

Dealing with COVID-19 in Ghanaian urban shared low-income housing: What it reveals and the planning implications

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ABSTRACT

Compound and shared low-income houses in Ghana have economic, social, cultural, and familial advantages. Yet, COVID-19 and its related lockdown and home confinement in two urban cities, Accra and Kumasi, raised questions about the appropriateness of staying in a compound house while observing the COVID-19 protocols. Whereas a few studies have underscored the ineffectiveness of COVID-19 protocols in low-income shared houses, these assume a homogeneity of such households without reflecting on the diversities that exist among and between the different categories of low-income households and the imperative nuanced implications for the spread of infectious diseases. Against this backdrop the paper employed qualitative methodologies of in-depth interviews and non-participant observations to interrogate the experiences of low-income households' utilisation of space as they observed COVID-19 protocols. Drawing respondents from four low-income communities in Accra, the authors examined how traditional family households and non-traditional family households implemented the safety protocols and their implications for shared housing. Issues of sharing inadequate communal facilities and public health concerns as well as lack of access to inadequate water and living spaces impacted the respondents' COVID-19 experience. The study discovered that households' socioeconomic status is directly related to the management of epidemics in urban spaces in Ghana.

1. Introduction

Ghana recorded its first two cases of COVID-19 in March 2020, which led to the government immediately instituting measures to detect, contain and prevent the spread of the disease. Some of the measures included a ban on all public gatherings, closure of schools, churches, mosques and other places of worship on 16th March (Agormeda et al., 2020; Upoalkpajor & Upoalkpajor, 2020). The country banned entry for travelers coming from a country with more than 200 confirmed COVID-19 cases within the previous 14 days on 17th March and required a mandatory quarantine of all travelers that arrived in the country 48 h prior to the closure of the country's borders on 22nd March; a partial lockdown of Accra including Kasoa in the Central region and Kumasi on 30th March. With the institution of the partial lockdown in the two largest cities in Ghana, households were required to stay at home and observe the outlined protocols of personal hygiene and physical distancing. The restrictions on Accra and Kumasi were lifted on April 20th. However, a new law that enforces the use of face masks was mandated (Kenu et al., 2020). According to Kenu et al. (2020), these

measures were underpinned by education on the disease and its transmission as well as preventive measures such as personal hygiene, including the washing of hands with soap under running water or alcohol-based hand sanitizers and wearing face masks and they were countermeasures that would minimize the impact of the disease on the Ghanaian populace.

Research on COVID-19 and urban planning in low-income communities in Ghana has primarily focused on urban slum dwellers perceptions, attitudes, and observance of the protocols (Aberese-Ako et al., 2023), the urban poor strategy in mitigating their risk of infection through appropriate hygienic behaviour and following social distancing rules (Durizzo et al., 2021), the practicality in observing the protocols in urban poor communities using secondary data sources (Yeboah et al., 2020) and observing the protocols among homeless and slum dwellers (Morgan, 2020). Specifically, some of the works have looked at government policies on 'free water' initiatives during the pandemic (Amankwaa & Ampratwum, 2020) and the coping strategies adopted by households to manage the impacts of COVID-19 on households (Iddi et al., 2021). Another study that looked at architecture, sanitation and

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COVID-19 in urban low-income communities highlight the link between sanitation, public health and architecture and calling for re-engagement of architectural professionals with the design of sanitation facilities in those communities (Iossifova et al., 2022). From all the studies on the impact of COVID-19 on urban low-income communities in Ghana, the questions that arise are, how did urban low-income households confront the pandemic in their shared buildings? Did anything change in their living arrangement and sharing of communal spaces? While Iossifova et al. (2022) and Yeboah et al. (2020) used secondary sources to examine the use of shared facilities in urban low-income communities in Accra, this research uses primary data and real-life experiences of urban low-income households as they confronted the pandemic and lockdown in their communities in Accra while remaining in the compound housing with shared facilities. According to Sampson and Johannessen (2020), “‘real-life’ vignettes have the potential to allow for the elicitation of rich, detailed, and frank comments because of the ways in which they allow researchers, by association, to temporarily attain the status of an ‘insider’ within a group” (2020, 70).

Implementing the COVID-19 protocols at the micro scale or the house level in urban low income communities is challenging. This is because the houses are typically crowded and they share communal facilities such as toilets, washrooms and kitchen (Appeaning Addo, 2016; Afram & Owusu, 2006). Although family compound houses in Ghana are losing their value (Danso-Wiredu & Poku, 2020; Korboe, 1992) and undergoing transformation and gentrification in urban centers (Asante & Ehwi, 2022), they are still the primary source of affordable housing for the low-income households in urban areas. Morgan (2020) in a commentary argued that the prevention etiquette of social distancing has become an unattainable goal for the majority of slum dwellers and the homeless in Ghana, owing to the absence of standardized housing conditions and basic services that support such a practice while suggesting measures to decongest such spaces. These factors may attribute to the argument of Asante et al. (2022) that COVID-19 impacts are expected to be more severe on poor households, especially in resource-constrained economies such as Ghana with a poverty rate of about 24%. Aberese-Ako et al. (2023) also explained that vulnerable populations such as rural and urban-slum dwellers in Ghana are more likely to suffer from the deleterious socio-economic and health effects of COVID-19. The practicality of observing social distancing in low-income communities is challenging. This is because the socio-economic conditions of the urban poor make them use uncoordinated public transport systems, patronize unorganized markets and have limited access to water and sanitation (Yeboah et al., 2020). Hence, Anafo et al. (2021) proposed an agenda for addressing future epidemics in public spaces to revolve around the co-evolution and co-creation of new forms of societal values that are less materialistic and individualistic but rather more egalitarian in nature.

Again, the wholesale management of COVID-19 in low-income communities in Accra without any consideration of the existing urban characteristics is problematic. The lumping together of low-income households and communities as homogenous entity without recognising the differences and unique characteristics of each community did not create a sense of ownership and did not introduce context-specific strategies to confront COVID-19. Research by Anafo et al. (2021) revealed serious structural problems in the housing, transport, health and water, sanitation and hygiene sectors in Ghana which inhibited the efficiency of the urban systems limiting policy makers to effectively deal with pandemics in cities. The paper discusses the challenges confronting urban low-income households in shared housing in dealing with epidemics and argue that urban planners and policy makers knowledge of the facilities present in urban low-income communities will enable them to develop effective disease management. The objectives of the study were, to examine in what ways low-income households in shared housing negotiated their spaces during the lockdown in Accra and

investigated how they made changes to their living arrangement to implement the COVID-19 protocols in ways that reflected their material reality.

