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# Exploring Human Connections with Living Spaces during the COVID-19 Pandemic

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## Abstract

The physical, mental, social, and emotional health of human beings interact with and are influenced by the external physical environment. The COVID-19 pandemic brought in mass restriction in movements and confinement to living spaces. This study was intended to explore the influence of human connections to their living spaces during the pandemic through the perspective of working professionals. A semi-structured questionnaire was designed consisting of open and close-ended questions. The participants (n=11) who responded to the questionnaire belonged to different Indian states and were working professionals within 25-60 years. The qualitative content analysis was done through a phenomenological lens. The findings have implications for improving health and well-being from a preventative aspect. The temporality of spaces is an important determinant of the connection and to whether a space is perceived as a house or a home. Connections with living spaces strengthened when it ensured self-exploration, manipulation, desirable behaviors, and controllability of time from a sensory-motor medium which was related to reporting of positive emotions. A sense of agency was developed through this. However, due to the hegemonic influence of work culture over private spheres of living spaces, the participants expressed displeasure with the emotions, thoughts, actions of work-life that get

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associated with personal living spheres. Pre-reflective corporeal awareness of human bodies appeared to be missed, which was overcome with routinization of everyday new normal. The dysfunctional changes to the living spaces, as a result, hinder the participants' responsivity and relatedness to their living space. As working from home has been perceived as a sustainable option hence considerations while design planning urban living spaces have been proposed.

**Keywords:** agency, corporeal awareness, COVID-19 pandemic, design, human connections, living spaces, temporality, qualitative content analysis, phenomenology.

## 1.Introduction

Residential spaces enable the past, present, and future of human beings to come together (Graham et al., 2015). Understanding spaces involves perception, which plays an important role in the assessment of situations, and whether resources are available to encounter challenges in the environment (Krohne, 2002). The place is hence, an environmental locus through which individual-group behaviors, experiences, meanings, and intentions are drawn spatially (Seamon, 2013).

The interconnected model of well-being states that an external physical environment interacts and influences the physical, mental, emotional, and social well-being of human beings (Kopec, 2017). Kurt Lewin's conceptualization of fields is that the field is an element that initiates behaviors of people through a time where abstract and concrete events act as forces on it (Rosca, 2020). The field before this interaction remains in a neutral state (Rosca, 2020). Living or residential spaces can also be seen as fields wherein forces such as human responses and interventions contribute to the development of the psyche for people linked to spaces. Such practices of perceiving, using, generating, and representing spaces are called spatial practices, and this is relevant to the experience of emotions (Seamon, 2013).

Places phenomenologically refer to not just the physical environment but also the unnoticed processes of the person-to-person experiencing a place. These can be everyday aspects of the

world that are taken for granted and normally go unnoticed (Seamon, 2013). People who dwell in places become accustomed to their cycles, patterns of resonance, and rhythmic interrelations, like the cycle of seasons (Ingold, 2000). When such places become significant, then identities to the place are formed (Seamon, 2013). Dependence on places, which is an important subtype of place attachment (Scannel & Gifford, 2010), occurs when residing spaces offer opportunities and fulfills the needs and demands of a person (Anton & Lawrence, 2014). Place identity and dependence on places, in turn, lead to the formation of place attachment. Place attachment allows people to form identities, values, perceptions, attitudes about events and experiences in day-to-day life (Anton & Lawrence, 2014). This leads to place intensification and creation, including active use by individuals in shaping and modifying living places (Seamon, 2013). When there is an interruption in the equilibrium of either of the essential processes involved in place attachment, it can generate psychological distress for dwellers (Seamon, 2013). The terms spaces and places have been used interchangeably in the current study.

### 1.1 Background to the problem

The COVID-2019 pandemic was declared as a public health emergency by WHO on January 30, 2020, following which a global lockdown was imposed (Wang et al. 2020). The previous history of lockdowns due to epidemics has affected mental health and increased psychological morbidities among the population (Liu et al., 2012).

In China, for instance, out of 1210 participants, 16.5% reported moderate to severe depression, 28.8% reported moderate to severe anxiety symptoms, and 8.1% reported moderate to severe stress levels in a study conducted during January-February 2020 (Wang et al. 2020). However, these mental health concerns were not due to infection. Rather 84.7% of those who reported these concerns were spending 20-24 hours within their homes and did not have any prior physical health concerns or encountered many chances of infection (Wang et al., 2020). In Spain, when the lockdown was imposed in March, depression, avoidant behaviors, stress, and less commonly anxiety were reported, and these were exacerbated

when extensions in lockdown were announced (Garcia-Alvarez et al., 2020). Some vulnerability factors outlined were: being married, living with more than two members in the same space, and positive psychiatric history (Garcia-Alvarez et al., 2020). In Australia, there was an increase in psychological distress by 13% of 1491 adult respondents; also, health and behavioral changes were reported, such as increased smoking, alcohol, and reduced sleep (Stanton et al. 2020). There could be long-term mental health impact of epidemics and pandemics, as was underscored by observations during the 2003 SARS outbreak, where even after 3 years, 23% of 549 health workers continued to experience moderate depression in Beijing (Liu et al., 2012).

The stay-at-home lockdown orders led to a spurt of sudden irritational behaviors in the form of panic buying, increased avoidance, and discriminatory behaviors against the Asian population (Mucci et al., 2020). Apart from behavioral changes, there were economic sequelae that affected mental health. Many individuals lost their jobs and became unemployed, with several cases of suicide reported from India, the United States of America, Italy, Germany, and England (Que et al., 2020). Economic strain and unemployment have been shown to impact the mental health of working professionals (Gonzalez-Diaz et al., 2020). By May 2020, about 300 non-covid deaths by suicide were reported in India (Roy et al., 2020).

