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Supplemental material

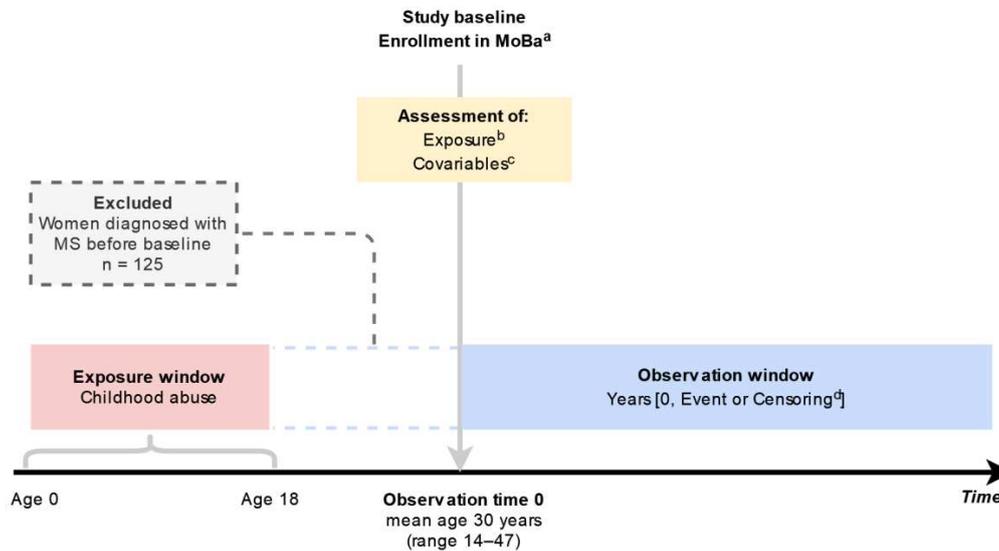**Supplementary figure 1:** Study design of the main analysis

Supplementary figure 2: Study design of the sensitivity analyses

Supplementary table 1: Hazard ratios of multiple sclerosis by type of childhood abuse: Excluding Women with First Clinical Symptom of MS Before Age 23 Years

Supplementary table 2: Hazard ratios of multiple sclerosis by type of childhood abuse: Including all women with MS in the MoBa-cohort

Supplementary table 3: Characteristics of participants with missing data compared to the study population

Supplemental material

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Supplementary figure 1. Study Design of the Main Analysis

