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## Introduction

This document provides detailed about the choice of measures used in the TEDS26 questionnaire, also called the TEDS MHQ (Mental Health Questionnaire). The headings generally correspond to both the titles of the measures and the names of the “blocks” or sections used in the Qualtrics web questionnaire. However, in a few cases a block contained more than one measure. For example, the Demographics block contained a variety of measures, shown below using sub-headings; the “Hormonal Contraception” block also contained the “Premenstrual Symptoms” measure; and the MCTQ block also contained the PSQI measure. Conversely, at least one measure (Self-harm) was presented using two blocks.

Under the heading for each measure given in this document, information is shown under the following sub-headings:

- Description and rationale for inclusion: a brief description of the measure and, in some cases, an outline of the reason for including it in TEDS26.
- Collaborators: for some measures, a mention of collaborating researchers who were involved in the choice of measure
- References: where available, external references to published papers or web links; or a statement that the questions were devised by researchers in TEDS or GLAD, for example, without external reference.
- Item selection/modification: where appropriate, a description of how items were selected and/or modified from their original source.
- Quality control: whether or not a QC item was added
- Overlap with other cohort studies: where appropriate, this mentions other studies (e.g. GLAD) or previous waves of TEDS (e.g. TEDS21) where the same or a similar measure was used.

## CoTEDS

**Description and rationale for inclusion:** These questions were developed by the CoTEDS/TEDS study team, to identify twins with children who might participate in the CoTEDS (Children of TEDS) study.

**References:** None

**Item selection/modifications:** Items were developed by the CoTEDS and TEDS teams.

**Quality control:** None

**Overlap with other cohort studies:** N/A

## Demographics block

### Relationship Status

**Description and rationale for inclusion:** A measure of current relationship status.

**References:** Devised by TEDS researchers.

**Item selection/modifications:** Added a 'Prefer not to answer option' for the web version of questionnaire.

**Quality control:** None

**Overlap with other cohort studies:** GLAD

### Qualifications

**Description and rationale for inclusion:** A measure of highest level of qualification. Included as a measure of SES.

**References:** Devised by TEDS researchers.

**Item selection/modifications:** Added a 'Prefer not to answer option' for the web version of questionnaire.

**Quality control:** None

**Overlap with other cohort studies:** TEDS21.

### Employment Status, Income and Benefits

**Description and rationale for inclusion:** Employment status, income, benefits and sources of funding for studies were included as measures of SES.

Prof Matthew Hotopf recommended including an item relating to the stability of work (i.e. zero-hours contracts) because work instability can contribute to stress and negative mental health outcomes.

**References:** Questions devised by TEDS/GLAD researchers

**Item selection/modifications:**

*Item selection:*

- Included the employment question from GLAD. Because many of the employment question answer options were not mutually exclusive, we decided to include the zero-hours contract item as a follow up to the main employment question with branching.
- Included income, benefits and student financing questions from TEDS21.

*Modifications:*

- Updated benefits categories to match current government guidelines.
- Removed the "Retired" answer option from the employment question due to the age range of the participants.

**Quality control:** None

**Overlap with other cohort studies:** Income, benefits, and student financing questions from TEDS21 / employment question from GLAD.

## Ethnicity

**Description and rationale for inclusion:** Decided to include this item because ethnicity data had not been collected since first contact where it was reported by parents. We wanted to give twins the opportunity to self-report ethnicity in adulthood. Having an updated measure of ethnicity will also provide a better understanding of the cohort profile. Although not ideal, the ONS categories were used for comparability purposes with other studies.

**References:** ONS categories:

<https://gss.civilservice.gov.uk/wp-content/uploads/2016/03/P3-Ethnic-Group-June-16-1.pdf>

**Item selection/modifications:**

*Selection:* Included the ONS recommended ethnicity categories.

*Modifications:*

- Included additional instruction: *“These are the government recommended categories for measuring ethnicity. However, we appreciate that they may not accurately represent everyone. Please feel free to use a text-box to self-define”*
- Changed “Any other Black, African or Caribbean background” to “Any other Black background” so that it mirrors the “Any other White background”.
- Added a free-text box to every “Other” answer option in case people wanted to self-define.

**Quality control:** N/A

**Overlap with other cohort studies:** N/A

## Gender Identity and Sexual Orientation

**Description and rationale for inclusion:** Included two questions relating to gender identity and one item relating to sexual orientation.

**References:** Items from the GLAD mental health questionnaire.

**Item selection/modifications:**

*Prior to pilot:* Had included the same sexual orientation question that was included at TEDS21: “Think about the people you are sexually attracted to. Would you say they are... “

*After pilot:* Received feedback from piloting that we could extend the sexual orientation question to include a more non-binary answer option, decided to replace the item used at TEDS21 with a different format question: “What is your sexual orientation?”

*Modifications:*

- Added answer options of “pansexual” and “fluid” to sexual orientation question
- Added “Genderqueer” to the non-binary answer option of the gender identity item.
- Kept the “Prefer to self define” answer option but removed the free-text entry option for both sexual orientation and gender identity questions.

**Quality control:** None

**Overlap with other cohort studies:** GLAD

## Medical History

**Description and rationale for inclusion:** Included questions relating to current height and weight, and COVID symptoms. TEDS carried out a series of more in-depth COVID related questionnaires, however, it was still decided to include a brief 2-item assessment relating to COVID because of its current societal importance and association with physical and mental health.

**References:**

- Height and weight questions devised by TEDS team
- COVID question devised by UK Biobank Team

**Item selection/modifications:** Selected the two COVID items from the UK Biobank Mental Health Questionnaire.

**Quality control:** N/A

**Overlap with other cohort studies:** Height and weight - previous waves of TEDS (1st contact, ages 3, 4, 7, 12, 14, 16, 18, 21). COVID questions - GLAD/UKB.

## PHQ-15 (Somatic and physical health)

**Description and rationale for inclusion:** A measure of somatic and physical health conditions used to detect the presence of medically unexplained somatic symptoms related to psychological distress.

**References:** Kroenke, K., Spitzer, R. L., & Williams, J. B. (2002). The PHQ-15: validity of a new measure for evaluating the severity of somatic symptoms. *Psychosomatic medicine*, 64(2), 258-266.

**Item selection/modifications:** Included the full scale.

**Analysed as full scale:** Yes

**Quality control:** 1 QC item

**Overlap with other cohort studies:** GLAD

## General Mental Health History

**Description and rationale for inclusion:** This is a measure used to assess lifetime diagnosis of common mental health and neurodevelopmental disorders.

**References:** Devised by GLAD team

**Item selection/modifications:**

- Changed 'Anxiety, nerves or generalised anxiety disorder' → a) Generalised anxiety disorder b) Anxiety, nerves or stress
- Changed a) Borderline/emotionally unstable personality disorder b) Mixed personality disorder → a) Borderline personality disorder
- Added "Panic attacks" answer option

**Quality control:** N/A

**Overlap with other cohort studies:** Overlaps with GLAD and COPING (with some adaptations)

## MFQ-13 (Current depression symptoms)

**Description and rationale for inclusion:** The MHQ-13 is a screening tool for depression consisting of a series of descriptive statements about how an individual has been feeling and/or acting recently. This measure was included for consistency with previous TEDS waves for the purpose of longitudinal analyses.

**References:**

Angold, A., Costello, E. J., Messer, S. C., Pickles, A., Winder, F., and Silver, D. (1995). The development of a short questionnaire for use in epidemiological studies of depression in children and adolescents. *International Journal of Methods in Psychiatric Research*, 5, 1-12.

**Item selection/modifications:** Changed 'This form..' to 'These questions are...' in instructions.

**Quality control:** 1 QC item

**Overlap with other cohort studies:** Previous waves of TEDS (with varying numbers of items), ALSPAC

## CIDI-SF-MDD (Lifetime depression symptoms)

**Description and rationale for inclusion:** Adapted Composite International Diagnostic Interview – Short Form (CIDI-SF) which is a lifetime assessment of major depressive disorder as outlined in the DSM-IV.

