



Assessment of Community Pharmacist-Provided Hypoglycemia Risk Mitigation to Patients with Diabetes Taking Antidiabetic Agents with High Risk for Causing Low Blood Sugar

Kathryn J. Pearce, PharmD^{a, b}; Betsy M. Elswick, PharmD, FAPhA^b; Barbara L. Smith, PharmD^a; Danielle C. Ebersole^{a, b}

Kroger Health, Morgantown, West Virginia^a; West Virginia University, Morgantown, West Virginia^b



*The primary author of this poster is a recipient of an APhA Foundation Incentive Grant. The authors have no additional financial disclosures.

Background

- Persons with diabetes (PWDs) are especially positioned to self-identify and treat hypoglycemic episodes.¹⁻²
- Many PWDs do not receive education regarding hypoglycemic risk mitigation strategies and such studies have not been conducted in a pharmacy setting.
- Community pharmacists are the most accessible healthcare professionals and are uniquely advantaged to identify and create a targeted approach to educate PWDs on hypoglycemic risk mitigation.
- This study seeks to determine the effectiveness of pharmacist-provided counseling to PWDs taking one or more agents with high risk for causing hypoglycemia at one pharmacy within a regional division of a large community chain.

Objectives

- Primary Objectives:** Determine the percent changes in:
 - The number of total self-identified hypoglycemic episodes before and after pharmacist intervention
 - The number of appropriately-treated hypoglycemic episodes before and after pharmacist intervention

Methods

Design	<ul style="list-style-type: none"> Prospective, open-enrollment study Recruitment occurred November 2021 - February 2022 West Virginia University Institutional Review Board approved
Eligibility	<ul style="list-style-type: none"> PWDs, including Type 1 and Type 2 Diabetes ≥ 18 years old Fill prescription(s) for sulfonylureas, glinides, sodium-glucose cotransporter-2 inhibitors, and/or insulin Able to read, write, and speak the English language
Intervention	<ul style="list-style-type: none"> Pre-study survey assessing hypoglycemia unawareness Counseling on hypoglycemic prevention and treatment strategies “Tool kit” with resources to manage hypoglycemia including educational materials, blood glucose logs, glucose tablets, honey, and a protein bar
Evaluation	<ul style="list-style-type: none"> Changes in hypoglycemic risk will be assessed at 30-day follow-up visit Hypoglycemia frequency, signs/symptoms, and treatment strategies will be recorded and compared to pre-intervention data
Data Analysis	<ul style="list-style-type: none"> Paired t-tests will be used to calculate changes in hypoglycemic episodes at the conclusion of the study.

Preliminary Results

TABLE 1: DEMOGRAPHICS

Participants n = 20	
Mean Age (SD)	57.8 years (16.5)
Female n (%)	11 (55)
Male n (%)	9 (45)
Type 1 Diabetes n (%)	4 (20)
Type 2 Diabetes n (%)	16 (80)

FIGURE 1: PARTICIPANTS' ELIGIBLE MEDICATIONS (%)

