



DOWNSTATE
HEALTH SCIENCES UNIVERSITY

Characterizing the polygenic profile of reproductive-related affective disorders in East Asian population

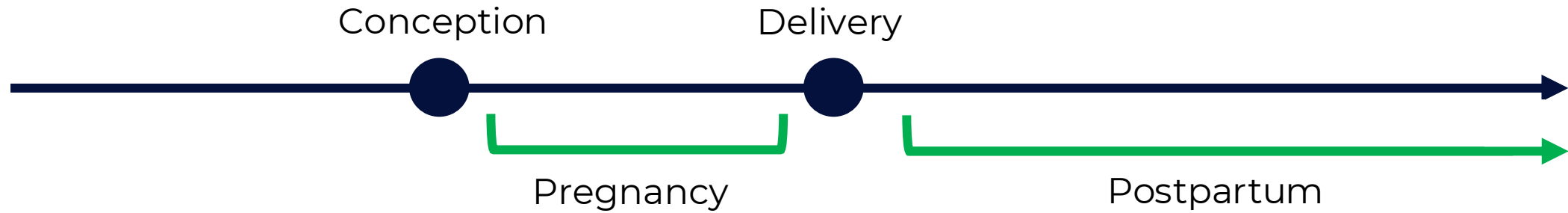
Jolien Rietkerk, Eva Lancaster, Madhurbain Singh, Dana Lapato, Peter Barr,
CONVERGE Consortium, Christos Chatzinakos, Tim B. Bigdeli, Kenneth S. Kendler,
Hanna M. van Loo, Roseann E. Peterson

Behavioral Genetics Association Meeting 2026; Amsterdam, Netherlands

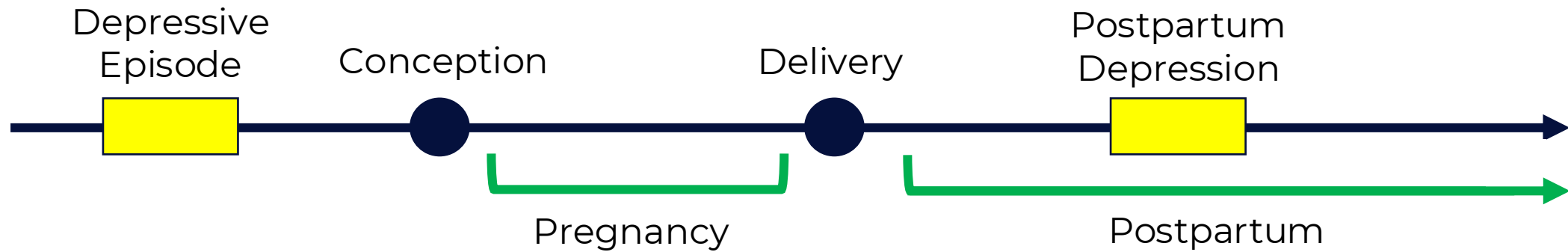
Symposium: Global Psychiatric Genomics: Expanding Representation and Refining Genetic Architecture Across Populations

