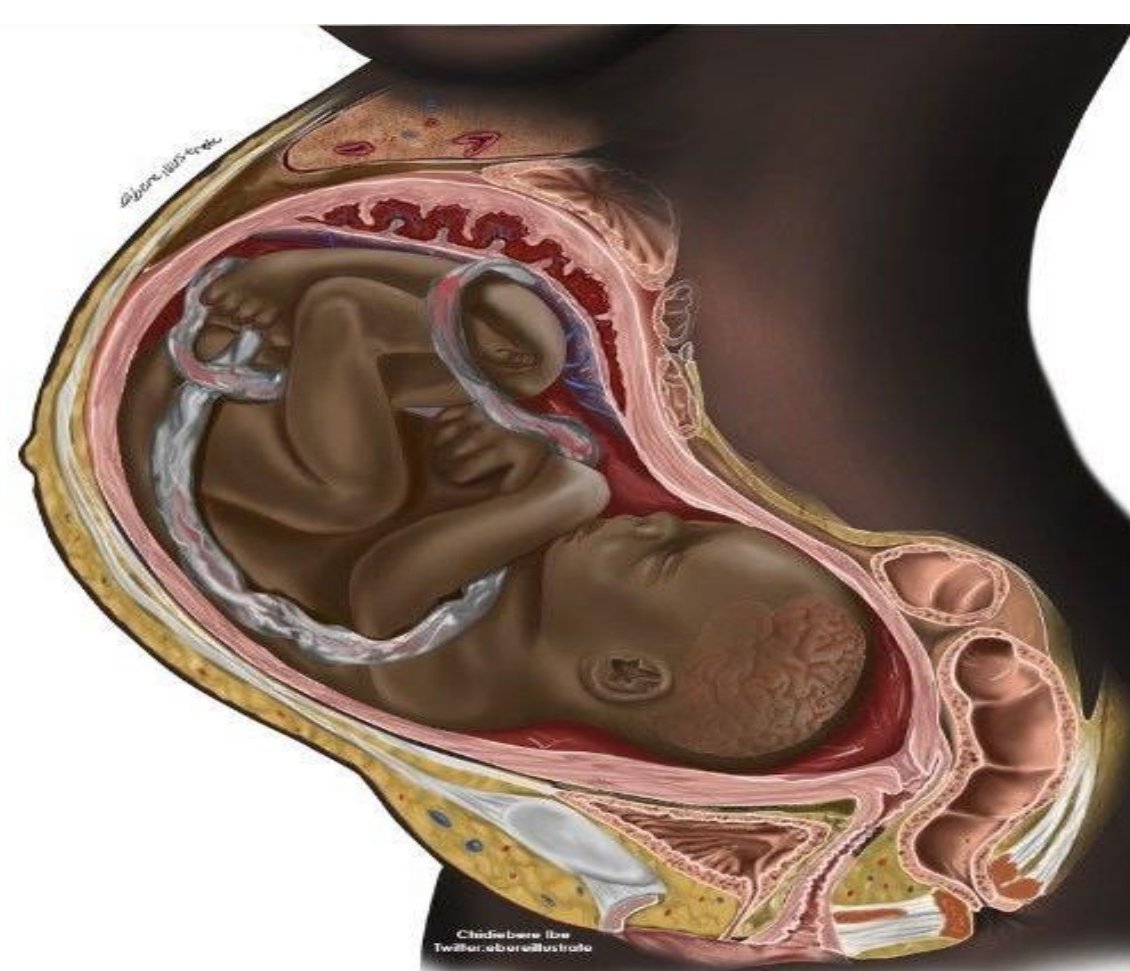


Introduction

- Postpartum hemorrhage (PPH) remains a leading cause of maternal morbidity and mortality in the United States.^{1,2}
- The COVID-19 pandemic altered healthcare delivery and patient demographics.
- Incidence of some pregnancy complications such as gestational diabetes and gestational weight gain are known to have increased in the US during the pandemic, particularly among Black and Hispanic individuals.³
- The effect of the pandemic on PPH incidence remains incompletely defined.
- We evaluated PPH incidence and associated patient demographic factors before and during the pandemic in a Metro Detroit cohort.
- We hypothesized that PPH incidence would increase during the pandemic.



Pregnancy in Cross Section. Illustration by Chidiebere Ibe, Wikimedia Commons; CC BY-SA 4.0.
<https://commons.wikimedia.org/wiki/File:PregnancyinCrossSection.jpg>

Aims and Objectives

Aim:

To compare postpartum hemorrhage incidence before and during the COVID-19 pandemic.

Objective:

To evaluate demographic and clinical risk factors associated with PPH in 2017 versus 2021.

Methods

Study design: Retrospective chart review of vaginal deliveries ≥23 weeks gestation

Location: Corewell Health University, Royal Oak, MI

Participants: 2017 (n=1266) vs 2021 (n=747)

PPH defined as quantified blood loss >1000 mL

Demographics and obstetric variables extracted from EMR

Statistical analyses: chi-square, t-test, Wilcoxon rank-sum

Results

Table 1. Selected demographic and clinical differences between 2017 and 2021 cohorts.