**References:**

Kessler RC, Andrews G, Mroczek D, Ustun B, Wittchen HU. The World Health Organization composite international diagnostic interview short-form (CIDI- SF). *Int J Methods Psychiatr Res* 1998; 7(4): 171–85.

## **Item selection/modifications:**

### *Selections:*

- Removed ante/post-natal depression items because postnatal depression is assessed in CoTEDS questionnaires
- Retained most of the atypical depression items because atypical depression has much more overlap with other mental health conditions and also a different biological underpinning.
  - However, removed some atypical depression items on the recommendation of Prof Matthew Hotopf to reduce length, as follows:
    - B7b) How many hours per day did you sleep on average during the depression episode, including nighttime sleep and daytime naps?
    - B7c) How many hours per day did you used to sleep on average when you were not depressed?
    - B10.1) For how many hours per day was the heaviness feeling present?

### *Modifications:*

- Combined the following two items into one, with drop down answer options (1-13+, All of my life/as long as I can remember, prefer not to answer). This was done to avoid contradictory responses between the two similar questions.
  - B19) How many periods of depression or low mood have you had in your life lasting two or more weeks? [One, Two-three, Several, All of my life/as long as I can remember, Prefer not to answer]
  - B19a) Please estimate the number of times you have had periods of depression or low mood in your life lasting two or more weeks: [Drop down] 1-13+
- Changed the answer format for all age related questions to dropdown 5-30 instead of free-text entry to avoid errors with answer input. Age range was agreed upon because we felt that any recall prior to the age of 5 may be unreliable.

### *Added items:*

- Added 3 items from the Australian Genetics of Depression study (AGADS) to assess psychomotor agitation, as follows (all with response options Yes, No, Don't know, Prefer not to answer):
  - 1) During that period, were you so fidgety or restless that you were unable to sit still?
  - 2) Were you talking or moving much more slowly than is normal for you?
  - 3) Did you feel fatigued or have less energy than usual?

### *Wording changes:*

- Wording changes were made to make the questions applicable to past and previous treatment (highlighted below in pink) and to make it more explicit which symptoms the items were referring to (in purple).
  - GLAD: B24a) Are you currently enrolled in an NHS funded talking therapy or psychotherapy (IAPT)?
    - TEDS: B24a) Have you ever been enrolled in an NHS funded talking therapy or psychotherapy (IAPT) for these problems?
    - Edited answer options to include "Yes, currently" and "Yes, previously"
  - GLAD: B24b) Did you take your medication as advised?
    - TEDS: B24b) Did/Do you take your medication for these problems as advised?
  - GLAD: Did you find the medication helpful?
    - TEDS: B23c) Did/Do you find the medication helpful?
  - GLAD: B24) You previously mentioned that you have tried psychotherapy or another talking therapy, please select all that you attended more than once.
    - TEDS: B24) You previously mentioned that you have tried/are currently trying psychotherapy or another talking therapy, or structured wellbeing activity for these problems. Please select all that you attended more than once.
  - GLAD: 24b) Did you find psychotherapy or other talking therapy helpful?
    - TEDS: 24b) Did/Do you find psychotherapy or other talking therapy helpful?
  - GLAD: 24a) Did you complete your course of psychotherapy or other talking therapy?
    - TEDS: 24b) Have you completed your course of psychotherapy or other talking therapy?

### **Quality control:** N/A

**Overlap with other cohort studies:** GLAD/COPING/UKBB/AGDS/ International Psychiatric Genetics Consortium (PGC).

## GAD10 (Current anxiety symptoms)

**Description and rationale for inclusion:** The GAD-10 is a severity measure for current Generalised Anxiety Disorder symptoms. We included for consistency with previous TEDS waves to enable longitudinal analyses.

**References:**

Craske M, Wittchen U, Bogels S, Stein M, Andrews G, Lebeu R. (2013). Severity measure for generalized anxiety disorder, Adults. American Psychiatric Association.

**Item selection/modifications:** Removed the “school” example from the instructions because twins are no longer at an age where they are in school. As follows:

“The following questions ask about thoughts, feelings and behaviours, often tied to concerns about family, health, finances, ~~school~~, and work.”

**Quality control:** 1 QC item

**Overlap with other cohort studies:** TEDS21

## CIDIA (Lifetime anxiety symptoms)

**Description and rationale for inclusion:** A lifetime measure of generalised anxiety disorder as outlined in the DSM-IV.

**References:**

Kessler RC, Andrews G, Mroczek D, Ustun B, Wittchen HU. The World Health Organization composite international diagnostic interview short-form (CIDI- SF). Int J Methods Psychiatr Res 1998; 7(4): 171–85.

**Item selection/modifications:**

*Modifications:*

- Combined the following (2 sets of) two items into one, with drop down answer options (1-13+, All of my life/as long as I can remember, prefer not to answer). This was done to avoid contradictory responses between the two similar questions.
  - C3a) How many periods of this kind of worry have you had in your life lasting 6 or more months?  
[One, Two-three, Several, All of my life/as long as I can remember, Prefer not to answer]
  - C3b) How many periods of this kind of worry have you had in your life lasting 1 month or longer?  
[One, Two-three, Several, All of my life/as long as I can remember, Prefer not to answer]
- Changed the answer format for all age-related questions to dropdown 5-30 instead of free-text entry to avoid errors with answer input. Age range was agreed upon because we felt that any recall prior to the age of 5 may be unreliable.

*Wording changes:*

- Wording changes were made to make the questions applicable to past and previous treatment (highlighted below in pink) and to make it more explicit which symptoms the items were referring to (in purple).
  - GLAD: C13) Did you ever use the following for the worry or the problems it caused? Please include any treatments that you have already told us about under ‘depression’ if they were also for anxiety:
  - TEDS: C13) Regarding times in your life when you felt worried, tense or anxious: Did you ever use the following for these worries or the problems they caused? Please include any treatments that you have already told us about previously if they were also for worry or the problems it caused
  - GLAD: C13a) Are you currently enrolled in an NHS funded talking therapy or psychotherapy (IAPT)?
  - TEDS: C13a) Have you ever been enrolled in an NHS funded talking therapy or psychotherapy (IAPT) for these worries or the problems they caused?
  - GLAD: C13b) Did you take your medication as advised?
  - TEDS: C13b) Did/Do you take your medication for these worries or problems they caused as advised?
  - GLAD: C13cb) Did you find the medication helpful?
  - TEDS: C13cb) Did/Do you find the medication helpful?
  - GLAD: C14) You previously mentioned that you have tried psychotherapy or another talking therapy, please select all that you attended more than once.
  - TEDS: C14) You previously mentioned that you have tried/ are currently trying psychotherapy, another talking therapy, or another structured wellbeing activity for these worries or the problems they caused. Please select all that you attended more than once.
  - GLAD: C14a) Did you complete your course of psychotherapy or other talking therapy?

- TEDS: C14a) **Have you completed** your course of psychotherapy or other talking therapy?

*Removed items:*

- Removed item C2e (What is the longest period of time (in weeks) that this kind of worrying has ever continued for?) because it was unclear what the purpose of the item was. We decided it was more detailed than we needed considering we already included both 1-month and 6-month duration questions.

**Quality control:** N/A

**Overlap with other cohort studies:** GLAD/COPING/UKBB/International Psychiatric Genetics Consortium (PGC).

## Lifetime Specific Phobia

**Description and rationale for inclusion:** A lifetime measure of specific phobia.

**References:** Kessler RC, Andrews G, Mroczek D, Ustun B, Wittchen HU. The World Health Organization composite international diagnostic interview short-form (CIDI- SF). *Int J Methods Psychiatr Res* 1998; 7(4): 171–85.

