

RETROSPECTIVE REVIEW OF DELIVERY OUTCOMES FOLLOWING LONGITUDINAL INTRAPARTUM OSTEOPATHIC MANIPULATIVE TREATMENT COMPARED TO LOCAL AND NATIONAL OUTCOMES

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Introduction

Much of the literature regarding intrapartum osteopathic manipulative treatment (OMT) has focused on improving pregnancy-related concerns solely within the musculoskeletal system, such as back pain or quality of life. However, beyond addressing the structural importance of the musculoskeletal system during pregnancy, OMT has also been shown to impact the autonomic nervous system, venous return, and lymphatic drainage, providing access to the neuroendocrine and cardiopulmonary systems. Thus, by treating patients holistically throughout their pregnancy, the osteopathic physician can affect these systemic variables and positively influence their patients' pregnancy.

There are a select few studies which have demonstrated correlation between OMT and its direct impact on parturition. King et al in 2003 retrospectively demonstrated that the use of prenatal OMT significantly decreased the incidence of meconium-stained amniotic fluid, use of forceps during delivery, and likelihood of preterm delivery. Ituri et al in 2013 demonstrated that OMT during labor decreased the incidence of vaginal tears and improved both APGAR scores and umbilical pH levels.

As a primary outcome, we hypothesized that a minimum quantity of patient-centered visits that significantly included OMT during the intrapartum period can decrease the incidence of Cesarean deliveries compared to local and national averages. Secondary outcomes include decreasing other forms of obstetrical intervention or maternal morbidity.

Methods

This IRB-approved, retrospective study took place at VCOM Sports and Osteopathic Medicine (VSOM), a multispecialty musculoskeletal outpatient specialty clinic. It includes previous patients who received OMT to at least three body regions during at least four visits within a single pregnancy. The VSOM EHR was queried for any office visits from 1/1/2015 to 12/31/2020 which included ICD-10 pregnancy diagnostic codes and then cross-searched for OMT CPT codes. These charts were then manually searched for both the quantity of OMT visits and of body regions treated, as well as details on their duration of labor and hospital stay, the use of any obstetric interventions, and maternal morbidity. For any charts with absent delivery details, the subjects were contacted to request permission to obtain any missing records from their delivery center.

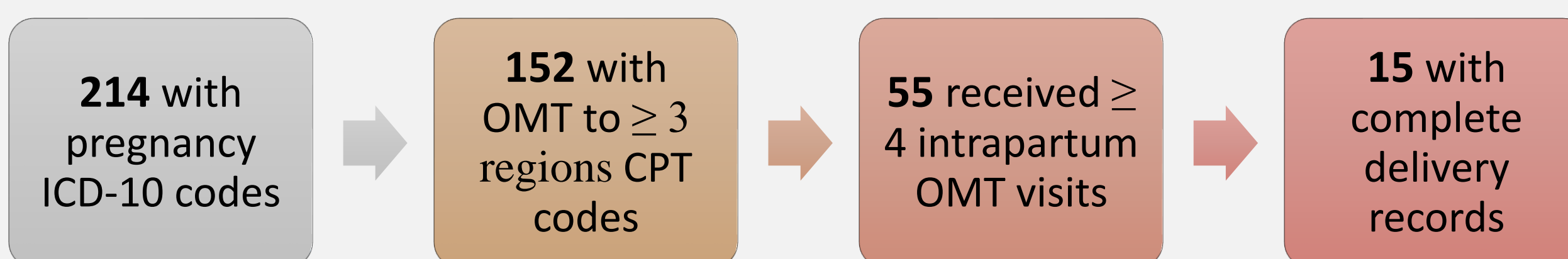


Figure 1
Data Collection Method

Individuals who had a home birth were excluded from the study, as were non-English speakers. Delivery outcomes were compared to the 2018 average rates reported by their medical facility, LewisGale Hospital-Montgomery, as well as to the 2018 state and national averages, as available. Additionally, the number of OMT sessions and the number of body regions treated at each session were compared to those outcomes, with correlations drawn as confidence permits.

Results

The EHR query identified 53 patients, or 55 pregnancies, that met the inclusion and exclusion criteria. Of those, 15 patients had complete records for analysis. The number of encounters per patient varied from 4 per individual to 10. The average number of encounters per patient was 5.63. The number of body regions treated with OMT each visit ranged from 3 regions per visit to 9 regions per visit.

