**Estimating age of menopause in mothers in the ALSPAC Study: A data note**

**Extended material**

**Supplementary methods**

*The following describes how Questionnaire MB was incorporated into estimating age at menopause. The methods are adapted from the section* ***“Assigning date of last menstrual period using estimated date from the previous timepoint”*** *in the main text. Methods had to be adapted due to the different question structure in Questionnaire MB*

Questionnaire MB (administered in 2023) used a different structure for reproductive health questions compared to previous questionnaires and clinic assessments used to assign date of LMP. Participants were asked, *“When did you last have a menstrual period?”* with response options:

* *In the past 3 months*
* *4-12 months ago*
* *More than 12 months ago*

They were also asked about their menopausal status with the question, *“Which of the following statements best describes your current menopause status?”*. Options included

* *I have been through the menopause*
* *I am going through the menopause now*
* *I have not yet started going through the menopause*
* *I am not sure*

Notably, Questionnaire MB did not ask participants to report the date or age at their last menstrual period.

The questionnaire immediately preceding MB was Questionnaire Y (administered in 2020). Its structure limited out ability to assign LMP dates: unlike most other questionnaires, which asked all women whether they had menstruated in the past 12 and 3 months and to report their date of LMP, Questionnaire Y only asked an LMP date from women who reported having had a period in the past 12 months. As a result, LMP dates were only available for women still menstruating, limiting the ability of these data for estimating age at menopause.

Because Questionnaire Y could not be used on its own to assign age at menopause, we instead used responses from Questionnaire MB to identify women who were postmenopausal. For women classified as postmenopausal in MB, if they had completed Questionnaire Y within the previous three years and had reported an LMP date at that time, we carried forward the LMP date from Y to estimate their age at menopause as described in the main text.

Participants in Questionnaire MB were excluded if they reported that periods had stopped due to a hysterectomy or for an unknown reason.

Women were classified as postmenopausal in Questionnaire MB if met one of the following criteria:

1. Reported “*I have been through the menopause”* **AND** had a missing response to *“When did you last have a menstrual period?”*
2. Reported “*I have been through the menopause”* **AND** their last menstrual period was more than 12 months ago
3. Reported *”I am going through the menopause now”* **AND** their last menstrual period was more than 12 months ago