1.1. African Cities, urban planning, housing and epidemics

Globally, urban cities, while more dense than rural areas or the countryside offer more robust health care resources to residents than their rural counterparts (AbouKorin et al., 2021). However, class impacts access to infrastructure, government services, security, and sanitation (Kimari, 2021). Njoh (2009) argues that urban planning in African urban cities have a historical colonial legacy that exacerbates the class divide. This legacy contributes to cities that are often overpopulated, home to low-income residents, have formal and informal housing units and lack proper basic human services.

United Nations estimate that about 54 % of all global population live in cities. According to the World Urbanisation Prospects, this proportion is expected to increase to 60 % by 2030 (UNDESA, 2018). Virtually all the expected growth in the world population will be concentrated in the urban areas of the less developed regions (UNDESA, 2018). Sub-Saharan Africa, for instance, has experienced a huge increase in the rate of urbanisation (Sakketa, 2023). Urbanisation and the growing population present both challenges and opportunities in cities. For example, the unique character of population and investment agglomeration that cities possess could serve as a link for economic, energy, environment, science, technology and social and economic elements of development. On the other hand, prevailing poverty, inequalities, unemployment and environmental issues, present planning challenges for cities as the growing urban population has driven ever increasing numbers into informal shelter in the burgeoning slums in many cities. African urban cities are also experiencing class and race divide which impacts access to infrastructure, government services, security, and sanitation (Kimari, 2021). There is significant shortage of decent affordable housing and the housing conditions and the physical environment in which many of the urban poor live, work, and raise their children lack clean and adequate water supply. In addition, the poor urban communities lack transportation infrastructure which is reducing efficiency with which developing city's function.

Urban planning and management decisions affect the liveability of cities. Several studies have demonstrated the relationship between urban planning and public health from the perspectives of transportation, mental health, and disease epidemics (Astell-Burt & Feng, 2019; Corburn, 2004; Duhl et al., 1999). Giles-Corti et al. (2016) identified local and regional interventions that when combined would promote healthy cities calling for a multisector development approach involving health officials and city planners to deal with non-communicable diseases. According to Davis (2022), planning, which encompasses city design and planning policy, has both constructed the challenge of infectious disease epidemics while at the same time developed processes, actions and strategies to contain, isolate and treat them. Furthermore, planning has shaped the trajectories of other epidemics, “and/or about the relationship between understandings of disease in cities and the development of planning control and regulation” (Davis, 2022,1). This is because the emergence and spread of diseases, as well as their tendency to re-emerge is dependent on the interplay of several environmental factors (Davis, 2022).

The incidence of COVID 19 has many social and spatial implications on built environments while generating new patterns and configurations of use. According to Megahed and Ghoneim (2021), architectural and urban spaces relating to infectious disease epidemics are not only planned to quarantine based on immediate and precautionary measures but has design and planning implications in all building types and urban spaces. According to Hoffman (2014), some of the contributing factors leading to the spread of epidemics include, demographic and

environmental conditions, advances in technology, economic development, changes in land use, and international trade and travel.

The risk factors for COVID-19 include high population density in a particular space, low-income situations, and other socio-political issues like racism (Frumkin, 2021). Fears of transmission and prolonged public health crisis deepen the risk (Megahed & Ghoneim, 2021) and results in health inequities and injustices in these spaces and the built environment in general (Hasan et al., 2021). According to Frumkin (2021), it is a general knowledge that the COVID-19 pandemic has deepened the urban divide, where urbanites are globally faced with an urban-poverty phenomenon. The policy response to the management of COVID-19 has usually included restrictions to human movement, including staying at home, changes in mode of travel, human movement to less dense areas, design of buildings, and an increase in the importance placed on outdoor spaces (Frumkin, 2021; Lai et al., 2020). Other pandemics in history brought about changes regarding sanitation, innovation in architectural planning, improved infrastructure, among others while Pinheiro and Luís (2020) point out the relationship between the built environment and infectious disease spread.

According to Ujunwa et al. (2021), the adverse economic effect of COVID-19 in African countries is uneven and appears worse, resulting in increased extreme poverty, pressure on the health sector, and tight financing constraints, and the limited capacity of governments to provide safety-nets for the most vulnerable. The authors argued that the pandemic is exacting a larger toll on the economies of Sub-Saharan African economies like South Africa, Nigeria, Kenya, and Ghana and that the enormous benefit Africa derived from globalization, during the COVID-19 pandemic, calls for a rethink of African Union's globalization strategy, as well as strategies to mitigate African economies from the vulnerability of future pandemic.

These events led to uneven and complex urban planning interventions (Silver, 2015) reinforced by the colonial planning approach used in planning for African urban cities. The planning approach has been condemned by Appeaning Addo and Mba (2022) as piecemeal and undertaken as part of a nationalist agenda. According to Bolay (2015), efforts made to plan cities in emerging and developing countries are confronted with multiple issues including poor socio-economic levels, low levels of public investments, weak local administration, and large dependence on external donors.

2. Study areas

Four communities in the Greater Accra Region were selected for the survey. Accra is both the administrative and economic capital of Ghana and hosts the headquarters of several government agencies. It is also one of the cities that was most affected by the COVID-19 pandemic in Ghana. According to the Ghana Health Service (GHS, 2021) statistics, the COVID-19 count in the Greater Accra Region as of 31st December 2022 stood at 97,320, thus being the leading region with the most cases of about 57 % of the national total of 169,586 and followed by the Ashanti Region with a total count of 22,619 cases. The high incidence of the COVID-19 cases in Accra and Kumasi propelled the government of Ghana to lockdown these two cities and the surrounding communities at the peak of the pandemic in March 2020. On May 2020, the BBC reported that the Greater Accra Region was leading COVID-19 infections recording 1852 cases out of a total 2169 in Ghana (BBC, 2020). Within the same month, the Ghana News Agency (GNA, 2020) reported that the Ghana Health Service identified Tema, Korle Klottey, Accra Metropolis and Kpone Katamanso as hotspots for the COVID-19 cases with the Accra Metropolis reporting 10 cases and La Nkwantanang-Madina Municipality reporting four cases in May. These statistics made the Accra Metropolis and La Nkwantanang-Madina municipality places of concern for COVID-19 infection and ideal study areas for the research.

