



Fás Aníos in Éirinn
Growing Up in Ireland

Harmonisation Potential Evaluation of Oral Health Questionnaire Data in Longitudinal Child Cohort Surveys

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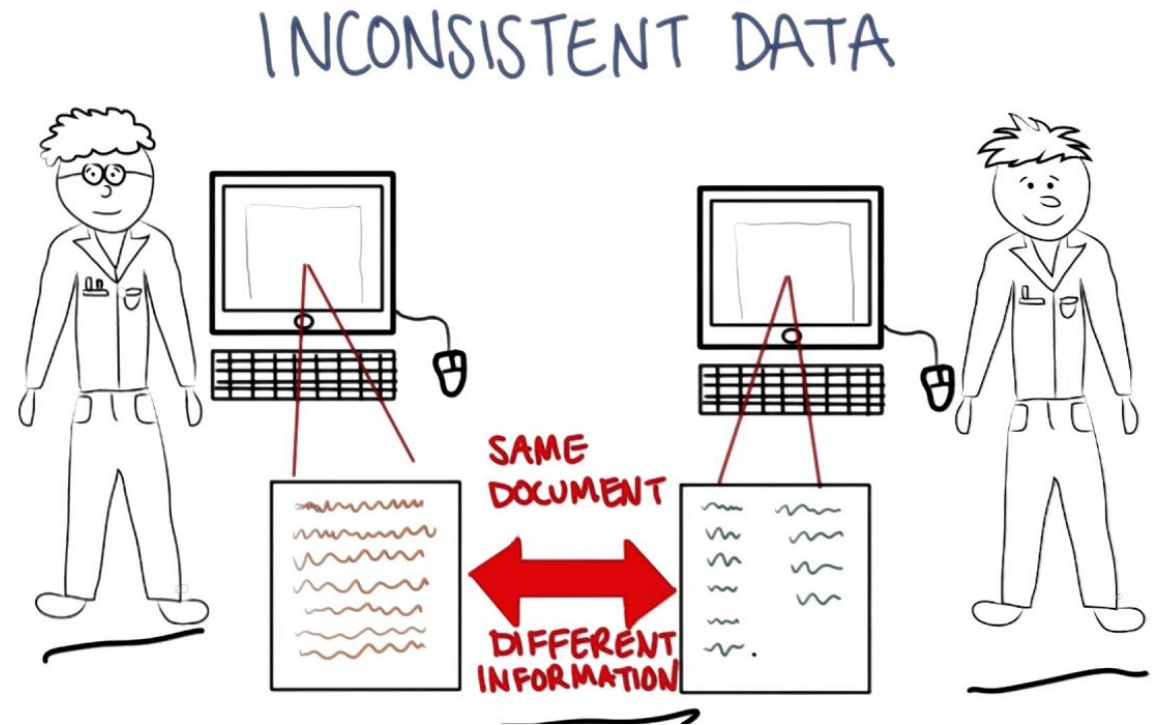
¹Dublin Dental University Hospital, TCD. ²Institute of Food and Health, UCD.

National Child Cohort Surveys

- Representative of the country
- Oral health, health behaviour & dietary information
- A potential resource for oral health epidemiology



Key Variables



Data Harmonisation

Prospective

Retrospective

- *Data Collation & Comparison*
- *Data Pooling/Integration*



Validate



Track



Replicate



Increased power



Aims & Objectives



- Collate and compare oral health-related questionnaire data
- Harmonisation potential evaluation: Within and across national surveys
- Data discovery platform



Methodology



Eligibility Criteria







- 1) A nationally representative cohort survey
- 2) Baseline data collection after the year 2000
- 3) Studying the growth and development of children
- 4) Self-reported oral health-related data