**Supplementary Table 1. Derived variables**

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| --- | --- | --- | --- |
| Variable | Original variable/(s) | Derived variable | Derived by |
| FoM1: Currently using contraceptives | fm1ob100, fm1ob101, fm1ob121 | contracept\_1 | If currently taking any type of oral contraceptive (fm1ob100), contraceptive injection (fm1ob101) or reported that periods were stopped by contraceptives (coil, injection, implant, pill, other) (fm1ob121) |
| FoM2: Currently using contraceptives | fm2ob100, fm2ob101, fm2ob121 | contracept\_2 | If currently taking any type of oral contraceptive (fm2ob100), contraceptive injection (fm2ob101) or reported that periods were stopped by ‘Other’ reason (fm2ob121). Use of contraceptives as cause of stopped period was missed at FoM2. ‘Other’ response was included as this may have included contraceptives. |
| FoM3: Currently using contraceptives | Fm3ob100, fm3ob101, fm3ob121 | contracept\_3 | If currently taking any type of oral contraceptive (fm3ob100), contraceptive injection (fm3ob101) or reported that periods were stopped by hormonal coil (fm3ob121). |
| FoM4: Currently using contraceptives | Fm4ob100, fm4ob101, fm4ob121 | contracept\_4 | If currently taking any type of oral contraceptive (fm4ob100), contraceptive injection (fm4ob101) or reported that periods were stopped by hormonal coil (fm4ob121). |
| Questionnaire T: Currently using contraceptives | t4521, t4522 | contracept\_t | If currently taking any type of oral contraceptive (t4521) or contraceptive IUCD/coil (t4522). |
| Questionnaire V: Currently using contraceptives | V4551, V4552, V4553, V4559, V4560, V4805 | contracept\_v | If currently taking/using any type of oral contraceptive (V4551), contraceptive IUD (hormonal)( V4553), contraceptive injection (V4559), contraceptive implant (V4560) or reported that periods were stopped by contraception (V4805). |
| Questionnaire Y: Currently using contraceptives | Y5001, Y5002, Y5003, Y5008,  Y5009, Y5084 | contracept\_y | If currently taking/using any type of oral contraceptive (Y5001), contraceptive IUD (hormonal)( Y5003), contraceptive injection (Y5008), contraceptive implant (Y5009) or reported that periods were stopped by contraception (Y5084). |
| FoM1: Currently using HRT | fm1ob110 | hrt\_1 | If currently using HRT (fm1ob110). |
| FoM2: Currently using HRT | fm2ob110a, fm2ob110b, fm2ob110c | hrt\_2 | If currently taking HRT tablets (fm2ob110a), patches (fm2ob110b), or creams (fm2ob110c). |
| FoM3: Currently using HRT | fm3ob110a, fm3ob110b, fm3ob110c | hrt\_3 | If currently taking HRT tablets (fm3ob110a), patches (fm3ob110b), or creams (fm3ob110c). |
| FoM4: Currently using HRT | Fm4ob110a, fm4ob110b, fm4ob110c | hrt\_4 | If currently taking HRT tablets (fm4ob110a), patches (fm4ob110b), or creams (fm4ob110c). |
| Questionnaire T: Currently using HRT | t4961 | hrt\_t | If currently using HRT (t4961). |
| Questionnaire V: Currently using HRT | V4955 | hrt\_v | If currently using HRT (V4955). |
| Questionnaire Y: Currently using HRT | Y5140 | hrt\_y | If currently using HRT (Y5140). |
| FoM1: Had period in last 12 months | fm1ob120 | period12\_1 | To ensure that period3\_1 and period12\_1 align, if   1. period12\_1 is not reported and period3\_1 == 1, then we set period12\_1 == 1 2. period3\_1 is not reported and period12\_1 == 0, then we set period3\_1 == 0 3. period3\_1 == 1 and period12\_1 == 0, then we set both period12\_1 and period3\_1 to missing. |
| FoM2: Had period in last 12 months | fm2ob120 | period12\_2 | To ensure that period3\_2 and period12\_2 align, if   1. period12\_2 is not reported and period3\_2 == 1, then we set period12\_2 == 1 2. period3\_2 is not reported and period12\_2 == 0, then we set period3\_2 == 0 3. period3\_2 == 1 and period12\_2 == 0, then we set both period12\_2 and period3\_2 to missing. |
| FoM3: Had period in last 12 months | fm3ob120 | period12\_3 | To ensure that period3\_3 and period12\_3 align, if   1. period12\_3 is not reported and period3\_3 == 1, then we set period12\_3 == 1 2. period3\_3 is not reported and period12\_3 == 0, then we set period3\_3 == 0 3. period3\_3 == 1 and period12\_3 == 0, then we set both period12\_3 and period3\_3 to missing. |
| FoM4: Had period in last 12 months | fm4ob120 | period12\_4 | To ensure that period3\_4 and period12\_4 align, if   1. period12\_4 is not reported and period3\_4 == 1, then we set period12\_4 == 1 2. period3\_4 is not reported and period12\_4 == 0, then we set period3\_4 == 0 3. period3\_4 == 1 and period12\_4 == 0, then we set both period12\_4 and period3\_4 to missing. |
| Questionnaire T: Had period in last 12 months | t4800 | period12\_t | To ensure that period3\_t and period12\_t align, if   1. period12\_t is not reported and period3\_t == 1, then we set period12\_t == 1 2. period3\_t is not reported and period12\_t == 0, then we set period3\_t == 0 3. period3\_t == 1 and period12\_t == 0, then we set both period12\_t and period3\_t to missing. |
