Technical Analysis Report

Capstone Project | School Student Health and Wellbeing

-Introduction:

In recent years, the issue of student health and maintaining their overall well-being has become a crucial and influential factor in supporting their mental health and quality of life. Through students' interaction with their school environment and their social circles, whether family or friends, they are exposed to various social and health-related influences that shape their general behavior, which may positively or negatively impact their mental and emotional well-being.

Schools play a vital role in shaping the foundational knowledge needed to achieve a good level of physical and mental health. This is accomplished through the guidance and educational efforts embedded in curricula and classroom activities that address topics relevant to students, such as dealing with bullying, crises, and social situations with peers. Schools also introduce students to the risks of alcohol, drugs, and other health-related behaviors, whether beneficial or harmful, as part of their daily habits and lifestyle.

The 'My Health, My School' (MHMS) annual school survey is an invaluable online primary and secondary school pupil survey tool. It is available for students in Years 5, 6, 7, 9 and 11, This survey allows schools to measure student health behaviors in order to improve their well-being as it provides an instant snapshot of data on important areas as mentioned. The importance of analyzing this survey lies in the need to protect students from social and health risks that may negatively affect their physical and mental well-being. Such risks ultimately influence the overall quality of life students experience and may hinder their chances of success, stability, and the ability to realize their full potential. Studying the factors that shape students' physical and mental health therefore represents the core motivation behind selecting this project.

-Problem Statement:

Students' Health and mental well-being is shaped by multiple daily factors—such as dietary habits, social environment (School – Home), interpersonal relationships, technology use. These factors vary across age groups and are not clearly measured or analyzed in an integrated manner.

This capstone project aims to identify, quantify, and analyze the key factors affecting students' well-being, including how schools influence student health using data from the *My Health, My School* (MHMS) annual survey conducted across schools in Leeds, UK. The analysis will determine which lifestyle, social, and school-related variables show the strongest associations with mental and psychological outcomes, providing evidence-based insights within the project timeframe.

-Objectives:

- Identify the factors that influence whether students enjoy their lives and overall well-being.
- Understand the impact of the school's role in shaping students' foundational knowledge related to their health and well-being.
- Provide recommendations to protect students' health and enhance their level of well-being.

-Target Audience:

- School leaders.
- Well-being coordinators.
- Public-Health Teams.
- Parents.
- Education Policy makers.

-Dataset:

The dataset used in this project is derived from the "*My Health, My School (MHMS*" survey, an annual questionnaire targeted primarily at primary and secondary school students in the city of Leeds, United Kingdom. The survey consists of 25 questions presented in three main formats:

- Direct questions: These are straightforward questions that require a single, unique response from each participant.

- Categorical multiple-choice questions: These questions include several categorical options, and participants may select more than one response for each question.

- Numeric multiple-choice questions: These are multi-response questions where participants may choose more than one option. Responses such as "X," "Yes," or "No" are converted into numerical values for statistical analysis.

Below is the data dictionary for the data set that been segregated into 3 tables:

Note: Table2 & 3 are in the same format with different questions

- Table1

#	Column / Question	Description	Data Type
1	Individual ID	The respondent Unique ID (PK)	Text
2	School classifications	The school where it is for primary or secondary students	Text
3	Year_group	The years under the school classification (primary and secondary)	Text
4	Gender	Respondent Gender	Text
5	Do you have, or do you consider yourself to have, a disability?	To identify whether there is disability or not (Yes/No)	Text
6	Where do you live?	To identify where the respondent lives (with parents or others)	Text
7	Which of these describes you as a student?	To identify which class the respondent belongs to	Text
8	In a normal week, how often do you have breakfast?	Identify how often the respondent has breakfast in a normal week	Text
9	How many minutes a day do you usually spend sitting down watching TV/playing computer games/using the internet/using a mobile phone?	Identifies daily minutes spent on screen-related sitting activities	Text
10	In a normal week how many times are you physically active for 30 minutes or more?	Identifies weekly frequency of being active for 30 minutes or more	Text
11	Which of these describe you?	Identify certain situations regarding drinking alcohol	Text
12	How happy do you feel about the number of good friends you have?	Identifies happiness regarding number of good friends	Text
13	In the last 12 months, how often (if at all) have you been	Identifies bullying frequency in last 12 months	Text

	bullied in or around school/college?		
14	How safe do you feel at home?	Identifies perceived safety at home	Text
15	On a normal school/college night (Sunday to Thursday) how many hours of sleep do you have?	Identifies hours of sleep on normal school nights	Text
16	How much do you agree or disagree with the following statement "I enjoy my life"?	Identifies agreement level with the statement "I enjoy my life"	Text
17	How good is your school/college at encouraging you to have a healthy lifestyle?	Identifies how good the school/college is at encouraging a healthy lifestyle	Text

- Table2 & 3

#	Column / Question	Description	Data Type
1	Individual ID	The respondent Unique ID (PK)	Text
2	Question	The list of questions the respondents' answers (Multiple Choice)	Text
3	Option	the list of options of the questions (Numeric/Categorical)	Text/Numeric
4	Selected Answer	The selected answers for the questions (Multiple selection)	Text/Numeric

-Data Handling:

The data processing phase went through several key procedures to ensure proper cleaning and preparation of the dataset, in order to maximize the quality and usability of the data for accurate analysis. Multiple tools were used to clean, transform, and refine the dataset until it reached the final structure used in this project**.**

1. Microsoft Excel

- Removed columns that were not relevant to the problem being addressed.

- Split the main dataset into three smaller datasets:

    1. One for direct questions

    2. One for categorical multiple-response questions

    3. One for numeric multiple-response questions

- Identified the target age group (primary and secondary students) and removed the remaining categories, which represented less than 5% of the overall data.

2. Python

- Cleaned the dataset for direct questions by replacing blank values with "Unknown" and formatting question text to remove extra spaces or typographical issues.

- Standardized response categories to ensure consistent classification across the dataset.

- For the second and third datasets, transformed the data from wide format to long format, simplifying subsequent analysis in Power BI.

- Converted responses such as *Yes, No,* and *X* into numerical values to enable consistent statistical processing.

3. Power BI

- Performed additional minor text corrections after identifying inconsistencies during analysis.

- Assigned appropriate data types before analyzing, categorizing, and visualizing the data.

- Merged smaller categories into larger ones to reduce fragmentation and improve the clarity and interpretability of visual outputs.

-Analysis and Findings:

After completing the data cleaning and preparation phase, the dataset was analyzed to achieve the project objectives. The main findings of the analysis can be summarized as follows:

1. Responding to the core question: "Do you enjoy your life?"

The results revealed that:

- **77%** of students agreed with the statement.

- **7%** disagreed with the statement.

