

Spatial and Community Environments and Older Adults' Mental Health in Traditional Lingnan Dwellings: A Qualitative Study

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Abstract. In light of the aging population, how the residential built environment affects mental well-being has attracted more and more interest. With regard to traditional Lingnan-style houses, this paper aims to analyse the respective contributions of the spatial environment and the community environment to psychological health by means of semi-structured interviews with 13 inhabitants who had lived there for several decades. The analysis showed that the spatial environment mainly works through stress-reduction paths: comfort, safety, intimacy, and control make older people less anxious and uneasy, which helps them stay mentally tranquil in daily life; while the community environment mainly works through a resource-provision path: chances to communicate, relational support, ownership, trust, and social networks can give them emotional support, social connection, as well as a sense of meaning. Comparatively speaking, the spatial environment provides a kind of foundation for mental wellness, while the community environment is stressed and emphasized more frequently both from seniors' own point of view and in their life stories. Therefore, age-friendly remodelling of old residential areas needs to consider both upgrading physical space and keeping local society and a sense of identity alive.

Keywords: Lingnan traditional dwellings; spatial environment; community environment; older adults' mental health.

1. Introduction

1.1. Research Background

With global aging trends, how to deal with the problem of mental health among seniors has become one of the important topics in public health, environmental behavior studies, and geriatrics. In addition to affecting one's own emotions, life satisfaction, and subjective happiness, mental health also affects older people's ability to participate in social activities and maintain functions and thus affects their overall quality of life. According to the results of some studies, in relation to the formation of older individuals' mental conditions, apart from personal health conditions and levels of family care, another factor is the type of built-up area and community where they live. As one of the target groups whose living scope becomes relatively narrow day by day, older people have a high level of reliance on nearby surroundings; therefore, the quality and convenience of facilities and services within walking distance have direct impacts on their emotional states, feelings of safety and belonging, and sociability. Moreover, retirement or mobility limitations may make them need such environments more urgently [1].

As one kind of housing integrating both physical space features and social and cultural features, it has attracted more and more academic attention. Compared with modern standardized houses, traditional dwellings do not just serve as living space; they also represent local culture, neighbor relationships, household memories, and daily routines and order. Among all kinds of traditional dwellings, Lingnan traditional houses are quite typical. Influenced by the hot and wet climate, kinship-based social organization, and regional culture, they formed their own style of building layout and community form, including courtyards, alleys, halls, porches, lanes, ancestral halls, and semi-public areas where neighbors could hang out together. All of these together create a local environmental system that can shape older adults' daily behaviors and might affect their mental states

through feelings of comfort or discomfort, chances to interact and make friends with others, their sense of identity, and so on.

However, existing research concerning the connection between the environment and seniors' psychological well-being has paid more attention to modern urban communities, ordinary residential areas, and public open spaces, while paying less attention to traditional housing, especially in the Lingnan region. Besides, the environment has generally been regarded as a whole entity; therefore, researchers have not differentiated how each subenvironmental factor affects people. As for traditional housing, there are at least two aspects of the environment: one relates to space and emphasizes house form, courtyard layout, air flow, sunlight, a sense of security, and ease of movement; another relates to community and highlights contact among neighbors, communal aid, social networks, social involvement, and attachment. Both could have an impact on mental health, yet their mechanisms and degrees of influence probably differ from each other.

1.2. Research Problem

In theory, as two parts of age-friendly environments, both spatial and community environments matter, but they have different supportive bases. Spatial environments offer physical and perceptual support by means of thermal comfort, lighting, ventilation, safety, privacy, and so on, which make it easy for people to live everyday life. Such support may help people feel better mentally, as environmental stress decreases, people's sense of control increases, and their everyday living environment becomes more comfortable. On the other hand, community environments give people social and relational support via neighborly help, emotional communication, social activities, networks of friends, community identity, and so on. In this way, people feel less isolated, feel more supported when facing problems, and stay connected with others. Guo et al. pointed out that the perceived built environment and sense of community work together to explain how residential density affects one's life satisfaction [2]. Older adults living in traditional neighborhoods can enjoy both kinds of environments. However, further research is still needed on how important these two parts are, respectively, in keeping mental health.

