



GIG
CYMRU
NHS
WALES

Iechyd Cyhoeddus
Cymru
Public Health
Wales

Investigating the relationship between child and adolescent mental health and mental wellbeing: findings from the School Health and Research Network in Wales

Liam Mahedy, PhD
Research and Evaluation Fellow
Research, Data & Digital Directorate, PHW
Liam.mahedy2@wales.nhs.uk

20th February 2025

Thank you

Thanks to the wider Research & Evaluation
team in Public Health Wales

And to all the pupils who took part in SHRN



Basil MacDonald, ST3
Public Health Registrar



Giles Greene, PhD



Alisha Davies, PhD



Ann John, MD



Mental health and mental wellbeing in young people in Wales

Young people in Wales are facing serious mental health and mental wellbeing challenges

Absence of support

Concerns about academic pressure, friendships, and future

Increased stress, anxiety, and depression

Addressing these issues is crucial for a healthier and happier future for all young people in Wales

Inequalities in mental health in mental wellbeing



Mental health and mental wellbeing challenges among adolescents are not evenly distributed

- Deprivation
- Gender
- Discrimination and stigma
- Access to mental health services
- Academic pressures



Risk factors for mental health and mental wellbeing are not uniform across all schools

Different schools have unique environments that influence the prevalence of risk factors

School climate, support systems, and academic pressure can vary widely

Research Questions

1. Is there a relationship between young people's self-reported mental health and mental wellbeing scores?
2. Can we differentiate the relationship between mental health and mental wellbeing by identifying factors that are either shared or distinct?

Research Questions

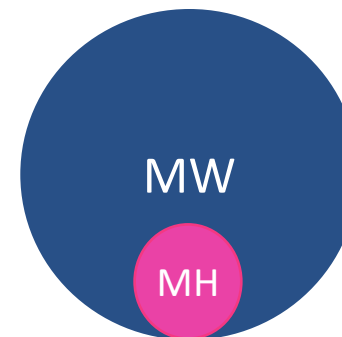
1. Is there a relationship between young people's self-reported mental health and mental wellbeing scores?
2. Can we differentiate the relationship between mental health and mental wellbeing by identifying factors that are either shared or distinct?

Defining mental health and mental wellbeing

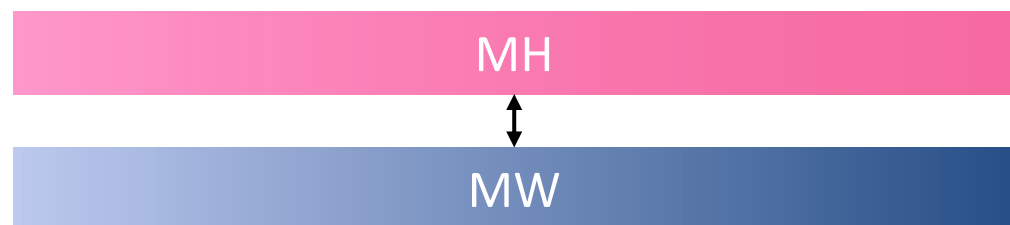
SINGLE CONTINUUM



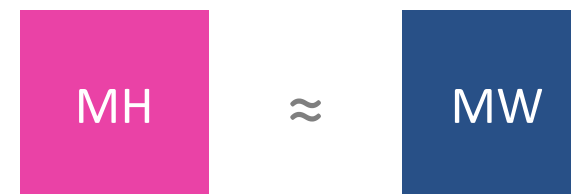
WHO



DUAL CONTINUA



MOST PEOPLE



School Health Research Network (SHRN)

2019 and 2021 surveys



Biennial survey of all 11- to 16-year-olds in mainstream schools

Each child can be surveyed up to two times

Electronic, closed-response and self-completed

~230,000 records spanning 2019/20 and 2021/22

~150 variables from various topic areas

Topic areas

Family	Smoking and vaping
School life	Alcohol / drug use
Friends and relationships	Mental wellbeing
Physical health	Bullying and physical injuries
Mental health scales	Sex and relationships
Physical activity and spare time	Social media and internet use

Outcomes used in the study



Outcomes used in the study



Hyperactivity
5 questions, /10

Conduct Problems
5 questions, /10

Emotional Problems
5 questions, /10

Peer Problems
5 questions, /10

Prosocial
5 questions, /10



Total Difficulties Score
Sum of four scales, /40

Outcomes used in the study



Hyperactivity
5 questions, /10

Conduct Problems
5 questions, /10

Emotional Problems
5 questions, /10

Peer Problems
5 questions, /10

Prosocial
5 questions, /10



Total Difficulties Score
Sum of four scales, /40

Categorical variable:

- Close to average (0-13)
- Slightly raised (14-16)
- High (17-19)
- Very high (20-40)

Selected variables

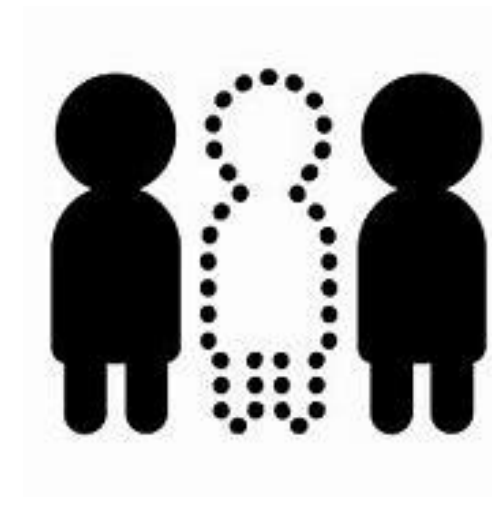
- Rapid literature review
- Collated and categorised variables
- Checked that each had a significant association with SWEMWBS