I have no relevant financial relationships or interests to disclose

Reproductive Timeline

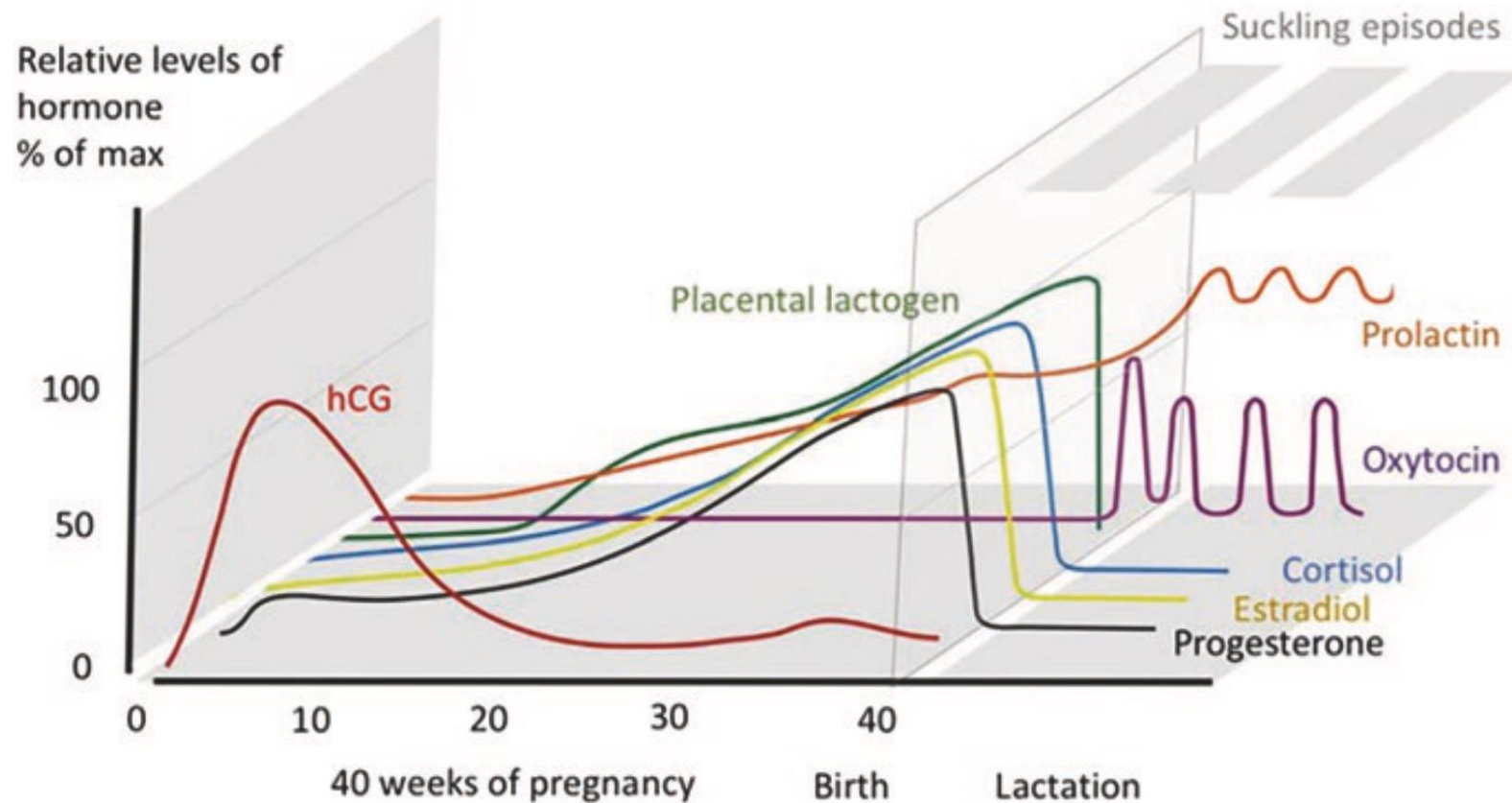


Onset Distinguishes Postpartum Depression



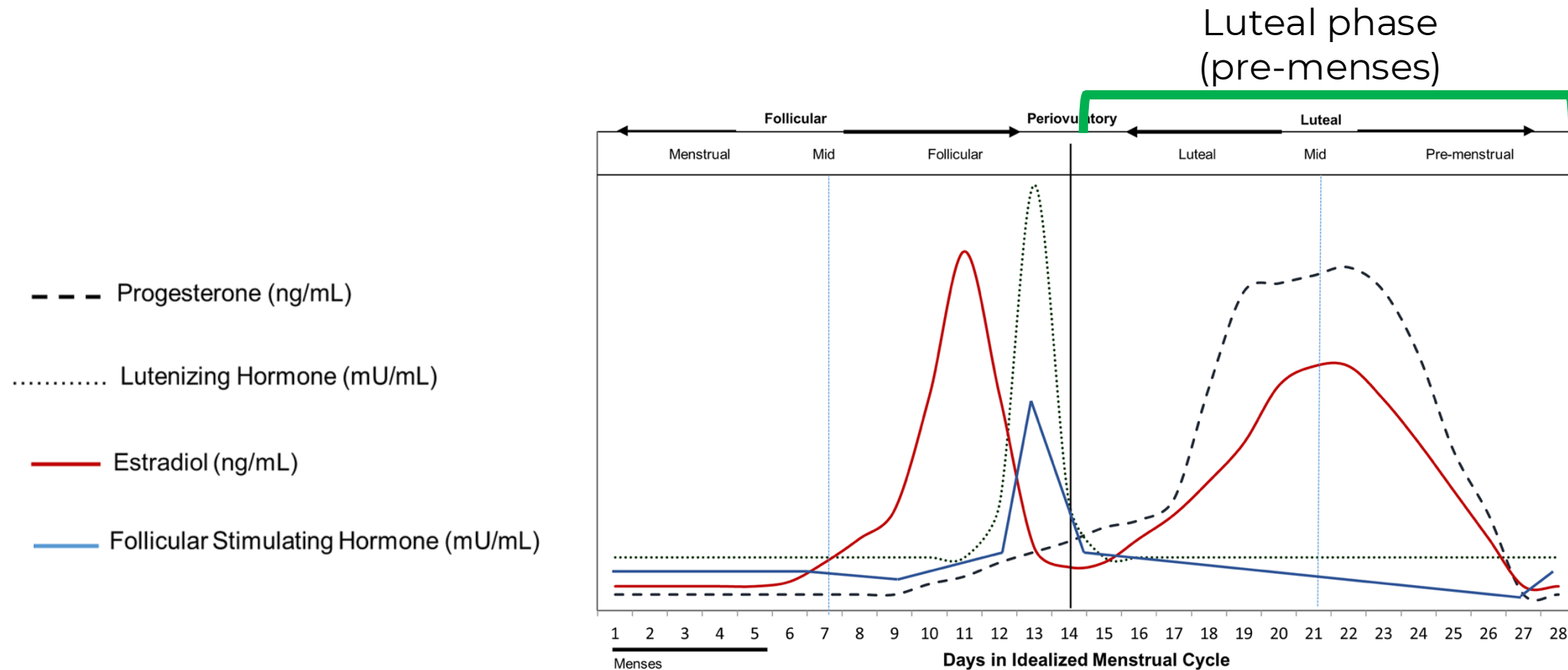
Hormones May Distinguish Postpartum Depression

Hormone levels increase during pregnancy and quickly decrease postpartum



Etiological overlap with Premenstrual Symptoms

Mood disturbances during Luteal phase of menstrual cycle in response to changing hormones