- **16%** were unsure.
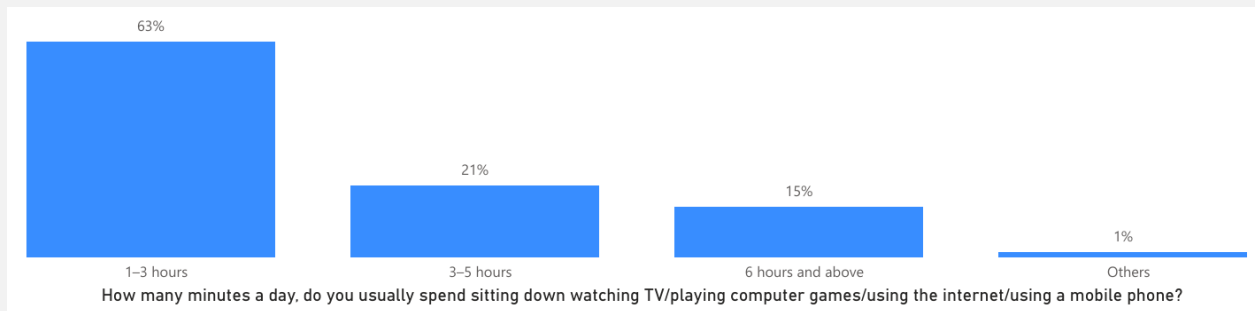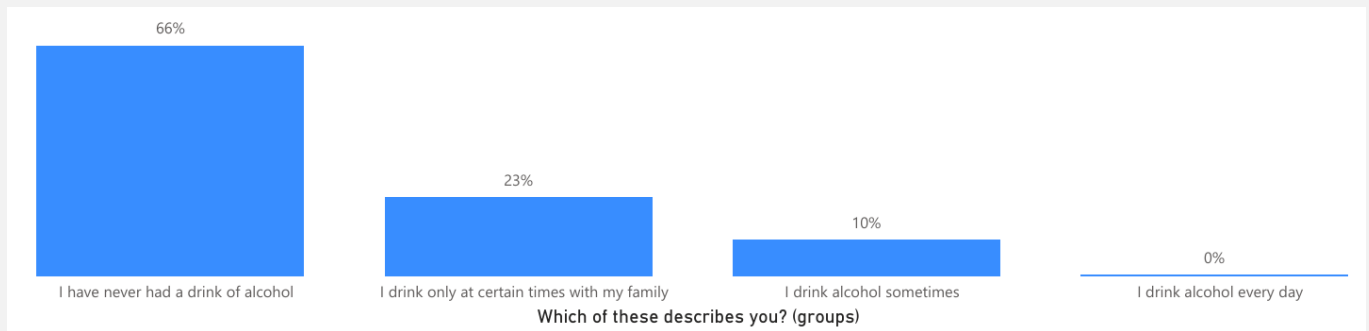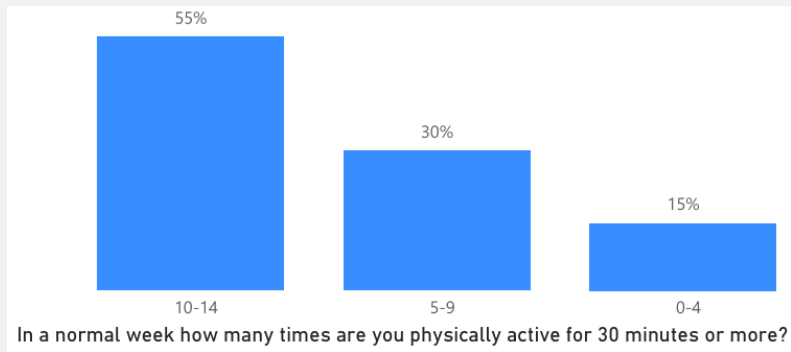
These results are illustrated in the chart below.
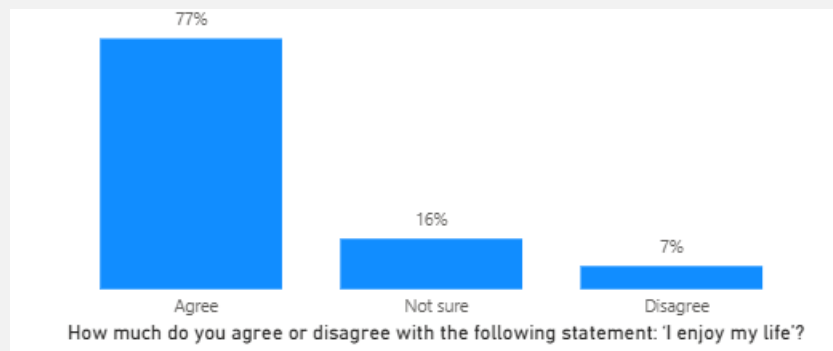
2. What are the reasons behind the 77% of students enjoying their lives?

To explore the factors contributing to students' enjoyment of life, the analysis identified the following key reasons:
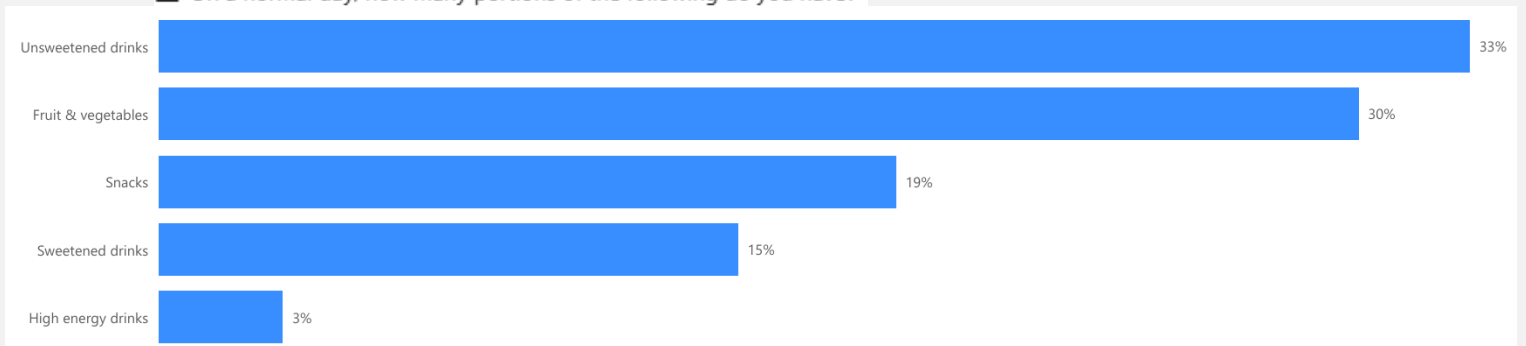
• Positive Habits

These include routine behaviors practiced throughout the week, such as:

- Healthy dietary habits

- Health-related behaviors such as proper sleep, reduced alcohol consumption, and engaging in physical activity