DEMOGRAPHIC	BEHAVIOURAL	SOCIAL
<i>Person</i>	<i>Consumption</i>	<i>Deprivation</i>
Age	Smoking	Family affluence score
Sex		
Year of assessment	Alcohol use	<i>Family circumstances</i>
<i>Place</i>	Drug use	Who YP lives with
School ID		
		<i>Family support</i>
		Practical support
	<i>Physical activity</i>	
	Weekdays active	
	<i>Sleep</i>	<i>Relationships</i>
	Sleeping difficulty	Support from friends
		Being bullied
	<i>Self-perception</i>	<i>School</i>
	Body image	
		Teachers care
		School support

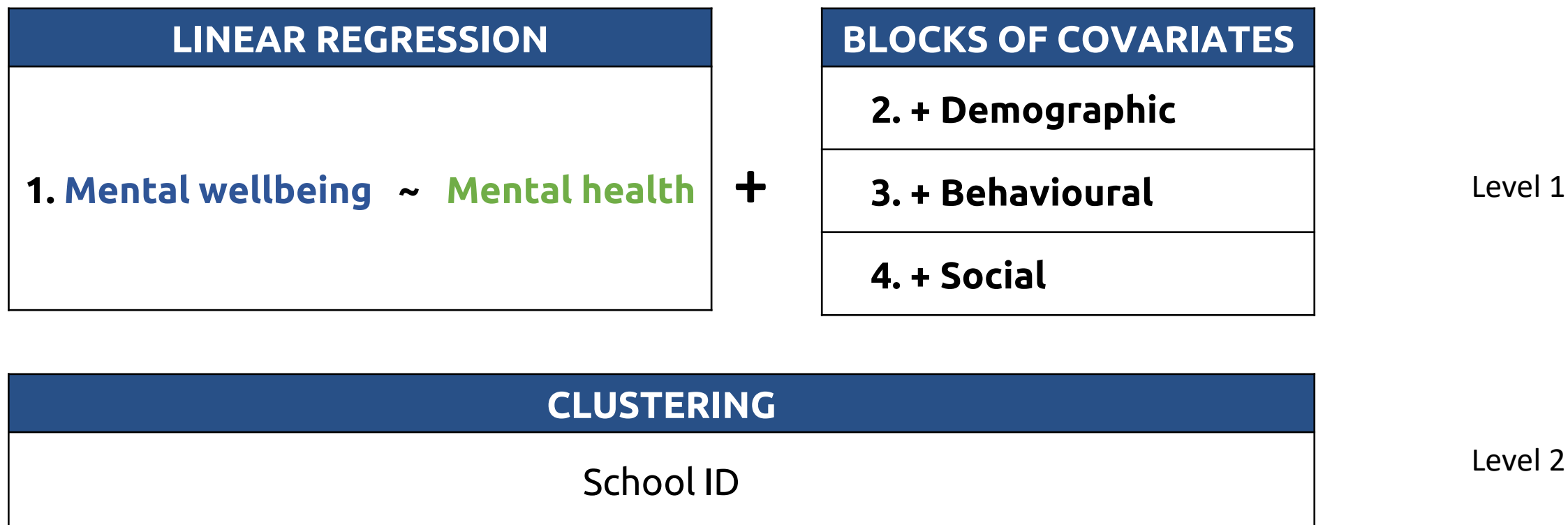
Dealing with missing data

- Paired **SWEMWBS** and **SDQ** were available for **2019** (n=119,388) and **2021** (n=123,204)
- Using only complete cases would limit numbers (n=114,439), reduce precision and potentially increase bias
- Used the mice package in R, resulting in 191,975 students being included
- Resulted in:
 - 25 imputed datasets
 - 5 iterations for each imputed dataset
- Regression models from each are then pooled