Understudied and Underrepresented

Diagnostics

- Severely underdiagnosed (50% of those with PD go without diagnosis and treatment)
- Heterogeneity
 - definitions of postpartum period
 - assessment methods

Understudied and Underrepresented

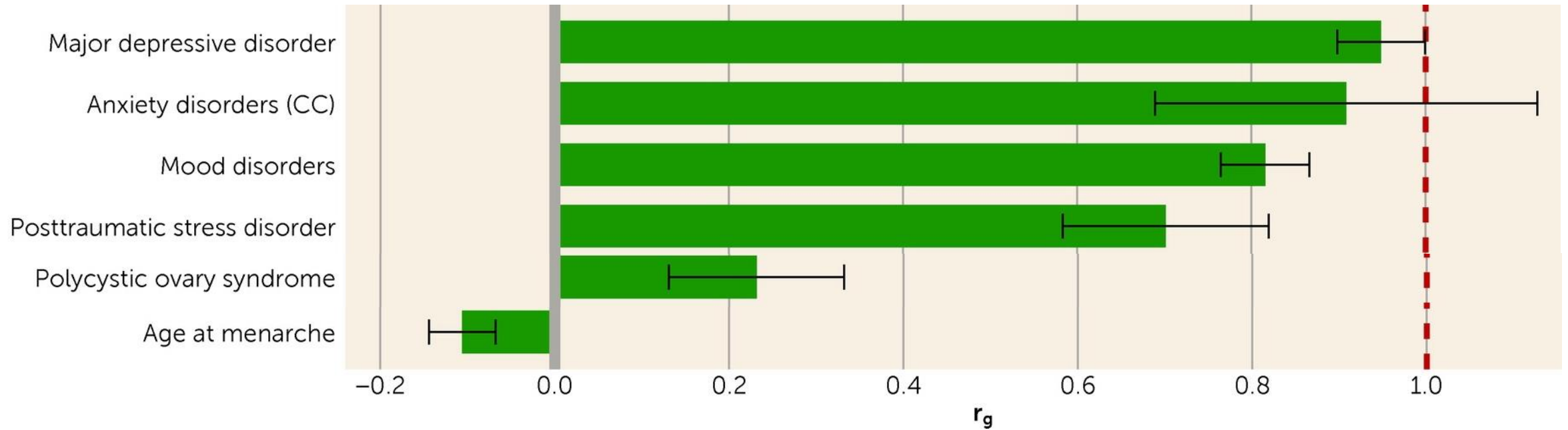
Diagnostics

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Genetics

- Most work done in candidate studies
- Twin study sample sizes limited (due to need for both having children and same sex)
- GWAS yet to find significant loci
- GWAS driven by European samples

Known genetic correlations of PPD (in European)



Distinguishing Postpartum from Depression



Diversity: studying postpartum depression in Han Chinese



Risk Factors: assessing associations with broad range of phenotypes



Polygenic Context: assessing polygenic background across related outcomes

Assessing Postpartum Depression Etiology



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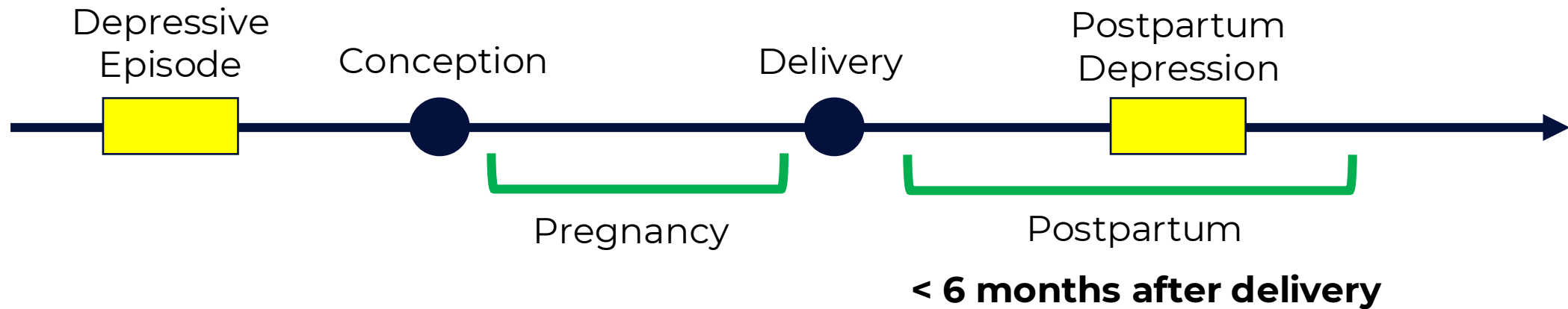
The China, Oxford and Virginia Commonwealth University Experimental Research on Genetic Epidemiology (**CONVERGE**) Consortium

- Recruited Han Chinese women with recurrent major depression (DSM-IV based) and screened controls
- Deep phenotyping through diagnostic interviews
- Exclusion criteria: history of major psychiatric disorder or family history thereof; bipolar disorder; schizophrenia; developmental delay



