

Impact of Postpartum Hemorrhage on Early Recovery After Cesarean Delivery

Jeroen De Haes, Mrinalini Balki, Naveed Siddiqui, Kristi Downey, Philip Ye, Ronald B. George

Background

Postpartum Hemorrhage

- Leading cause of maternal morbidity
- Associated with physical, psychological and functional sequelae
- Incidence continues to rise: 2.7% → 4.3% in US¹

Current PPH research

- Focuses on blood loss & interventions
- Patient-reported recovery underrepresented
- Not included in core PPH outcomes

Cesarean delivery & recovery

- High-volume surgical procedure
- Recovery is multidimensional
- Obstetric Quality of Recovery-10 is validated
- PPH impact on recovery unknown

Study Aim

Compare Obs-QoR-10 score after cesarean delivery in patients **with PPH vs matched controls**

Hypothesis

Obs-QoR-10 score will be significantly lower in patients with PPH compared to those without

Study Design & Methods

Design

- Prospective **1:1 matched** case-control study
- Cesarean delivery under **neuraxial anesthesia**

Matching

- Matched for **age(± 5y)**, **parity**, **labor status**, **urgency** and **gestational age(± 4wks)**

Sample Size

- **N = 68** (34 PPH / 34 controls); based on 10-point difference in Obs-QoR-10 scores with 80% power and a significance level of 0.05
- Statistical Analysis: Kruskal-Wallis test or Fisher’s exact or chi-squared

Outcome

- Primary: **Obs-QoR-10** at 24-72h^{2,3}
- Secondary: Individual recovery domains and clinical variables related to severity and management of PPH

Study Group

- Quantitative Blood loss (QBL) **≥ 1000 mL**
- Transfusion / ICU / Major intervention

