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:

i. Reported "*I have been through the menopause*" **AND** had a missing response to *"When did you last have a menstrual period?"*
ii. Reported "*I have been through the menopause*" **AND** their last menstrual period was more than 12 months ago
iii. Reported *"I am going through the menopause now"* **AND** their last menstrual period was more than 12 months ago

Supplementary Table 1. Derived variables

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 a) period12_1 is not reported and period3_1 == 1, then we set period12_1 == 1 b) period3_1 is not reported and period12_1 == 0, then we set period3_1 == 0 c) 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 a) period12_2 is not reported and period3_2 == 1, then we set period12_2 == 1 b) period3_2 is not reported and period12_2 == 0, then we set period3_2 == 0 c) 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 a) period12_3 is not reported and period3_3 == 1, then we set period12_3 == 1 b) period3_3 is not reported and period12_3 == 0, then we set period3_3 == 0 c) 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 a) period12_4 is not reported and period3_4 == 1, then we set period12_4 == 1 b) period3_4 is not reported and period12_4 == 0, then we set period3_4 == 0

			c) 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 a) period12_t is not reported and period3_t == 1, then we set period12_t == 1 b) period3_t is not reported and period12_t == 0, then we set period3_t == 0 c) 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 a) period12_v is not reported and period3_v == 1, then we set period12_v == 1 b) period3_v is not reported and period12_v == 0, then we set period3_v == 0 c) 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 a) period12_y is not reported and period3_y == 1, then we set period12_y == 1 b) period3_y is not reported and period12_y == 0, then we set period3_y == 0 c) 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 a) period12_1 is not reported and period3_1 == 1, then we set period12_1 == 1 b) period3_1 is not reported and period12_1 == 0, then we set period3_1 == 0 c) 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 a) period12_2 is not reported and period3_2 == 1, then we set period12_2 == 1 b) period3_2 is not reported and period12_2 == 0, then we set period3_2 == 0 c) 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 a) period12_3 is not reported and period3_3 == 1, then we set period12_3 == 1 b) period3_3 is not reported and period12_3 == 0, then we set period3_3 == 0 c) 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 a) period12_4 is not reported and period3_4 == 1, then we set period12_4 == 1 b) period3_4 is not reported and period12_4 == 0, then we set period3_4 == 0 c) 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 a) period12_t is not reported and period3_t == 1, then we set period12_t == 1 b) period3_t is not reported and period12_t == 0, then we set period3_t == 0 c) 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 a) period12_v is not reported and period3_v == 1, then we set period12_v == 1 b) period3_v is not reported and period12_v == 0, then we set period3_v == 0 c) 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 a) period12_y is not reported and period3_y == 1, then we set period12_y == 1 b) period3_y is not reported and period12_y == 0, then we set period3_y == 0

			c) 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.