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Article

A Conceptual Framework for Promoting Neighborhood Social Sustainability: A Review of Literature

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Abstract: Social sustainability is a component of sustainability that has received attention in recent years. Its objective is to promote social well-being and improve the quality of life of people. Built environments play a significant role in social well-being in cities. Neighborhoods, therefore, being the essential physical and social components of cities, offer great opportunities for investigating the social sustainability of built environments. This paper examines social sustainability to produce a theoretical framework to examine the social issues related to cities. It employs a document survey as a research method and examines published literature systematically, to shed light on the multifaceted discourse surrounding social sustainability. It elucidates its diverse manifestations portrayed within scholarly discourse. The findings show that the concept revolves around two concepts: physical and non-physical attributes. They consist of several indicators measurable on objective and subjective criteria. These relate to both physical and non-physical attributes, as well as the aspirations and experiences of people, as a component of social sustainability. This research offers valuable insights into neighborhood-related social sustainability, establishing a foundation for academic investigations. It presents a novel framework of the two pillars of social sustainability, to clarify its multifaceted nature. The framework can help in developing a tool for holistic comprehension of social sustainability.

Keywords: social sustainability; neighborhood; built environment; framework; literature review

1. Introduction

The notion of sustainable development is increasingly exerting a significant influence on urban planning and the development of built environments. It advocates for a comprehensive approach that considers the interrelationships between social, economic, and environmental factors when dealing with urban developments (Mirzakhani, Turró and Behzadfar, 2023). It emphasizes the need to consider the social and cultural needs of people such as attachment, social ties and networks that are integral to daily living (Akcali and Cahantimur, 2022). Social sustainability is often defined as being comprised of dimensions such as social inclusion, social coherence, social cohesiveness, and social fairness (Dempsey et al., 2011). It aims to enhance the living conditions of both the present and the future populations. It relates to the human dimension, reflecting factors such as people's abilities and societal principles (Vallance, Perkins, and Dixon, 2011).

Cities offer significant opportunities for attaining these objectives through the creation of socially sustainable settings. Indeed, the physical forms of cities have significant impacts on them. Spatial configurations of urban landscapes, design elements and physical attributes can influence an individual's actions within these areas. The socio-spatial perspective acknowledges the significance of meticulous urban planning and design, primarily emphasizing the social roles and outcomes of urban places. Usually, these social concerns exhibit a strong correlation with the socio-physical dimensions of the spatial environment (Akcali and Ispalar Cahantimur, 2023).

In the past few decades, many have examined social sustainability in the built environment. Colantonio (2009), Alwah, Al-Attar and Wei (2023) and Larimian et al. (2020) are notable among them. However, very few have examined how social sustainability, as a policy goal, might be implemented in planning practices. In fact, despite the growing scholarly attention towards the social benefits associated with it, there is a lack of agreement about the concept, its attributes, and their impact on enhancing social benefits (Alwah, Al-Attar and Wei, 2023). Larimian et al. (2020) support this argument.

As (Shrivastava and Singh, 2019; Khamis et al., 2023) says, "Despite the overall consensus about the significance of social sustainability in the sustainable development agenda, a common agreement on the definition and operationalization of this concept is still missing". Thus, there has also been a divergence in the development of the evaluative domain, in terms of the tangible components that constitute socially viable structures of neighborhoods. These changes show that traditional concepts like equity, inclusion, justice, and poverty are replaced by more abstract ideas like social cohesion, a feeling of place, social interaction, and community. Colantonio and Dixon (2011) point out that this shift from "hard" to "soft" themes shows how important the urban setting is, for achieving "soft" goals. Moreover, some notice a change in the emphasis from the 'tangible' parts of social sustainability, such as jobs and homes, to the 'intangible' ones, such as happiness and belonging (Shirazi and Keivani, 2017).

Social sustainability is multi-dimensional. Its incorporation into urban planning must begin at the micro-scale and move up to the macro-scale. Since its themes are derived from the concepts, any ambiguity of the conceptual framework leads to obstacles in operationalization. Shirazi and Keivani (2017) show the importance of the crucial aspects of social sustainability to evaluate a particular context, from the community level to a region. Although there is considerable attention in the academic literature about the role of urban form in attaining urban social sustainability, there is a lack of clarity about the design principles that can address the social demands of people (Bramley and Power, 2009). Therefore, it is necessary to investigate the urban form factors that either promote or impede social sustainability in urban communities (Hemani, Das and Chowdhury, 2017).

Urban-built environments encompass a complex array of factors that have significant social, economic, and cultural implications for people. There has been a growing recognition of social concerns relating to communities, prompting a re-evaluation of urban environments. This has led to a significant transformation, with spatially oriented social issues taking precedence on the agenda. Given the multifaceted nature of social concerns, it is imperative to rethink socio-spatial dynamics by developing theoretical frameworks that explore the role of the built environment in fostering community prosperity. In this connection, (Hemani, Das and Chowdhury, 2017; Shirazi and Keivani, 2018) point out that there exists an urgent need for more empirical investigations on urban social sustainability at the neighbourhood scale.

Many cities have experienced significant changes due to land speculation. Several urban planning concepts are centred on the "demolish and redevelop" concept. Many traditional settlements have been removed, causing communities to disintegrate and lose their sense of place. Unsurprisingly, this collaborative spirit, which has defined traditional close-knit urban neighbourhoods, has slowly diminished, lowering the city's quality of life. Given this background, this paper examines how social sustainability manifests in residential neighbourhoods. It aims to contribute to the discourse on enhancing social sustainability in cities. Its objectives are:

1. To identify the elements and factors that elucidate the concept of social sustainability in residential developments, and
2. To propose a comprehensive framework for assessing social sustainability at the neighborhood level based on the characteristics and components identified

2. Materials and Method

This research conducts a review of the literature employing a qualitative meta-analysis. It examines selected literature to ascertain the current state of knowledge and recurring themes and approaches to explore them in research.

