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Post-pandemic urban design: The equilibrium between social distancing and social interactions within the built environment

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ABSTRACT

The previous arguments in respect to the COVID-19 pandemic tend to support the lockdown and closure policy in order to prevent widespread infection of the epidemic within urban spaces. Using semi-structured interviews, the present study identifies that there are some serious consequences by adopting this policy due to the indispensable social interactions and uncooperative attitude of the general public to the harsh isolation approaches. These negative impacts on people's psychological health are partly caused by the inflexible urban design of the built environment in the pre-pandemic period. To create a balance between social distancing and social interactions within urban spaces, the paper proposes a general framework of post-pandemic street furniture design. It provides an innovative approach using a grid-based method, which can be applied to other cities across the world in order to deal with the potential analogous pandemic perils in the future.

1. Introduction

Nowadays, due to the outbreak of COVID-19, densely populated urban areas have abruptly turned to forbidding instructions, and social distancing, along with wearing face masks, are deemed as the primary remedy to survive until the vaccine becomes available to the general public. Nevertheless, the significance of adopting resilient strategies in urban planning to accommodate the pandemic situation should be considered as an indispensable priority to mitigate the impact of the pandemic as much as possible. Unfortunately, this issue has been widely impacted within the context of Rasht City, located in northern Iran, which led to a cumulative trend of infected cases of COVID-19. On the other hand, studies have validated that the observance of social distancing, and remaining in lockdown may lead to consequences such as isolation and loneliness (Dahlberg, 2021). Accordingly, since one of the strategies of the World Health Organization (WHO) is to prohibit the close interactions of people in public spaces, and on the other hand, people's societal requirements have led to more serious problems (Askarizad et al., 2021), this study seeks to deliver an outlook towards post-pandemic urban design. In fact, the main objective of this study is to figure out a framework for the possibility of balance between social distancing and social interactions within the built environment with a primary focus on street furniture in order to alleviate the consequences of the pandemic. In addition, by examining the effective factors, it also seeks out establishing a constructive interaction between the built environment and sustainable society during the particular period of the pandemic. Accordingly, using the qualitative semi-structured interviews and empirical studies, the obtained data were interpreted within the context of Rasht Municipality Square, Northern Iran. Nonetheless, since the subject is novel and studies on the pragmatic interaction of social interactions and social distancing have not yet been sufficiently addressed, therefore, the present study seeks to fill the identified scientific gap. The implications of this research could be useful for urban managers, designers, epidemiologists, and the authorities.

2. The balance between social distancing and social interaction

Although the term social distancing has been widely highlighted during the COVID-19 pandemic to justify keeping a distance between ourselves and others while engaged in outdoor activities, studies have validated that the continuous trend of this phenomenon will lead to negative long-term outcomes such as isolation, loneliness, depression, etc. Many years ago, Edward Hall (1966) identified a distance scale for social distance based on the dominion of social behaviors. According to him, a distance of 120 cm to 350 cm is considered as the category of social distance which can be varied in terms of sensational perception due to the increasing physical distance. Although simulation studies have delineated that the measurement of the standard social distance is

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variable depending on different environmental circumstances, it is recommended to observe 110 cm physical distance in case of the existence of a gentle breeze (Chea et al., 2021). Nowadays, people have been asked to maintain a social distance, not to bring people into their own personal territory, transfer their tasks into indoor activities (remote working), and stay in their neighborhoods as much as possible. Traveling in public spaces is dangerous and congestion is evident in open public spaces, and even walking for fresh air does not guarantee safety (Mehta, 2020).

On the other hand, social interaction can be defined as establishing a relationship between two or more people that leads to a reaction among them, which is performed consciously by the involved parties. Being among others provides a rich experience that ameliorates the quality of urban spaces. Also, studies have validated that individuals with strong social interactions have lower mortality levels, lower suicide rates, less fear of crime, better overall physical health, as well as higher level of psychological well-being (Askarizad & Safari, 2020). The studies have also reported that densely populated urban areas could become hotspots for the prompt outbreak of the virus due to the high level of face-to-face social interactions (Sharifi & Khavarian-Garmsir, 2020). Apparently, the interaction of social distancing and social interactions seems to have discrepancies with one another. However, the realization of this interaction, and the provision of a balance within the built environment will be proposed as an ideal solution to unravel the numerous consequences that pandemics may bring for human beings. Thus, it seems to be necessary to create solutions for a better interaction between social distancing and social interactions in post-pandemic urban design in order to alleviate such devastating consequences of the COVID-19 pandemic. Accordingly, a theoretical framework has been presented in order to delineate the interactional correlation of the proposed variables in this research (Fig. 1).