Maelstrom Research Guidelines



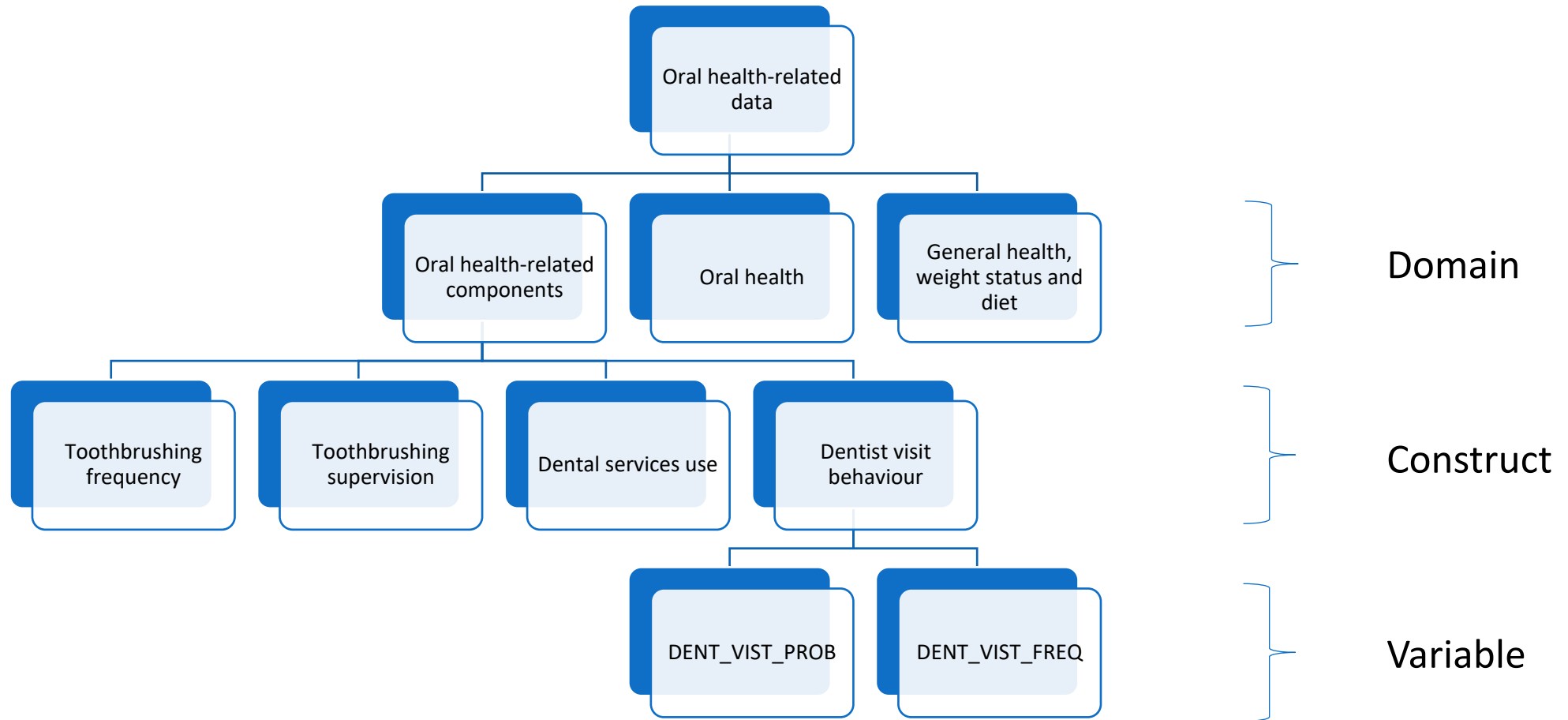
Iterative Harmonization Steps

-  Step 0: Define the research questions, objectives and protocol
-  Step 1: Assemble information and select studies
-  Step 2: Define variables and evaluate harmonization potential
-  Step 3: Process data
-  Step 4: Estimate quality of the harmonized dataset(s) generated
-  Step 5: Disseminate and preserve final harmonization products

(Fortier *et al.*, 2016)



Common Data Model



Results



Included Surveys



Survey Questionnaire Variations

Survey	Question	Response levels
GUI infant cohort Wave 1, 2, 3, 4 & 5	How would you describe child's current health?	<input type="checkbox"/> <i>Very healthy, no problems</i> <input type="checkbox"/> <i>Healthy, but a few minor problems</i> <input type="checkbox"/> <i>Sometimes quite well</i> <input type="checkbox"/> <i>Almost always unwell</i>
GUI child cohort Wave 1 & 2	In general, how would you describe the study child's health in the past year?	<input type="checkbox"/> <i>Very healthy, no problems</i> <input type="checkbox"/> <i>Healthy, but a few minor problems</i> <input type="checkbox"/> <i>Sometimes quite well</i> <input type="checkbox"/> <i>Almost always unwell</i>
GUI child cohort Wave 3 & 4	In general, how would you say your current health is?	<input type="checkbox"/> <i>Excellent</i> <input type="checkbox"/> <i>Very good</i> <input type="checkbox"/> <i>Good</i> <input type="checkbox"/> <i>Fair</i> <input type="checkbox"/> <i>Poor</i>