This topic is particularly relevant when discussing Lingnan's old residential buildings. First, as indicated by their spatial designs, Lingnan housing has great climate adaptability and practicality; therefore, this kind of architectural space allows older people to feel at ease because they have lived there for a long time. Such a feeling probably contributes to their psychological well-being. Second, close-knit neighborhood relationships, interactions among neighbors and relatives, and public activity places can give them solid affective care and a sense of belonging throughout life. If space environment and community environment are not distinguished, it becomes hard to pinpoint what exactly makes those old houses have an impact on mental health. Nor is it easy to provide constructive evidence for conservation, community regeneration, and adaptation to the aging process.

1.3. Research Purpose and Questions

Under such circumstances, this research studies the connection between older adults' mental state and environmental systems in conventional Lingnan residences. It attempts to find out how spaces and communities affect people's mentality, and also to compare their strength and relative prominence among these factors. Besides asking whether there is such an effect, the study also tries to figure out which aspect of environmental features seems more important for senior citizens in terms of what they have experienced. It can then move from a broad explanation to a more detailed analysis of the mechanisms behind them.

In particular, this study tackles three issues: first, how the spatial environment of traditional Lingnan houses impacts the mental health of older people; second, how their community environment affects their mental health; third, compared with the spatial environment, which has more effect on mental health, or whether they play different roles in different dimensions. In this way, the study aims to show that in this whole environmental system of traditional dwellings, seniors' mental health is

shaped simultaneously by both living conditions and community exchange, instead of by only one of them.

2. Literature Review

The above-mentioned studies point out that older people's mental health has a strong connection to their environment. The environment is not a single variable. It contains two main parts: the physical environment and the community environment [2, 3, 4]. Nowadays, instead of making a general claim about the significance of the environment, researchers study what effect each environmental dimension can produce. As far as older people are concerned, because of their reduced scope of activities and increased dependence on living places, both their physical environment and their community environment have become very important context factors affecting their levels of depression and anxiety, subjective sense of well-being, life satisfaction, and so on. There is also some new research showing that scholars who study how the environment affects mental health should separate different environmental conditions in order to figure out which condition plays what role, while also paying attention to the difference between cities and the countryside [5]. Another literature review by Finlay et al. proved that those health-related environmental factors are indeed multidimensional. They contain such elements as population density, pedestrian convenience in the neighborhood, availability of necessary facilities and services, neighborhood quality, and the presence of green space and open space [6]. In China, Lei and Feng discovered that better recreational facilities in the community, a more positive attitude toward the whole community, and greater appreciation of the community environment result in a lower risk of experiencing depression in later life [3]. All this proves that the community environment does not only function as a background setting. It also contributes to people's mental health in later life.

This conclusion applies to a wider context. There is increasing evidence showing that, compared with physical surroundings alone, some supportive forces inside the community context might have more direct effects on elderly people's mental health condition. De Main et al.'s longitudinal research results indicate that a lack of emotional support, a low degree of social integration, and a weak sense of making contributions to society can predict depression and anxiety very well over 20 years, while the number of social contacts and the amount of involvement in social life cannot [7]. Such results suggest that how many times people join activities or meet someone does not matter much; what matters is whether there is some kind of deep connection, emotion, and sharing among people. Similarly, Rogers et al. also pointed out that the perception of neighborhood cohesion and the perception of neighborhood safety both have a negative relationship with major depressive disorder, but the size of such relationship changes across men and women and across the rich and the poor [8]. Therefore, it should be recognized that the community environment is not just about how often people meet or see others; rather, it has to do with social cohesiveness, social embeddedness, security, and similar factors, all of which can help ensure one's emotional and mental well-being.

In addition, some new research has started to explore the mechanism by which the community environment influences people's mental health. According to Lin et al.'s study, social trust together with a sense of community safety contributes directly to better mental status for seniors; it can also improve seniors' mental health indirectly via subjective well-being as a mediator; besides, green spaces can have a promoting effect as a moderator at the same time [9]. Likewise, according to Wu et al.'s research, friendly community environments might show negative correlations with depression among older adults in China, while happiness in life and confidence about life may play key roles as mediators [10]. As a result, it can be seen that the role of community environments should not be limited merely to the living area, but should also shape people's trust, sense of security, sense of belonging, feeling of well-being, confidence, and so on through a psychosocial pathway to support mental health.

