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# Title of Your Article

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## Abstract

Your abstract should not exceed more than 150 words. It should be developed in such a way that to highlight the aim, important aspects of the study, methodologies, principal results, major conclusions and its contributions to the field. Author names should be written as full. Abbreviations or shortened names are not acceptable. Your certificate will be distributed accordingly. It is required for the authors to submit their abstracts in a Microsoft word .doc format. It is required for the authors to submit their abstracts exactly based on the given template. Academic Title should be added before the name of each individual author. Academic Title could be ( B.S. , B.A., M.A. , Ph.D. Candidate, Dr.). Make sure to copy and paste your email address. Our experience shows that typing the email address may lead to entering the wrong address. Make sure to add the email address that you are using permanently. The Font style of the text should be “Calibri (Body) size 10”.

**Keywords:**Keyword 1; Keyword 2; Keyword 3; Keyword 4; Keyword 5.

## 1. Introduction

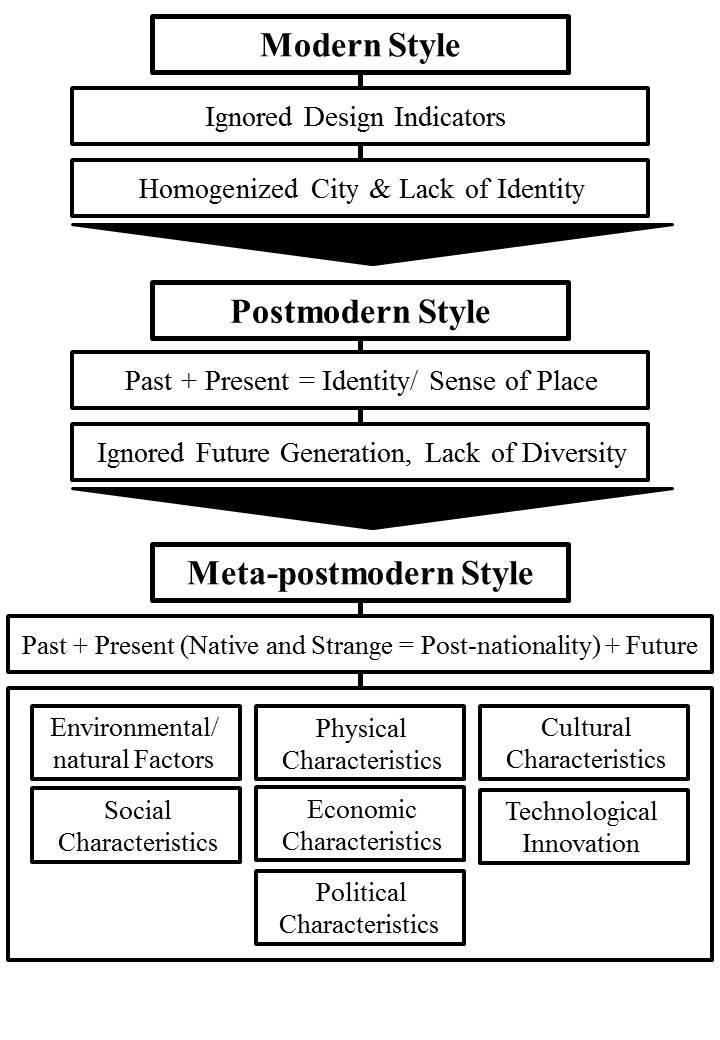
The introduction of a scientific article serves as a roadmap for the reader, providing background information, stating the research question, gap in the literature, contribution to the field, outlining the research approach, and summarizing the findings. Here are the requirements and structures that should be considered in the introduction of a full paper:

1. Background information: Start with a brief overview of the field, including the key concepts, theories, and research findings relevant to your study. Provide the context and rationale for the research question you are addressing.
2. Research question or hypothesis: Clearly state the main research question or hypothesis that your study is addressing. This should be concise, focused, and directly related to the research problem or gap in the literature that you are addressing.
3. Objectives: Outline the specific objectives of your study and how they relate to the research question or hypothesis. These objectives should be measurable and achievable within the scope of your study.
4. Methodology: Provide a brief description of the research design and methods used in your study. This should include details such as the sample size, data collection methods, and data analysis techniques.
5. Expected contribution: Explain the significance of your study and how it will contribute to the field. This could be in the form of new knowledge, theoretical insights, practical applications, or policy recommendations.
6. Structure of the paper: Provide an overview of the structure of the paper, including the main sections and their contents. This will help the reader navigate the paper and understand how the different sections relate to each other.