Mental health effects of staying at home have primarily been studied in the context of individuals with existing psychological vulnerabilities and requiring psychiatric and early rehabilitation (Chaturvedi 2020; Wang et al. 2020), but such studies hardly focus on the general working individual's mental health. Although some previous findings suggest that single working fathers and mothers from Finland had compromised mental well-being due to family-to-work conflicts, but it was not significantly different from married partners working from home, suggesting that all working professionals, regardless of gender roles, are vulnerable to experiencing distress even though they may be economically independent and active (Candola et al., 2006). When distress levels of medical and non-medical working professionals were compared in Poland, the findings demonstrated that 60% of the medical

practitioners and 40% of the latter endorsed psychopathological symptoms, with the former group found to be more distressed in response to the pandemic (Maciaszek et al., 2020). Hence, these findings highlight that the working professionals are severely affected psychologically by the pandemic and the work-life modifications imposed by the pandemic environment, which were very different from the norm. Hence, the current study is expected to elicit a broader understanding of this phenomenon through the perspective of professionals working from their own living spaces.

The current studies relating to the COVID-19 pandemic, particularly, have been emphasizing gathering information about psychiatric conditions after the onset of the post-pandemic period and the risk factors that could potentiate the experience of psychopathology (Stanton et al. 2020; Wang et al. 2020; Roy, Singh, Mishra & Chinnadurai and Bakshi 2020; Garcia-Alvarez et al. 2020). However, there is no focus on the other end of the health-illness continuum, which is health. As the WHO states that health is a state of optimal physical, mental, and social well-being, and not merely the absence of disease and infirmity (Antonovsky, 1996). Therefore, exploration also has to go beyond diseases and consider the phenomenology of the person in how their health can be influenced by their connection to living spaces. Everyday aspects of this connection that can otherwise go unnoticed have been examined by the present study.

The lockdown policies have brought in mass confinement of population, restricting the movement of people and making them spend much of their time within their living spaces. Several scholars have suggested that in the interconnected model of well-being, the physical (external) environment influences the mental, social, emotional, and physical well-being of a person (Nelson et al., 2019). Hence, it is relevant to characterize and consider the dynamics between living spaces and the person residing in them in order to understand how the current pandemic impacts the individual. With the extended lockdowns becoming uncertain, the question about the influence of the pandemic-related changes on the individuals' connection to their living spaces and their health seems quite important.

The COVID-19 pandemic has left many people working from home, which is a new concept, particularly in India, but it could become a way of life for years to come. Hence, this exploratory pilot study would enable a perspective of the essence experienced daily as "*new normal*". Homes are defining identifiers for their owners (Graham, Gosling, and Travis, 2015). Understanding this everyday essence becomes imperative to define the impact of the new normal. Therefore, the broad objective of the study is to explore the individual's connection with their living spaces during the pandemic. Specific objectives include exploring the perception of one's current living spaces, the process of connecting to living spaces, how the connection to living spaces has changed in the context of work from home, and if this affects their health and well-being.

The current study is an attempt to understand how connections with living spaces can be an integral part of working professionals' health and in the ways in which this connection is influenced during work from home. The study is expected to have implications and future directions for interior designers, urban planners, and architects while shaping living spaces post the pandemic.

## 2.Methods

The study is aimed to be an exploration of how the facets of individual-environment connection can potentiate a person's move between the health and illness continuum. In the context of the salutogenic perspective (Antonovsky, 1996), objectives have been framed to enable the understanding of how living spaces can enhance meaning, comprehensibility, and manageability. The current pilot study uses a descriptive phenomenological approach and expects to validate key questions for a survey that could be used with a larger sample.

Eleven individuals (7 women and 4 men) participated in the study after hearing about the procedures and providing informed consent. They were all working professionals from the age group of 25-60 years. The occupations of participants were freelance designers, consultants, psychotherapists, supply chain

professionals, copy editors, academicians, engineers, and language instructors.

### 2.1. Data Collection

A semi-structured questionnaire consisting of open and close-ended questions was developed to explore subjective connections to living spaces pre-pandemic and whilst working from living spaces. The questionnaire (see Table 1) was validated by three experts in qualitative research from Assam Downtown University.

Table 1: Semi-structured Questionnaire guide

| Sl no. | Questions |
|---|---|
| 1. | Do you feel that there is a difference between a house and a home? |
| 2. | If you feel there is a difference, please elaborate on the same. |
| 3. | What do you consider the place where you stay: a house or home? |
| 4. | Please describe your place of residence in terms of: physical features, the members living in the residence, surroundings of the residence, and affordability in procuring domestic items for the house. |
| 5. | Is there a specific part of the house/home that you feel connected to more strongly? |
| 6. | Was your workplace the same as your place of residence before the pandemic? |
| 7. | Can you please elaborate on the duration of years that you have been working from home? |
| 8. | Can you elaborate on your experiences working from home? |
| 9. | How has working from home impact your relationship/connection to your place of residence? |
| 10. | Are you satisfied working from home? |
| 11. | As you are working from home, would you want any changes to your place of residence? |
| 12. | If you are given the option to add on or remove any physical aspects of the current setup of your place of residence during the work-from-home experience, what would you do? |

Convenience sampling was used to select potential participants according to the inclusion and exclusion criteria. Convenience sampling is a non-probability sampling technique used to access readily available participants and is a time and cost-effective

method (Taherdoost, 2016). The inclusion criteria of samples included professionals who were currently working from home and were fluent in English. The exclusion criteria included retired professionals, a population below 18 years, and severely psychologically distressed individuals. Participants who responded to the screening questionnaire were from Jaipur, Dibrugarh, Guwahati, Thiruvananthapuram, Bengaluru, and Delhi between December 2020 and January 2021. The screening questionnaire consisted of informed consent with study details and demographic details such as name, age, sex, education, occupation, email address, phone number, place of residence, residence type, whether living alone, and preference of response mediums to survey whether through audio or written mode.

Upon receiving consent for participation, the eleven individuals (7 women and 4 men) were contacted through email and telephone and requested to fill up the responses to the semi-structured questionnaire. Audio responses were recorded through participants' consent. 10 out of 11 participants opted for writing their responses on a semi-structured questionnaire link made on google form, and 1 participant was interviewed by the primary investigator with audio responses recorded. The audio was later transcribed for analysis by the investigator.

