

Analysis of the impact of COVID in Andalusia, its population and public health system.

A project of "Business Intelligence and Data Mining"

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Introduction

Objective

- To analyze and understand the evolution of different parameters during and after the acute phase of the pandemic in Andalusia

Strategic
information
targeted to
make available

I intend to provide information on the trend of COVID cases over time, the demographics of the population affected by COVID and the impact of COVID on the Andalusian healthcare system

By analyzing this information, I hope to provide valuable business intelligence that can inform decision making by the Andalusian Ministry of Health and Consumer Affairs.



Strategic business questions

- What is the trend of COVID cases in Andalusia over time?
 - Crucial for understanding the progression of the pandemic in Andalusia, which will help inform public health policy and decision-making.
 - By analyzing the trend of COVID cases over time, we can identify patterns and predict future outbreaks.
 - To answer this question, the data warehouse/data mart will collect and store data on the number of COVID cases, deaths, and recoveries in Andalusia over a specific period. The data will be analyzed using time-series analysis and visualization tools such as Power BI to identify trends and patterns in the data. The data mart will also incorporate demographic and geographic data to identify how different groups of people are being affected by the pandemic.



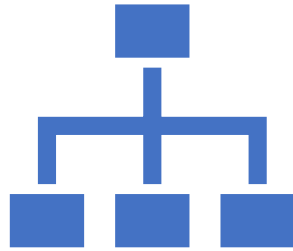
- What are the demographics of the population affected by COVID in Andalusia?
 - Important for understanding the distribution of COVID cases in Andalusia across different demographics, such as age and gender.
 - By analyzing this information, public health officials can target interventions to specific groups of people who are at higher risk of infection or severe illness.
 - The data warehouse/data mart will collect and store demographic information for people affected by COVID in Andalusia. The data will be analyzed using statistical tools and visualization techniques to identify patterns and trends in the data.



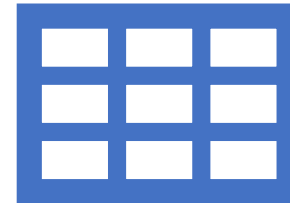
- How has the healthcare system in Andalusia been impacted by COVID?
 - Important for understanding the impact of the pandemic on the healthcare system, including the availability of resources, capacity, and access to care.
 - By analyzing the impact of COVID on the healthcare system, public health officials can develop interventions to address any gaps or weaknesses in the system.
 - To answer this question, the data warehouse/data mart will collect and store data on the number of hospitalizations, intensive care unit (ICU) admissions, and deaths due to COVID in Andalusia. The data will be analyzed using statistical and visualization tools to identify patterns and trends in the data.



