

IMPACT OF OPEN VS CLOSED KITCHEN DESIGN ON SOCIAL DYNAMICS IN RESIDENTIAL SPACES (A STUDY OF 10 MARLA HOUSES IN LDA, LAHORE)

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ABSTRACT:

The Purpose of this study is to examine the social, spatial and functional dynamics involved in designing the open and closed kitchens among residential space in Pakistan

Kitchen has moved beyond its functional status and has become an essential part of the house which decides the dynamics of family relationship, privacy, and accommodation. Considering the increasing popularity of modern domestic architecture in Pakistan, the issue of designing open or closed kitchens has become quite significant and needs to be addressed from both the architectural and sociocultural perspectives. But as more and more open houses are being built in Pakistan, not much work has been done regarding the suitability of such kitchen design keeping in mind the traditions and needs of local lifestyle.

In this research, a mixed-method approach was chosen, which entailed combining the quantitative results of surveys with qualitative results of the semi-structured interviews of 10-Marla houses' inhabitants conducted in Central Park Housing Society in Lahore. The results of the current study revealed the presence of the socio-spatial paradox since the majority of interviewees are currently residing in houses with open kitchens while their future preferences are equally divided between open and closed kitchens. The presence of open kitchens provided family members with the opportunity to communicate with one another, increased visibility and daylighting, as well as allowed for multitasking; however, the lack of privacy, the smell of food preparation, grease, noise pollution, and visual mess made such open kitchens less desirable.

The presence of closed kitchens provided inhabitants with a higher level of privacy, containment of cooking by-products, and a clean space when having guests. Hence, it can be concluded that neither open nor closed kitchens are enough individually to provide contemporary Pakistani residence with the necessary conditions. Hybrid kitchen designs are the best choice for future architecture in Pakistan.

Keywords: Kitchen Layouts, Family Dynamics, Socio-spatial Impacts, Open Kitchen, Close Kitchen.

1. INTRODUCTION

1.1 Research Background

Kitchen is among the most significant spaces concerning residential planning and interior designing. Apart from meeting the need of cooking in the kitchen, it is also a space for interacting and socializing in the family. There are two types of kitchen designs used in residential designing, which include open and closed kitchens. Open kitchen design is connected directly to the living and dining areas and therefore facilitates socializing and interaction. Closed kitchen design is a private space for cooking and minimizes the disturbance caused by the sound and smell from cooking activities. From being just a space where one prepares food, the kitchen has developed into an area that fosters socialization and

communication. It is worth noting that whether to incorporate a closed or an open kitchen design is very important in the operations of any contemporary house (**Sharma & Jain, 2019**).

1.2 Problem Statement

Though open and closed kitchens have been used in many houses owing to their benefits, there is no data available on how these two types of kitchens may affect family interaction and socializing without making any compromise with functionality and privacy. Though open kitchens help in facilitating good communication and socializing, there are some problems associated with these such as odor pollution and noise pollution; on the other hand, closed kitchens offer more privacy and environmental control but they restrict interaction. On the other hand, it is noteworthy that according to recent literature reviews, appropriate kitchen designs, good ventilation systems, and indoor environments make a positive impact on the health and well-being of people living there (**Song et al., 2023**).

The number of researches done on the preferences of users in terms of kitchen design and its social impacts on the population living in Pakistan, especially the residential housing schemes such as Central Park Housing Scheme, is quite small. Therefore, this research will attempt to conduct an analysis on both types of kitchens to see their impact on family interaction and functionality. observed from the literature review that the future kitchen designs should be planned with user-centric approach and by integrating technology and emotional well-being (**Panicker & Basu, 2024; Moon et al,2025**). Therefore, it is very crucial for interior designers and architects to know about the impacts of the design of kitchens.

LITRATURE REVIEW:

The kitchen, even though it has been traditionally viewed as being only functional, has developed in recent times into a very important space when it comes to social interaction at home. The kitchen has become the focal point of any house, moving from a segregated cooking space. Today's kitchen design focuses on flexibility, efficiency, and family involvement. (**Frederick,2003**).More over, open kitchen design provides greater transparency and thus helps to build consumer trust since they can watch the food preparation and sanitation process. At the same time, the study demonstrated that noise and distraction while cooking may become unpleasant experience for users, and thus the design of an open kitchen should be well planned (**Alonso & O'Neill,2010**).Indoor environment quality in kitchen of residential houses is mainly dependent on the way of cooking and ventilation systems. Specifically, it was found out that gas stove can produce hazardous pollutants and heat; hence, the ventilation becomes necessary (**Leitner et al,2018**).Kitchen layout affects the quality of air inside and health of residents. According to the research, enclosed kitchens generate more pollutants, and open kitchens have better air circulation because of the ventilation (**Sharma & Jain,2019**). Community kitchens play an important role in promoting the development of society via providing food security, income, social network, and female empowerment. As the results indicated, kitchens may prove effective in improving community relations and increasing the quality of life (**Sahyoun et al,2019**).Nowadays, domestic kitchens have become multi-functional spaces not only for cooking but also for dining and communicating. Due to technological innovations and ergonomics, open kitchens and kitchen islands have gained popularity due to their efficiency and ease of use (**Charytonowicz & Latala, 2020**).

Ventilation of the kitchen alone is insufficient for removing toxins from the air of the kitchen. It was mentioned in the review that the combination of exhaust systems and fresh air supply will be more efficient in creating healthy microclimate in the kitchen (**Zhang & Gao, 2020**).

Indoor performance of kitchen ventilation systems will depend on building height, seasonal conditions, and airflow. Ventilation system design will assist in improving the quality of indoor air and energy efficiency along with comfortable living environment (**Yang et al, 2021**).

Efficient range hood combined with appropriate fresh-air system will provide better indoor air quality than natural ventilation. The study demonstrated the necessity of using ventilation systems in residential kitchens for creating favorable indoor environment (**Zhang & Gao, 2021**). The design of kitchen and dining room will have a great influence on the cooking process and health behaviors. As shown in the study, an open design with large dining area will contribute to the habit of having family meals and social interactions (**Moslehian et al, 2022**). Gas leaks are of a distinct nature depending on whether a kitchen is closed or not; closed kitchens ensure effective enclosure of gases and their detection, whereas open kitchens allow for quick dissipation of gases. Ventilation and safety planning in housing buildings are vital to reduce potential threats (**Chen et al, 2023**). The better design, technology, and quality of air in the kitchen environment affect the emotional state of users and relations between family members. In designing the kitchen environment, psychological and familial aspects should be considered (**Song et al, 2023**). Preparing food and eating contribute to the establishment of closer family ties despite physical distance. The integration of technology into the future kitchen will help increase communication and a positive emotional state of users (**Panicker & Basu, 2024**). Waste from the kitchen may become a valuable fertilizer that contains all necessary nutrients for plants and will not pollute the environment but, on the contrary, facilitate sustainable agriculture. The environmental role of modern kitchens was identified in the paper (**Moon et al., 2025**).

2. RATIONALE OF THE STUDY:

2.1 Existing Research Gap:

Most previous studies focus on ventilation, safety, and functionality, while limited research has examined the impact of open and closed kitchens on social dynamics in family homes.

2.2 Significant of study:

This study will help architect interior designer and home owners make informed design decision by identified which kitchen layout better sports family well-being communication

2.3 Research Objectives:

1. To examine impact of open and close kitchen design on family interaction
2. To evaluate the influence of kitchen design on privacy and comfort with family home
3. To identify home owners preferences regarding open and close kitchen home

3. Methodology:

3.1 Mixed Method:

Using a mix method approach for my research because I am combining both qualitative and quantitative data to better understand how open and close kitchen design affect social dynamics in family home

For study I choose Central Park Society:

Why Central Park?

Central Park housing society in the world was collected as the study area because it is a well planned and rapidly developing residential community debt reflects contemporary housing trends.

Located near Navarre Rd. the society requires excellent accessibility and is surrounded by major urban facilities including Hospital education institution commercial areas and recreational spaces. The presence of modern residential developing diverse family structures and verifying lifestyle preferences make it an ideal location for studying the impact of kitchen

design on family dynamics. More over both open and close kitchen layouts are commonly found within the society providing A suitable environmental for comparative analysis.