**Item selection/modifications:**

*Modifications:*

- Combined the following (2 sets of) two items into one, with drop down answer options (1-13+, All of my life/as long as I can remember, prefer not to answer). This was done to avoid contradictory responses between the two similar questions.
  - 7) How many periods of this kind of fear or anxiety have you had in your life lasting 6 or more months?  
[One, Two-three, Several, All of my life/as long as I can remember, Prefer not to answer]
  - 7a) Please estimate the number of times you have had periods of this kind of worry in your life lasting 6 or more months:  
[Drop down] 1-13+

*Wording changes:*

- Wording changes were made to make the questions applicable to past and previous treatment (highlighted below in pink) and to make it more explicit which symptoms the items were referring to (in purple).
  - GLAD: 12) Did you ever try the following for these problems?
  - TEDS: 12) **Have you ever tried** the following for these problems? **Please include any treatments that you have already told us about if they were also for a specific fear:**
  - GLAD: 12a) Are you currently enrolled in an NHS funded talking therapy of psychotherapy (IAPT) for these problems?
  - TEDS: 12a) **Have you ever been enrolled** in an NHS funded talking therapy or psychotherapy (IAPT) for these problems?
  - Changed answer options to cover current and previous enrollment
  - GLAD: Did you take your medication as advised?
  - TEDS:12b) **Did/Do** you take your medication **for these fears** as advised?
  - GLAD: 13) You previously mentioned that you have tried psychotherapy, another talking therapy, or a structured wellbeing activity, please select all that you attended more than once.
  - TEDS: 13) You previously mentioned that **you have tried/ are currently trying psychotherapy**, another talking therapy, or a structured wellbeing activity **for these fears**. Please select all that you attended more than once.
  - GLAD: 13a) Did you complete your course of psychotherapy or other talking therapy?
  - TEDS: 13a) **Have you completed** your course of psychotherapy or other talking therapy?
  - GLAD: 13b) Did you find psychotherapy or other talking therapy helpful?
  - TEDS: 13b) **Did/Do** you find psychotherapy or other talking therapy helpful?

**Quality control:** N/A

**Overlap with other cohort studies:** GLAD/COPING/UK BioBank/International Psychiatric Genetics Consortium (PGC)/Australian Genetics of Depression Study.



# Lifetime Social Phobia

**Description and rationale for inclusion:** A measure of lifetime presence of social phobia.

**References:** Kessler RC, Andrews G, Mroczek D, Ustun B, Wittchen HU. The World Health Organization composite international diagnostic interview short-form (CIDI- SF). *Int J Methods Psychiatr Res* 1998; 7(4): 171–85.

**Item selection/modifications:**

*Modifications:*

- Combined the following (2 sets of) two items into one, with drop down answer options (1-13+, All of my life/as long as I can remember, prefer not to answer). This was done to avoid contradictory responses between the two similar questions.
  - 4) How many periods of this kind of worry have you had in your life lasting 6 or more months?  
[One, Two-three, Several, All of my life/as long as I can remember, Prefer not to answer]
  - 5a) Please estimate the number of times you have had periods of this kind of worry in your life lasting 6 or more months:  
[Drop down] 1-13+

*Wording changes:*

- Wording changes were made to make the questions applicable to past and previous treatment (highlighted below in pink) and to make it more explicit which symptoms the items were referring to (in purple).
  - GLAD: 12) Did you ever try the following for these problems?
  - TEDS: 12) Have you ever tried the following for these problems? Please include any treatments that you have already told us about previously if they were also for these fears or anxieties of social situations:
  - GLAD: 12a) Are you currently enrolled in an NHS funded talking therapy of psychotherapy (IAPT) for these problems?
  - TEDS: 12a) Have you ever been enrolled in an NHS funded talking therapy or psychotherapy (IAPT) for these problems?
  - Changed answer options to cover current and previous enrollment
  - Medication questions: changed 'Did you take...' to 'Did/Do you take...'
  - GLAD: 13) You previously mentioned that you have tried psychotherapy, another talking therapy, or a structured wellbeing activity, please select all that you attended more than once.
  - TEDS: 13) You previously mentioned that you have tried, another talking therapy, or a structured wellbeing activity for these fears or anxieties of social situations. Please select all that you attended more than once.
  - GLAD: 13a) Did you complete your course of psychotherapy or other talking therapy?
  - TEDS: 13a) Have you completed your course of psychotherapy or other talking therapy for these fears or anxieties of social situations?
  - GLAD: 13b) Did you find psychotherapy or other talking therapy helpful?
  - TEDS: 13b) Did/Do you find psychotherapy or other talking therapy helpful?

**Quality control:** N/A

**Overlap with other cohort studies:** GLAD/COPING/UK BioBank/International Psychiatric Genetics Consortium (PGC)/Australian Genetics of Depression Study.

# Lifetime Panic Disorder

**Description and rationale for inclusion:** A measure of lifetime occurrence of panic disorder.

**References:** Kessler RC, Andrews G, Mroczek D, Ustun B, Wittchen HU. The World Health Organization composite international diagnostic interview short-form (CIDI- SF). *Int J Methods Psychiatr Res* 1998; 7(4): 171–85.

**Item selection/modifications:**

*Modifications:*

- Combined the following (2 sets of) two items into one, with drop down answer options (1-13+, All of my life/as long as I can remember, prefer not to answer). This was done to avoid contradictory responses between the two similar questions.
  - 5) How many periods of this kind of worry have you had in your life lasting 1 or more months?  
[One, Two-three, Several, All of my life/as long as I can remember, Prefer not to answer]
  - 5a) Please estimate the number of times you have had periods of this kind of worry in your life lasting 1 or more months:  
[Drop down] 1-13+

*Wording changes:*

- Wording changes were made to make the questions applicable to past and previous treatment (highlighted below in pink) and to make it more explicit which symptoms the items were referring to (in purple).
  - GLAD: 11) Did you ever try the following for these problems?
  - TEDS: Have you ever tried the following for these problems? Please include any treatments that you have already told us about previously if they were also for panic attacks or feelings of intense panic:
  - GLAD: 11a) Are you currently enrolled in an NHS funded talking therapy of psychotherapy (IAPT) for these problems?
  - TEDS: 11a) Have you ever been enrolled in an NHS funded talking therapy of psychotherapy (IAPT) for these panic attacks or feelings of intense panic?
  - Changed answer options to cover current and previous enrollment
  - Medication questions: changed 'Did you take...' to 'Did/Do you take...'
  - GLAD: 12) You previously mentioned that you have tried psychotherapy, another talking therapy, or structured wellbeing activity. Please select all that you attended more than once.
  - TEDS: 12) You previously mentioned that you have tried/are currently trying psychotherapy, another talking therapy, or structured wellbeing activity for panic attacks. Please select all that you attended more than once.
  - GLAD: 12a) Did you complete your course of psychotherapy or other talking therapy?
  - TEDS: 12a) Have you completed your course of psychotherapy or other talking therapy for these panic attacks or feelings of intense panic?
  - GLAD: 12b) Did you find psychotherapy or other talking therapy useful?
  - TEDS: 12b) Did/Do you find psychotherapy or other talking therapy useful?

**Quality control:** N/A

**Overlap with other cohort studies:** GLAD/COPING/UK BioBank/International Psychiatric Genetics Consortium (PGC)/Australian Genetics of Depression Study.

## Lifetime Agoraphobia

**Description and rationale for inclusion:** A measure of the lifetime occurrence of agoraphobia.

**References:** Kessler RC, Andrews G, Mroczek D, Ustun B, Wittchen HU. The World Health Organization composite international diagnostic interview short-form (CIDI- SF). *Int J Methods Psychiatr Res* 1998; 7(4): 171–85.

### **Item selection/modifications:**

#### *Modifications:*

- Combined the following (2 sets of) two items into one, with drop down answer options (1-13+, All of my life/as long as I can remember, prefer not to answer). This was done to avoid contradictory responses between the two similar questions.
  - 6) How many periods of this kind of fear or anxiety have you had in your life lasting 6 or more months? [One, Two-three, Several, All of my life/as long as I can remember, Prefer not to answer]
  - 7a) Please estimate the number of times you have had periods of this kind of fear or anxiety in your life lasting 6 or more months: [Drop down] 1-13+
- Changed the answer format for all age-related questions to dropdown 5-30 instead of free-text entry to avoid errors with answer input. Age range was agreed upon because we felt that any recall prior to the age of 5 may be unreliable.

