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Parent empathy and adolescent disclosure in the context of type 1 diabetes management

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Abstract

Adolescent disclosure to parents is a key aspect of positive parent-adolescent relationships and youth adjustment. We leveraged a study of diverse families with an adolescent with type 1 diabetes to examine how observed parental empathy during parent-adolescent conflict discussions about diabetes management was associated with observed adolescent disclosure and adolescent self-reported disclosure to parents. Adolescents with type 1 diabetes and the parent most involved in their diabetes care (N = 67 dyads) participated in the study. Parent empathy, adolescent disclosure, and parent positive affect during parent-adolescent conversations were rated by trained coders. Parents reported on their own empathy and adolescents reported on their own disclosure, parental knowledge of their diabetes management, and parental acceptance. Results indicated that observed parental empathy was associated with both observed and self-reported disclosure. This association remained after covarying other parent-adolescent relationship and parent dispositional, demographic, and diabetes variables. This study holds implications for promoting greater parental communication of empathy to encourage adolescent disclosure in the context of chronic illness management.

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Adolescence, disclosure, empathy, parent-child interactions, type 1 diabetes

Close interpersonal relationships are an important feature of health and wellbeing across development (Pietromonaco & Collins, 2017). Managing chronic illness, such as type 1 diabetes, involves not only a great deal of self-regulation, but also regulation of interpersonal contexts (Wiebe et al., 2018). Adolescent disclosure to parents about their thoughts and feelings is associated with positive mental health and closer parent-adolescent relationships (Smetana et al., 2006), and disclosure to parents about diabetes-specific issues (e.g., difficulty managing blood sugar levels) have been found to be beneficial by eliciting greater involvement from caregivers (Berg et al., 2017). Parental supportive reactions to adolescent disclosures predict greater disclosure on moment-to-moment (Disla et al., 2019) and longitudinal timescales (Tilton-Weaver et al., 2010). Therefore, parental empathy (the act of imagining what is significant from another person's perspective; Main et al., 2017) may be a key facilitator of adolescent disclosure. In the context of type 1 diabetes, high-quality relationships are central to effective management (see Berg et al., 2017), and parental empathy specifically is associated with lower HbA1c, greater diabetes self-management, and fewer depressive symptoms (Main et al., 2022). However, it is unclear whether parental empathy influences adolescents' disclosure to parents in the moment, as well as their overall tendency to disclose to parents about their diabetes management challenges. The current study examined associations between parental empathy and adolescent disclosure during diabetes-related conflict discussions in a diverse sample of families in which the adolescent has type 1 diabetes.

Adolescence can be a challenging time for families, and adolescents with chronic illness, such as type 1 diabetes, may face unique obstacles (Plamper et al., 2017). Similar to the general developmental literature, adolescents disclose more to parents about challenges regarding their diabetes in the context of accepting, supportive relationships (Berg et al., 2017). A study with Latinx families found that the primary way parents gain knowledge about their adolescent's diabetes management is through disclosure (Tucker et al., 2018). However, the same study showed that Latina mothers are less knowledgeable of their adolescent's diabetes problems, which is associated with poorer management (Mello et al., 2017). More research with diverse samples is needed to better understand how parent-adolescent relationship factors facilitate disclosure in the context of chronic illness management.

The present study used an observational method to examine how parental empathy during parent-adolescent conversations about diabetes management was associated with observed adolescent disclosure and adolescent self-reported disclosure to the parent most involved in their diabetes care in a predominantly Latinx sample of adolescents with type 1 diabetes. We hypothesized that parents who displayed greater empathy (e.g., curiosity, nonverbal indicators of empathy, perspective taking) would have adolescents who disclosed more during the conversation and reported generally disclosing more to parents about their diabetes management. To improve our

confidence that associations between parent empathy and adolescent disclosure were due to empathy and not general positive features of the parent-adolescent relationship, we controlled for parental acceptance, parental knowledge about diabetes management, and parent positive affect during the conversations, in addition to sociodemographic and diabetes variables.

Method

Participants

Participants included 84 adolescents with type 1 diabetes mellitus and their parents who participated in a study of family communication about type 1 diabetes. Families were recruited from pediatric endocrinology clinics in a small city in Central California (N = 38) and in a large metropolitan area in Southern California (N = 46). Adolescents were eligible if diagnosed with type 1 diabetes for at least one year, were 10–15 years of age at the time of participation, could read and speak English or Spanish, and had no condition to prohibit study completion (e.g., severe intellectual disability).

