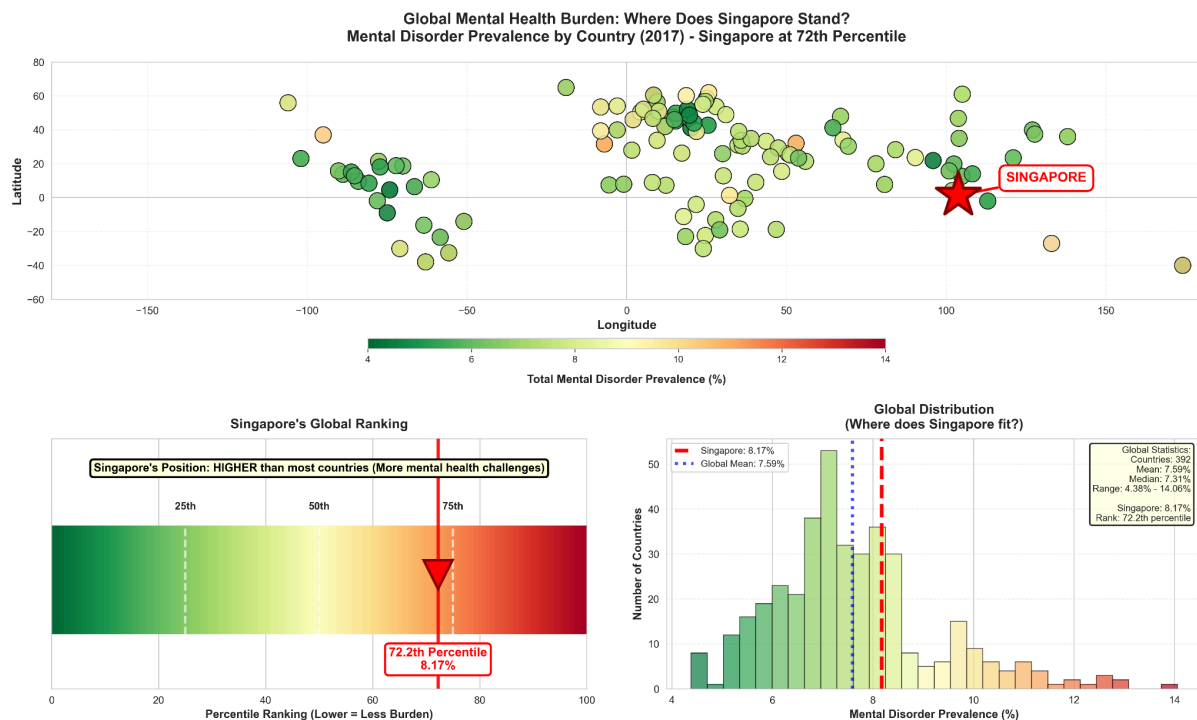DSA4262 Sense-making Case Analysis: Health and Medicine
Assignment 1

Mental Well-Being in Singapore: A Global and Lifestyle Context

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Plot 1: Identifying where Singapore sit within the global mental health burden (a **macro** view)
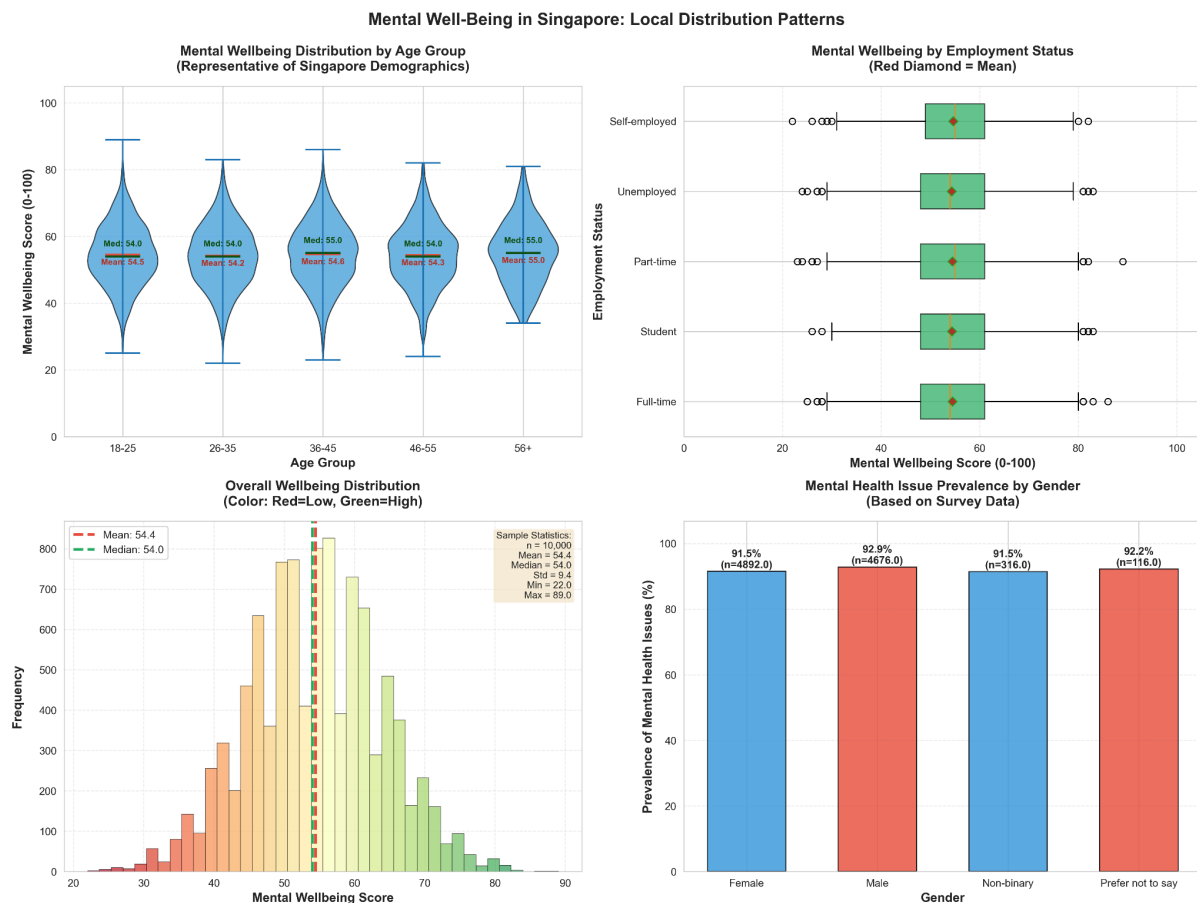