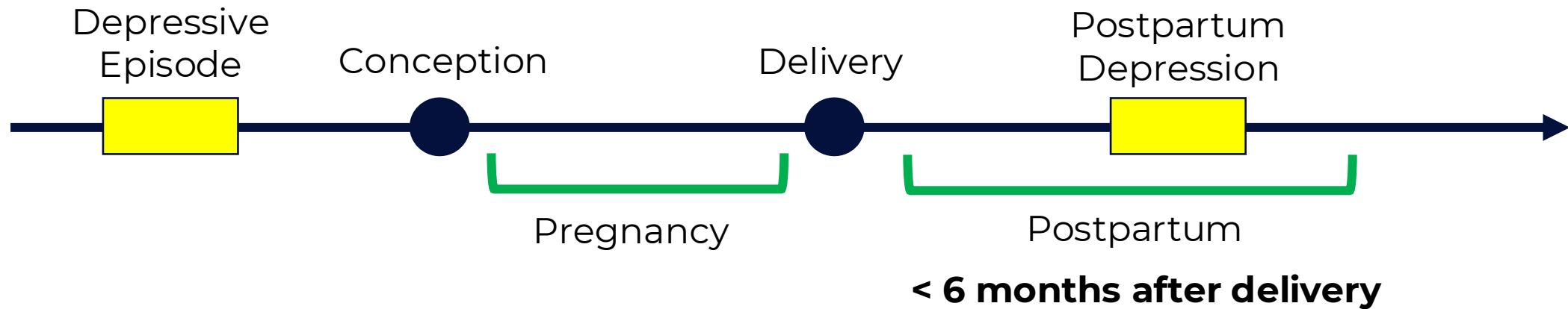
Defining Postpartum

- Postpartum Depression: any of the recurrent episodes occurred during **postpartum period** < 6 mo.)



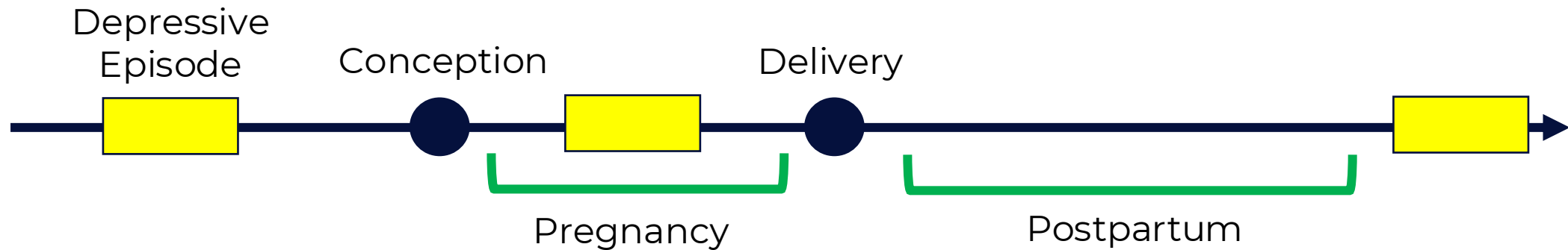
Comparative Analyses with Major Depression

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- Recurrent Major Depression: > 1 depressive episode; includes the postpartum episodes



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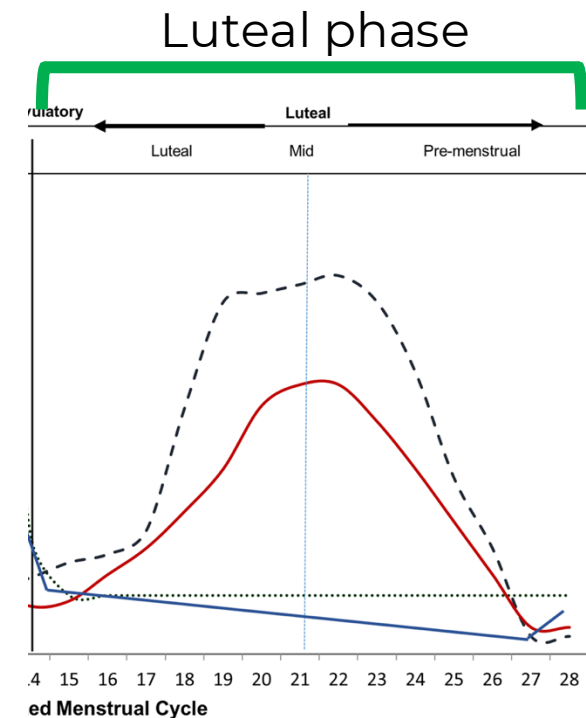
Comparative Analyses with Hormonal Outcomes

- Postpartum Depression: any of the recurrent episodes occurred during **postpartum period** < 6 mo.)
- Recurrent Major Depression: > 1 depressive episode; includes the postpartum episodes
- Major Depression Onset Outside Postpartum: 'none of those episodes occurred postpartum'
- Premenstrual Symptom Score

Just before the start of your period, do you:

- a) Have less energy than usual or get tired more easily? (tired)
- b) Feel more sad, blue or depressed? (sad)
- c) Feel more irritable or get upset more easily? (upset)
- d) Have any other changes in health or mood? (other)

0 = No; 1 = A Little; 2 = Some; 3 = A Lot



Control definitions and Sample Sizes

Phenotype	N case	N control	N total	Sample Prevalence (%)
Postpartum depression	895	3383	4278	20.92
Recurrent Major Depression	5282	5220	10502	50.3
Major Depression Onset Outside Postpartum	4387	5220	9607	45.66
Premenstrual Symptom Score	-	-	9696	-