**2.2 Data Analysis**

The current research seeks to understand the lived experience of professionals while working from home. Qualitative content analysis was used through a phenomenological lens to understand processes, emotions, thoughts, reflections, relative rootedness to place, and cultural qualities as the dwellers might be experiencing concerning their living spaces. Content analysis was used as the primary method of data analysis to help in identifying specific messages from a data set (Gibson et al., 2020). The qualitative content analysis specifically explores, interprets large amounts of textual data, and finds a pattern to the words used, the frequency, the relationship, and the structure of communication (Losifidis & Nicoli, 2019). Categories for the current qualitative content analysis have been developed using the data-driven strategy, wherein relevant and similar paraphrases from first-hand data have been

used to generate category names (Schreier, 2020). This process was expected to emphasize the essence of an immediate or lived experience of an owner's connections to living spaces during the pandemic. The qualitative content analysis focused on present states and analysis of only what was there in the material (Schreier, 2020), which supported the phenomenological lens of research to understand the essence of everyday activities. The findings of the study have been presented category-wise in the form of text matrixes (Schreier, 2020), comprising of category's name, its description, minor categories, number of participants who were mentioned on the category aspect, followed by some supporting excerpts.

## 3. Results

The exploration into connections with living spaces have been presented in 4 major categories: 1) perception of one's living space; 2) phenomenology of connections with one's living spaces; 3) connections with living spaces during the pandemic; 4) perception of current living spaces design and its influences on health and well-being.

### 3.1 Perception of one's living space

The category of perception of one's living spaces encompasses everyday exploratory references to spaces as a "house" or as a "home" (Table 2 & 3). Perception of the individual's living space emerged from how the participants labelled it and what they attributed to the terms - house and home. When asked about differences between the two terms, ten out of eleven participants clearly differentiated between them.

Living spaces perceived as homes had descriptions of personal qualities of humans to them. Longer investment of time leading to comfortableness, creation of memories, and fostering quality interpersonal relationships were essential for participants to call a living space home. In addition to these, when that space allowed participants to engage in behaviours of choice, the label of home was given to it (Table 2).

However, personified or abstract descriptions were not found in the participant's perception of a house (Table 3). Houses were instead perceived as living spaces having clear structural and physical boundaries. They were associated by participants to only enable the fulfillment of physiological needs such as food, sleep, water, and security needs such as providing physical shelter for survival.

Table 2: Participant's perception of spaces called a home.

| Minor Categories | No. of Particpants | Excerpts |
|---|---|---|
| 1.Home is a Personified Space | 10 | "*It is a cozy bungalow with a refreshing lawn greeted by the warm winter sun every morning.*"(P1) "*…But home is built by a particular set of people or a person, even pets. Home would be something that I would annotate with regard to a person to an extent, even the location and the environment would factor in to determine if a place / house is a home*"(P1) "…and home is the place where we stay with our family member and close one within a certain environment: (P2) |
| 2.Home is a space where longer time is spent | 2 | "*Home has a warmer emotional connotation of people, activities memories associated with the word*"(P8) "*...So yes, this is home because this is a space where again, I have spent a lot of my years in this space you make it home by your relationship to the space uh if it provides you with comfort*"(P11) |
| 3.Home is a space allowing | 9 | "*Though it is our temporary house, we have always succeeded in making a house homely and welcoming too. My mother has decorated the house over the* |

| | | |
|---|---|---|
| behaviours of choice | | *years, and she has maintained an essence to make it feel like home*" (P1) "*It is a pleasant environment. Sometimes, I sit under the garden umbrella to work, this set up is very motivationg and calming*" (P1) |
| 4.Home is a space shaped by human relationships | 9 | "*Home is the place where we stay with our family members and close one*" (P2) "*Home conveys a zone of safety and comfort. And home also signifies a relationship*" (P4) "*Relationships makes it home*" (P10) |

Table 3: Participant's perception of spaces called a house.

| Minor Categories | No. of participants | Excerpts |
|---|---|---|
| 1.House as material structure | 7 | *"House is a structure and coveys ownership" (P4) "House is a structure" (P6)* |
| **2.** House fulfils lower-order needs | 3 | *"House could be anything that provides me shelter" (P1)"A house is where you stay, get refreshed, eat and sleep."(P7)* |

### 3.2 Phenomenology of connections with one's living spaces

Connection to living spaces refers to the relationship that dwellers have with their place of residence. While about 73% of 11 participants reported that they were connected to a specific part of their living spaces, 18% reported sharing no such connections, and the rest of the 9.1% were unaware if they felt psychologically connected to their living spaces. (Tables 4 & 5)

As seen in Table 4, for minor category 1, 4 participants reported a connection to their living spaces from spending longer time in it. Time was a determinant of this connection as it enabled participants to explore their living spaces. The minor category 2 (in Table 4) suggested that the connection was established due to memory anchors. Another participant reported that having familiar

objects such as environmental sounds in these spaces permitted in re-living moments of their life once enjoyed. Minor category 3 described the presence of the connection when behaviours of choice are enabled by their living space. This allowed a sense of agency to develop being in such spaces.