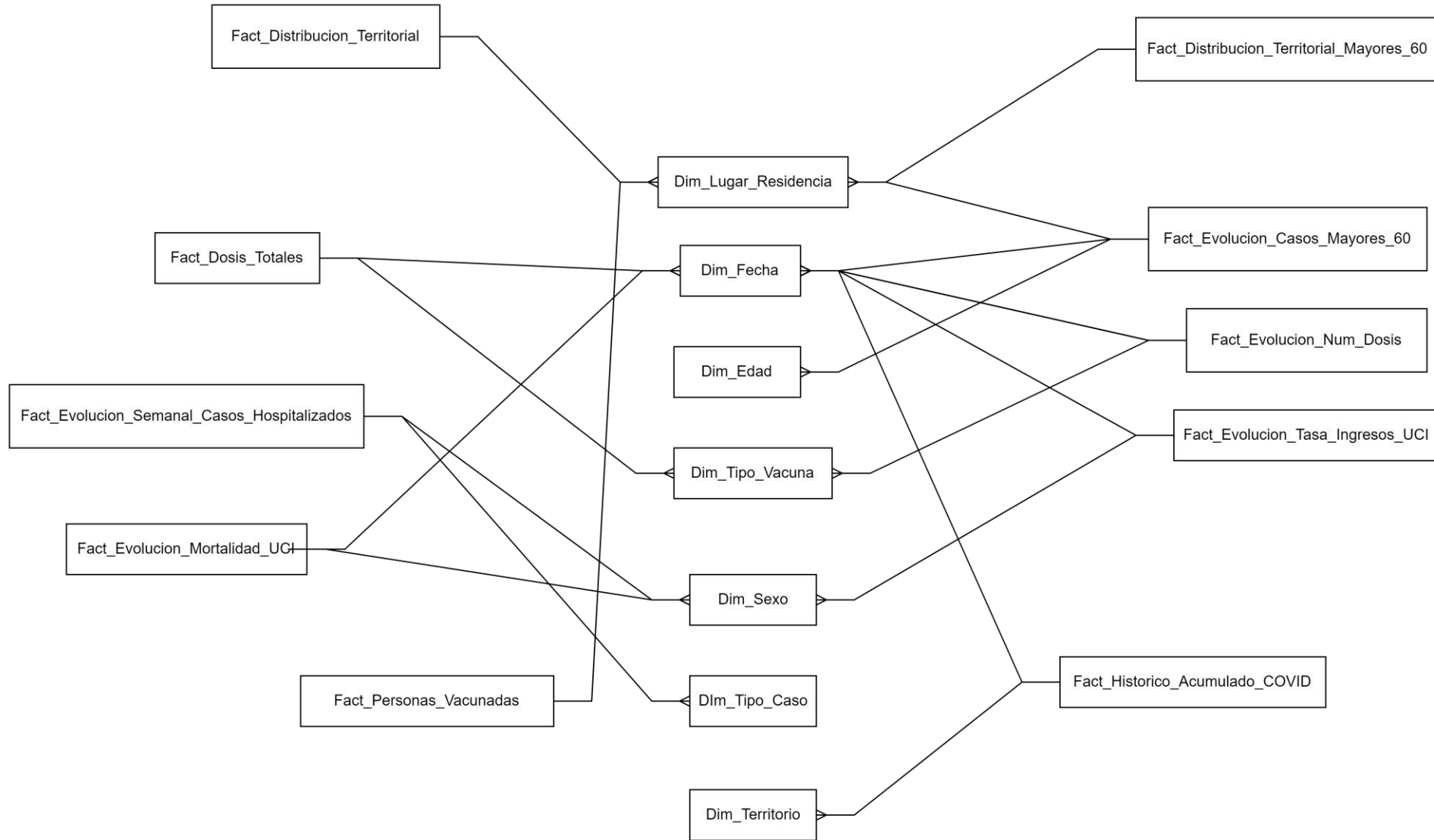
Data Warehouse/Data Mart Design



The design process involved identifying the relevant business processes and their associated facts and dimensions and mapping them to the conceptual fact model.