191,975 pupils

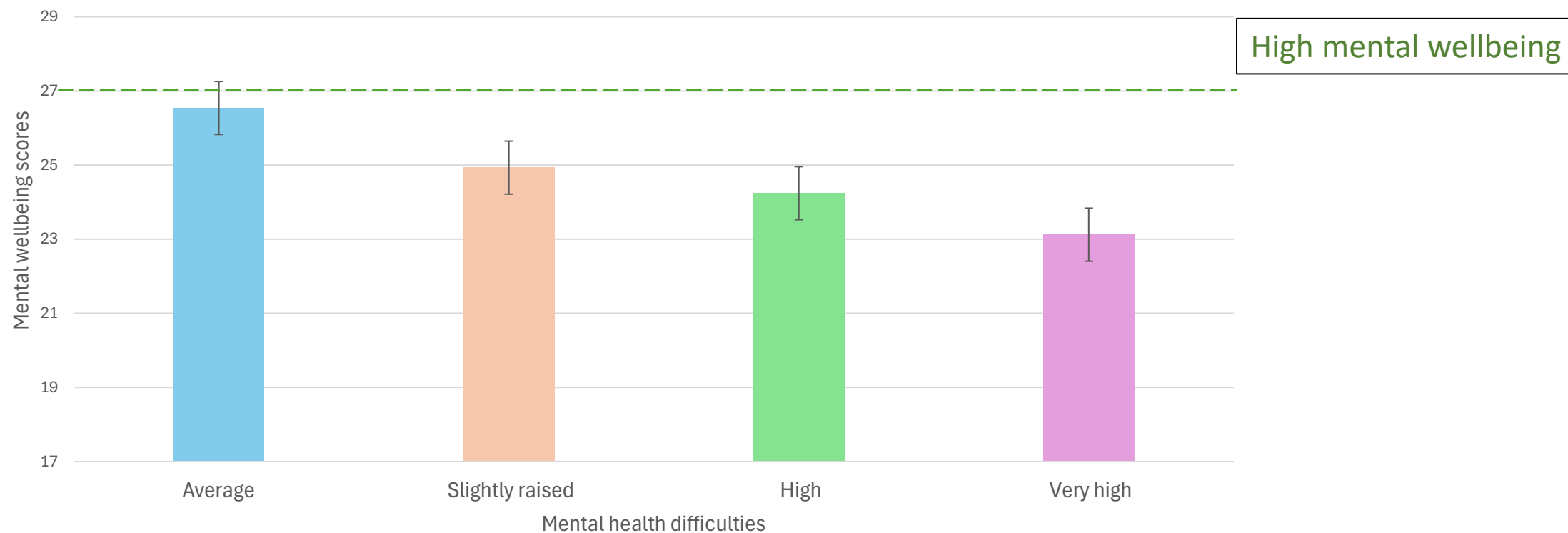


Primary analysis: Multilevel linear regression

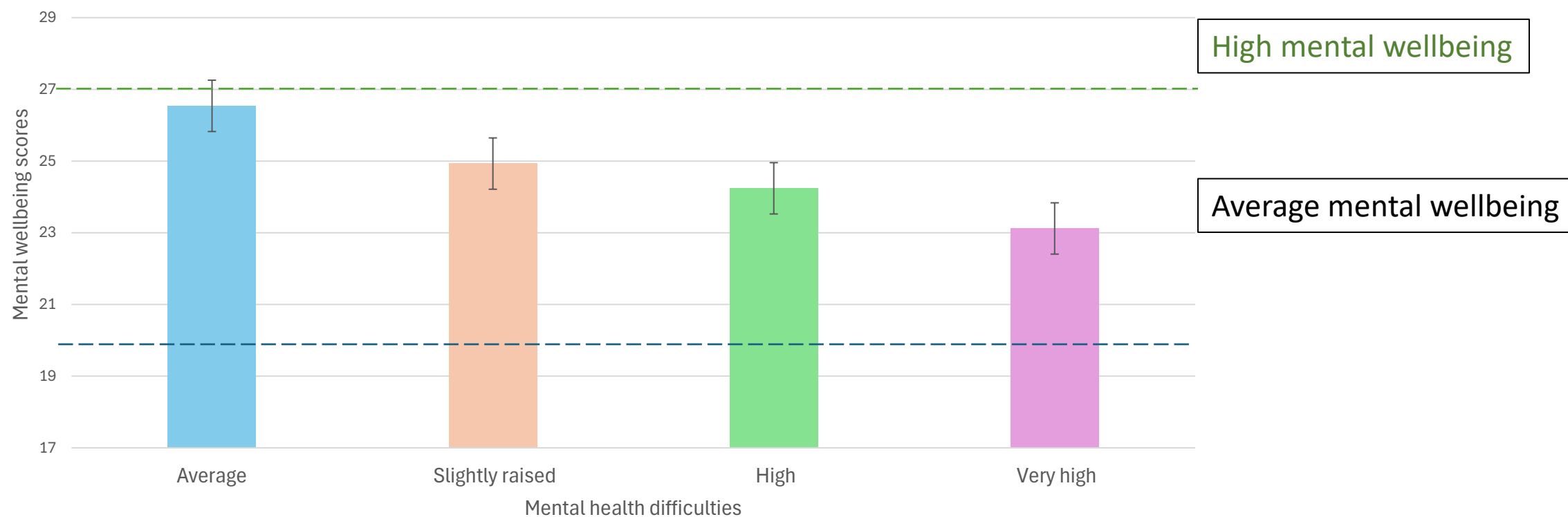


Relationship between mental health and mental wellbeing Results

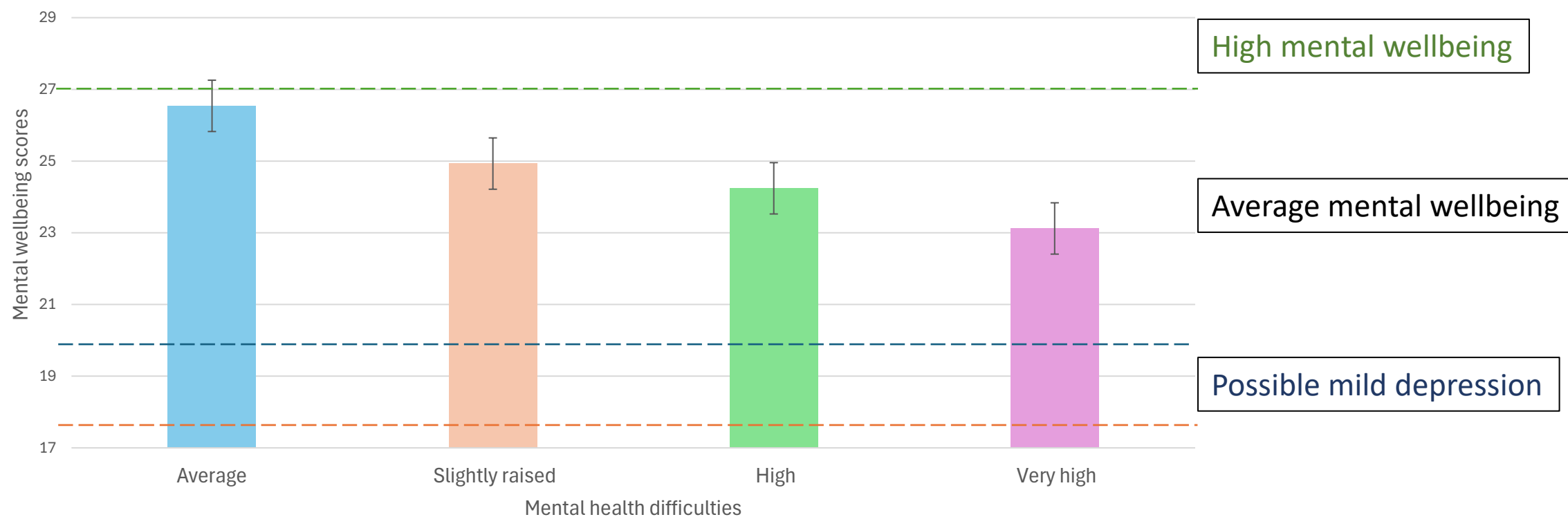
Relationship between mental health and mental wellbeing