The research specifically for focuses on **10 Marla Houses** because they represent one of the most common residential categories within Central Park Housing Scheme. These houses are designed to accommodate medium size families and provide adequate space for both open and close kitchen layouts As a result they offer an appropriate basis for comparing the effects of different kitchen design on family behavior and relationship. The popularity of this housing category along with the widespread use of both kitchen make the smell of houses a representative sample for investigating the impact of open and close kitchen on family dynamics in contemporary residence.

Quantitative Approach:



Figure 1: Currently Which Type of kitchens in Residential space

DISCUSSION:

The survey result shows a strong preferences for the open kitchen with a vast majority of participants currently having the design in their homes compared to close layouts.

Open Kitchen The highest number of participants have an open kitchen out of responses **74.1%** representing twenty people selected this option **Close kitchen** a small town of **22.2%** representative six people indicate that they have a traditional close kitchen. Neither there was a minimal vacay with only **3.7** percent just **1%** starting their kitchen design does not fit into their category.



Figure 2: Renovation Residential Kitchen space

DISCUSSION:

The survey responses indicated highly commutative and closely divided boost regarding future preferences while open kitchen demands more popular choice Open kitchen capture the highest share with exactly **50%** of participants a closed kitchen are closely behind **46.2** percent or a minimal friction of responding accounting for just **3.8%** percent representing only one percent

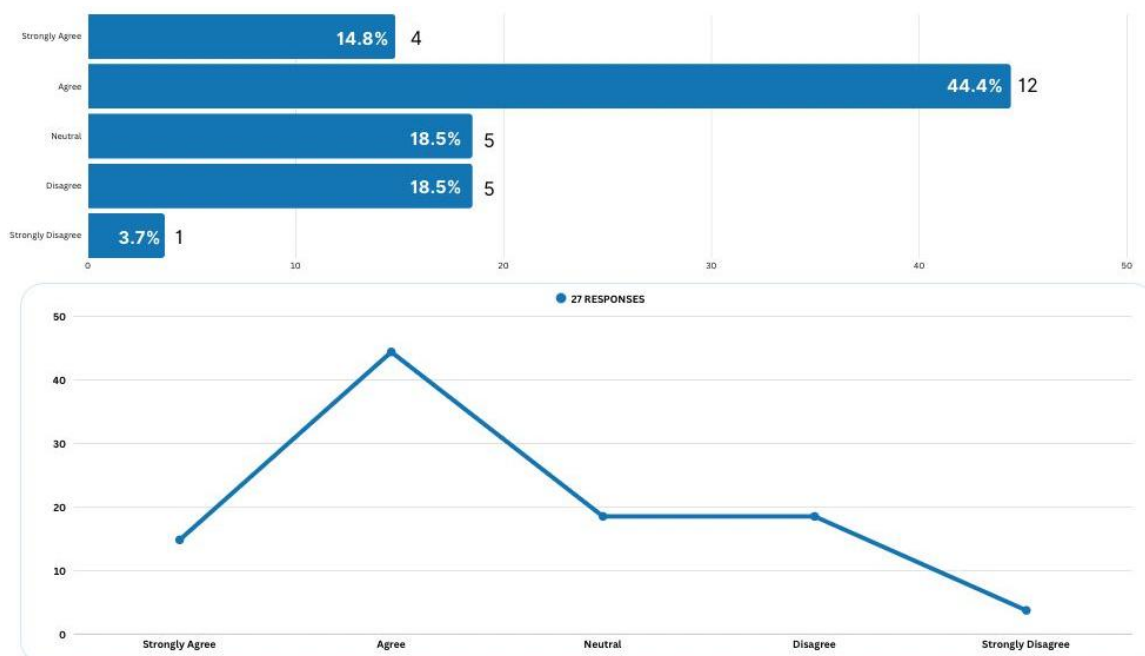


Figure 3: Natural Ventilation and Airflow

DISCUSSION:

This this service on indicates a generally positive we would avoid open kitchen with a clear majority of participants agreed there an **Open kitchen** design improve natural ventilation and air flow within the home agree this was the most popular responses with **44.4%** 12 people neutral up portion of repulsive remains neutral for **18.5%** similarly of response 5 people disagree strongly agree an additional 14.8% of persons representing for people strongly they strongly disagree a **3.7** percent strongly disagree.

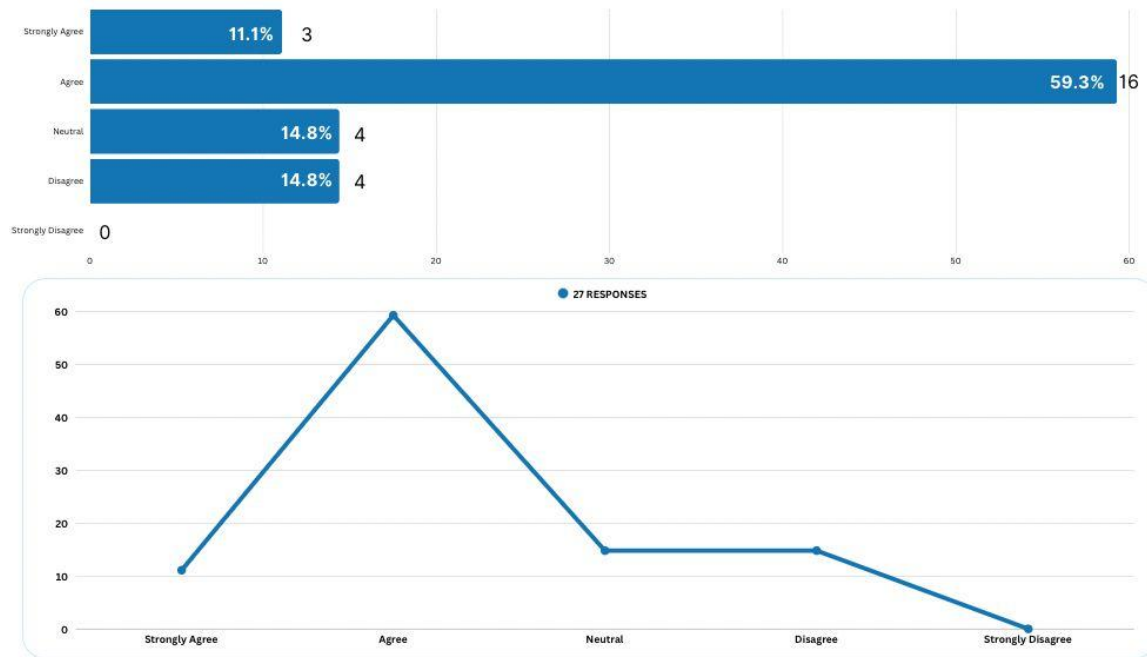


Figure 4: Natural Light in Living Space

DISCUSSION:

That's a very sponsor demise that a strong element among participants at an open kitchen layout in handful distribution of natural light across living spaces agree this is by the far most popular opinion with **59.3%** neutral a small segment of **14.8%** disagree and equal segment of **14.8** percent strongly agree and addition **11.1%** of respondents strongly disagree zero percent people

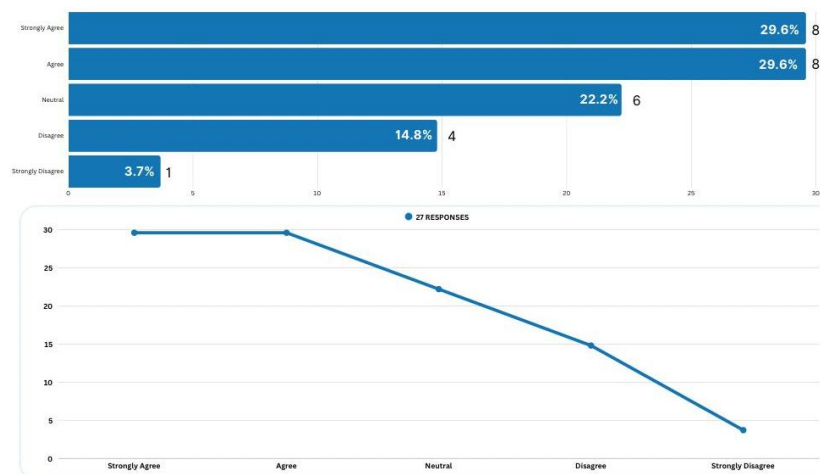


Figure 5: Spacious and Comfortable indoor environment

DISCUSSION:

The severe energy being at a clear majority participants believe in open kitchen design strongly agreed **29.6%** people neutral **22.2%** of responses risks agreed for **18.8%** of the people strongly disagree only **3.7%**