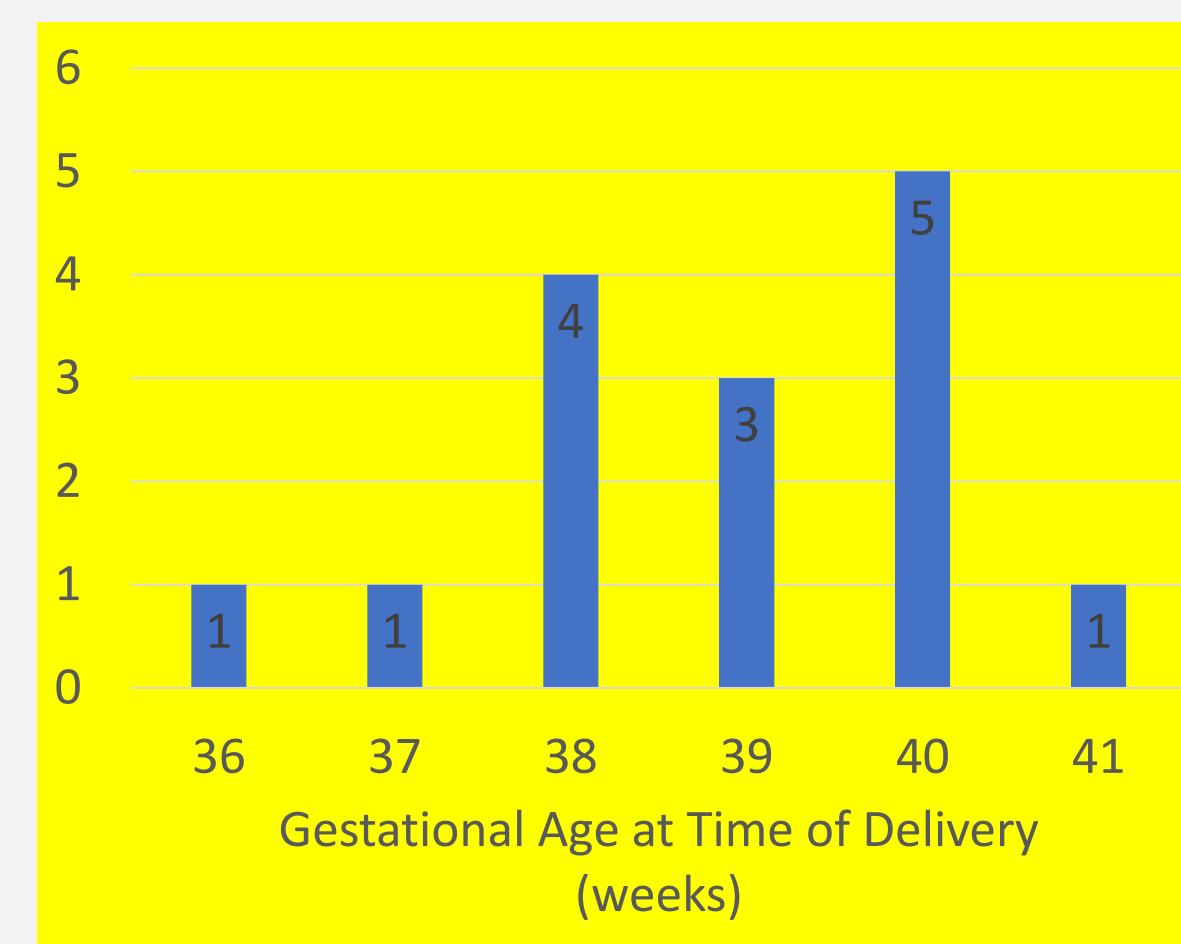


Figure 2
Number of Deliveries per Gestational Age

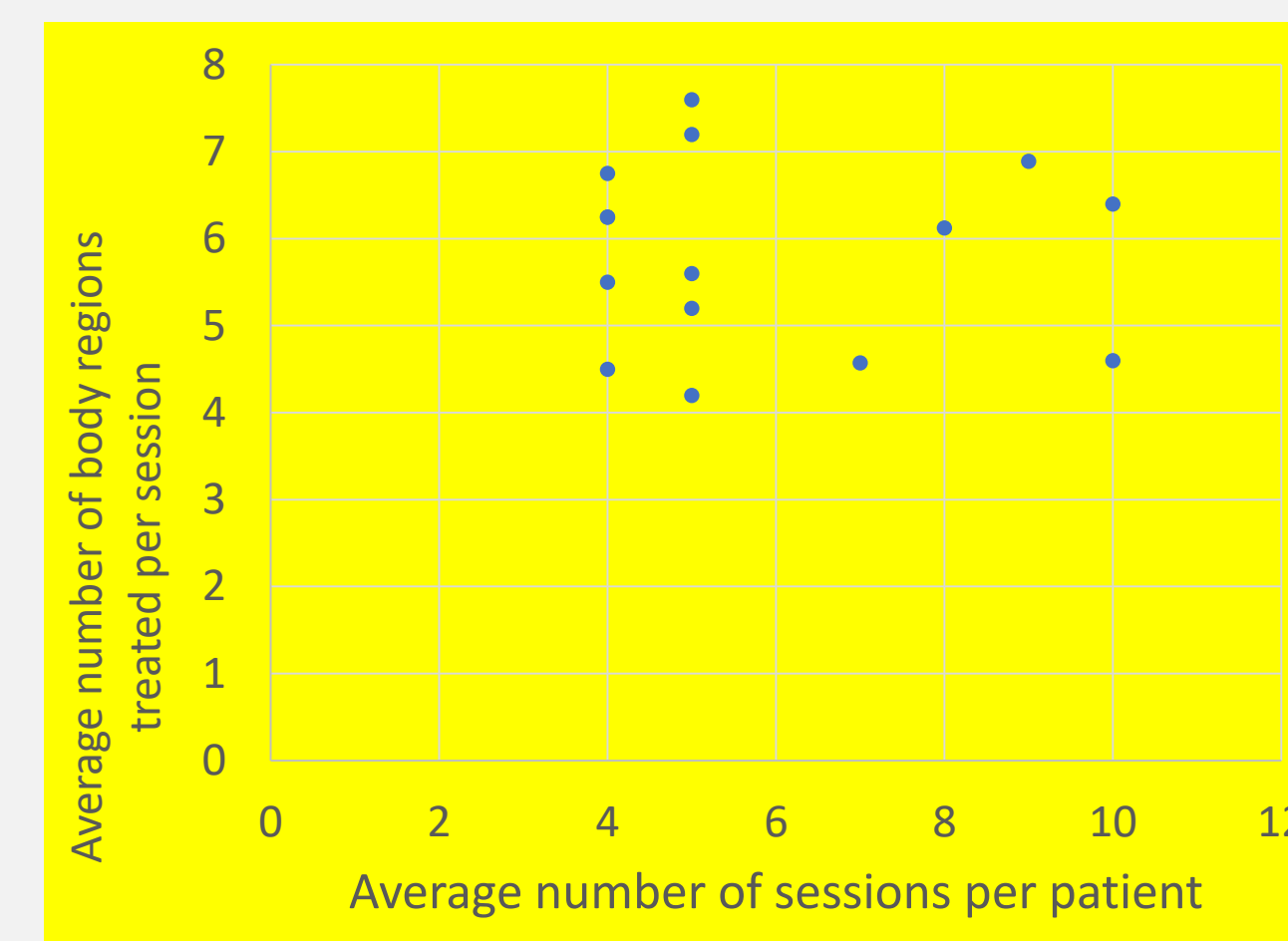


Figure 3
Number of OMT sessions received compared to average number of body regions treated

Maternal age at time of delivery	Gestational age at time of delivery	Maternal BMI at time of delivery	Duration of Labor	Length of Hospital Stay
31.53 years	39.17 weeks	29.48 kg/m ²	8.90 hours	50.83 hours