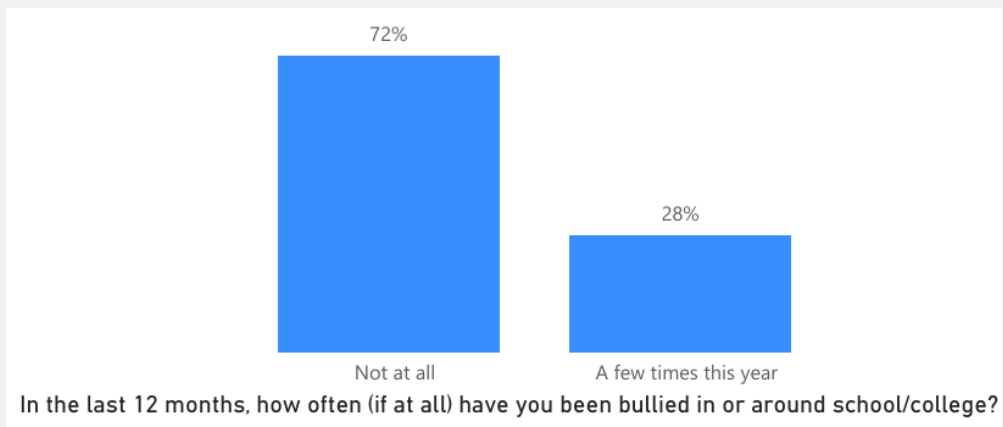- Screen-time habits, including time spent on devices such as TV, computers, and the internet
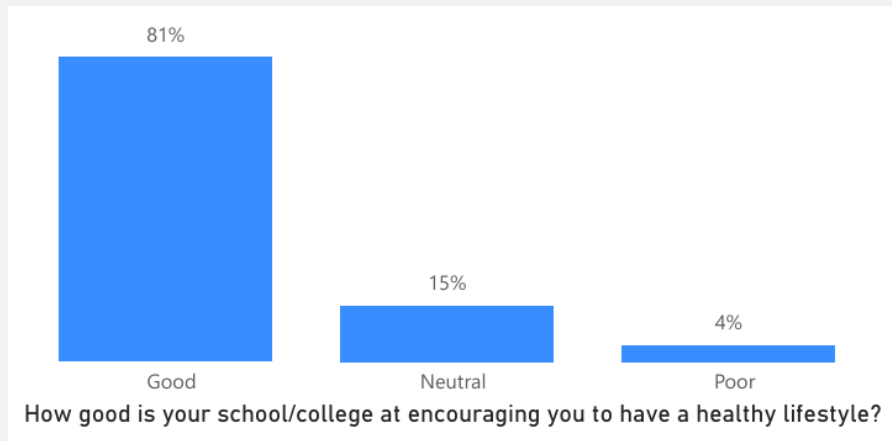
In a normal week how many times are you physically active for 30 minutes or more?

- 10-14: 55%
- 5-9: 30%
- 0-4: 15%

Which of these describes you? (groups)

- I have never had a drink of alcohol: 66%
- I drink only at certain times with my family: 23%
- I drink alcohol sometimes: 10%
- I drink alcohol every day: 0%

How many minutes a day, do you usually spend sitting down watching TV/playing computer games/using the internet/using a mobile phone?

- 1–3 hours: 63%
- 3–5 hours: 21%
- 6 hours and above: 15%
- Others: 1%

■ On a normal day, how many portions of the following do you have?

- Unsweetened drinks: 33%
- Fruit & vegetables: 30%
- Snacks: 19%
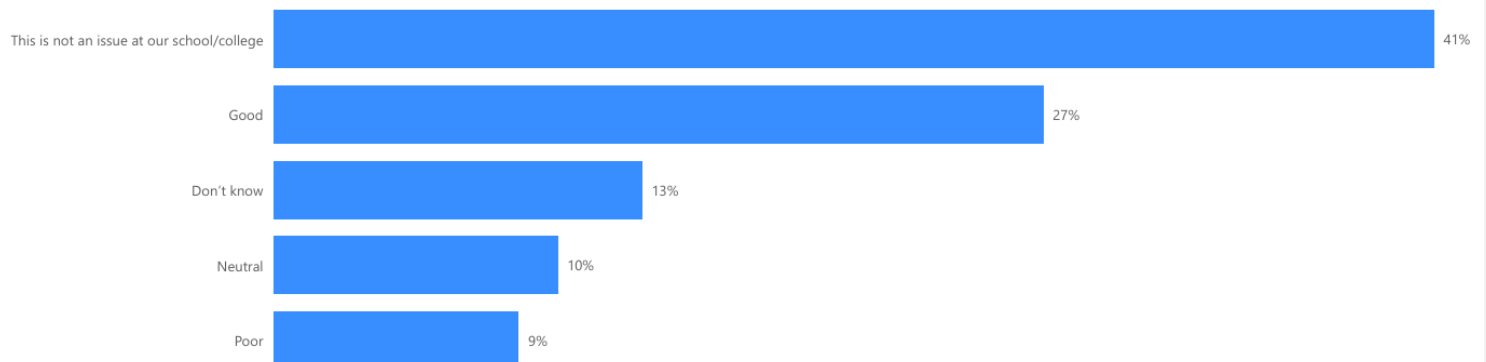- Sweetened drinks: 15%
- High energy drinks: 3%
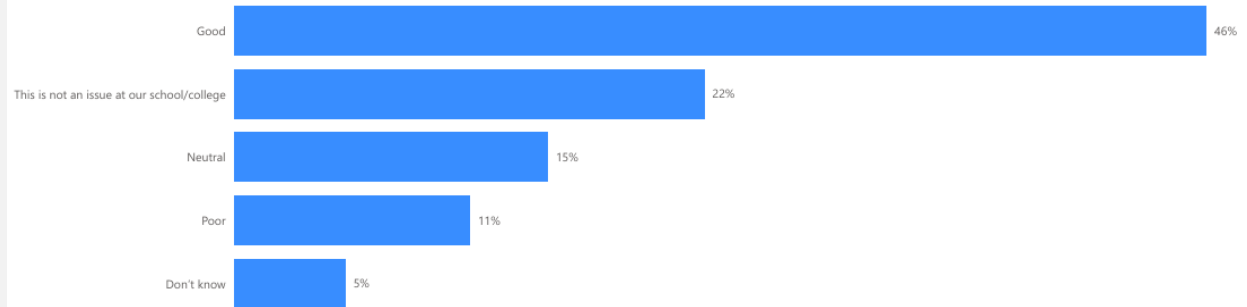
• School Influence

The school plays a significant and fundamental role in shaping students' well-being through its social environment, the knowledge it provides, and the way it addresses the challenges students face during their time at school. These factors collectively contribute to a positive impact on students' overall well-being, as illustrated in the following charts.
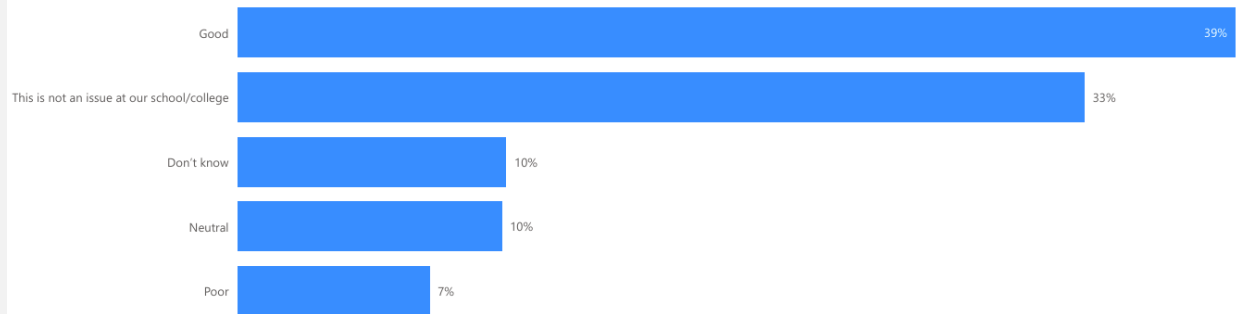

How good is your school/college at encouraging you to have a healthy lifestyle?