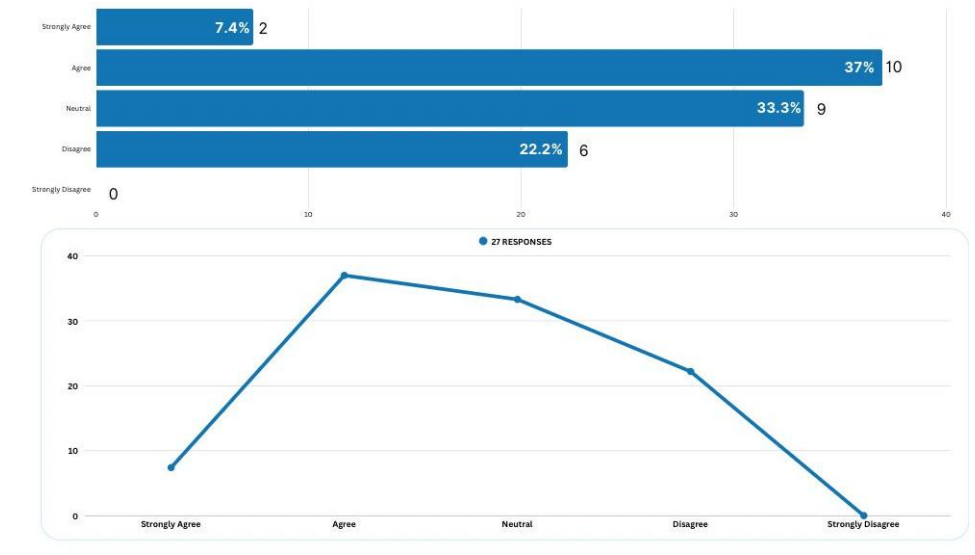


Figure 6: Psychological Well-Being of Family Members

DISCUSSION:

The Survey shows monetary positively slightly divided boost regarding the psychology and impact of the children layouts Agree **37%** of persons people Neutral **33.3%** of respondent nine people disagree **22.2%** of group 6 people from the Strongly Agree **7.4%** of Respondents two people strongly disagree **0%**

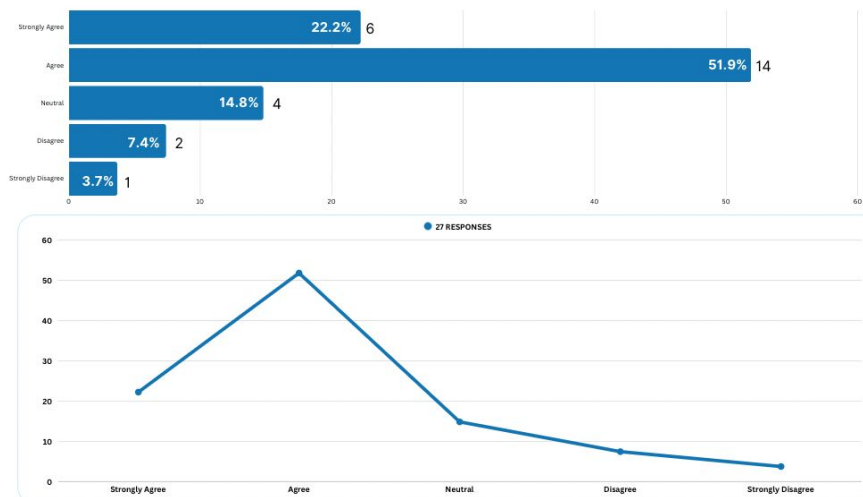


Figure 7: Gathering And Social Events

DISCUSSION:

The survey result shows a strong and open kitchen layout significantly social interaction during family gathering Agree **51.9%** strongly Agree **22.2%** Neutral **14.8%** only disagree **3.7%**

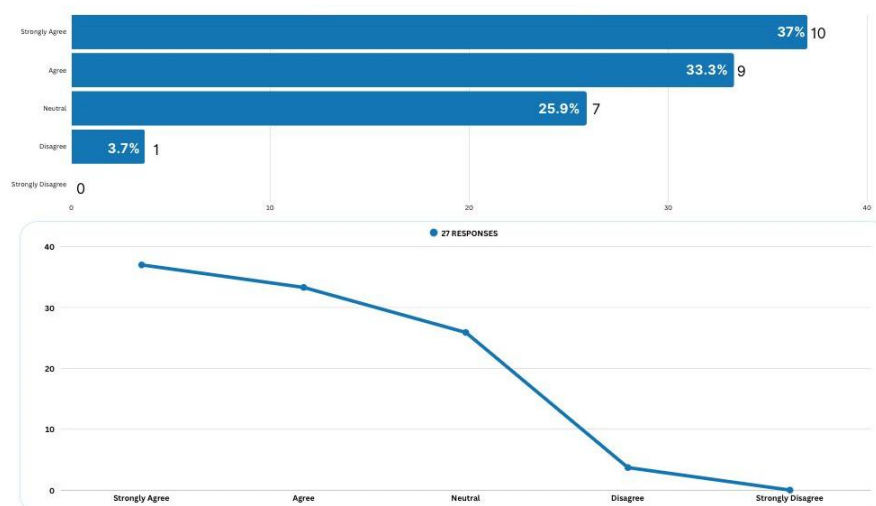


Figure 8: Effect indoor Environment

DISCUSSION:

The Survey exactly being a function regarding the practical open layout to the large news of the person aggregate putting former open kitchen negative affect the indoor living environment Strongly Agree **37%** Agree **33.3%** Neutral **25.9%** Disagree Only **3.7%** strongly in this second **0%**

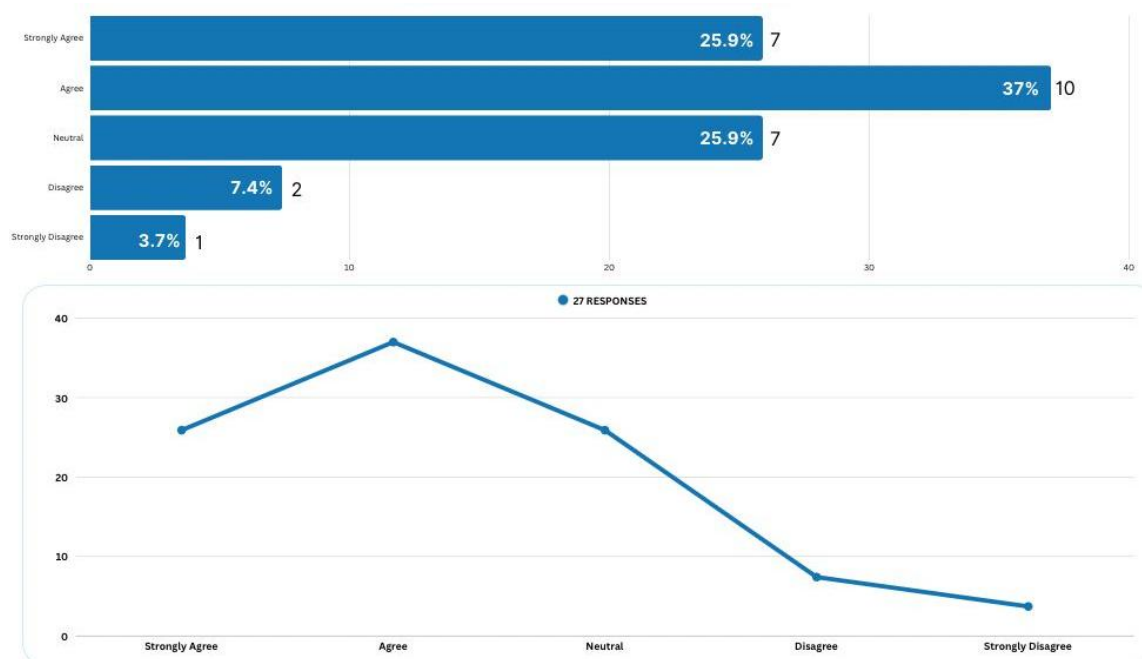


Figure 9: Noise Disturbs In Residential Space

DISCUSSION:

The survey result indicates that a clear majority of respondents agreed while generating cooking distributes activities in living areas Agree 37% strongly agreed 25.9% neutral 25.9% disagree 7.4% strongly disagree 3.7%