Characteristic	2017 (N=1266)	2021 (N=747)	P-value
Black race, n (%)	208 (16.4%)	146 (19.5%)	0.007
BMI, mean (SD)	31.08 (6.05)	31.81 (5.97)	0.011
Current smoker*, n (%)	51 (4.0%)	17 (2.3%)	<0.001
Gestational age (weeks), mean (SD)	39.24 (1.79)	39.06 (1.82)	0.024

* Current smoker includes every day, some days, light, and heavy smokers. P-values from chi-square and two-sample t-tests.

Results

- Mean blood loss dropped from 2017 to 2021 (307.6 vs 243.4 mL, $p<0.0001$) despite similar PPH rates (3.8% vs 4.0%, $p=0.8$)
- Demographics shifted modestly: higher Black patient proportion, slightly higher BMI, lower smoking, and slightly earlier gestational age; race not linked to PPH.

PPH Incidence (%) vs. Year

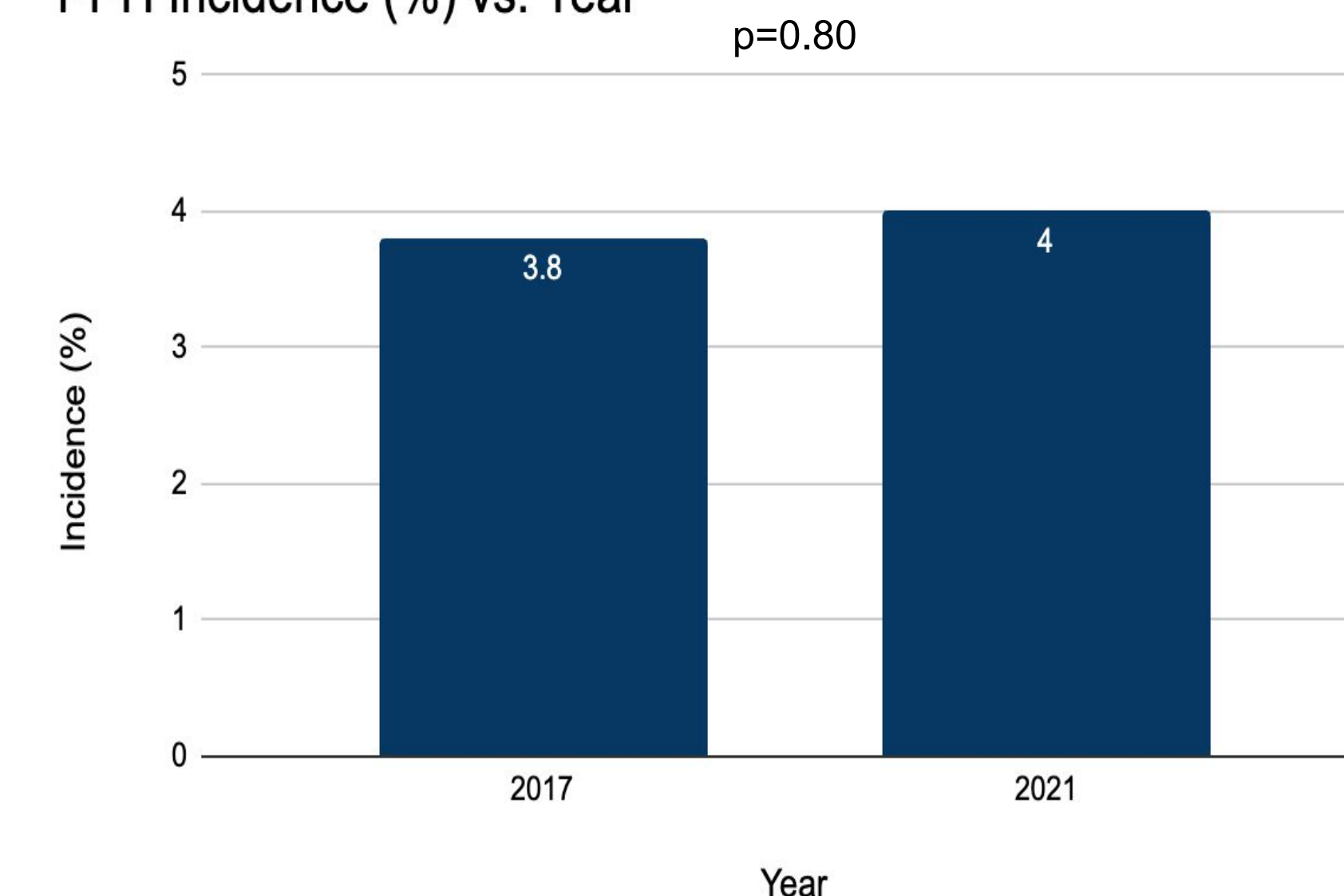


Figure 1. Incidence of postpartum hemorrhage among vaginal deliveries in 2017 and 2021. No significant difference was observed ($p=0.80$).

