University students mental health business Intelligence project case study.

Name: Vuyo Kirabira

Github repo:
https://github.com/VuyoKirabira/Mental-health-business-intelligence-project

YouTube walkthrough:
https://youtu.be/o1jciFtbC3U?si=FUgSTNanfec3ukUB

1.Context / Problem Statement

In light of June being men's mental health awareness month I decided to embark on a business intelligence project with data analysis components

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2. Objective / Goal

To uncover insights related to students mental health and to uncover patterns in anxiety,coping mechanisms and overall student mental health in South Africa.

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3. Data Source

I conducted a google survey in order to collect data related to University students mental health. I received 46 responses. I asked them questions related to demographic information, coping mechanisms they use when life gets too much to handle and I asked them questions related to their overall mental health.

QUESTIONS I ASKED:Are you male or female,How old are you? (only numeric values) Where do you stay?What year are you doing ?What are you studying?Rate your mental health? Do you get enough sleep?Have you felt overwhelmed by academic commitments this year?Do you ever ever feel anxious about the uncertainties that the future holds?What is your coping mechanism for when life gets too much?Rate the effectiveness of your coping mechanism., Do you make use of the mental health support systems provided by your university?If you answered yes to the previous question, which ones do you use ?

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4. Methodology / Approach

- **Data Collection:** Google forms
- **Data Cleaning & Transformation:** Excel(power query and formula logic)
- **Data Modeling**: Star schemas, created the fact table and its related dimension tables in excel then I created the actual star schema in my SQL.
- **Data Analysis**: Conducted exploratory data analysis in MySQL.

- **Visualization**: Power BI used DAX to create impressive measures .

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5. Key Insights & Analysis

Due to the preliminary sample size being 46 it is too small to draw definitive conclusions but nonetheless these insights are an important snapshot of student mental health:

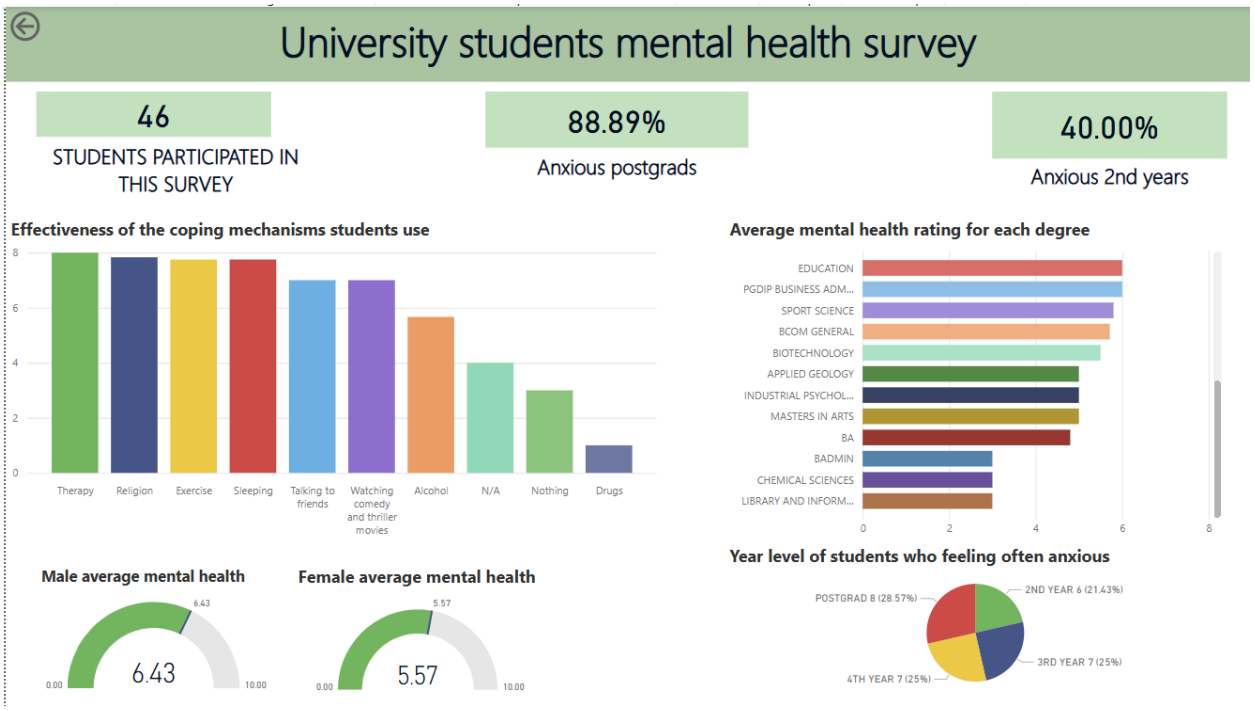
- In terms of the students who often feel anxious, postgraduate students feel the most anxious. This makes sense as postgrad students face issues like they have to find jobs and in south africa we have a job crisis adding to the anxiety, they face challenges transitioning from undergrad to postgrad and limited funding options compared to undergraduate students who have NSFAS.