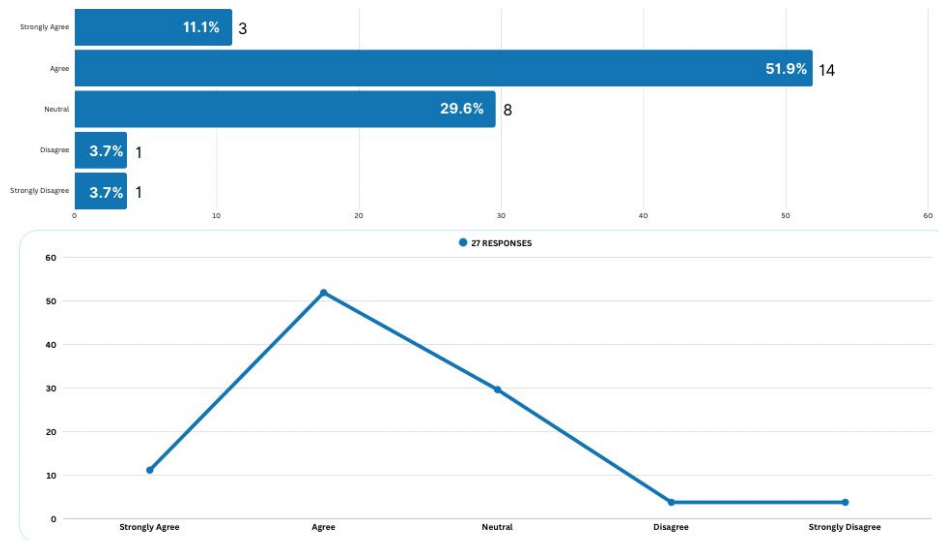


Figure 10: Participations in House Hold Activities

DISCUSSION:

The Survey responses show strong agreement among participants that an open kitchen design encourages participants in household activities Agree 51.9% Neutral 29.6% Strongly Agree 11.1% Disagree Only 3.7% Strongly disagree 3.7%

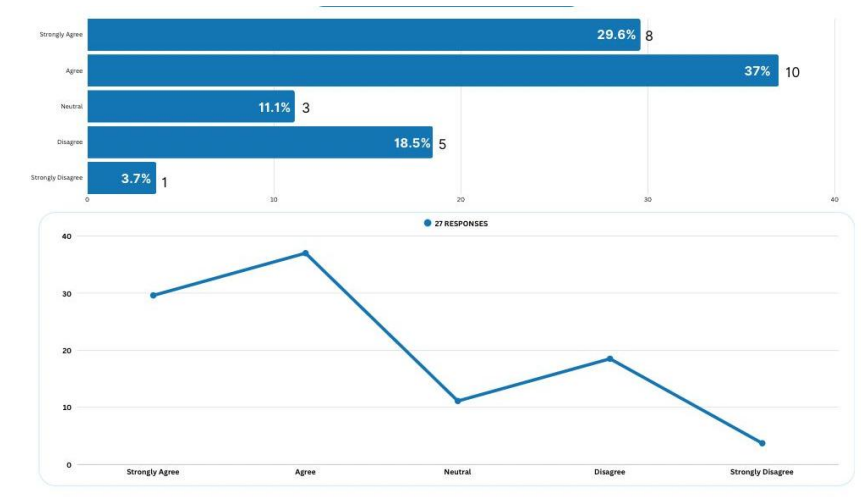


Figure 11: Open Kitchen Level of Privacy

DISCUSSION:

The Survey responses indicate a clear human participant at an open kitchen reduce the level of privacy with the home **Agree 37% strongly Agree 29.6% Disagree 18.5% neutral 11.1% strongly Disagree Only 3.7%**

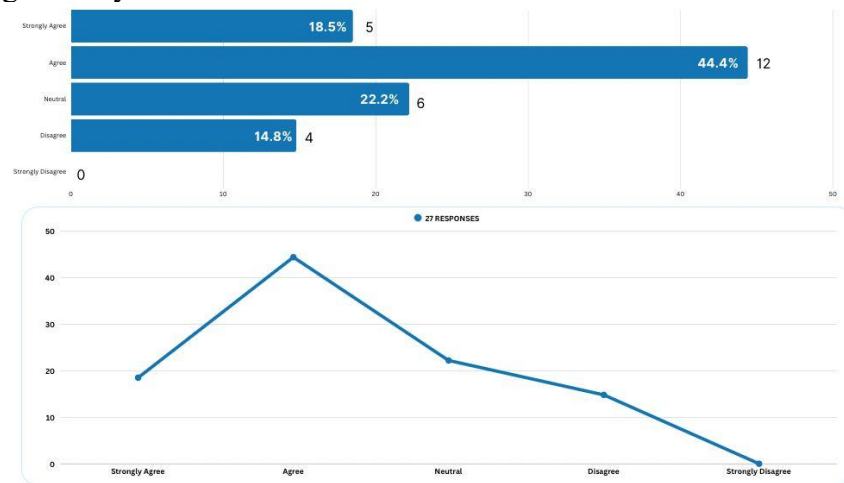


Figure 12: Modern and Contemporary Lifestyles

DISCUSSION:

The Survey Disposal Demonstrate a strong agreement among participants and open kitchen is highly suited for modern and contemporary lifestyles Agree 44.4% Neutral 22.2% Strongly Agree 18.5% Disagree 14.8% Strongly Disagree 0 percent

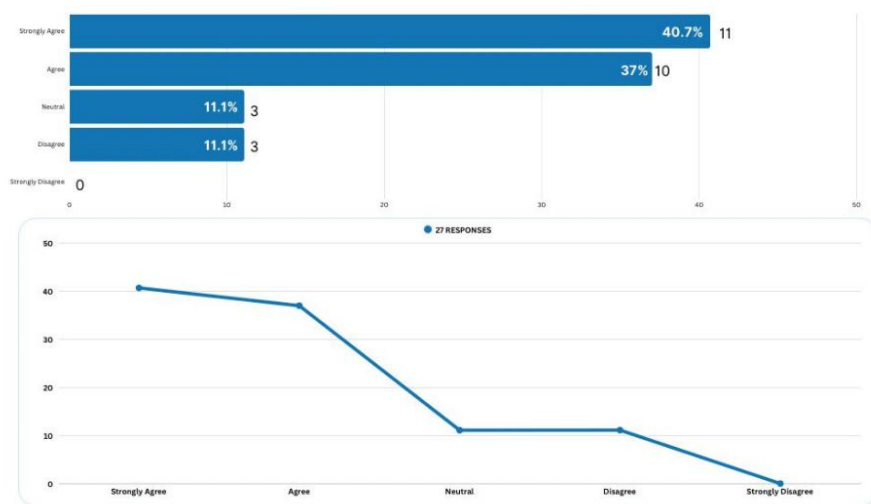


Figure 13: Close Kitchen Privacy with Homes

DISCUSSION:

The Survey responses show there an overwhelming agreement among participants then a closed kitchen design enhances privacy with the home strongly Agree **40.7%** Agree **37%** Neutral **11.1%** Disagree **11.1%** Strongly Disagree **0%**

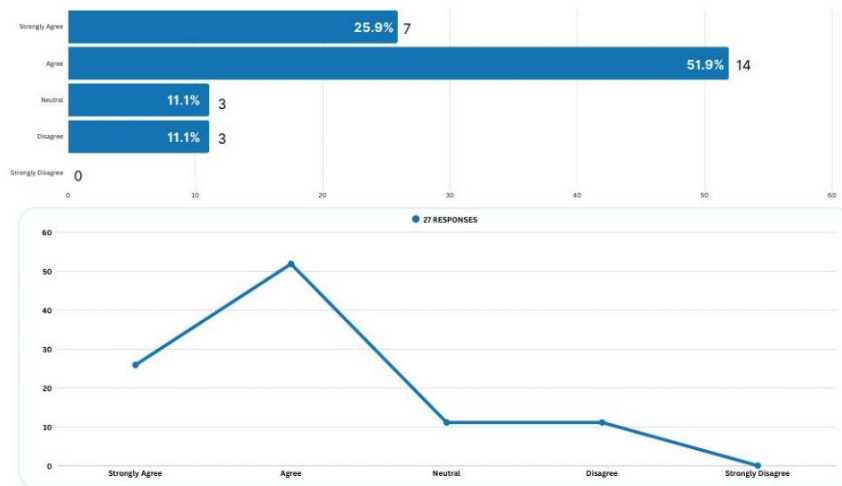


Figure 14: Distractions During Cooking Activities

DISCUSSION:

