Franch-Pardo et al 2020; Jin et al 2020; Ren et al 2020) | | Number of chain stores |
| (Franch-Pardo et al 2020; Liu et al 2020; Sharifi & Khavarian-Garmsir 2020) | | The proportion of undeveloped areas |
| (Franch-Pardo et al 2020; Jin et al 2020; Ren et al 2020; Sangiorgio & Parisi 2020) | | The area ratio of educational, cultural, and religious centers |
| (Franch-Pardo et al 2020; Lak et al 2020; Sangiorgio & Parisi 2020) | | The number of pharmacies |
| (Ren et al 2020; Jin et al 2020; You et al 2020) | | The number of hospitals designated to deal with the pandemic |

Continiue of Table 2: Components and Indicators Effective in the Spread of the Pandemic at the Neighborhood Scale

| Resources | Sub-criterion | criterion |
|---|---|---|
| (Franch-Pardo et al 2020; Jin et al 2020; Ren et al 2020) | Access and infrastructure | Access to public transportation |
| (Huang et al., 2020) | | Transportation density |
| (Credit et al., 2020) | | Access to cycling |
| (Brito et al 2020; Franch-Pardo et al 2020; Jin et al 2020; Lai et al 2020; Mollalo et al 2019, 2020; Ren et al 2020) | | Access to parts and blocks |
| (Brito et al 2020; Bryan 2020; Credit 2020; Jin et al 2020; Lai et al 2020; Liu et al 2020; Mollalo et al 2019; Ren et al 2020) | | Access to medical centers |
| (Bustamante et al 2022; Huang et al 2020; You et al 2020; Mossabir et al 2021; Wiles et al 2012) | | Density and access to green space |
| (Brown and Mijic, 2019) | | Density and access to water networks |
| (Franch-Pardo et al 2020; Mollalo et al 2019; Sharifi & Khavarian-Garmsir 2020) | Weather conditions and natural environment | The average number of contaminated days per year |
| (Bryan et al 2020; Franch-Pardo et al 2020; Mollalo et al 2019; Sharifi & Khavarian-Garmsir 2020) | | Average levels of environmental pollution (air, water, soil) |
| (Sharifi & Khavarian-Garmsir, 2020) | | Temperature, wind speed, and humidity |
| (Sharifi & Khavarian-Garmsir 2020; Wilkinson 2020) | | The average state of cleanliness of the environment (the amount of waste in the neighborhood and the water cycle) |
| (Lai et al. 2020; Mollalo et al. 2019; Wilkinson 2020) | Infrastructure | Per capita, land use related to health |
| (Bryan et al. 2020; Mollalo et al. 2019; Wilkinson 2020) | | Educational uses per capita |
| (Mollalo et al. 2019) | | cultural-religious places per capita |
| (Bryan et al., 2020) | | Internet access |
| (Franch-Pardo et al 2020; Lai et al 2020; Mollalo et al 2019; Sannigrahi et al 2020) | Population | Percentage of the working population |
| (Sharifi & Khavarian-Garmsir 2020; Wilkinson 2020) | Economic | The proportion of the population above the poverty line |
| (Lai et al. 2020; Liu et al. 2020; Wilkinson 2020) | Identity, Participation | Belonging to the neighborhood |
| (Glover et al 2020; Lai et al 2020; Liu et al 2020; Wilkinson 2020) | | The level of social capital |
| (Sharifi & Khavarian-Garmsir, 2020) | education | Percentage of the population with a higher education degree |
| (Franch-Pardo et al 2020; Kim & Bostwick 2020; Wilkinson 2020) | Life style | Percentage of population with chronic diseases and pre-existing health conditions (such as diabetes, asthma, obesity, and high blood pressure) |
| (Bryan et al 2020; Franch-Pardo et al 2020; Kiaghadi et al 2020; Lai et al 2020; Liu et al 2020; Mollalo et al 2019; Ren et al 2020; Wilkinson 2020) | population | Percentage of elderly population (over 65 years old) |
| (Public Health England 2020) | | Percentage of elderly population (over 40 years old) |
| (Azevedo et al 2020, Vittor et al 2006) | coexistence | The degree of coexistence with animals |
| (Birenbaum-Carmeli et al 2020; Bryan et al 2020; Credit 2020; DiMaggio 2020; Emeruwa 2020; Franch-Pardo et al 2020; Gu et al 2020; Huang et al 2020; Joseph 2020; Lai et al 2020; Liu et al 2020; Peng et al 2020; Ren et al 2020; Sharifi & Khavarian-Garmsir, 2020; Vahidi 2020; Wilkinson 2020) | population | population density |
| (DiMaggio, 2020) | | School density |
| (Peng et al. 2020; Wilkinson 2020) | | Household size |
| (Bryan et al. 2020; Harris 2020) | Economic | Remote work at home |
| (Bryan et al. 2020; Harris 2020) | Hereditary | underlying diseases |
| (Bryan et al., 2020) | Life style | Tobacco use |
| (Bryan et al 2020; Credit et al 2020; Nguyen et al 2020) | Economic | Average income |
| (Cromer et al., 2020) | | Insurance status |
| (Bryan et al 2020; Nguyen et al 2020; Cromer et al 2020) | | poverty rate |