It is important to remember that the introduction should be written in a clear and concise manner, avoiding unnecessary jargon or technical terms. The introduction should also be logically organized and easy to follow, with each section flowing smoothly into the next. Finally, the introduction should be written in a way that engages the reader and motivates them to read on to learn more about your study.

In the introduction paragraph, avoid a detailed literature survey or a summary of the results. Write your Introduction into three sections: - “What” is known about the Research - “What” is not known about the Research - “Why” the research was done. In Spain, the stay-at-home lockdown during the COVID-19 pandemic highlighted the difficulty of combining remote working and family life. The experience of not only much of the Spanish population but also worldwide was reflected in numerous media assessments of the shortcomings of the housing stock. The stay-at-home lockdown forced people to relegate their whole daily life to their homes. In the words of Fernández Galiano ([2020](#nine)) "the intimate hideaway has become a prison cell". Suddenly, the home has become the centre of all activity, even that which had taken place up until then in the city - which practically emptied -: education, work and leisure. Stay-at-home lockdown revealed the lack of terraces, indoor environmental quality and flexible spaces in much of the residential stock built in Spain ([Cuerdo-Vilches et al., 2020](#six)). Yet the less resilient type of housing to lockdown is, on the one hand, the housing units of under 60 m2 and with no views of green areas, as their households are more prone to depression ([Amerio et al., 2020](#two)) and, on the other hand, those located in community blocks and with aligned façades, given the difficulties to carry out extensions or alterations. This paper stresses three aspects for this type of housing: the need to consider the orientation of the housing to improve the quality of the indoor and outdoor space; the need for public housing policies for a greater number of rooms to facilitate remote working; and, finally, the importance of functional terraces overlooking green areas.

This document is organized into four parts. The first chapter reviews the state of play. The second presents the analysis methodology based on psychological, urban planning and architectural indicators applied to two coastal cities in the Mediterranean area of southern Spain. The third and fourth chapters consider the results and discuss the main contributions of this paper.



**Figure 1.** Structure of the Study (Developed by Author).

Until vaccines were developed, the hygienist movement considered the city and housing as a necessary way to prevent disease. Keeping houses clean, locating them in airy and sunny places, going outdoors and breathing pure mountain air in a suitable climate was recommended. These were the tenets of the hygienism advocated by Le Corbusier and the Modern Movement, which influenced the design of hospitals where those four principles were applied, such as the Paimio Sanatorium, designed by Alvar Aalto in Finland between 1929 and 1933. In a review of the literature on the needs arising from the pandemic and its lockdown, the returning to the hygienic principles of the Modern Movement can be organised into indoor space conditions and outdoor space conditions.

## 2. Indoor Space Conditions

During a lockdown, there needs to be a flexible approach to living space ([Bettaieb & Alsabban, 2020](#three); [Cuerdo-Vilches et al., 2020](#six); [Nanda et al., 2021](#twenty4)) for work, schooling, leisure and exercise, which requires each user to have at least a private room ([Nanda et al., 2021](#twenty4)). As regards work, even though the idea of remote working dates back to the end of the 1960s ([Van Meel, 2011](#twenty9)), its implementation was rare in Spain [(del Águila Obra et al., 2002](#seven)). According to Mitchell ([1999](#twentythree)), remote working brought the home and the workplace back together, after the industrial revolution had separated it as the result of functional and spatial specialisation. Yet in turn, this would mean, on the one hand, an increase in demand for space for remote working at home with similar qualities to those of conventional offices ([Ng, 2010](#twenty5)); and, on the other hand, adequate access to information and telecommunication technologies ([Ahmadi et al., 2000](#one); [Broderick, 1991](#four); [Cuerdo-Vilches et al., 2020](#six)) in an appropriate, safe and healthy work environment ([Harmon-Vaughan, 1995](#fourteen); [Hobbs & Armstrong, 1998](#sixteen); [Kaufman-Scarborough, 2006](#eighteen); Kim, 2017).

As regards space, current housing is not designed for working from home and alterations would be needed ([Gurstein, 2001](#thirteen); [Magee, 2000](#twentyone)). With the COVID-19 lockdown, many workers were forced into a work-from-home (WFH) using any available space at their home (bedrooms, living rooms, kitchen or terraces), such as pop-up offices ([Nanda et al., 2021](#twenty4)). A minimum of 60 m2 surface area per housing unit ([Amerio et al., 2020](#two)) and the importance of housing overlooking green areas [(Amerio et al., 2020](#two); [Mirza & Byrd, 2018](#twentytwo)) also have to be added in that regard. With respect to the indoor quality indicators, natural lighting and thermal and acoustic insulation ([Cuerdo-Vilches et al., 2020](#six)) are included, along with using windows to ensure well-aired homes ([Porrit & Campbell, 2020](#twenty6)).