#### *Wording changes:*

- Wording changes were made to make the questions applicable to past and previous treatment (highlighted below in pink) and to make it more explicit which symptoms the items were referring to (in purple).
  - GLAD: 10) Did you ever try the following for these problems?
  - TEDS: 10) Have you ever tried the following for these problems? Please include any treatments that you have already told us about previously if they were also for these fears:
  - GLAD: 10a) Are you currently enrolled in an NHS funded talking therapy of psychotherapy (IAPT) for these problems?
  - TEDS: 10a) Have you ever been enrolled in an NHS funded talking therapy or psychotherapy (IAPT) for these fears?
  - Medication questions: changed 'Did you take...' to 'Did/Do you take...'
  - GLAD: 11) You previously mentioned that you have tried psychotherapy, another talking therapy, or a structured wellbeing activity. please select all that you attended more than once.
  - TEDS: 11) You previously mentioned that you have tried psychotherapy, another talking therapy, or a structured wellbeing activity for these fears. please select all that you attended more than once.
  - GLAD: 11a) Did you complete your course of psychotherapy or other talking therapy?
  - TEDS: 11a) Have you completed your course of psychotherapy or other talking therapy?
  - GLAD: 11b) Did you find psychotherapy or other talking therapy helpful?
  - TEDS: 11b) Did/Do you find psychotherapy or other talking therapy helpful?

**Quality control:** N/A

**Overlap with other cohort studies:** GLAD/COPING/UK BioBank/International Psychiatric Genetics Consortium (PGC)/Australian Genetics of Depression Study.

## GAD-2 (Current anxiety symptoms)

**Description and rationale for inclusion:** A measure of current anxiety symptoms. Included for consistency with other cohort studies. The GAD-7 is a screening tool commonly used in research and clinical practice. Maps onto generalised anxiety disorder outlined in the DSM-IV.

### **References:**

Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of internal medicine*, 166(10), 1092-1097.

### **Item selection/modifications:**

*Prior to piloting:* Included the whole GAD7.

*After piloting:* In order to save space and repetition with the other anxiety measures, reduced the GAD7 to the GAD2.

**Quality control:** N/A

**Overlap with other cohort studies:** GLAD/ALSPAC

## PHQ-2 (Current depression symptoms)

**Description and rationale for inclusion:** The Patient Health Questionnaire is a measure of current depression symptoms. Included for consistency with other cohort studies. The PHQ9 is commonly used in research and clinical practice. The items map onto major depressive disorder characterised by the DSM-IV.

**References:**

Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9 - Validity of a brief depression severity measure. *Journal of General Internal Medicine*, 16, 606-613.

**Item selection/modifications:**

*Prior to piloting:* Included the whole PHQ9.

*After piloting:* In order to save space and repetition with the other depression measures, reduce the PHQ9 to the PHQ2.

**Quality control:** N/A

**Overlap with other cohort studies:** GLAD

## Work and social adjustment scale

**Description and rationale for inclusion:** A measure of impairment resulting from mental health difficulties. Was included because it captures good domains of mental health related functional impairments.

**References:**

Marks, I. M. *Behavioural psychotherapy: Maudsley pocketbook of clinical management*. Wright/IOP Publishing, 1986.

**Item selection/modifications:**

- Edited the instructions from the GLAD questionnaire: TEDS is not a clinical sample; some participants may not be aware that they are experiencing anxiety or depression. Had to change the wording so as not to have it appear as a diagnosis.
  - **GLAD:** Please complete this section thinking about what problem it was that led to you register for the Genetic Links to Anxiety and Depression study. This includes but is not limited to anxiety, depression and sleep problems. People's problems sometimes affect their ability to do certain day-to-day tasks in their lives. To rate your problems look at each section and determine on the scale provided how much your problem impairs your ability to carry out the activity.
  - **TEDS:** Based on the answers you have already given us, it seems like you are experiencing some symptoms of anxiety and/or depression. These symptoms sometimes affect people's ability to do certain day-to-day tasks in their lives, making them more of a problem. Please look at each section below and determine on the scale provided how much your symptoms/problem impair your ability to carry out the activity.
- Added item 1a. From COPING:
  - 1a. Because of my problem my ability to study is impaired. Only shown to individuals who select 'in full time employment' in the demographics section.

**Decisions:**

Decided not to have the WSAS appear to everyone since TEDS is not a clinical sample. Instead decided the WSAS would appear to people who scored high enough on the GAD2 and/or PHQ2 (a score of 2 or higher in either measure)

**Quality control:** N/A

**Overlap with other cohort studies:** GLAD

## Childhood Traumatic Events

**Description and rationale for inclusion:** A measure of adversities in childhood. We decided to keep the CTS in TEDS26 even though childhood trauma was reported at age 21, to examine intra-rater / across-time reliability.

**References:** Shortened version of the Childhood Trauma Screener (CTS).

Glaesmer H, Schulz A, Häuser W, Freyberger HJ, Brähler E, Grabe H-J. [The childhood trauma screener (CTS)-development and validation of cut-off-scores for classificatory diagnostics]. *Psychiatrische Praxis* 2013; **40**(4): 220-6

**Item selection/modifications:** Added the following section to the instructions: "The following questions ask about negative experiences in your childhood. We know that this is a sensitive subject, but it is important to ask as some of these experiences are not uncommon. If you find answering these questions too distressing, please select 'Prefer not to answer' for each question and move on to the next page." These words are adapted from the instructions used in TEDS21 traumatic childhood events section.

**Quality control:** N/A

**Overlap with other cohort studies:** GLAD

## Adult Traumatic Events

**Description and rationale for inclusion:** The adult trauma items were developed by the UK Biobank Mental Health study team. This measure was included to identify the exposure to traumatic life events in adulthood.

**References:**

Frissa S, Hatch SL, Fear NT, Dorrington S, Goodwin L, Hotopf M. Challenges in the retrospective assessment of trauma: comparing a checklist approach to a single item trauma experience screening question. *BMC psychiatry*. 2016; **16**(1): 20.

**Item selection/modifications:** Added the following section to the instructions: "The following questions ask about negative experiences in your childhood. We know that this is a sensitive subject, but it is important to ask as some of these experiences are not uncommon. If you find answering these questions too distressing, please select 'Prefer not to answer' for each question and move on to the next page."

**Quality control:** N/A

**Overlap with other cohort studies:** GLAD, UK Biobank

## Domestic Abuse Items

**Description and rationale for inclusion:** This is a measure of intimate partner violence. The items use the same structure as the CTS and were adapted from the national crime survey. The measure addresses whether or not an event happened, and if so, how frequently it occurred.

When deciding which measure to include, we compared these items to the items previously included in TEDS. Consulted Prof Louise Howard who recommended that these items map more neatly onto the National Crime Survey questions than the items previously included in TEDS. Additionally, there was overlap between some constructs in the items previously used in TEDS21, while others (i.e. sexual violence) were missing. Decided to use the same measure as GLAD.

**References:**

Khalifeh H, Oram S, Trevillion K, Johnson S, Howard LM. Recent intimate partner violence among people with chronic mental illness: findings from a national cross-sectional survey. *Br J Psychiatry*. 2015 Sep;207(3):207–12.

**Item selection/modifications:** Added the following section to the instructions: "The following questions ask about negative experiences in your childhood. We know that this is a sensitive subject, but it is important to ask as some of these experiences are not uncommon. If you find answering these questions too distressing, please select 'Prefer not to answer' for each question and move on to the next page."

**Quality control:** None

**Overlap with other cohort studies:** GLAD/UKB iobank

## The abbreviated PCL-C: PCL-6 (PTSD Symptoms)

**Description and rationale for inclusion:** A measure of current post-traumatic stress disorder symptoms.

**References:**

Weathers, F. W., Litz, B. T., Herman, D. S., Huska, J. A., & Keane, T. M. (1993, October). The PTSD Checklist (PCL): Reliability, validity, and diagnostic utility. In *annual convention of the international society for traumatic stress studies, San Antonio, TX* (Vol. 462).