It analyses sixty-five research papers, sourced from the Web of Science and Scopus research databases covering a diverse spectrum of theoretical concepts and national and international cases. They deal with either social sustainability or its correlation with other aspects of the built environment: planning, housing urban revitalization, urban studies, city administration, urban governance, geography and sociology spanning from the local to the regional. Literature published after 1990 was selected since social sustainability became important after the concept of sustainable development gained acceptance. The review identified themes to develop the framework. It identified the most appropriate indicators for each component and their respective measurements. The review also identified research methods, frameworks and tools used to measure the indicators. These could help implement measures for social

sustainability within the neighborhoods. The conceptual framework for assessing and developing social sustainability in urban neighborhoods focuses on the socio-spatial aspects of urban space. The studies referred to have been analyzed and presented in Table A1 in Appendix.

It engages the following to deduce the framework of social sustainability, by incorporating physical and nonphysical aspects of neighborhoods,

- ❖ Deciphering variables from previous studies along with other related neighborhood-scale sustainability evaluation methods, that reflect non-physical dimensions of human needs and urban sociology theories.
- ❖ Examining the physical aspects encompassing the various elements of the neighborhoods, including planning at different scales.
- ❖ Examining the nonphysical aspect representing the resident's psychological and social satisfaction component.

3. Literature Review

Literature has examined numerous dimensions of social sustainability. The themes and criteria revealed in this review are presented in Table A2 (Appendix). This review reveals the following concepts being essential to produce a theoretical framework.

3.1. The Concept

Social sustainability is a vital aspect of sustainable development that guarantees a high standard of living for people. To achieve sustainability, equal attention must be paid to the economic, environmental, and social components. According to Colantonio and Dixon (2011), it considers an individual's social domain, composed of 'quality of life,' 'happiness,' and 'well-being'. According to Shirazi and Keivani (2017), two primary factors exist individual capacity, related to the well-being of individuals and community capacity, related to measures producing quality of life. According to Dastbaz, Naudé and Manoochehri (2018), social sustainability responds to the shared aspirations of individuals within a society. Baldwin and King (2018) clarify that it enhances both: one's own and collective quality of life and well-being.

Social sustainability has been discussed in academic literature from various disciplines. However, there is little agreement regarding its precise meaning or measurement (Colantonio and Dixon, 2011; Shirazi and Keivani, 2017). According to Dempsey et al. (2011), its meaning evolves. Stren and Polèse (2000), say that systematic growth of civil society and social cohesion must be emphasized, together with improving the overall well-being of all sectors of society.

Investigations have assessed social sustainability concerning urban areas at two levels: city (Chan and Lee, 2008; Rashidfarokhi et al., 2018) and neighborhood (Yoo and Lee, 2016; Ali, Al-Betawi and Al-Qudah, 2019; Shirazi and Keivani, 2021). Most of them, however, have focused on the urban environment, or on the characteristics that define it—such as neighborhood attachment, social participation, social capital, social interaction, and community cohesion.

3.2. Numerous Dimensions of Social Sustainability and Their Interrelationships

According to Murphy (2012), equality, involvement, awareness, and social cohesion are dimensions of social sustainability and social cohesiveness is essential. This also includes identity, vitality, diversity, sociability, quality of life, social involvement, social justice and security as dimensions of social sustainability. Many also refer to "housing, disadvantaged populations, community, social capital, public participation, urban governance, history and heritage and policy implementation" (Landorf, 2011; Woodcraft, 2012; Weingaertner and Moberg, 2014).

The correlation between urban space and social sustainability arises from attributes such as density, location, and other aspects. (Dempsey, Brown and Bramley, 2012; Kyttä et al., 2016; Ali, Al-Betawi and Al-Qudah, 2019; Alipour and Galal Ahmed, 2021; Soltani et al., 2022) producing contradictory results. Social sustainability necessitates a foundation rooted in fairness, democracy and social justice. They encompass social homogeneity, fair distribution of income, employment opportunities, and equal access to resources and social services. According to Yiftachel and Hedgcock, (1993), the long-term sustainability of a city depends on its ability to foster interactions between people, communication, and cultural growth.

According to Colantonio and Dixon (2011), sustainability pertains to how individuals, communities, and societies coexist through the dimensions of social equity, social capital, and community sustainability (Dempsey et al., 2008; Woodcraft, 2012; Hamiduddin, 2015). Akcali and Cahantimur (2022) want housing or the city shape to accommodate the social and spatial parts of cities. Ascertaining socio-spatial

attributes requires fulfilling fundamental, psychological and attributes require fulfilling fundamental, psychological and social requirements (Abed, 2017; Mehan, 2017). Shirazi et al. (2021) evaluate four neighborhoods in Berlin and London and propose a framework for assessing the social sustainability of neighborhoods. They show that the primary determinants are "quality of home," "access to facilities," and "safety and security." Participation and "interaction networks" are less important. Stevenson (2021) identifies participation, interactions, social capital, sense of place and well-being, highlighting the significance of social occurrences to achieve social sustainability. Moreover, Larimian et al. (2020) show that both physical and individual factors influence urban social sustainability.

In contrast, Arundel and Ronald (2017) reveal the absence of significant relationships between high density and social sustainability indicators such as 'social capital,' 'sense of community,' and 'residents' satisfaction'. Physical elements such as "scale," "local retail establishments," "automobile prevalence" and "construction duration" are more strongly associated with social sustainability. Karuppannan and Sivam (2011) reveal that public open spaces, residential complexes, appropriate access to public areas, mixed land-use, and social infrastructure significantly enhance neighborhood social sustainability.

Jomepour and Ebrahimi (2015) show that "crime prevention" and "social justice", influence social sustainability strongly, while "social participation" and "environmental quality" have the least impact. Similarly, Maghami, Poordeihimi and Zarghami (2011) identify "comfort within the dwelling" and "the versatility of open and multi-functional spaces for children" as the two most critical indicators of social sustainability. As Akcali and Ispalar Cahantimur (2023) say, given the numerous social concerns, it is necessary to adopt these dimensions in developing theoretical frameworks to facilitate built environments to enable communities to thrive.

3.3. Social Sustainability at The Residential Neighborhood Scale

Bijoux and Pathway (2012) point out that human activities take place in built environments from the smallest space to the largest. Every area thus affects overall sustainability (Bijoux, D., and Pathway, 2012). Neighborhood is the smallest unit of a city. Hemani and Das (2016) say that it is the main action centre. It produces an urban dimension that people experience physically and socially. As Bijoux and Pathway (2012) demonstrate, people communicate with neighbours frequently.