Assessing Postpartum Depression Etiology



Diversity: studying postpartum depression in Han Chinese



Risk Factors: assessing associations with broad range of phenotypes



Polygenic Context: assessing polygenic background across related outcomes

Known risk factors and measures in CONVERGE

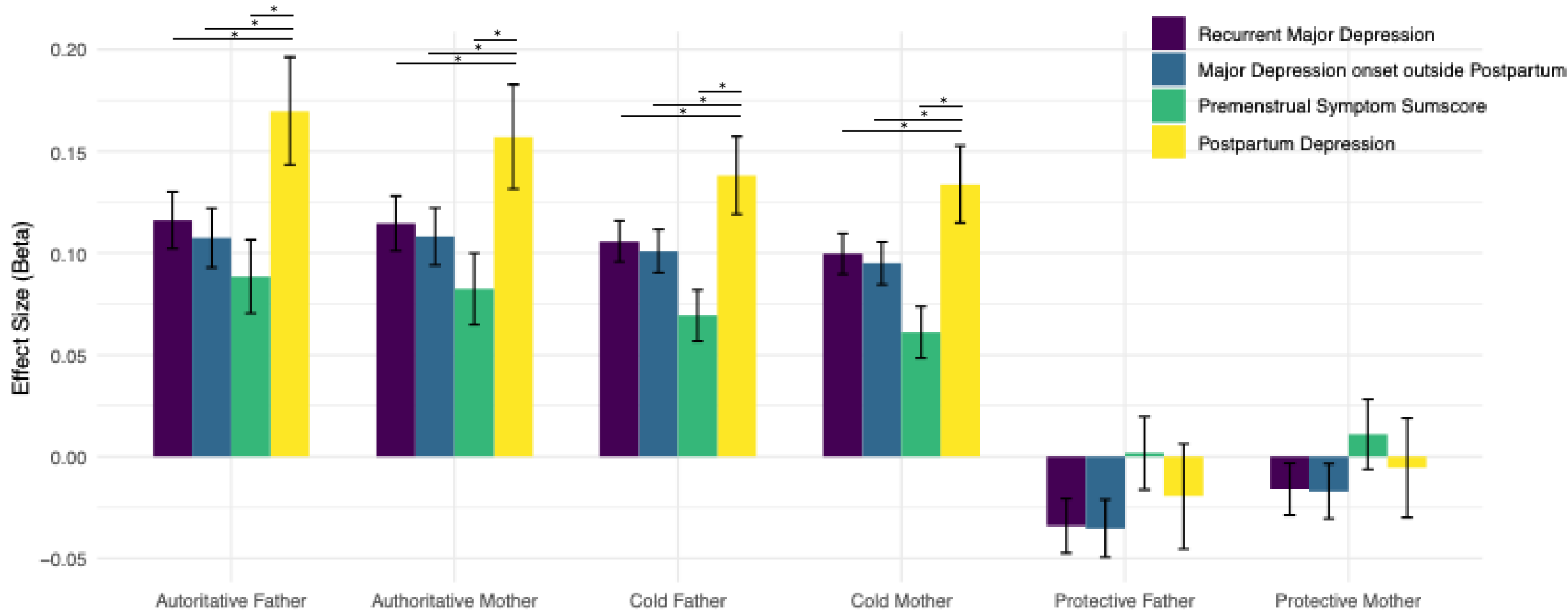
Parental Bonding

- Authoritative father (N=8171)
- Authoritative mother (N=8388)
- Cold father (N=7992)
- Cold mother (N=8173)
- Protective father (N=8129)
- Protective mother (N=8280)

