Prevalence of fear of hypoglycemia in adults with type 1 diabetes using a newly developed screener and clinician's perspective on its implementation

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Supplemental material

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Supplementary Table 1: Questions used in focus group semi-structured interviews

Topic	Questions used in the HCP interviews
Current psychosocial care	▪ How long have you been caring for adults with type 1 diabetes? ▪ What are top psychosocial needs you see from your patients? ▪ Do you have mental health care professionals within the clinic/health system? ▪ How much time during a visit do you typically spend (if any) to discuss patient's psychosocial needs?
Value of screening for and treating FoH	▪ What is your reaction to the survey results? ▪ Do you currently assess participants for fear of hypoglycemia? ▪ What do you believe are the primary health outcomes associated with FoH? ▪ Do you believe other clinicians in your clinic would be interested in using the FoH screener? Why or why not?
Implementing the FoH screener	▪ Can you describe what the clinic flow would look like to implement the screener at your clinic? ▪ How confident are you that your clinic could successfully implement the screener? ▪ What are barriers to adopting FoH screener at your clinic? ▪ Do you think the FoH screener will be effective at your clinic? ▪ How do you manage your patients for fear of hypoglycemia? ▪ Are the screener scores enough for you to make treatment decisions? Or do you prefer to see clinical recommendations based on the scores? ▪ Do you feel your clinic has sufficient resources for intervention if a patient scores high for FoH? ▪ How often do you think a patient should be screened for

	FoH?
	▪ If resource is limited, what types of patients do you think should be prioritized for FoH screening?

Abbreviations: FoH, fear of hypoglycemia; HCP, healthcare provider

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Supplementary Table 2: Domains and Themes from Focus Group

Domain	Theme	Theme Description	N
1: Psychosocial needs, care, and communication	1. Psychosocial needs of patients	Common psychosocial problems seen in adult patients with type 1 diabetes.	32
	2. Mental healthcare	Mental healthcare providers within the clinic/healthcare system, referring patients to mental healthcare providers, and assessing patient progress after referral to mental health.	51
	3. Psychosocial communication	How HCPs discuss psychosocial issues with patients, including the amount of time spent during clinic visits discussing psychosocial needs.	60
2: FoH patterns, assessment, and management	4. Current method for assessing FoH	Current method(s) HCPs use to assess FoH in patients.	19
	5. Patterns of FoH in clinical practice	Patterns of FoH seen in clinical practice, including which patients tend to have FoH.	20
	6. Health outcomes associated with FoH	Perceived health outcomes associated with fear of hypoglycemia.	14
	7. Managing FoH	Methods providers use to manage fear of hypoglycemia in patients.	30
3: Screener survey results, interest, and implementation	8. Reaction to survey results	General reaction to the survey results as presented in the one-page handout summary.	13
	9. Interest in screener	Overall interest in implementing the screener into their practice.	16
	10. Implementing screener	Implementation barriers, suggestions, patients to prioritize, and whether screener results would influence treatment decisions.	106
4: Unprompted comments on resources and devices	11. Unprompted comments about devices	Comments about diabetes-specific technology and devices, including their drawbacks.	11
	12. Unprompted Clinic resources and access	Resources in clinic (or desired/necessary resources) for patients with type 1 diabetes, and comments regarding access to specialized care.	14

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Abbreviations: FoH, fear of hypoglycemia; HCP, healthcare provider; N, number of instances when the specific theme was discussed in the focus group interviews.

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Supplementary Table 3: Descriptive statistics of FoH screener scores

Scale or subscale	Score range	N (%)
Total score (α=0.88)		
Low FoH total	9 – 30	387 (70%)
High FoH total	31 – 44	166 (30%)
Worry score (α=0.90)		
Low FoH worry	6 – 23	418 (76%)
High FoH worry	24 – 30	135 (24%)
Behavior score (α=0.71)		
Low FoH behavior	3 – 9	398 (72%)
High FoH behavior	10 – 15	155 (28%)

Abbreviations: FoH, fear of hypoglycemia; N, total number of participants
Note: α=Cronbach's alpha

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Supplementary Table 4: Multiple regressions predicting diabetes and psychosocial outcomes from binary FoH screener total and domain (worry and behavior) scores

Outcome variables			High FoH (domain scores)		
	B (Total score) [a]	R^2 (Total score) [a]	B (Worry subscale) [a]	B (Behavior subscale) [a]	R^2 (Domain score) [a]
Self-reported A1c (%)	0.56***	0.11	0.11	0.54***	0.11
Number of comorbidities	1.08***	0.18	0.71***	0.50*	0.16
Comfortable blood glucose range – low[#]	5.31**	0.03	3.17	1.57	0.02
Comfortable blood glucose range – high[#]	6.06	0.01	-1.95	15.49***	0.03
Depression (PHQ-8)	0.45***	0.15	0.27***	0.30***	0.15
Anxiety (GAD-7)	0.52***	0.16	0.35***	0.35***	0.17

Abbreviations: A1c, glycated hemoglobin; FoH, fear of hypoglycemia; HFS, Hypoglycemia Fear Survey; GAD-7, Generalized Anxiety Disorder-7; PHQ-8, Patient Health Questionnaire-8; T1D, type 1 diabetes. Note: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$; [#] Participants' comfortable blood glucose range [70 mg/dL (low) and 180 mg/dL (high)]; B=Unstandardized Regression Coefficient (indicates the difference in each outcome variable between participants who reported high FoH score (>30) and participants who reported low FoH score (≤30)"; R^2 Coefficient of determination.

[a] Each outcome variable was entered into two linear regression models: i) with High total FoH (being 1 if total FoH score>30) as an independent variable; ii) with High FoH worry (being 1 if worry score>23) and High FoH behavior (being 1 if behavior score>9) as independent variables. All models controlled for age, gender, body mass index, duration of T1D, pump use, and continuous glucose monitor use.