Geographically, a neighborhood is comprised of houses, surroundings, and facilities. Thus, a sustainable neighborhood must encompass everything sustainable simultaneously. Despite its significance as a scale for urban management and governance in addressing social concerns like urbanisation and inequality (Durose and Lowndes, 2010), they are also places of engagement and social rights for communities (Hemani and Das, 2016). Thus, it is justifiable to conceptualize the social sustainability of neighborhoods because:

1) Of the manageable level for city authorities to address societal issues and concerns (Pagano, 2015).
2) Of neighborhoods engaging in social aspects: gathering with neighbours and participating in activities on a day-to-day basis. According to Walton, Murray and Thomas (2008), and Kennett and Forrest (2006), social sustainability may provide a framework to examine a neighborhood, identify problems, and plan improvements.
3) Neighborhood Sustainability Assessment (NSA) tools evaluate the success of neighborhood redevelopment plans based on sustainability-related criteria. However Sharifi and Murayama (2013) reveals that it's common for social criteria to go unnoticed and unaddressed.
4) The focus is on bottom-up strategies and the sustainability of small-scale systems, which are influenced by larger-scale issues. (Hemani, Das and Chowdhury, 2017).
5) Emphasis is on the quality-of-life issues and their evaluations where neighborhood is the most apt to research the problem.

To establish a framework for evaluating the social sustainability of Neighborhoods, this paper presents a conceptual sketch in Figure 1. It builds upon literature that deals with the social sustainability of neighborhoods at the neighborhood level (Meso scale), which plays a crucial role in sustainable urban development while interacting with both micro and macro-scale-built environments. Neighborhood serves as the fundamental unit to achieve the sustainability of a city. To maintain cities' sustainability and guarantee a good quality of life for their residents, a sustainable micro-community is necessary.

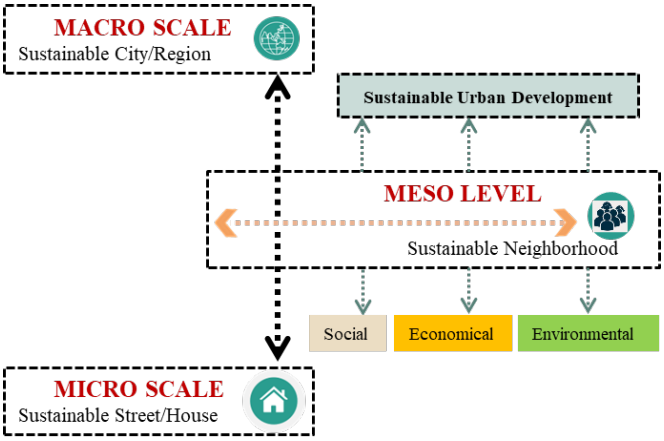

Figure 1. Neighborhood Scale Significance, (Shrivastava and Sinha, 2023).

3.4. Conceptual Framework for Socially Sustainable Neighborhoods

Cities have social, economic, and cultural relevance to the residents. Urban landscapes have seen tremendous change in recent years due to growing societal concerns, with space-related social issues gaining prominence. Since many factors affect social issues, socio-spatial theories on how the built environment helps a society must be developed. A framework for evaluating neighborhood social sustainability should include the significant characteristics and factors of that level.

A neighborhood has physical implications and is connected to the tangible characteristics of the built environment. A socially sustainable ecosystem is paradoxical. On one side, its physical attributes and standards (hard infrastructure) are valued. Conversely, significant social aspects (soft infrastructure) are maintained, and actively practised there (hard infrastructure). This combination is the essence of social sustainability. Therefore, any framework to measure social sustainability must use both quantitative and qualitative methodologies. Physical attributes of the built environment, known as hard infrastructure, serve as the foundational elements on which the more prominent aspects such as social connections, interaction, involvement and emotional connection (the network of soft infrastructure) are established and put into action.

3.4.1. The Conceptual Basis

This study constructs a theoretical framework for the social sustainability of neighborhoods as a combination of two interrelated qualities: envisioned and perceived. Social sustainability pertains to the present condition of physical and structural attributes of communities, encompassing factors such as the presence and ease of access to urban amenities, the density and interconnection of buildings, types of buildings, and land use. These elements are known as 'hard infrastructure' or foundational framework.

The perceived aspect refers to the resident's perception of the core social aspects of the area, including equal accessibility, social contact, involvement, safety, the quality of houses and the community. These are known as 'soft infrastructure'. Socially sustainable communities endure excellent interactions between the planned and perceived elements of the place over time. Moreover, given its interconnections with other core sustainability factors, social sustainability goes beyond these variables.

Social sustainability encompasses various disciplines. Factors such as economics, institutions, politics, and culture significantly impact social concerns such as health, education, employment, income equality, social cohesion, and inclusion. These topics are now categorised as "traditional" in terms of social sustainability, as they are no longer closely associated with the socio-spatial elements of urban space.

3.4.2. Evaluation of Social Sustainability

This study proposes that social sustainability can be evaluated through physical factors such as Social Equity, Inclusion, and Neighborhood Amenities, as well as non-physical attributes like Sense of Place, Social Capital, Safety, and Security. Objective measures can assess the physical factors, while subjective measures can evaluate the non-physical factors. These therefore are umbrella themes that encompass the main principles, whether they complement, substitute, or refer to distinct content.

The physical factors are linked to the urban area's social and geographical characteristics. The non-physical factors refer to social behaviours influenced by socio-spatial elements. The conceptual framework (Figure 2) recognizes the importance of socio-spatial features in urban environments. Both are indicators of social sustainability at the Neighborhood level. Neighborhood issues can be identified

by reviewing future empirical research on social sustainability, which can help to establish the indicator subthemes.

In urban situations, investigations on the socio-spatial model utilise either social or spatial aspects independently or consider them as combined aspects referred to as socio-spatial aspects. Scholars identify social factors such as education level, job environment, and income as socio-demographic variables. Social factors encompass aspects such as neighbouring activities, social connections and social solidarity, related to social relations and a sense of belonging (Yoo and Lee, 2016). Another strategy is utilising socio-spatial aspects as a combination, which encompasses a broad range of concerns about urban function, open space, and street layout. However, here, these tenets are classified as socio-spatial aspects.