- Therapy has the highest effectiveness as a coping mechanism for when life gets too much followed by religion and exercise.

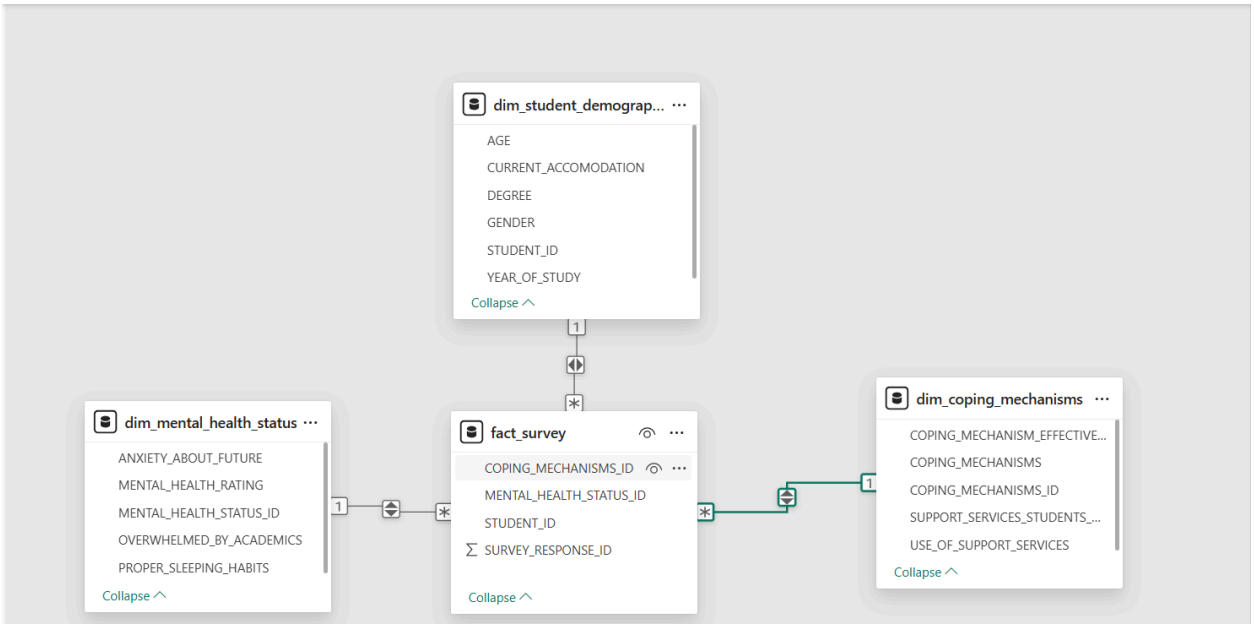
- Preliminary data shows BA students were in the bottom half for lowest average mental health scores yet having some of the highest participation in the survey making their average mental scores in this survey more statistically sound compared to other degrees who had similar mental health scores but fewer participants.
  WHY IS THIS THE CASE?My hypothesis regarding this is BA students do modules like sociology which forces them to be more socially aware and cognisant of themselves as well as society in general. This is a double edged sword because in as much as they are more cognisant of societal issues like systematic injustices and oppression and they are more curious about these issues leading down a spiraling hole where they are faced with the truth about this world we live in. Imagine you're in the movie "matrix" once you wake up you can't see the world the same. Awareness can be both a gift and a burden.