The four communities that were selected for the survey are Nima, James Town, Kisseman and Madina. As indicated on the map in Fig. 1. Jamestown and Kisseman are located in the Accra Metropolitan Area,

Nima is in the Ayawaso East municipality, while Madina is in the La Nkwantanang-Madina municipality as indicated in Table 1. The 2021 population and housing census identified Accra Metropolitan Area as 100 % urban with a population of 284,124 persons and average household size of 2.8 persons. Ayawaso East municipality has a population of 53,004 persons and average household size of 3.1 persons, and it is also 100 % urban. La Nkwantanang Madina municipality has a population of 220,757 persons and average household size of 3.0 persons with 85 % of the municipality being classified as urban.

Nima is a low-income community and one of the largest and the oldest Zongos¹ in Ghana with origins dating as far back as 1836. Although Nima has been described as a slum community (Abass & Kucukmehmetoglu, 2021) and having a socio-spatially marginalized population left behind by urban development, Ghana's Ministry of Inner City and Zongo Development (MICZD) has sought to improve the social and infrastructural development of Zongos, or 'stranger's quarters' in Ghana. Now, the layout of Nima introduces a state of fluidity that drives opportunity as social networks form the basis for social capital (Appeaning Addo, 2013; Ofose-Kusi, 2020). While Nima is predominantly a low-income multi-ethnic community, James Town, on the other hand is predominantly a Ga indigenous community located along the Gulf of Guinea albeit with a minority of non-Ga inhabitants. It is densely populated with about 250 persons per hectare and the housing quality is low. Although vulnerability in James Town is high, it is designated as tenure-secured and matured slum² by the Accra Metropolitan Authority (Tutu et al., 2017). In 2020, over four hundred permanent and temporary structures were demolished to enable the construction of the James Town Fishing Harbour Complex, an ultra-modern fish landing facility, by China Aid. Kisseman is a small informal migrant low-class community with a population of less than 5000 residents and located close to middle-class residential areas of Legon, Achimota and Dome. Madina is a fast growing and a heterogenous sub-urban middle-class settlement located in Accra, about two miles north of the University of Ghana, Legon. It hosts a big market with market days on Wednesdays and Saturdays. All these communities benefitted from the government of Ghana food intervention during the COVID-19 lockdown instituted in Greater Accra and Kumasi Metropolitan areas.

The residential stratification of these communities allows for important continuities and legacies from the past and showcases neighbourhood attachments that is rooted in indigenous cultural traditions and lived experiences and that act as social capital for households (Owusu & Baidoo, 2021; Appeaning Addo, 2013; Arguello et al., 2013). However, Tutu et al. (2017) observed that migrants who live on the margins of society are adversely impacted by poor environmental conditions that make them susceptible to environmentally induced diseases such as malaria, cholera, and typhoid. It was thus inferred that people staying in the margins of the urban areas are likely to be affected significantly by the COVID-19 pandemic.

The 2021 national population and housing census estimates the total number of compound houses to be about 28.5 % (533,286) of all housing stock in Accra. Compound houses bring together extended families and offers close kinship connections. Most compound houses are multi-habited and it is home to different households who could form part of the extended family or may not have any blood relations (Addo, 2014). In this kind of living arrangement, a plethora of socioeconomic and

¹ Zongo refers to a community that is dominated with the Hausas and associated with a Moslems. Samuel Nteuwusu (2011) has researched extensively on Zongo communities in Ghana.

² The term 'slum' in this article is being used due to its prominence in existing literature. However, the authors contend that this word immediately conjures images and ideas about residents in these areas that is derogatory. The classification of communities identified as 'slums' should be researched to include a race, class and nation analysis, although, this paper is not in a position to address this important topic.

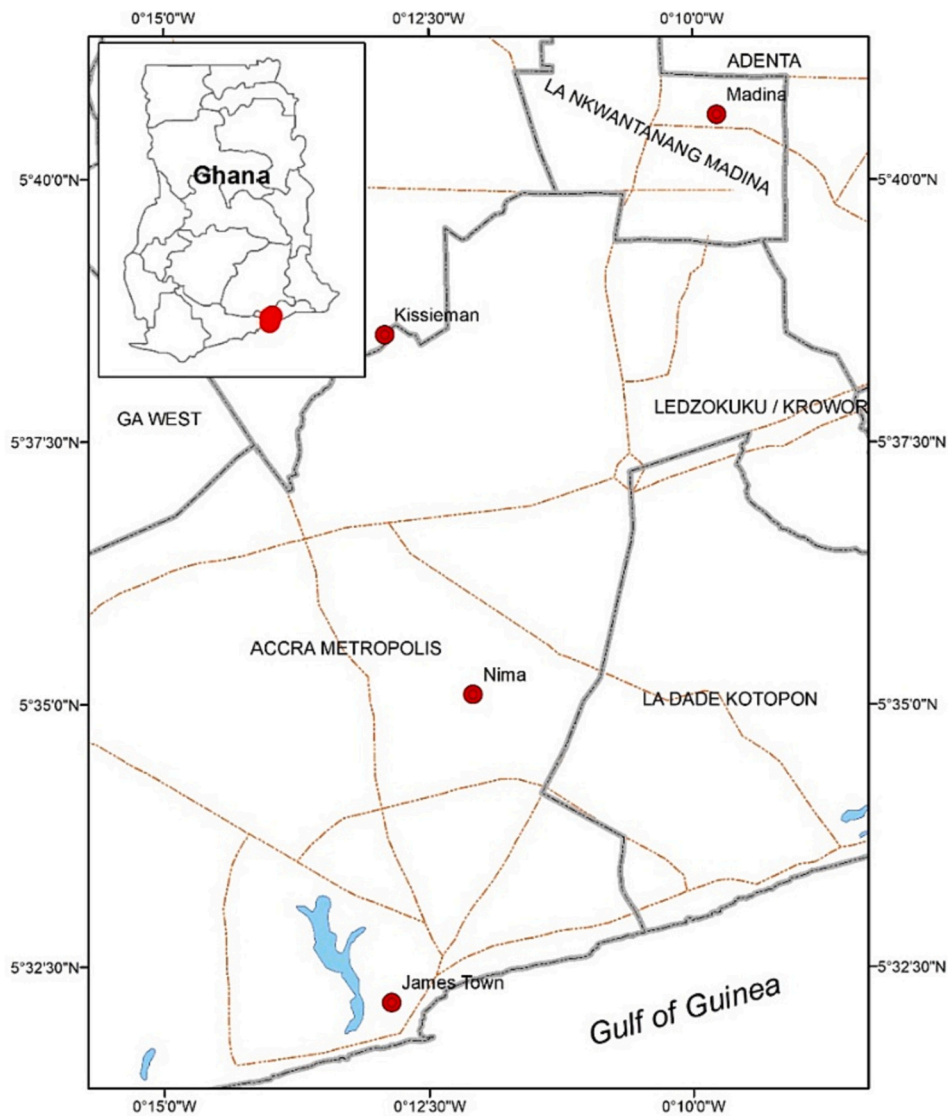


Fig. 1. Map of Ghana showing the four study communities in Accra including Nima, James Town, Kisseman and Madina.