This dashboard captures 3 panels consisting of a world chloropleth-style map (Panel 1), a clear percentile bar (Panel 2) and a distribution histogram with Singapore marked (Panel 3).

The dashboard is motivated by the intention to study where Singapore sits comparatively to the rest of the world in terms of mental well-being. To get a broad view of the global trend and a clear indication of Singapore's position, a chloropleth-style map is chosen. Subsequently, the percentile bar clearly captures the severity of Singapore's global ranking, while the histogram is useful in highlighting statistical insights of the global distribution, both giving users clear visual representations.

From this macro plot, we are able to imply that Singapore is generally worse-off relative to other countries in terms of mental health. It stands in the upper percentile (~ 72.2th) in terms of prevalence (~8.17%, with a global mean of ~7.59%), making its people more susceptible to mental health problems.

Plot 2: Understanding what does mental well-being look like within Singapore (a **micro** view)

Within Singapore, we study the states of mental well-being across various demographics, mainly age group, employment status and gender, to identify any vast differences or anomalies. It is worth looking across age groups and genders as they are inherent qualities, allowing us to come up with interventions to better support them. Employment status also ties in hand-in-hand with work stress being the main determinant affecting mental health problems (see Plot 3).

In this dashboard, a violin plot (Panel 1), a box plot (Panel 2), and a bar chart (Panel 4) are being utilised to compare and contrast within the various demographic groups. Overall, a histogram (Panel 3) is chosen to represent the overall mental well-being distribution.