Abbreviations: MoBa = The Norwegian Mother, Father and Child cohort study; MS = Multiple sclerosis
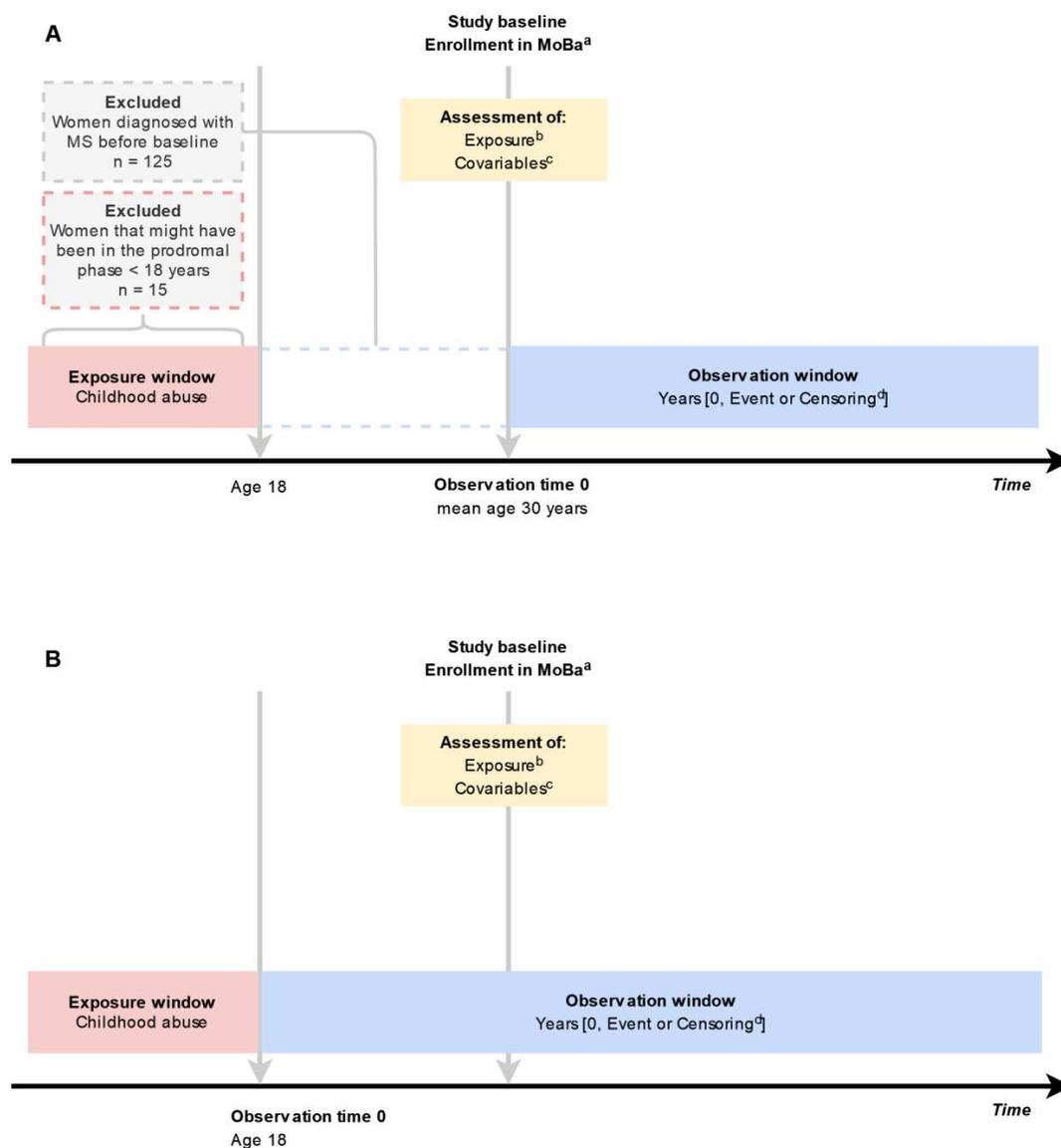
[a] Enrollment in MoBa took place in pregnancy weeks 15–18

[b] Exposure (childhood abuse) was assessed through self-completed questionnaires in pregnancy week 30

[c] Covariables were assessed through self-completed questionnaires in pregnancy week 18 and through data-linkage with the Norwegian Medical Birth Registry

[d] End of follow-up was December 31, 2018

Supplementary figure 2: Study Design of the Sensitivity Analyses

Abbreviations: MoBa = The Norwegian Mother, Father and Child cohort study; MS = Multiple sclerosis

A: Sensitivity analysis with exclusion of women that might have been in the prodromal phase of MS when exposed to abuse (< 18 years).

B: Sensitivity analysis with all women in MoBa with MS, both prevalent and incident diagnoses.

[a] Enrollment in MoBa took place in pregnancy weeks 15–18

[b] Exposure (childhood abuse) was assessed through self-completed questionnaires in pregnancy week 30

[c] Covariables were assessed through self-completed questionnaires in pregnancy week 18 and through data-linkage with the Norwegian Medical Birth Registry

[d] End of follow-up was December 31st, 2018

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Supplementary table 1. Hazard Ratios of Multiple Sclerosis by Type of Childhood Abuse: Excluding Women with First Clinical Symptom of MS Before Age 23 Years

Exposure	N (%) Total cohort	N (%) Women with MS	HR[a]	HR[b]
No childhood abuse: ref	63 508 (81)	217 (76)	Ref	Ref
Any childhood abuse	14 474 (19)	68 (24)	1.39 (1.05–1.82)	1.35 (1.02–1.79)
Emotional abuse	10 699 (14)	53 (20)	1.47 (1.08–1.98)	1.40 (1.01–1.95)
Emotional abuse: Humiliation	9412 (13)	46 (17)	1.44 (1.05–1.99)	1.42 (1.02–1.97)
Emotional abuse: Threat	3405 (5)	19 (8)	1.62 (1.01–2.60)	1.52 (0.93–2.47)
Sexual abuse	5415 (8)	33 (13)	1.80 (1.25–2.61)	1.77 (1.22–2.57)
Physical abuse	4287 (6)	22 (9)	1.50 (0.97–2.34)	1.41 (0.90–2.23)

Abbreviations: MS= Multiple sclerosis; HR = Hazard ratio

Of the 300 women who developed MS during the follow-up period, 15 women had their first clinical symptom of MS up to the age of 22 years and were excluded in this sensitivity analysis.