So far as can be seen, existing research pays increasing attention to the social support function of the community environment; however, it mainly relies on quantitative surveys, structural equations,

longitudinal studies, and similar methods. Those methods can help identify correlations and paths [6, 11], but tell little about how older people specifically see, understand, and experience environmental influence. In fact, the spatial environments of traditional houses cannot be treated purely as material space. They have also become places where people keep memories, develop habits, build up attachments, and create identities. At the same time, the community environment is not just the service supply of modern communities. It can also appear in the form of acquaintance networks, mutual benefits among neighbors, kinship ties, and so on. Therefore, quantitative research alone cannot answer which factor plays a more important role in the mental health of older people living in these Lingnan traditional houses.

Based on this body of literature, the general issue of environmental impact on the elderly's mental health is reframed here as a comparative question: in traditional Lingnan dwellings, do either of the two kinds of environments have a more profound effect, namely the spatial environment or the community environment? Therefore, the approach here is mainly qualitative interviews. Apart from examining whether such an important factor exists, the study also hopes to know how the elderly interpret their living space, what types of feelings they have about community and neighborhood support, and how much weight they put on each type of environmental effect when telling stories about their daily life practices. As such, by concentrating on individual perception, this research tries to give some supplementary evidence for protecting these kinds of traditional buildings in this specific area as well as improving community renewal and finally building an aging-friendly society in reality.

3. Methods

3.1. Research Design

In conclusion, this study employs an interpretative qualitative research design and mainly uses semi-structured in-depth interviews as its main tool. Its focus is on studying how the spatial environment and the community environment have different effects on elderly people's mental health in traditional Lingnan houses. Compared with some of the aforementioned studies whose concern has been limited to whether the environment affects individuals' mental health as a whole, this study aims to examine a much more specific comparative question: when it comes to seniors' daily life practices, which environment matters more, the spatial one or the communal one?

Therefore, instead of defining the magnitude of variables through quantification, this study uses in-depth interviews to understand elderly people's own feelings; meanwhile, it seeks to find out how these older people evaluate, contrast, and measure different environmental elements during their daily lives.

3.2. Research Subjects and Sample Selection

In this study, some elderly people who had been living in traditional Lingnan houses for quite some time were chosen. The participants had to meet several requirements simultaneously: first, they needed to be over 60 years old; second, they had to have lived in such places continuously for more than ten years; third, their physical and mental conditions still had to be strong enough to finish the interviews. Long-term residence was particularly stressed here, since the comparison between the spatial environment and the community environment relies on one's accumulated local experience, spatial knowledge, and social ties within communities. As such, only those who had been there for quite some time were able to tell how much their feeling of well-being originated from physical space and how much came from neighbors and social networks in their neighborhood community.

In the end, the sample consisted of 13 older people. Data saturation was the main criterion concerning sample size. With regard to sampling, more attention was paid to diversity than to statistical representativeness. To compare different life circumstances in this particular group, it was necessary to include people of different sexes, family structures, and types of residence: those who live alone,

with a husband or wife, or with children; and people living close to their clan's ancestral hall, alleys, waterfronts, and places of public activities.

Purposive and snowball sampling methods were adopted here. First, some people who fit the research topic were chosen based on certain selection criteria. Second, further interviewees with various kinds of living experience and different views on their environments were identified. These people could be introduced by village leaders, neighbors, or former interviewees themselves. Such a sampling plan suits traditional-settlement-like communities very well; meanwhile, it makes it easy for researchers to enter known social circles and collect richer descriptions of environment-related experiences.

Data was collected primarily through semi-structured in-depth interviews. Each participant was interviewed once for approximately 30 to 60 minutes. The interviews were supplemented with contextual follow-up questions, simple spatial identification, and brief on-site observation notes.

3.3. Data Analysis Strategy

In order to handle interview data, some form of thematic analysis was adopted, supported by grounded-theory-guided coding. The aim here was not a simple enumeration of possible contextual influences, but rather to find out what the frequency and intensity of both contexts were in participants' stories, how explicitly they described particular mechanisms, and how important these contexts were for understanding mental health from respondents' point of view. The analysis followed the stages of open, axial, and selective coding.

Open coding. Researchers labeled some of the key pieces of information regarding the research questions, in this case those related to space types, behaviours, emotions, and experiences of care and support. The analysis sought to identify all the different ways people talked about space and community environment without any prompting.