Table 1
Summary of population statistics in the four study communities in the Greater Accra Region.

Administrative areas	Study communities	Population by administrative areas	Average household size	Number of sleeping rooms in dwelling units
Accra Metropolitan Area	Jamestown	284,124	2.8	97,937
	Kisseman			
Ayawaso East Municipality	Nima	53,004	3.1	16,859
La Nkwantanang Madina Municipality	Madina	220,757	3.0	71,483

Source: 2021 Population and Housing Census.

cultural relationships develop (Addo, 2014). Residents benefit from the existing informal social networks and rent-free accommodation (Danso-Wiredu & Poku, 2020). At the same time the sharing of facilities is a source of conflict in these houses. Compound houses are privately owned.

3. Research method

A qualitative research approach was used in the data collection with each of the authors leading data collection in one of the four communities. A semi-structured interview guide was used to collect data on the household characteristics, the characteristics of the compound house, the sharing of facilities during the lockdown and the observation of

COVID-19 protocols in the compounds. Generally, respondents spoke about how they, their household and compound members utilised space and managed relationships as they observed COVID-19 protocols of lockdown, hand hygiene and social distancing. A head of household or any responsible adult who could answer the questions was interviewed from each compound house. In each community, a community facilitator was first identified to assist in obtaining permission from community leaders for engaging with community members. All the necessary traditional and community protocols for such activities were observed. The community facilitator then introduced us to residents in the community who were willing to participate in the research. Interviews lasted between fifty minutes to an hour and a half, and each respondent got token gifts of sanitisers, soap and paper tissue to

Table 2
Summary of residential characteristics and research approach of the four study communities in Accra.

Locality	Characteristics of community	Research approach	Number of respondents	Language of communication
Jamestown	Low-class indigenous Ga community	<ul style="list-style-type: none"> Community entry gained through a community facilitator. Compounds randomly sampled based on availability and willingness of participants. In-depth interviews of household heads and representatives. Interviews recorded and transcribed. 	7 respondents all family members.	Ga
Kissemán	Low-class migrant community	<ul style="list-style-type: none"> Community entry gained through the traditional leader or the chief. Compounds randomly sampled based on availability and willingness of participants. In-depth interviews of household heads and representatives. Interviews recorded and transcribed. 	7 respondents (1 chief/ landlord, 2 tenants, 4 family members)	English, Twi and Ga
Nima	Low-class Muslim Zongo and multi-ethnic community.	<ul style="list-style-type: none"> Reconnaissance survey done prior to survey. Community entry gained through a community youth leader. Compounds randomly sampled based on availability and willingness of participants. In-depth interviews of household heads and representatives. Interviews recorded and transcribed. 	4 respondents (3 family members, 1 tenant)	English, Hausa
Madina	Middle-class Muslim Zongo and multi-ethnic community	<ul style="list-style-type: none"> The researchers identified individual compounds without going through an intermediary due to the urbanized nature of the community. Compounds randomly sampled based on availability and willingness of participants. In-depth interviews of household heads and representatives. Interviews recorded and transcribed. 	8 respondents (1 chief/ landlord, 2 landlords, 5 tenants)	Twi, Hausa and English

reinforce the need to keep the COVID-19 protocols even though it was a year after the pandemic. Fieldwork was conducted in October 2021. Ethical consideration of confidentiality and anonymity, voluntary participation and the utmost protection of participants' interest was observed in the conduct of the study. However, due to the unique characteristics of each community, different strategies were employed by the four groups of researchers and their assistants in the collection of data in the four study communities.

In Madina, due to the diverse nature of housing in the community, the team spent two days prior to data collection to do a reconnaissance survey and to identify compound houses of interest. Two main localities in Madina (a Muslim Zongo community and a multi-ethnic densely populated community) were selected for the data collection. In all, eight interviews were conducted in eight households, comprising house owner/landlord (2), chief (1), and tenants (5). Six of the interviews were conducted in Twi (the dominant local language in the area). One of the respondents spoke Hausa, but her sister interpreted it in Twi. The last one was in English.

In James Town, which is predominantly an overcrowded and indigenous community of the Ga people of Accra, had its own unique characteristics that promoted a healthy communal living. In-depth data was collected from seven respondents comprising four females and three males, randomly selected from interspersed households to ensure that the data is general and varied enough. All interviews were conducted in Ga.

In Kissemán, members of the Chief's household were among the seven household heads interviewed besides other households within the community. The various interviews were transcribed and coded into different themes. All interviews were conducted in English.

In Nima, four households were interviewed from different houses. Each compound house had a minimum of 6 households. One of the interviews was conducted in Hausa with interpretation, while the three remaining interviews was conducted in English with occasional Hausa engagement.

The interviews were recorded, translated, and transcribed in English for analyses. The collected data from the four communities were not necessarily compared but compiled into a single data unless there were unique information that needed to be captured. The residential characteristics and research approach have been summarized in [Table 2](#).

4. Results

In all 26 persons were interviewed from four communities – four from Nima, seven from Kissemán, eight from Madina and seven from James Town. Four of the respondents were landlords, eight were tenants and 14 were family members who were staying in family houses and were not paying rent. The ages of the respondents ranged between 30 and 87 years and in one house in Nima up to 40 persons were staying on one compound with 25 rooms. In other houses, there were less than 10 persons staying on a compound.

From the interviews, we observed that although the people complained about hardships, they showed resourcefulness and demonstrated innovation in the management of COVID-19 in the various compounds. Government assistance in the form of subsidized water and electricity supply made a great difference in helping the respondents to implement some of the COVID-19 protocols of regular hand washing. Yet in terms of living arrangement, the urban households could not make any changes because they were limited in their access to additional housing. Landlords had already rented part of their rooms out to tenants and the tenants could not make any extensions to the rented units.