[a] Hazard ratios adjusted for school dropout ($\leq$ 9 years elementary school). Birth year was included as a stratification factor in the Cox model.

[b] Hazard ratios adjusted for adverse socioeconomic factors ($\leq$ 9 years elementary school, single mother or low household income), smoking (ever vs. never) and BMI$\geq$ 25 before study baseline). Birth year was included as a stratification factor in the Cox model. No other covariable violated the proportional hazard assumption.

Supplementary table 2. Hazard Ratios of Multiple Sclerosis by Type of Childhood Abuse: Including All Women with MS in the MoBa Study

Exposure	N (%) Total cohort	N (%) Women with MS	HR[a]	HR[b]
No childhood abuse: ref	63 596 (81)	306 (77)	Ref	Ref
Any childhood abuse	14 497 (19)	91 (23)	1.33 (1.05–1.68)	1.29 (1.02–1.65)
Emotional abuse	10 717 (14)	71 (19)	1.40 (1.08–1.82)	1.37 (1.05–1.79)
Emotional abuse: Humiliation	9426 (13)	60 (16)	1.34 (1.01–1.77)	1.32 (0.99–1.75)
Emotional abuse: Threat	3412 (5)	26 (8)	1.64 (1.10–2.46)	1.49 (0.98–2.27)
Sexual abuse	5421 (8)	39 (11)	1.55 (1.11–2.17)	1.46 (1.04–2.06)
Physical abuse	4293 (6)	28 (8)	1.40 (0.95–2.06)	1.32 (0.88–1.96)

Abbreviations: MS= Multiple sclerosis; MoBa = The Norwegian Mother, Father and Child cohort study; HR = Hazard ratio
Sensitivity analysis with all the women with MS in the MoBa-study. Observation time calculated from age 18 years to event. Of the 125 women with current MS diagnosis at the time of enrollment in MoBa, 91 were eligible to be included in the cox regression analyses.
[a] Hazard ratios adjusted for school dropout ($\leq$ 9 years elementary school) and stratified by birthyear
[b] Hazard ratios adjusted for adverse socioeconomic factors ($\leq$ 9 years elementary school, single mother or low household income), smoking (ever vs. never) and BMI$\geq$ 25 before study baseline) and stratified by birthyear

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Supplementary table 3. Characteristics of Participants with Missing Data Compared to the Study Population

	Non-responders Q3[a] n = 7633	Missing abuse items[b] n = 617	Study population n = 77 997
Age at study baseline[c]; mean (SD)	30 (5)	30 (5)	30 (5)
Missing; n (%)	-	-	1 (< 1)
Adverse socioeconomic status[d]; n (%)	1368 (11)	147 (24)	8137 (10)
Missing; n (%)	11 (< 1)	43 (7)	873 (1)
Low household income; n (%)	847 (11)	88 (14)	5520 (7)
Maternal short education; n (%)	369 (5)	60 (10)	1551 (2)
Single mother; n (%)	367 (5)	32 (5)	1774 (2)
Ever smoker; n (%)	4241 (56)	294 (48)	39 533 (51)
Missing; n (%)	83 (1)	44 (7)	1140 (2)
BMI ≥ 25; n (%)	2290 (30)	145 (24)	23 681 (30)
Missing; n (%)	326 (4)	78 (13)	2701 (4)
Depression at study baseline (pregnancy)[e]; n (%)	n/a	49 (8)	7305 (9)
Missing; n (%)	n/a	31 (54)	552 (< 1)

Abbreviations: SD = Standard deviation; BMI = Body Mass Index; Q = Questionnaire

[a] 7633 women who responded to the first questionnaire in pregnancy week 18 did not respond to the questionnaire in pregnancy week 30 (Q3)

[b] 617 women responded to Q3, but did not complete the abuse-items

[c] Study baseline is the year of enrollment in the MoBa-study

[d] Low household income (< 60% of median income in the given year of study baseline), being a single mother, or completed ≤ 9 years of school.

[e] Depression was measured by a validated short version of the Hopkins Symptom Checklist in pregnancy week 30. Not available for those who did not respond to Q3.