Sample Harmonisation Status

Harmonised Variable	GUI infant	GUI child	GUS	LSAC B	LSAC K	GUN	MCS
TOOTH_BRUSH_FREQ_DAILY	C C	C C	C	C C C C	C C C	C C	C
						C	C

- | = No question to record this construct
- | = Different questions asked between waves
- C = Complete harmonisation possible

Study Variable Transformation

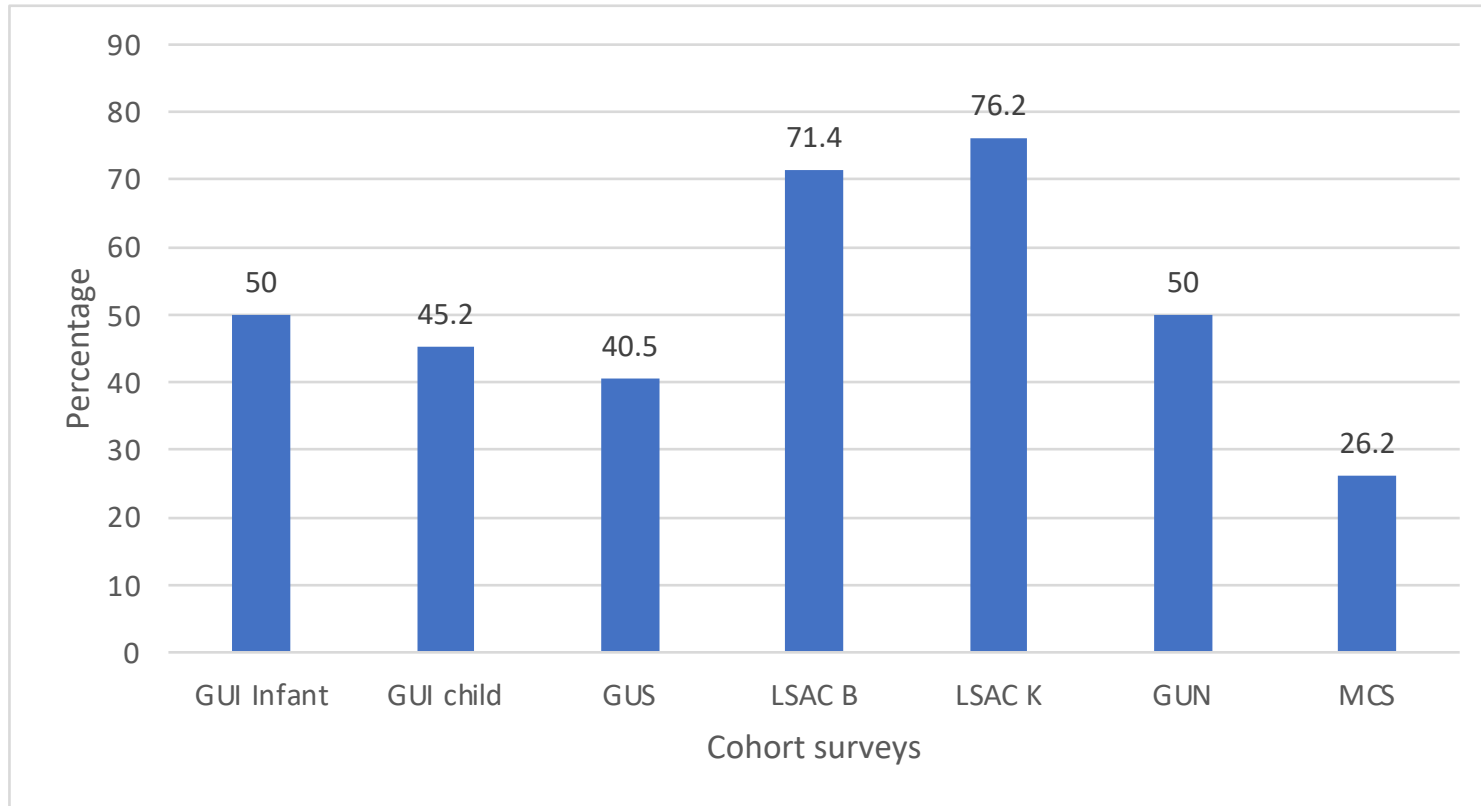
Variable: TOOTH_BRUSH_FREQ_DAILY; Survey: GUI infant cohort wave 5