In the axial-coding stage, the data were rearranged according to two overarching categories: spatial environment and community environment. Regarding the spatial environment, several subdimensions were identified as potential codes, including comfort, safety, convenience, familiarity, mood regulation, and memory evocation; concerning the community environment, possible codes included opportunities for interaction, quality of relationships, support, belongingness, trust, and social embeddedness. In addition, the analysis compared codes across micro, meso, and macro scales, and across three domains and interpretations: physical perception, social support, and cultural meaning, in order to find out which environmental factors had a direct connection to people's mental health experiences, such as happiness, security, peace of mind, and not feeling lonely.

In the coding process, the understanding of the basic paths by which these two settings affected people's mental health was refined, and then a comparative explanation was produced. According to this new theoretical framework, the spatial environment mainly functioned as a stress-regulation pathway, relieving people's tension and unpleasant feelings through their sense of ease, security, comfort, familiarity, and autonomy. The community environment mainly served as a resource-provision pathway, offering people emotional resources, support, and daily-life assistance through connection, membership, social support, and similar factors, thereby enhancing their sense of meaningfulness.

3.4. Trustworthiness and Research Ethics

To enhance the credibility of interpretation, the study adopted several quality-control measures through interviewing, transcription, and analysis. All interviews were audio-recorded with informed consent and transcribed verbatim. During analysis, the researchers compared multiple cases to examine whether judgments about the relative importance of spatial and community environments converged or diverged across respondents. When necessary, brief follow-up visits were conducted to verify the researchers' understanding of participants' narratives.

From an ethics perspective, the study followed the rule of anonymity. All information was kept confidential and was used only for academic study. Participants could refuse any questions they did not want to answer. They could also stop the interview whenever they liked. In addition, because this topic deals with people's mental health experiences, extra attention was paid when designing the questionnaire. Every effort was made to ensure that each question was asked in the most polite manner, so that it would not bring any unwanted mental burden to participants.

4. Research Findings

4.1. Stress-regulation function of the spatial environment

According to the interviews, the spatial environment of traditional Lingnan architecture mainly worked as a stress-regulating factor. Participants did not mainly describe spatial experience through abstract statements about building structure; rather, they often talked about certain real places such as the home, bedroom, yard, seaside, and attic, which offered places where the body could be at ease, where tension could be relieved, and where emotional tranquility could be supported. In open coding, some words appeared very frequently in what the interviewees said about the spatial environment, namely "comfortable," "safe," "relaxed," "quiet," "reassured," and "content." Therefore, space here seems to be related to a kind of psychological state with a low arousal level that is both stable and positive.

In short, the spatial environment alleviated daily inconvenience and mental pressure through comfort. Respondent 01 spoke in this regard: "The most comfortable spot is at home," which made her "feel very nice." Moreover, Respondent 08 also made a quite direct connection between spatial experience and health condition, saying the place had a "good effect on my own health," so that she felt "safe anywhere" and could "have good meals and sleep well." In addition, when remembering an old tile-roofed house, Respondent 11 said the accommodation was "overcrowded," but "it was still very comfortable to live there." Therefore, it can be seen from the above quotations that the psychological value of space does not rely merely on the degree of modernization but mainly concerns whether the environment suits residents' physiological rhythms and daily habits.

Second, spatial context improved emotional stability through a feeling of familiarity and a sense of control over space. According to axial coding, familiarity and emotion regulation are the two spatial subdimensions most related to positive mental health outcomes. Respondent 10 told the interviewer that he felt most at ease and comfortable when "sleeping on bed." He was then asked whether the living environment could change mood, and he answered that "it doesn't make too much difference because I am already familiar with it." Therefore, for him, spatial meaning did not derive from "novelty" but rather from "predictability," "ability to retreat," and familiarity. Similarly, Respondent 09 also mentioned that "returning home" would make him feel better and that "seeing the sea will make me feel happier." Hence, spaces are more than a mere material container. They can provide relaxation and enjoyment directly.

Third, the regulating effects of space on people's mental health were also shown in that it helped maintain people's daily routines. Some respondents did not use psychological terms when answering questions, but what they said showed that having a good living space meant no extra trouble. For example, Respondent 10 said that "basically everything is quite convenient" about moving in and out of the home and then added that "if you are already accustomed to it, then this isn't really an issue." Another respondent, Respondent 04, who generally had a rather weak feeling of home ownership, admitted that "once you get used to this kind of lifestyle, there won't be any problems." Hence, these opinions show that the spatial environment's value usually lies not so much in producing gains as in avoiding disturbances and maintaining one's usual way of life.