Table 4: Participants responses to their connection with current living space

| Minor Categories | No. of Participants | Excerpts |
|---|---|---|
| 1.Spending time in living spaces establishes the connection | 4 | *"Yes, this is home because this is a space where again I have spent a lot of my years in this space not clearly maybe in this house so yeah it feels like home"* (P11)<br>*"Where we spend most of our time"* (P2)<br>*"Before the lockdown, I didn't get to spend the day in the house. I loved seeing the sun rays seep into the bedroom in the morning. The balcony became my spot where I have countless conversations while talking to friends and family on the phone, walking to and fro its long length."* (P8)<br>*"I like my bedroom because I spend a lot of my time in"* (P11) |
| 2.Memories arising out of living spaces establishes the connection | 2 | *"There are different parts of the house which became a memory for me."(P8)*<br>*"Lot of the things I grew up with. It can be the objects, and the environment sounds that I hear. This house is very similar to the house that I have spent my early years in..ya..that is like one house away. You know, all of those things combined memory and stuff like that together gives you the sense of home. Bit of it is like the old attachments, and all of that comes together like home."(P11)* |

| | | |
|---|---|---|
| 3.Enabling behaviours of choice by the living spaces establishes the connection | 5 | *"Ever since I came home in August 2020, I have added my touch to the room because this is the longest that I have been home."(P1)*<br>*"I feel I am connected to my room. It gives me the private space which I need. Keeps me warm and comfortable. Great place to crash. I also like the viewpoint at the top of our terrace. I love stargazing and also looking at the city lights. I play my mouth organ there."(P7)* |
| 4.Similarity of surroundings | 1 | *"It can be the objects and the environment sounds that I hear. This house is very similar to the house that I have spent my early years in..ya..that is like one house away"(P11)* |

However, one of the factors reported inhibited in the building of connections to living space was being in temporary housing condition (Table 5). The participants felt a lesser need to connect to being in such spaces, as the timeline to leave these spaces was clearly stated and defined.

Table 5: Participants responses to factors that limit the building of connections to living space

| Minor Categories | No. of Participants | Excerpts |
|---|---|---|
| 1.Temporary living spaces not enabling behaviours of choice | 1 | *"You can't make space completely your own also, and also we have to leave the space in a couple of years so my walls are pretty bare. All my things are in boxes because I know we have left pretty soon, so uh…there is no space that I am connected, but uh.. I like my bedroom because I spend a lot of my time in."(P11*) |

### 3.3 Connections with living spaces during the pandemic

Working from home was a novel experience for the 10 participants. In terms of the perception of this experience, 7 (63.64%) of 11 respondents reported that it was a positive transformational experience.

On connectivity to their living spaces during this time period, 8 participants reported that their connectivity was enhanced (Table 6). The enhanced connectivity occurred when participants perceived they were able to engage in actions of choice, and this led to them gaining agency in being at such spaces. In minor category 2 (Table 6), the participants stated that when the time was perceived as flexible, the relationship with the space changed. The participants reported that this awareness led to them engaging in physical alterations to the space in keeping the room clean, organized. This allowed for increased self-exploration and effective task completion abilities. And they believed this was connected to their mental well-being while working from home during the pandemic. For one participant, as stated in minor category 3, the connection was established from the awareness that a single space could then be transformed into serving two functionalities at the same time. Two participants reported their connections were made stronger due to the presence of certain people and corners in the living space (minor category 4 in table 6).

Table 6: Participant perceptions of enhanced connectivity while working from living spaces

| Minor Categories | No. of Participants | Some Excerpts |
|---|---|---|
| 1.Enabler of desirable behaviours | 3 | *The comfort I have found in the home (be it in Bangalore or abcT.E.) has helped me appreciate the capability I have to work/function. In fact, beingin my hometown, I have been able to concentrate on work more and not worry about preparing food or Cleaning the house, ordering groceries, etc.(P1)Enhancements - to be able to* |

| | | |
|---|---|---|
| | | *monitor and maintain the garden has been a boon. The lockdown time helped me to set up the garden. (P4)*<br>*I enjoyed getting to experience the way the sun rays on my curtains gave the rooms a tinted glow at different hours of the day. (P8)* |
| 2.Perceived time flexibility leading to physical changes in room | 3 | *Say you have this much time, and this is the amount of work that needs to be done. So I may choose to work 6 hours for two days, or I can work 12 hours on one day and not do anything the previous day. It is completely my choice, so that is sort of how I worked around it. My relationship with the space changed, and I started keeping my space a little bit cleaner and nicer because I felt that it somehow affected my mental space and right now uh uh where I am doing most of my work, it is my bedroom space it is not an issue that space that has a different relationship all together as I sort of tried to create a certain kind of an uh an arrangement that makes me feel like a sort of you know uh.. the work zone. (P11)*<br>*Working from home during the pandemic was the best option where I could discover a lot of positive changes in me, and I could do everything at my convenience which increased my work productivity as well (P3)* |
| 3.Dual functionalities of living space | 1 | *"Now I feel even more connected to my place because relaxation and hard work are both from the same place." (P3)* |
| 4.Certain People and corners | 2 | *Actually, the highlight is the comfort of the food prepared by my mother. This has generated a sense of appreciation for my home state, hometown and family. It has* |

| | |
|---|---|
| | *provided me strength and strengthened my relationship with others. (P1) I would probably say my room has become more important because we spend a lot of time inside the house valuing my privacy a lot more..uh there was a time when all of us were seeing each so often, so it sort of led to breakaway at times. (P11)* |

However, working from living spaces for four out of eleven participants was unpleasant. Four participants responded that, initially, it was a "*struggle*" that negatively affected self-efficacy, which has been highlighted in the verbatims, "*productivity was questionable*", "*had to manage a lot of things*", "*initial phases were the most difficult to cope up*". Burnout symptoms were also reported by the respondents, such as "*eye problems*", "*extreme exhaustion*", and fatigue from continuous virtual engagements than real-life interactions.

As a result, the connection with living spaces weakened over a period owing to the hegemonic influence of professional life over the personal usage of these spaces. Due to poor demarcation between work and personal spheres of activity, this connection was impacted negatively (Table 7). The time connected to the living spaces was perceived as being beyond control that drastically changed their daily life activities. This period was marked with a reduced sense of locus of control. The challenges included unpreparedness, inability to cope up with an uncertain environment, with sustained mental pressure. These have led to adverse emotional reactions among two participants, such as unacceptance and overwhelmed emotions. A participant goes to the extent of describing the ongoing experience as "It's crazy" (P5). Certain corners of the living space started to be perceived with negative qualities as being emphasized by a participant (P7) in Table 7.