**Item selection/modifications:** 6 items from the full PCL were included in the current study. Items were selected to overlap with those included in GLAD.

**Quality control:** N/A

**Overlap with other cohort studies:** GLAD (Abbreviated version) /ALSPAC age 21-25 (PCL-5)

## Life events

**Description and rationale for inclusion:** A measure of events or situations in the last year. The life events items are based on the Coddington Life Events Checklist.

**References:**

Coddington, R. D. (1972). The significance of life events as etiological factors in the diseases of children: II: a study of a normal population. *Journal of Psychosomatic Research*, 16, 205-213.

**Item selection/modifications:**

*Item selection:*

- 10 items from TEDS21 life events section
- 4 items from TEDS16
- 5 items from ALSPAC Life at 26
- Added one item to capture the experiences of LGBTQIA participants adapted from the National LGBT Survey.

Item	Source
You became homeless	TEDS21
You left home	ALSPAC Life at 26
You graduated from University	ALSPAC Life at 26
You or your partner became pregnant or had a baby	TEDS21
You entered into a new relationship	TEDS16 (Adapted)
Outstanding personal achievement	TEDS16
A family member was admitted to hospital or became seriously ill	TEDS16
You were admitted to hospital or became seriously	TEDS21
You got engaged to be married/to enter a civil partnership	ALSPAC Life at 26
You got married or entered a civil partnership	ALSPAC Life at 26
You lost your job or got into serious financial problems	TEDS21
You were divorced or separated from a partner	TEDS21
You were in trouble with the law	TEDS21
Someone close to you died	TEDS21
You attempted suicide	TEDS21
You or your partner had an abortion	TEDS21
You were responsible for a road accident	TEDS16
You started a new job	ALSPAC Life at 26
Your parents separated or divorced	TEDS21
You came out (e.g. to friends or family) as a member of the LGBTQIA community	New

*Modifications:*

- The scale was adapted to assess positive/negative reactions to life events (rather just than whether or not the event happened) based on what was used for the measure in ALSPAC (<http://www.bristol.ac.uk/media-library/sites/alspac/documents/questionnaires/YPB-life-at-22-plus.pdf>).
  - Also similar to the pleasant → unpleasant scale in TEDS16.
- Some items were modified to make them more age appropriate for early adulthood as had been done in ALSPAC, e.g. 'You started a new job' (adapted from 'Beginning school').
- Adapted the item 'Beginning to date' from TEDS16 to 'You entered a new relationship'

**Quality control:** 1 QC item

**Overlap with other cohort studies:** TEDS16/21, ALSPAC '26'

## Self-harm/Suicide

**Description and rationale for inclusion:** Measures of both suicidal feelings and self-harm actions during the past year.

**Collaborators:** Prof Jean-Baptiste Pinquart and Kai Lim

**References:**

1. Paykel, E. S., Myers, J. K., Lindenthal, J. J., & Tanner, J. (1974). Suicidal feelings in the general population: a prevalence study. *Br J Psychiatry*, 124(0), 460-469 (Items 1-2)
2. Mudge, N., Hewitt, A., Hawton, K., Wilde, E. J. D., Corcoran, P., et al (2008). Deliberate self-harm within an international community sample of young people: comparative findings from the Child & Adolescent Self-harm in Europe (CASE) Study. *Journal of child Psychology and Psychiatry*, 49(6), 667-677. (Items 3-13)

**Item selection/modifications:**

*Selection:*

- At TEDS21, lifetime and past year self-harm items were asked. We decided to only include the past year questions at age 26 for the purpose of longitudinal analyses.

*Modifications:*

- Changed the question to add harmed to "hurt" as it is possible that "hurt" leads more to responses regarding physical hurt (cuts) rather than harm (e.g pills).
- Removed the word "Seriously" in the second response
  - Some discrepancy in terms of people saying they had harmed themselves without admitting to either suicidal or non-suicidal self-harm at age 21. Jean-Baptiste suggested it might be because of the word "seriously".
- Edited responses categories
  - Added two extra response options ("Yes, 11-20 times", "Yes, more than 20 times") because at TEDS21 there were many people answering ">10".
  - Also added a prefer not to answer option because of the sensitive nature of the items.
- Added 'If you find answering these questions too distressing, please select 'Prefer not to answer' for each question and move on to the next page.' to instructions.
- Andy had coded the free-text responses collected at age 21 for the item 'If you have harmed yourself in any other way not mentioned in questions 10-13, you can give details in the space below'. See below:

Category	N in TEDS21
Skin damage: pinching/picking/scratching/scraping/biting/cutting/piercing	41
Other physical harm: hitting/banging/bruising/straining/squeezing/pulling hair	35
Food-related harm: binge-eating/vomiting/starving	24
Heat-related harm: burning/scalding/freezing	9
Harm with chemicals: poisoning/overdose/stopping important medication/bingeing alcohol or drugs	10
Total	119

-

- Modified previously used items about self-harm methods to include these text categories and removed the free text answer box. Changes are highlighted below:

Original wording	Adapted wording
10. In the past year, have you swallowed pills or something poisonous?	10. In the past year, have you swallowed pills or something poisonous? [unchanged]
11. In the past year, have you cut yourself?	11. In the past year, have you harmed your skin (e.g., by cutting, scratching, pinching yourself)?
12. In the past year, have you burnt yourself (e.g., with a cigarette)?	12. In the past year, have you burnt or scalded yourself (e.g., with a cigarette or hot water)?
13. In the past year, have you scratched yourself, pulled your hair, headbutted or punched something to the point of feeling pain?	13. In the past year, have you scratched or bruised yourself, pulled your hair, headbutted, hit or punched something to the point of feeling pain?

**Quality control:** N/A

**Overlap with other cohort studies:** ALSPAC/TEDS16

## Strengths and Difficulties Questionnaire (SDQ)

**Description and rationale for inclusion:** A measure of emotional and behavioural difficulties. The SDQ has been consistently included in previous waves of TEDS data collection. It was included again for continuity and longitudinal analyses as well as to be used when looking for early predictors/onset of mental health problems

**References:**

Goodman, R. (1997) The Strengths and Difficulties Questionnaire: A Research Note. Journal of Child Psychology and Psychiatry, 38, 581-586.

**Item selection/modifications:**

- Updated to use a different version of the SDQ than was used in previous waves of TEDS data collection (SDQ 18+). We felt that some of the items were more age appropriate.
- To be consistent with more it was presented in previous waves, the items were made to appear in the past tense.
- Also to be consistent with previous waves, the scale was changed from “Not True, Somewhat True, Certainly True” to “Not True, Quite True, Very True”

**Quality control:** 1 QC item

**Overlap with other cohort studies:** Previous TEDS waves/ALSPAC

## Subjective Wellbeing

**Description and rationale for inclusion:** 3 items measuring subjective wellbeing.

**References:** Items were taken from the UK Biobank and GLAD Study mental health questionnaires.

**Item selection/modifications:** Included the two euthymic ('positive emotion') questions and a eudemonic ('meaning') question.

**Quality control:** N/A

**Overlap with other cohort studies:** GLAD, UKB



## DCQ (Body Dysmorphic Disorder)

**Description and rationale for inclusion:** The DCQ is a brief measure of body dysmorphic symptoms which assess the cognitive and behavioural symptoms associated with extreme concern about physical defects, either slight or imagined. It aims to assess dysmorphic concerns without establishing a diagnosis.

**Collaborators:** Dr Georgina Krebs

**References:**

Oosthuizen P, Lambert T, Castle DJ, Dysmorphic concern: Prevalence and associations with clinical variables . Aust NZ J Psychiatry 1998; 32:129–132.

**Item selection/modifications:**

- Added “Please do not include concerns about your weight or not being slim enough.” to the instructions to encourage participants not to rate weight or shape concerns.
- Added a ‘prefer not to answer’ answer option due to their sensitive nature.
- Changed “misshaped” to “Misshapen” in item 2.