Mean Blood Loss (mL) vs. Year

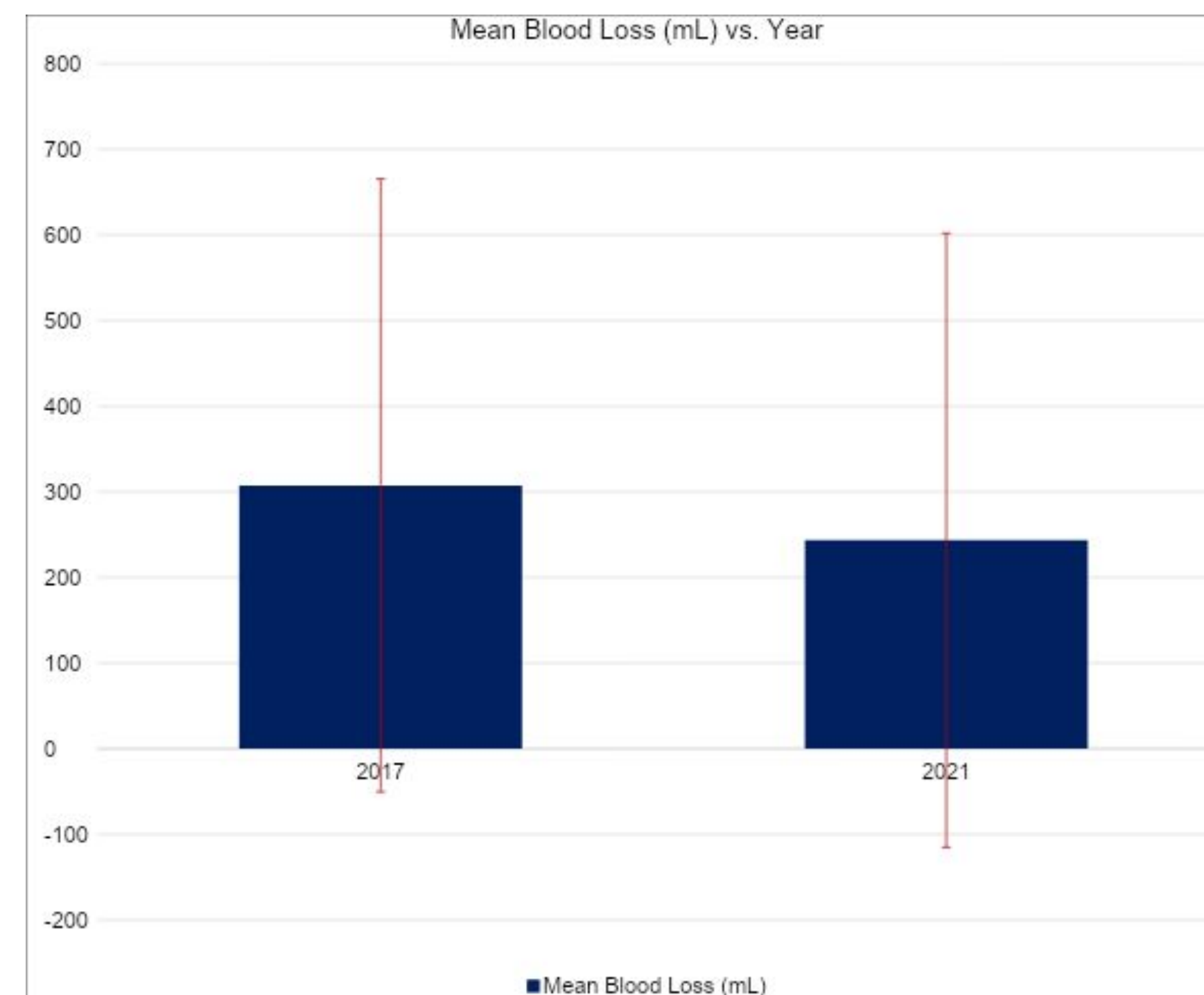


Figure 2. Mean quantified blood loss in 2017 versus 2021. Blood loss was significantly higher pre-pandemic (307.6 ± 357.9 mL vs 243.4 ± 358.5 mL, $p<0.001$).

Conclusions

- In this single-center cohort, PPH incidence was not significantly different before and during the COVID-19 pandemic.^{1,2,5}
- Mean quantified blood loss was higher in the pre-pandemic cohort, suggesting subtle shifts in delivery outcomes despite stable PPH rates.^{5,6}
- Changes in racial distribution, BMI, and smoking prevalence were not independently associated with increased PPH risk.^{4,7}
- Although many pregnant patients experienced COVID-10 illness and disruptions in access to care, quality improvement initiatives may have served as protective factors during the pandemic period.
- Structural and system-level factors likely influence obstetric hemorrhage risk more than pandemic-specific disruptions.²
- Further evaluation of structural and population-level factors are needed to clarify drivers of obstetric hemorrhage risk in relation to the pre- and post-COVID-19 pandemic era.^{1,2,4}

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