3.4.3. Factors of Social Sustainability

The conceptual framework is presented in the Figure 2. It is made up of three important factors: physical (conceived qualities or hard infrastructure) factors, nonphysical (perceived qualities or soft infrastructure) factors, and the socio-economic profile of the residents living in that neighborhood.

Understanding physical factors such as Neighborhood-built environments (density, mixed land use, urban pattern, and access to facilities), housing typology and satisfaction, neighborhood diversity, and characteristics of residential areas can be understood through objective measures. Data should be collected from sources such as census data, primary household surveys, GIS maps, expert consultation, intensive fieldwork, and observations. Data can be processed by applying software such as Arc GIS, AutoCAD, etc. This will yield a set of quantitative data, illustrations, or visual maps that can ascertain the social sustainability of neighborhoods.

The nonphysical factors such as sense of place, social capital, safety and security can also be quantified using subjective measures. A questionnaire can gather neighborhood data, which can be analysed using statistical software. This will reveal the perceived status and value of each neighborhood. A household survey can reveal the socioeconomic profile of the neighborhood. This will offer an overview of the demographic composition of the local community.

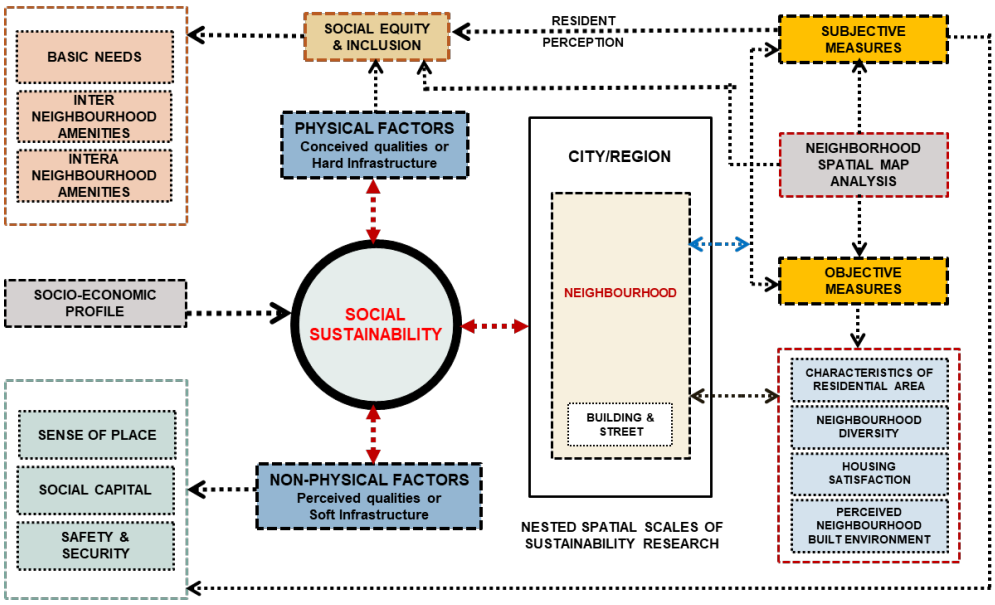

Figure 2. Proposed Conceptual Framework to Measure Neighborhood Social Sustainability
Source: By Authors.

3.5. Framework Component and Indicators

Specific indications continually emerge, establishing the fundamental basis of the conceptual framework for neighborhood social sustainability.

3.5.1. Concept 01: Social Capital

Social capital is abstract and ethereal (Rodríguez-Pose and von Berlepsch, 2014). Its primary criticism is multifaceted, posing challenges in defining and implementing. The methods for defining the concept of social capital come from the theories of Coleman (1988) about social networks, as well as

Putnam (1993). Trust, social networks, and social norms are frequently cited as the primary components for assessing social capital. Social capital measurements revolve around trust and the extent of involvement or interaction in social or group activities. It is formed through relationships between individuals and the social network within a given community. Hence, the establishment of social capital is of utmost importance and requires a physical or virtual location where individuals and groups may come together (Yoo and Lee, 2016). This emphasises the significant influence of the design of cities on the development of social connections. In fact, Dempsey et al. (2011) argue that social capital is often present in physical environments that possess characteristics such as high density and diversity. At the community level, social capital can be measured by factors including acquaintance with neighbours, the regularity of home visits, trust among neighbours, reciprocal assistance, mutual support, and collective concern.

3.5.2. Concept 02: Sense of Place

Researchers have studied the symbolic and emotional attachment, as well as personal and social identification people experience with places. Sense of place comprises quantifiable aspects such as place identity, attachment, and dependence, enriching peoples' emotional connections with distinct locations. Place attachment refers to the emotional relationship formed between people and places, at the individual and communal levels (Hidalgo and Hernandez, 2001). Place identity shapes an individual's sense of self influenced by several aspects of daily life (Hull, Lam and Vigo, 1994).

Sense of place extends beyond tangible and quantifiable elements and relates to the human experience arising from the connection between people and the physical structures (Hemani, Das and Chowdhury, 2017). It includes relationships with the physical surroundings (such as emotional connection to a place), with other members of the community (such as personal identification), and a feeling of being part of a group (Larimian et al., 2020). Indicators such as "community pride", "desirability of the neighborhood" and "homesickness for the neighborhood after prolonged absence" can evaluate this measure. People with a strong sense of attachment to their locality remain in that area, preserve its resources, and establish enduring connections with their fellow residents.

3.5.3. Concept 03: Social Equity

Interactions between economic and social aspects of sustainable development are characterized by equity. Equitable neighborhood access to infrastructure and services ensures fair opportunity for all socio-economic groups. (Dempsey et al., 2011). It encompasses fair and equal "access to services, facilities, and opportunities", essential for achieving social sustainability. As Colantonio and Dixon (2011) point out, that it is the ability to access resources necessary for participating in communal life, as well as the potential for personal growth and improvement.