In the last 12 months, how often (if at all) have you been bullied in or around school/college?

How good do you think your school/college are at dealing with the following?
Alcohol

■ Bullying

Good	46%
This is not an issue at our school/college	22%
Neutral	15%
Poor	11%
Don't know	5%

■ People from different backgrounds not getting on well

Good	39%
This is not an issue at our school/college	33%
Don't know	10%
Neutral	10%
Poor	7%

■ Racism

Good	38%
This is not an issue at our school/college	33%
Neutral	10%
Don't know	10%
Poor	9%

■ Smoking

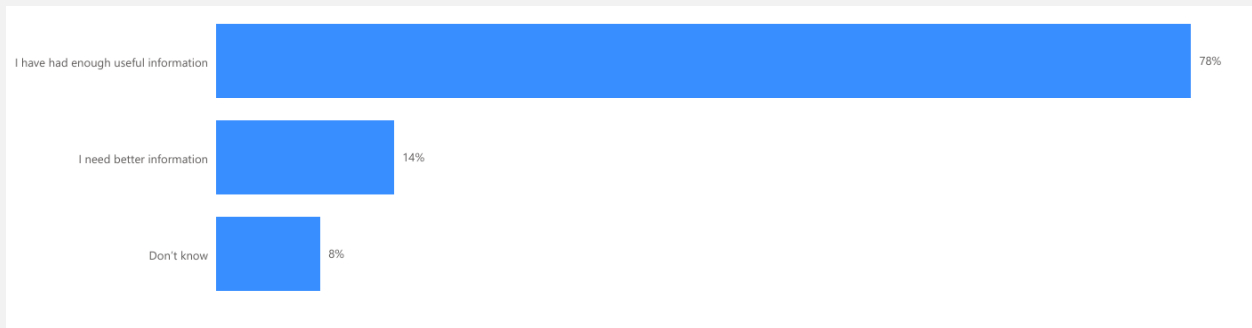|	
This is not an issue at our school/college	40%
Good	28%
Don't know	13%
Poor	10%
Neutral	10%
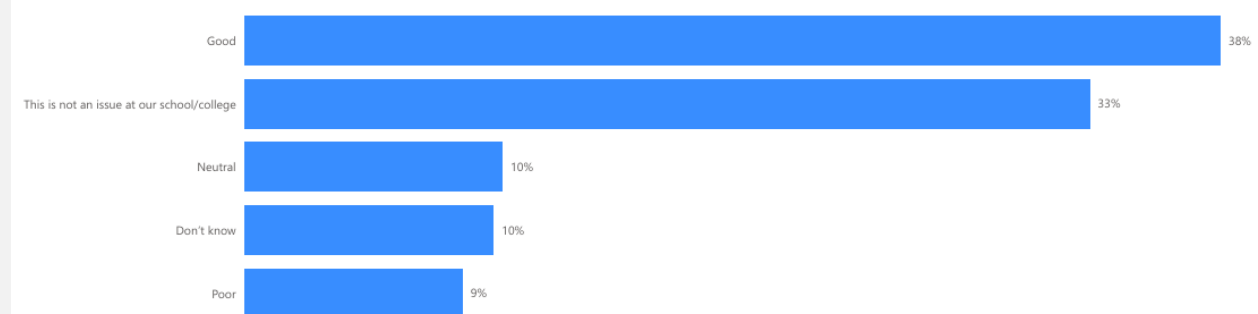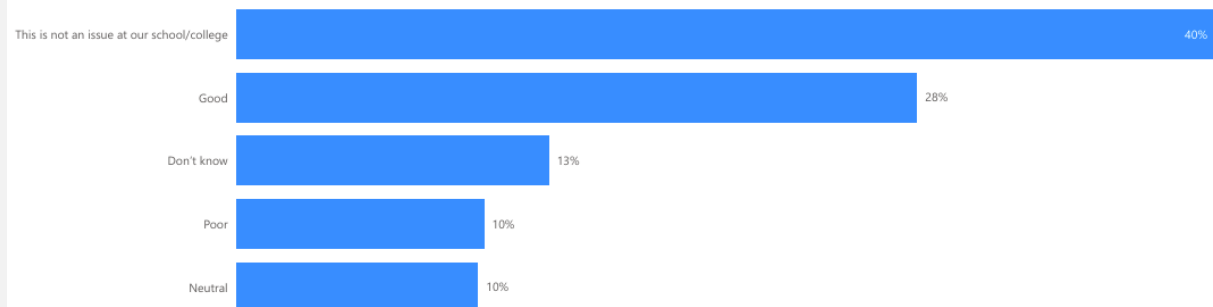
How much useful information and learning have you had to help you understand the following things?

Alcohol

I have had enough useful information	78%
I need better information	14%
Don't know	8%

Bullying and ways to stop it happening in school

I have had enough useful information	77%
I need better information	16%
Don't know	7%
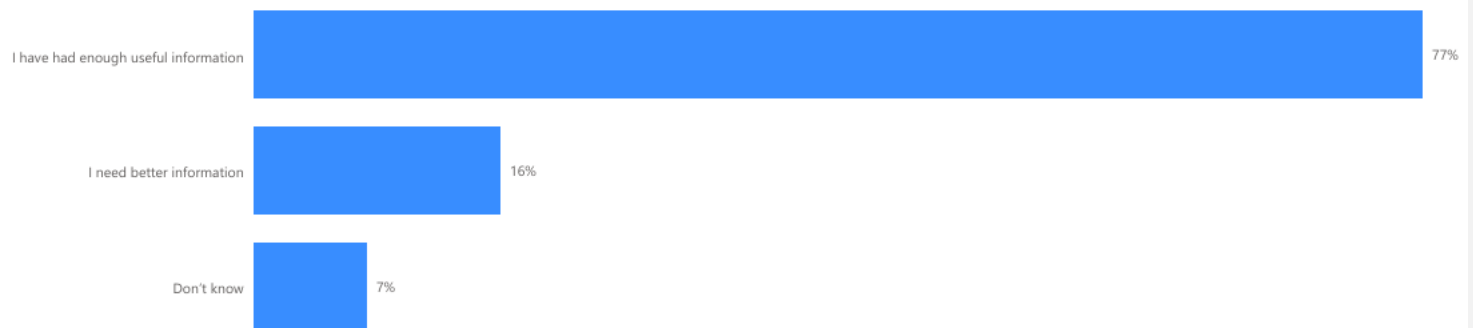
Social, Emotional & Mental Health

I have had enough useful information	72%
I need better information	20%
Don't know	8%