4.1. Housing characteristics and accessing utility services during COVID-19 pandemic and lockdown

Generally, the walls of the buildings were constructed with sandcrete blocks. It was only in Nima that some houses were built with mud. However, those walls were rendered with cement plaster making it impermeable to rain. While all the compounds were enclosed with several room units, there were differences observed in the configuration of the compound houses. The Kissemán's chief palace comprised three different compounds, namely the main compound being the oldest and occupied by the respondent and his household, and two detached compounds occupied by tenants and extended family members. The main compound had a central and a spacious courtyard where outdoor activities such as washing, cooking and relaxation takes place. The compound for the extended family members had a similar arrangement. However, the tenants did not have any central courtyard but narrow alleys leading to several quarters of the house as in [Fig. 2](#). Cooking, washing, and bathing of children are often done in front of their room



Fig. 2. Very small alley ways leading to individual housing units in a compound housing in Kisseman.
Source: Photograph taken by Irene Appeaning Addo in October 2021.



Fig. 3. Hanging of cloths and storing of household items extending onto the street in James Town.
Source: Photograph taken by Deborah Atobrah in October 2021.

units leaving very little space for co-tenants to manoeuvre their way through the maze.

During the COVID-19 pandemic and lockdown, the courtyard became an important space for socialization, Islamic prayers and relaxation for the households in compound houses. Households congregated in the courtyards and the streets to socialize while others chose to remain indoors. The large courtyards in some of the buildings were used as outdoor space for food preparation, eating, washing and children's playground and points of socializing among the men as they sat under big trees to play games and to chat contrary to the COVID-19 protocol that advised against social gathering. In Nima and Madina, households staying on a compound would gather to offer Islamic prayers. Most of the enclosed courtyards had a single entrance and exit. In James Town, the organization of the housing units were segregated and not clustered around a central courtyard, sitting right at the edge of roads. Their outdoor activities spilled over into the streets lying in front of the houses as in Fig. 3. The increased frequency of interaction among the households gave the impression that the house was overcrowded. A respondent in Nima explained that even though her room unit was bigger than most rooms on the compound, she still had the impression that it was crowded because of the fact that everyone stayed indoors because of the lockdown and fear of the COVID-19 disease.

Notwithstanding the differences in layouts, the single shared rooms had similar characteristics. The room sizes were about 14 ft by 14 ft or less and they were shared by families made up of adults and children. The rooms had either a single or double bay windows, some slightly smaller than the standard 5 ft width. These windows are placed on either one side of a wall or on two sides of the walls. Most of these windows were adjustable glass louvre blades that are often left open during day

and night. However, some residents preferred to leave it half open during the day, to ensure privacy in the rooms and in the night, they preferred to keep the windows shut for security reasons. Very few houses had battened and ledged windows, wooden jalousie windows and glass sliding windows. However, during the pandemic, some tenants in Madina replaced their jalousie windows with louvre blades to allow constant flow of air into their rooms. This renovation was done with the explicit approval of the landlord. Generally, tenants do not have the right to alter their rented premises. The small windows meant that the rooms were very warm throughout the day. To address the heat, some of the respondents installed ceiling and standing fans in their rooms, but the inadequate window sizes made ventilation of the room inefficient. Other respondents who were able to afford air conditioners installed it in their rooms by taking advantage of the government subsidized electricity supply plan. One respondent in Nima could not open her window because a shop had been constructed right beside the house.

Overcrowding in compound houses is a common feature in urban areas in Ghana. However, with the incidence of the pandemic, households had to adjust their living arrangements. Despite the adjustment to household arrangements in Nima, family compounds were still active. At the time of the interview researchers observed that one compound was the location where Sobolo³ was being manufactured to sell. The two in-laws that were preparing the two barrels full of Sobolo for sale resided at a different compound. This further complicates the number of people

³ Sobolo is a drink made from hibiscus tea in most West African countries and some Caribbean countries.

utilizing the facilities in the compound and their exposure to COVID-19. In the same household our respondent in Nima explained the changes she and her household had to make to fulfill the COVID-19 protocol of social distancing and avoiding overcrowding. She commented,

There is one room in which three of them [children] sleep in, my husband and I also sleep in one and we had an empty room in which no one used to sleep in but since the outbreak of the covid, I made some of the children sleep in it.

Most households living in compound houses had access to basic utilities such as electricity and water from different sources including pipe borne water, wells, bore holes with mechanized pumps and large plastic tanks for water storage as shown in Fig. 4. In other houses in Madina, members of the house did not have access to water supply in the houses and so they were compelled to fetch water from communal sources or from the neighbour's house. This arrangement was possible because of the free water supply policy put in place by the government. The government also implemented a highly subsidized to almost free water supply to the low-income communities. This move was to encourage regular washing of hands among the people. In Nima, the households interviewed did have access to water, however, outside of one of the compounds was a public bathroom facility. This increased the foot traffic in front of the house and thus increased exposure to COVID-19. In Kisseman, the local government ensured that there was constant supply of water by refilling private and government installed storage tanks in the community. Unfortunately, the water was sold to the community members although at half the price as recounted by this petty trader in Kisseman. She said,

There was a woman here who initially gave us access to fetch water from her pipe for free when the government made the announcement that they will give us free water but later on she got scared the government may renege on the directive, so she sold it to us at a reduced price.

Households took advantage of the free water to place 'veronica' buckets or buckets with installed taps, at the entrances of their compounds or rooms and all members of the house and visitors were required to regularly wash their hands.

In almost all the compounds that we interviewed, toilets and bathrooms were shared by both the resident landlord and the tenants. It is only when the landlord is absent that the facilities are used by only the tenants. However, in Kisseman, one resident landlord explained that his household does not share the toilet and bathroom with the tenants. In James Town some residents chose to patronize public toilets and bathrooms, partly due to inadequate facilities for the large population in the houses, poorly maintained facilities and the cost involved to clean and maintain the facilities. One respondent in Kisseman explained that after each use of the toilet, she had to purchase a bucket of water to flush the toilet in the house and that was equivalent to the amount she pays to use the communal toilet facility and so she decided to patronize the public facility. A respondent in Kisseman explained that the public toilet was just about 150 m away from the house and so she could easily walk. Generally, each compound had only one toilet and one bath house to serve a population of more than 10 persons or three households. In Nima, some of the houses had just bathrooms while others had both toilet and bathroom inside the room unit. This meant that tenants needed to patronize the public toilets which they explained that it was just a three-minute walk from the house. There were instances when conflict over the use of a particular facility had led to the locking up of the facility and exclusively reserving it for the landlord's use or tenants who contributed to the cleaning and maintaining of the facility. A landlord in Kisseman explained that right from the beginning of the tenancy, he directs his tenants to use the public toilet and that it is only him and his household that uses the toilets on the compound.