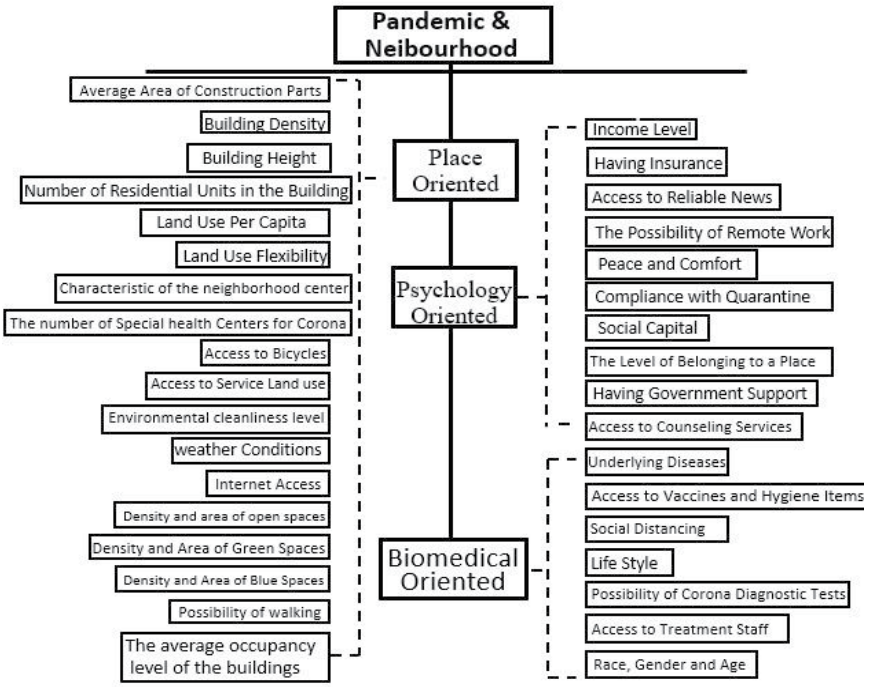


Fig 4: Pandemic Factors & Subfactors of Corona Pandemic Affectes on Neighbourhoods

**Contemporary Neighborhood**

**Social and Economic Dimension**

A city is not just a physical entity but also an intellectual space or, in other words, a unifying worldview and faith that is a city's most important defining factor. Among the behaviors God has commanded in all religions are justice, neighboring, cooperation, participation, and social cohesion. Each neighborhood is a residential area for ethnic, racial, religious, and occupational groups (Latifi & SafariChabok, 2012). In the large cities of the Middle East, each neighborhood was semi-independent, with its markets, mosques, and administrative organizations dependent on the city government. Their social participation and support for each other were so great that the lack of regulations to provide social security compensated to some extent for the individual. Being a neighborhood was considered a kind of value (Soltanzadeh 2011). To define "neighborhood," originally an Arabic word, two main approaches can be generally proposed: neighborhood as a physical-spatial unit and neighborhood as a physical-spatial and social unit (Saremi & Ghazaei, 2021, 327).

According to the first perspective, a neighborhood comprises various physical elements, and related activities occur in different spaces. Therefore, in this view, the neighborhood is defined as a space where relationships form within it. In the second perspective, the neighborhood's physical-spatial and social aspects play a role in its definition. Additionally, the neighborhood, in addition to having a defined spatial and geographical domain, also has a social concept. This view considers a more comprehensive concept of the neighborhood than the previous perspective (Eslami et al., 2012; Aliloo et al., 2019). The neighborhood is more than just a space; it is a social organization and a place where social networks are formed. Such a structure is more than just a space; it is an experience (Naghi Zadeh, 2008, 83). The center of the neighborhood, the main public local space and the most important place for internalizing the concept of citizenship is considered the primary example of open spaces for establishing connective relationships in residential neighborhoods (Assar & Nazari Pour, 2012).