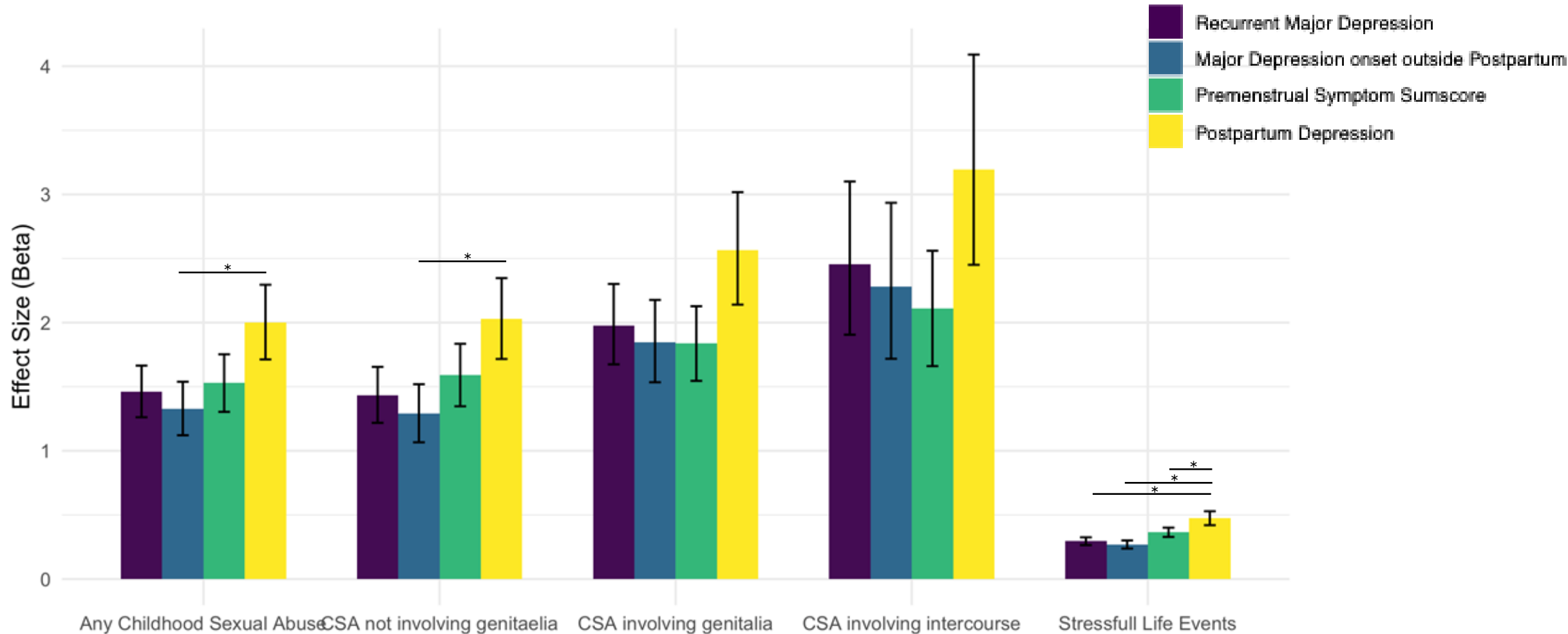
Stress and Abuse

- Any Childhood Sexual Abuse (CSA) (N=9966, prev=6.42%)
 - CSA Did not involve genitalia (N= 9966, prev= 5.38)
 - CSA Involved genitalia (N=9966, prev=3.73)
 - CSA involved intercourse (N=9966, prev= 1.54)
- Stressful life events (N=9402)

Parental Bonding distinguishes Postpartum Depression



Stressful Life Events and Trauma distinguish Postpartum Depression



Assessing Postpartum Depression Etiology



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Panel of East Asian External Summary Statistics

Reproductive Age related

- Age at Menarche
 - (N=67029)
- Age at Menopause
 - (N=43861)