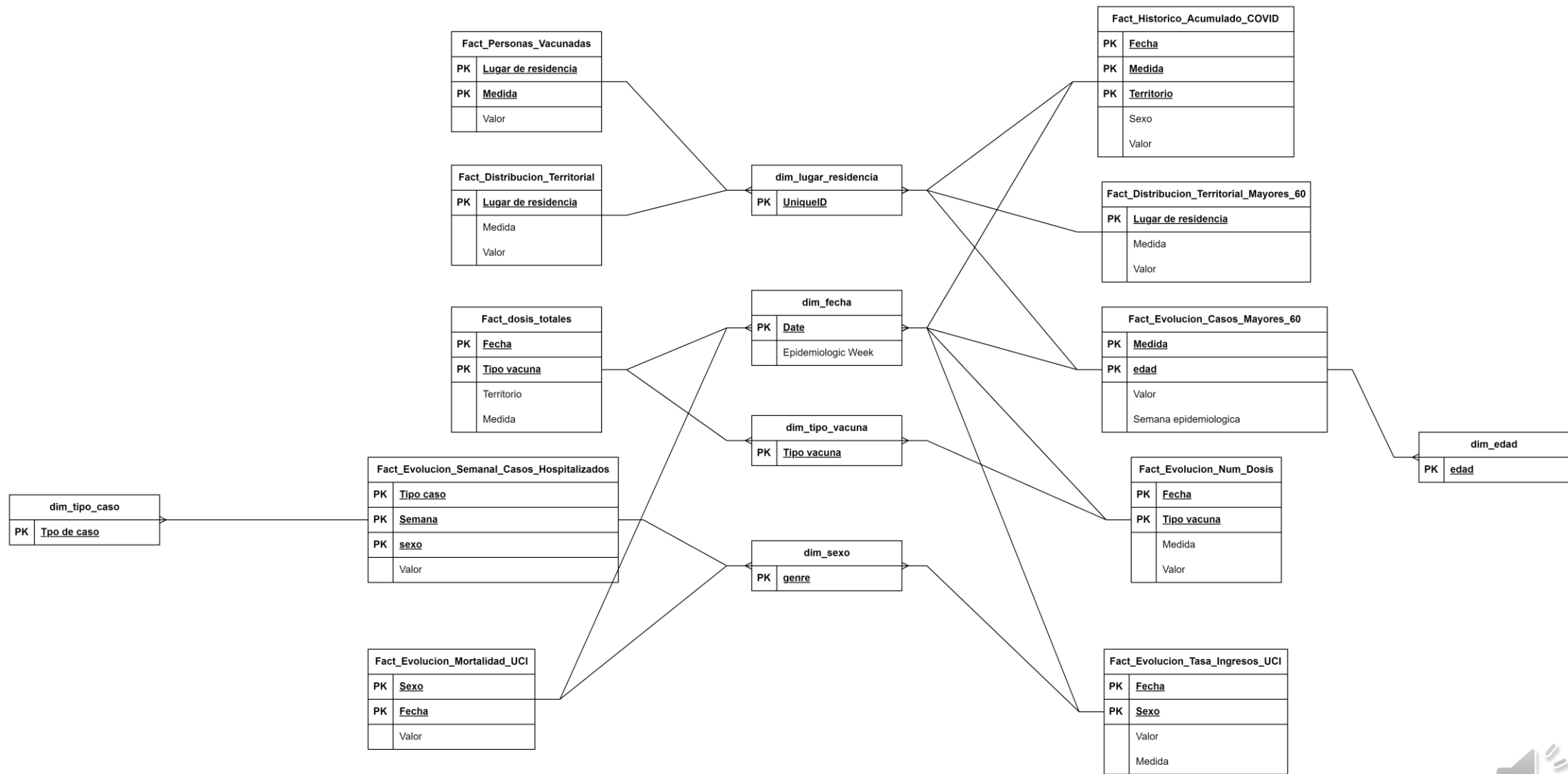
The model reflects the many-to-one relationships between most dimension tables and the fact tables, which indicates that each fact is associated with multiple dimension values.