4.2. Confronting the COVID-19 pandemic and lockdown – challenges and support

The respondents experienced the impact of COVID-19 in various ways. Generally, the respondents acknowledged that they were significantly impacted by the incidence of COVID-19 as it affected their livelihood and businesses. Some of the respondents were seamstresses, traders, paid nanny, drivers, etc. While some mentioned that they were physically sick and financially challenged, others complained of mental exhaustion resulting from living in constant fear. A respondent in Nima was particularly worried that the pandemic disrupted her religious practices and the constant fear of having her family members infected because of the nature of housing arrangement. She commented,

I do not know what kind of pandemic this is that prevents us from even gathering at the mosque to fellowship with our fellow brothers and sisters ... Usually when one is sick, he/she is able to mingle with others but as for this covid you are not able to do so, and you even have to live with your own child in fear. If not for the fact that it is God who has given us children, one would have had to separate himself/herself from his/her own children because of this covid. At first when one coughs, what we the Muslims used to say was "Hausa: *Alhamdulillah i.e., thank God*" but now, when one coughs or sneeze everyone tends to fear. It is covid that has brought all these.

Another respondent, who clearly showed her frustrations complained bitterly about the inefficiencies associated with the government food intervention but explained her strategy of feeding her family,

I got nothing during the lockdown. It was my daughter who brought me a few items, a bag of rice and other stuff. I bought corn dough from the market to prepare kenkey and that was what we ate. My mother used to prepare kenkey to sell and I picked up the skill from her. So, I cooked a lot of kenkey and that was what we survived on.

During the lockdown in Greater Accra and Kumasi, the Metropolitan Authorities, supported by organisations and philanthropists donated food packs to needy persons. Churches also donated cash and food support to families to deal with the hardship that households and individuals were facing as a result of the lockdown and the halting of all business activities. To deal with the challenges and hardships that the pandemic had introduced, reaching out to family members in and outside the compound became one of the survival strategies as reported by a respondent in Nima,

We were in difficult times because I didn't see anyone here who came to help us. It was our brother here whose uncle lives abroad who remitted us some money. When we received the money, it was as if we had not seen money before because things were very difficult for us.

All the respondents expressed their frustrations with the incidence of the epidemic and the attendant lock down. They were particularly exasperated with the financial challenges that they encountered. As at the time of the interview in October 2021 some of the households had not recovered from the shock. The government of Ghana food intervention was not efficient since it did not reach the urban poor as was initially planned. A lady in Kisseman suggested that the best way the government could share resources for everyone to benefit was for them to use the digital address system. In 2017, Ghana launched the digital address system through the Ghana Post.

Efforts were made by households to observe the COVID-19 protocols of sanitising and washing hands regularly by introducing veronica buckets at the entrance of the buildings. These buckets were regularly re-filled with soap water. However, the issue of observing social distancing was hardly observed because only the courtyards and the streets served as places of socialization. People would often gather to chat and exchange pleasantries. In other instances, co-tenants stayed in their rooms because they were afraid and only came out when it was



Fig. 4. Water purchased from private water storing facilities in Kisseman.
Source: Photograph taken by Gertrude Aidoo in 2021.

necessary.

4.3. Living and using shared and communal facilities under COVID-19 and lockdown

In Kisseman, most of the respondents indicated that they did not have to make any adjustments to their living arrangements during the lockdown. Instead, they rearranged their sleeping arrangement by deciding that only two persons would sleep in a room while the remaining members would sleep in family houses within the neighbourhood. Others decided to sleep in opposite directions on the bed as explained by a respondent.

I slept with my head at the top of the bed and my feet at the bottom. My wife slept 'upside' down with her head at the foot of the bed. My children also didn't sleep together at that time. One slept on the floor and the other slept in the couch.

The respondents contended that they could not alter their living arrangement because of the limited space and room units available to them. A family renting a one or two room unit could not expect to have additional rooms to implement the policy on social distancing. However, views were expressed on the ideal housing situation that they would prefer to deal with the pandemic. A self-contained facility without anyone sharing the bathrooms and toilets and having adequate sleeping rooms were the preferred choice of the households. One respondent in Madina strongly commented about the inconveniences associated with the sharing of bathrooms, toilet and kitchen and said that her preference of an ideal house in the era of COVID-19 pandemic would be a non-sharing house. She remarked,

I'll make sure that everybody has his/her own self-contained unit [having toilet, bathroom, and kitchen facilities in the room], everything is in there.....

Another respondent in Nima commented that she wished every household would be compelled through the by-laws to have its own toilet and bath enclosed in their rooms and hoped that the pandemic could be a strong reason for the government to embark on a project to

improve low-income shared housing structures. Others desired to have their own supply of water in their rooms. Sharing communal facilities like the public toilets during the pandemic raises the question of public health concerns. A respondent in Kisseman expressed her fears,

One thing that really worried me was sharing the toilets with the public. Even before the lockdown people were not keeping the place clean so I had to use detergent to clean up before using it because women easily contract infections from such places. The public toilet is small, and it is poorly ventilated so that really troubled me. My wish is that the government will ensure that every house has its own toilet facilities Let's consider children, they do not have the sense to clean up before using the place so they can contract serious infections from using the place.