Original response levels	Recoded response levels
More than twice a day (1)	Twice a day or more (1)
Twice a day (2)	
Once a day (3)	Once a day (2)
Less often than once a day (4)	Less than once a day (3)
Rarely (5)	Never (4)
Not at all (6)	
Missing	Missing (999)



Harmonisation Potential

Percentage of DataSchema variables that could be generated across cohort surveys.



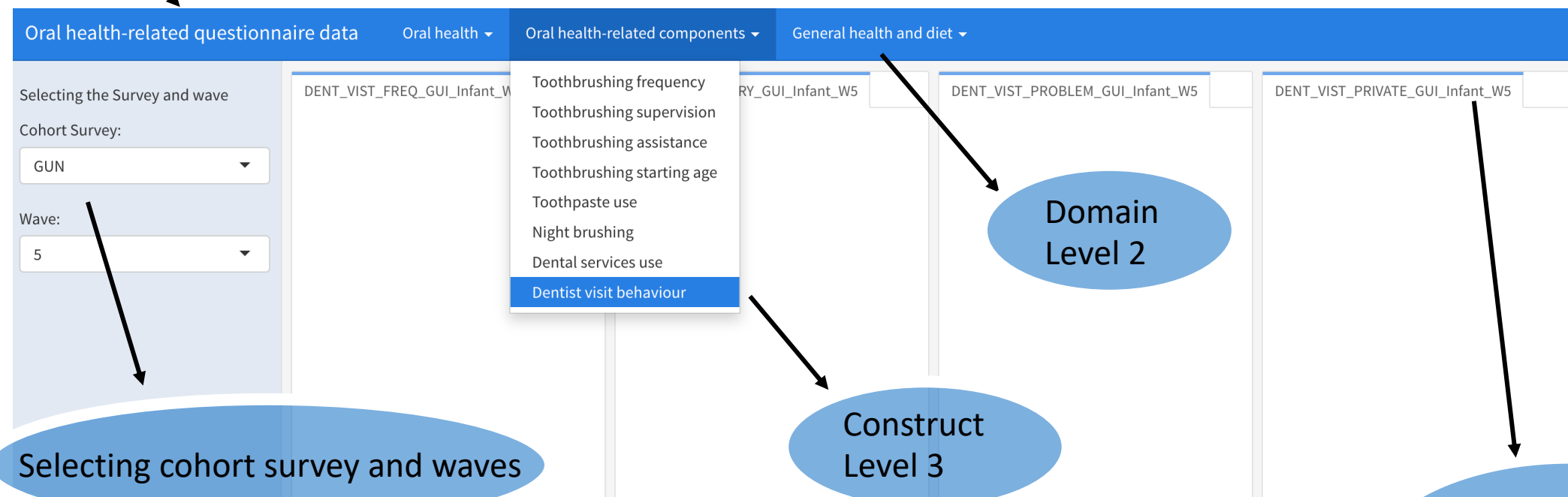
DataSchema variables: 42

Harmonisation status assessments: 2100



Theme
Level 1

Data Discovery Platform: Ontological Framework



Selecting cohort survey and waves

Domain
Level 2

Construct
Level 3

Study-specific
harmonised variable
Level 4



Interactive Cohort Survey Analysis

Research | [Open Access](#) | [Published: 24 April 2023](#)

Protocol for developing a dashboard for interactive cohort analysis of oral health-related data

[Vinay Sharma](#), [Oscar Casseti](#), [Lewis Winning](#), [Michael O'Sullivan](#) & [Michael Crowe](#) 

BMC Oral Health **23**, Article number: 238 (2023) | [Cite this article](#)