6. Visuals / Screenshots

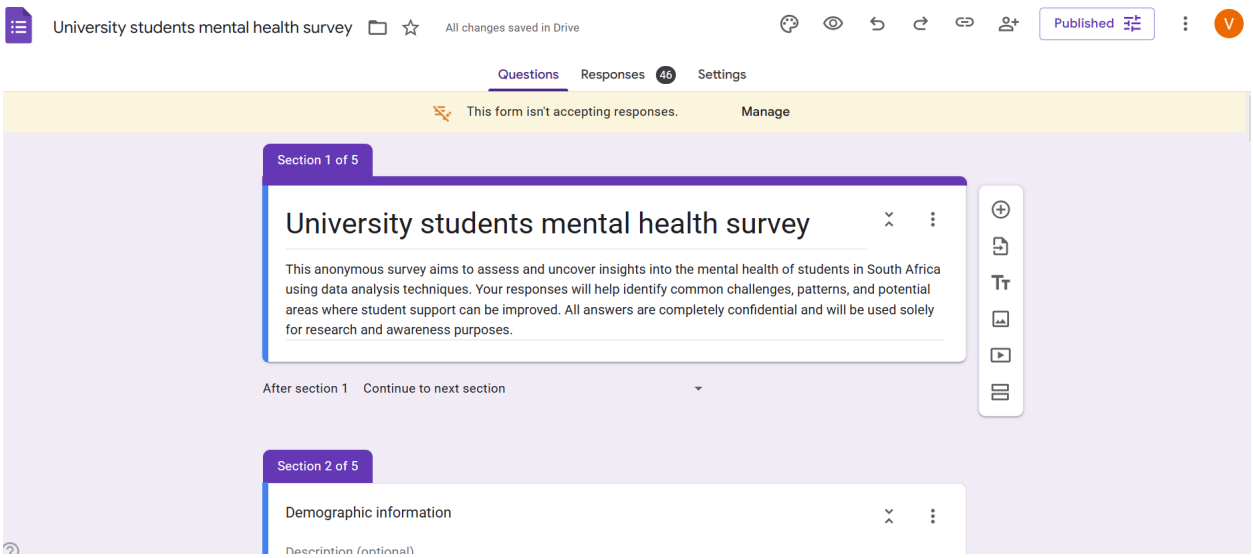
Screenshot of my final dashboard on power BI



Screenshot of the star schema model on power BI



Screenshot from survey

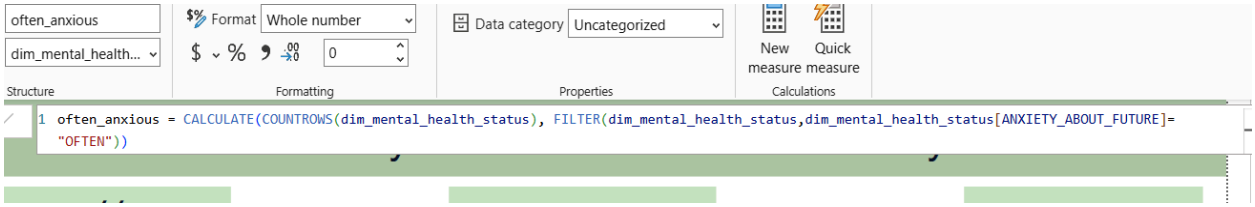


Dax measures used to calculate the average male and female mental health respectively:

```
avg_male_mhr =
CALCULATE(
    [avg_mental_health_rating],
    'dim_student_demographics'[GENDER] IN { "Male" })
```

```
avg_female_female =
CALCULATE(
    [avg_mental_health_rating],
    'dim_student_demographics'[GENDER] IN { "Female" })
```

Dax used to determine students who often feel anxious



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7. Limitations

My small sample size being 46 is way too small for justify any trends amongst a larger group. For example, I can't say men have better mental health than women in South Africa based on my data. In order to justify any trends a greater sample size will be needed and just because my sample size is small it doesn't mean this data isn't meaningful, small though it may be, this data reflects important student sentiment.

8. Data ethics

- Survey was anonymous to protect participant identity
- I didn't ask any obvious identifying information like name, email etc
- I converted the dynamic card showing population into a static card because some coping mechanisms and degrees for example had 1 participant and maybe some how this could be used to narrow down individuals even though unlikely I took an extra step to ensure anonymity.
- I decided to not post the link to the project in case it can somehow be reverse engineered to reveal information about participants or my data as this is anonymous even though it is unlikely we must take steps to ensure integrity .

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9. Conclusion

I learnt that university students are going through a lot of challenges and that we should be empathetic to one another. My next step in terms of this project would be to try and increase the sample size to validate my trends, as well as conduct some stats to validate correlation amongst the variables like a chi-test and conduct predictive modelling since I have some experience in ML(vision system) it would be a nice challenge for me.

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10. Links / References

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- Video walkthrough:

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