The dimensions of a neighborhood should be defined in a way that meets the needs and health of its residents and is defined in terms of pedestrian movement (Mansouri 2022, 1). From the perspective of Bastani Rad (2012, 2), in recognizing a neighborhood, its physical elements should be studied, especially those with a historical background and origin. Some of these elements had the same functionality in all neighborhoods, including squares, passages, alleys, streets, passages, towers and bars, gates, gardens, pavilions and houses, water structures, churches, mosques, shrines, schools, public places such as baths and public toilets, markets and important places like bazaars, caravanserais, recreational, sports, industrial, workshop places.

In studying unity and diversity in contemporary neighborhoods, factors affecting historical knowledge of the neighborhood should also be considered. These include knowledge of the geography of the neighborhood, the history of the neighborhood to obtain evidence of events and developments in the neighborhood, examining social identity from the perspective of neighborhood identity and historical background in connection with the history of each place, examining the ethnic composition and population developments of neighborhoods in connection with current urban issues, immigration to neighborhoods and their social performance, and examining prominent cultural, political, economic and influential figures in the identity of the neighborhood.

A neighborhood is a social, economic, physical, and cultural identity in a city, and the emergence and formation of a city is directly related to its neighborhoods. The difference between primary cities and villages lies in their internal and external relationships, the issue of surplus production over the needs of the producing community, architecture, and

a set of quantitative and qualitative factors around the axis of economic, technological, communication, urban infrastructure, population growth, and cultural development (Shahmirzadi, 1999, 3,. Majid Zadeh, 1989, 9). These factors come to fruition within the neighborhood context. It should be acknowledged that the neighborhood's spatial/physical and social/economic structure in the contemporary City has undergone a transformation and seems to have moved away from being a cohesive self-contained unit. Many studies have focused on the direct relationship between the health of neighborhood residents and the quality of life in that neighborhood. Therefore, not only attention to physical issues but also social issues within the neighborhood and the type of neighborly relationships are of great importance. Segregation has been one of the main components of neighborhood formation in Iran and Western societies. This means that neighborhood formation in many countries has been based on social-economic, ethnic-religious, and social-economic characteristics, respectively (Saremi & Ghazaei, 2021, 325). The neighborhood manifests the lifestyle and always takes a step towards greater efficiency and responsiveness to the community's economic, social, and cultural needs (Alizadeh & Habibi, 2011, 17) and provides a comprehensive definition of society and community.

## The Physical And Spatial Dimension

The neighborhood can be considered as people's second home, where they spend an important part of their lives after the house, and plays a big role in people's health. In contemporary neighborhoods, especially on the outskirts of cities, the second house has lost its role and functional importance.

Its conceptual framework has declined, and this factor has caused the residents' sense of belonging to the contemporary neighborhood to decrease. On the other hand, living in a contemporary neighborhood has become more important due to the lifestyle change caused by the pandemic and needs more serious attention.

In this regard, Nguyen and his colleagues studied the impact of environmental characteristics on the risk of contracting Covid. They identified that urban environments with mixed-use buildings, multiple traffic lanes, the number of sidewalks, and more physical disorders are associated with a higher number of cases of contracting the coronavirus.Is.

Also, denser neighborhoods with substandard and overcrowded housing, where ethnic minorities tend to live, make social distancing difficult, which is a disadvantage (Nguyen et al., 2020). Ashraf Salama (2020), in his article entitled "Coronavirus Questions that do not go away: examining the Urban and socio-spatial consequences of the Measures of COVID-19," on aspects such as lifestyle, type of home and occupation as important influencing characteristics of Covid-19 Emphasizes the risk of infection in cities. Transportation is expected to be one of the important features that will change in the future due to the pandemic. He argues, "There will be more incentives to cycle to work, encourage walking, encourage minimizing large public gatherings on transit systems or at transit and bus stops."

He also considers job typology as an important variable for resistance against Covid-19. Employed, salaried, and self-employed people create different opportunities and threats to people and how they use their homes. (Eltarabily & Elgheznawy, 2020).

They examine the relationship between the effects of the pandemic on the City and urban planning from a historical and current point of view. Their research provides new recommendations for healthy cities (Eltarabily & Elgheznawy, 2020).

They propose solutions for urban decentralization and optimal density, street design, public transportation, public spaces and parks, and inequality and housing design. Congestion is identified as a risk factor. Wider sidewalks for social distancing, providing enough space for queuing at the entrance of public places, and enough furniture for the elderly are among the solutions to make the streets safer during the pandemic.