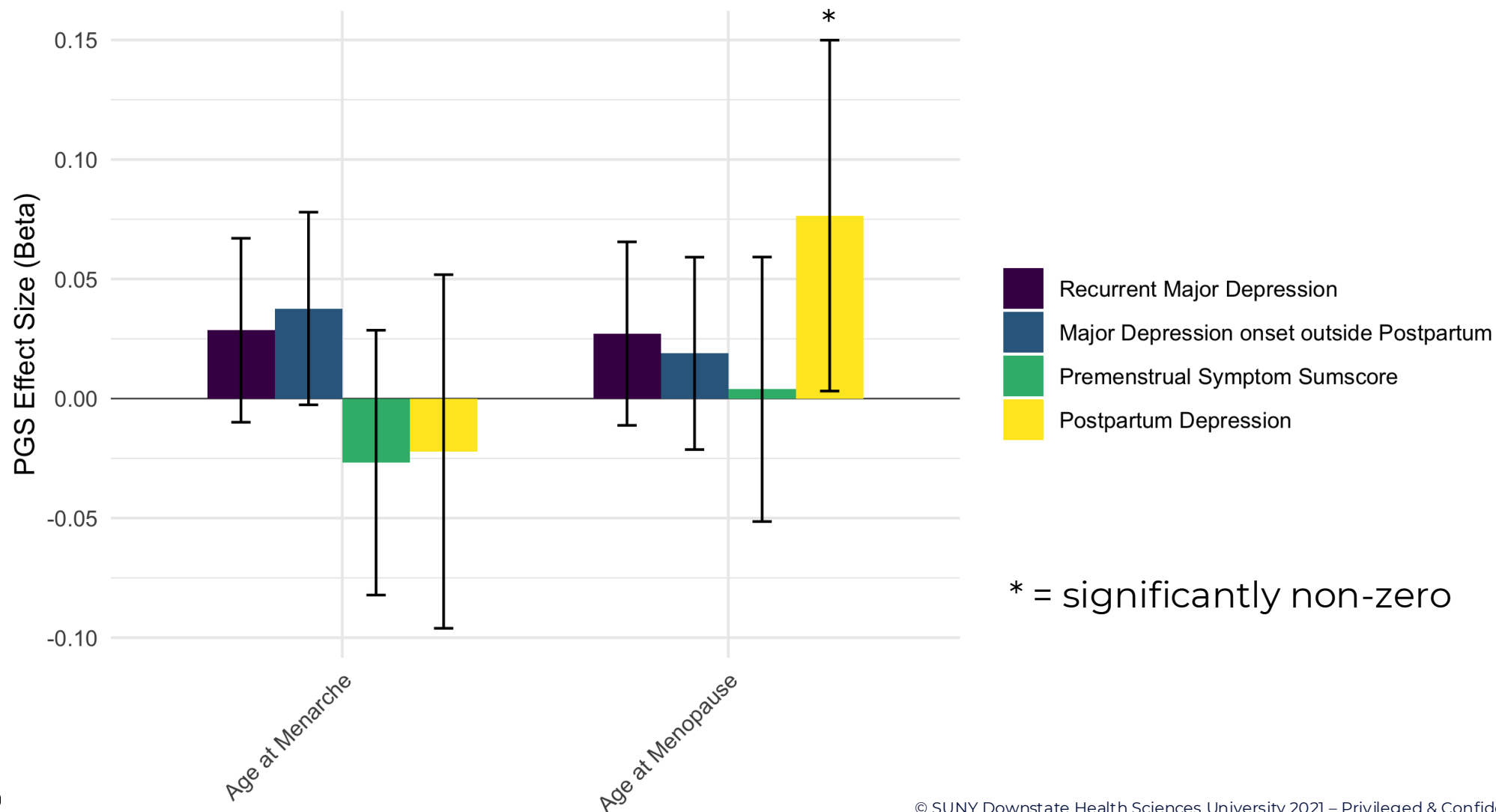
Medical Outcomes

- Cervical Cancer
 - (N_{case}=967)
- Endometrial Cancer
 - (N_{case}=1200)
- Uterine Fibroids
 - (N_{case}=14475)
- Breast Cancer
 - (N_{case}=6325)

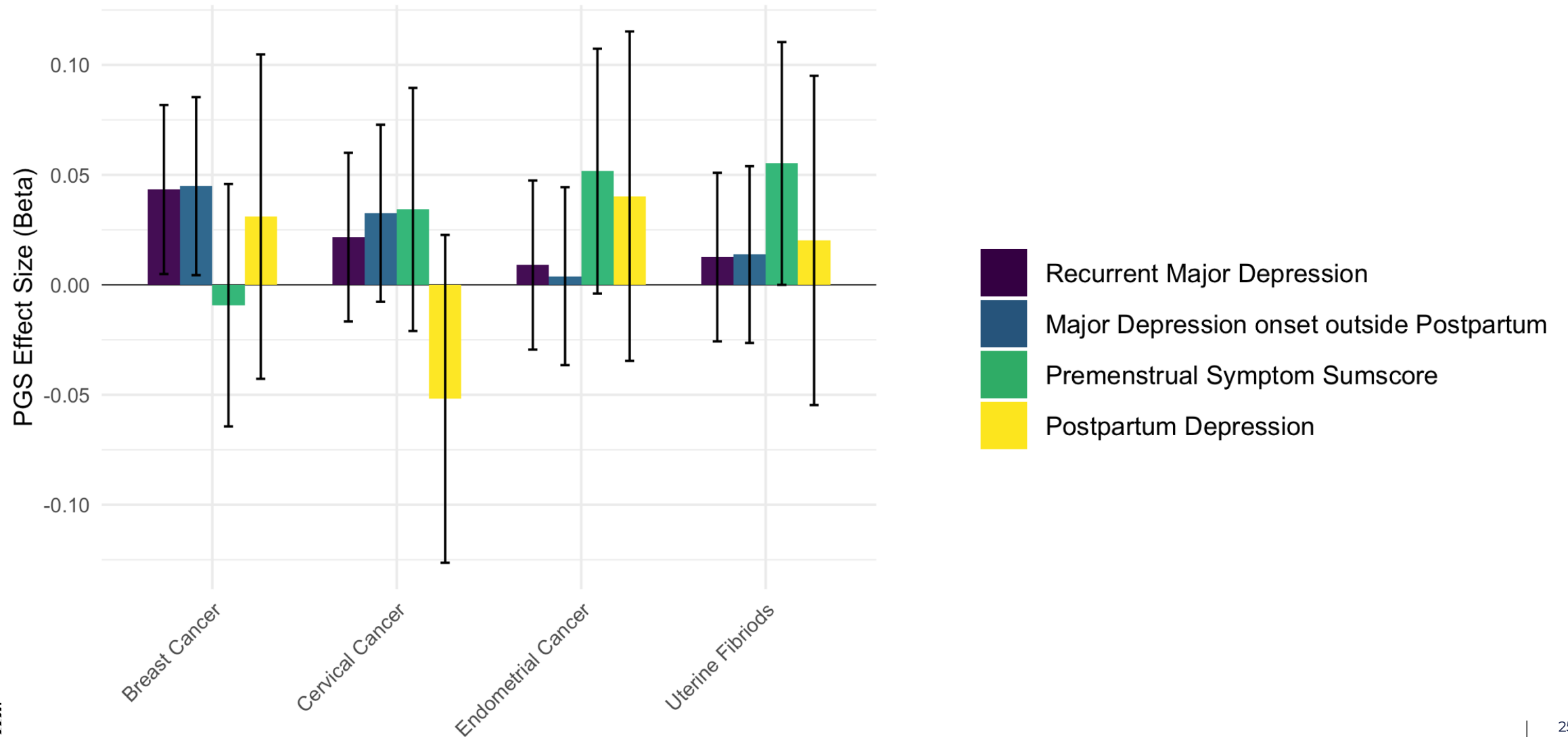
Psychiatric outcomes

- Bipolar Disorder *
 - (N_{case}=4479)
- Schizophrenia *
 - (N_{case}=22778)