Lastly, the spatial environment played a role in psychological regulation through memory evocation and emotional anchoring. For some respondents, the significance of particular spaces was not only a matter of comfort or convenience but also a matter of the life experiences and family memories they

were filled with. Respondent 11 referred to the attic in a childhood tiled house as a “secret place,” showing that its emotional value went beyond its physical use. Even though Respondent 05's account was rather fragmented, he often mentioned “wanting to live here with my family in the past,” indicating that space can comfort older adults by bringing back memories of shared family life. Thus, in traditional Lingnan dwellings, the stress-regulating effect of space comes not only from ventilation, lighting, or quietness, but also from the significant link between place and life history.

In short, the spatial environment affected mental health through comfort, safety, familiarity, and controllability. It reduced anxiety and discomfort and supported peace of mind, relaxation, contentment, and good sleep. In this sense, space provided a basic psychological foundation for everyday steadiness.

4.2. Resource-provision function of the community environment

While the spatial environment mainly kept psychological balance through stress reduction and accommodation, the community environment more obviously played a role in providing resources. In the respondents' accounts, the community environment was not presented as an abstract collection of community conditions but rather as neighborhood interaction, acquaintance networks, public activity, relational support, a sense of belonging, and local significance. Whereas the spatial environment was commonly used to explain where respondents felt at peace, the community environment was more often used to explain why they did not feel lonely, why life here was satisfactory, and why they did not want to leave. This indicates that the community environment supports mental well-being not only by offering company but also by providing constant emotional resources, social backing, and meaning.

First, the community environment mitigated loneliness by creating opportunities for interaction. Respondent 01 said that many older adults got together under a large tree for group activities such as playing chess and cards. She often walked around the village and chatted with friends. These places, the tree, the square, and the public activity area, were not merely physical spaces, but social spaces in which everyday interaction occurred. Respondent 09 also mentioned often visiting “Tuyang Square” and said that “not seeing neighbors is surely uncomfortable” because “being alone is lonely, but it is lively with many people around.” These accounts show that the primary layer of support provided by the community environment lies in maintaining ongoing relationships with others and reducing social isolation.

Second, the value of the community environment did not only lie in the existence of other people, but also in supportive and well-known relationships. Open and axial coding jointly showed that relationship quality and a sense of support were important subdimensions of the community environment. Respondent 01 stated, “I know everyone in the village,” and thought this environment definitely helped her stay in a good mood. In other words, psychological support did not come from anonymous meetings but from a well-known network of relationships. In contrast, Respondent 10 stated, “I don't have many neighbors now; they all live somewhere else.” She recalled being a little sad when neighbors left, though she got used to it later. This case shows that if acquaintance networks break up and relationship quality declines, the protective effect of the community environment also wanes.

Specifically, the community environment enhanced psychological steadiness and social integration through belonging and trust. Compared with the spatial environment, which was more often associated with comfort and relaxation, the community environment was more closely linked to deeper experiences such as feeling grounded, having roots, and not wanting to leave. When talking about the possibility of leaving, Respondent 09 stated, “What I'd miss most is my hometown,” and “I can't leave this land,” clearly indicating that she had a sense of identity and belonging here. In contrast, Respondent 04, even after living there for ten years, repeatedly stated that she did not “feel rooted,” had “no sense of identity or belonging,” and would “miss nothing.” This contrast shows that the

community environment becomes a psychological resource only when individuals are genuinely embedded in the local social world.

In fact, the resources offered by the community environment reached beyond emotional company to maintain everyday order and life meaning. In particular stories, neighbors and acquaintance connections were not just about having someone to talk to; they formed the continuing reality of a familiar life world. When talking about the possibility of suddenly not seeing neighbours, Respondent 11 regarded the situation as abnormal, as if a familiar social world had been disrupted. This response matters because it implies that the community environment is not an optional part of life, but part of the framework through which older adults make meaning of normality and continuity. Once that frame weakens or disappears, older adults could experience reduced liveliness, imbalance, and mental unease.

4.3. Comparative Discussion

As shown by the above analysis, both spatial and community environments are important to the mental health of older adults. Yet they operate in different ways, at different levels, and with different interpretive foci. Often, the spatial environment was used to explain the comfort, security, and relaxation that respondents felt; hence, its main role was stress regulation. By contrast, the community environment was more commonly used to explain why respondents did not feel lonely, why life felt better in this place, and why they could not easily leave. So, its main role was resource provision. The two environments are important, but they are associated with partly different dimensions of mental health. The former has a closer relation to physical and emotional stability and day-to-day comfort, whereas the latter has a closer relation to social meaning, support, and connection.