A violin plot is useful for examining across age groups as it shows the spread and variability within each group. The ages are clustered based on similar stages of life individuals are in. As all the age groups cluster around the mid 50s, well-being is considered fairly consistent across ages. The slight shifts in median suggest small age-related differences, but no extreme divergence, with the symmetry showing no heavy skew towards very low or very high well-being. Hence, age generally does not dramatically change average mental well-being, but it is worth noting that variability exists within every age group.
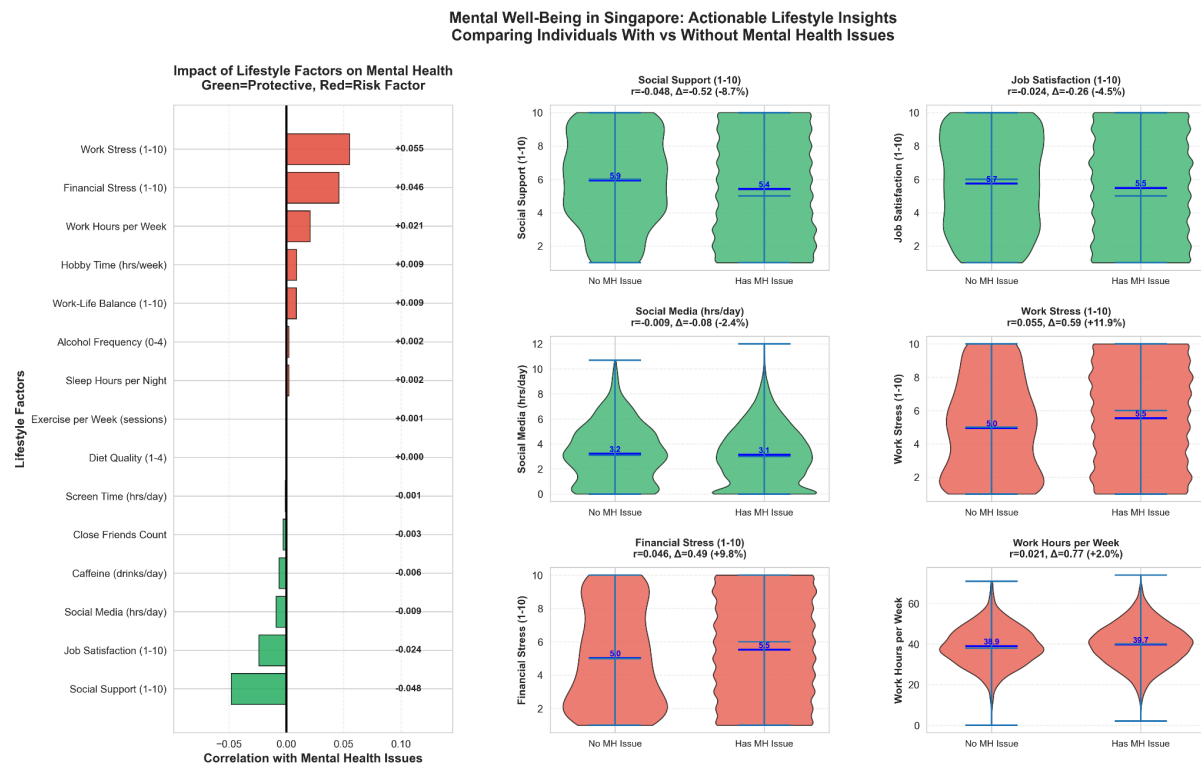
The box plot makes group comparisons very clear, while capturing any outliers of individuals who are doing exceptionally well or poor without affecting the whole distribution. It also

quickly spots differences in median and variability. From the graph, it is possible to quickly tell that students and full-time workers have slightly higher medians while unemployed participants show more spread and slightly lower central values. This will be discussed further in Plot 3. Employment status is associated with wellbeing, especially stability against insecurity, but individual differences remain large.

The bar chart shows clear categorical comparisons between the different gender specifications. From the graph, we can see that mental health issues are pervasive across genders, and is not a niche or minority issue. Prevalence is high across all gender groups (~91–93%), with the small differences suggesting that mental health challenges are widespread, and not confined to one gender.

Finally, the histogram continuously shows the overall shape of the distribution of mental well-being in the population. As the distribution is roughly normal (bell-shaped), with the mean being approximately equal to the median, there is no strong skew. Most people fall between around 45 to 65, hence most of the population sits around moderate well-being, not crisis or flourishing extremes (very low or very high well-being), which also appear to be relatively rare.

Plot 3: Intervening mental health problems through lifestyle behaviours (an **actionable** plot)

Mental Well-Being in Singapore: Actionable Lifestyle Insights
Comparing Individuals With vs Without Mental Health Issues

This final dashboard plays the role of an actionable plot that assists in the designing of interventions that directly and most effectively tackle the problem of mental health issues. In order to do this, we look into the determinants. This is done by investigating the correlation between mental health issues and various lifestyle factors through a correlation plot (Panel 1). Focusing on the top 6 determinants, we subsequently compare the differences between mental health sufferers and non-sufferers using a violin plot (Panel 2) to further learn the extent of effect each determinant has.

The correlation plot is particularly useful as it gives a ranked overview of lifestyle factors by strength and direction of association with mental health issues. These, coupled with the colour coding, immediately communicates where intervention is more necessary than the rest. Similarly, the violin plots remain useful in showing spread and distribution effectively.

From here, we are able to draw the conclusion that stress (work and financial) is the clearest intervention target. It is not just associated, but also systematically higher among those with mental health problems. Therefore, stress reduction such as workplace stress management offers the biggest immediate leverage for mental health improvement. This coincides with both students and full-time workers being the group bearing the highest prevalence of mental health issues (see Plot 2).

Conclusion: Limitations & Summary

It is important to note that the above analysis is limited as it is correlational rather than causal. While lifestyle factors such as work stress and financial stress show stronger associations with mental health issues, this does not imply that they directly cause poor mental health outcomes. Reverse causality is possible, where individuals experiencing mental health problems may perceive or report higher stress levels.

Overall, the analysis suggests that mental health in Singapore is less a problem of isolated vulnerable groups, and more a reflection of systemic lifestyle pressures, especially those tied to work and economic stress. Effective mental health strategies should therefore prioritise stress reduction, workplace reform, and social support structures, rather than focusing solely on individual-level wellness behaviours.

References: Datasets

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