

The Association Between Adverse Childhood Experiences and HbA1C Levels in Patients with Uncontrolled Diabetes: Development of a Study Protocol

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Background

Adverse Childhood Experiences (ACEs) may cause depression, cancer, and type two diabetes (T2DM). Two-thirds of children report ACEs \geq 1 by the age of 16. 21.5% of Rhode Island children report ACEs \geq 2. Patients diagnosed with T2DM and psychiatric diseases experience less T2DM treatment adherence (TA). Racism, neighborhood safety, and poverty (RNP) may contribute to ACEs. Similarly, patients diagnosed with T2DM are more likely to have experienced trauma. Each ACE increases the likelihood of T2DM diagnosis by 11%.

Objectives

- (1) Develop & gain approval for a study protocol which: (a) Identifies whether ACEs correlate with the diagnosis of uncontrolled T2DM (HbA1C \geq 8) and less TA (TA \geq 3 months since last HbA1C assay) and (b) Identify whether RNP correlates with uncontrolled T2DM and less TA.
- (2) Modify Kaiser Permanente's ACEs Questionnaire to include RNP.

Methods

Design: Quantitative and Theoretical

Participants: Screened via *LifeChart* (HbA1C \geq 8)

Protocol Development:

- Lifespan IRB
- *LifeChart*
- *RedCap* (data and demographics)
- Informed Consent (via phone)
- Modify Kaiser Permanente's ACE Questionnaire to include questions about RNP.

Results

Process Outcomes:

- IRB Approval, Informed Consent Process, *LifeChart*, *RedCap*, ACE Questionnaire, Participant Recruitment.

Questionnaire Development:

- 14 "yes or no" questions regarding trauma prior to the age of 18. ACE \geq 4 indicates severe childhood trauma.
- 11 Kaiser Permanente and 3 original questions.

Early results, challenges, and lessons learned:

- More ACEs = higher HbA1C levels and worse TA. RNP may also predict T2DM severity.

- One Participant recruited out of 28 contacted.
- Improvements: send questionnaire via email, shorten or adjust how the informed consent is phrased, and obtain the ability to search HbA1Cs on *LifeChart*.

Conclusion

This protocol can assess the impact of ACEs and RNP on T2DM severity and TA. Clinically, ACE screening can identify patients at risk for uncontrolled T2DM. Previous studies have found that motivational interviewing, family therapy, and antidepressants can reduce HbA1C in T2DM patients. Therefore, addressing ACEs may improve TA and attenuate T2DM severity.