5. Discussion

5.1. Challenges

5.1.1. Sharing and accessing communal facilities

From the results issues of sharing inadequate communal facilities as well as inadequate water and sanitation facilities impacted respondents' COVID-19 experience in the four low-income communities in Accra. This finding supports the assertions of several authors who have found a positive correlation with sharing facilities and the risk of infection. [Hasan et al. \(2021\)](#) observed in Bangladesh urban slums that there was a significant positive relationship between the risk of COVID-19 infection and the use of shared facilities especially in crowded spaces. According to the authors COVID-19 transmission could be through droplet infections and physical distancing is one of the recommended strategies to manage the disease. Meanwhile, among the low-income communities in Accra, compound housing with shared facilities is the predominant housing type because of rental cost and familial arrangements. The inheritance system allows families to bequeath houses to their children. Thus, compound houses are home to different households who could be part of the extended family or may not have any blood relations ([Appeaning Addo, 2013](#)). In this kind of living arrangement, a plethora

of socioeconomic and cultural relationships develop (Appeaning Addo, 2013) with residents benefitting from the existing informal social networks and rent-free accommodation (Danso-Wiredu & Poku, 2020) notwithstanding the conflict over use of shared facilities. Compound houses are privately owned by individuals and families, and the 2021 population and housing census estimates the total number of compound houses to be about 28.6 % (535,857) of all housing stock in Accra.

5.1.2. Socioeconomic inequalities and access to toilets

The issue of sharing facilities in a pandemic situation highlighted the poverty and socioeconomic inequalities that exist among urban households in Accra. Research has shown that sharing sanitation facilities increases the risk of infection and results in adverse health outcomes (Heijnen et al., 2014) and this risk becomes pronounced under epidemics. The continuous sharing of toilets after several interventions by the Accra Metropolitan Authority (AMA) to install sanitary facilities questions Accra's readiness to deal with future pandemics. In 2018 the Accra Metropolitan Assembly launched a 'one toilet one house' project to install about 5000 toilets in houses in a suburb in Accra to promote cleanliness. According to the Member of Parliament who launched the programme, the project sought to promote cleanliness and prevent open defecation in the communities (GhanaWeb, 2018). The requirement was that AMA was going to bear 80 % of the cost and households would bear the remaining 20 %. In 2018, households were required to contribute GHS 2000 towards the installation. This amount was subsequently reduced to GHS 1100 and GHS 600 (AMA, 2018). The Ghana Living Standards Survey 7 (GSS, 2019) revealed that annual expenditure of the lowest quintile in Ghana was about GHS 5168. This meant that spending GHS 2000 out of that annual expenditure on the installation of a toilet facility was almost impossible. The socio-economic status of the households places them in a position where they are not able to afford the cost of installation. Even if they could install one in the house, the number of tenants present on a compound means the only installed toilet would not be adequate to serve the population. Public toilets are not clean and efficient.

From our study it was observed that the ratio of toilet to users was about 40 persons to one toilet in a house and this ratio is quite high. A similar situation could be described for the bath houses. Recent research conducted in Kumasi, the region with the second largest urban population revealed that about 56 % of housing units in Kumasi have at least one toilet and out of this population, 47 % were excluded from using the toilet (Foggitt et al., 2019). The 2021 population and housing census indicates that 30.6 % (519,388) of all households in the Greater Accra Region shared bathroom facilities while Ghana Living Standards Survey (GLSS) 7 indicated that about 71.4 % of households in Accra share toilet facilities with other households in the same house or different houses or have their toilet located in another house (GSS, 2019). This situation is worrying since households would be compelled to defecate indiscriminately in open spaces as observed in the GLSS 7. According to the UN Habitat (2021), lack of access to services and overcrowded conditions makes certain populations or regions more vulnerable and at higher risk of contracting the COVID-19 virus. Fobil et al. (2010) have also shown the relationship between socioeconomic conditions and urban neighbourhood environmental quality. They stated that rapid urbanisation has introduced imbalances in the provision of basic sanitation services which have left urban Accra to form clusters at different levels of environmental quality conditions.

5.1.3. Access to water among households

Observing the COVID-19 protocols of regular washing of hands and ensuring cleanliness became very challenging for some of the respondents in the urban communities. This was because most of the houses surveyed did not have their own water supply. They depended on community water supply. Prior to the pandemic, households were fetching water from communal water supply, but the frequency of water use increased due to the increased population staying at home during

the lockdown and using water for cooking, bathing, and flushing the toilet. Although the government offered free water, not all the urban low-income households benefitted from this directive. Some still had to pay a subsidized fee to access water. The challenge of accessing improved water during the pandemic in Ghana has been reported by several authors (Amankwaa & Ampratwum, 2020; Smiley et al., 2020; Gbedemah et al., 2022). Gbedemah et al. (2022) observed that the main water accessibility challenge during the COVID-19 pandemic was the increased cost of water (41 %) and households had to adapt by storing water and buying from vendors at an expensive rate. In the study communities households had to contend with the distance involved in carrying water from a community pipe to flush the communal public toilet. Water supply inadequacies are felt disproportionately in disadvantaged communities despite the many political promises, policy initiatives and interventions to stymie the existing inequalities in urban water supply (Obeng-Odoom, 2012; Fiasorgbor, 2013). Oteng-Ababio et al. (2017, 185) have generally observed that in "developing countries, increasing urbanization amidst chronic financial constraints sharply limits the authorities' ability to provide universal urban infrastructural services". Thus, until the urban water situation in Ghana is resolved, future pandemics could have a deleterious effect on households.

5.1.4. Ventilation in low-income housing rooms

The study also revealed that shared and individual rooms in compound houses have inadequate fenestration, single-bay windows, and are hardly opened at night because of fear of burglary. This is particularly worrying given that the lockdown compelled households to remain indoors. According to Megahed and Ghoneim (2021), poor indoor environmental quality and poor ventilation increases the risk of airborne transmission of diseases which is likely to have an impact on occupant health. This is because congested spaces with asymptomatic carriers are potential sources of airborne COVID-19, which, although transmitted via droplets, can survive for several hours in aerosols (Megahed & Ghoneim, 2021). Thermal discomfort and heat stress may result from closed windows given that temperatures in Accra could be as high as 38 degrees Celsius during the daytime (Laue et al., 2022). Another observation was that the limited sleeping rooms compelled households to disperse and stay apart fearing that household members could contract COVID-19 and infect each other.

5.1.5. Gendered nature of the economic impact of COVID-19

The social construction of gender impacted the experiences of women during the COVID-19 pandemic and lockdown. Female participants were still responsible for the expected domestic duties despite the loss in income of both men and women. Female hairdressers, seamstresses and traders stopped working and as at the time of interview, some had not managed to resume their businesses because their capital had been spent. Mathew et al. (2020) study on self-employed women in Zambia found that women were traditionally involved in buying and selling of goods and such businesses were severely affected during the lockdown. Graeber et al. (2021) observed that the gender-gap among the self-employed is largely explained by the fact that women disproportionately work in industries that are more severely affected by the COVID-19 pandemic. The authors conclude the "future policy measures intending to mitigate the consequences of such shocks should account for this considerable variation in economic hardship" (Graeber et al., 2021, 1141). Even women who were working in formal setting jobs in Accra were faced with a double burden, they were carrying for family and extended family while continuing to perform their formal employment (Frehiwot et al., 2022).