Control Group

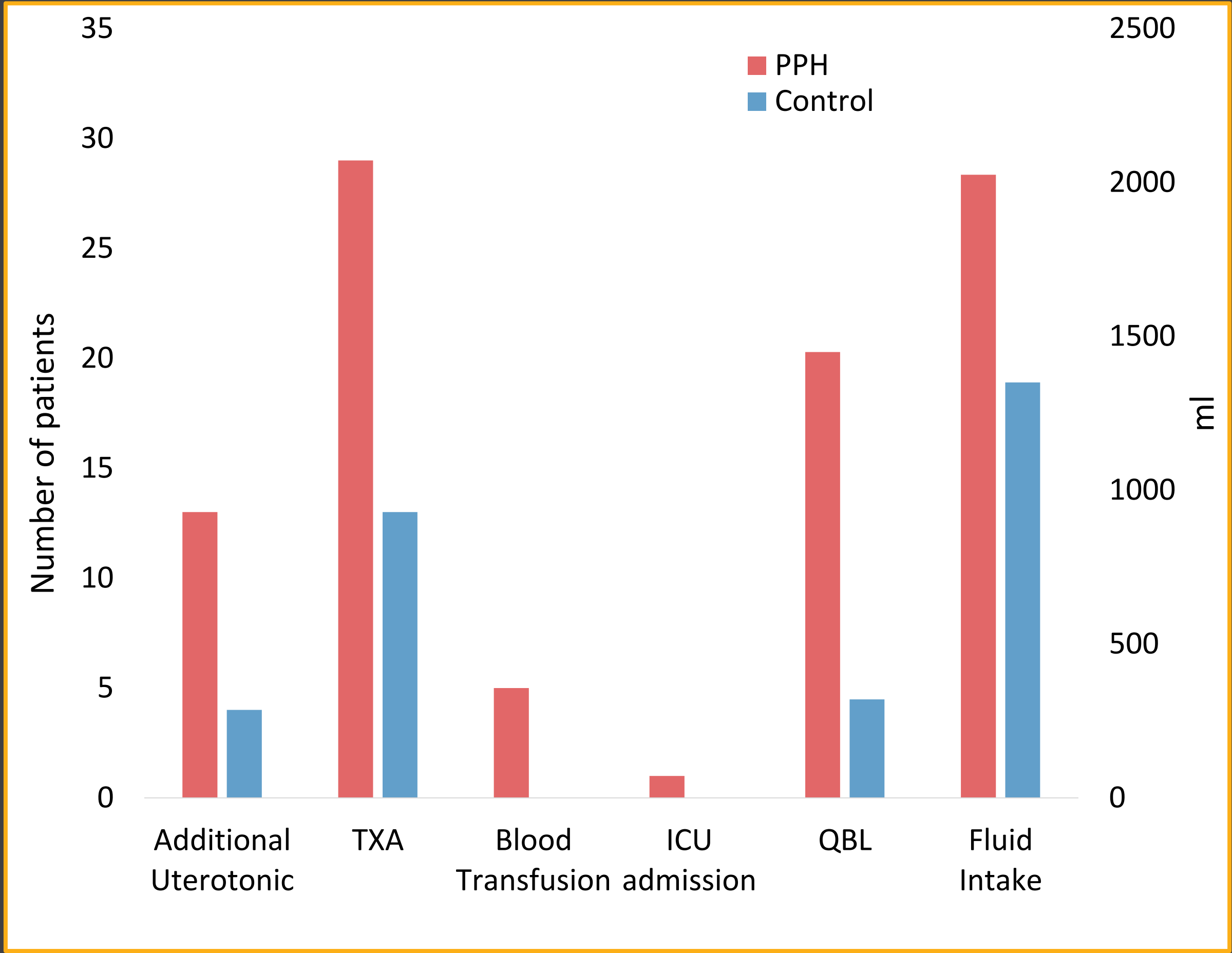
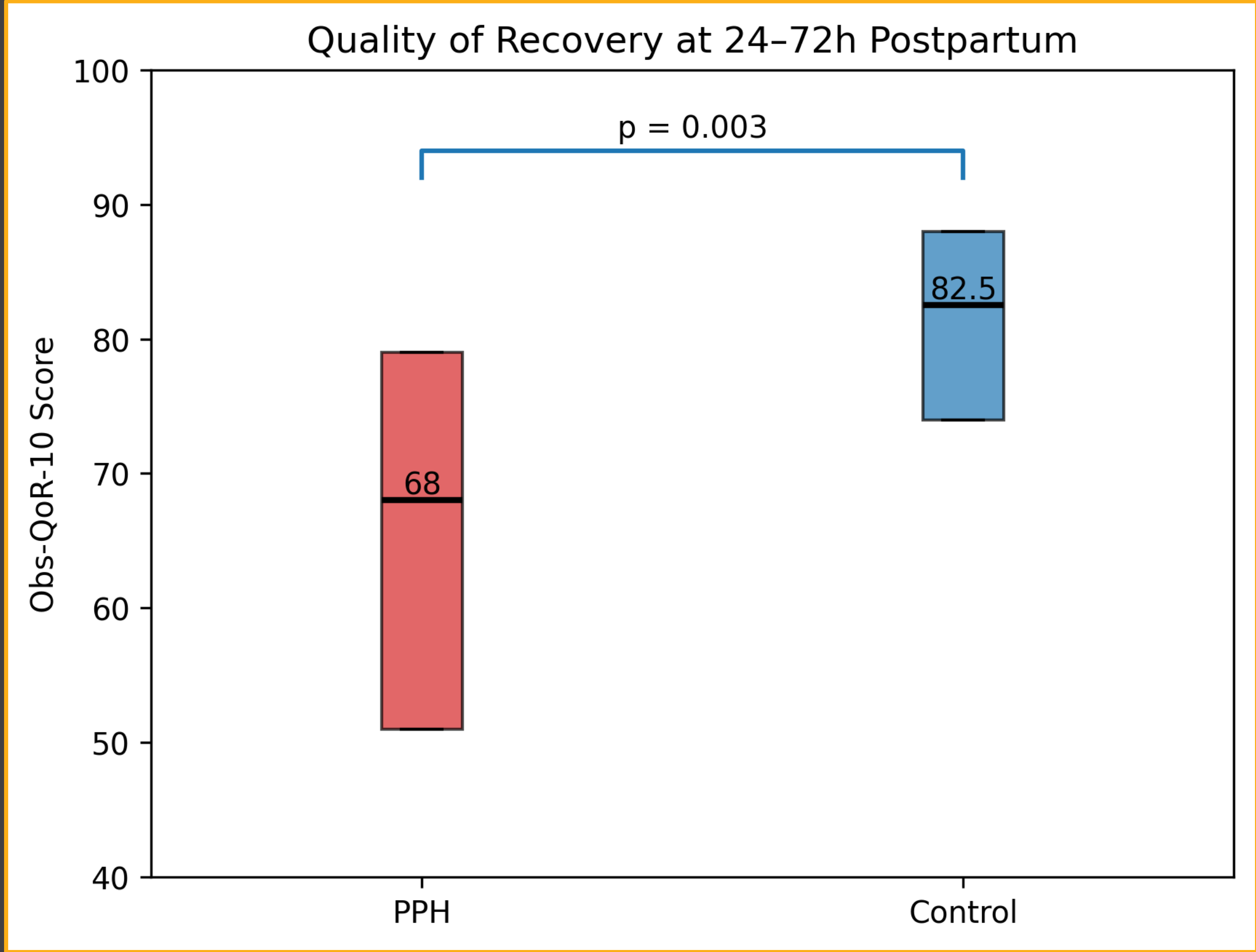
- QBL **< 500 mL**
- No transfusion or escalation of care