## 2.1. Outdoor Conditions on Terraces and Balconies

Terraces and balconies are some of the great contributions of the hygienist movement. There is a difference between both terms: if the width is the same or smaller than the average human size, it is a balcony, while if it is larger, it can be considered a terrace as it is more comfortable ([Gupta, 2019](#twelve)). Both elements are closely tied to a medical and hygienist role, as they are used for patients to convalesce, and they were incorporated by the Modern Movement in its architectural designs ([Campbell, 2005](#five)). Thus, Le Corbusier put forward the solarium or covered garden terrace as one of the five pillars of the architecture of the Modern Movement (Le-Corbusier, 1986), as manifested in the *Ville Savoye* (1929). It was later transferred in the tower block, evolving from a large double-height space open to the façade, in the first designs of the *L’Esprit-Nouveau* pavilion to the *brise-soleil* balconies and the use of the community roof of *L'Unité d'Habitation*.

Yet after World War II, medical advances in the development of vaccines - e.g. cholera (1884) or tuberculosis (1927) - began to mean that they're being healthy spaces began to lose importance. The speculative pressure of housing prices in the city or the development of environmental comfort technology thanks to air conditioning and mechanical ventilation reduced the size of the terraces and turned them into balconies. On the other hand, the terrace grew in importance in mass tourism architecture ([Fernández Fuster, 1991:255](#eight)): dimensionally (accounting for a third of the total surface area of tourist apartments), spatially (transition space between the outdoors and indoors) and symbolically (enjoying leisure as a social achievement). A paradigmatic example is, certainly, the pyramid terraced blocks of La Grande Motte (Languedoc-Rousillon, France) designed by Jean Balladur.

## 3. Material and Methods

The Material and Methods section of a scientific article is where the authors describe the experimental design, procedures, and methodology used in their research. This section should provide enough detail so that other researchers can replicate the study if they wish. Here are some key considerations for writing the Material and Methods section:

1. Experimental design: Describe the overall design of the study, including the research question or hypothesis, the experimental groups, and the variables being measured.
2. Participants or subjects: Describe the sample or population being studied, including the number of participants, any inclusion or exclusion criteria, and demographic information such as age, sex, and ethnicity.
3. Data collection methods: Describe the procedures used to collect the data, including any instruments, equipment, or materials used. This could include surveys, interviews, questionnaires, physiological measurements, or other types of data.
4. Data analysis: Describe the statistical methods used to analyze the data, including any software or programs used. This should include a description of the statistical tests used, the level of significance used, and any post-hoc analyses conducted.
5. Ethical considerations: Describe any ethical considerations that were addressed in the study, such as informed consent, confidentiality, or Institutional Review Board (IRB) approval.
6. Limitations: Describe any limitations or potential sources of bias in the study, such as sample size, attrition, or confounding variables.

It is important to remember that the Material and Methods section should be written in a clear and concise manner, using appropriate terminology and avoiding unnecessary detail. The section should be organized in a logical manner that follows the flow of the study, with subsections as needed to break up the content. Finally, the section should be written in a way that allows other researchers to replicate the study, including providing details such as specific measurement instruments or software programs used.

Provide sufficient detail to allow the work to be reproduced. Methods already published should be indicated by a reference: only relevant modifications should be described. A mixed-method, based on quantitative (objective indicators) and qualitative (subjective indicators) approaches, was used to analyse stay-at-home lockdown during COVID-19. The objective indicators include:

(a) Planimetric survey and calculation of the closed/open surface area:

• Detailed drawing of the furnishing

• Detailed drawing of the possible routes in the house (mobility)

(b) Urban data:

• Urban location: type of neighbourhood, the height of the housing

• Orientation of the main façade

• Views and connection to the public space

The subjective indicators include an online questionnaire that was completed after the stay-at-home lockdown period. It was sent to the occupants who had been previously informed that the study would be conducted. They were asked to assess the positive and negative characteristics of their homes (layout and fittings), the activities they did at home and the changes they would make to them. The profile of the users was very similar: The majority were young couples without children, although a family with an older child was also included, but never with small children.

The four case studies (Figure 1) are flats in multi-family residential blocks along the Mediterranean coast of southern Spain. Three of them in Malaga - as an example of a non-tourist urban environment case study -, and one in Velez-Malaga, as a case study in a tourist environment. In Malaga, the first urban fringe (Case A), the urban edge (Case B) and the old town (Case C) were chosen. While a tourist neighbourhood (Case D) was selected in Velez-Malaga.