The Survey Responses strong are strong participants than a close kitchen successfully reduce destruction during cooking activities Agree **51.9%** Strongly Agree **25.9%** Neutral **11.1%** Disagree **11%** Strongly Disagree **0%**

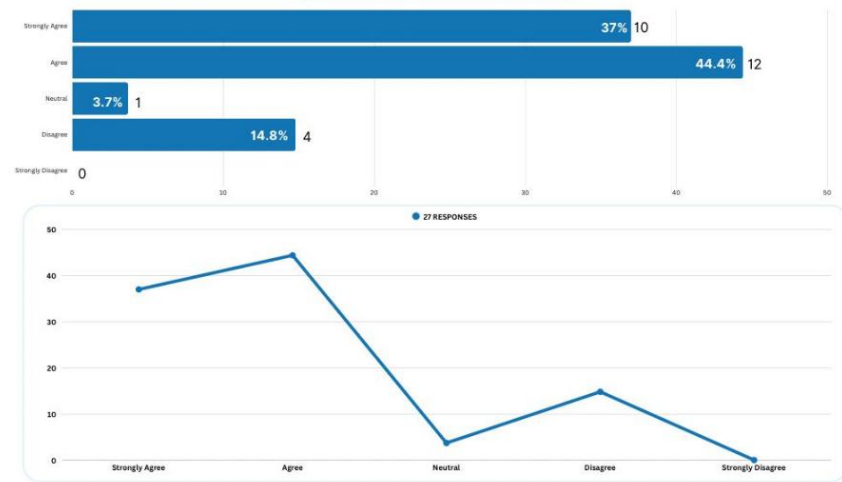


Figure 15: Noise Generated During Kitchen

DISCUSSION:

The Survey Demonstrate a strong among participants and a closed magnetic control noise gathering during cooking Agree Strongly Agreed 37% disagree 14.8% neutral 3.7% Strongly disagree 0%

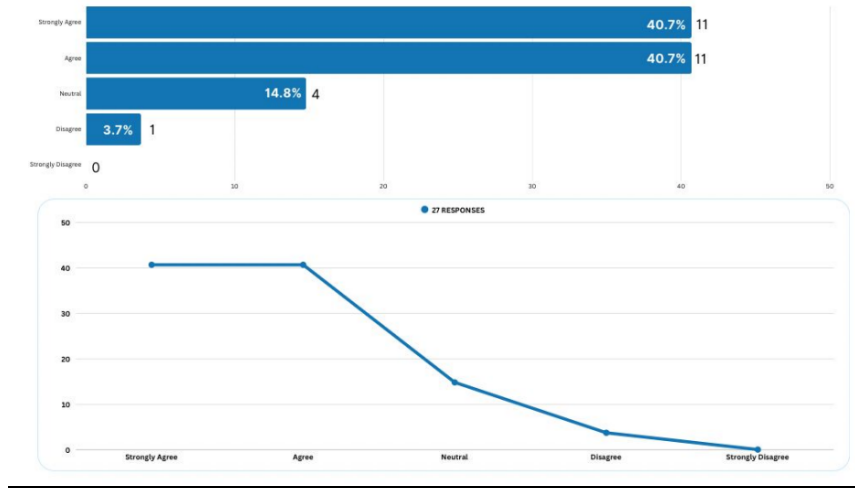


Figure 16: Cooking Smell spreads to other Areas

DISCUSSION:

The Survey respondents have an overwhelming among participants then a close kitchen successfully prevents cooking smiles from spreading to others areas of the house strongly Agree 40.7% agree 40.7% neutral 14.8% disagree 3.7% strongly disagree 0%

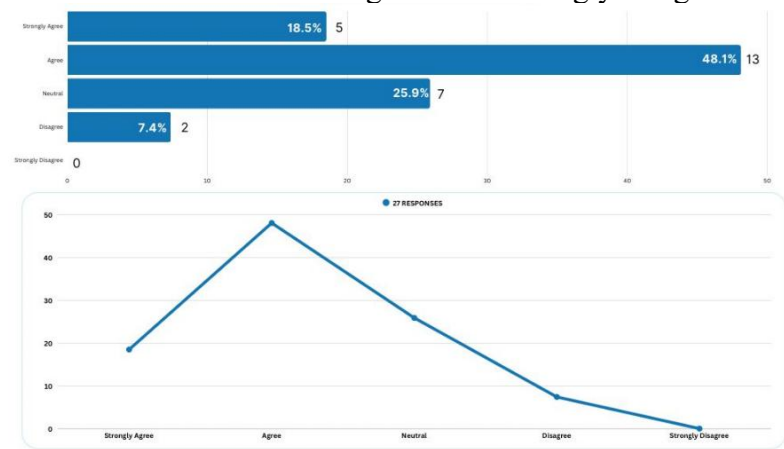
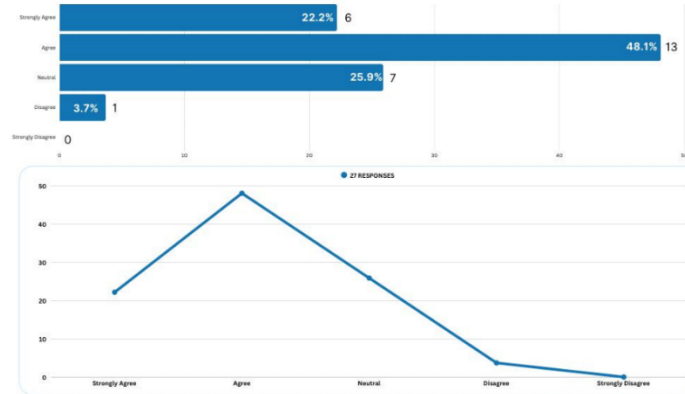


Figure 17: Close Kitchen interaction among family Members

DISCUSSION: The Survey Close kitchen layout to reduce interaction of family members during cooking time Agree 48.1 percent strongly agreed in 18.5% neutral 25.9% disagree



7.4% Strongly Disagree 0%

Figure 18: Closed Kitchen Provides Visibility and Comfort

DISCUSSION:

The Survey responses tell the light in Kitchen provides visibility and comfort Agree 48.1% Neutral 25.9% strongly agreed 22.2% disagree and 3.7% strongly disagree 0

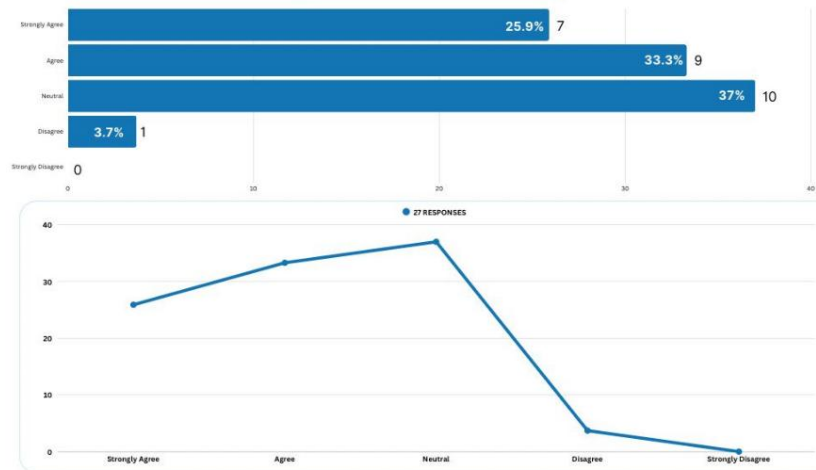


Figure 19: Control of Indoor Air Quality

DISCUSSION:

The Survey Choose Generally Provided divided by regarding ventilation control while the highest single percentage notice remain Neutral 37% Agree strongly Agree 25.9% Disagree Only 3.7% strongly at the 0%



Figure 20: Closed Kitchen Cooking Experience

DISCUSSION:

The Survey This punch was a strong one participant then a close kitchen layout sports and efficient workflow between preparation cooking and cleanliness areas Agree 8.14% Strongly 22.2% Neutral 14.8% Disagree 14.8% Strongly Disagree 0%