**Quality control:** 1 QC item

**Overlap with other cohort studies:** GLAD optional module

## Eating Disorders

**Description and rationale for inclusion:** An eating disorder screener devised by the PGC eating disorder group which measures 1) Anorexia nervosa: – binge-purge type and age of onset 2) Bulimia nervosa 3) Binge eating disorder and maps onto the DSM-5 diagnostic criteria.

Changed from ED questions used at TEDS21 to the PGC-ED version (as from UKBMHQ2) because it is a lifetime screener and also its branching structure would make it more time efficient.

**References:** Bespoke measure developed for the UK Biobank study

**Item selection/modifications:**

- Changed format of weight related questions from 3 text boxes (Kg, Stone, BMI) entry to drop down options in order to reduce the likelihood of invalid answers. Weight range: Less than 35kg (less than 5 stone 7 pounds) to 180kg (28 stone 5 pounds). Had the range go down so low because it is a lifetime screener individuals who experienced an eating disorder during childhood would have been a very low weight
- Changed the age related questions from free text entry to drop down
  - Range: 0-30. Included ages to 0 because some people may have experienced disordered eating at a young age.
- Removed the lifetime diagnoses questions from the end of the measure because these were already covered in the lifetime MH diagnoses section at the beginning of the questionnaire.
- Added a content warning at the beginning of the section in response to some twin feedback
  - *“The following section is about eating disorders. We know this is a sensitive subject, but it is important to ask about it now, as it is not uncommon. By finding out about eating disorders we can try to find ways of helping people.”*

**Quality control:** None

**Overlap with other cohort studies:** UKBB/COPING

## MCTQ (Chronotype) and Sleep Quality (PSQI)

**Description and rationale for inclusion:** Measure of chronotype that calculates the midpoint of sleep based on self-reported sleep and wake times and 2-items from the Pittsburgh Sleep Quality Index (PSQI).

### References:

1. Roenneberg, T., Wirz-Justice, A., & Merrow, M. (2003). Life between clocks: daily temporal patterns of human chronotypes. *Journal of biological rhythms*, 18(1), 80-90.
2. Final 2 items: Buysse, D. J., Reynolds III, C. F., Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. *Psychiatry research*, 28(2), 193-213.

### Item selection/modifications:

#### Selection:

- Due to space restrictions and similar questions between the two measures, we decided to drop the sleep quality measure (PSQI) which was included at age 21, and instead include the chronotype measure (MCTQ). Kept in the final two items of the PSQI directly related to recent sleep quality.

#### Modifications:

- Work nights/days definition: change "Think about the nights during your work week, when you have to go to work the next day" to "Think about the **work/week nights** when you have **work or other commitments** the next day"
- Q1. Change "What time do you usually go to bed during your work week?" to "What time do you usually go to bed **on your work/week days**?"
- Q3. Change: "What time do you usually wake up on work days?" to "What time do you usually wake up **on work/ week days**?"
- Q6. Change "How many hours of actual sleep do you get on work nights? This may be different than the number of hours you spend in bed" to "How many hours of actual sleep do you get on **work/week nights**? This may be different than the number of hours you spend in bed"
- Free days/nights definition: change "Now, think about the nights during when you are free the next day, like weekends or whenever you don't work" to "Now, think about the nights during when you are free the next day, like weekends or whenever you don't **have work or any other commitments**"
- Edited answer formats because we felt that free-text answers could be prone to errors:
  - How many days do you work in a typical week?
    - Changed from free text to drop down ranging 0-7
  - 2) What time do you usually go to bed on your work/week days?
    - Changed from free text entry to drop down Hours (0-24) and minutes (00, 15, 30, 45)
  - 3) How long does it take for you to fall asleep (from the time when you go to bed)?
    - Changed from free text entry to [Dropdown:0, 5, 15, 30, 45, 60+]
  - 4) What time do you usually wake up on work/week days?
    - Changed from free text entry to drop down Hours (0-24) and minutes (00, 15, 30, 45)
  - 6) How many minutes does it take before you get up out of bed after you wake up?
    - Changed from free text to drop down [Dropdown: 0, 5, 15, 30, 45, 60+]
  - 7) How many hours of actual sleep do you get on work/week nights? This may be different than the number of hours you spend in bed
    - Changed from free text to drop down [Dropdown: 1-12+]
  - 8) What time do you usually go to bed on free nights?
    - Changed from free text entry to drop down Hours (0-24) and minutes (00, 15, 30, 45)
  - 9) How long does it take for you to fall asleep
    - Changed from free text entry to [Dropdown:0, 5, 15, 30, 45, 60+]
  - 10) What time do you usually wake up on free days? (Note that we are using a 24 hour clock for these questions, so 10pm is 22 hours)
    - Changed from free text entry to drop down Hours (0-24) and minutes (00, 15, 30, 45)
  - 12) How many minutes does it take before you get up out of bed after you wake up?
    - Changed from free text to drop down [Dropdown: 0, 5, 15, 30, 45, 60+]
  - 13) How many hours of actual sleep do you get on free nights?
    - Changed from free text to drop down [Dropdown: 1-12+]

**Quality control:** None

**Overlap with other cohort studies:** Dunedin Study

## SPEQ (Psychotic symptoms)

**Description and rationale for inclusion:** The Specific Psychotic Experiences Questionnaire (SPEQ) assesses the key types of experiences associated with psychosis, which includes paranoia, hallucinations, cognitive disorganisation, grandiosity, anhedonia.

The paranoia and hallucinations subscales were included in this assessment. These two subscales were included at TEDS16/TEDS21 and were included again in order to allow longitudinal analyses across these key ages in the development of psychotic experiences.

**Collaborators:** Prof Angelica Ronald

**References:**

Ronald, A., Sieradzka, D., Cardno, A. G., Haworth, C. M. A, McGuire, P., Freeman, D. (2014). Characterization of psychotic experiences in adolescence using the Specific Psychotic Experiences Questionnaire (SPEQ): Findings from a study of 5000 16-year-old twins. *Schizophrenia Bulletin*, 40, 868-77.

**Item selection/modifications:**

- At previous TEDS waves there was no time frame included for this measure.
  - We added 'In the past year'. Prof Angelica Ronald agreed that this would be better than 'in the past 5 years' due to the episodic nature of mental health

**Quality control:** 1 QC item

**Overlap with other cohort studies:** TEDS16/TEDS21

## MDQ (Mania/Hypomania)

**Description and rationale for inclusion:** The Mood Disorder Questionnaire (MDQ) is a screening tool which assess symptoms of mania and hypomania.

**References:**

Hirschfeld R, Williams J, Spitzer RL, et al. Development and validation of a screening instrument for bipolar spectrum disorder: the Mood Disorder Questionnaire. *Am J Psychiatry*. 2000;157:1873-1875.

**Item selection/modifications:**

*Selection:*

HCL-16 is the measure of mania/hypomania previously used in TEDS. However, decided to change to the MDQ because Prof Gerome Breen advised the the HCL-16 was too indirect about aggression and interest in sex.

- Also noted that the HCL-16 did not capture the 'lack of insight' element of mania, where people do not perceive their behaviour as being different but that other people tell them that it is.

*Modifications:*

- Removed Question B30 ( Has a health professional ever told you that you have manic-depressive illness or bipolar disorder?) because diagnoses are already covered in lifetime mental health screener.
- The MDQ structure was extended by the GLAD team to assess whether or not symptoms of mania and hypomania co-occurred, and if so which symptoms.

**Quality control:** None

**Overlap with other cohort studies:** GLAD

## ADHD (Conners)

**Description and rationale for inclusion:** A measure of adult ADHD.

Decided to use the Conners as the measure of adult ADHD because it was used at TEDS21 and so would enable longitudinal analyses.

**References:**

Conners, C. K. (2008): Conners 3rd Edition (Conners 3) Manual. New York: MHS Assessments.

**Item selection/modifications:**

*Selection:*

- Dr Giorgia Michelini advised that adult ADHD manifests primarily as inattention and recommended we include the 11 inattention items from the Conners scale. Inattention symptoms are also more commonly associated with depression and anxiety symptoms. Therefore, we decided to include the 11 inattention items.

