

# Neurobehavioral and physiological outcomes of neonates born to mothers with SSRI use during pregnancy at the RGH Mother-Baby Unit

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## Introduction

Adequate treatment and control of depression during pregnancy is crucial for fetal, maternal, and neonates' well-being. The most commonly prescribed medication for depressions during pregnancy is selective serotonin reuptake inhibitors (SSRIs). Studies show that the use of SSRI during pregnancy has increased by multiple folds (1). Newborns of mothers who used SSRI during pregnancy exhibit disruption in a wide range of neurobehavioral outcomes in the postnatal period (2). Currently there is insufficient understanding of the effect of SSRI use during pregnancy. Future research can provide more data and better understanding.

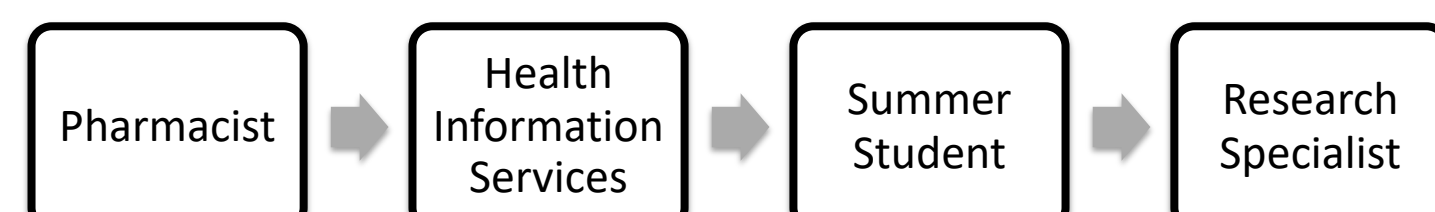
## Objectives

1. To explore the respiratory, motor, central nervous system, and gastrointestinal adverse symptoms experienced by the newborn babies born to mothers with antidepressants' (SSRIs/SNRIs)
2. To compare outcome variables (neurobehavioral and physiological) of neonates born to mothers with antidepressants' (SSRIs/SNRIs) use during pregnancy versus babies not exposed prenatally to SSRIs/SNRIs

## Materials and Method

The study is a quantitative comparative study involving retrospective chart review, comparing outcome variables between neonates of mothers with SSRI and without SSRI use during pregnancy.

- The Pharmacist at SHA ran a DUE (Drug Usage Evaluation) report for SSRI/SNRI AHFS classification numbers based on admission dates between Jan 1 to Dec 31, 2020. There were 254 unique patients found at the RGH Mother-Baby unit.
- HIS (Health Information Services) extracted paper charts of the neonates born to mothers with SSRI/SNRI use during pregnancy using this data. HIS also pulled charts of neonates born to mothers who were not taking SSRI/SNRI during pregnancy. Approximately 200 charts of the newborn were obtained randomly, 100 from each group.
- The demographic and medical characteristics, outcome variables (Neurobehavioral and physiological outcome) and other factors such as feeding and abnormal conditions were extracted from the charts manually and de-identified.
- The de-identified data were aggregated, and statistical analysis was performed using R version 4.0.2, producing initial descriptive statistics. A comparison of SSRI exposed, and not exposed neonates were performed using the two-sided Student's t-test, chi-square test or Fisher's exact test (where appropriate).



## Results

	SSRI exposed Mean (SD) or n	SSRI not exposed Mean (SD) or n	P-value
<b>Maternal</b>			
Age	30.05 (4.93)	30.81 (4.60)	0.26
Gravida	2.58 (1.7)	2.74 (1.8)	0.52
Diabetes	15	10	0.39
Cigarette smoking	24	12	0.04
Alcohol use	5	3	0.71
Recreational Drugs use	11	6	0.31
<b>Neonatal</b>			
Gestational age (week)	38.13 (2.02)	39.24 (1.55)	<0.001
Birth weight (g)	3.29 (0.58)	3.39 (0.58)	0.2
Discharge weight (g)	3.14 (0.53)	3.26 (0.55)	0.13
Birth length (cm)	49.89 (3.26)	50.51 (2.65)	0.14
Weight for gestational age			
AGA	67	76	
LGA	14	12	0.62
SGA	9	7	
Pre-term	8	5	
Pre-term (LGA)	1	0	
Apgar score at 1 min	6.83 (2.29)	7.87 (1.93)	0.0008
Apgar score at 5 min	8.16 (1.39)	8.85 (0.66)	<0.001
Congenital anomalies	5	3	0.72
<b>Primary Outcomes</b>			
<b>Neurobehavioral</b>			
Tremulousness	49	19	<0.001
Abnormal muscle tone	28	5	<0.001
Abnormal cry	15	2	0.002
Abnormal sleep or irritability	17	4	0.006
Abnormal temperature	57	43	0.066
Seizures	0	0	
<b>Physiological</b>			
Nasal stuffiness	19	43	0.0004
Abnormal respiratory rate/ work of breathing	26	16	0.118
Abnormal heart rate	7	7	1
Abnormal oxygen saturation	19	8	0.039
Abnormal blood pressure	1	0	1
<b>Secondary outcomes</b>			
Resuscitation needed at birth	34	12	<0.001
NICU admission needed	20	8	0.024
Days of hospital stay	3.18 (5.40)	2.79 (5.96)	0.63
<b>Feeding</b>			
Lactation consultation required	19	16	0.71
Feeding difficulty	11	4	0.11
Vomiting	14	13	1
Abnormal stools	7	4	0.54
Weight loss >= 10% of birth weight	3	1	0.62
<b>Other</b>			
Physiological jaundice	19	10	0.11
Sepsis	8	6	0.78
Abnormal blood glucose	31	8	<0.001

**Figure 1.** Comparison of primary, secondary and other outcomes along with maternal, neonatal and feeding information of SSRI exposed and not exposed neonates. Differences considered statistically significant at P-values <0.05

## Discussion

- ❖ The Apgar score at both 1 and 5 minutes were notable among the SSRI exposed group with a p-value of 0.0008 and 0.001, respectively.
- ❖ Neonates exposed to SSRI prenatally demonstrated significant differences in their neurobehavioral outcome (e.g., tremor, muscle tone, abnormal cry, sleep and irritability) compared to the neonates who were not exposed.
- ❖ Differences in the physiological outcomes were not statistically significant.
- ❖ SSRI exposed neonates exhibited significant difference in resuscitation need at birth compared to the not exposed neonates

## Conclusion

- ❖ This project provides more data to understand the effect of SSRI use during pregnancy. SSRI exposed neonates require more support and care during the early postnatal period to mediate the SSRI neonatal behaviors syndrome.
- ❖ The results can also assist in advocating the families about the possible effects of SSRIs on their infants.

## References

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