**4. Results**

The Results section of a scientific article presents the findings of the study in a clear and concise manner. This section should provide a detailed description of the data collected, along with statistical analyses and graphical representations where appropriate. Here are some key considerations for writing the Results section:

1. Organization: Organize the results section in a logical manner that follows the research question or hypothesis. This may involve presenting results in order of importance or grouping similar findings together.
2. Descriptive statistics: Use descriptive statistics such as means, standard deviations, and percentages to summarize the data.
3. Inferential statistics: Use inferential statistics such as t-tests, ANOVA, or regression analyses to test hypotheses or explore relationships between variables.
4. Figures and tables: Use figures and tables to present data visually and provide a summary of the key findings. Ensure that figures and tables are appropriately labeled and easy to read.
5. Textual summaries: Use textual summaries to provide a more detailed description of the findings. This could involve describing patterns, relationships, or significant differences between groups.
6. Limitations: Acknowledge any limitations or potential sources of bias in the study. This could include issues such as sample size, missing data, or confounding variables.

It is important to remember that the Results section should be written in a clear and concise manner, using appropriate terminology and avoiding unnecessary detail. Results should be presented objectively, without interpretation or discussion of their implications. Finally, the section should be organized in a way that allows the reader to easily understand the data and their significance in relation to the research question or hypothesis.

As regards WFM, in housing units of under 60 m2 with maximum resident occupancy, they were forced to use the living room as a pop-up office ([Table 1](#table1)). However, in homes over 60 m2, or where there were the same or higher number of residents, the bedrooms were used as pop-up offices, in the same way as before the pandemic. In the case of housing units with only 1 bedroom for 2 users who worked, the living-dining room had to be shared, which limited its use for video conferences, leisure activities (watching television) or meals. It can be concluded that small flats are more appropriate for remote workers who live alone, or where only one of them is working from home. The same situation occurs in the case of the 2-bed housing, which is more appropriate for 2 residents. As regards exercise, the lack of an appropriately sized terrace (A, B, C) meant the dining room or a bedroom had to be converted into a gymnasium. However, in Case of D, if they did have a large enough terrace, the users also used the dining room to exercise, as it was larger.

**Table 1.** Objective indicators.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Study case** | **A** | **C** | **D** | **B** |
|  |  |  |  |  |
| Neighbourhood  Height | Haza del Campillo  B+4 | Molinillo  B+5 | Torre del Mar  B+6 | Los Viveros  B+2 |
| Orientation | North | North | Northeast | East |
| Si (m2)  Indoor surface area | 40 | 48 | 67 | 70 |
| Number of rooms (N) | 1 | 2 | 2 | 3 |
| So (m2)  Outdoor surface area | - | 8 | 15 | 2.7 |
| Number of balconies  Number of terraces | -  - | -  2 | 1  - | -  1 |
| Number of residents (R) | 2 | 3 | 2 | 2 |
| Si/R (m2) | 20 | 16 | 33 | 35 |
| N/R | 0.50 | 0.66 | 1.00 | 1.50 |
| So/R | 0.00 | 2.66 | 7.50 | 1.35 |
| Resident age | 26 – 27 | 49 – 51 – 23 | 34 – 27 | 24 – 27 |
| Number of residents in WFM | 2 | 1 | 0 | 1 |
| Pop-up office | Living room | Living room | - | Bedroom |
| Number of residents exercising | 2 | 1 | 2 | 1 |
| Exercise space | Living room | Bedroom | Terrace / Bedroom | Living room |

As regards the indoor environmental conditions, the results in Table [2](#table2) indicate a greater need for natural light and less thermal comfort for the case of north-facing buildings (A, C, D), while there was a greater sense of light in the dual-aspect Case B; furthermore, the users were aware of very little noise due to the lack of mobility during the pandemic. As far as the outdoor environmental conditions were concerned, the owners’ answers also stressed the need to have a terrace of a functional size, larger than the 6 m2 proposed by Bettaieb & Alsabban ([2020](#three)), and of a shape that makes it easier for activities, according to the standards of Gupta ([2019](#twelve)). It is almost a psychological need to avoid the feeling of confinement. The existing balconies are very limited as they are used for hanging out washing or even as storage. In Case C, there are terraces large enough for furniture for the space to be used; however, as those terraces are nearly exclusively north-facing and have no sunlight, the space was not very pleasant and ended up not being used. In this regard, the terrace in Case D is sufficiently large to comfortably hold furniture and was used. Furthermore, even though it is also north-facing, it has views over the sea, which makes it a pleasant spot.