Seventy dyads had observational data available for analysis. We recruited parents who were most involved in the adolescent's diabetes care to because the parent most involved in the adolescent's diabetes care would be most familiar with the issues facing the adolescent regarding their diabetes management. An additional 3 dyads were excluded because the participating parent reported on the parent survey that they were the secondary caregiver. These exclusions resulted in a final sample of 67 dyads (56% of adolescents were female, 44% were male; 88% of parents were mothers, and 12% were fathers). Eighty percent of adolescents were Latinx, with 53% reported as White, 19% More than one, 5% Native American/Alaska Native, and 1% Black (20% did not indicate race). Seventy-seven percent of parents identified as Latinx, with 56% reported as White, 19% More than one, 5% Native American/Alaska Native, 3% Black, and 1% Asian (17% did not indicate race). Forty-one percent of parents were employed full-time, 17% part-time, 33% were unemployed, 3% reported being on a leave of absence, and 1% were retired (5% did not indicate their employment status). A composite socioeconomic status variable was computed by standardizing primary caretaker education and annual household income and calculating the mean (see Table 1 for additional demographic information about the sample).

Procedure

The study was approved by the appropriate Institutional Review Boards, with parents providing informed consent and adolescents providing assent. Participants completed an in-person session that consisted of surveys and a video-taped discussion. When Spanish versions of measures were not available, the measure was translated and back translated from English to Spanish by bilingual staff. Videos were coded by research assistants who were fluent in the language spoken during the conversation. Parents and adolescents independently identified a topic they frequently argued about in the past month related to

Table 1. Correlations among demographic, illness, and study variables.

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Adolescent age	12.74	1.74	–												
2. Adolescent gender (% female) (0 = male, 1 = female)	53.60		.18	–											
3. Primary caretaker education[a]	2.00	3.00	.22	−.09	–										
4. Annual household income	$29,000-$49,999	$15,000-$74,999	.22*	.22	.42***	–									
5. Diabetes duration (years)	5.00	3.11	.12	.03	.01	−.12	–								
6. CGM (% yes) (0 = no, 1 = yes)	38.10		.18	.00	.32**	.17	−.03	–							
7. Parent empathy (P)	2.94	0.87	.23*	−.01	.23*	.21	.11	.06	–						
8. Parent positive emotion (O)	1.87	0.60	.24*	.25*	.35**	.26*	−.08	.15	.39***	–					
9. Parent acceptance (A)	4.38	0.56	−.07	−.05	.12	.17	−.00	.03	.37***	.11	–				
10. Parent knowledge (A)	3.44	1.23	−.17	.07	−.04	.14	−.26*	−.08	−.00	−.12	.25*	–			
11. Parent empathy (O)	2.94	0.87	.08	.06	.27*	.29*	−.08	.09	.30*	.33**	.20	.07	–		
12. Adolescent disclosure (O)	16.27	11.48	.14	.19	.18	.33**	.06	.31*	.04	.21	.08	−.05	.33**	–	
13. Adolescent disclosure (A)	3.99	1.05	−.16	.08	−.04	.08	.08	−.07	.17	−.05	.44***	.30**	.24*	.07	–

Notes. ***$p < .001$, **$p < .01$, *$p < .05$.

SD: standard deviation; CGM: continuous glucose monitor; (O): observed; (A): adolescent report; (P): parent report.

[a] 1 = some high school or less, 2 = high school graduate or equivalent, 3 = some college, 4 = associates/vocational degree, 5 = bachelors degree, 6 = Masters degree, 7 = MD/PhD/JD.

adolescents' diabetes management using the Diabetes Family Conflict Scale (Hood et al., 2007). The topic rated most highly by both parents and adolescents was chosen for discussion (e.g., remembering to check blood glucose levels); dyads were recorded while they discussed the topic for 10 minutes without a researcher present. Parents and adolescents were each provided $20.

