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# The Impact of Time in Doctor-Patient Encounters on Perceived Health Status of Children with Diabetes: Potential Mediating Roles of Shared Decision Making and Resilient Parents

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## Introduction

- Diabetes mellitus is a chronic disease characterized by difficulties with the production or use of insulin by the body (Sneha & Gangil 2019).
- In 2019, about 283,000 individuals below the age of 20 years old were diagnosed with diabetes (CDC, 2022).
- Due to illness symptoms (e.g., hypo/hyperglycemia) and disease-related complications (e.g., nephropathy), individuals report poor health-related quality of life (Trikkalinou et al. 2017).
- In both psychosocial and physical functioning, parents of children with diabetes perceive their children's health status to be poorer than that of the general population (Wake et al. 2000).
- However, many individual-level, family-oriented, and health care system factors may influence perceptions of a child's overall health status while living with diabetes (Marshall et al.2009).
- For example, beliefs of having spent enough time with the doctor in prevention-focused health care visits may impact proactive health behaviors and perceptions of health (Souza et al. 2019).
- Additionally, within medical conversations, perceptions of collaborative and shared decision-making (e.g., exploring pros and cons of options together) between families and providers during visits has been linked to improved knowledge and reduced decisional conflicts (Wyatt et al. 2015)
- Furthermore, it may be that families develop a sense of empowerment and resiliency (i.e., ability to cope and overcome life challenges) to the extent they feel like partners in decision making.
- In turn, resiliency has been linked with perceptions of positive overall health status for children and families affected by a chronic illness (Gomez, 2021).

## Hypotheses

- **Bivariate:** Time spent in prevention focused health care visits, shared decision-making, family resiliency, and overall perceived health status of the child will all be positively related.
- **Multivariate**: Shared decision-making and family resilience will serially mediate the relation between time spent with doctors in health care visits and general health status, such that a higher amount of time spent in prevention focused clinic visits would be associated with higher levels of shared decision-making and, in turn, higher family resilience and perceptions of better health status.

## Methods

- This study utilized secondary data from the National Survey of Child and Adolescent Health 2020-2021, a survey given to parents of children between the ages of 0 to 17 years old in the United States.
- We specifically examined survey responses of 369 parents of children recently diagnosed with diabetes.
- About 53.1% of children recently diagnosed with diabetes were males, and 46.7% were females. Children aged 15-17 years old represented the group with the highest percentage (37.1%) of a diabetes diagnosis. Most participants were of White non-Hispanic ethnicity (71.3%).
- One item was related to average time spent with providers in prevention health care visits (i.e., less than 10 mins, 10-20 mins, or above 20 mins).
- One item asked about parental perception of the health status of the child (i.e., excellent, good, or fair/poor).
- Participants also utilized a Likert scale system related to how often doctors worked with parents to make decisions about health care (i.e., never, usually, or always).
- Finally, the family resilience measure was derived based upon the number of endorsed items (out of 4 total) related to being hopeful, perceived strength, conversation about what to do when facing problems, and working together to solve problems.

## Analyses

- Pearson's product-moment bivariate correlations
- Serial mediation analyses, consistent with *Hayes (2013)*, using PROCESS Macro for SPSS
- Covariates: age, ethnicity, sex of child, health insurance, family structure, income and education level of parents

## Results

### Bivariate Results

Correlation Analysis

| | General health of child | Time spent with doctor in preventive healthcare visit | Shared decision making | Family resilience |
|---|---|---|---|---|
| General health of child | 1.00 | 0.028 | 0.215** | 0.245** |
| Time spent with doctor in preventive healthcare visit | -- | 1.00 | 0.302** | 0.149** |
| Shared decision making | -- | -- | 1.00 | 0.182** |
| Family resilience | -- | -- | -- | 1.00 |

** correlation is significant at 0.01 level (two tail)

### Multivariate Results

- In our multivariate model, the total effect was nonsignificant (coef = 0.0550, t = 0.7767, CI = -0.0846 to 0.1945, p = 0.4383), and the direct effect was also nonsignificant when mediators were added (coef = -0.0065, t = 0.0886, CI = -0.1510 to 0.1380, p = 0.9295).
- Shared decision making and family resilience did not serially mediate the relation between time spent with doctors at preventive visits and overall health status ($a_1db_2$= 0.0033, t = 0.805, CI = -0.0044 to 0.0122).
- Controlling for the effects of the other mediator, a significant indirect effect was found through collaborative decision making ($a_1b_1$= 0.0445, t = 1.9181 CI = 0.0015 to 0.0940) but not family resilience ($a_2b_2$ = 0.0136, t = 0.9565 CI = -0.0059 to 0.0478).