377 Accesses | **1** Altmetric | [Metrics](#)

<https://dduh.shinyapps.io/dduh/>



Survey

- Child GUI ▲
- Infant GUI
- Child GUI
- NCFS II

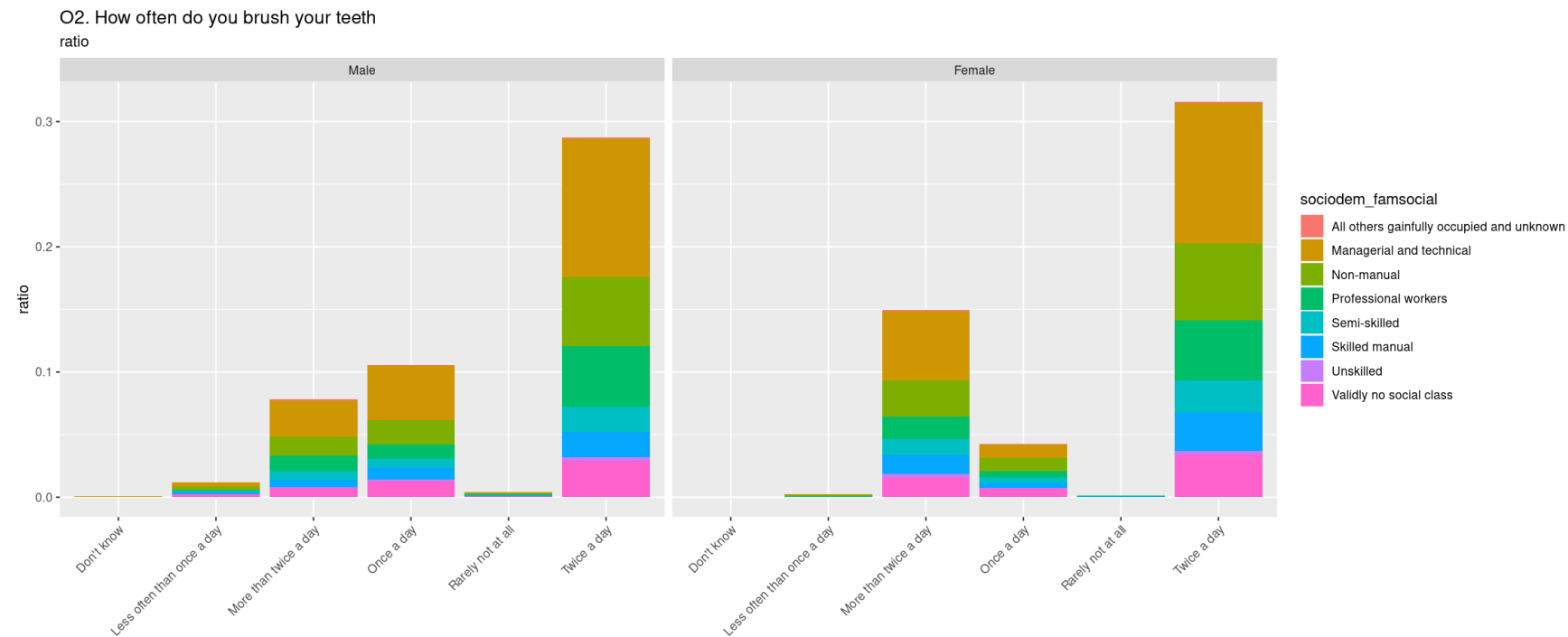
Variable to select

O2. How often do you br ▼

Include 'Missing Reponse'
(survey NAs)

This dashboard was created by the Dublin Dental University Hospital, Trinity College Dublin, using data from GUI/ESRI and NCFSII/IUNA

By gender and socio-economic class



Summary table

O2. How often do you brush your teeth variable by gender and sociodem_famsocial

sociodem_famsocial	gender	total	value	n	ratio
All others gainfully occupied and unknown	Male	6039	More than twice a day	5	0.0008280
All others gainfully occupied and unknown	Male	6039	Once a day	4	0.0006624