Measures

Observed adolescent disclosure. Adolescent disclosure was coded with Mangold INTERACT (version 16) using a coding scheme developed by the authors. Adolescent statements were coded as disclosures if the adolescent communicated something that the parent would not have automatically known and that would not necessarily come up in everyday conversation or that could have been kept secret (see BLINDED FOR REVIEW for more details about the coding scheme). The number of disclosures during the conversation was used as an indicator of observed disclosure. A graduate student coauthor trained two research assistants to reach 75% agreement on training videos prior to the start of coding. Weekly calibration checks were held to discuss disagreements and minimize coder drift. Interrater reliability was calculated for agreement on the presence or absence of each disclosure within a 5-s window and was checked across 30% of the videos. Observers had high agreement on the presence or absence of disclosures (97%).

Observed parent empathy. Parent empathy was coded during the discussions using the Observed Empathy Rating Scale (Spencer et al., 2018; see Appendix). Parents' empathic behaviors during the discussions were rated on a scale of 1 (*no evidence of empathic behavior*) to 5 (*high levels of empathic behavior*). Empathic behavior included verbal and nonverbal indicators, such as validation, emotional attunement, curiosity (e.g., open-ended questions), backchanneling (e.g., head nods, "mhms"), eye contact, and mirroring. Parents received a single observed empathy score. Similar interrater reliability procedures to those described above for adolescent disclosure were used.

Self-reported adolescent disclosure. Adolescents completed a diabetes-specific scale of disclosure to parents that was developed by Osborn et al. (2013) on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*). Disclosure was measured with three items (e.g., "I spontaneously tell my [mother/father] about what is going on with my diabetes management, without [him/her] asking"). The score for the parent that participated was used in the current study. Higher average scores reflect higher disclosure. Reliability in this sample was $\alpha = .83$.

Covariates. Adolescent age and gender were included as covariates because girls are more likely to disclose than boys (Soenens et al., 2006) and disclosure declines across adolescence (Keijsers et al., 2009). We also included SES because it was positively correlated with observed parent empathy and observed adolescent disclosure (see Table 1). Length of diagnosis and whether the adolescent was on a continuous glucose monitor were also included as covariates.

To improve our confidence that findings were not due to other dispositional and parent-adolescent relationship factors, parent self-reported empathy, parent acceptance, knowledge, and positive affect were included as covariates. Parents rated their own empathy using the empathic concern subscale of the Interpersonal Reactivity Index (Davis, 1983). Adolescents rated parent acceptance using the acceptance subscale of the Mother-Father-Peer Scale (Epstein, 1983) and adolescents reported on parental knowledge by completing a diabetes-specific scale of parental knowledge (Berg et al., 2008). Observed parent positive affect (e.g., joy, humor, enthusiasm) was rated during the discussions using the Coding Expression of Emotion observational coding system (Thomson et al., 2018) on a scale of 1–7.

Results

SPSS version 29 was used to conduct the analyses. Descriptive statistics and zero-order correlations among demographic, diabetes, and study variables are presented in Table 1. Relevant to the study hypotheses, observed parent empathy was positively correlated with both observed adolescent disclosure and adolescent self-reported disclosure to parents.

We next conducted hierarchical multiple regression models to examine whether observed parent empathy was associated with greater adolescent disclosure independent of covariates (see Table 2). In step 1, we included the demographic and diabetes-related

Table 2. Hierarchical multiple regressions predicting observed disclosure and adolescent-reported disclosure to parents.

	DV: Observed disclosure frequency		DV: Reported disclosure to parents	
Variable	β	ΔR^2	β	ΔR^2
Step 1		.18*		.13
Adolescent age	.05		−.29*	
Adolescent gender	.14		.10	
Socioeconomic status	.18		.20	
Diabetes duration	.10		.19	
CGM	.28*		−.14	
Step 2		.04		.19*
Parent reported empathy	−.20		−.01	
Parent positive emotion	.16		−.13	
Parent acceptance	.14		.37**	
Parent knowledge	−.03		.14	
Step 3		.07*		.08*
Observed parent empathy	.30*		.31*	

Notes. **$p < .01$, *$p < .05$.
CGM: continuous glucose monitor.

covariates. In step 2, we added the parent dispositional and parent-adolescent relationship covariates. Finally, in step 3, we added observed parent empathy to determine whether associations between observed parent empathy and adolescent disclosure variables were significant after controlling for the variables in the prior steps. Greater observed parent empathy remained significantly associated with both observed and reported disclosure to parents.