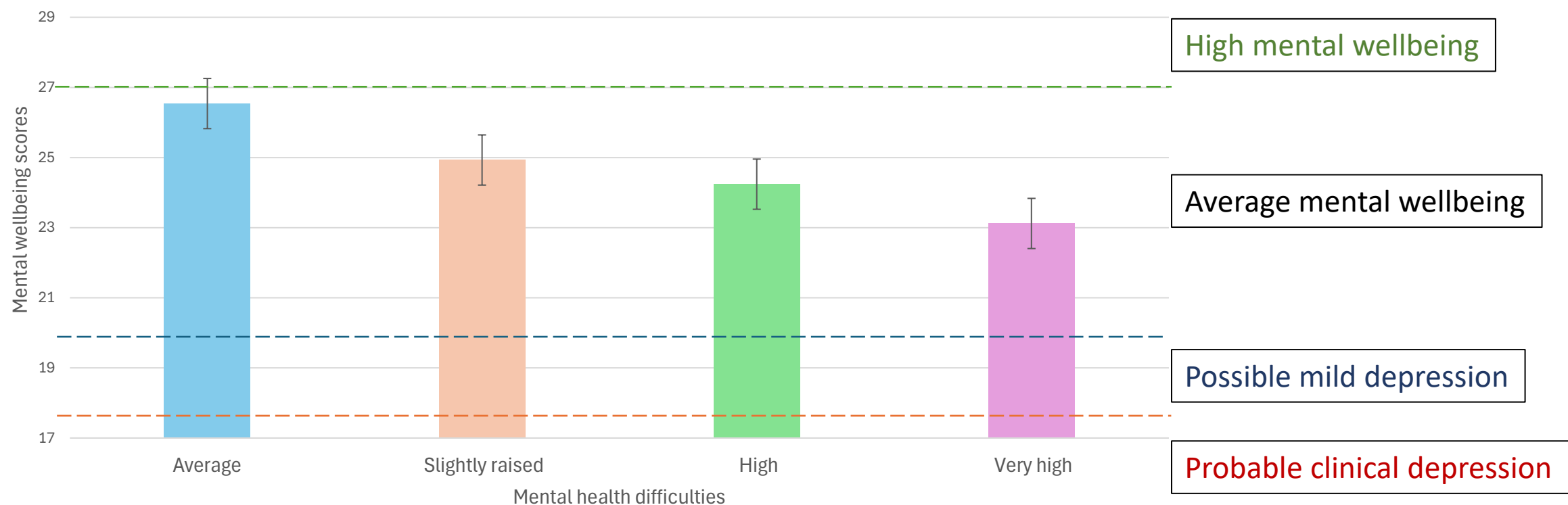
Relationship between mental health and mental wellbeing



Relationship between mental health and mental wellbeing



Relationship between mental health and mental wellbeing



Conclusion – relationship between mental health and mental wellbeing

- There is a significant **dose-response relationship** between mental health and mental wellbeing scores among secondary school aged children in Wales
- This remains statistically and clinically significant after adjustment for **demographic**, **behavioural** and **social** covariates
- All three domains have a relatively similar impact on the association between mental health and mental wellbeing