Survey

Child GUI

Wave to select

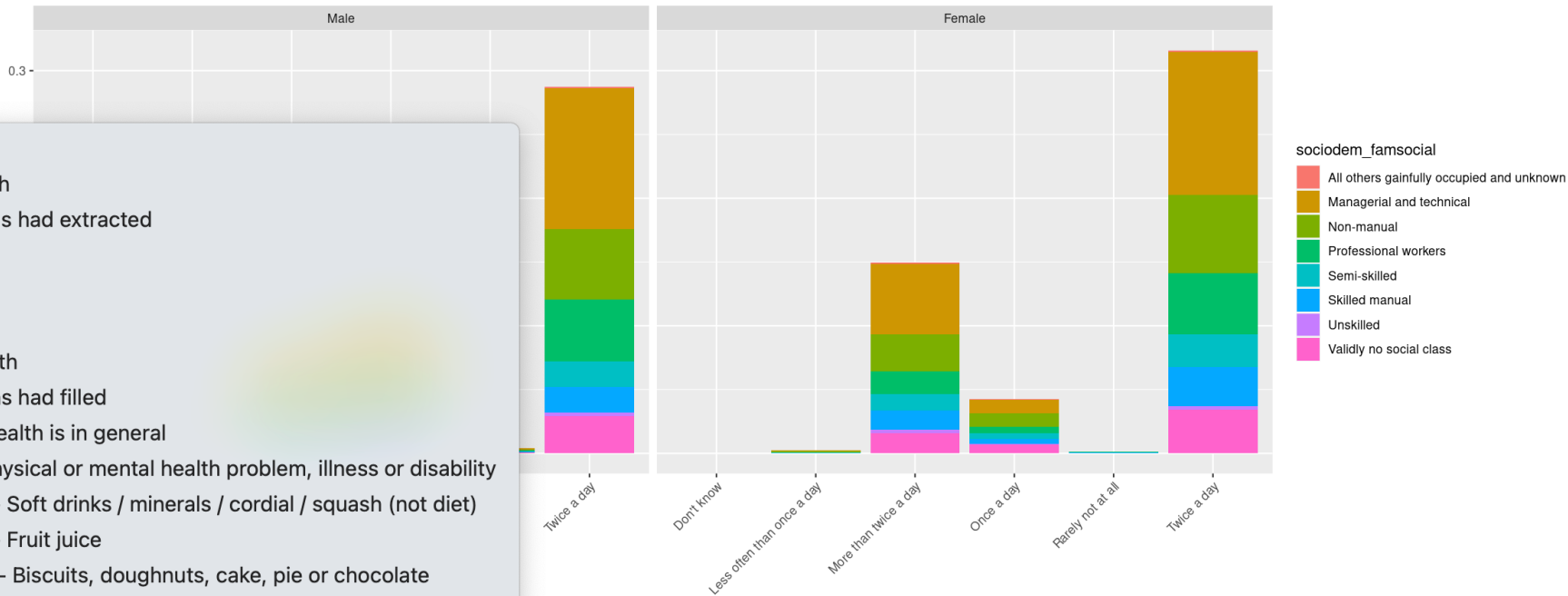
Wave 3

Wave 3

- ✓ O2. How often do you brush your teeth
- B9. How many permanent teeth YP has had extracted
- O3. How often visits the dentist
- Young Person's BMI status at Wave 3
- O5. Ever worn braces
- O1. How would you rate your oral health
- B8. How many permanent teeth YP has had filled
- A1. How would you say your current health is in general
- A2. Have you any on-going chronic physical or mental health problem, illness or disability
- N1q. How often had in the last 24hrs - Soft drinks / minerals / cordial / squash (not diet)
- N1b. How often had in the last 24hrs - Fruit juice
- N1m. How often had in the last 24hrs - Biscuits, doughnuts, cake, pie or chocolate
- Family's social class - Wave 3
- O4. Ever had orthodontic treatment
- Primary Caregiver's BMI classification- derived from measured data

By gender and socio-economic class

O2. How often do you brush your teeth
ratio



O2. How often do you brush your teeth variable by gender and sociodem_famsocial

sociodem_famsocial	gender	total	value	n	ratio
All others gainfully occupied and unknown	Male	6039	More than twice a day	5	0.0008280
All others gainfully occupied and unknown	Male	6039	Once a day	4	0.0006624