Table 7: Participants perception of weakened connectivity while working from living spaces

| Minor categories | No. of participants | Some excerpts |
|---|---|---|
| 1.Preoccupation with virtual mediums overshadows homeliness of living spaces | 2 | *The home/my room, which I talk about, lost its homeliness during the lockdown period. I felt frustrated and angry to see my laptop switched on in my bedroom. (P7)Adverse impact – the use of spaces at home is dominated by work and my classes. Everything is sidelined - arranging the space for company, for entertainment etc., and the only preoccupation is where is the good internet signal and how to keep laptop to conduct classes, attend meetings etc. worries of how to make the background nice. (P4)* |
| 2.Inability to establish clear demarcations for work and personal use | 1 | *It was difficult to retain professionalism, which is to be expected. Home interruptions flowed into work, and work flowed into the home. (P9)* |

### 3.4.1. Perception of current living space design and its influence on health and well-being

The contentment with working from living spaces was explored to understand how designs of such spaces have influenced and can influence the human mental health and well-being in uncertain situations such as the COVID-19 pandemic.

Satisfaction with living spaces: Seven participants responded as being satisfied with the experience of working from living spaces. A participant also reported being satisfied as working from living spaces was a good sustainable solution for the natural ecosystem, rather than wastage of excess electricity. Working from home was favourable for a participant, and it was perceived to be a good alternative to having to commute to offices since it enabled

authentic self-expression where that participant did not have to worry about being presentable or put up a façade to gain approval of co-workers.

"In general, I think work from home is best right now. That is the way we should be heading. Lot of things we can learn from it. There is a lot of resources that we are saving like electricity and time. I think 50% of the work humans do can be done from home". (P11). "Also, as I said, you know you stay away from office politics away from the facade that you create and what would the world think of like you know be presentable and put a smile on your face. It's sick like you can't have a smile on your face all the time." (P11)

**3.4.2. Unsatisfied with living spaces:**

Four participants reported being unsatisfied due to time being perceived to be beyond one's control. This initiated constraints in professional productivity while working from home.

Time is not just an important determinant to the perception of living spaces as a house or a home, but it is also an indicator of how strongly connected can the participants be to their living spaces; when or how time appears to weaken the connectivity, which has been perceived by many participants to be strongly linked to their mental health.

**3.4.3. Changes desired in current living spaces while working from home:**

Four participants demanded better technology, lighting, sitting arrangements, and hygienic requirements for good productivity. Three participants aspired to set up separate working spaces either in the form of "soundproof room", "room with a small bathroom on the terrace" or "room on a different floor, limited activity something sort of like a basement" within their place of residence in order to maintain work-life stability.

Some uncommon responses include one participant preferring the inclusion of non-human connections, while another expressed strong displeasure against the culture of working from living spaces as reflected in the following content,

"I would like to get away from the work from home scenario. I don't want my bedroom or home to be a workplace. It's the workplace where I would rather go and work no matter how far or dangerous it is to work there." (P7)

## 4. Discussion

The current study was an attempt to explore human connections to living spaces during the pandemic through the perspectives of working professionals. A total of 11 participants responded to the semi-structured questionnaire, and the responses were qualitatively content analysed and presented in categories with excerpts. A phenomenological descriptive understanding of this connection and possible interventions to enhance this connectivity with living spaces as future directions have been discussed.

The term "home" is associated with intangible aspects of a human's life, such as relationships, attachments, emotions, and aesthetic satisfaction. It is also described as having human-like qualities such as a "*cozy bungalow*" and "*refreshing lawn*". However, the term "house" is reported as a tangible space having clear structural and physical demarcation with no inclusion of abstract or covert psychological processes defining it. Houses were perceived as spaces with a measurable goal of providing security and physiological needs such as shelter, eating, sleeping. Living space has been perceived as a home when there is a long time invested in such places. Time is a determining factor of whether living spaces will be labeled as a "house" or a "home". Home has been characterized by human psychological needs, but the house has been objectively described as being an inanimate and fixed entity separate from oneself. Living places, as found in this study, were found to become favorable when self-exploration, manipulation, and other desirable behaviours of dwellers were linked to reporting of positive emotions. Hence, the term "home" has been labeled for living spaces when they become meaningful to the dwellers as they provide the resources required to make sense of their everyday existence. The development in the sense of coherence (SoC) arising out of perceived meaningful spaces is important as it enables individuals to move towards health on the health-disease continuum (Antonovsky, 1996).

The connections with living spaces are formed when a sense of agency, memories, and contentment arises from these spaces. The temporality of spaces is also a determinant of this connection. David Seamon (2013), in his phenomenological description of places, stated that attachment to places is dependent upon identity (group or individual), environmental aesthetics, degree of personal or social involvement, and relative rootedness to the place along with geographical and cultural qualities (Seamon, 2013). In the current study, it was found that spaces did involve their dwellers personally as it ensured self-exploration, desirable behaviors that resulted in new identities, and awareness of unknown aspects of self. Some instances of desirable behaviors enabled by living spaces included adding "*touch to the room*" (P1), having open spaces enabled the participant to "*spend some safe time outdoors*" (P9), "*stargazing*"(P7), "*looking at the city lights*"(P7), and playing "*mouth organ*" (P7). Positive emotions such as "*peace*" (P3), "*warm and comfortable*" (P7), and "*mood lighting*" *(P8)*. Positive emotions are known to broaden the thought-action repertoires of human beings, which include the expansion of attentional resources to think creatively, flexibility while undoing effects of dysfunctional emotions, enabling play, savoring, exploration, and integrating behaviors (Fredrickson, 2004). This also helps develop personal resources that are essential for the achievement of long-term adaptive goals (Fredrickson, 2004). Humans notice that the spaces are manageable when they believe that there are resources available to cope within the current environment (Antonovsky, 1996). Perception of resources being available within one's reach is an essential determinant of one's sense of coherence (Antonovsky, 1996). Hence, while designing living, it is essential to gather preferences of everyday choice of behaviors of the people who will be living in it. It has been found in the current study as being an important basis of emotional experience and well-being. The same may not apply to places when it is not permanently owned.