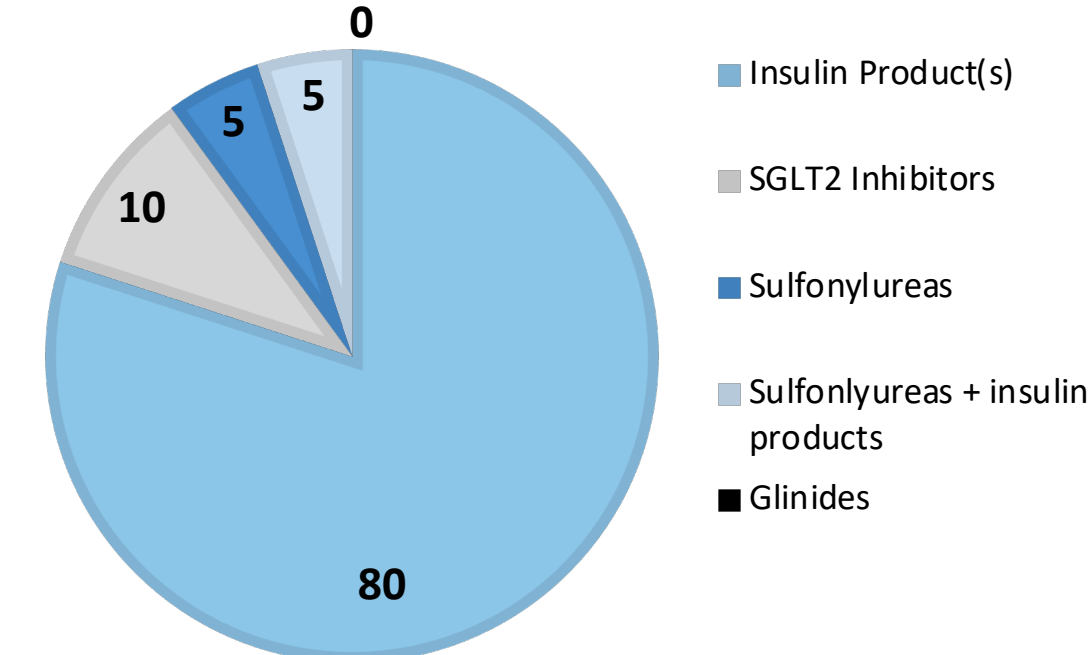


FIGURE 2: FREQUENCY OF HYPOGLYCEMIC EVENTS PER MONTH (BEFORE INTERVENTION)

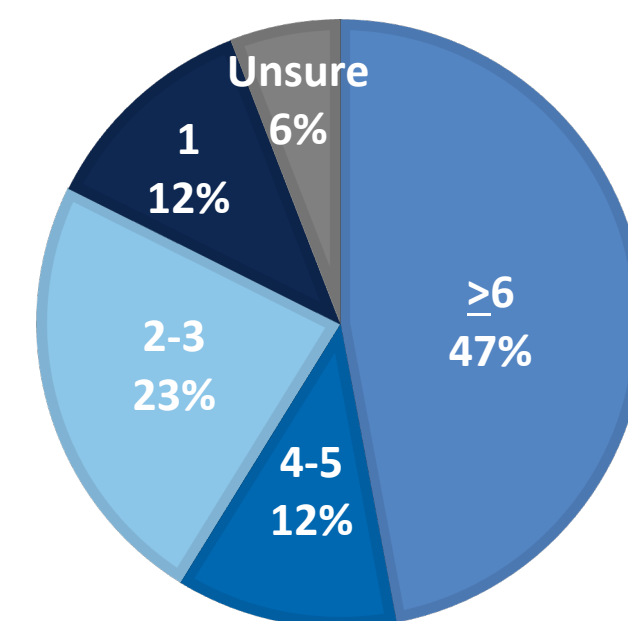


FIGURE 3: FREQUENCY OF HYPOGLYCEMIC EVENTS PER MONTH (FOLLOW-UP)