**Table 2.** Subjective indicators.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **QUESTIONS** |  | **A** | **C** | **D** | **B** |
| Positive characteristics of current home | Indoor | All rooms with openings outside | The large and well-lit main bedroom | Good surface and distribution | A great deal of light |
| Outdoor | - | Has terrace | Enjoyable outdoor space | - |
| Negative characteristics of current home | Indoor | Small home: all activities in one single room | The temperature is not very comfortable, particularly in the kitchen | Lack of light. Bathrooms do not have windows | Temperature not very comfortable year-round |
| Outdoor | No outdoor space |  |  |  |
| What aspects would you change of your home to make lockdown more bearable? | Indoor | Would add another room or extend the existing one, to create another workspace (currently, both work in the same space and it is very inconvenient).  A larger kitchen | More natural light, to avoid feeling locked in | Bathrooms with natural ventilation.  Combine the kitchen and living room to have one larger room |  |
| Outdoor | Include an outdoor space to avoid feeling locked in | Larger outdoor space on the terrace or on the roof of the building, large enough to exercise | Better distribution of the outdoor space for better use | More outdoor space, to be able to get fresh air or exercise outside |

and built environment for their users. Local governance, authorities and political leaders should attempt to improve visual quality, urban health and vitality by responsive and various long-term services.

**4. Discussions**

The Discussion section of a scientific article is where the authors interpret and explain the results of their study in the context of the existing literature. This section should also provide conclusions and recommendations for future research. Here are some key considerations for writing the Discussion section:

1. Interpretation of results: Provide a clear and concise interpretation of the results, explaining how they relate to the research question or hypothesis. This could involve comparing and contrasting the results with previous research or discussing their practical implications.
2. Comparison with literature: Compare the results with the existing literature, discussing similarities and differences with previous research findings.
3. Limitations: Acknowledge any limitations or potential sources of bias in the study, and discuss how they may have influenced the results.
4. Implications and recommendations: Discuss the implications of the results for theory, practice, or policy. Provide recommendations for future research or interventions.
5. Conclusions: Summarize the key findings of the study and draw conclusions based on the results.

It is important to remember that the Discussion section should be written in a clear and concise manner, using appropriate terminology and avoiding unsupported speculation or overgeneralization. The section should be organized in a logical manner that follows the flow of the study, with subsections as needed to break up the content. Finally, the section should be written in a way that adds value to the existing literature and provides insight into the research question or hypothesis.

This should explore the significance of the results of the work, not repeat them. A combined Results and Discussion section is often appropriate. Avoid extensive citations and discussion of published literature. The function of this section is to analyze the data and relate them to other studies. To "analyze" means to evaluate the meaning of your results in terms of the original question or hypothesis and point out their biological significance. The Discussion should contain at least:

* the relationship between the results and the original hypothesis, i.e., whether they support the hypothesis, or cause it to be rejected or modified
* an integration of your results with those of previous studies in order to arrive at explanations for the observed phenomena
* possible explanations for unexpected results and observations, phrased as hypotheses that can be tested by realistic experimental procedures, which you should describe.

Trends that are not statistically significant can still be discussed if they are suggestive or interesting, but cannot be made the basis for conclusions as if they were significant.

Avoid redundancy between the Results and the Discussion section. Do not repeat detailed descriptions of the data and results in the Discussion.  End the Discussion with a summary of the principal points you want the reader to remember.

## 5. Conclusions

The Conclusions section of a scientific article is where the authors summarize the main findings of the study and provide a final statement about the significance of the research. Here are some key considerations for writing the Conclusions section:

1. Summarize the main findings: Briefly summarize the key findings of the study in a concise and clear manner.
2. Restate the research question or hypothesis: Restate the research question or hypothesis and explain how the findings answer or address it.
3. Discuss the significance of the findings: Discuss the importance of the findings for the field of study and their implications for theory, practice, or policy.
4. Address the limitations of the study: Acknowledge any limitations or potential sources of bias in the study, and discuss how they may have influenced the results.
5. Provide recommendations for future research: Provide recommendations for future research based on the limitations of the study and the gaps in the existing literature.

It is important to remember that the Conclusions section should be written in a clear and concise manner, using appropriate terminology and avoiding unsupported speculation or overgeneralization. The section should be organized in a logical manner that follows the flow of the study, with subsections as needed to break up the content. Finally, the section should provide a clear and final statement about the significance of the research and its contribution to the field.

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## ****Conflict of Interests****

The Author(s) declare(s) that there is no conflict of interest.

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