Research Questions

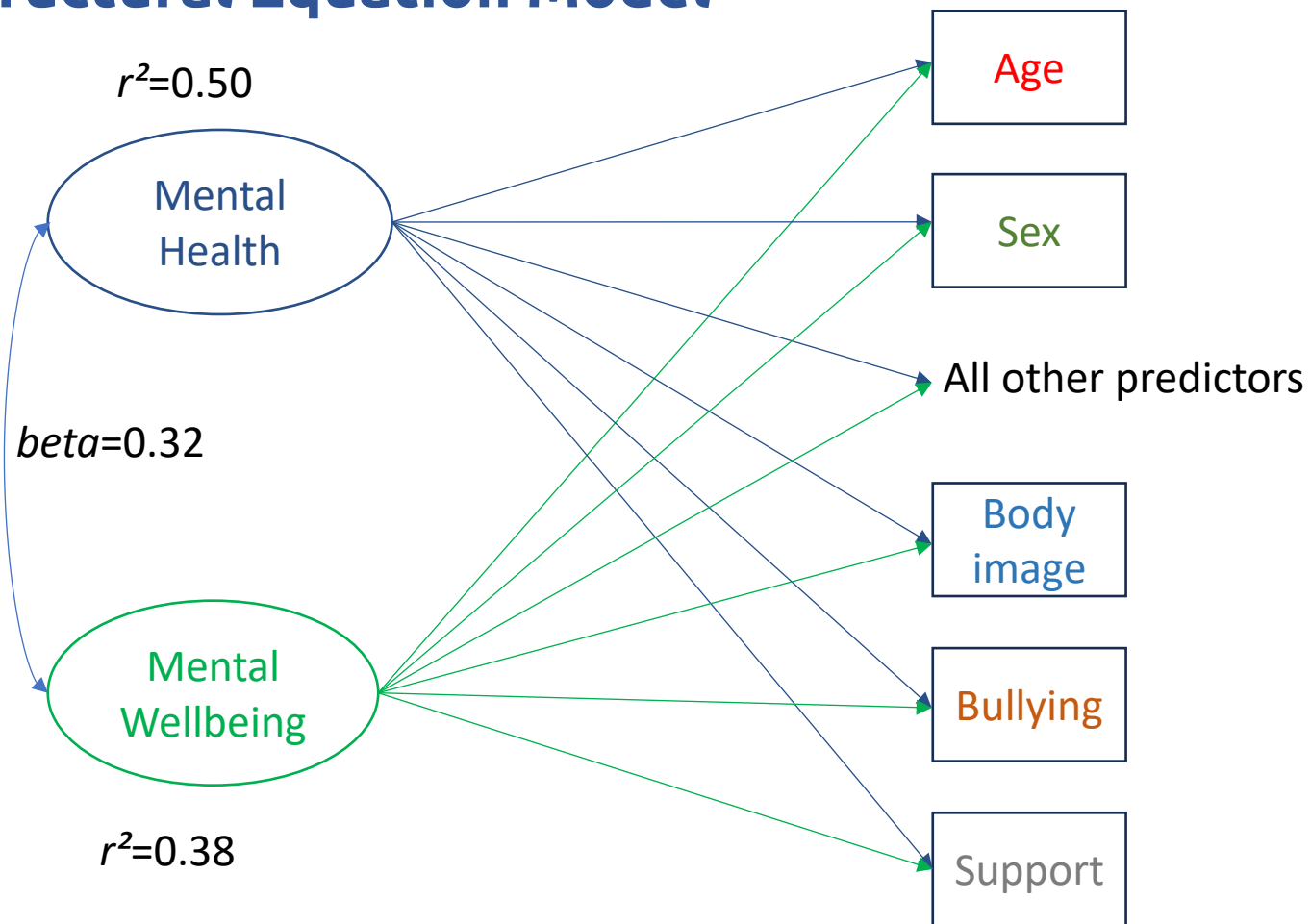
1. Is there an association between young people's self-reported mental health and wellbeing scores?
2. Can we differentiate the relationship between mental health and mental wellbeing by identifying risk factors that are either shared or distinct?

Selected variables

- Checked that each had a significant association with **mental health** and **mental wellbeing**

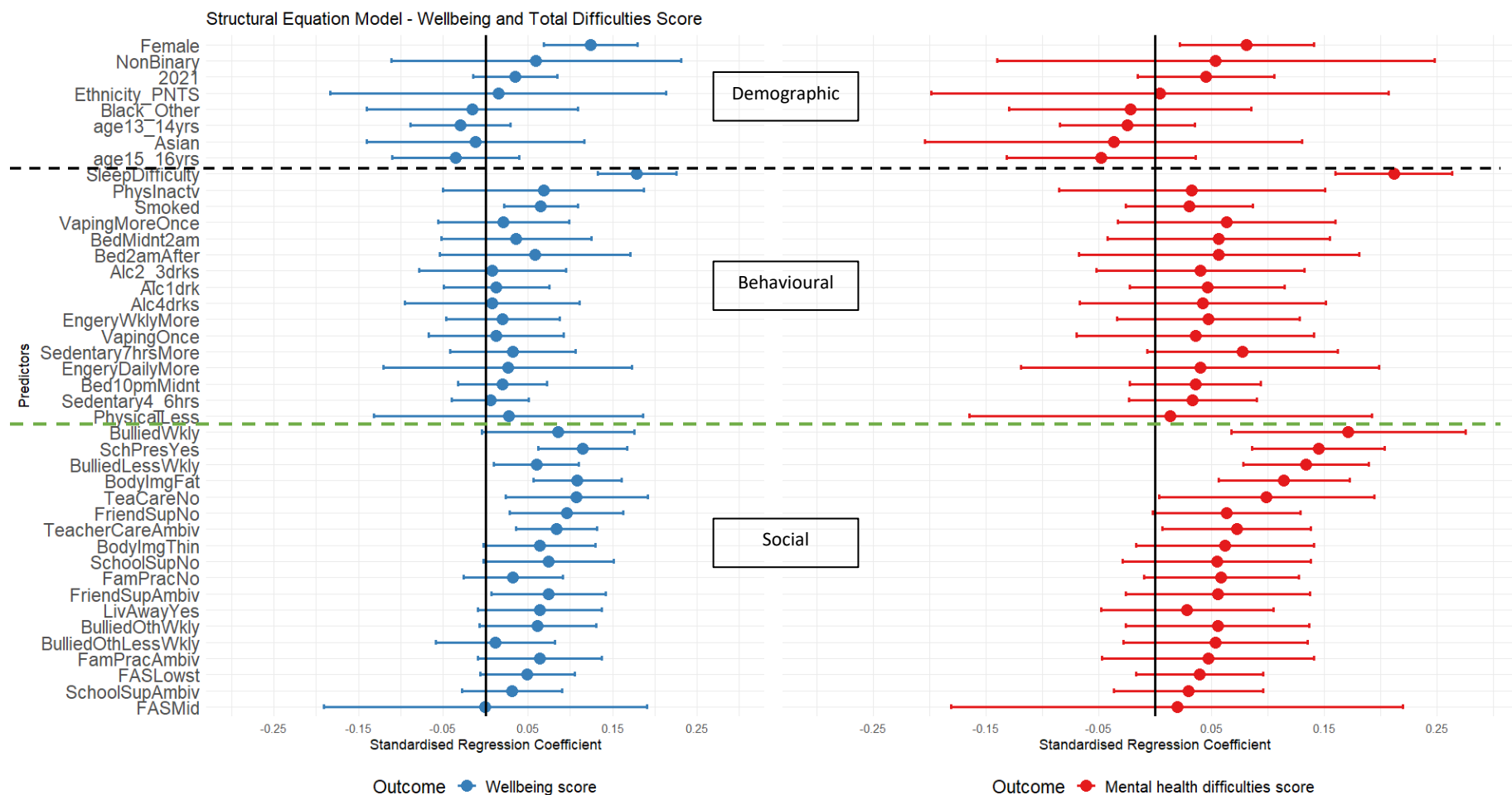
DEMOGRAPHIC	BEHAVIOURAL	SOCIAL
<i>Person</i>	<i>Consumption</i>	<i>Deprivation</i>
Age	Smoking	Family affluence score
Sex	Vaping	
Ethnicity	Alcohol use	<i>Family circumstances</i>
<i>Place</i>	Energy drinks	Who student lives with
School ID		
		<i>Family support</i>
		Practical support
	<i>Physical activity</i>	Emotional support
	Weekdays active	
	Hours sedentary/day	
	<i>Sleep</i>	<i>Relationships</i>
	Sleeping difficulty	Support from friends
	School-night bedtime	Being bullied
		Bullying others
	<i>Self-perception</i>	<i>School</i>
	Body image	Teachers care
		Schoolwork pressure
		School support