Considering the flexibility of the design of public spaces enables multi-purpose spaces that can accommodate health care services. A connected system of green spaces can enable people to walk, reduce stress, and improve mental and physical health. Also, forced quarantine and staying at home has turned houses into a place to sleep, play and work. Therefore, there is a need to review the quality of house design regarding access to nature and biophilic approach, ventilation, public-private boundaries, and common spaces such as elevators, corridors, and stairs, especially in apartments.

In summary, most of these studies support the idea of walkable neighborhoods that provide work opportunities, amenities, services, and green spaces within walking distance, and flexible and smart homes with telecommuting opportunities for the community without creating overcrowded and compromising situations. They provide social conditions.

Neighborhoods can be defined according to their function and social relations. However, if we intend to determine the limits and radius of their function, it should be said that considering that the philosophy and main purpose of human creation according to the verses of the Holy Quran is worship (Dhariyat, Verse 56). Prayer is the identity of a Muslim and, in a sense, the flag of Islam, the place of the mosque, is also the identity of the place of life of Muslims or the Islamic City. The identity of the Islamic City is tied to the identity of the mosque, so it is better to consider religious use as the focus of your designs.

Regarding the boundaries and dimensions of the neighborhood, if in the design of the neighborhoods, the focus of the design is based on the religious use (mosque), then the mosque's boundary is forty cubits, and forty houses on the four sides are considered human neighbors.

The boundaries of the neighborhood in Islamic cities are at a distance of 40 blocks on each side from the religious use (mosque) (Nourian et al. 2014, 41-44), which, if we consider the width of each block on average to be 15 meters, (including the passages between the blocks), It can be said that the neighborhood is approximately six hundred meters from the sides of the mosque (Rahnama et al. 2016, 51), which is equal to the amount of distance that a person travels in 10 to 15 minutes to reach it (alignment with the theme of fifteen-minute neighborhoods in Europe and America).

It means that the neighborhood's boundaries can be assumed as a circle with a radius of 600 meters, or considering that most neighborhoods are square, its boundaries can be assumed as a square with a side length of 1200 meters and a diameter of approximately 1700 meters.

As the evidence can be observed in Yazd, Mashhad, and Tabriz., Neighborhoods in Islamic Cities have certain functional elements at the neighborhood scale. Each neighborhood center included elements such

as a bazaar, mosque, Hosseiniyeh, water storage, workshops, zurkhaneh, and Maidanche. However, the mosque and bazaar have always been neighborhood centers' main and common elements (Saeidi Rezvani, 1989, 114-115).

Regarding educational use (school or school), it is important that at the beginning of Islam, the place of education was the "mosque." In this way, lesson circles were sometimes formed other than congregational prayers and sermons (Kiani Salmi & Safari, 2019). Therefore, during the early days of the rise of Islam, religious and educational use were combined and in the form of mixed religious-educational use.

So, according to the mentioned cases, we conclude that the main uses that are proposed in Islamic cities at the neighborhood level are residential, religious (the focus of the creation of each neighborhood is based on this use, such as mosques, Hosseiniyehs, and Takayas), educational (at the level Neighborhoods, such as kindergartens and elementary schools), commercial (to butchery needs including bakery, butcher, fruit shop.) And by the way, there have been some uses in the past, and today they no longer have any function or use, such as water reservoirs, drinking fountains, and public baths. Instead, several new uses are recommended for these neighborhoods according to today's conditions, such as the uses of urban facilities and equipment (such as electrical posts and telephones at the neighborhood level), green space, urban services (such as toilets, parking. at the neighborhood level), sports. (Rahnama et al., 2016, 51) (Fig 5).

## RESULTS AND DISCUSSIONS

Thematic analysis was done in the context of the desirable state of the contemporary neighborhood, based on two physical/spatial and social/economic components. Investigations showed that the neighborhood, as the center of coexistence of the homogeneous masses of the society, should fulfill virtue, dignity, and participation for its residents, socially/economically. Also, the neighborhood's structure should be designed to provide the possibility of realizing a healthy lifestyle, increasing social capital and economic self-reliance, and bringing residents a favorable psychological life experience.

This neighborhood should also meet the basic needs of the residents in the present age regarding physical/spatial aspects. Needs include the benefit of natural elements (healthy air, sky, sunshine, favorable wind, .), geographical factors (mountains, hills, valleys, rivers, canals, lakes, .), artificial elements (suitable housing, neighborhood population density, access to land uses fundamental, .).

On the other hand, check the valid articles in Elsevier, ScienceDirect, Springer, Scopus, and Popmed databases based on the keywords neighborhood, pandemic, covid, and corona. In architecture, urban planning, and social sciences publications, 112 articles were found between 2019[2]. Based on this, the measures in the face of the pandemic to reduce the prevalence and statistics of infection and death were divided into habitat, biopsychology, and biomedicine. From the set of indicators extracted on a theoretical basis, eighteen items related to habitat, ten items related to habitat, and seven items related to biomedicine were selected as the most important influencing factors in the neighborhood, with overlap and repetition in at least three references.