### Serial Mediation Model

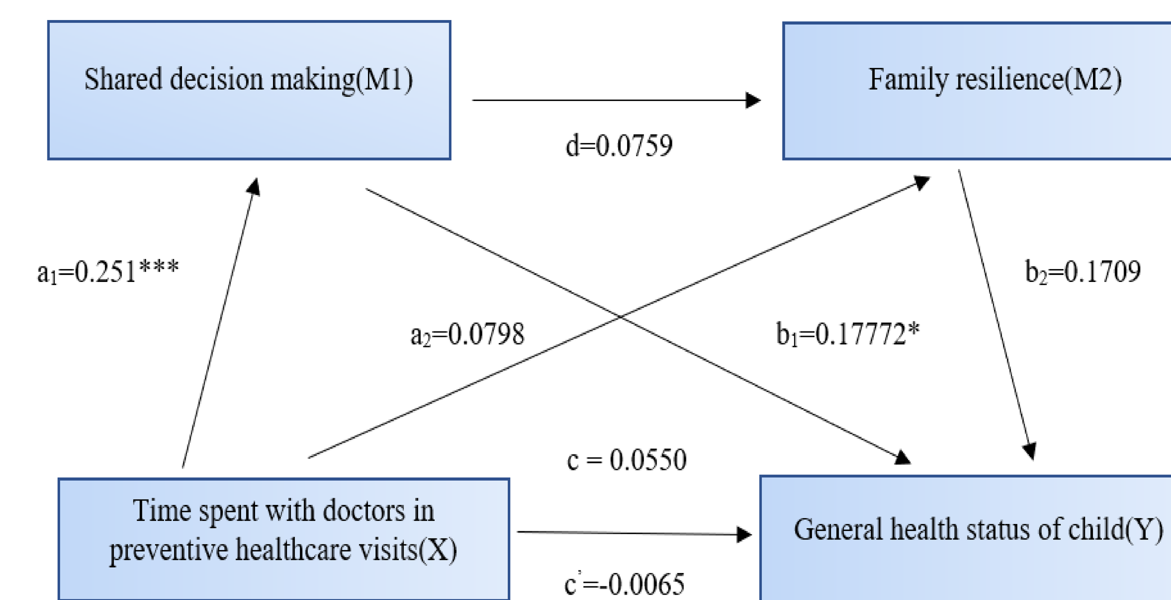


***Figure 1.*** Illustration of the indirect effects model. $a_1b_1$= specific indirect effect (time spent with doctor related to general health status through shared decision making. $a_1db_2$ = specific indirect effect (time spent with doctor related to general health status through shared decision making and family resilience. $a_2b_2$ = specific indirect effect (time spent with doctor related to general health through family resilience. $a_{12}db_{12}$ = total indirect effect (time spent with doctors related to general health status via shared decision making and family resilience. c = total effect (time spent with doctor related to general health status). c' = total direct effect (time spent with doctor related to general health status accounting for shared decision making and family resilience

*p<0.05, **p<0.01,***p<0.001.

## Discussion

- In bivariate analyses, nearly all variables were significantly related to one another in the hypothesized directions ($p < .05$).
- In multivariate analyses, hypotheses were partially supported; while we did not find serial mediation through proposed variables, shared decision making emerged as a significant mediator of the relation between time spent in prevention focused visits and health status of the child living with diabetes.
- The above finding is consistent with previous studies. High quality care and tighter glycemic control is more likely to be experienced by children and adolescents who were seen by a pediatric endocrinologist and having family involved in shared decision making (Valenzuela et al. 2014).
- Also, our study showed no indirect effects through family resilience at a multivariate level despite research showing the extent to which a parent's ability to bounce back and recover during difficult times can be associated with glycemic control (Luo et al. 2022).
- A potential reason for this finding may have been at least partially due to our inability to control for parental mental health, as family resilience has been significantly and negatively associated with factors such as parental depressive symptoms (Giyatri & Irawaty 2022; Soundararajan et al. 2023).

## Limitations

- Generalizability to other types of illnesses and samples is limited due to exclusive use of the parent perspective related to pediatric diabetes and predominantly White respondents.
- Due to use of an existing data set with limited variables, it also was not possible to account for potential confounding variables in the study such as parental mental health or specific aspects of the illness experience (e.g., co-morbidities).

## Implications

- Study findings illustrate the importance of potential policy or insurance changes that incentivize and reimburse quality of care rather than a fee for service model, which may allow providers to spend sufficient time with patients to address concerns (Wang et al. 2022).
- Additionally, patient centered medical homes (PCMH) may also be useful in fostering patient empowerment and collaboration through characteristics such as open access electronic health records, use of technology for real-time communication outside normal hours, and coordination of care across systems (Klein et al. 2013, Carlin et al.2021).