*Modifications:*

- Removed 'by accident' from item 3 (originally 'I make mistakes by accident')

**Quality control:** 1 QC item

**Overlap with other cohort studies:** Earlier waves of TEDS

## Autistic Traits (RAADS)

**Description and rationale for inclusion:** The RAADS-14 is a screening tool for Autism Spectrum Disorder (ASD) in adult populations. The measure gathers information about persistent (childhood and current) Autistic traits.

We wanted to include an Autistic Trait measure in order to explore the long term outcomes for those who experience Autistic traits in childhood, including mental health outcomes. It would also allow us to explore sex differences in presentation of autistic traits in early adulthood.

**Collaborators:** Prof Franky Happe, Gavin Stewart, David Mason

**References:**

Eriksson, J. M., Andersen, L. M., & Bejerot, S. (2013). RAADS-14 Screen: validity of a screening tool for autism spectrum disorder in an adult psychiatric population. *Molecular autism*, 4(1), 49.

**Item selection/modifications:**

*Selection:*

- Prof Franky Happe advised on which would be the best brief measure of autistic traits.

*Modifications:*

- Gavin Stewart and David Mason (PhD students working with Franky) performed a factor analysis on data from several online studies with adults with autism vs. comparison participants on the RAADS-14.
  - Conservative confirmatory factor analysis found 6-items that would capture socio-communicative and nonsocial traits.
  - Checked sensitivity and specificity against reported Autism diagnosis.

**Quality control:** N/A

**Overlap with other cohort studies:** N/A

## ICU (CU traits)

**Description and rationale for inclusion:** The Inventory of Callous-Unemotional Traits (ICU) is a 24-item measure which assesses callous and unemotional traits. The ICU was included as a measure to capture the externalising side of mental health and wellbeing.

**Collaborators:** Prof Essi Viding

**References:**

Frick, P. J. (2004). The Inventory of Callous-Unemotional traits: Unpublished rating scale.

**Item selection/modifications:**

*Selection:*

In previous waves of TEDS, CU traits have been measured using 7-items reported by mothers (4 from SDQ, 3 from ASPD/ICU).

- The full 24-item ICU was too long for the current questionnaire, so we cut the items down to the 3 items that were used at age 16 for consistency and an additional 4 items to better tap into the construct at an older age.
  - Prof Essi Viding recommended the additional 4 items based on our earlier analysis on ICU factor loadings in TEDS (Henry et al., 2016).

*Modifications:*

- Switched from the parent-report version of the questionnaire to the self-report version.

**Quality control:** 1 QC item

**Overlap with other cohort studies:** TEDS16

## Hormonal contraception

**Description and rationale for inclusion:** These questions, which relate to past and present use of hormonal contraceptives, were designed to investigate research questions relating to the link between hormonal contraceptives and mental health.

**Collaborators:** Dr Helena Zavos, Dr Tom McAdams

**References:** Items were devised by KCL researchers.

**Item selection/modifications:** N/A

**Quality control:** None

**Overlap with other cohort studies:** N/A

## Premenstrual symptoms

**Description and rationale for inclusion:** The Premenstrual Symptoms Impact Survey (PMSIS) is a measure used to assess the impact of premenstrual symptoms on health and quality of life. The PMSIS is a global measure assessing the influence of premenstrual symptoms on cognitive, physical and social functioning. Premenstrual symptoms can be severe and debilitating for many individuals who menstruate (Heinemann et al., 2010) and consequently could be one avenue for exploring the relationships between physical and mental health.

**Collaborators:** Dr Helena Zavos, Dr Tom McAdams

**References:**

Wallenstein, G. V., B. Blaisdell-Gross, K. Gajria, A. Guo, M. Hagan, S.G. Kornstein, and K. A. Yonkers. 2008. "Development and Validation of the Premenstrual Symptoms Impact Survey (PMSIS): A Disease-Specific Quality of Life Assessment Tool." *Journal of Women's Health* 17 (3): 439–50.

**Item selection/modifications:** All items from the PMSIS were included.

**Quality control:** N/A

**Overlap with other cohort studies:** None

## Alcohol Use

**Description and rationale for inclusion:** Adapted version of the Alcohol Use Disorders Identification Test (AUDIT): A measure of lifetime and current alcohol and tobacco use.

**References:**

- The first 3 items (Screening and introduction items): devised by TEDS team.
- Subsequent items adapted from AUDIT: Reinert, D.F., & Allen, J.P. (2007) The alcohol use disorders identification test: an update of research findings. *Alcoholism: Clinical and Experimental Research*, 31(2), 185-199.

**Item selection/modifications:**

*Modifications:*

- Items were adapted from the original measure to ask about the number of drinks rather than units (consistent to how the items were previously asked in TEDS).
  - Data will be converted into units after data collection is complete.
- Edited one item (5a) that was in units to also reflect how many drinks that would be:
  - During the past year, how often have you had six or more units of alcohol on one occasion? This would be drinking either a bottle of wine, 3 pints of beer/lager/cider, 6 shots of spirit or 6 alcopops.
- Edited question 5 item 1 to include the glass measurement of a standard glass of wine: (175ml)

**Quality control:** 1 QC item

**Overlap with other cohort studies:** TEDS21/ALSPAC 'Life at 16'

## Drug Use

**Description and rationale for inclusion:** Included items relating to cannabis use in the past 12 months.

**Collaborators:** Prof Jean-Baptiste Piquant

**References:**

Cuenca-Royo, A. M., Sánchez-Niubó, A., Forero, C. G., Torrens, M., Suelves, J. M., & Domingo-Salvany, A. (2012). Psychometric properties of the CAST and SDS scales in young adult cannabis users. *Addictive Behaviors*, 37(6), 709-715.

**Item selection/modifications:**

*Item selection:*

- At age 21 there were drug use items about a) cannabis b) cognitive enhancers c) other illicit drugs
  - Decided to retain the cannabis items at age 26, but not include items relating to cognitive enhancers because use of these drugs are more prevalent during university years.
  - Also did not include the use of other illicit drugs because the prevalence rates at age 21 were low:
    - In the "other drugs" section, 32% of twins responded positively to ever having taken some form of illicit drug. However, when it came to questions about specific types of drugs, the positive responses were again limited to a few percent. Cocaine and amphetamines led the way with around 20% saying they had used them at least once; hallucinogens added up to about 12%, and inhalants about 7%; the others only a couple of percent.
- Drug related questions at age 21 were asked in the context of lifetime use, so there was concern that if it was asked over a smaller time frame the responses would be even lower.

*Modifications:*

- Also added the answer option "I have never used cannabis" to the first item

**Quality control:** 1 QC item

**Overlap with other cohort studies:** Earlier waves of TEDS (TEDS21 and 16 year). ALSPAC 'Life of a 16+ Teenager'.

## Smoking/Vaping

**Description and rationale for inclusion:** Items relating to current smoking and vaping behaviours were included.

**Collaborators:** Professor Ann McNeill, Katie East, Sarah Aleyan

**References:**

- 3 items relating to vaping (vape model, nicotine concentration and harm perception) and 1 item relating to smoking urges from the International Tobacco Control Policy Evaluation Project (ITC) Youth Tobacco and E-Cigarette survey.
- 1 Item from the Fagerström test for nicotine dependence (CIG.FRE.2.0): Heatherton, T. F., Kozlowski, L. T., Frecker, R. C., & Fagerstrom, K. O. (1991). The Fagerström test for nicotine dependence: a revision of the Fagerstrom Tolerance Questionnaire. *British journal of addiction*, 86(9), 1119-1127.
- Other items devised by the TEDS team.

**Item selection/modifications:**

*Selection:*

- On the recommendation of Prof Ann McNeill's group, replaced two of the items previously included in TEDS (Do you find it difficult to refrain from smoking in places where it is forbidden (e.g. in church, buses, trains, the library, cinemas)? / Do you smoke if you are so ill that you are in bed most of the day?) with a single item relating to frequency of urges to smoke.
- Included harm perception item for vaping on recommendation of Ann McNeill's group -- harm perceptions surrounding vaping are relevant to current work they are doing.
- Removed this item from previous TEDS waves "Which cigarette would you most hate to give up?"