Discussion

The present study examined whether observed parent empathy during conflict discussions with their adolescent about their type 1 diabetes management was associated with observed and self-reported adolescent disclosure in predominantly Latinx families. Findings indicated that after controlling for demographic, diabetes, and relationship variables, when parents expressed more empathic behavior (e.g., validation, curiosity, perspective taking), adolescents disclosed more to parents during the discussions and reported generally disclosing more to parents about their diabetes management.

Observed parental empathy was associated with disclosure during the conversations and with adolescents' reports that they generally disclose to parents about their diabetes management, suggesting that findings are not due to shared method variance. Given that empathy could be indicative of overall relationship quality and positive affect more broadly, which are important for type 1 diabetes management (King et al., 2014), it is notable that observed parental empathy emerged as a significant predictor of adolescent disclosure after controlling for these variables. This is consistent with the emotion coaching literature, in which specific supportive parental behaviors are better predictors of child outcomes than global parental warmth (Gottman et al., 1996). Empathy, rather than positivity more generally, communicates understanding and a curiosity to learn more about the others' perspective (Main et al., 2017), which may be particularly effective for promoting disclosure. This may be especially true in Latinx families, in which cultural values of familism (emphasis on the importance of family as a source of support, obligation, and deference; Campos et al., 2016) predict greater adolescent disclosure across adolescence (Son et al., 2022).

Some limitations in the presents study warrant mentioning. First, though the sample size was large compared to other observational studies of adolescents with diabetes and their parents, results should be replicated with larger samples to increase confidence in the findings. Second, though the multi-method approach is a strength, observed parent empathy was assessed as an overall score at a single time point. Further studies are needed to identify transactional associations between parental empathy and adolescent disclosure, and how these processes might influence diabetes management over time. Third, though both mothers and fathers were included in the study, most parents were mothers. Future research oversampling fathers is needed, particularly in diverse samples, as prior research has shown that Latinx adolescents with type 1 diabetes disclose less to mothers than to fathers compared with non-Latinx families (Tucker et al., 2018). Finally, information about gender identity and disability status were not included, in the current study. Future studies should adopt a more nuanced approach to assessing these variables

and directly examine their associations with relationship dynamics in the context of chronic illness management.

Despite these limitations, this study makes important contributions to the literature on parent-adolescent communication in the context of chronic illness management in diverse families. The use of an observational methodology addresses concerns about social desirability using self-report alone. Furthermore, we assessed multiple dimensions of parent-adolescent relationships and parental empathy observed during real-time interactions with adolescents was the strongest predictor of adolescent disclosure to parents. Interestingly, parent-reported empathy was not associated with adolescent disclosure, suggesting that real-time empathic communication is a specific parental behavior that could be the target of health-focused interventions.

Authors' note

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Open research statement

As part of IARR's encouragement of open research practices, the authors have provided the following information: This research was not pre-registered. The data used in the research cannot be publicly shared but are available upon request. The data can be obtained by emailing: amain@ucmerced.edu. The materials used in the research cannot be publicly shared but are available upon request. The materials can be obtained by emailing: amain@ucmerced.edu.

References

Berg, C. A., Butler, J. M., Osborn, P., King, G., Palmer, D. L., Butner, J., Murray, M., Lindsay, R., Donaldson, D., Foster, C., Swinyard, M., & Wiebe, D. J. (2008). Role of parental monitoring in understanding the benefits of parental acceptance on adolescent adherence and metabolic control of type 1 diabetes. *Diabetes Care*, *31*(4), 678–683. https://doi.org/10.2337/dc07-1678

Berg, C. A., Queen, T., Butner, J. E., Turner, S. L., Hughes Lansing, A., Main, A., Anderson, J. H., Thoma, B. C., Winnick, J. B., & Wiebe, D. J. (2017). Adolescent disclosure to parents and daily management of type 1 diabetes. *Journal of Pediatric Psychology*, *42*(1), 75–84. https://doi.org/10.1093/jpepsy/jsw056

Campos, B., Perez, O. F. R., & Guardino, C. (2016). Familism: A cultural value with implications for romantic relationship quality in U.S. Latinos. *Journal of Social and Personal Relationships*, *33*(1), 81–100. https://doi.org/10.1177/0265407514562564

Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, *44*(1), 113–126. https://doi.org/10.1037//0022-3514.44.1.113

Disla, J., Main, A., Kashi, S., & Boyajian, J. (2019). The effect of mothers' emotion-related responses to adolescent disclosures and adolescent perspective taking on the timing of future disclosures. *Social Development*, *28*(3), 657–673. https://doi.org/10.1111/sode.12360

Epstein, S. (1983). *The mother-father-peer scale*. University of Massachusetts. Unpublished manuscript.