5.2. Benefits

5.2.1. Social support networks

Notwithstanding all these challenges, the sharing of compounds provided psychological support for the individual households during the

time of lockdown and isolation. While several studies show the psychological effect of isolation on individuals' mental wellbeing (Agha, 2021; Grover et al., 2020), the households staying in compound housing in Accra fared better under lockdown as they provided support for each other and regularly interacted with each other. Killgore et al. (2020) observed that psychological resilience was greater among those who tended to get outside more often, and perceive more social support from family, friends, and significant others. Shared housing may foster or deter healthy living situations for households (Ahrentzen, 2003) but in this case, the respondents demonstrated that multihabitation became beneficial for their mental health and wellbeing. Access to social support systems from their co-tenants and neighbours helped them to deal with the mental stress associated with COVID-19. In terms of fostering healthy living situation, the COVID-19 pandemic provided a refreshing display of conviviality among the people in the precarious urban multicultural space (Neal et al., 2019). A renewed sense of communalism and increased bonding existed among the household as they relied on the informal networks as a social capital for progression in urban areas and to manage their vulnerability.

5.2.2. Courtyards as spaces of interaction

Courtyards are important architectural features in compound houses that are used to meet social and commercial needs of families and occupants. Notwithstanding the space inadequacies associated with compound houses, access to courtyards in compound houses helped the occupants to deal with the pandemic. Occupants of the various housing units socialized and interacted with each other in the courtyards. During the lockdown, they would gather in the courtyard to converse or play games although others preferred to remain indoors. Several authors have established that courtyards are a microcosm of everyday life and promote social interaction (Lee & Park, 2015), promote community interactions (Amer, 2016) and cultural sustainability (Huang et al., 2019). McIntosh et al. (2022) study has identified the value of courtyards and other outdoor spaces in the recovery of mind in acute mental healthcare users for therapeutic and rehabilitative engagement by increasing the sense of community and interaction. Their study found out that courtyards promoted connectedness, hope and optimism, identity, meaning and purpose, empowerment, and safety and security. In general, a courtyard can offer a positive image for users. While several researches demonstrated that social media played a positive role in maintaining mental wellbeing during the pandemic (Hussain, 2020), urban low-income households living in compound houses in Accra were fortunate to interact with their co-tenants in the courtyards.

6. Conclusion

The research set out to explore how urban low-income households in shared housing managed to observe the COVID-19 protocols given the reality of their materiality and to identify some of the challenges encountered. Lockdowns were broadly implemented in Accra and Kumasi and this decision brought a lot of hardship on the urban poor. Observing the COVID-19 protocols was very challenging for the urban low-income households.

The results show that urban low-income households managed COVID-19 and the mandatory lockdown in ways that reflected their materiality, notwithstanding the challenges and the mental stress they encountered. One thing that the research brought out is the support they derived from the social networks and communal living, gathering around courtyards and open spaces to interact with each other although they were under lockdown. Enforcing the 'stay indoors' as part of the lockdown was not upheld rigidly in the indigenous community like James Town. In the other communities, interaction was more at the compound level.

Dealing with the pandemic was challenging enough for the urban low-income households but the implementation of the lockdown exacerbated their vulnerable situation. The accounts of the respondents show

that they were confronted with several socioeconomic and physical challenges. Their worries bordered on religion, finances, living arrangement, health, and mental stress. These findings have been reported in several other studies, but the vulnerabilities associated with the urban low-income household made it pronounced. In the first place most of these persons were self-employed and depended on daily income. The effect of COVID-19 on their livelihoods and businesses were telling as they recounted their income losses. There is a gendered dimension to this observation. Female hairdressers, seamstresses and traders stopped working and as at the time of interview, some had not managed to resume their businesses because their capital had been spent. Mathew et al. (2020) study on self-employed women in Zambia found that women were traditionally involved in buying and selling of goods and such businesses were severely affected during the lockdown. Graeber et al. (2021) observed that the gender-gap among the self-employed is largely explained by the fact that women disproportionately work in industries that are more severely affected by the COVID-19 pandemic. The authors conclude the "future policy measures intending to mitigate the consequences of such shocks should account for this considerable variation in economic hardship" (Graeber et al., 2021, 1141).

Shared housing may foster or deter healthy living situations for various household arrangements (Ahrentzen, 2003). In terms of fostering healthy living situation, the COVID-19 pandemic provided a refreshing display of conviviality among the people in the precarious urban multicultural environments (Neal et al., 2019). A renewed sense of communalism and increased bonding resulted among the households, and they consider informal networks as a social capital for progression and managing the precarious situation (Appeaning Addo, 2013). On the other hand, the limiting spaces and inadequate shared facilities introduced some challenges during the lockdown. Research has shown that sharing sanitation facilities increases the risk of infection and results in adverse health outcomes (Heijnen et al., 2014) making this risk more pronounced under epidemics.

It is recommended that the design and planning of urban low-income neighbourhoods should consider the socioeconomic status of the communities prior to implementing nationwide directives that may not be suited to particular communities. Post-epidemics planning requires a level of responsiveness that addresses specific challenges and demands that are not often present in non-crisis planning (UN-Habitat, 2021; Cobbinah, 2022). Addressing these issues must be conducted through a people-centered approach that considers the local community as partners and agents of their own transformation. Informal settlements in urban centers in Ghana have traditional and non-traditional institutions that have cultural and historical relevance to the larger community. These institutions should be part of the larger planning process in post-COVID planning across the African continent. Post-epidemic planning as an accelerated planning process should entertain the short- and long-term impact of strategies to address challenges of epidemics. The strategies should include policies and plans to meet the immediate needs and to develop a process to tackle these issues that ensures long-term sustainable development. Again, access to adequate housing among low-income household in urban areas is very difficult. Urban low-income housing is usually not central in urban planning but is rather an afterthought of political promises (Appeaning Addo & Mba, 2022). Future policy measures intending to mitigate the consequences of epidemics should take into consideration urban low-income housing for sustainable urban planning.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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