It ensures that everyone has an equal opportunity to be politically, socially, and economically involved in society. Social justice in physical settings is mostly determined by accessibility, social facilities, and everyday activities This indicator highlights the need for fair and equal access to public facilities and services including education, healthcare, cultural activities, recreational opportunities, transportation, etc. (Shirazi and Keivani, 2018; Akcali and Ispalar Cahantimur, 2023). Access to this is crucial regardless of variations in age, gender, physical state, or socioeconomic status (Larimian and Sadeghi, 2021; Pazhuhan (Panahandeh Khah) et al., 2023). It sometimes includes affordable housing and employment prospects (Mouratidis et al., 2024). Social infrastructure and facilities, accessibility, and daily operations serve as indicators of social equality within the built environment.

3.5.4. Concept 04: Safety and Security

Safety and security are a fundamental requirement for all the constructive social activities of a local community (Eizenberg and Jabareen, 2017). Safety is the measure of how secure individuals feel when navigating their surroundings. The real rate and the perception of crime can have detrimental effects on the social sustainability of communities. The feeling of safety comes from either external or internal factors. External factors include risks arising from an influx of problematic residents, while internal factors involve threats stemming from individuals and their anti-social behaviour. Safety and security in a location enhance its appeal to people, attract newcomers, and promote longer-term residency.

The presence of secure traffic and motor vehicles as well as the fear of crime influences the perception of safety (Foster, Giles-Corti and Knuiman, 2010). Trust and reciprocity are cultivated among the residents when they perceive safe and secure surroundings. Conversely, the absence of such a perception may contribute to a rise in criminal activities (Hofstad, 2023). Safety and security indicators include perception of safety during the day, at night (after dark), security of open spaces like parks, children's safety on the streets (ensuring secure traffic), the incidence of crime victimisation, and the presence of

police in the neighborhood.

3.5.5. Concept 05: Housing Satisfaction

Housing satisfaction is the degree of agreement between an individual's desired housing conditions and the actual state of residence. Gifford (2007) argues that "If the difference between your preference and your choice is great, you may be dissatisfied with your residence and it may never develop into a home,"). According to Vera-Toscano and Ateca-Amestoy (2008), housing satisfaction is a determining factor in quality of life and a "mediator" of happiness or well-being, as the most significant "investment item of their lifetime". Thus, different housing types such as bungalows, apartments, and executive housing make neighborhoods more vibrant.

The following metrics are recommended for measuring the quality of a house: privacy, noise levels, room size, number of rooms, and parking facilities. Moreover, understanding residents' desire to relocate from their current houses and the underlying reasons behind this desire are equally important. Akcali and Cahantimur (2022) propose prioritising socio-spatial aspects in social sustainability assessments instead of focusing on building design. Abed and Alzghoul (2023) contend that although the built environment is not considered a direct element of social sustainability, it significantly influences it.

3.5.6. Concept 06: Neighborhood Built Environment

The organisation and physical structure of a neighborhood play a crucial role in shaping an urban environment. This includes factors such as the size, shape, and arrangement of an area and its elements (Mohamed et al., 2022). The built environment has a considerable impact on social sustainability. According to (Shirazi and Keivani, 2018) physical characteristics of neighborhood spaces are part of urban form. These characteristics are evaluated using factors such as density, mixed land use, urban patterns, street networks, building typologies and the quality of centres.

The quality of a neighborhood is determined by the level of happiness that inhabitants have with their surroundings. As Walton, Murray and Thomas (2008) point out, this is based on an evaluation of different aspects. The physical attributes such as the noise pollution,upkeep, architectural style, landscaping, cleanliness, and tranquillity significantly influence how people perceive their area (Yoo and Lee, 2016). Satisfaction of social elements of a neighborhood, feeling of security and neighborhood satisfaction are all positively correlated with a higher quality of the neighborhood. The perceived quality of a neighborhood-built environment is an outcome of perceptions such as neighborhood quality which is the level of friendliness and social interaction among the residents. This can range from knowing the names of the neighbours to developing genuine friendships. Another factor is the residents' satisfaction with their neighborhood. This can be measured by assessing their satisfaction and sense of belonging. Safety can be evaluated by considering the level of comfort and perceived safety within a neighborhood. The physical characteristics of the neighborhood, such as the presence of open spaces, as well as the availability of local facilities like community centres, public libraries, and sports facilities are important factors. Accessibility is another aspect of neighborhood quality. It is the ease with which residents can move around and interact with others. The presence of collective group activities that encourage people to actively participate in neighborhood events and initiatives is a factor that contributes to neighborhood quality (Bramley and Power, 2009; Abed and Al-Jokhadar, 2022).

4. Discussion

This paper offered an overview of urban social sustainability. It defines the concept at the neighborhood level and explicitly emphasizes its characteristics that have an impact on the built environment. Social sustainability embraces a wide range of different characteristics, with the question "What are the social objectives of sustainable development?". This paper revealed the investigations that have assessed the notion concerning urban areas, which can be categorized into two levels: city and neighborhood. Social sustainability has been extensively examined in diverse fields of study. Nevertheless, the literature points to a lack of a precise definition, conceptualization, and operationalization of urban social sustainability (Shirazi and Keivani, 2018).

Disjointed and contradictory writings emerge from several theoretical frameworks. This paper argues for the creation of case-specific and place-specific formulations since the absence of a firm definition and conceptual framework underscores the nuanced nature of the social dimension of sustainability. This calls for a thorough investigation, as well as an examination of its relationships to other facets of sustainable development.

The research acknowledges the many ways of defining it. Because of this, studies should pay attention to specific locations or contextual factors (Kyttä et al., 2016). Although there are disagreements, important parameters essential to social sustainability have been identified. Over time, intangible and

less tangible factors have increasingly become more important than quantitative and physical factors, highlighting the need for greater research. The transition from physical to abstract attributes in conceptualization should be appreciated. It signifies the non-physical nature of the sociocultural aspect of the communities. In this connection, (Shirazi and Keivani, 2018) have developed a methodology for analysing neighborhood social sustainability and have presented a triad comprising subjective and objective criteria.