Structural Equation Model

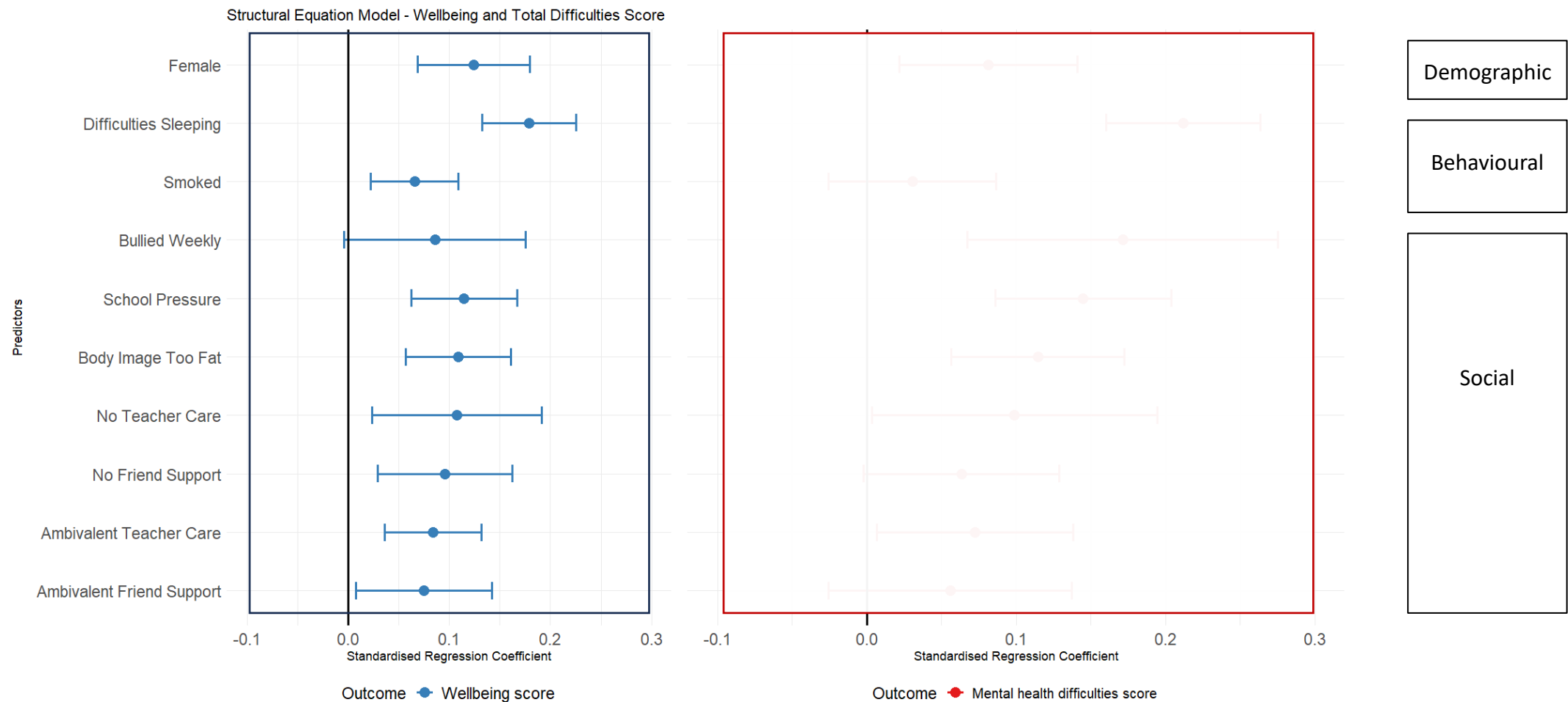


Risk factors for mental health and mental wellbeing Results

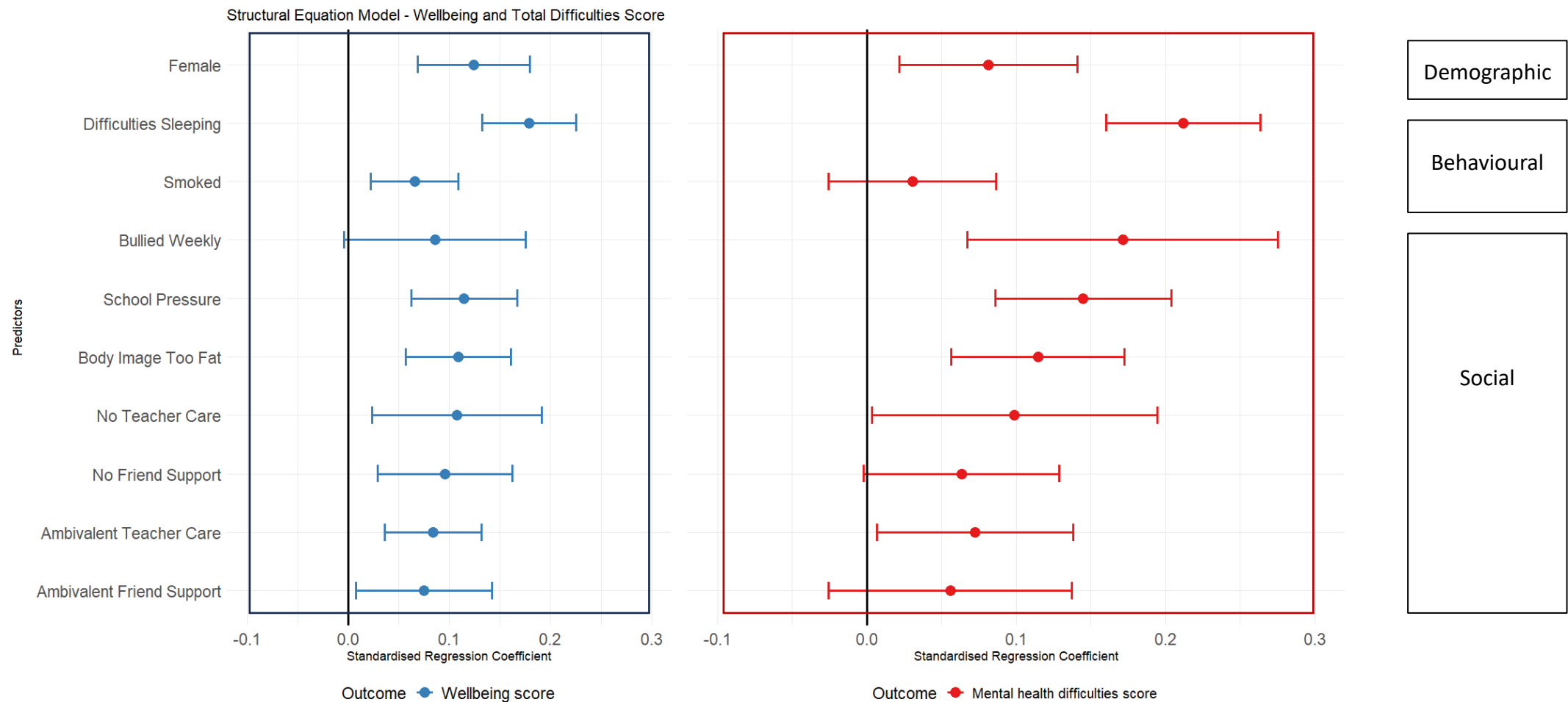
Impact of predictors on mental health and mental wellbeing