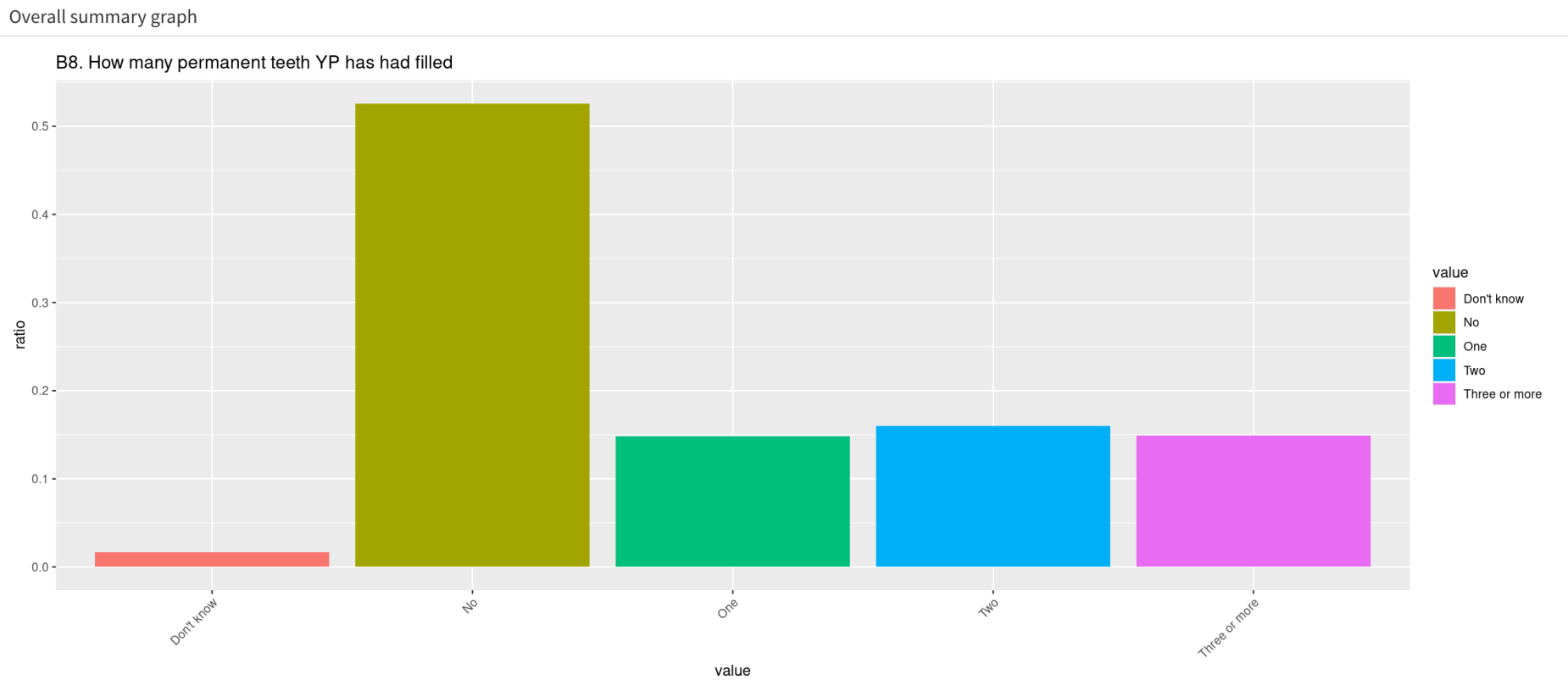
Survey
 Child GUI

Wave to select
 Wave 3

Variable to select
 B8. How many permane

Include 'Missing Reponse'
 (survey NAs)

This dashboard was created by the Dublin Dental University Hospital, Trinity College Dublin, using data from GUI/ESRI and NCFSII/IUNA



Summary table

Fills_PCG_report_17

variable	variableLabel	n distinct	missing	value	frequency	ratio
Fills_PCG_report_17	B8. How many permanent teeth YP has had filled	5993	5	46 Don't know	101	0.017
Fills_PCG_report_17	B8. How many permanent teeth YP has had filled	5993	5	46 No	3151	0.526