The COVID-19 pandemic brought with it themes of uncertainty and unpreparedness, leading to India going into 1st lockdown in March 2020 (Saha, Barman and Chauhan 2020). The movement towards residential places increased (Saha, Barman, and Chauhan 2020). And working from home became a new way of life with no certainty of when it would end. Lived spaces (Fuchs, 2007)

comprise human beings moving their physical body between periods of movement and rest every day, resulting in a pre-cognitive awareness called corporeal awareness (Seamon, 2013). As this formation becomes routineised, this awareness becomes an unnoticed ability of the body to integrate actions in the world, which only gets interrupted with encountering unfamiliar and uncertain situations (Seamon, 2013). Findings of the study include that participants during the initial lockdown period experienced difficulties in coping with working from personal living spaces. The pre-reflective corporeal awareness of the body was missing, which adversely affected their physical health, leaving questions on their self-efficacy. Time management arising out of such unfamiliar spaces of work was also perceived to be beyond one's management. However, once the unfamiliarity with living spaces decreased and the activities routinized, working from living spaces transformed into habitual actions. This led to the formation of a sense of agency and equilibrium between rest and movement for the participants. Sense of time is an important experience of urban spaces, cities and is inter-subjective, sensory, location-specific, and meaningful (Wunderlich 2013). As found in the current study that received responses from urban cities in India, they perceived this sense of time to be a struggle. However, when personal sensory movements, activities, exploration of living spaces were enabled out of these spaces, then time was perceived as controllable, allowing for better personal growth and productivity. This is similar to the concept that time connected with cities is perceived to be "fast" when daily life activities are performed restlessly but perceived to be "slow" when social activities, movements are intertwined (Wunderlich 2013). The time connected to living spaces in the study enabled a sense of agency, making participants feel a stronger emotional connection to their living places. Sense of familiarity characterized by relationships, multiple functionalities of living space, and certain objects was perceived to increase this connection.

An emotional connection to places includes inward aspects of a human being such as relationships with family and also outward aspects such as social interactions with the community for the fulfilment of basic human needs (Seamon, 2013). Working from home from living spaces has been found to increase a yearning for

physical and interpersonal communication, which are elements from the outer world. A study focussing on emotional changes from inhibited physical movements was conducted with Inuit, the sea ice people, in Nunatsiavut, Canada (Cunsolo and Ellis, 2018). The study focussed on exploring the mental health of the indigenous community amidst changing sea ice due to warming temperatures (Cunsolo and Ellis, 2018). Ecological grief, a type of grief emanating from a disruption to their connections to the land were reported, and one of the causal factors tied to it was that they could no longer practice their traditional livelihood of sea ice fishing, as their physical movements were restricted to prevent accidents, deaths due to thinning of ice sheets (Cunsolo and Ellis, 2018). It led to affective reactions, such as anger, sadness, anxiety, despair (Cunsolo and Ellis, 2018). Similarly, in the current study, due to the hegemonic influence of work culture over private spheres of life, participants have to accommodate an expression of themselves which is a part of the outward dimension of the place. There is the blurring of outward and inward aspects of spaces hence a growing realization of the need for physical boundaries between work and personal parts within living spaces. There is decreased time to express oneself authentically even within private spaces leading to two of such participants experiencing sustained mental pressure, adverse emotional reactions such as frustration and anger. Emotions, thoughts, behaviors invested in virtual work get associated with living spaces, and the private living spaces then become the anchor for memories associated with work. The participants could also be experiencing stress from the constant engagement of thoughts, actions, feelings with technology. Technostress is a term associated with stress arising out of engagement with technology (Tarafdar et al., 2007; Califf and Brooks 2020). Different types of techno stressors include techno-complexity, techno-uncertainty, techno-overload, techno-insecurity and techno-invasion (Tarafdar et al. 2007; Califf and Brooks 2020). A study conducted on K-12 teachers working from home in the US found that techno-insecurity, techno invasion and techno-overload were significantly correlated with burnout (Califf and Brooks 2020). Improving the connection to living spaces can be approached with a biophilic design, an empirically proven design to induce positive

mental and physical health (Amat, Ismail, Wahab, Ahmad and Rani 2020).

The responsivity of humans as per requirements of stimuli from the environment is a part of lived spaces, and any disruption in this cycle of responsivity leads to psychiatric disorders (Fuchs, 2007). In the current study, it was found that emotional connections with living spaces were susceptible to dysfunctional changes when responsivity and relatedness to living spaces declined due to blurred work-life boundaries. The adverse transformation in emotional responsivity as observed may make the participant susceptible to psychiatric disorders if continued. As in the figure-ground relationship of Gestalt psychology, any changes such as omissions or inhibitions that are not typical for a person can later be actualized bodily in the form of somatic symptoms (Fuchs, 2007). The covert cycle of changes, such as avoidance of similar situations repeatedly, can become repulsive and stay in the bodily memory for a longer time outside explicit awareness (Fuchs, 2007).

Satisfaction with working from living spaces arose from perceived time flexibility to engage in behaviors of choice; increased freedom in self-expression, mental easiness, bonding in interpersonal relationships all contributing to an enhanced sense of agency connected to utilization of living spaces. Not having to present the false facade of selves through the physical mode of working also improved mental health for a participant. Dissatisfaction was due to behavior constraints, unpreparedness, and inability to manage time, leading to dysfunctional emotions. Physical environmental distinctions between working space and personal space were desired within current living spaces, believed to improve productivity. Two respondents expressed displeasure over having work-life associated with personal spaces, and one of them stated that they instead aspired to construct a separate recreational room to play games, instruments and relax.