Larimian et al. (2020) suggest that both physical and individual variables impact several elements of urban social sustainability. Findings indicate that integrating social capital into the planning and design of neighborhoods can enhance social sustainability and well-being. Hamiduddin and Adelfio (2019) indicate that the promotion of 'integration' and 'social cohesion' is achieved by using communal spaces, encouraging social interactions, providing 'local amenities,' and coordinating activities through the residents' associations. Karuppannan and Sivam (2011) reveal the contribution of many facets to the enhancement of social sustainability within neighborhoods. They show a link between community arrangement and social sustainability. Akcali and Cahantimur (2022) emphasise the importance of socio-spatial aspects, highlighting the need for tailored solutions based on unique community characteristics. They recommend strategies for improving social sustainability by enhancing urban elements. Moztarzadeh and Nezami (2022) highlight the importance of social interaction, security, place attachment, and participation as key indicators in contemporary residential complexes, highlighting the influence of physical indicators on social sustainability and the promotion of social stability in residential complexes.

There is no universal assessment framework applicable to every field and level of analysis. Each framework must determine its pertinent indicators and metrics by considering the crucial elements, objectives, and scope. This study does an investigation on how socio-spatial characteristics affect the level of urban social sustainability. Urban form traits and their thresholds are intriguing determinants of social sustainability that warrant additional investigations using this paradigm. To attain social sustainability, it recommends implementing planning strategies that prioritize social goals.

This paper presents a conceptual framework (Figure 2) based on research to elucidate the constituent elements and measurable criteria of the social sustainability of neighborhoods. The proposed framework suggests social sustainability at a meso-level, specifically in residential neighborhoods, by considering contextual factors and utilizing both physical and nonphysical factors. The physical factors accounting for social sustainability are mixed land use, local facilities and services, housing typology, and public and open spaces. Social sustainability is influenced by factors such as “social interactions and participation among residents, justice and equity in society, security, safety, and ultimately place attachment and a sense of place”. Using explicit indicators that connect social sustainability parameters with the physical environment helps achieve both physical and social sustainability in residential neighborhoods.

The framework views social sustainability as being process-oriented. Maintaining balance in environmental indicators is of great significance and fundamental importance. Physical factors that impact social sustainability have been evaluated. This perspective regards physical criteria as a foundation and an introduction to enhancing social sustainability. Prioritization of components reveals that nonphysical factors are a crucial element in the promotion of social sustainability.

People’s presence in neighborhoods can be facilitated through the provision of public and semi-private spaces. Motion sequences and circulations in complex, integrated, and collaborative environments improve the efficacy of spaces and socialization. Social interaction is one of the most effective social sustainability indicators. Social sustainability is promoted by interaction places that improve social involvement, social and cultural life, safety, and security. These are the most efficacious indicators within the array of social sustainability.

Enhancing the visibility and soft edges of public spaces within residential complexes, while also establishing a visual linkage between the complexes and their surrounding environments can contribute to the security of places. Enhancing the appeal of residential areas can be achieved by bolstering common areas. This requires amenities such as neighborhood parks, public open spaces and children's play areas. Open spaces function as crucial venues for the development of partnerships. These spaces facilitate socialization among the residents during daily interactions and foster social and cultural events.

Housing complexes can be deliberately placed inside a neighborhood as part of an equity-based planning strategy to promote fair access to local amenities including shops, institutions, open spaces, and parks. It can foster social interactions that transcend the boundaries of residential complexes.. Mixed-use land can boost neighborhood functionality. Thus, buildings and infrastructure should establish horizontal and vertical mixed-use zones to avoid the demand for additional utilities.

This paper contends that to protect the welfare and enhance the standard of living of urban residents, it is necessary to make social sustainability a strategic priority in urban development. Difficulties

resulting from urbanization make it more urgent that the social sustainability of cities, particularly in developing countries, is prioritized.

5. Conclusion

An increasing trend towards incorporating people, places, ecology, culture, and climate into built environment sustainability initiatives is taking shape, to improve people's health and well-being. In this context, this review has scrutinized the conceptualization and improvement of neighborhood social sustainability. By directing attention towards the neighborhood level, this research amalgamates an extensive array of scholarly works, providing a logical outline valuable for subsequent investigations as well as pragmatic implementations.

The study outlines indicators interrelated and essential for understanding the social sustainability of Neighborhoods. These factors, which encompass equity in society, participation, inclusion, sense of belonging, interaction, sense of place, infrastructure, community satisfaction, safety, and security collectively define the characteristics of a viable community. The research argues that social sustainability goes beyond physical infrastructure and is strongly influenced by the experiences of individuals reflected in the proposed framework that incorporates physical and non-physical components. Discussion surrounding social sustainability holds more importance for small-scale urban environments, such as urban neighborhoods.

This research adds to the debate on the social sustainability of Neighborhoods., establishing a strong basis for future exploration. It addresses a significant gap in existing knowledge on social sustainability, particularly within neighborhood studies. The findings contribute to the advancement of knowledge and practice by providing a clearer understanding and improvement of the conceptualization and enhancement of neighborhood social sustainability. This study offers a comprehensive examination of how the socio-spatial characteristics of Neighborhoods influence social sustainability. By employing this approach, scholars may develop an exhaustive knowledge of societal sustainability. This aids in determining the Neighborhoods that exhibit higher levels of social sustainability and explains their characteristics.

The literature demonstrates that social sustainability is an evolving notion that has advanced from traditional, measurable features to intangible and adaptable dimensions over time. Static and cross-sectional research approaches may be insufficient in capturing the complexities of social sustainability and its various components. Hence, this study might be expanded by employing a longitudinal study to investigate the dynamics and progression of changes in social sustainability over time. For evaluating the connection between design quality and social sustainability, it is recommended that future research adopts a mixed-methods approach. By combining qualitative research methods with quantitative data analysis, it is possible to gain a deeper understanding of the reasons, methods, and circumstances in which design quality might improve people's perceptions of social sustainability and their overall quality of life.

Given the contextual nature of social sustainability, it would be useful to examine the factors that contribute to residents' satisfaction with their living environments and the social sustainability of a specific geographical and cultural neighborhood. This would allow for a comprehensive set of methods and solutions applicable to enhance the social sustainability characteristics of an urban Neighborhood.

Conflict of Interest Statement

The author(s) has/have no competing interests to declare.

Appendix

Table A1: Social sustainability issues examined in the literature, Source: Author

Authors	Paper Titles	Issues Examined
(Chan and Lee, 2008)	Critical factors for improving social sustainability of urban renewal projects	• Factors for enhancing social sustainability of urban renewal projects:
(Dempsey et al., 2011)	The Social Dimension of Sustainable Development: Defining Urban Social Sustainability	• Core dimensions of urban social sustainability:
(Yoo and Lee, 2016)	Neighborhood-Built Environments Affecting Social Capital and Social Sustainability in Seoul, Korea	• Perceived environment quality, land use diversity and accessibility to parks and public facilities.

