

INTRODUCTION

Despite the growing national awareness and education of substance use disorders (SUD) in pregnancy, there exists a marked gap in research addressing the specific comorbidities faced by pregnant women in Kentucky. Women in the United States (U.S.) account for 40% of all individuals with a lifetime SUD with the highest risk occurring during their reproductive years¹. In 2014, Kentucky had an average of 19.3 per 1000 deliveries where the mother had opioid use disorder (OUD) compared to a national average of 6.5 per 1000 deliveries². This signifies the need for further research on the prevalence of common comorbid medical conditions in pregnant women with OUD and stimulant use disorder (StUD), specifically in the state of Kentucky³.

PURPOSE OF STUDY

The purpose of this research was to identify patterns of comorbid conditions among pregnant women with OUD and/or StUD within the University of Kentucky Healthcare (UKHC) system from 2017 to 2023. This study examines the prevalence of these conditions in relation to gestational age and length of stay.

METHODS

This study used de-identified data extracted from electronic medical records (EMRs) at UKHC and was approved by the University of Kentucky IRB (#74501). Study data included:

- 2,023 patients who fit the inclusion criteria of pregnancy and StUD/OUD International Classification of Disease Clinical Modification codes version 10 (ICD-10-CM) codes during their initial visit to a UKHC facility.
- Demographics (age group, race, marital status, and the patient's trimester during initial visit). Length of the patient's stay, type of SUD, and any ICD-10 codes the patient has on their initial visit between 2017-2023.
- Diagnoses were examined from each patient's first encounter during the study period.
- Fisher's exact tests were used to compare diagnosis rates across trimesters.
- T-tests and linear regression models were used to assess the association between diagnosis count and log-transformed length of stay.

RESULTS

Table 1. Patient Demographics

Variable	Value	Total Count	Percentage
Age Group	18-24	350	17.3%
	25-34	1306	64.6%
	35-44	359	17.7%
	45+	8	0.4%
Race	Black	98	4.8%
	Other	13	0.6%
	Unknown	141	7.0%
	White	1771	87.5%
Cohort	Both	203	10%
	Opioid	1528	75.5%
Setting	Stimulant	292	14.4%
	Inpatient	1032	51%
Marital Status	Outpatient	991	49%
	Divorced	78	3.9%
	Legally Separated	24	1.2%
	Married	311	15.6%
	Other	3	0.1%
	Separated	49	2.5%
	Significant Other	60	3.0%
	Single	1130	56.5%
	Widowed	12	0.6%
	Unknown	333	16.7%
Year	2017	460	22.7%
	2018	359	17.7%
	2019	333	16.5%
	2020	234	11.6%
	2021	227	11.2%
	2022	219	10.8%
	2023	191	9.4%
Trimester	1st	185	9.7%
	2nd	757	39.8%
	3rd	959	50.45%
Gestational Age		26.93 +/- 9.21	
Length of Stay (hours)		14 (9.7 to 46.3)	