A strong need to build tangible recreational spaces has been emphasized. This need emphasizes the participants' efforts to take care of their emotional health, as confinement within spaces for a long time without physical movement can negatively impact their health. The space travel studies are said to be conducted in similar contexts. As observed, space travel involves exploring living and

working without physical movement while also experiencing isolation (Slobodian 2012). Emotional health can deteriorate post the isolation period, following interpersonal conflicts within the fellow members that one is within the confined space (Slobodian 2012). Another line of space travel studies conducted by Basner et al., 2014 on crew members in their 520 days mission to Mars, found that not all of them experienced behavioral, sleep disturbances, and psychological distress equally being in a confined space (Basner et al.2014). Even though the certainty of the end-time period in space travel and COVID-19 pandemic is different with the former having a predetermined end-time period, designing spaces must consider the say, needs, preferences of all the people who are going to reside in them.

Even when the physical working environment is stated to be strongly interlinked with employees' health yet, the physical workplace context has not been focussed (Lottrup, Grahn, Stigsdotter 2012). With the starting of an unprepared daily life of working from home from late 2019 onwards, an emphasis on preventing such stress through interventions in the physical environment becomes essential. A study conducted on workplace stress and access to greenery in Sweden demonstrated that visual and especially physical access to workplace greenery was positively correlated with workplace attitude among male and female professionals (Lottrup, Grahn, Stigsdotter 2012). Only a view of a green outdoor environment while working led to employees feeling less uptight (Lottrup, Grahn, Stigsdotter 2012). Attention restoration theory states that attending to softly fascinating stimuli involves mental space for reflection and less effort (Basu, Duvall and Kaplan 2018). A walk in nature compared to watching television was perceived as softly fascinating (Basu, Duvall and Kaplan 2018). From existing biophilia literature, the significance of incorporating natural elements into built designs can be taken as lessons (Amat, Ismail, Wahab, Ahmad and Rani 2020). Biophilic design principles include repeated and sustained engagement with nature, promotes positive interactions between people and think about responsibilities in natural, human calamities and importantly encourages emotional attachment to particular settings and places, found to contribute to positive mental, physical health, and restoration (Amat, Ismail, Wahab,

Ahmad and Rani 2020). As per the study's findings in terms of recreational spaces, green spaces designs can be considered to alleviate mental fatigue. Consolidated design considerations for upholding health and well-being have been demonstrated in figure 1.

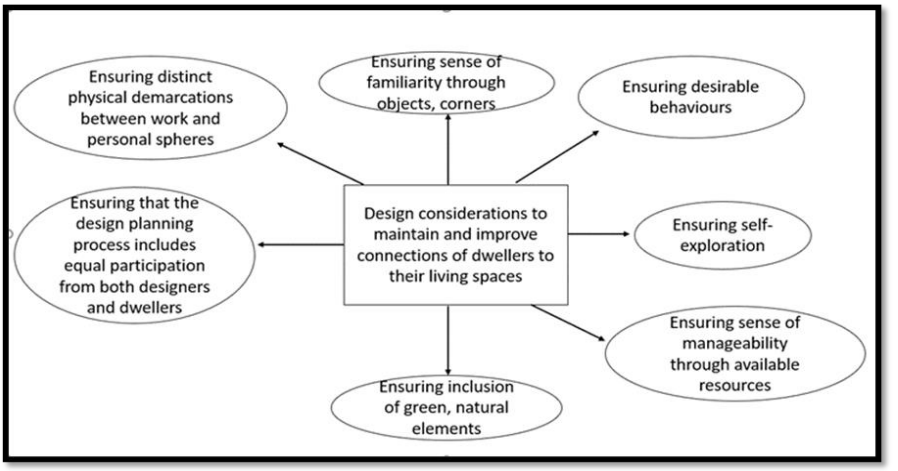


Fig 1 - Depiction of essential considerations for urban design planning for living spaces based on findings of the study

## 5. Implications and future directions

This study was intended to explore the influences of human connection to living spaces, understanding the potential impacts that this connection has on health. Hence, preventative interventions such as designs (both exterior and interior) can be planned to ensure that dwellers have manageability and controllability in their living spaces. Responsivity and relatedness factors have to be taken into account while designing spaces. As there are ecosystem advantages of working from living spaces, such as sustainable use of resources, prevention of unnecessary wastage of natural resources and is associated with efficient use of time as stated by a respondent, working from home can be a sustainable option in the future. It also has directions for the inception process of designing that includes equal participation of all the dwellers living in it since the study found that the sense of agency is closely linked with functional health and well-being. The

findings of the study can be supportive in designing distinct physical demarcations between work-personal within the living space to increase productivity. Interior designers also have the responsibility to understand which objects, corners of the living space are linked to the mental health and well-being of the dweller and attempt at re-creating such corners to sustain as anchors for their memory. Considerations for people's definition of manageability and controllability of space, that is, in what kind of spaces they feel they have the resources to overcome a challenge can be done. These considerations are important as health disorders can be prevented in a non-medical setting.

Limitations of the study include that the findings generated are based on data obtained from the first wave of the Covid-19 pandemic in India, and explorations into the second wave are still not yet done. A longitudinal exploration and a comparison of this connection can be done. As the majority of the responses, except for one, to the questionnaire were in a written form rather than an audio interview. Hence, the intonation of speech, silence, exclamations, among many could have been missed out. Responses to question 4, 8, 12 from Table 1 overlapped with responses from other questions and could be revised better following the phenomenology of lived spaces during the pandemic. The study's findings that humans are inseparable from their living spaces have implications for the construction of policies regarding mental health. There are future directions in engaging in longitudinal studies during the pandemic on understanding how the relationship to living spaces can change and influence human beings living in it.

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## References

Amat, R. C., Ismail, S., Wahab, M. H., Ahmad, N. H., & Rani, W. N. M. W. M. (2020). A Dimension of Biophilia in Urban Design. In *IOP Conference Series: Earth and Environmental Science, 409*(1), 012016. IOP Publishing.

