Most common disease among elders in Australia

Data source : Global health estimates: Leading causes of DALYs (who.int)

This data was collected between the years of 2014 to 2019 for males and females for the ages between 55 to 85 above.

The dataset contains information on diseases, including details such as the disease code, cause of death, country code (ISO3), year, sex of the affected population, age group, population, deaths, death rate per 100,000 population, Disability Adjusted Life Years (DALY), and DALY rate per 100,000 population.

Summary on the Dashboard

Males:

Age Group 70-74:

- Disease: Ischemic heart disease is the most common cause almost every year with the highest deaths recorded in 2018 (1,412.48 deaths).

Age Group 75-79:

- Disease: Ischemic heart disease consistently remains the top cause with the peak in 2018 (2,642.06 deaths).

Age Group 80-84:

- Disease: Ischemic heart disease is the leading cause of death each year, with the highest in 2014 (2,101.17 deaths).

Age Group 85 and above:

- Disease: Ischemic heart disease is the most common disease every year, peaking in 2014 (9,818.56 deaths).

Females:

Age Group 70-74:

- Disease: Trachea, bronchus, lung cancers dominate as the main cause of death, reaching a peak in 2019 (643.05 deaths).

Age Group 75-79:

- Disease: Ischemic heart disease is the leading cause, with the highest deaths recorded in 2019 (706.25 deaths).

Age Group 80-84:

- Initially led by Ischaemic heart disease up to 2016, Alzheimer's disease and other dementias become the primary cause from 2017 onwards, peaking in 2019 (1,404.19 deaths).

Age Group 85 and above:

- Alzheimer's disease and other dementias have taken over as the leading cause from 2017, with the highest deaths in 2019 (7,302.12 deaths).

Extending the features of this dataset

Enhancing its analytical capabilities could provide deeper insights and more robust conclusions. These are some ideas for extending and enriching your data features:

1. **Additional Health Metrics:**
    - Including more health metrics such as hospitalization rates, recovery rates, or complications related to each disease. This can help in understanding the severity and healthcare burden of each condition.
    - Data on lifestyle factors such as smoking, diet, physical activity, and alcohol consumption could also be useful, as these are often correlated with many of the diseases listed.
2. **Socioeconomic and Environmental Factors:**
    - Incorporate socioeconomic data such as income levels, education, and employment status. These factors are often closely linked with health outcomes.
    - Environmental factors such as air quality, water quality, and access to green spaces could also be considered as they have a significant impact on public health.
3. **Geographic Data:**
    - Adding more granular geographic data at the city or regional level can help identify geographical patterns in disease prevalence and mortality rates. This could be critical for targeted public health interventions.
4. **Temporal Data:**
    - Extending the dataset to include more years or even finer temporal resolutions (like monthly or daily data) could help in understanding trends over time and seasonality in diseases.
5. **Genetic and Biomedical Information:**
    - If available, genetic information or other biomedical markers could be included to explore correlations with genetic predispositions to certain diseases.
6. **Healthcare Access and Utilization:**

- Data on healthcare access, such as proximity to healthcare facilities, insurance coverage, and healthcare utilization rates, could provide insights into how healthcare infrastructure impacts disease outcomes.

Merging with other features

Incorporating the insights from dataset into the development of a wearable tech device for elders can significantly enhance the device's functionality and its impact on elder care. Here are several ways how this dataset can be utilized in your wearable tech project:

1. **Targeted Health Monitoring:**

- **Disease-specific alerts:** Use the data to understand which conditions are most prevalent among elderly populations, such as ischemic heart disease or Alzheimer's. This insight can guide the development of specific monitoring features in the wearable, like heart rate monitoring, arrhythmia detection, or activity patterns that might indicate cognitive decline.

2. **Preventive Care:**

- **Risk factor identification:** Dataset can identify common risk factors associated with major diseases. Incorporating sensors that monitor these risk factors (e.g., sedentary lifestyle, unusual heart rate patterns) can help in early detection and prompt users or caregivers to take preventive actions.

3. **Personalization:**

Customizable alerts and feedback:

- Based on the user's specific health data and general trends observed in the dataset (like age, prevalent diseases), the wearable can offer personalized health recommendations and alerts. For example, it could remind or encourage physical activity if mobility tends to decrease with age in the dataset.

4. **Data-Driven Insights:**

- **Health trend analysis:** By continually collecting health data from the elderly and comparing it with the historical data in your dataset, the wearable can provide insights into health trends, potentially predicting health deteriorations before they become severe.

Conclusion

The dataset detailing the leading causes of disease and death among older Australians from 2014 to 2019 provides critical insights into the health challenges faced by this demographic. The prominence of diseases like ischemic heart disease and Alzheimer's among elders underscores the urgent need for targeted healthcare strategies and interventions tailored to these prevalent conditions.

Extending the dataset's features to include additional health metrics, socioeconomic factors, environmental data, and more detailed geographic and temporal data will greatly enhance its analytical capabilities. Such enhancements can help in identifying underlying causes, predicting trends, and implementing precise public health interventions.

Moreover, the integration of these insights into the development of wearable technology for the elderly can revolutionize elder care. By facilitating targeted health monitoring, preventive care, and personalized health recommendations, such technology can not only improve the quality of life but also potentially extend the life spans of elderly individuals.

Overall, leveraging this dataset in both healthcare policy and technology development can lead to significant improvements in public health outcomes for Australia's aging population, providing a model for similar initiatives globally.

References

1. **Dataset Citation:**
    - Global Health Estimates, 2021. *Leading causes of DALYs by sex and age group*. [online] Available at: Global health estimates: Leading causes of DALYs (who.int) [Accessed 8 May 2024].
2. **Journal Articles:**
    - Johnson, A. and Lee, K., 2022. 'Impact of wearable technology on elderly health monitoring', *Journal of Medical Innovation*, 14(2), pp.134-145.