Smoking

I have had enough useful information	79%
I need better information	13%
Don't know	8%
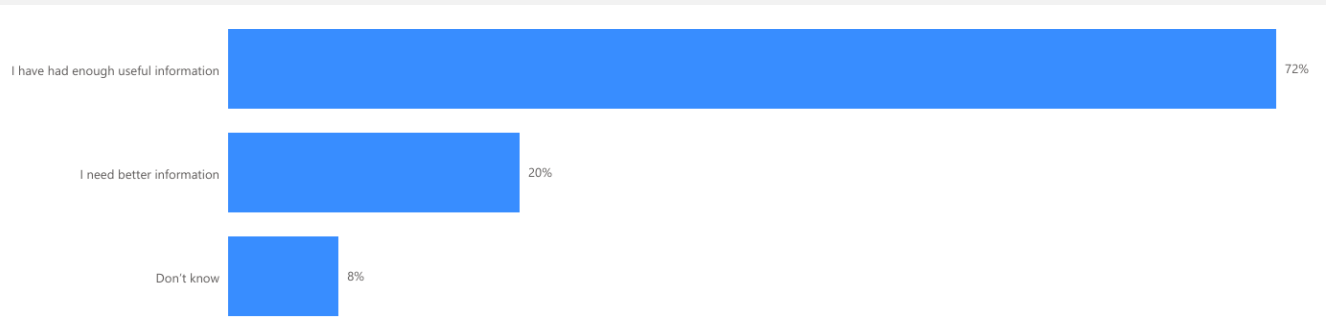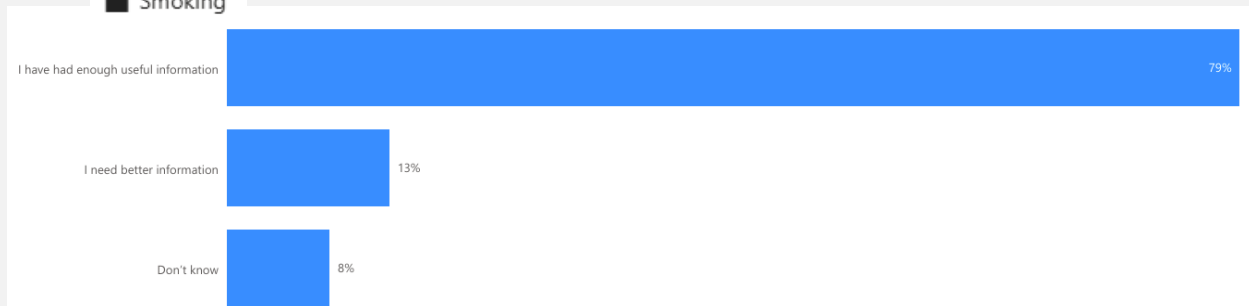
■ Staying safe on the internet

I have had enough useful information	88%
I need better information	7%
Don't know	4%
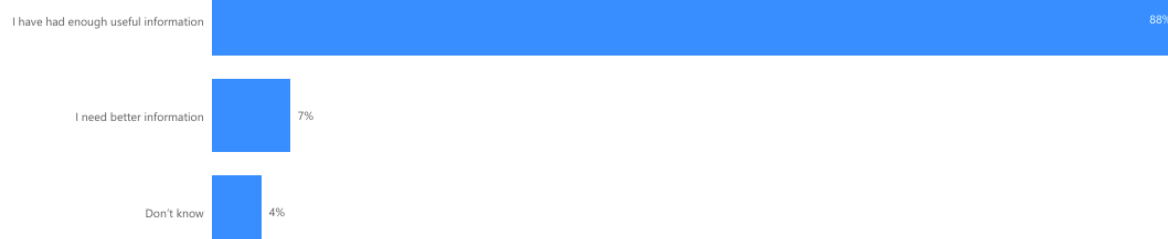
■ The importance of being physically active

I have had enough useful information	88%
I need better information	8%
Don't know	5%
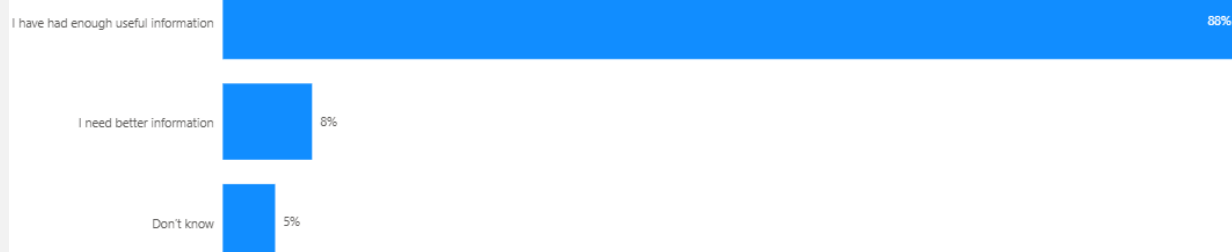
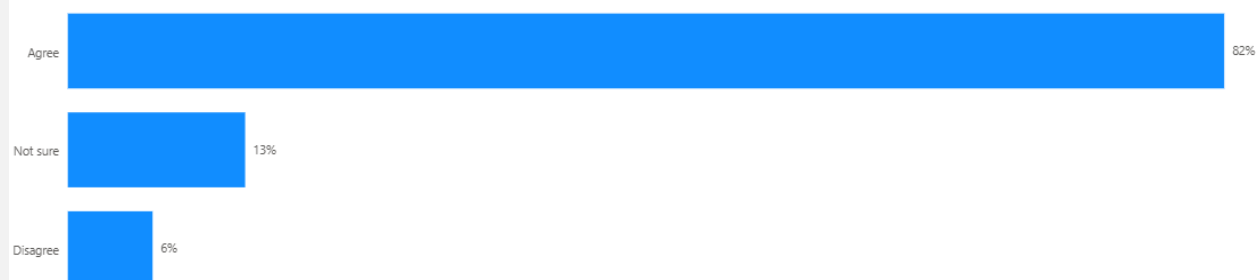## ▣ How much do you agree or disagree with the following statements?

■ I get on well with staff in my school/college

Agree	78%
Not sure	16%
Disagree	6%
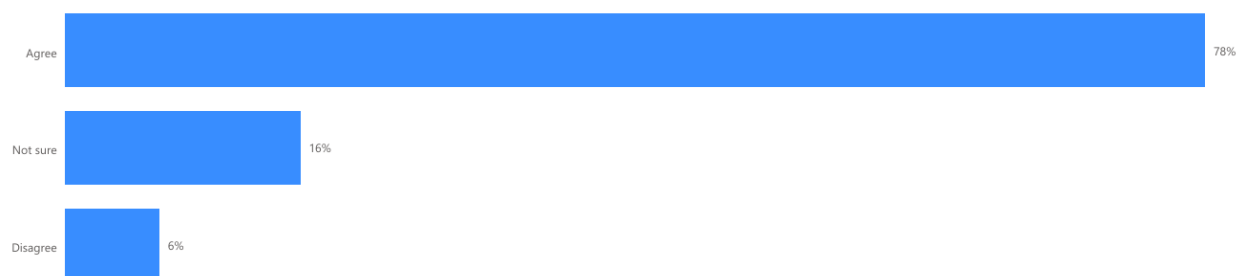
■ My school/college is a welcoming and caring place