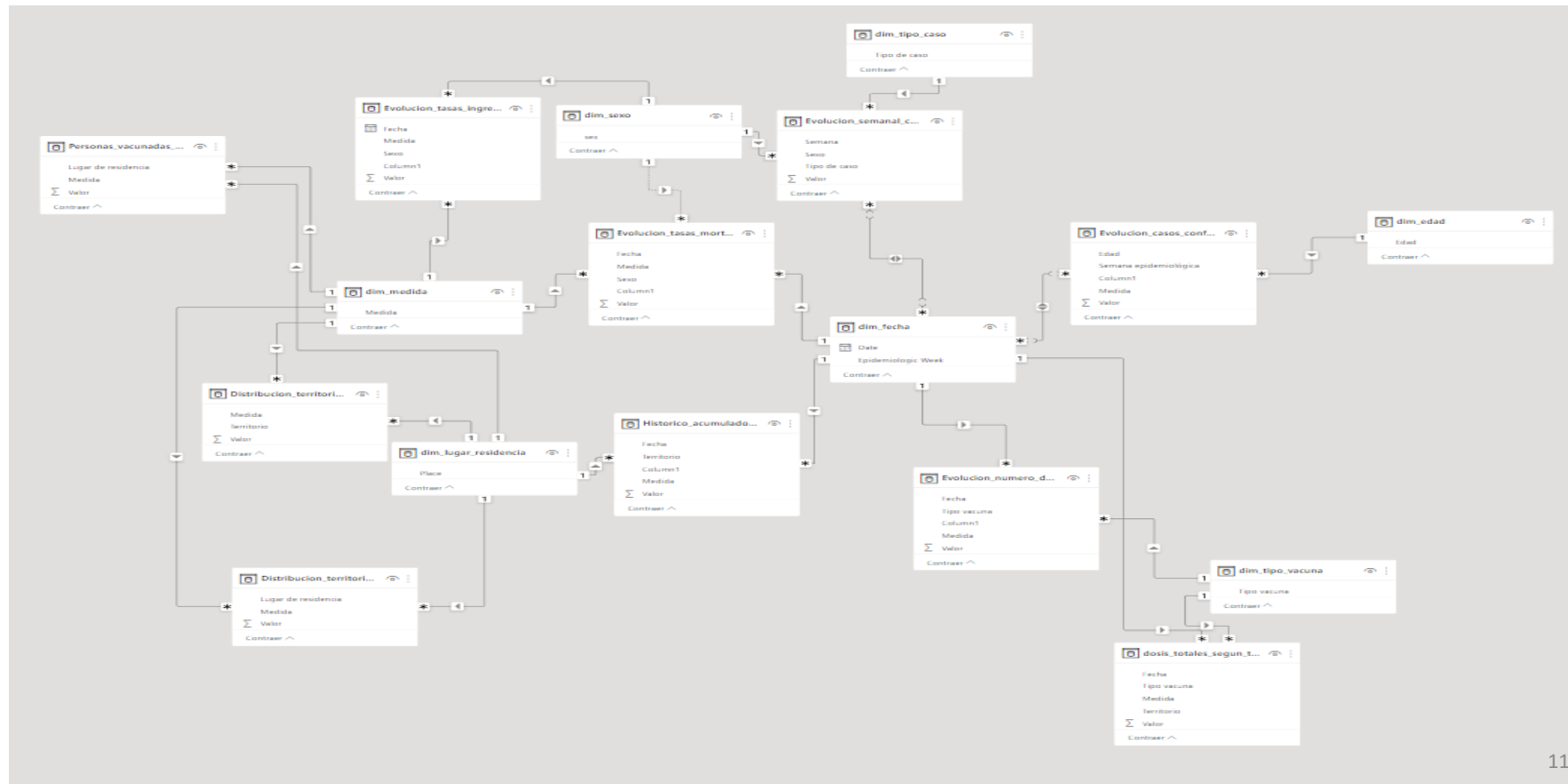
Fact to logical

- The process of transforming the conceptual fact model to the logical data model involves refining the relationships between the fact and dimension tables and defining the attributes for each table.
 - The logical data model is a detailed representation of the data warehouse schema and provides the necessary information for physical implementation.
- The logical model represents the schema of the data warehouse, with each table having defined columns, primary keys, foreign keys, and relationships to other tables.
 - This model will serve as the basis for the physical implementation of the data warehouse.