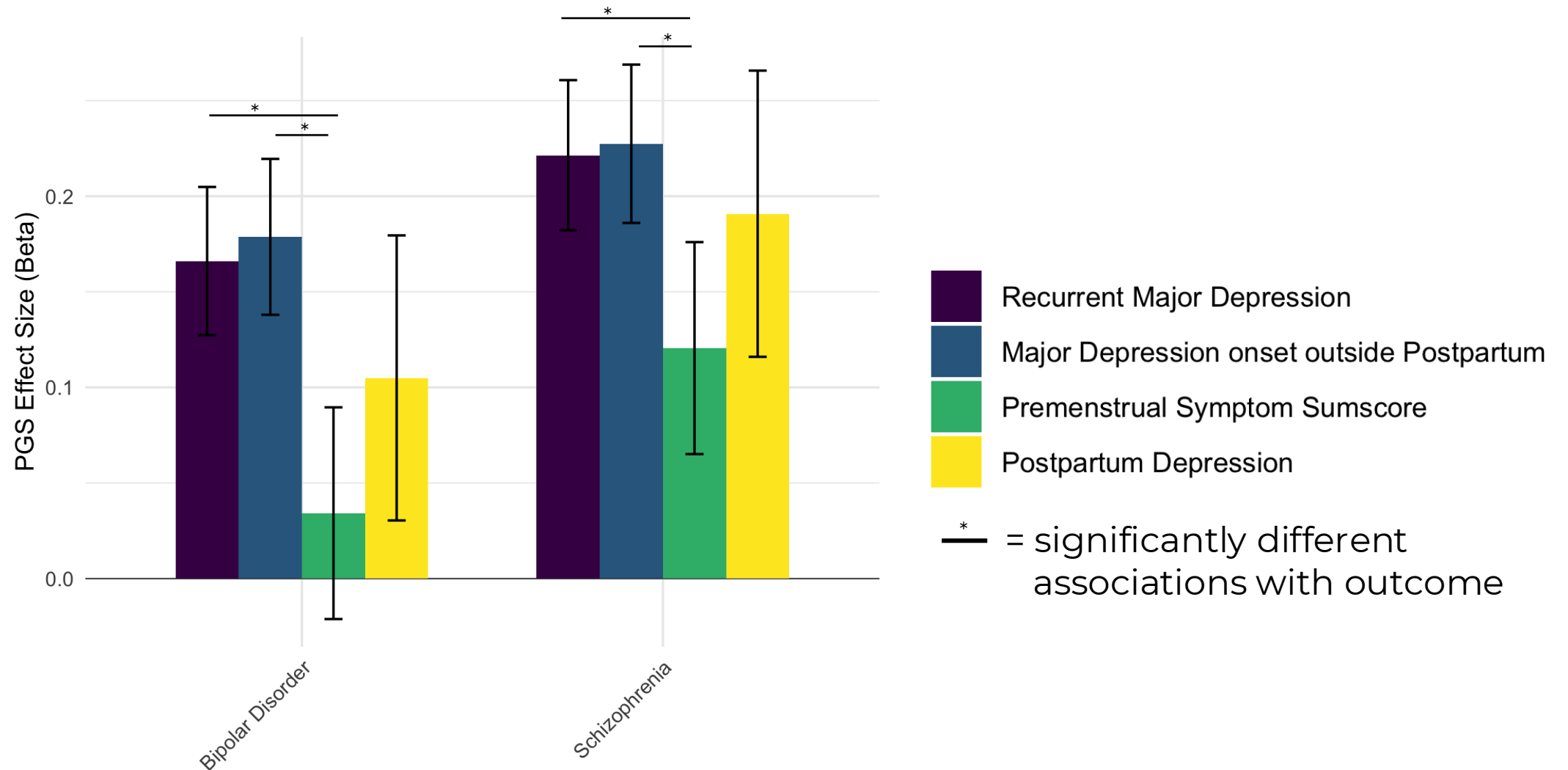
Age at Menopause PGS Uniquely Regresses onto Postpartum Depression



PGS Panel of Medical Outcomes shows No Significance



Premenstrual Symptoms Distinguished from Major Depression



Conclusions and Key Take Aways



Diversity: defined and compared postpartum depression in Han Chinese



Risk Factors: Postpartum Depression differentially associates with risk factors from Major Depression and Premenstrual Symptoms



Polygenic Context: Different panels show notable similarities and differences across Major Depression, Premenstrual Symptoms and Postpartum Depression

Future plans



Diversity: defined and compared postpartum depression in Han Chinese

- Single-ancestry cohort -> multi-ancestry cohort



Risk Factors: Postpartum Depression differentially associates with risk factors from Major Depression and Premenstrual Symptoms

- Assessing other risk factors



Polygenic Context: Different panels show notable similarities and differences across Major Depression, Premenstrual Symptoms and Postpartum Depression

- Extending panel of PGS
- Work in progress: GWAS, h^2_{snp} and r_g

Acknowledgements



Roseann E. Peterson, PhD

Institute for Genomics in Health
SUNY Downstate Health Sciences
University, New York, USA



- Dana Lapato, PhD
- Peter Barr, PhD
- B. Todd Webb, PhD
- Tim B. bigdeli, PhD
- Jacquelyn L. Meyers, PhD
- Markos Tesfaye, MD, PhD
- Adrian Guin Rizzo, MSHI
- Gleda Kurtolli, PhD
- Christos Chatzinakos, PhD



Prof. dr. Hanna M. van Loo

Universitair Centrum Psychiatrie
Universitair Medisch Centrum
Groningen, The Netherlands



- Dr. Mannan Luo
- Urvi Saini
- Olivier Steen
- Martje Bos



- Dr. Victoría T. Pons
- Prof. Kenneth S. Kendler
- Madhurbain Singh, PhD
- Eva Lancaster, PhD



- CONVERGE
- All of Us (future work)



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R01MH125938

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