The relationship between the factors affecting the pandemic in the contemporary City, with the components of the contemporary neighborhood in the form of two-way pair correspondence, is significant. The findings show that these criteria do not conflict, and the content synonyms between the criteria are evident. Therefore, contemporary urban planning and neighborhood can be used to improve the health of the global community with the contemporary interpretation of pandemic factors.

By noting the factors affecting the spread of the pandemic in this research, it can be pointed out that many urban theories that have been proposed in the field of health promotion and disease reduction, including the 15-minute city-neighborhood, in recent years, can be more effective by considering features beyond spacing.

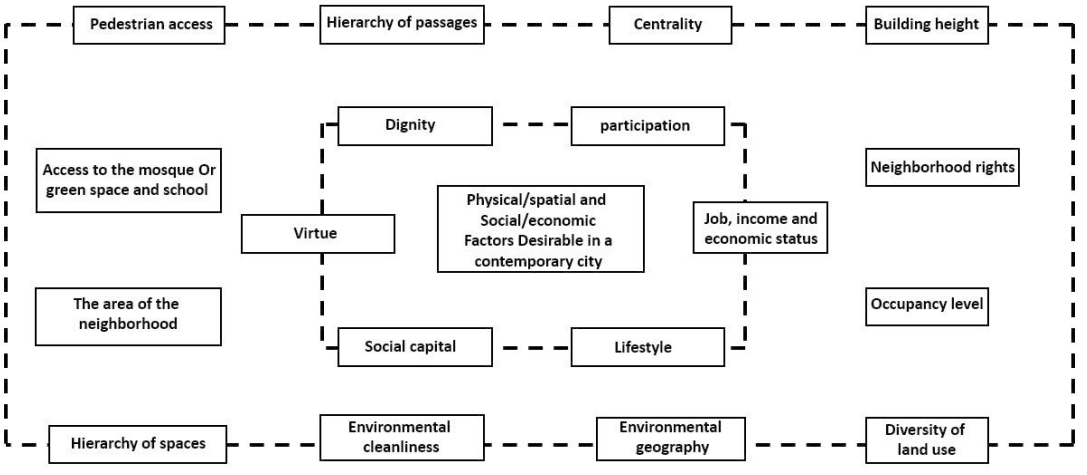


Fig 5: Optimal physical/spatial and social/economic situation in the contemporary neighborhood according to the characteristics of the pandemic

With the passage of more than four years since the emergence of the Corona crisis at the global level, the factors and categories presented in this research can be used as a reference in future related research and simultaneously with the emergence of new strains of the disease and new achievements in the field of biomedicine, hidden layers The influence of habitat and other habitats has been identified and added to the review findings of this research. As a social center, the neighborhood should bring its residents the possibility of a healthy life.

## CONCLUSION

Investigations showed that the neighborhood's multiple spatial-physical and socio-economic dimensions could be effective in realizing this goal when attention is also paid to the environmental aspects in addition to the psychological and therapeutic-health aspects. What is important here is to pay attention to the solutions that guarantee a healthy life against the pandemic. Considering that pandemics are repeatable, the following suggestions are suggested to improve the quality of life in the neighborhoods and the healthy life of the residents.

- Simultaneous attention to physical and social factors in neighborhood design
-Using new medical and psychiatric findings in neighborhood design
- Requiring the presence of doctors and psychologists in examining the outcome of neighborhood development projects on the health of the residents' behavior
- Considering the health approach as the dominant approach in the 21st century

## ENDNOTES

1. Jakarta Charter
2..https://Sciencedirect.com، https://www.elsevier.com, https://jast- journal.springeropen.com, https://www.scopus.com, https://pubmed.ncbi.nlm.nih.gov/

## AUTHOR CONTRIBUTIONS

A. Petrillo helped in the literature review, performed the experiments, compiled the data, and reviewed the conclusion and manuscript preparation.

M. Mirgholami helped in the literature review, performed the experiments, compiled the data, and reviewed the conclusion and manuscript preparation.

K. Ketabollahi performed the literature review and experimental design, analyzed and interpreted the data, and prepared the manuscript text and edition.

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## CONFLICT OF INTEREST

The authors declare no potential conflict of interest regarding the publication of this work. In addition, the authors have witnessed ethical issues, including plagiarism, informed consent, misconduct, data fabrication and, or falsification, double publication and, or submission, and redundancy.

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