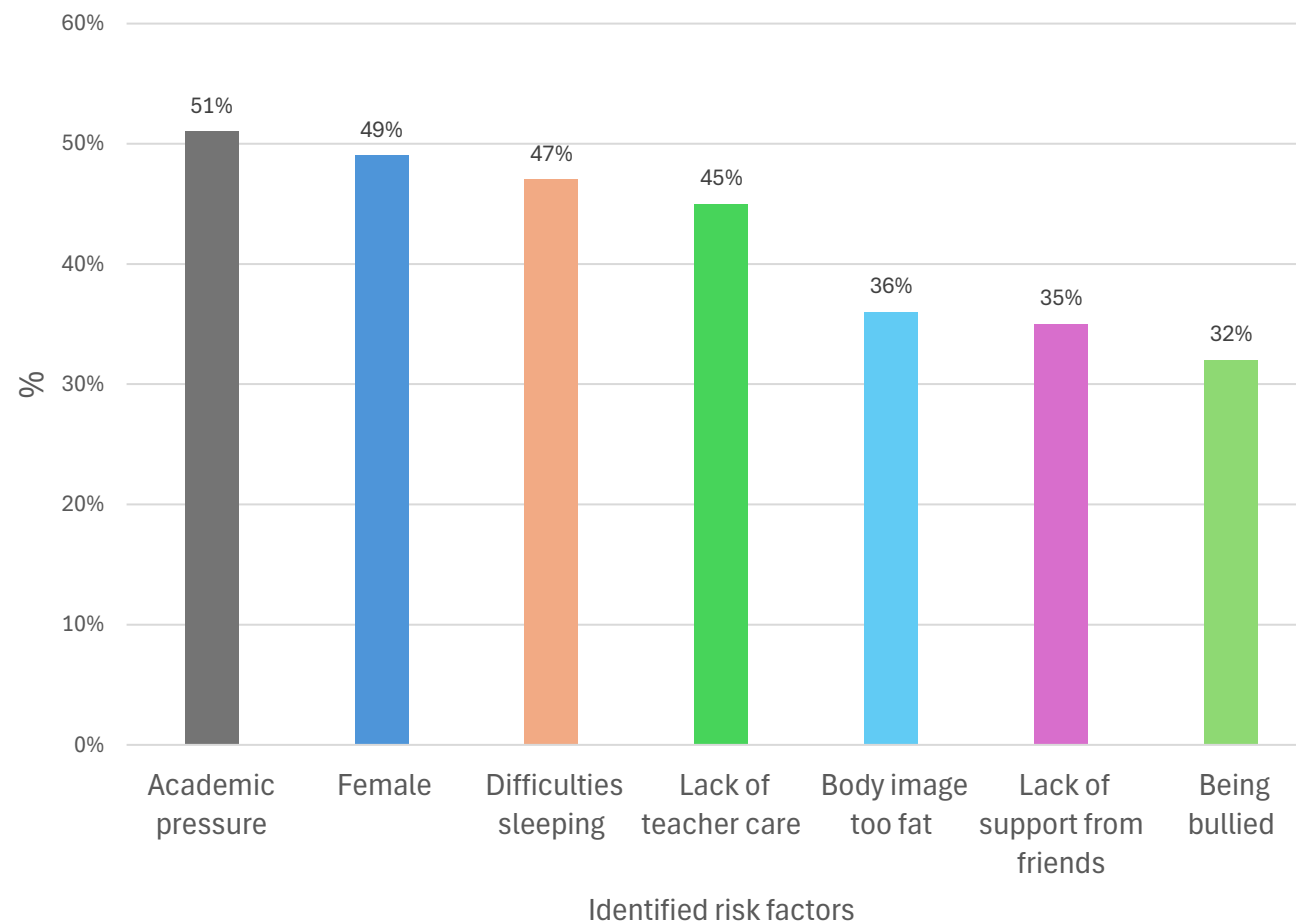
Impact of predictors on mental health and mental wellbeing



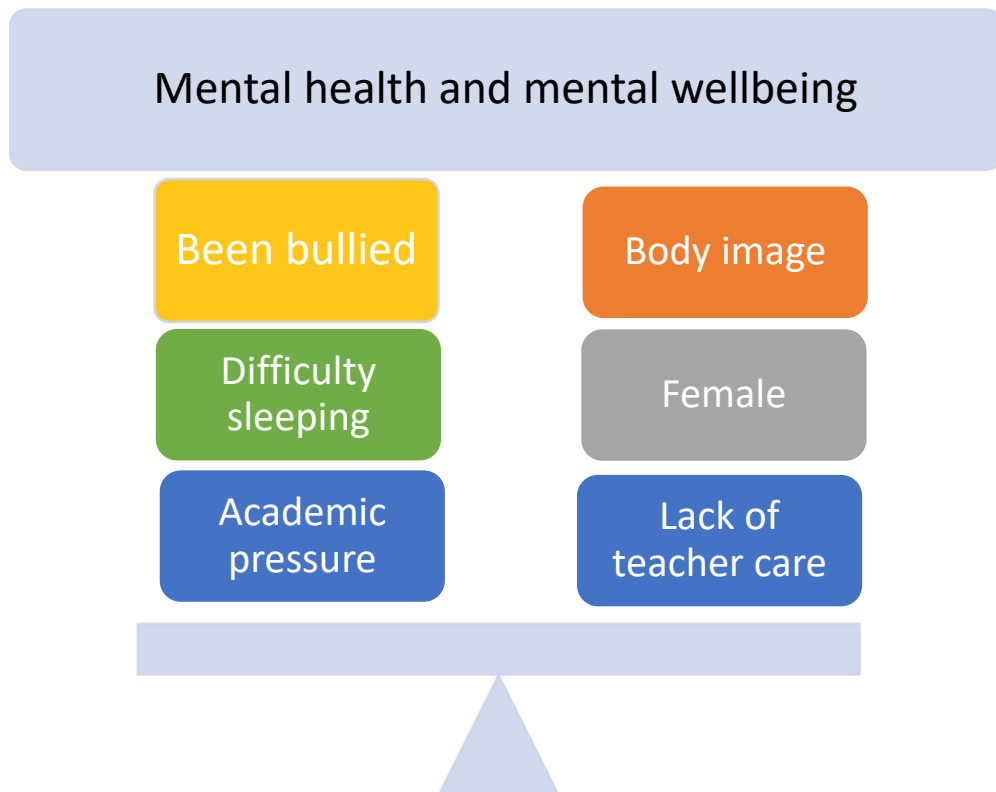
Impact of predictors on mental health and mental wellbeing



Prevalence of identified risk factors for mental health and mental wellbeing



Conclusion – risks factors for mental health and mental wellbeing



Next steps



- Project to be taken further within the **SAIL databank** as part of the wider Children and Young People's Mental Health project:
 - Opportunity to link to other sources of data, e.g. healthcare use data
- Further explore the role of **sleeping difficulties** in the relationship between mental health and mental wellbeing
- Examine the impact of **social media use** on mental health and mental wellbeing