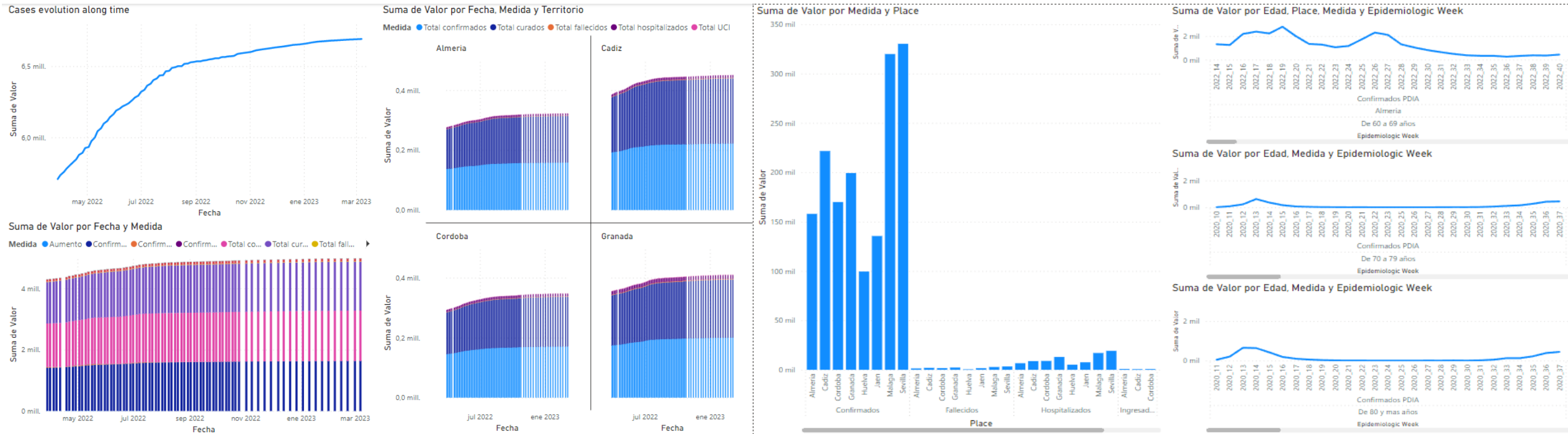


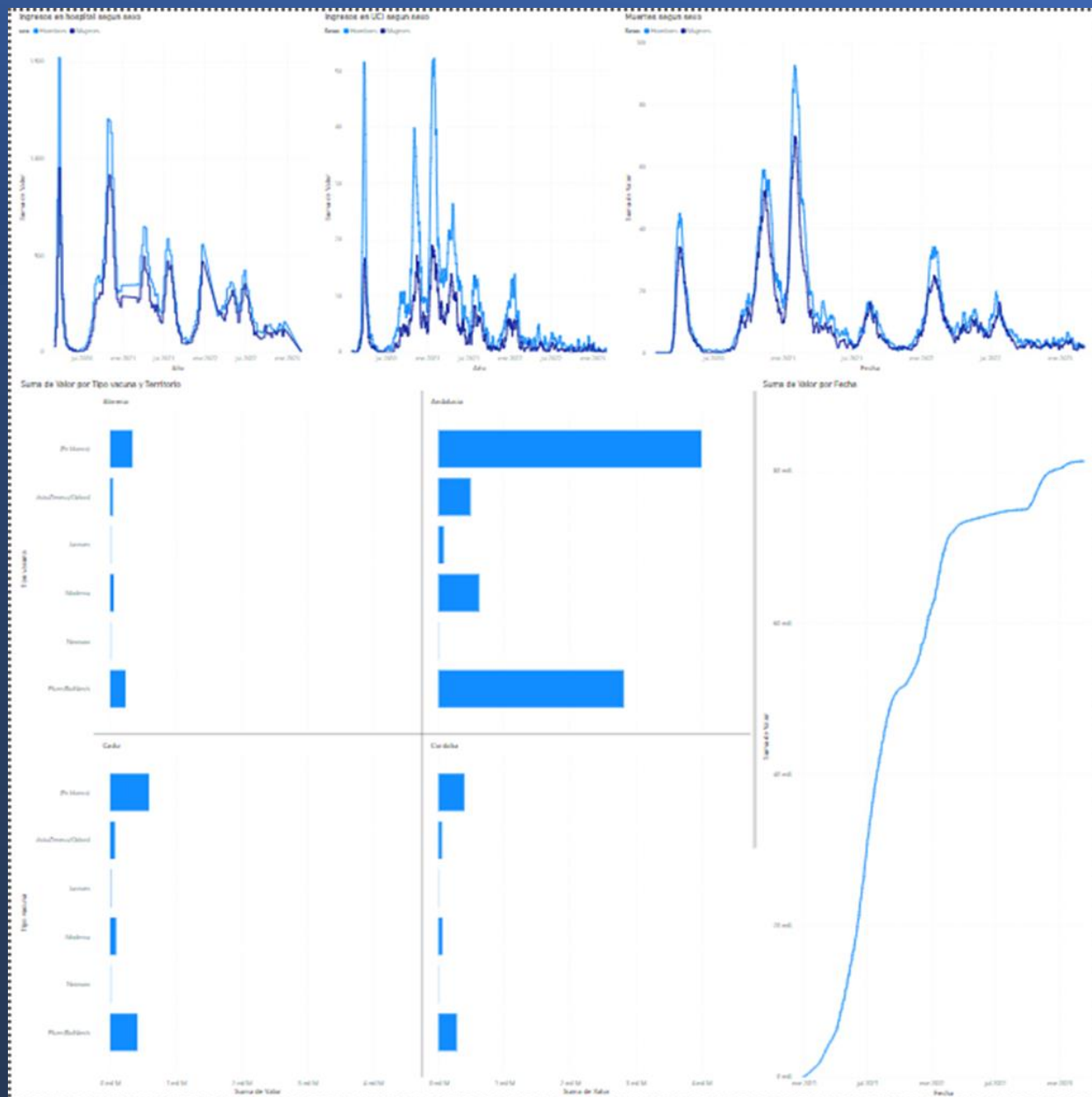


Data mart design

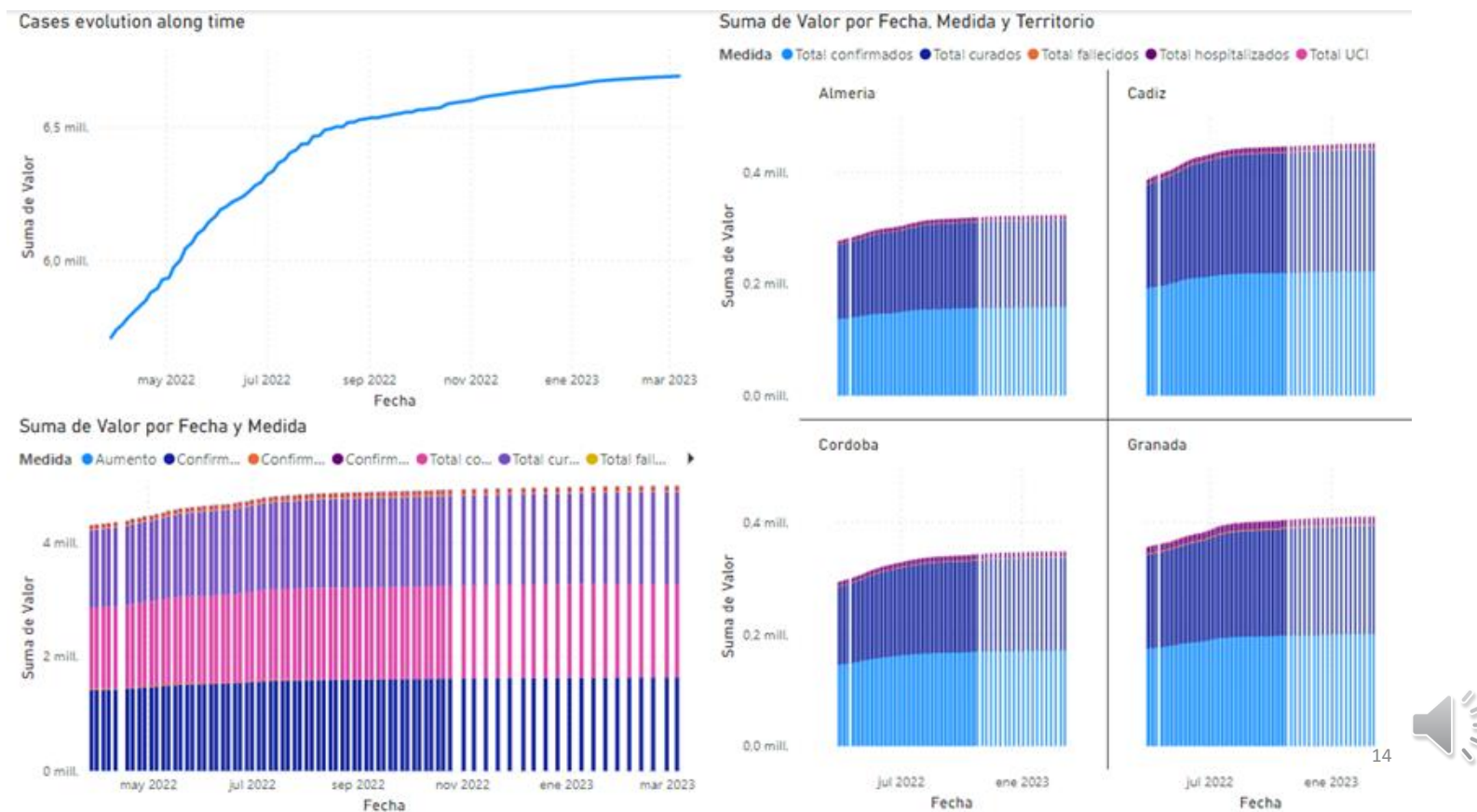


Demonstration of Power BI Application

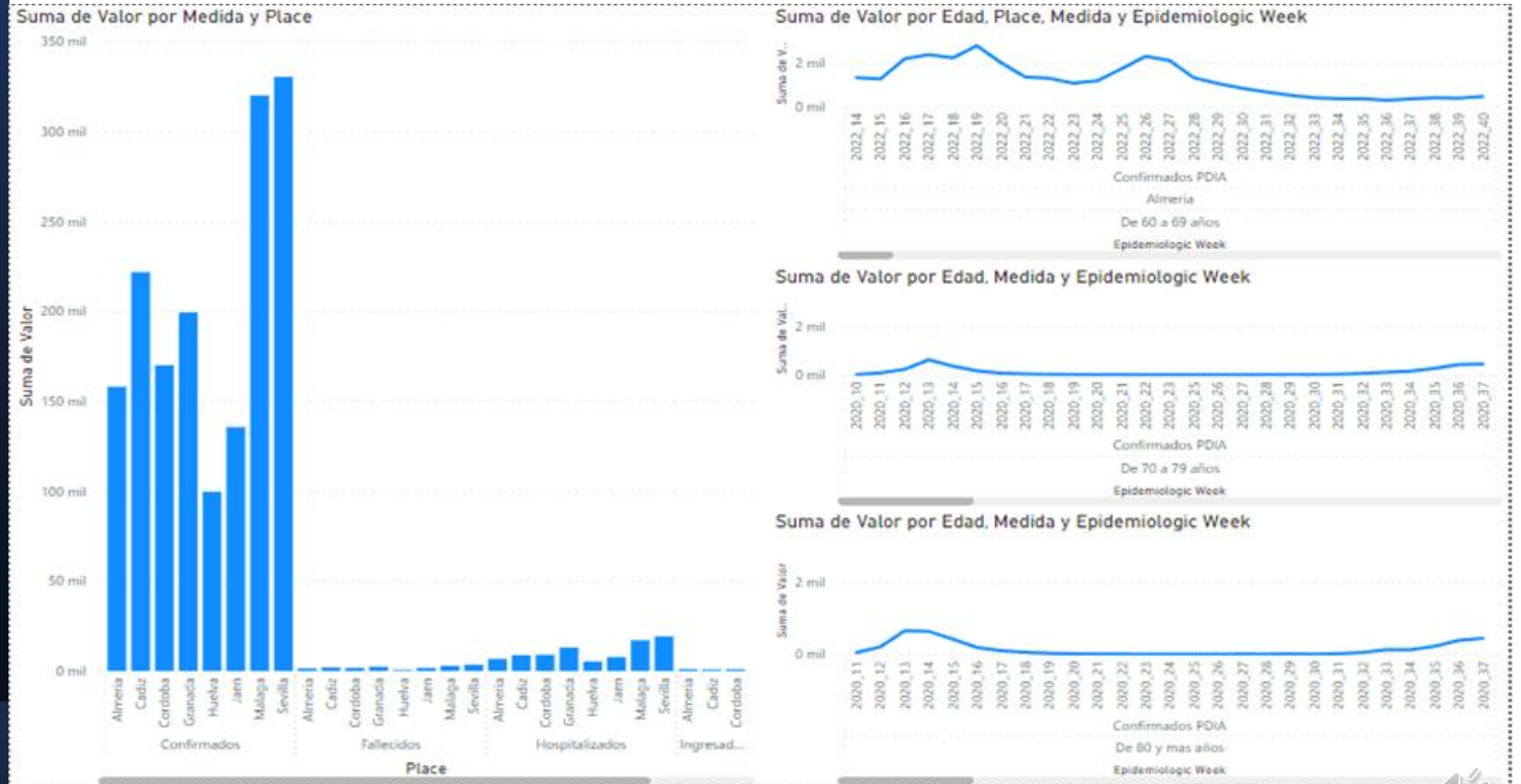


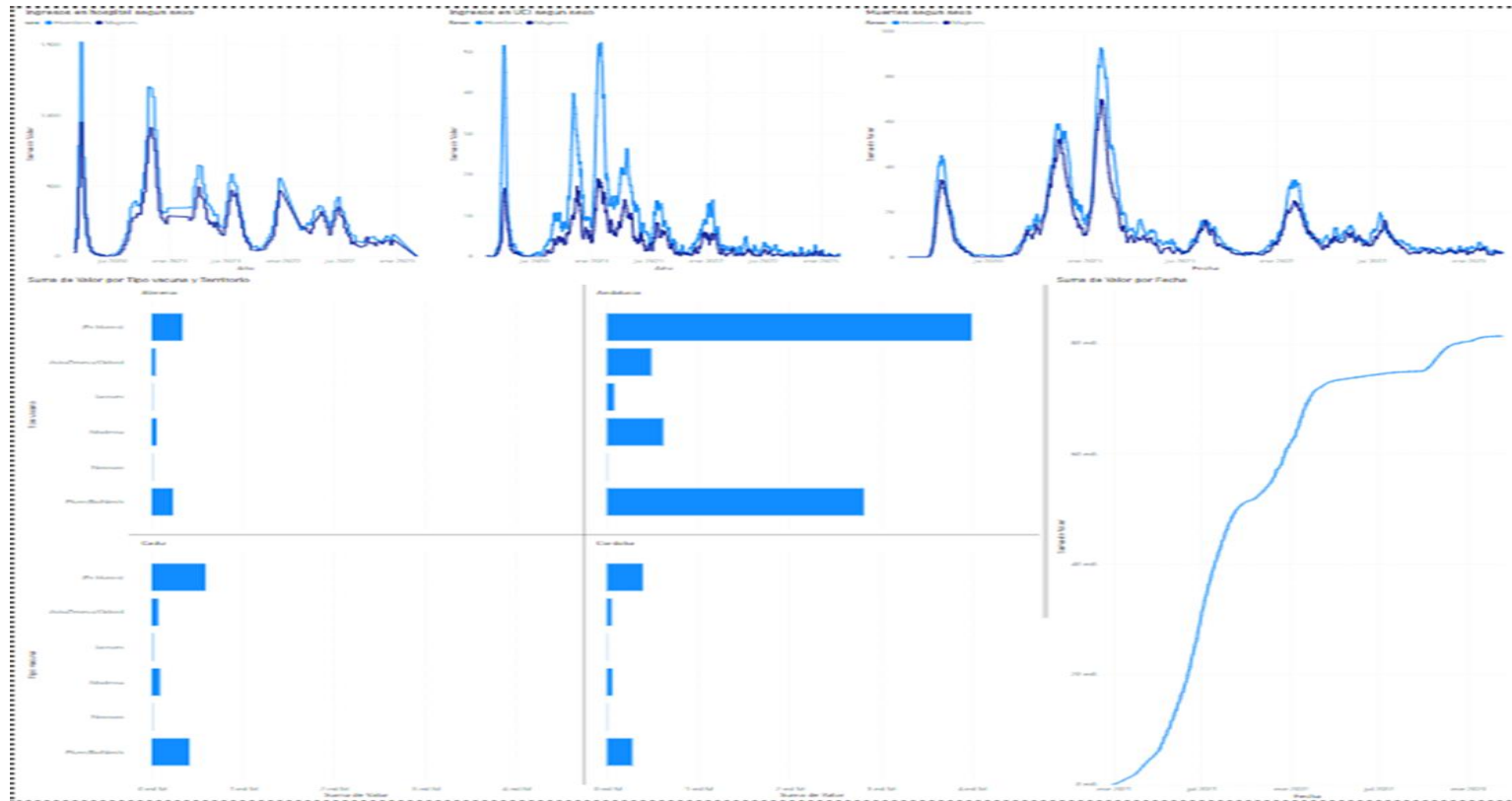


What is the trend of COVID cases in Andalusia over time?



What are the demographics of the population affected by COVID in Andalusia?