(Abed, 2017)	Assessment of social sustainability: a comparative analysis	• Public spaces and facilities in residential compounds impact social sustainability.
(Moztarzadeh and Nikounam Nezami, 2022)	Social Sustainability Components & Improving the Physical Quality of Contemporary Residential Complexes	• Physical component as a key factor that affects social sustainability in residential complexes.
(Hemani, Das and Chowdhury, 2017)	Influence of urban forms on social sustainability: A case of Guwahati, Assam	• Urban forms with higher connectivity, open spaces, mixed uses, density and compact blocks.
(Dixon, 2019)	Measuring the Social Sustainability of New Housing Development: A Critical Review of Assessment Methods	• Development of a UK social sustainability assessment framework for new housing projects.
(Karji et al., 2019)	Assessment of Social Sustainability Indicators in Mass Housing Construction: A Case Study of Mehr Housing Project	• Mass housing project in the city of Parand
(Doğu and Aras, 2019)	Measuring Social Sustainability with the Developed MCSA Model: Güzelyurt Case	• Developed model to measure social sustainability.
(Alipour and Galal Ahmed, 2021)	Assessing the effect of urban form on social sustainability: a proposed 'Integrated Measuring Tools Method' for urban neighborhoods in Dubai	• Urban form characteristics of a neighbourhood.
(Shirazi and Keivani, 2021)	Social Sustainability of Compact Neighbourhoods Evidence from London and Berlin	• Accessibility of urban services in compact neighborhoods.
(Mirzakhani, Turró and Behzadfar, 2023a)	Factors affecting social sustainability in the historical city centers of Iran	• Social factors affecting historical city centers.
(Roosta, Chizfahm Daneshmandian and Sadeghi, 2022)	Spatial configuration and social sustainability in urban neighborhoods	• Spatial configuration of urban neighborhoods, measured using Space Syntax
(Soltani et al., 2022)	The role of spatial configuration in moderating the relationship between social sustainability and urban density	• Spatial configuration affecting safety, sense of place, and social interaction.
(Akcali and Ispalar Cahantimur, 2023)	How socio-spatial aspects of urban space influence social sustainability: a case study	• Study areas related to indicators
(Alwah, Al-Attar and Wei, 2023)	Relationship between the perceived characteristics of the built-environment and social sustainability: Sana'a City, Yemen use case	• Perceived characteristics of the built environment.
(Pazhuhan (Panahandeh Khah) et al., 2023)	Social sustainability of residential squares: Evidence from Narmak neighborhood, Tehran	• Social sustainability variables across square types.
(Razia and Abu Bakar Ah, 2023)	Model of social sustainability for Dhaka city, Bangladesh	• Social sustainability that influences sustainable urban developments.
(Nilsson et al., 2024)	Navigating complexity with the four pillars of social sustainability	• Interpretations and facets of social sustainability.
(Mouratidis et al., 2024)	Assessing urban social sustainability with the Place Standard Tool: Measurement, findings, and guidance	• The Place Standard Tool for assessing urban social sustainability.

Table A2: Social sustainability Dimensions discussed in the literature
Source: adapted from (Akcali and Cahantimur, 2022) and developed by the author

Author(s)	Dimensions of Social Sustainability	Themes/Criteria Considered
Bramley and Power (2009)	Social Equity	"Access to Services and Opportunities; Essential Local Services such as Shops, Schools, and Health Centers; Recreational Opportunities; Open Space; Public Transport; Job Opportunities; and Affordable Housing"
	Sustainable Community	"Pride in and Attachment to the Neighborhood; Social Interaction within the Neighborhood; Safety/Security (vs. risk of crime, antisocial Behavior); Perceived Quality of the Local Environment; Satisfaction with the Home; Stability

			(vs. residential turnover); Participation in Collective Group/Civic Activities"
Landorf (2011)	Social Equity		"Access to Services; Facilities and Opportunities; Level of Institutional Stability and Flexibility"
	Social Coherence		"Strength of Network; Participation; Identification, and Tolerance; Level of Empowerment and Accountability"
	Minimum daily needs		"Objective Satisfaction of Basic Needs; Subjective Satisfaction of Basic Needs"
Woodcraft (2012)	Accessibility		"Mixed Dwellings; Affordable Housing; Health; Employment and Education"
	Social Cohesion		"Identity; Safety; Meeting Places; Social Activities; Connection; Amenities"
	Participatory Process		"Participation; Inclusion"
Bacon et al. (2012)	Services and Infrastructure		"Provision of Community Space; Transport Links; Place with Distinctive Character; Integration with the Wider Neighborhood; Accessible Street Layout; Physical Space on Development that is Adaptable in the future"
	Social & Cultural Life		"Positive Local Identity; Relationships with Neighbors; Well-being; Feelings of Safety; Community Facilities"
	Voice and influence		"Perceptions of Ability to Influence Local Area; Willingness to Act to Improve Area"
Dempsey, Brown and Bramley (2012)	Social equity		"Mode of transport; Access to services (supermarkets; local shops; parking provision)"
	Environmental equity		"Open Spaces"
	Community well-being		"Feelings of Safety; Community Stability; Sense of Place; Social Networks; Social Interaction"
Hemani, Das and Chowdhury (2017)	Social capital/ social cohesion		"Social Interactions/Social Networks; Trust/Reciprocity; Place Attachment/Pride; Social Participation/Community Engagement; Fear of Crime/Perception of Safety"
	Social inclusion/ social equity		"Availability and Access to Basic Services, Facilities and Amenities"
Ali, Al-Betawi and Al-Qudah (2019)	Sustainable Community		"Social Interaction; Safety; Residential Stability; Sense of Belonging; Neighborhood as a Place to Live"
	Social equity		"Access to Services; Open Spaces/Parks; Transportation availability; Job Accessibility"
Pieper, Karvonen and Vaarama(2019)	Societal Level	Societal Assets or Capital	"Economy; Polity Culture; Civic Society"
		Social quality Processes	"Security; Empowerment; Inclusion; Cohesion"
		Individual QoL	"Resources & Access; Well-being; Satisfaction, Access"
	Human Ecology		"Environmental Resources; People; Technology; Connectivity in Time and Space"
	Value Standards of Human Dignity		"Equity; Freedom; Social Justice; Solidarity"
Larimian et al. (2020)	Personal Factors		"Income; Length of Residence; Home Ownership"
	Physical Factors		"Quality of Design; Density; Transport Infrastructure; Land Use Mix"
	Urban Social Sustainability		"Social Interaction; Neighborhood Satisfaction; Social Participation; Safety and Security; Social Equity'; Sense of Place"
(Doğu and Aras (2019)	Sense of Belonging		"Community Stability; Sense of Community; Well-being/Happiness; Sense of Place; Sense of Belonging to the house"
	Perceived Environment		"Satisfied with maintenance; Satisfied with sports Centers; Satisfied with Transportation; Satisfied with Health Centers"
	Social Interactions/Security		"Contribution of the University students; Trusting students"
	Interaction with Space		"Satisfied with the spatial organization of the house; Satisfied with the Size of the House"
	Voice and Influence		"Willing to work with people; Have a Voice in the Decisions"