Table 1
Mean Delivery Outcomes for VSOM Patients

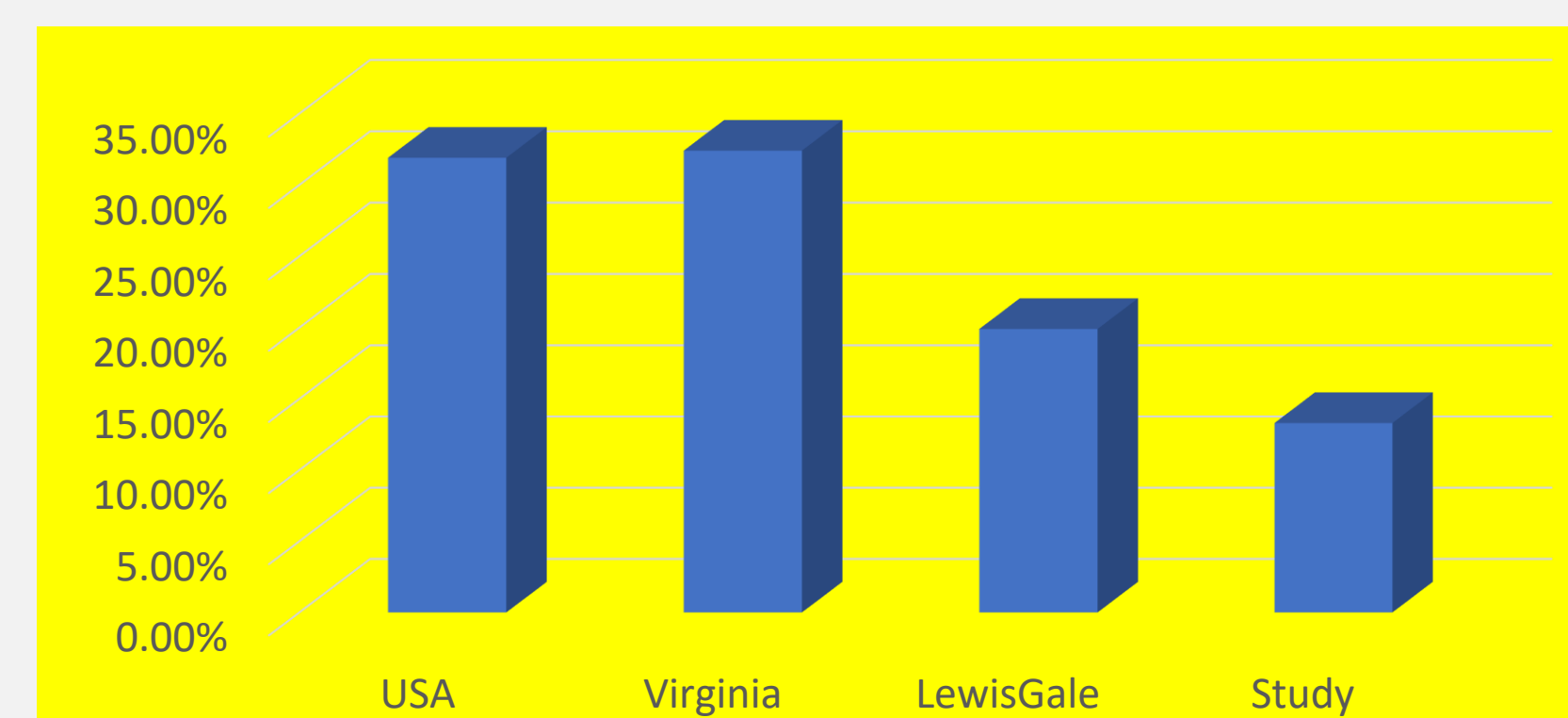


Figure 4
Cesarean Delivery Percentages by Population

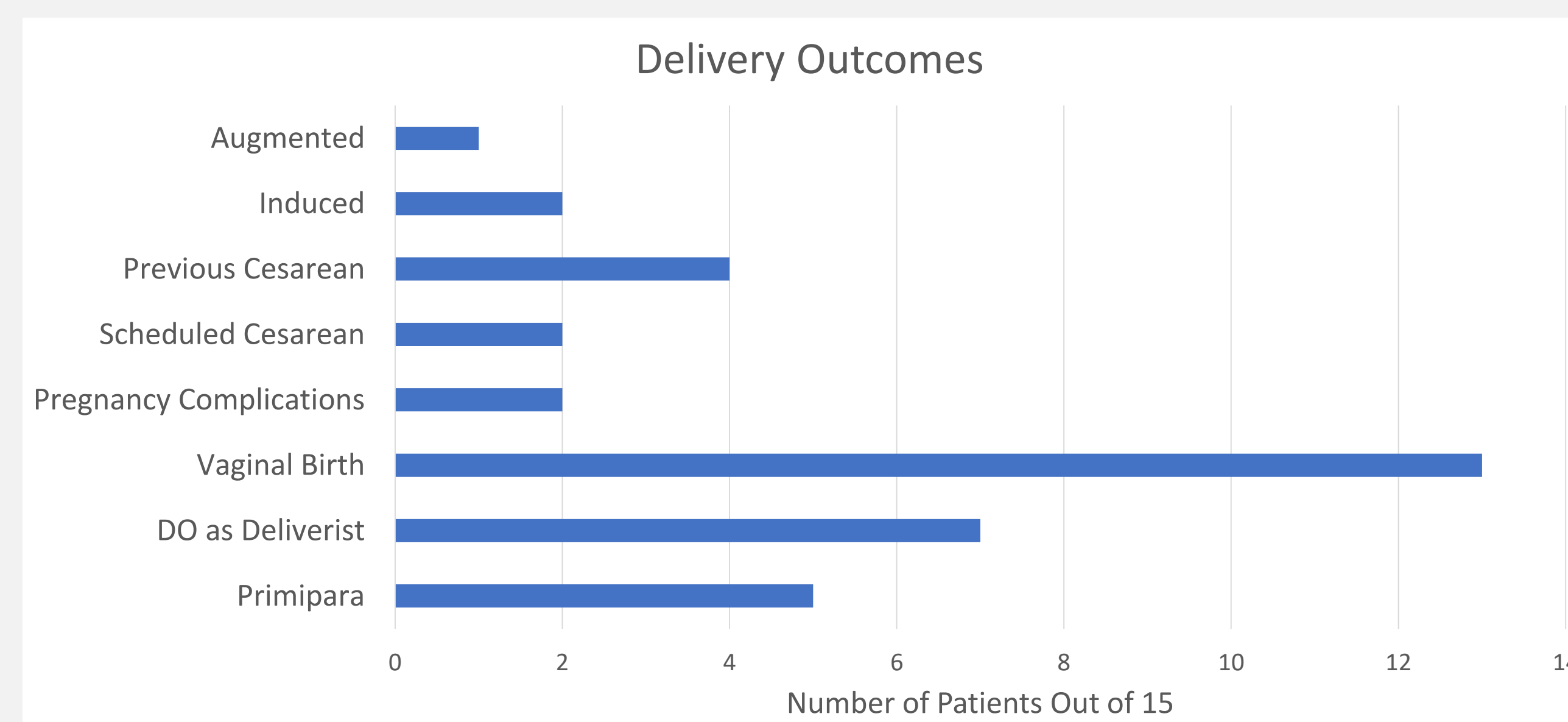


Figure 5
Delivery Outcomes for VSOM Patients

Conclusions

This pilot, retrospective study focused on the incidence of Cesarean deliveries among other delivery outcomes after providing longitudinal, intrapartum OMT sessions addressing the patients' chronic somatic dysfunctions. Regarding this primary objective, our study population had a 13.3% Cesarean rate, markedly lower than the hospital, state, and national averages where they delivered.

There was a notable selection bias of a patient population composed of individuals who were generally not well. Often, they were referred by their OB/GYN for pregnancy-related pain. There were few exclusion criteria, and the results were obtained despite elevated body mass index and advanced maternal age as additional risk factors.

And yet, none required instrumentation assistance, there was a single pre-term delivery with class 2 obesity, and the two patients who delivered via cesarean section were both scheduled in advance for a repeat procedure without trial of labor. They additionally had multiple pregnancy complications but ultimately met their goal of carrying their pregnancies to full-term. Remarkably, both of the two pregnancies with history of a previous Cesarean which did trial labor had successful vaginal deliveries.

While the lack of a standardized protocol may initially appear to be a weakness, it better represents the osteopathic profession's approach to health. The patients were all seen in the context of an office visit at VSOM, where the residency program director and research advisor repeatedly adjures his colleagues to ensure that regardless of our patients' presenting complaint they are not to leave the office with somatic dysfunctions that limit their ability to breathe or to ambulate.

The exemplary outcomes may be partially attributed to an above-average hospital providing better care for which we cannot take credit, since their statistics are certainly superior to the state or national level. Of note, 60% of the delivering healthcare providers were osteopathic physicians, as opposed to 8% as the national average. This, combined with the fact that those who sought out our care may be more inclined to further seek out non-operative births, may contribute to our outcomes.

Future prospective studies may hone in on the potential topics of interest this retrospective review unveiled, including a minimum number of visits or regions necessary for results. For now, osteopathic physicians and students can take strength in the improved outcomes we can offer our patients in the face of increasing risk factors.

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