3. Results and discussion

This section presents the data obtained from the qualitative semi-structured interviews and the empirical studies. The findings regarding the attitudes of people regarding their mobility situation have declared that people could not be reluctant towards the normal flow of their daily lives and be affected by the pandemic. As a matter of fact, people prefer to strive not to take their lives out of the ordinary by following hygienic protocols and wearing face masks, or the observance of social distancing. They have argued that “as it is evident, the majority of the people are indifferent to the ‘stay at home’ slogan. Most of them tend to believe that there is no problem to commute within urban public spaces while merely wearing a face mask. The reason behind that can be referred to the lack of sufficient public awareness, or their compulsion to carry out their own personal tasks. I do believe that the main reason could be related to their coercion to do their own personal tasks and requirements”.

In relation to the influence of COVID-19 on social interactions among people within urban spaces of the studied area, all participants strongly believed that this epidemic had a negative impact on the social interactions among people. In the participants’ point of view, people’s attitude towards social interactions is completely different from the past, and most people have a special propensity to avoid social interactions and endeavor to observe social distancing as much as possible. Due to the panic that exists among people, they prefer not to do this as before, and this range has been greatly diminished among people. In addition, due to the inconsistency of the built environment with the pandemic regulations, some people inevitably sit near each other without the observance of social distancing. These incompatibilities may lead to incrementing the risk of transmission regarding COVID-19. Therefore, it would be better to provide a logical social distance within urban sitting areas so that everyone can control their own territory. Furthermore, communities of three or four people are rarely observed in urban spaces. People prefer to go out with a single partner as much as possible, and if there is interaction, those involved will most probably be wearing face masks.

Investigation regarding the efficacy of COVID-19 on emotional behaviors of people among family members suggests striking findings. The majority of the participants believed that this pandemic has had a devastating effect on the emotional bonds among family members. In this regard, people argued that “unlike before, it is not possible to hug or kiss your friends or loved ones, which consequently has a direct impact on the emotional relations among people; and in some cases, shared rooms are separated in houses. It is not even possible to eat your meals at a common table and it is preferable to separate. In the past, as soon as people shook hands or hugged each other, an establishment of a sense of belonging was constituted, even implicitly among people in the pre-pandemic periods. But already, the existence of this panic is clearly visible among family members, and even daily conversations are affected”.

Last but not least, the influence of COVID-19 on individuals’ psyche is to be considered. In this process, the majority of participants believed
that the pandemic has negative consequences on people's psychological health and may indirectly affect the human mind. One of the participants quoted that “in my opinion, this issue goes back to the social responsibility of individuals within the society. Accordingly, people who are more responsible when it comes to following hygiene protocols may receive a greater impact on their psyche. On the other hand, the issue of quarantine at home will have a devastating effect on people's mental functions and just to some extent, it may be rectified by using social media, and watching movies or TV shows. In fact, due to the limitations imposed on out-of-town travel, one of the items that could lead to the tranquility of mind for human beings was added to the list of constraints. Because the human mind requires to be refreshed in order to be able to overcome the mental framework that the lockdown has created for it. In this respect, the possibility of confrontation with green spaces in the built environment can facilitate this process”. The other side effect of the epidemic includes obsessive-compulsive disorder in that in most cases, people are obliged to constantly disinfect their hands using alcohol or antibacterial sanitizers as soon as they touch an object. On the other hand, being cautious causes the brain to not have the freedom it had in the past. As a result, the person becomes more sensitive than before, and displays abnormal behaviors.

Fig. 2. (A) People's reluctance to the principles of social distancing due to the incompatibility of urban furniture with pandemic; (B) people's attempt to control their own territory regarding social distancing in the studied area.