| Questionnaire V: Had period in last 12 months | V4800 | period12\_v | To ensure that period3\_v and period12\_v align, if   1. period12\_v is not reported and period3\_v == 1, then we set period12\_v == 1 2. period3\_v is not reported and period12\_v == 0, then we set period3\_v == 0 3. period3\_v == 1 and period12\_v == 0, then we set both period12\_v and period3\_v to missing. |
| Questionnaire Y: Had period in last 12 months | Y5070 | period12\_y | To ensure that period3\_y and period12\_y align, if   1. period12\_y is not reported and period3\_y == 1, then we set period12\_y == 1 2. period3\_y is not reported and period12\_y == 0, then we set period3\_y == 0 3. period3\_y == 1 and period12\_y == 0, then we set both period12\_y and period3\_y to missing. |
| FoM1: Had period in last 3 months | fm1ob126 | period3\_1 | To ensure that period3\_1 and period12\_1 align, if   1. period12\_1 is not reported and period3\_1 == 1, then we set period12\_1 == 1 2. period3\_1 is not reported and period12\_1 == 0, then we set period3\_1 == 0 3. period3\_1 == 1 and period12\_1 == 0, then we set both period12\_1 and period3\_1 to missing. |
| FoM2: Had period in last 3 months | fm2ob126 | period3\_2 | To ensure that period3\_2 and period12\_2 align, if   1. period12\_2 is not reported and period3\_2 == 1, then we set period12\_2 == 1 2. period3\_2 is not reported and period12\_2 == 0, then we set period3\_2 == 0 3. period3\_2 == 1 and period12\_2 == 0, then we set both period12\_2 and period3\_2 to missing. |
| FoM3: Had period in last 3 months | fm3ob126 | period3\_3 | To ensure that period3\_3 and period12\_3 align, if   1. period12\_3 is not reported and period3\_3 == 1, then we set period12\_3 == 1 2. period3\_3 is not reported and period12\_3 == 0, then we set period3\_3 == 0 3. period3\_3 == 1 and period12\_3 == 0, then we set both period12\_3 and period3\_3 to missing. |
| FoM4: Had period in last 3 months | fm4ob126 | period3\_4 | To ensure that period3\_4 and period12\_4 align, if   1. period12\_4 is not reported and period3\_4 == 1, then we set period12\_4 == 1 2. period3\_4 is not reported and period12\_4 == 0, then we set period3\_4 == 0 3. period3\_4 == 1 and period12\_4 == 0, then we set both period12\_4 and period3\_4 to missing. |
| Questionnaire T: Had period in last 3 months | t4810 | period3\_t | To ensure that period3\_t and period12\_t align, if   1. period12\_t is not reported and period3\_t == 1, then we set period12\_t == 1 2. period3\_t is not reported and period12\_t == 0, then we set period3\_t == 0 3. period3\_t == 1 and period12\_t == 0, then we set both period12\_t and period3\_t to missing. |
| Questionnaire V: Had period in last 3 months | V4810 | period3\_v | To ensure that period3\_v and period12\_v align, if   1. period12\_v is not reported and period3\_v == 1, then we set period12\_v == 1 2. period3\_v is not reported and period12\_v == 0, then we set period3\_v == 0 3. period3\_v == 1 and period12\_v == 0, then we set both period12\_v and period3\_v to missing. |
| Questionnaire Y: Had period in last 3 months | Y5100 | period3\_y | To ensure that period3\_y and period12\_y align, if   1. period12\_y is not reported and period3\_y == 1, then we set period12\_y == 1 2. period3\_y is not reported and period12\_y == 0, then we set period3\_y == 0 3. period3\_y == 1 and period12\_y == 0, then we set both period12\_y and period3\_y to missing. |
| FoM1: Date of attendance | fm1a010a, fm1a010b | date\_1 | No day of questionnaire completion or clinic attendance is reported. Day of attendance is set as 15 for all women. Date is then sanity checked. |
| FoM2: Date of attendance | fm2a010a, fm2a010b | date\_2 | No day of questionnaire completion or clinic attendance is reported. Day of attendance is set as 15 for all women. Date is then sanity checked. |
| FoM3: Date of attendance | fm3a010a, fm3a010b | date\_3 | No day of questionnaire completion or clinic attendance is reported. Day of attendance is set as 15 for all women. Date is then sanity checked. |
| FoM4: Date of attendance | fm4a010a, fm4a010b | date\_4 | No day of questionnaire completion or clinic attendance is reported. Day of attendance is set as 15 for all women. Date is then sanity checked. |
| Questionnaire T: Date of attendance | t9990a, t9990b | date\_t | No day of questionnaire completion or clinic attendance is reported. Day of attendance is set as 15 for all women. Date is then sanity checked. |
| Questionnaire V: Date of attendance | V9990A, V9990B | date\_v | No day of questionnaire completion or clinic attendance is reported. Day of attendance is set as 15 for all women. Date is then sanity checked. |
| Questionnaire Y: Date of attendance | Y9990, Y9991 | date\_y | No day of questionnaire completion or clinic attendance is reported. Day of attendance is set as 15 for all women. Date is then sanity checked. |