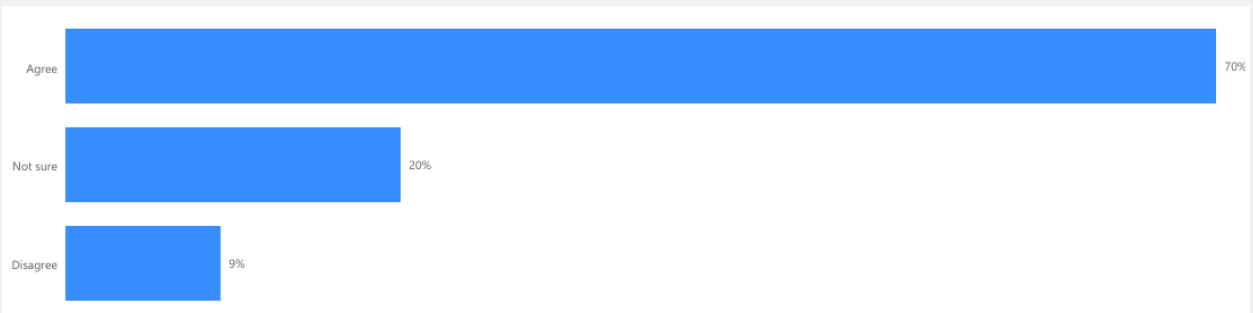|	
Agree	82%
Not sure	13%
Disagree	6%

• Emotions Resulting from Positive Habits and Interaction with the Surrounding Environment (School & Home Influence)

Engaging in positive habits—shaped by the surrounding environment such as home and school—contributes to fostering positive emotions that enhance students' sense of social security and support their ability to achieve a desirable level of well-being in life.
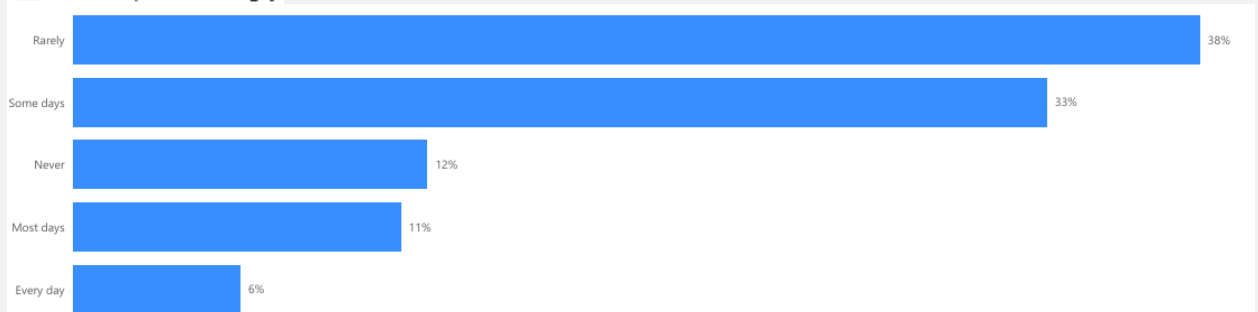
■ How much do you agree or disagree with the following statements?

■ My school/college helps me if I am worried or have a problem

Agree	70%
Not sure	20%
Disagree	9%

☐ How often do you feel the following?

■ Bad tempered or angry

Rarely	38%
Some days	33%
Never	12%
Most days	11%
Every day	6%

■ Confident

Most days	34%
Every day	31%
Some days	24%
Rarely	9%
Never	2%

▣ Lonely

Never	48%
Rarely	33%
Some days	13%
Most days	3%
Every day	3%

▣ Sad or upset

Rarely	47%
Some days	37%
Most days	7%
Never	7%
Every day	2%

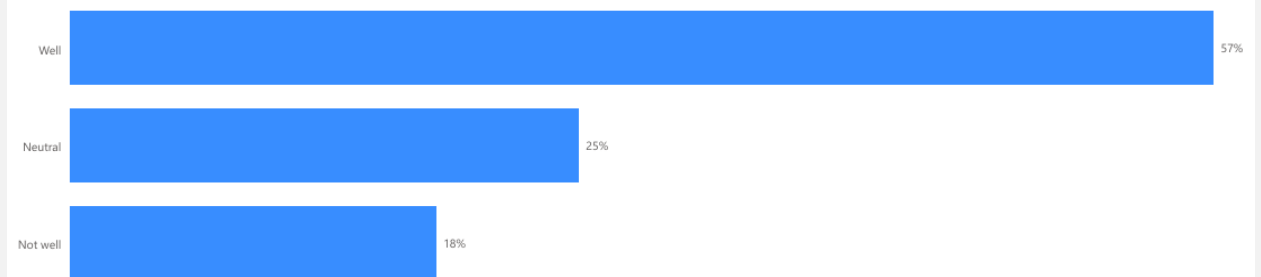## ▣ How safe do you feel in the following places?

▣ During lessons at school/college

Safe	98%
Unsafe	2%
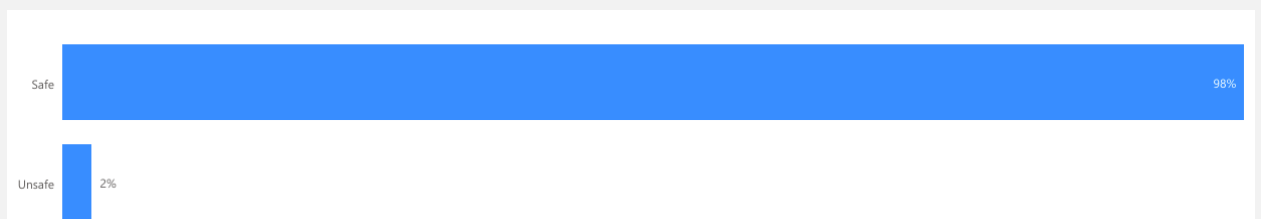
▣ How well do you think you cope with feeling the following?
▣ Lonely

Well	57%
Neutral	25%
Not well	18%

Well	48%
Neutral	36%
Not well	16%

99%

1%

Safe   Unsafe

How safe do you feel at home?

90%

8%

2%

Happy   Neutral   Unhappy

How happy do you feel about the number of good friends you have?