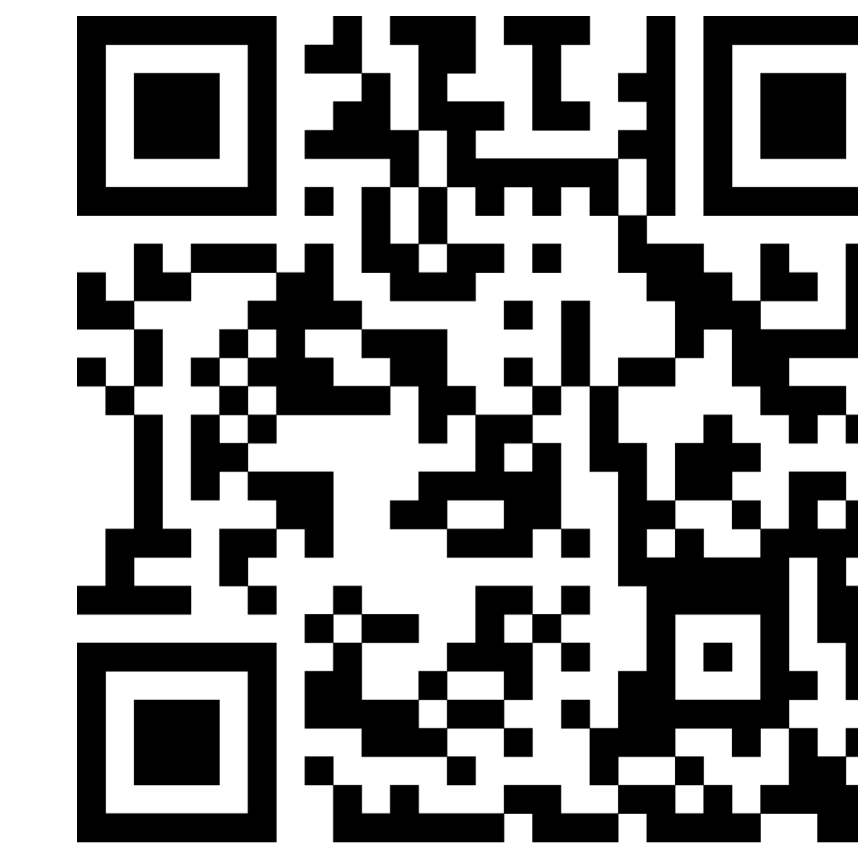
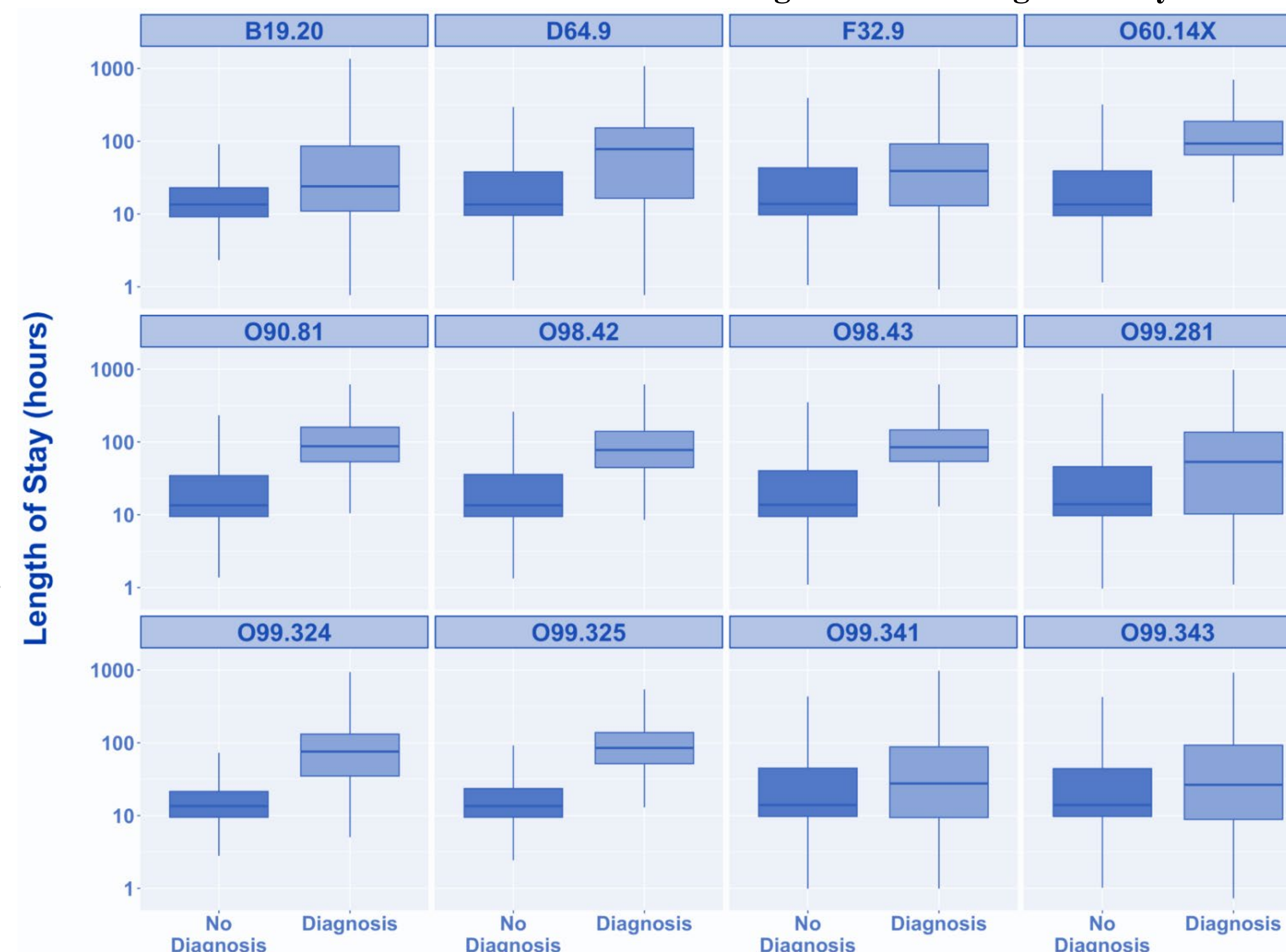


Table 3. Frequency of comorbid diagnoses by trimester status recorded during first visit



Table 4. Association of Comorbid Diagnoses with Length of Stay (complete list)

Table 2. Association of Select Diagnoses with Length of Stay



ICD-10 Codes	Diagnosis
B19.20	Viral hepatitis C without hepatic coma
D64.9	Transfusion-dependent anemia
F32.9	Treatment-resistant depression
O60.14X	Preterm labor third trimester with preterm delivery third trimester
O90.81	Postpartum anemia
O98.42	Viral hepatitis complicating childbirth
O98.43	Viral hepatitis complicating puerperium
O99.281	Thyroid dysfunction, antepartum, first trimester
O99.324	Drug use complicating childbirth
O99.325	Drug use complicating puerperium
O99.341	Perinatal depression in first trimester
O99.343	Perinatal depression in third trimester

DISCUSSION

For each additional diagnosis, there was an estimated 6% increase in mean length of stay. There are significant differences in the prevalence of comorbid conditions across trimesters. Significant differences were observed for most diagnosis codes in relation to log-transformed length of stay.

This research examined the link between SUD, pregnancy, and other comorbid medical conditions in Kentucky. Strengths of this research include a large sample size and an even distribution between inpatient and outpatient data. A limitation of the data is that it is potentially not representative of the entire state of Kentucky, as UKHC primarily serves central and eastern portions of the state. Additionally, certain diagnoses for patients who continue to seek care throughout their pregnancy might have been missed if their first visit was recorded during the first trimester.

CONCLUSION

Further research could expand to county-level analysis in Kentucky or other states to assess regional comorbidity patterns. This may identify location-specific trends and inform targeted prevention strategies. Additionally, investigating length of stay in relation to comorbidities could provide insights into resource availability and demographic influences on hospitalization duration.

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