*Modification:*

- Included a screening question of "Have you ever smoked a cigarette (including roll-ups) or tried an e-cigarette/vape (even one or two puffs)?" to reduce the block length of individuals who have never smoked.

**Quality control:** None

**Overlap with other cohort studies:** Some items overlap with earlier waves of TEDS (TEDS21 and 16 year). ALSPAC 'Life of a 16+ Teenager'.

## Diet/Food intolerances

**Description and rationale for inclusion:** A brief measure assessing specific diet restrictions and food allergies.

**References:** Devised by TEDS researchers.

**Item selection/modifications:**

**Quality control:** None

**Overlap with other cohort studies:** Previous waves of TEDS

## Exercise habits

**Description and rationale for inclusion:** These items relate to the frequency of exercise in a typical week. Exercise is a relevant health related behaviour relating to both physical and mental health, in addition to the relationship between the two.

**References:** Devised by TEDS researchers

**Item selection/modifications:**

**Quality control:** 1 QC item

**Overlap with other cohort studies:** Previous waves of TEDS (TEDS21).

## Physical Illnesses

**Description and rationale for inclusion:** A single item measure of lifetime diagnosis of physical illnesses.

**References:** Items included in the GLAD study

**Item selection/modifications:**

*Selection:*

- Due to the younger age range of TEDS twins, we removed some items from the GLAD list of disorders.
  - Also checked the endorsement rates of each physical illness in GLAD to inform which disorder to include. Kept any physical health disorders related to autoimmune, inflammation or pain because they are relevant for grant hypotheses and the research interests of the team.
- Full details of inclusions in two tables below. Entries in red font indicate items that were not included.

	Physical Illness diagnoses	Notes on inclusion in TEDS26:
<b>Nervous System Problems</b>	Epilepsy or Convulsions	
	Migraine Headaches	
	Multiple Sclerosis	
	Parkinson's Disease	Removed due to age of twins (too young)
	Severe Memory Loss (like Alzheimer's Disease)	Removed due to age of twins
<b>Allergies</b>	Hay fever	
	Food allergy If yes, please provide details: [text]	Removed food allergy item because we have a food allergy item in the 'Diet' section of the MHQ.
	Drug allergy If yes, please put which drug: [text] Any other allergy If yes, please specify: [text]	
<b>Bone or Joint Problems</b>	Osteoporosis or "thin" bones	Removed due to the age of twins. Usually occurs after the age of 50.
	Osteoarthritis	
	Rheumatoid Arthritis	
	Other Arthritis: [text]	
<b>Lung or Breathing Problems</b>	Asthma	
	Emphysema or chronic bronchitis	Removed due to age of twins
<b>Heart or Circulation Problems</b>	Heart Attack, Angina	Removed due to age of twins
	High Blood Cholesterol	Removed due to age of twins
	High Blood pressure	Removed due to age of twins
	Atrial fibrillation	Removed due to age of twins
	Stroke	Removed due to age of twins
<b>Digestive problems</b>	Inflammatory Bowel Disorder (Crohn's, Ulcerative Colitis)	
	Coeliac disease	
<b>Diabetes</b>	Diabetes Type 1 (early onset)	
	Diabetes Type 2 (late onset)	Removed due to age of twins
	Pain due to Diabetes (Diabetic Neuropathy)	
	Pain due to Virus (Post Herpetic Neuralgia)	
<b>Cancer</b>	Breast Cancer	Removed due to age of twins
	Lung Cancer	Removed due to age of twins
	Stomach Cancer	Removed due to age of twins



	Physical Illness diagnoses	Notes on inclusion in TEDS26:
	Colon Cancer	Removed due to age of twins
	Uterus Cancer	Removed due to age of twins
	Prostate Cancer	Removed due to age of twins
Skin problems	Psoriasis	
	Vitiligo	
	Eczema	
Endocrine system problems	Thyroid disease If Yes, please specify: [text]	

GLAD Endorsement rates			
Physical Illness Diagnoses	N in GLAD ( from total 45154)	% in GLAD	Notes
Epilepsy or convulsions	1020	2.35%	Fine endorsement rate in GLAD
Migraines	11212	25.81%	High endorsement rate in GLAD
Multiple sclerosis	157	0.36%	Most commonly develops in 20s/30s. Autoimmune.
Asthma	11557	26.63%	High endorsement rate in GLAD
Emphysema or chronic bronchitis	458	1.06%	Usually not before 40.
Hay fever	16261	37.46%	High endorsement rate in GLAD
Osteoarthritis	3242	7.47%	Usually diagnosed in older adults but can appear in younger people. Inflammatory disorder. Good endorsement rate.
Rheumatoid arthritis	916	2.11%	Inflammatory disorder. Usually not diagnosed until 40s, but can appear in early adulthood.
Drug allergy (if yes, which drug?)	7419	17.09%	High endorsement rate in GLAD
Any other allergy (if yes, which allergy?)	5572	12.84%	High endorsement rate in GLAD
Other arthritis	2465	5.68%	Inflammatory disorder
Psoriasis	3064	7.07%	Good endorsement rate in GLAD
Vitiligo	435	1.00%	Right age range (10-30). Autoimmune disorder.
Eczema	11382	26.25%	High endorsement rate in GLAD
Thyroid disease (if yes, please specify)	3110	7.17%	Good endorsement rate in GLAD
Inflammatory Bowel Disorder	-	-	
Crohn's	248	0.57%	Inflammatory disorder
Ulcerative Colitis	391	0.90%	Autoimmune disorder
Coeliac disease	414	0.95%	Autoimmune disorder
Diabetes type 1 (early onset)	325	0.75%	Related to pain item
Pain due to diabetes (diabetic neuropathy)	290	0.67%	Pain related hypotheses
Pain due to virus (post herpetic neuralgia)	437	1.01%	Pain related hypotheses

**Quality control:** None

**Overlap with other cohort studies:** GLAD

## SASPD (Personality Disorders)

**Description and rationale for inclusion:** The Standardised Assessment of Severity of Personality Disorder (SASPD), assesses the severity of personality disorder symptoms in relation to CD-11 criteria for diagnosis.

**References:**

Olajide, K., Munjiza, J., Moran, P., O'Connell, L., Newton-Howes, G., Bassett, P., ... & Crawford, M. J. (2018). Development and psychometric properties of the Standardized Assessment of Severity of Personality Disorder (SASPD). *Journal of Personality Disorders, 32*(1), 44-56.

**Item selection/modifications:** The full SASPD measure was included.

**Quality control:** None

**Overlap with other cohort studies:** GLAD

## Hedonia Subscale

**Description and rationale for inclusion:** The Hedonia Subscale of the Specific Psychotic Experiences Questionnaire (SPEQ).

The hedonia subscale consists of 10-items from the anticipatory pleasure subscale of the Temporal Experience of Pleasure Scale (Gard, Gard, King & John, 2006).

**References:**

Ronald, A., Sieradzka, D., Cardno, A. G., Haworth, C. M., McGuire, P., & Freeman, D. (2014). Characterization of psychotic experiences in adolescence using the specific psychotic experiences questionnaire: findings from a study of 5000 16-year-old twins. *Schizophrenia bulletin, 40*(4), 868-877.

**Collaborators:** Prof Angelia Ronald

**Item selection/modifications:** There were some concerns over the age appropriateness of a few of the items (When I'm on my way to an amusement park, I can hardly wait to ride the roller coasters / When I think of something tasty, like a chocolate biscuit, I have to have one). The original measure was piloted on 22 year olds, so technically almost the same age group.

- After discussing with Prof Angelica Ronald:
  - Edited the roller coaster item to: When I'm going on a day out, I can hardly wait to leave
  - Edited the biscuit item to: When I think of something tasty, I have to have it.

**Quality control:** 1 QC item

**Overlap with other cohort studies:** TEDS16