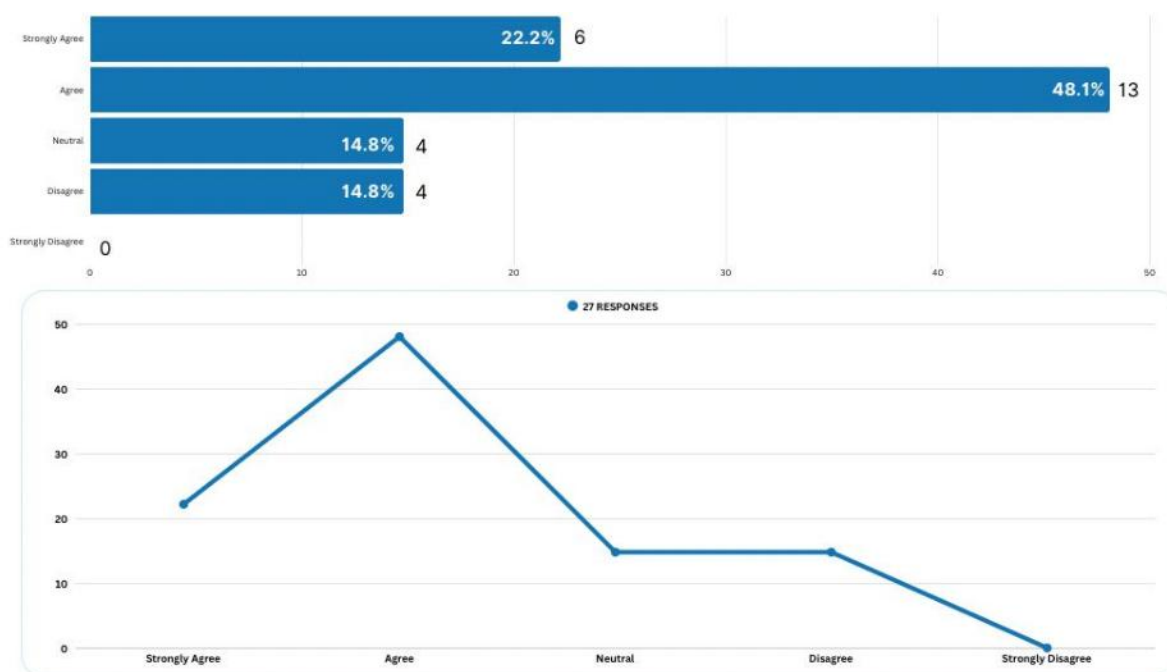


Figure 21: Closed Kitchen workflow between Cooking and Cleaning Areas

DISCUSSION:

The Survey But when us strong participants that are closed kitchen layout sports and efficient workflow between preparation cooking and cleaning areas Agree **48.1 %** strongly agree **22.2%** neutral **14.8%** disagree **14.8%** strongly disagree **0%**

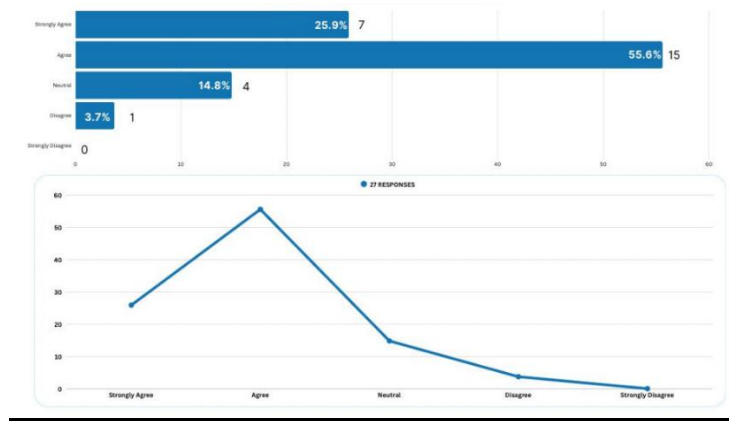
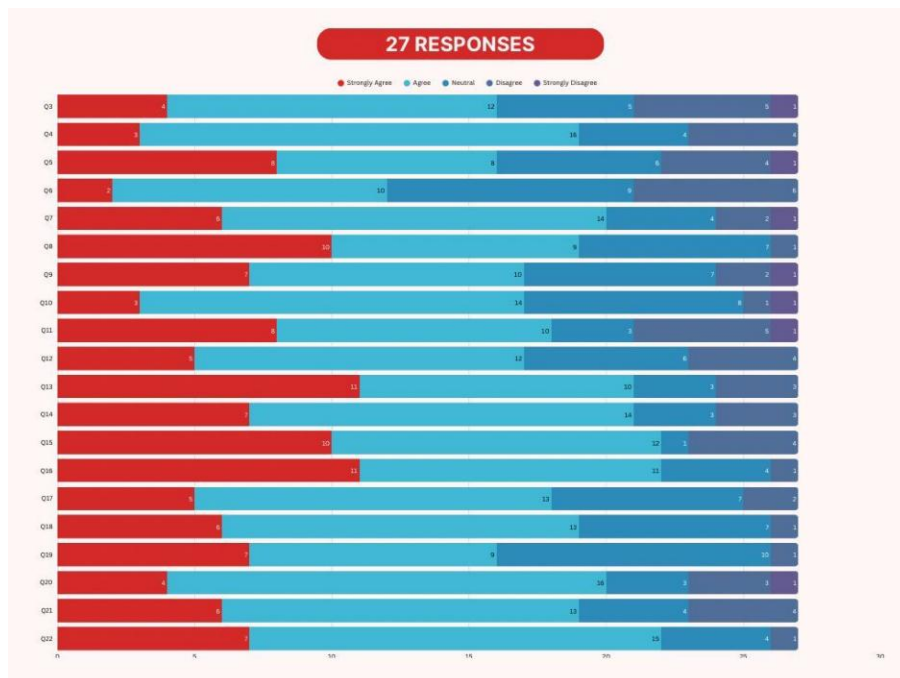


Figure 22: Closed Kitchen Space and Privacy with Homes

DISCUSSION:

The survey Choose an overwhelming developing agreement among participants at a close kitchen region held personal space with the home Agree **55.6%** Strongly Agreed **25.9%** Neutral **14.8%** Disagree Only **3.4%** or strongly Agree **0%**

Analysis:



4. Qualitative Approach

1st Respondent – Interview:

Open kitchen floor communication during cooking and make gathering more social however we hear mess and cooking smells reduce privacy Personally prefer a clothes or semi hybrid layer for cleanliness and a more peaceful home environment.

2nd Respondent — Interview:

Open kitchen ceiling modern and promote a lively atmosphere in direction with family or guest I seamless and space we feel really larger Strongly prefer an open kitchen for its social and aesthetic advantage believing a odour can be managed with proper ventilation

3rd Respondent — Interview:

A hybrid layout is the ideal solution it remains a social openness of an open kitchen for gathering while providing practical closure through a sliding partition during heavy everyday cooking up flexible approach that's what Pakistani household routine

Plan:



1st Respondent –Interview:

Prioritizes it is smooth workflow proper storage and easy movement good ventilation and natural lighting are known negotiable Prefers a simple modern aesthetic that feels calm and organized without sacrificing practically

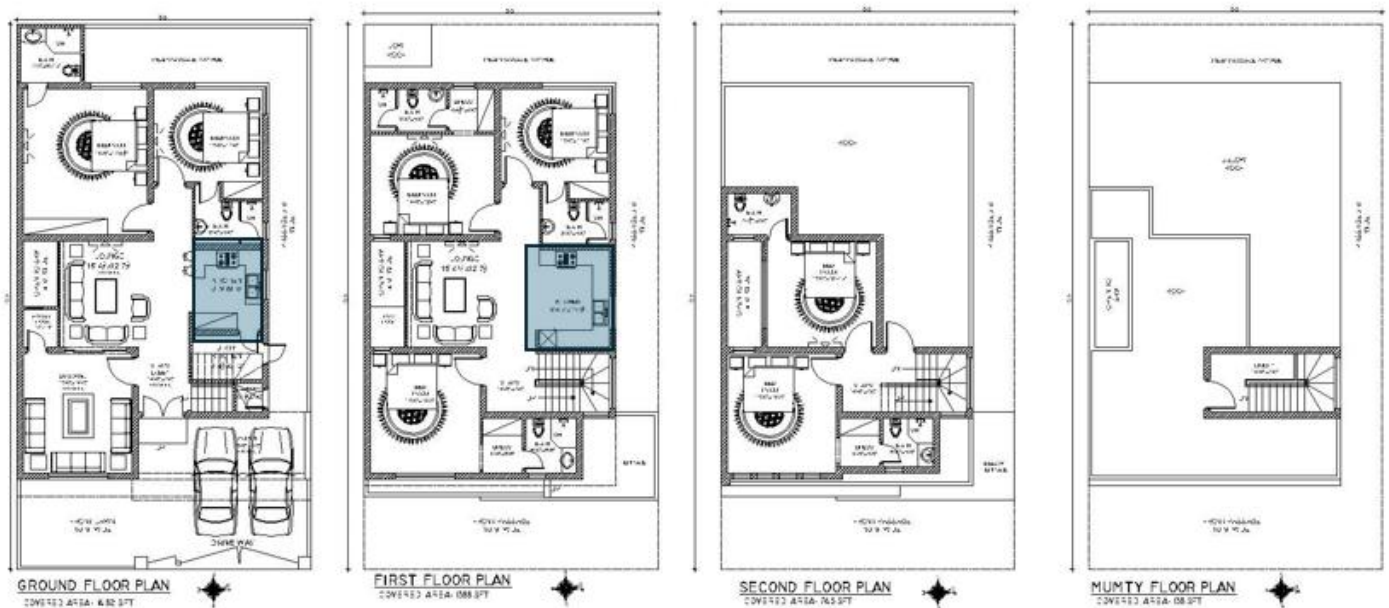
2nd Respondent — Interview:

Believe an open kitchen naturally enhances aesthetic by integrating with the living spaces. Wide countertops open Shelving and strategic lighting make the area beautiful and functional simultaneously. Ventilation is addressed through a central island code that double as a design focal point

3rd Respondent — Interview:

Wants a kitchen that looks as good as it is worth warm tones open shelving for visual appeal and a powerful exhaust system are key Priorities. Believes aesthetics and functionality are equally important and nonmanually exclusive is a well planned kitchen

Plan:



1st Respondent – Interview:

Closed kitchen cognitive load by separating the cooking zone from social spaces. Knowing the mess is hidden allows more relaxed hosting psychological comfort increase When the home still organize and presentable at all time

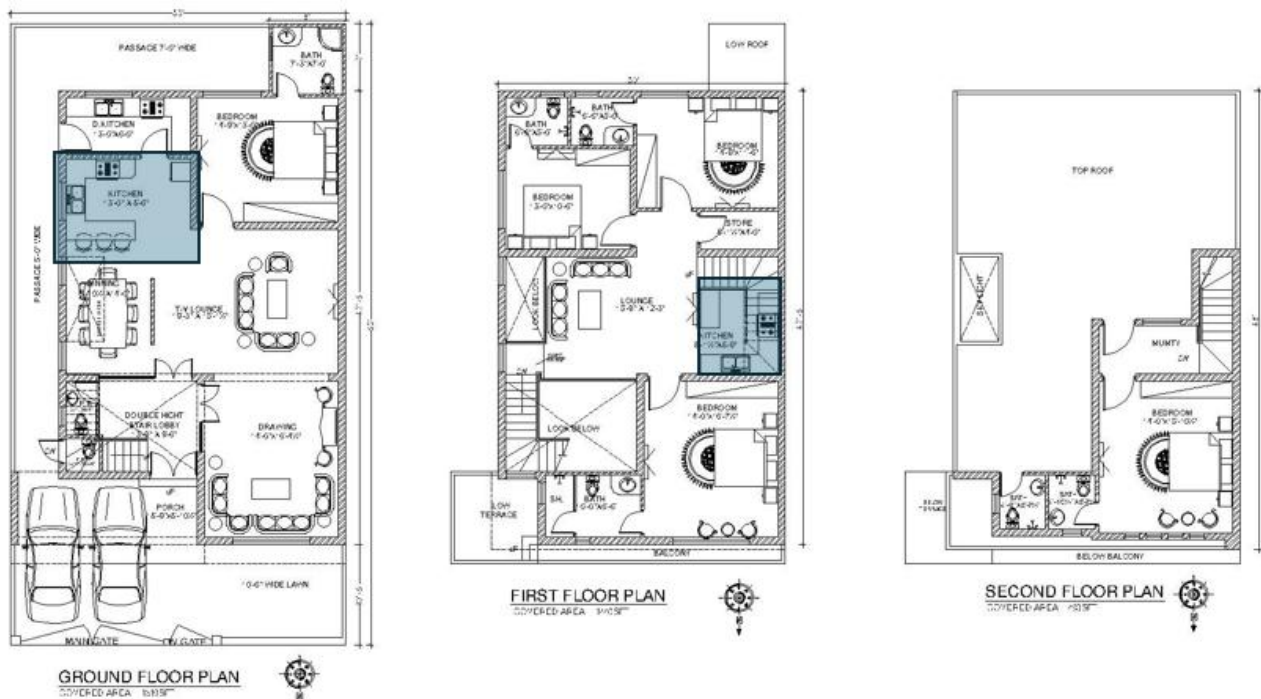
2nd Respondent —Interview:

An Open kitchen promotes a sense of employment the cook is never isolated. The visual connection to the living area makes cooking feel like a shared family activity Rather than a solitary chore which is psychological in enriching and motivating

3rd Respondent — Interview:

A Hybrid kitchen provides the most adaptable comfort open for family time and close for serious cooking. This word certainly suits Pakistani households where the kitten ship between high activity cooking and family gathering models throughout the day.

Plan:



Conclusion: According to the research conducted, even though the open kitchens had preference over the closed ones through the questionnaire survey, but by conducting the interviews, it is evident that the semi-open kitchen would be the best fit for modern Pakistani households. This kind of kitchen offers all the advantages of the open kitchen, i.e., socialization, space, and aesthetics of the open kitchen as well as those of the closed kitchen.:

REFERENCES:

Chen,S (2023) has been selected as the methodology reference for my study because the scope of my study was small along with the target population, so I selected 27 respondents which is fine study. 10 houses that belonged to the same category of houses were selected from Central Park since they had identical design features. These houses were easily accessible and suitable for testing both open and closed kitchens.

4.1 Findings:

The findings resulting from both survey and interview approaches provide an insight into the perspective on how the kitchen design impacts the contemporary family's lifestyle with reference to living in 10-Marla houses in Central Park Society.

Initially, one should admit that at present, there occurs a notable transformation regarding people's preferences towards the house kitchen design. In particular, although the overwhelming majority of respondents (74.1%) live in houses with an open kitchen, people's preferences are nearly equally distributed. Specifically, half of respondents prefer open kitchens (50%), while the rest of people would prefer kitchen design to be closed (46.2%) in order to gain extra advantages.

In regard to the survey findings, people have disclosed some strengths and weaknesses concerning open kitchen design. In the first place, most of the sample (74.1%) thinks that open kitchens help people socialize with each other when getting together. What is more, about two-thirds of people (63%) state that open kitchens stimulate people participating in household chores such as dishwashing. Furthermore, the vast majority of respondents (70.4%) considers

an open kitchen as a source of natural light. Moreover, about half of respondents (48.9%) believe that open kitchen helps improve the psychological comfort of homeowners because they can watch each other preparing food. Still, respondents, who select open kitchens, experience the problem of losing privacy (66.6%).

On the contrary, the qualitative research has revealed reasons for choosing closed kitchens, which are more preferred by the overwhelming majority of respondents (81.4%). First of all, homeowners believe that closed kitchens assist in managing smells arising while cooking. Second of all, almost half of people (54.2%) think that closed kitchens offer better sound insulation compared to open kitchens. Finally, homeowners feel more comfortable in respect of mess occurring during preparing food because of having closed kitchens.

Current Trends vs. Future Choice (Comparison)

The results obtained as a result of application of the mixed methodological approach confirm existence of multifaceted correlations between the types of kitchen layout and socio-behavioral characteristics of Pakistanis in the present time. First, most respondents (74.1%) live in homes featuring an open layout of the kitchen. Second, however, only half (50%) of the participants plan to construct a similar kind of house in the future. Finally, there are another 46.2% of respondents planning to construct a house with a closed kitchen layout.)

4.2 Benefits of an Open Kitchen and closed Kitchen (Advantages)

As concerns social relations, the openness of kitchen creates a favorable condition that facilitates promotion of social communication and creation of favorable atmosphere during the performance of daily activities. Such assumptions are corroborated by the results of survey; 74.1% respondents indicated that an open layout positively influences social interaction among family members during celebration and other social gatherings, and 63% respondents mentioned that it encourages joint efforts of the whole family for cleaning the kitchen. This point was supported during interviews, too. So, the second respondent pointed out that an open kitchen is convenient because the whole family can participate in cooking process. Furthermore, openness of the kitchen positively affects the psychological state of homemakers in terms of gender issues. Moreover, from the point of view of architecture, there are many advantages of such a design. For instance, 70.4% respondents indicated increase in distribution of light, and 44.4% – air circulation in the room.