	Social Capital	"Relationship with Neighbors; Chatting with Neighbors Trusting Neighbors; Spending time with Neighbours"
	Satisfied with Space	"Climatic Comfort Satisfaction of the House during Summer; Climatic Comfort Satisfaction of the House during Winter"
Motealleh et al. (2021)	Justice and Equity	"Equity of Access to key Services; Equity of Access to Sunlight for blocks and units; Equity of Access to Facilities for various groups of people; Equity of crossing for all road users"
	Participation and Social Interaction	"Healthy Environment; Existence of Common Space; Offering Facilities to neighborhood residents; and Having an interest in Solving Neighborhood Issues"
	Sense of Place & Identity	"Healthy Environment, Existence of Unique Space; Beautifying Residential Complex appearance; Legibility in Neighborhood areas; Sense of Belonging to Neighborhood; Security; Processing Cultural Heritage"
	Improving Welfare and Quality of Life	"Hierarchy in Territories; Transportation Strategies; Vision and Surveillance; The Quality of Space; Healthy Environment"
	Status of Security	"Traffic Safety; Presence of People in the Neighborhood Area; Improving Visual Access and Control; Legibility in Neighborhood Area"
Shirazi et al. (2021)	Neighbours	"Social mix"
	Neighbouring	"Access to facilities; Social Networking; Safety and Security; Sense of Attachment; Quality of Home; Quality of Neighborhood; Neighborhood Participation"
	Neighbourhood	"Mixed Land Use; Density; Building Typology; Urban Pattern; Quality of Centre"
Mirzakhani, Turró and Behzadfar (2021)	Income	"Equal distribution of Income and benefits; Social and Environmental exclusion"
	Security/Safety	"People's presence in Public Spaces; Natural Surveillance and cameras; Existence of serious and minor crimes; Level of trust and confidence across the community; Night lighting; Density and Land Use Mix; Inclusiveness and Safety of Public Spaces; Urban Form; Local Participation Collective Groups; Numbers of Public Community Centers"
	Accessibility	"Access to Hospital and Health Centers; Access to Educational and Training Facilities; Access to Green and Open Spaces; Access to Leisure and Entertainment Facilities; Access to Public Transport, Human Rights"
	Equity	"Job Opportunities and Decent Work; Access to Affordable Decent Dwellings; Access to Basic Needs of Life"
	Participation	"Engagement and Involvement of Residents in the Community; No of Voluntary organizations (NGO), and Local Networks in the area; Access to Green and Open Spaces, Number of Events and Cultural Activities; Freedom of Movement"
	Quality of Life	"Community Stability"
	Solidarity	
Akcali and Cahantimur (2022)	People	"Sense of Community; Social Relations; Social Network"
	Place	"Accessibility; Social Infrastructure; Open Spaces; Places for Daily Operations"
	Person	"Demographic Characteristics "
	Perception	"Sense of Place; Security and Safety"
	Process	"Participation; Future of Space"
Sharif et al. (2022)	Socio-Economic Wellbeing	"Access to Quality Transit; Housing Affordability; Transportation Affordability; Microclimate, Access to Services and Amenities; Local Parking; Traffic Load; Employment Opportunities; Pedestrian Network; Alternative Transport Options; Access to Grocery Stores; Navigation and Wayfinding; Quality of Building Stock; Levels of Walkways/Spaces; Shading of Passages"
	Interaction and Engagement	"Compact/Mixed-use Development; Civic/Community Engagement; Open/Gathering Spaces; Public Realm/ Interaction; Design Quality/Aesthetics; Safe and Appealing

		Streets; Walkable streets; Connected and open community; Access to Recreational facilities; Street Furniture; Availability of Seats"
	Physical and Mental Health	"Noise pollution; Light Pollution; Air Quality and Hygiene; Community Well-Being; Design for the Differently Abled; Civil and Human Rights; Public Health in Design; Neighborhood Schools; Design for the elderly; Training and Skills"
	Sense of Belonging	"Economic dist. equity/impact; Culture, and Identity; Historic conservation and heritage; Communal diversity; People stability /displacement; Crime rate; Walkable cultural institutions; Neighboring"
	Sustainable Behavior	"Green Spaces, Environmental Justice; Sustainable Buildings; Rainwater Harvesting; Conservation of Habitat; Waste reduction; Land use Optimization; Eco-Friendly Transportation; Efficient Lighting; Water efficient landscape; Sustainability Awareness; Sustainability Regulations"
Alwah, Al-Attar and Wei (2023)	Built Environment	"Basic and Recreational Services, Accessibility, Street Connection, Aesthetics, Protection and Security, Atmosphere Quality, Characteristics of House"
	Social Sustainability	"Interaction and Social Work; Trust and Social Cohesion; Attachment and Social Affiliation; Community Participation, Reciprocity"
Akcali and Ispalar Cahantimur, (2023)	Environmental Equity	"Open Spaces"
	Social Equity	"Accessibility; Social Facilities; Daily Operations"
	Sustainability of Community	"Attachment; Social Relations; Sense of Neighborliness; Sense of Safety; Participation"

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