Survey

Child GUI

Wave to select

Wave 3

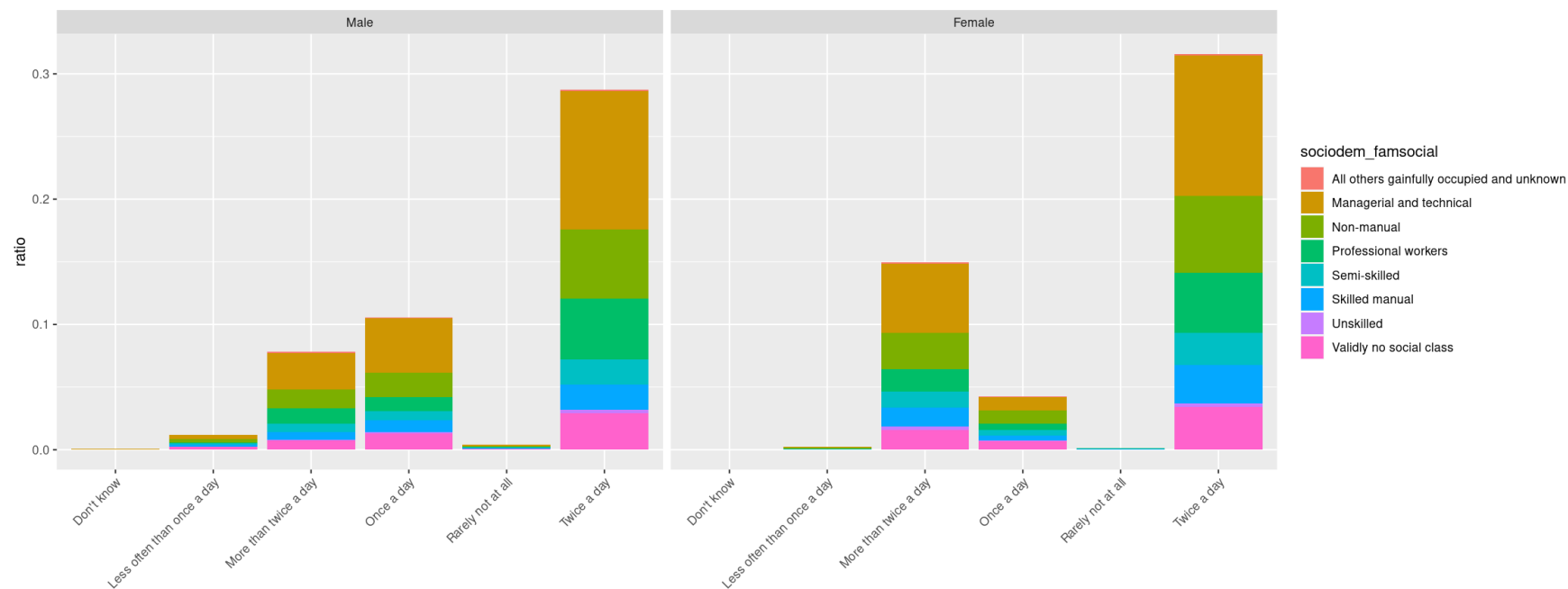
Variable to select

O2. How often do you br

Include 'Missing Reponse' (survey NAs)

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O2. How often do you brush your teeth ratio



Summary table

O2. How often do you brush your teeth variable by gender and sociodem_famsocial

sociodem_famsocial	gender	total	value	n	ratio
All others gainfully occupied and unknown	Male	6039	More than twice a day	5	0.0008280
All others gainfully occupied and unknown	Male	6039	Once a day	4	0.0006624
All others gainfully occupied and unknown	Male	6039	Twice a day	10	0.0016559
All others gainfully occupied and unknown	Female	6039	More than twice a day	7	0.0011591



Summary

- National child cohort surveys for oral health research
- Harmonisation potential evaluation across surveys
- Dashboards for data discovery and analysis



Recommendations

- Pre-harmonised questionnaires
- Data sharing of public surveys
- Protocols for data linkage



References

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A scenic landscape featuring snow-capped mountains in the background, a dense forest of evergreen trees in the middle ground, and a calm lake in the foreground. Two canoes are visible on the water; one is closer to the viewer, and another is further away. The overall color palette is dominated by blues and greys, with white snow on the mountains. The text "THANK YOU" is centered in the middle of the image.

THANK YOU