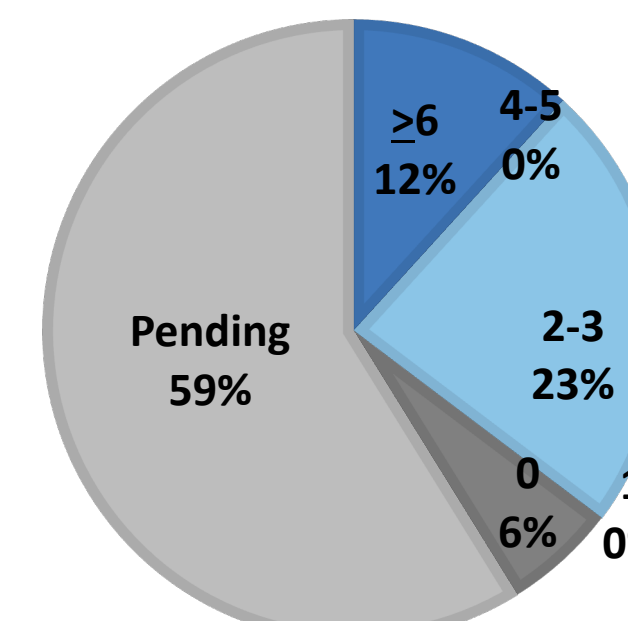


FIGURE 4: APPROPRIATE TREATMENT OF HYPOGLYCEMIA

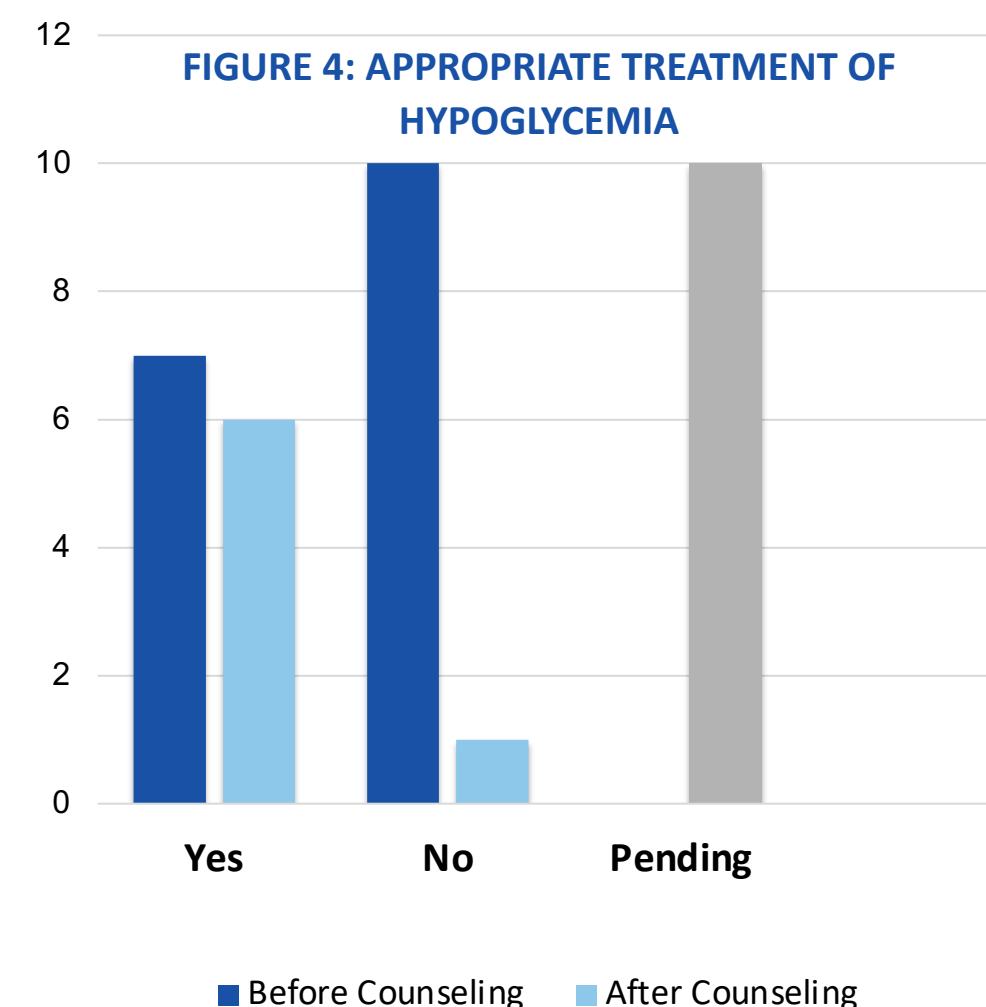
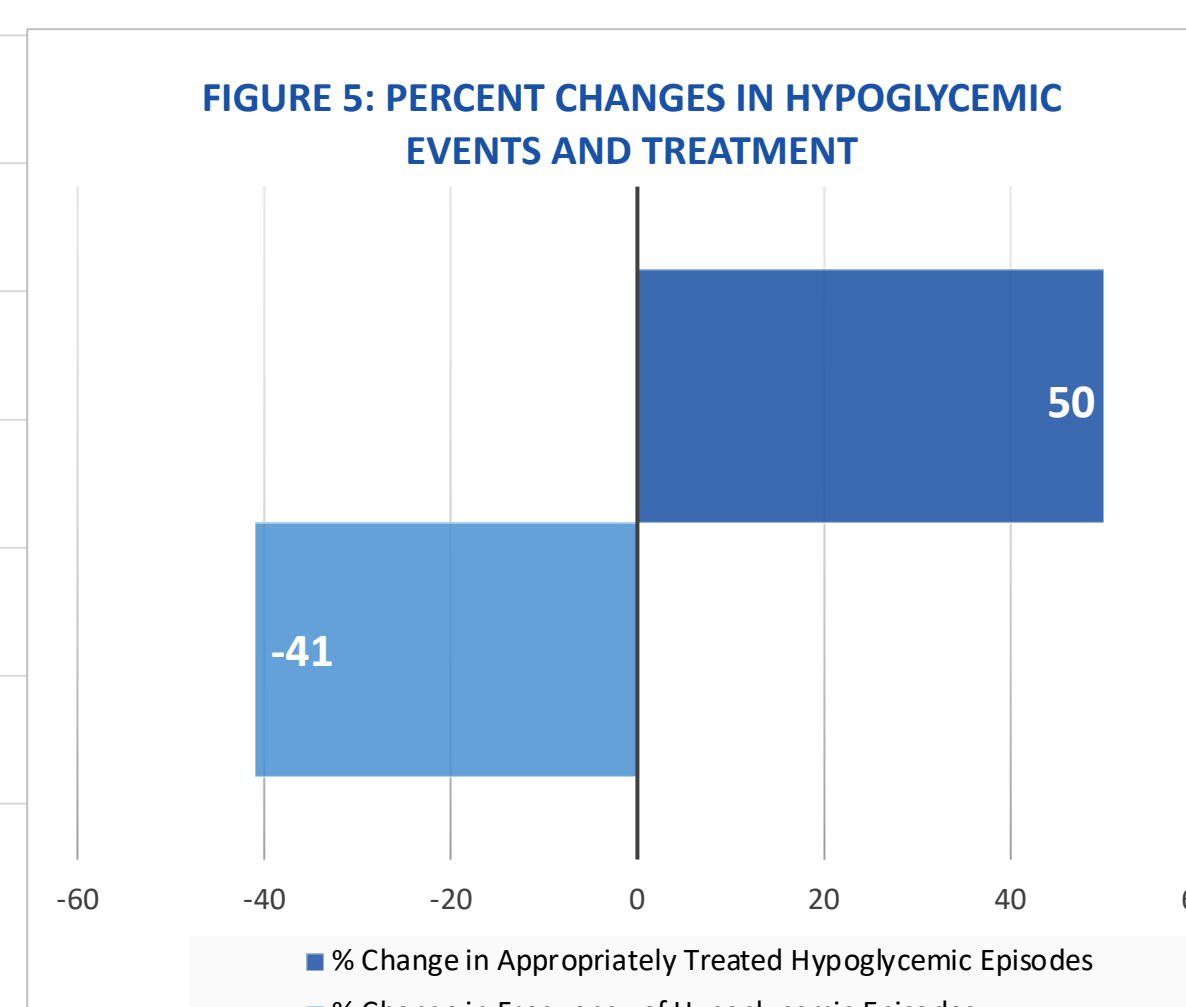