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How has the healthcare system in Andalusia been impacted by COVID?

Conclusion

- Key Findings and Insights:
 - The number of COVID-19 cases has been increasing over time, with peaks in November 2020 and January 2021
 - The number of hospitalizations and deaths has been highest among older individuals (60+), highlighting the need for targeted interventions for this population
 - The vaccination campaign has been successful in reaching a large portion of the population, with more than 50% of the population having received at least one dose of the vaccine as of August 2021

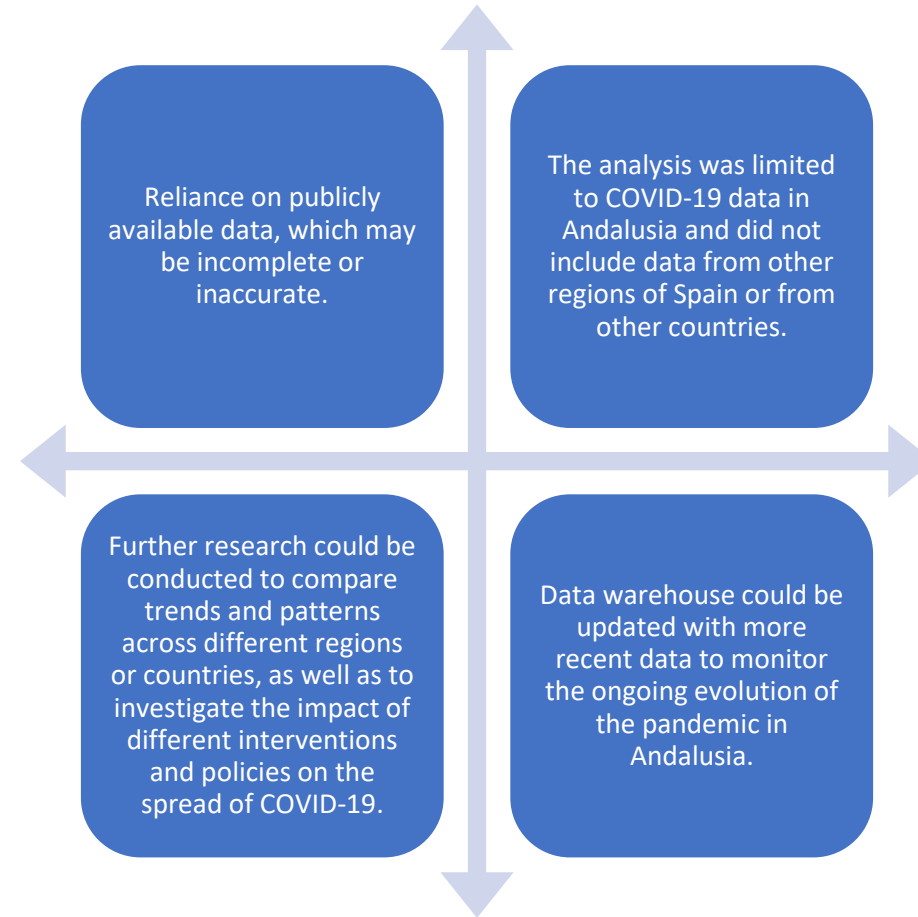


Recommendations

| | |
|-------------|---|
| Continue | Continue targeted interventions for older individuals to reduce hospitalizations and deaths |
| Ensure | Ensure that the distribution of vaccines remains equitable across different provinces of Andalusia |
| Investigate | Investigate the factors that have contributed to the decrease in COVID-19 mortality rates among hospitalized patients in the ICU to identify best practices that can be shared and implemented in other healthcare facilities |



Limitations and Opportunities for Further Research



References

- https://www.juntadeandalucia.es/institutodeestadisticaycartografia/badea/informe/anual?CodOper=b3_2314&idNode=79282