Antonovsky, A. (1996). The salutogenic model as a theory to guide health promotion. *Health promotion international*, *11*(1), 11-18.

Basner, M., Dinges, D. F., Mollicone, D. J., Savelev, I., Ecker, A. J., Di Antonio, A., & Sutton, J. P. (2014). Psychological and behavioral changes during confinement in a 520-day simulated interplanetary mission to mars. *PloS one, 9*(3), e93298.

Basu, A., Duvall, J., & Kaplan, R. (2019). Attention restoration theory: Exploring the role of soft fascination and mental bandwidth. *Environment and Behavior, 51*(9-10), 1055-1081.

Califf, C. B., & Brooks, S. (2020). An empirical study of techno-stressors, literacy facilitation, burnout, and turnover intention as experienced by K-12 teachers. *Computers & Education, 157,* 103971.

Chandola, T., Martikainen, P., Bartley, M., Lahelma, E., Marmot, M., Michikazu, S., & Kagamimori, S. (2004). Does conflict between home and work explain the effect of multiple roles on mental health? A comparative study of Finland, Japan, and the UK. *International journal of epidemiology, 33*(4), 884-893.

Chaturvedi, S. K. (2020). Covid-19, coronavirus and mental health rehabilitation at times of crisis.

Cunsolo, A., & Ellis, N. R. (2018). Ecological grief as a mental health response to climate change-related loss. *Nature Climate Change, 8*(4), 275-281.

Fuchs, T. (2007). Psychotherapy of the lived space: a phenomenological and ecological concept. *American Journal of Psychotherapy, 61*(4), 423-439.

Fredrickson, B. L. (2004). The broaden–and–build theory of positive emotions. Philosophical Transactions of the Royal Society of London. *Series B: Biological Sciences, 359*(1449), 1367-1377.

García-Álvarez, L., de la Fuente-Tomás, L., García-Portilla, M. P., Sáiz, P. A., Lacasa, C. M., Dal Santo, F., & Bobes, J. (2020). Early psychological impact of the 2019 coronavirus disease (COVID-19) pandemic and lockdown in a large Spanish sample. *Journal of Global Health, 10*(2).

Graham, L. T., Gosling, S. D., & Travis, C. K. (2015). The psychology of home environments: A call for research on residential space. *Perspectives on Psychological Science, 10(*3), 346-356.

Gonzalez-Diaz, J. M., Cano, J. F., & Pereira-Sanchez, V. (2020). Psychosocial impact of COVID-19-related quarantine: reflections after

the first case of suicide in Colombia. *Cadernos de saude publica, 36*, e00117420.

Iosifidis, P., & Nicoli, N. (2020). The battle to end fake news: A qualitative content analysis of Facebook announcements on how it combats disinformation. *International Communication Gazette, 82*(1), 60-81.

Lottrup, L., Grahn, P., &Stigsdotter, U. K. (2013). Workplace greenery and perceived level of stress: Benefits of access to a green outdoor environment at the workplace. *Landscape and Urban Planning, 110*, 5-11.

Kopec, D. (Ed.). (2017). *Health and well-being for interior architecture*. Taylor & Francis.

Maciaszek, J., Ciulkowicz, M., Misiak, B., Szczesniak, D., Luc, D., Wieczorek, T., & Rymaszewska, J. (2020). Mental health of medical and non-medical professionals during the peak of the COVID-19 pandemic: *A cross-sectional nationwide study. Journal of Clinical Medicine, 9*(8), 2527.

Mucci, F., Mucci, N., & Diolaiuti, F. (2020). Lockdown and isolation: psychological aspects of COVID-19 pandemic in the general population. *Clinical Neuropsychiatry, 17*(2), 63-64.

Nelson, D. H., Prescott, S. L., Logan, A. C., & Bland, J. S. (2019). Clinical ecology—transforming 21st-century medicine with planetary health in mind. *Challenges, 10*(1), 15.

Que, J., Yuan, K., Gong, Y., Meng, S., Bao, Y., & Lu, L. (2020). Raising awareness of suicide prevention during the COVID-19 pandemic. *Neuropsychopharmacology reports, 40*(4), 392-395.

Roy, A., Singh, A. K., Mishra, S., Chinnadurai, A., Mitra, A., &Bakshi, O. (2020). Mental health implications of COVID-19 pandemic and its response in India. *The International journal of social psychiatry*.

Saha, J., Barman, B., & Chouhan, P. (2020). Lockdown for COVID-19 and its impact on community mobility in India: An analysis of the COVID-19 Community Mobility Reports, 2020. *Children and youth services review, 116*, 105160.

Scannell, L., & Gifford, R. (2010). Defining place attachment: A tripartite organizing framework. *Journal of environmental psychology, 30*(1), 1-10.

Schreier, M. (2020). Content analysis, qualitative. SAGE Publications Limited.

Seamon, D. (2013). Place attachment and phenomenology. Place attachment: Advances in theory, methods and applications, 12-22.

Stanton, R., To, Q. G., Khalesi, S., Williams, S. L., Alley, S. J., Thwaite, T. L., & Vandelanotte, C. (2020). Depression, anxiety and stress during COVID-19: associations with changes in physical activity, sleep, tobacco and alcohol use in Australian adults. *International journal of environmental research and public health, 17*(11), 4065.

Slobodian, Rayna. (2012). Space Psychology: Psychosocial Challenges of Living in Space - Isolation and Culture.

Taherdoost, H. (2016). Sampling methods in research methodology; how to choose a sampling technique for research.

Tarafdar, M., Tu, Q., Ragu-Nathan, B. S., & Ragu-Nathan, T. S. (2007). The impact of technostress on role stress and productivity. *Journal of management information systems, 24*(1), 301-328.

Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., & Ho, R. C. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International journal of environmental research and public health, 17*(5), 1729

Wunderlich, F. M. (2013). Place-temporality and urban place-rhythms in urban analysis and design: An aesthetic akin to music. *Journal of Urban Design, 18*(3), 383-408.