FIGURE 5: PERCENT CHANGES IN HYPOGLYCEMIC EVENTS AND TREATMENT



Preliminary Discussion

- “Appropriate treatment” is defined as use of 15 g of “quick sugar,” followed by re-checking blood glucose in 15 minutes, then consuming protein when blood glucose normalizes
- According to participant surveys collected thus far, the most commonly used items in the tool kit included the educational materials, protein bars, and blood glucose logs
- Participants seem to respond favorably to pharmacist intervention
 - Based on the preliminary findings, 75% of participants feel counseling is beneficial
- Preliminary results seem to indicate that pharmacist counseling improves patient understanding of appropriate treatment and prevention methods of hypoglycemia (Figures 2-5)

Limitations

- Enrollment and follow-up limited due to COVID-19 restrictions and pharmacist scheduling and availability.
- Some participants had therapy changes throughout the study period that could impact hypoglycemic event frequency.
- If participants did not provide self-monitored blood glucose data, there is potential for subjectivity.
- External validity may be limited due to low diversity within the participant sample.

Preliminary Conclusions

- Future research using data from continuous blood glucose monitors may more accurately identify hypoglycemic events.
- Increased patient reporting of hypoglycemic treatment is warranted to further assess the usefulness of pharmacist counseling on the appropriate treatment of hypoglycemic episodes.

References

- LaManna J, Litchman ML, Dickinson JK, et al. Diabetes education impact on hypoglycemia outcomes: A systematic review of evidence and gaps in the literature. *Diabetes Educ.* 2019 Aug;45(4):349-69.
- Hartill E, Gillis RB, Imran Jiwni S, et al. Hypoglycaemic unawareness: A systematic review of qualitative studies of significant others' (SO) supportive interventions for patients with diabetes mellitus. *Heliyon.* 2018 Oct;4(10):1-31.