Regarding the pandemic implications on urban design and its impact on improving the built environment, the need for such modifications has greatly risen, which in most cases, have been adequate for providing theoretical solutions (Megahed & Ghoneim, 2020; Sharifi & Khavarian-Garmsir, 2020). On the other hand, remarkable debates have been conducted in relation to the post-pandemic cities so far (Banai, 2020; Jasiński, 2021; Mouratidis & Yiannakou, 2021). The fact remains that
Urban design strategies should rely on pragmatic solutions in order to figure out the problem. According to the findings of this research, people need to meet their social requirements regardless of any imposed restrictions in relation to pandemics. That is why relying on certain regulations, such as social distancing, should not take people away from one of their most fundamental requirements, which is social interaction. Based on empirical snapshots, it was observed that people sit next to each other and engage in social interactions regardless of social distancing (Fig. 2A); or in some cases, people have to shape their own social distancing framework subjectively by themselves (Fig. 2B). In any case, it reminds us of the incompatibility of the current urban design with pandemic conditions and the social requirements of human beings, which demands drastic evolution in the metropolises.

Thus, it seems to be indispensable to build an environment that can deal with, and establish a balance between, social distancing and social interactions simultaneously. In addition, it should be as responsive as possible in terms of improving urban resilience against similar pandemic perils in the future. Studies have revealed that arranging urban furniture in a way that provides opportunities for face-to-face contact can lead to increased social interactions. Accordingly, a situation must be created in which, in addition to providing face-to-face communication, the minimum social distance required must be observed so that communication can be done safely while wearing face masks. In this process, according to the data obtained from the interviews, some keywords such as social distancing, social interactions, urban resilience, green space and their associated plants were considered to be applied in the suggested alternatives of post-pandemic urban design (Fig. 3).

Fig. 3. Some of the original alternatives of urban furniture accomplished by the authors that can be applied in post-pandemic urban design to ease the possibility of maintaining social distancing, while meeting the social requirements of people according to the research findings.

The present study is in contrast to the findings focused on strategies regarding the closure of all public centers and spaces (Zhang et al., 2020). While adopting such strategies may lead to positive results in the short term, the psychological effects of quarantine isolation can have irreversible side effects on individuals in the long term. Accordingly, in addition to establishing social distancing, the social needs of people must also be met. Overall, the basis of the design process for the urban furniture could be organized in a grid system, in which every single grid would be equivalent to 60 cm. On the other hand, the minimum distance between each individual, equivalent to 120 cm, must be observed. In this sense, the proportion of $2 \times 1$ can be adopted as the general framework of designing post-pandemic street furniture. During this process, the placement of plants as optimum visual barriers, which provides an additional opportunity for implementing physical distance, plays a crucial role in terms of mediating psychological abnormalities. These amenities should adhere to a flexible approach to provide individuals with the chance to select their own direction of sittings optionally. In addition, resilient transparent partitions can be considered to be set in place in case of analogous pandemic perils, or the occurrence of novel mutation variants in the future; which seems inevitable. Accordingly, the present study sheds light on pragmatic solutions for post-pandemic urban design; which highlights the novelty of the research.

4. Conclusion

In conclusion, there are some serious social consequences by adopting lockdown policy due to the indispensable social interactions and intransigent attitude of the general public to the harsh isolation approaches. These negative impacts on people's psychological health are partly caused by the inflexible urban design of the built environment in the pre-pandemic period. In general, the originality of the present study relies on both theoretic and pragmatic implications. The devastating psychological impact of the lockdown and the closure policy can be highlighted based on a theoretical point of view. While in terms of practical implications, the possibility of achieving a state of equilibrium between social distancing and social interaction through innovative urban design strategies using a grid-based method can be pointed out in order to respond to both fundamental requirements of the people simultaneously.

This method can be applied to other cities throughout the world by acquisition of semi-structured interviews and conducting empirical observations, so that through inquiring the opinions of citizens and
implementing a set of innovative and diverse design approaches, the minimum social distance required can be observed when it comes to street furniture design. Although the necessity of being acquainted with regard to the intrinsic requirements of the society is deemed to be indispensable, these planning policies could be applied and recommended as a general framework for post-pandemic urban design considerations on both local and international scales in order to create a sustainable built environment. The restriction of using the present case study with a primary focus on street furniture can be pointed out that can be complemented with other sorts of urban infrastructure in future studies. Also, other case studies can be measured using different controlling systems of the pandemic, or the communities which have been vaccinated in order to identify some pragmatic guidelines obtained from the current pandemic conditions for further investigations developed by urban planners and designers.

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CRediT authorship contribution statement

Reza Askarizad: Conceptualization, Formal analysis, Investigation, Project administration, Resources, Methodology, Software, Visualization, Writing – original draft. Jinliao He: Conceptualization, Data curation, Project administration, Supervision, Validation.

Declaration of competing interest

There are no potential conflicts of interest associated with this publication.

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