There exist certain benefits which come with the traditional design for the closed kitchen, making it a highly popular selection amongst households in Pakistan. In terms of workflow, no less than 70.3% of the survey participants believed that a closed kitchen would ensure proper workflow, especially when it comes to food preparation, cooking, and cleaning up activities. The effectiveness of the closed kitchen in partitioning the entire house using walls and doors can be seen when it comes to avoiding distraction from the surroundings and minimizing any noise from the cooking process. Open Kitchen and closed Kitchen(Disadvantages)

Advantages of Open Kitchens are accompanied by significant domestic and environmental sacrifices. Up to 66.6% of the surveyed people confirm that an open kitchen significantly decreases the level of domestic privacy while 62.9% share the opinion that cooking disturbs the activities in the living room because of noise, smoke, and other interferences. In this case, the significance of a closed kitchen becomes clear without additional discussion. Firstly, it is evident from the obtained data that a significant majority of participants – 81.4% – find that a closed kitchen effectively eliminates cooking smellsCooking Culture and Practices in Pakistan (Cultural Dissonance)

4.3 *Hybrid Kitchen Layout (Solution)*

Thus, the most important conclusion from this research is the clear need for architectural change - the creation of a hybrid kitchen concept. Proposed by the third interviewee as a perfect solution for Pakistani culture, this type of concept will be able to satisfy the contradictory nature of openness and closedness.

5. **Conclusion:**

Thus, it can be stated that the findings of the research indicate the fact that the design of the kitchens of modern Pakistani households, specifically 10-Marla type residential units within the Central Park Society, is much more than just aesthetics; it is actually a key factor that influences the interactions, behavior, and psychological state of people living there. Based on the findings of the quantitative research, it can be stated that a socio-spatial contradiction exists in relation to the issue under discussion. Even though at the present moment the majority of respondents (74.1%) reside in houses with open kitchens, their future expectations have become rather disputable since 50% of respondents would prefer the previous option, and 46.2% would prefer a closed kitchen space.

Each design choice, both open and closed, has its advantages and disadvantages. First of all, it should be acknowledged that an open space contributes to better communication within a family unit (74.1%), proper illumination of the house (70.4%), and the involvement of all inhabitants in the fulfillment of domestic tasks (63%). However, it is obvious that there are a number of drawbacks associated with it, including poor privacy within the household (66.6%) Moreover, sensory and environmental disturbance in terms of smell, smoke, and propagation of sounds due to active cooking can be found in 62.9% of respondents..

Conclusively, it can be said that neither of the two kitchens mentioned cater to the current social and functional requirements of Pakistani society, as there needs to be a strict distinction between the two based on cultural background and the need for hosting, as well as the usage of strong spices. Hence, there is a need for a combination of both the types..

6. **Recommendation:**

1. **Ozaki, R. (2002)**

Title: Privacy in Floor Plans - Cultural Representation of Closed vs. Open Spaces

What was studied: The research paper addresses the cultural issue between the preferences of closed space or open space in houses for socialization or private usage, respectively. space.

2. **Meah, A. (2014)**

Title: Re-thinking the Kitchen: Gendered Isolation and Spatial Dynamics of Domestic Work.

What was studied: The article talks about the sociological aspects of closed vs. open kitchens with a focus on isolation experienced by the homemakers.

3. **Boudon, P., & Lang, T. (2015)**

Title: Effects of Interior Design of Households and Social Interactions: Comparison of Traditional and Modern Kitchen Designs.

Purpose: This comparative study examined the benefits of traditional closed kitchen designs in regard to noise and privacy, as opposed to openness of modern kitchen spaces.

4. **Pfeifer, G., & Brauneck, P. (2016)**

Title: Living Areas: Kitchen and Living Area Interior Design Layouts.

Purpose: This design-based architectural resource examines the issues of workflow efficiency and social interaction.

Key findings: When designing kitchens, certain factors must be considered: closed designs provide maximum efficiency of the work

5. Greene, J., & Cooper, L. (2018)

Title: The Architectural Shift: Assessing Social Connections in Open-Plan Living Spaces.

Focus: In this article, the shift from closed to open-plan kitchen architecture and its impact on social connections in residential areas is considered.

6. Aries, M., & de Graaf, G. (2019)

Title: Indoor Environmental Quality (IEQ) and Social Connection in Contemporary Residential Architecture.

Focus: In this research, a connection between environmental factors (odor, acoustic quality, and ventilation) and willingness to interact with each other near the kitchen is investigated.

7. Gulliver, S. (2023)

Title: The Hybrid Kitchen: Striking the Perfect Balance between Privacy and Connectivity in Modern-Day Architecture

Research question: Current research on spatial practice that tries to incorporate both the open and closed world.

Findings: According to this paper, a "hybrid plan" where movable glass walls or partition walls or "wet-dry combination" can be used effectively

7. References:

- lonso, A. D., & O'Neill, M. A. (2010)*. Exploring consumers' images of open restaurant kitchen design. *Journal of Hospitality & Tourism Research*, 34(4), 425–443.
- Charytonowicz, J., & Latala, D. (2020)*. Evolution of the domestic kitchen. *Advances in Intelligent Systems and Computing*, 1205, 214–222.
- Chen, S., et al. (2023)*. Gas leakage patterns in residential kitchens and ventilation safety assessment using computational fluid dynamics (CFD). *International Journal of Environmental Research and Public Health*, 20(24), Article 7156.
- Leitner, A. V., Kajtár, L., & Nyers, J. (2018)*. Approach to evaluating indoor environment in residential kitchens. *Hungarian Journal of Industry and Chemistry*, 46(2), 89–96.
- Moon, A. H., Jhan, P. K., Bhuiyan, M. A. R., Rubel, M. H., & Rahman, M. M. (2025)*. Liquid fertilizers using kitchen wastes: Usage of organic wastes and other wastes to produce liquid fertilizers. *Global Facility for Disaster Reduction and Recovery Reports*, 8(2), 112–128.
- Moslehian, A. S., Warner, E., & Andrews, F. (2022)*. Influence of kitchen and dining room design on nutrition. *Journal of Housing and the Built Environment*, 38(2), 945–966.
- Panicker, A., & Basu, K. (2024)*. Food, technology and emotional connectivity at home: Enabling remote commensality through digital practices. *Computer Supported Cooperative Work (CSCW)*, 33(2), 289–315.
- Sahyoun, N. R., Jamaluddine, Z., & Choufani, J. (2019)*. Evaluation of community based healthy kitchens as social enterprises among Palestinian refugee women in Lebanon. *BMC Public Health*, 19(1), Article 1542.
- Sharma, D., & Jain, S. (2019)*. Impact of interventions concerning biomass stove technology and kitchen environment on IAQ and human exposure in rural areas of India. *Environmental Science and Pollution Research*, 26(18), 18432–184xx. (Complete page range required.)
- Song, Q., Huang, M., Ren, Z., Lin, X., Li, S., Sun, B., & Li, Y. (2023)*. Influence of user well-being in the design of the kitchen environment from the perspective of positive psychology. *Sustainability*, 15(11), Article 8965.
- Wiley, Inc. (2003)*. Evolution of kitchen design and function. *Architectural Design Excerpts*, 12(1), 45–62.

- Xie, W., et al. (2021).* Required exhaust rate of range hood when cooking near the smoking. (Incomplete reference—journal title, volume, issue, and page/article number are missing.)
- Yang, Y., Wang, Z., Li, X., Zhao, D., Zuo, J., Ren, Y., Lyu, W., & Xu, Z. (2021).* Influence of the stack effect on multi-story residential buildings in kitchen ventilation systems. *Journal of Building Engineering*, 43, *Article 102571*.
- Yang, Y., Wang, Z., Li, X., Zhao, D., Zuo, J., Ren, Y., Lyu, W., & Xu, Z. (2021).* Stack effect in kitchen ventilation. Tsinghua University. (This reference appears incomplete and may require publication details.)
- Zhang, J., & Gao, J. (2021).* Comparison of the impact of ventilation types on the air quality in kitchens with various architectural structures in residential buildings: Systematic review. *Building and Environment*, 191, *Article 107590*.