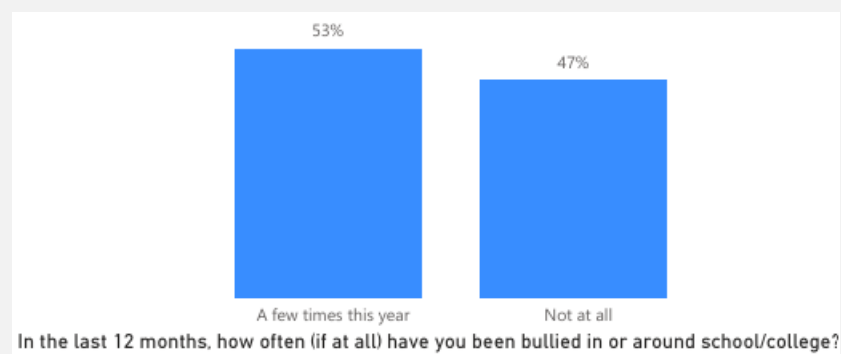|	
I can talk to my parents/carers/family members	33%
I can talk to my friends	28%
I can talk to adults at school/college	22%
I can talk to other adults	14%
I can't talk to anyone	4%
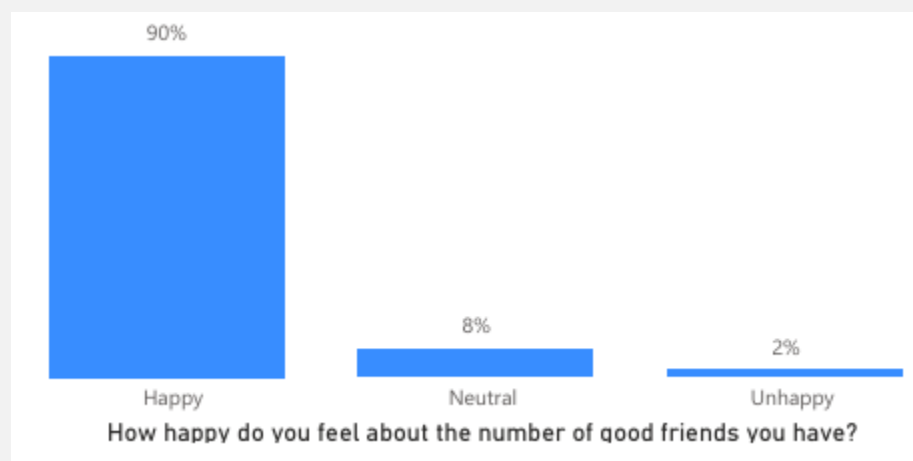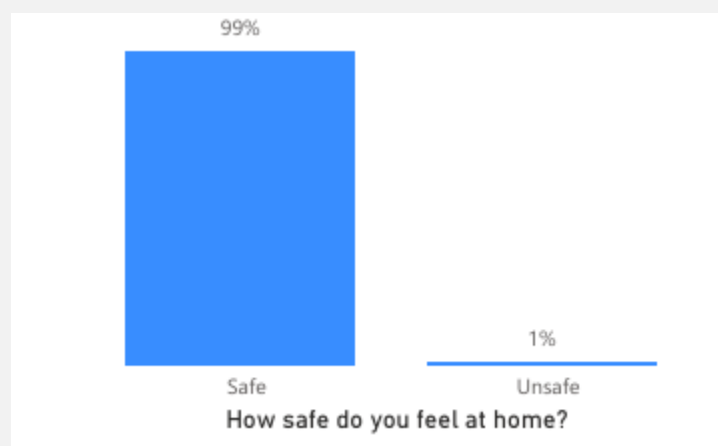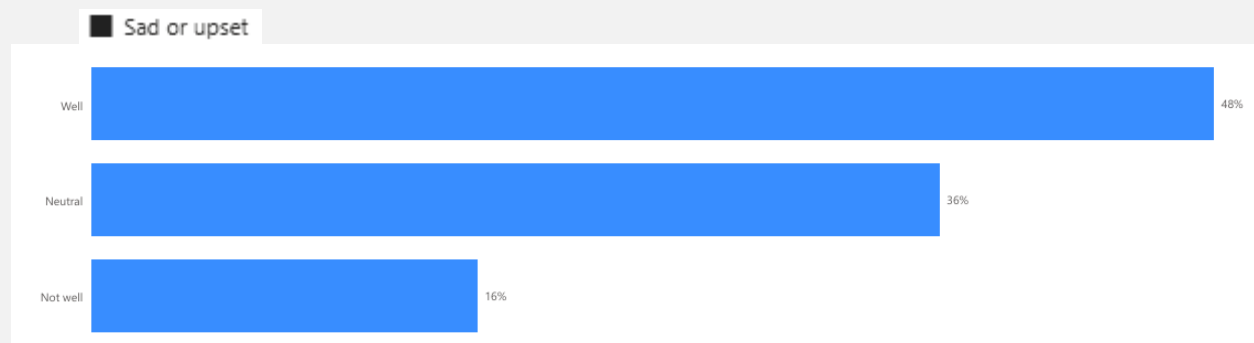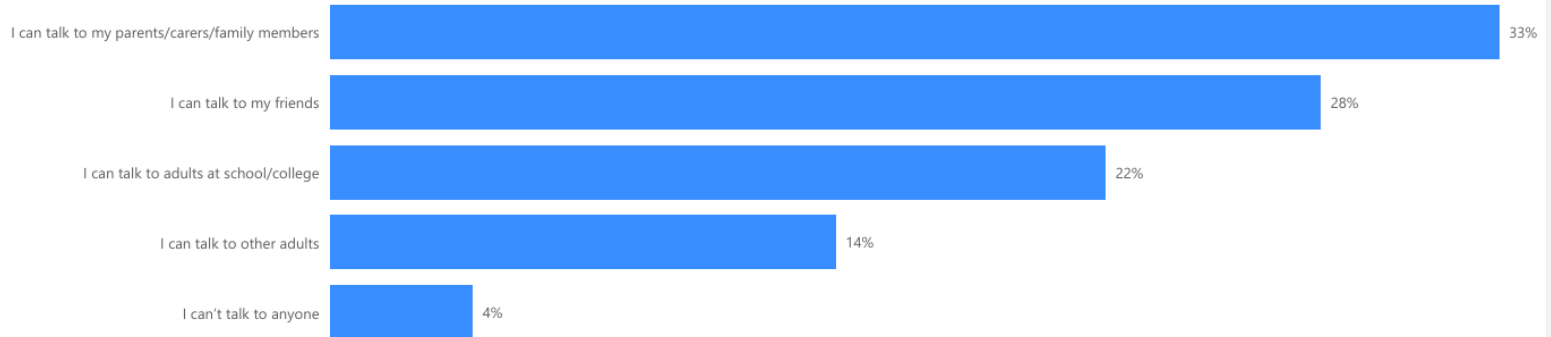
## 2. Why do some students disagree or feel unsure about whether they enjoy their lives?

• Experiences and Circumstances They Have Lived Through

Social events that students encounter at school—such as bullying from peers or exposure to unwanted situations like the circulation of inappropriate images or sexual content—are among the factors that contribute to their reduced enjoyment of life.

A few times this year	Not at all
53%	47%

In the last 12 months, how often (if at all) have you been bullied in or around school/college?

■ How good do you think your school/college are at dealing with the following?
■ Pupils/students sharing sexual messages, pictures and videos

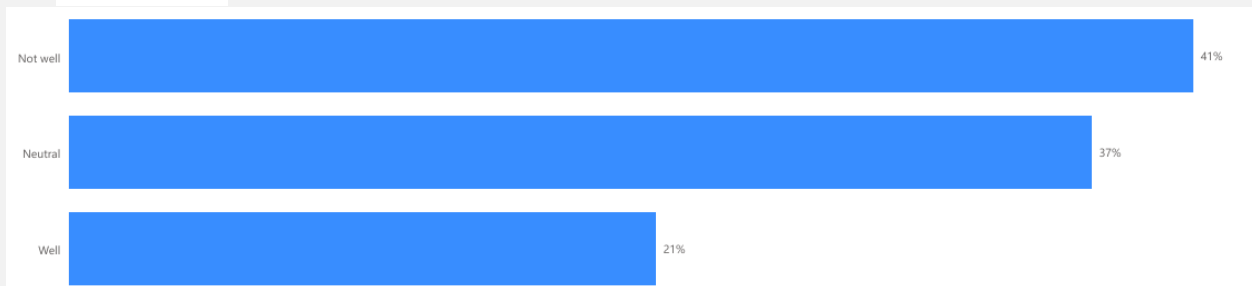|	
Poor	30%
Good	24%
Neutral	22%
Don't know	15%
This is not an issue at our school/college	9%
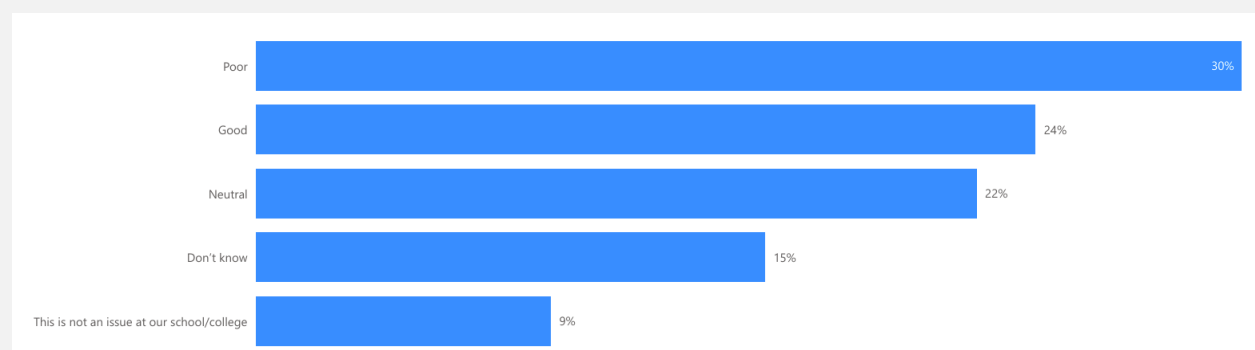
• School Support for Personal and Emotional Challenges

