

Role of Parenting Style in Achieving Metabolic Control in Adolescents With Type 1 Diabetes

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OBJECTIVE—To examine the role of parenting style in achieving metabolic control and treatment adherence in adolescents with type 1 diabetes.

RESEARCH DESIGN AND METHODS—Parents of 100 adolescents with type 1 diabetes completed assessments of their parenting style and sense of helplessness. Parents and patients rated patient adherence to the treatment regimen. Glycemic control was evaluated by HbA_{1c} values.

RESULTS—An authoritative paternal parenting style predicted better glycemic control and adherence in the child; a permissive maternal parenting style predicted poor adherence. A higher sense of helplessness in both parents predicted worse glycemic control and lesser adherence to treatment. Parental sense of helplessness was a significant predictor of diabetes control after correcting for other confounders (patient age, sex, and treatment method).

CONCLUSIONS—An authoritative nonhelpless parenting style is associated with better diabetes control in adolescents. Paternal involvement is important in adolescent diabetes management. These results have implications for psychological interventions.

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For children and adolescents with type 1 diabetes, the style in which their parents are involved in the daily disease management may be crucial to improving their glycemic control (1–4). Previous studies showed that an authoritative parenting style (characterized by setting clear limits to the child in a noncoercive manner) is associated with fewer behavioral problems in adolescents than a permissive parenting style (few efforts by the parents to direct and limit their child's behavior) or an authoritarian parenting style (coercive, harsh and punitive parenting) (5–7). The degree to which parents feel helpless in influencing their child's behavior also affects their ability to maintain appropriate levels of involvement in their child's daily routine

(8). On the basis of these findings, we hypothesized that glycemic control and treatment adherence in adolescents is better when their parents are more authoritative and less helpless.

RESEARCH DESIGN AND METHODS

A cross-sectional design was used. Participants included children aged 11–18 years who had been diagnosed with type 1 diabetes at least 1 year previously and their parents. All patients were attending the Israel Diabetes Center of Schneider Children's Medical Center of Israel. Children with a comorbid chronic disease, mental retardation, or a serious psychiatric disorder were excluded. Patients and parents were recruited during a routine clinic visit and

asked to individually complete a packet of questionnaires, as follows: Adherence to Diabetes Treatment Regimen Questionnaire (9) (completed by the child and one parent); demographic questionnaire (parents); Parental Authority Questionnaire (10) (parents); and Parental Helplessness Questionnaire (11) (parents). Glycemic control was assessed by the average HbA_{1c} value (measured with the DCA2000; Siemens Healthcare Diagnostics, Deerfield, IL) during 2007. Data on diagnoses, method of treatment (pump/multiple daily injections), laboratory results (HbA_{1c}, thyroid stimulating hormone), and microalbumin values (when available) were collected from the patients' medical files.

The study was approved by the hospital ethics committee. All patients and parents provided informed assent/consent.

One-tailed Pearson correlation test was used to examine the association of parenting style (authoritative, authoritarian, permissive) and parents' sense of helplessness with the children's adherence to treatment and HbA_{1c} level. A multiple regression model was constructed to identify parental factors that predicted adherence and glycemic control while controlling for confounders (patient age, sex, and treatment method).

RESULTS—We approached 117 patients/parents to participate in the study, of whom 17 (14.5%) refused (15 boys, 2 girls). There were no differences between the patients who agreed or disagreed to participate in age, HbA_{1c} level, or treatment method.

The final study group consisted of 47 female and 53 male patients of mean age 14.37 years (SD 2.67). The children were accompanied by a total of 79 mothers and 63 fathers. The biological parents were married in 86.6% of cases and divorced in 11.4%; 2% were single parents. Reported income was in the low range in 28.6%, average in 31.9%, and high in 39.6%.

Mean time from diagnosis of diabetes was 4.92 years (SD 3.22). Treatment was administered by insulin pump in 32 children and multiple daily injections in the

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remainder. Mean HbA_{1c} value was 8.05% (SD 1.27).

Table 1 shows the relationship of parenting styles and parental sense of helplessness with the children's treatment adherence and glycemic control. Higher authoritative of fathers, but not mothers, was associated with better treatment adherence and improved glycemic control. Among mothers, a higher level of permissiveness was associated with poorer treatment adherence. The authoritarian parenting style was not associated with either glycemic control or treatment adherence. However, when the analysis was limited to boys, a higher level of maternal authoritarianism was associated with poorer treatment adherence. Finally, for both the fathers and the mothers, a higher sense of helplessness was associated with worse glycemic control and worse adherence.

Two simultaneous regression analyses were used to determine if parenting factors predict adolescent glycemic control and adherence while controlling for confounding factors (the child's age, sex, and the treatment method). In the analysis of HbA_{1c} levels, father's sense of helplessness and child's age remained significant predictors, even when regressed with the other variables ($R^2 = 0.37, P < 0.05$; $\beta = 0.43, P < 0.05$; $\beta = 0.30, P = 0.05$, respectively). In the analysis of treatment adherence, mother's sense of helplessness was the only significant predictor ($R^2 = 0.43, P = 0.05$; $\beta = 0.47, P < 0.05$).

CONCLUSIONS—Parenting style and parental sense of helplessness are associated with adherence to treatment and glycemic control in adolescents with type 1 diabetes. Both these parental characteristics were significant predictors of diabetes control outcome even with correction for other parenting factors and

beyond the effect of other child-related confounding factors, such as the child's age, sex, and treatment method. Socioeconomic variables were also taken into account (in preparation for publication).

In agreement with our hypotheses, an authoritative parenting style was found to be associated with better adherence and glycemic control in the children, whereas authoritarian and permissive parenting styles predicted a poorer outcome.

The association between paternal level of authoritative and diabetes control measures highlights the importance of fathers' involvement in children's diabetes management. This finding is consistent with recent studies (3,4,12). Unfortunately, our clinical experience along with the empirical evidence suggests that compared with mothers, fathers tend to take a too-small role in their child's diabetes management and exert fewer efforts at monitoring the child (13,14). We believe fathers should be encouraged and educated to be more engaged in their child's routine diabetes care, and to do so, specifically, by adopting an authoritative stance.

The observational nature of our study precludes causal inferences concerning the predictive value of the parental parameter for children's behavior or health condition. The inclusion of participants on a voluntary basis limits the generalizability of the findings. Difficult cases of parents and children who refuse to cooperate with the researchers might be underrepresented in these data.

The findings of this study may assist health care providers and parents in adjusting parental involvement in the daily diabetes management to adolescents' needs. These results have prompted a still-ongoing short-term prospective study to determine if improving parental authoritative skills impacts adolescent glycemic control (15).

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M.S. and J.M. researched data, wrote the manuscript, and contributed to discussion. R.D. researched data and wrote the manuscript. M.S.-T. researched data. I.L.-L. reviewed and edited the manuscript. M.P. contributed to discussion and reviewed and edited the manuscript.

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Table 1—Pearson correlations between parenting style, parental sense of helplessness, treatment adherence, and glycemic control (n = 100)

Style		HbA _{1c}	Treatment adherence
Authoritative	Father	−0.34**	−0.24*
	Mother	−0.08 (NS)	−0.08 (NS)
Authoritarian	Father	0.13 (NS)	0.06 (NS)
	Mother	0.08 (NS)	0.08 (NS)
Permissive	Father	0.05 (NS)	0.18 (NS)
	Mother	0.09 (NS)	0.23*
Sense of helplessness	Father	0.28*	0.39***
	Mother	0.27**	0.44***

* $P < 0.05$, ** $P < 0.005$, *** $P < 0.001$. NS, $P > 0.05$.

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