		 Worst Imaginable  Moderate  None										
		10	9	8	7	6	5	4	3	2	1	0
1	Pain											

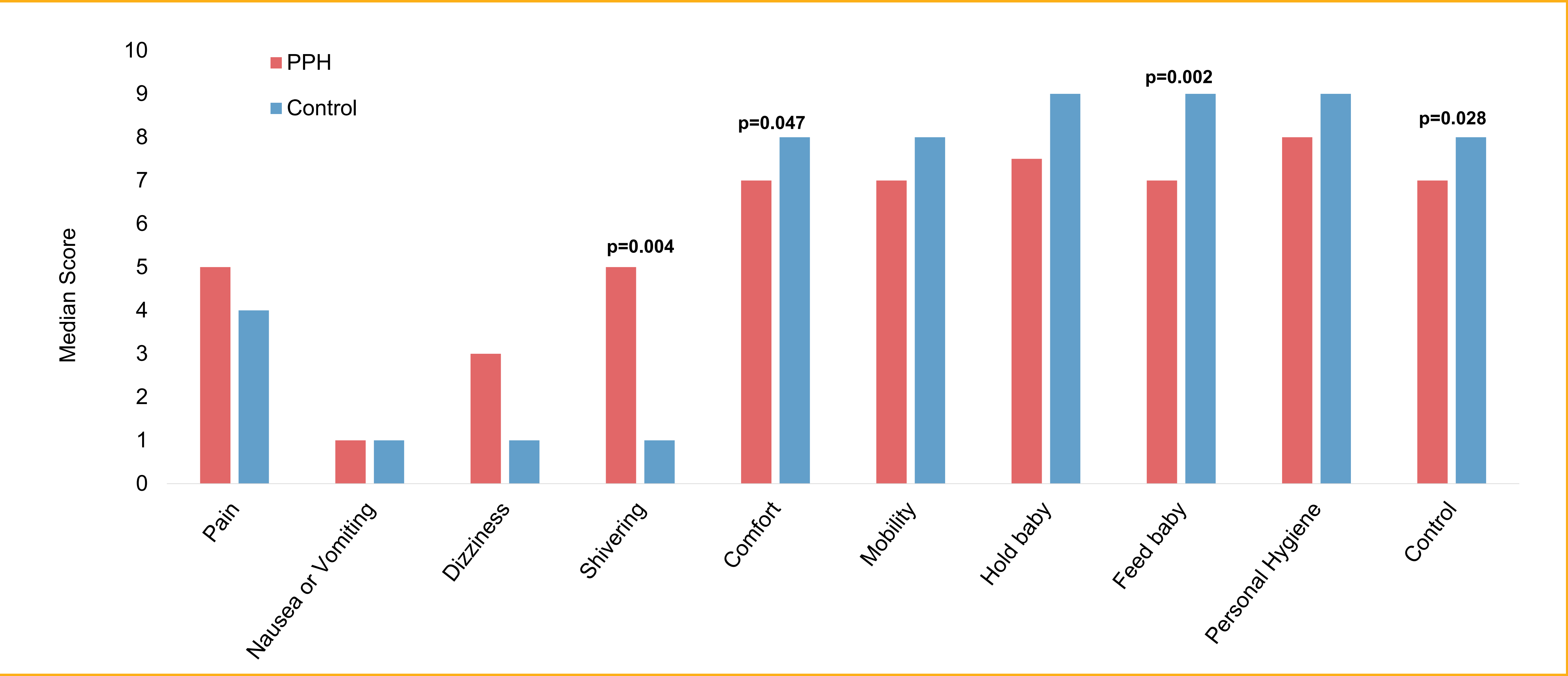
Results: Characteristics & Primary Outcome

Study Population

- n = 68 (34 PPH / 34 matched controls)
- Baseline demographics and obstetric characteristics **well balanced** due to rigorous matching



Results: Obs-QoR-10 Domains



No difference in rate of breastfeeding or in length of stay(LOS)

Conclusion & Clinical Implications

Key Findings

- PPH is associated with a clinically meaningful reduction in early recovery
 - **15 point reduction in Obs-QoR-10** compared with matched controls
- Effect is **independent of key obstetric factors** due to rigorous matching

Interpretation

- Impact of PPH extends **beyond physiology**
- Affects physical comfort, functional recovery, and psychological wellbeing
- Key impairments in **feeling in control, comfort, shivering** and ability to **breastfeed independently**

Clinical & Research Implications

- No difference in length of stay despite poor recovery
- Highlights a disconnect between traditional metrics and patient experience
- Supports integration of **patient-reported outcomes** in PPH care and research