Some students, based on the experiences they have gone through, feel that the school did not provide them with sufficient knowledge or skills to handle various psychological difficulties—such as coping with low mood, anger, stress, and pressure.
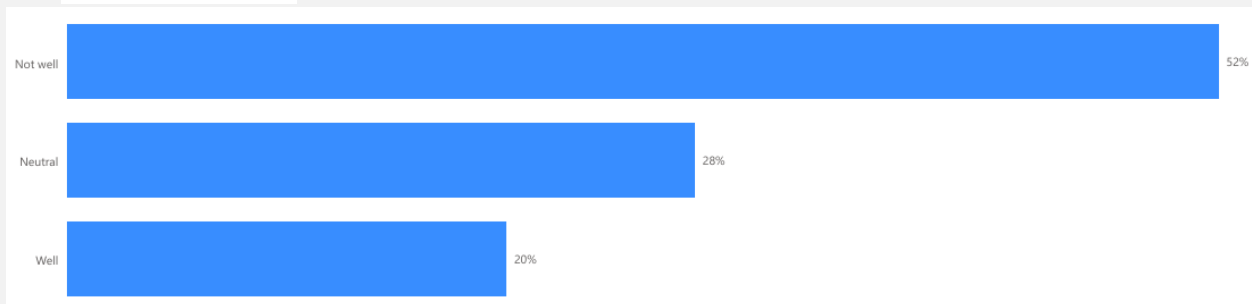
How well do you think you cope with feeling the following?

Bad tempered or angry

Not well	54%
Neutral	25%
Well	21%

Sad or upset

Not well	41%
Neutral	37%
Well	21%

Stressed or anxious

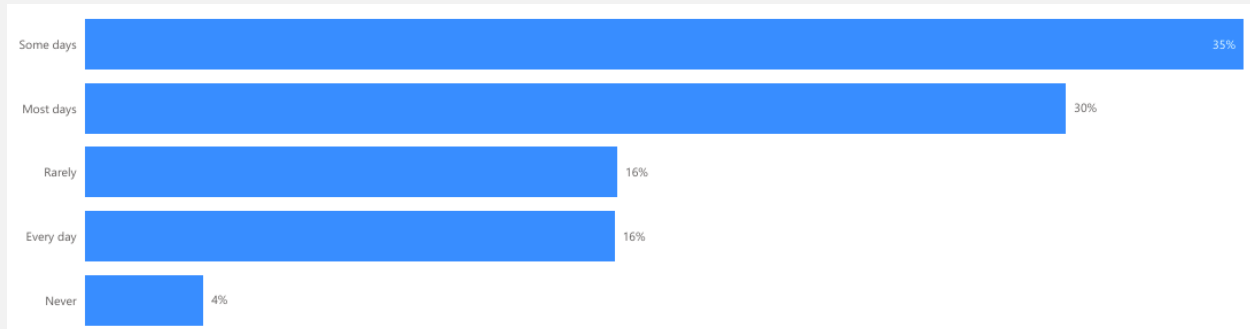|	
Not well	52%
Neutral	28%
Well	20%
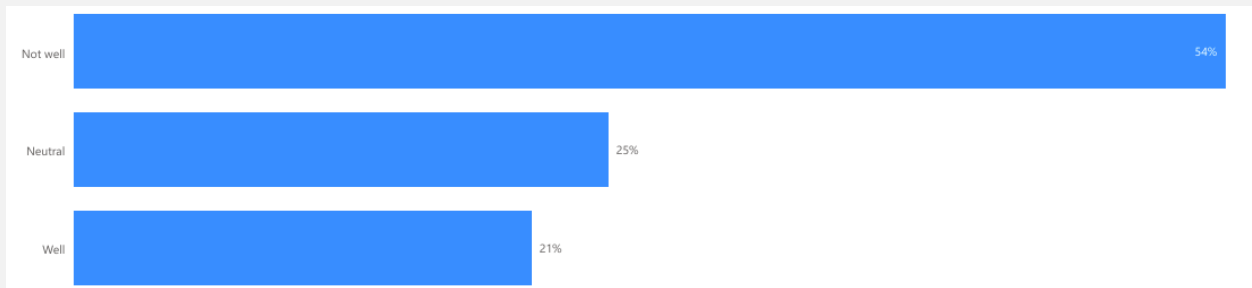
• Emotions Resulting from These Circumstances

There is no doubt that students' exposure to such challenges generates negative emotions that can pose a real threat to their health and their ability to maintain the desired level of well-being.

▣ How often do you feel the following?

◼ Sad or upset

Some days	35%
Most days	30%
Rarely	16%
Every day	16%
Never	4%

◼ Stressed or anxious

Every day	26%
Most days	26%
Some days	23%
Rarely	16%
Never	8%

▣ How much do you agree or disagree with the following statements?

◼ I enjoy going to school/college

Disagree	43%
Agree	29%
Not sure	28%

-Recommendations:

First: For students who are thriving and enjoying their lives

- Continue the school's efforts to provide relevant and up-to-date knowledge that reflects current societal changes, while keeping pace with developments related to administrative and disciplinary school challenges.

- Organize competitive contests among students focused on healthy habits to encourage them to maintain beneficial lifestyle practices.

- Launch school-wide media campaigns to highlight and celebrate outstanding students who demonstrate strong healthy and social behaviors.

Second: For students who are not enjoying their lives

- Strengthen support programs aimed at identifying and addressing the individual challenges students experience within the school environment.

- Expand educational resources and training workshops that equip students with skills to manage emotional and psychological crises, such as fear, sadness, and stress.

- Create social and collaborative spaces that allow students to learn from one another and exchange experiences with their peers.

-Limitations and Assumptions:

- The dataset did not include detailed information about students' personal lives or specific circumstances that could explain the underlying causes of bullying in depth.

- Some questions were directed to student subgroups with very small sample sizes, which did not provide sufficient analytical weight. These categories were therefore removed from the analysis.

- The dataset did not include information about the specific time period during which the data was collected, which limits the ability to analyze trends or compare results across different years.

-References:

School Student Health and Wellbeing