In respondents' accounts, the spatial environment often came up first when they were asked about the most comfortable or stress-free place. Concrete spaces such as the home, bed, courtyard, seaside, and shaded areas under trees were mentioned repeatedly. These accounts imply that the spatial environment is the basis for good mental health in later life. Because of familiarity, quietness, comfort, and controllability, it provides a place where older adults can step back, rest, and recover. This fundamental role is particularly crucial when physical function deteriorates and activity space contracts. The spatial environment, in other words, is a prerequisite. It may not always be highly praised, but its steady presence keeps everyday feelings from being constantly disrupted.

On a more in-depth psychological level, however, the community environment more easily became the central explanatory source in participants' accounts of important life questions. When respondents were asked what would happen if they could not see their neighbors, why they felt good living here, or what they would miss most if they moved away, their answers tended to center on familiar social circles, everyday talk and interaction, community recognition, a sense of hometown, and local identity. This suggests that the importance of the community environment lies not merely in providing social contact, but in enabling older adults to feel that they belong, are recognized, and are accepted within a meaningful social world.

5. Conclusion and Discussion

5.1. Research Conclusions

The study finds that both spatial and community environments influence the mental state of older adults through different means. The spatial environment operates mainly by way of stress regulation, while the community environment operates mainly by way of resource provision. More in-depth comparison shows that the spatial environment offers a more basic groundwork for mental health, while the community environment is often assigned the key explanatory role in older adults' subjective feelings and life accounts. The study thus refines the main argument that mental health in later life is shaped not by housing conditions alone or community interaction alone, but by the joint action of spatial and community settings.

5.2. Research and Discussion

First, even though earlier studies have highlighted the importance of the environment for the mental well-being of the elderly, they often treat the environment as a unified variable and seldom distinguish the roles of spatial and community environments. This study, by using qualitative interviews to put subjective experience at the core, shows that these two environments do not simply add up their effects. Instead, they influence different elements of mental health. The spatial environment has a stronger effect on comfort and stress relief at the physical and emotional level. By comparison, the community environment has a stronger effect on support and connectedness at the social-meaning level.

Second, the study helps address the scant attention previously given to traditional dwelling contexts. Compared with modern urban communities, traditional Lingnan dwellings are not simply physical housing units. They are complex environmental configurations with courtyards, lanes, ancestral halls, waterfronts, old trees, and close social ties. Within these settings, spatial and community environments are intrinsically connected. Spatial conditions form the basis for a stable everyday existence, neighborly interaction, local memory, and hometown attachment give the community environment a social depth that can hardly be reproduced in anonymous modern communities. This helps explain why, in traditional Lingnan homes, the community environment is more easily turned into a long-lasting psychological resource.

Finally, the case-study findings also have practical implications. If future renewal and conservation of traditional Lingnan residential areas deal only with building repair, road improvement, or physical spatial optimization, they may not protect the conditions that most strongly support the mental health of the elderly. Better housing conditions can increase comfort and well-being. But if renewal weakens social networks, public spaces for interaction, or local identity at the same time, the psychological support of older adults may be reduced. Age-friendly renewal should therefore be understood not only as making changes to houses but also as conserving relationships, keeping interaction going, and maintaining a sense of place.

5.3. Problems and Future Research Directions

This study uses qualitative interviews and a comparatively small sample selected from certain traditional Lingnan residential settings. It shows strength in interpretive depth and mechanism building rather than statistical representativeness. The “central role” of the community environment, as discussed here, refers primarily to its more frequent use as a core explanatory resource in respondents' subjective experience and life narratives, rather than to a quantitative comparison of effect size. Respondents also differed in age, length of residence, family structure, migration background, and physical condition, and these differences merit more detailed subgroup analysis. In addition, spatial and community environments in traditional dwellings are not entirely separate, because many semi-public spaces have both physical and social functions. The study also focuses mainly on subjective perception and psychological experience and does not incorporate scales, behavioural tracking, or spatial mapping. Future research could therefore expand the sample to include different types of traditional Lingnan settlements, combine qualitative and quantitative methods to test the stress-regulation and resource-provision pathways more directly, strengthen stratified comparison across different groups of older adults, introduce life-history or longitudinal perspectives, and further connect policy and planning practice with mental health needs in later life.

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