Gottman, J. M., Katz, L. F., & Hooven, C. (1996). Parental meta-emotion philosophy and the emotional life of families: Theoretical models and preliminary data. *Journal of Family Psychology*, *10*(3), 243–268. https://doi.org/10.1037/0893-3200.10.3.243

Hood, K. K., Butler, D. A., Anderson, B. J., & Laffel, L. M. (2007). Updated and revised diabetes family conflict scale. *Diabetes Care*, *30*(7), 1764–1769. https://doi.org/10.2337/dc06-2358

Keijsers, L., Frijns, T., Branje, S. J., & Meeus, W. (2009). Developmental links of adolescent disclosure, parental solicitation, and control with delinquency: Moderation by parental support. *Developmental Psychology*, *45*(5), 1314–1327. https://doi.org/10.1037/a0016693

King, P. S., Berg, C. A., Butner, J., Butler, J. M., & Wiebe, D. J. (2014). Longitudinal trajectories of parental involvement in type 1 diabetes and adolescents' adherence. *Health Psychology*, *33*(5), 424–432. https://doi.org/10.1037/a0032804

Main, A., Kho, C., Miramontes, M., Wiebe, D. J., Cakan, N., & Raymond, J. K. (2022). Parents' empathic accuracy: Associations with type 1 diabetes management and familism. *Journal of Pediatric Psychology*, *47*(1), 59–68. https://doi.org/10.1093/jpepsy/jsab073

Main, A., Walle, E. A., Kho, C., & Halpern, J. (2017). The interpersonal functions of empathy: A relational perspective. *Emotion Review*, *9*(4), 358–366. https://doi.org/10.1177/1754073916669440

Mello, D., Wiebe, D. J., Barranco, C., & Barba, J. (2017). The stress and coping context of type 1 diabetes management among Latino and non-Latino white early adolescents and their mothers. *Journal of Pediatric Psychology*, *42*(6), 647–656. https://doi.org/10.1093/jpepsy/jsw109

Osborn, P., Berg, C. A., Hughes, A. E., Pham, P., & Wiebe, D. J. (2013). What mom and dad don't know can hurt you: Adolescent disclosure to and secrecy from parents about type 1 diabetes. *Journal of Pediatric Psychology*, *38*(2), 141–150. https://doi.org/10.1093/jpepsy/jss102

Pietromonaco, P. R., & Collins, N. L. (2017). Interpersonal mechanisms linking close relationships to health. *American Psychologist*, *72*(6), 531–542. https://doi.org/10.1037/amp0000129

Plamper, M., Gohlke, B., Woelfle, J., Konrad, K., Rohrer, T., Hofer, S., Bonfig, W., Fink, K., & Holl, R. W. (2017). Interaction of pubertal development and metabolic control in adolescents with type 1 diabetes mellitus. *Journal of Diabetes Research*, *2017*, 8615769. https://doi.org/10.1155/2017/8615769

Smetana, J. G., Metzger, A., Gettman, D. C., & Campione-Barr, N. (2006). Disclosure and secrecy in adolescent-parent relationships. *Child Development*, *77*(1), 201–217. https://doi.org/10.1111/j.1467-8624.2006.00865.x

Soenens, B., Vansteenkiste, M., Luyckx, K., & Goossens, L. (2006). Parenting and adolescent problem behavior: An integrated model with adolescent self-disclosure and perceived parental knowledge as intervening variables. *Developmental Psychology*, *42*(2), 305–318. https://doi.org/10.1037/0012-1649.42.2.305

Son, D., Updegraff, K. A., & Umana-Taylor, A. J. (2022). Familism values and Mexican-origin adolescents' disclosure and secrecy with fathers and mothers. *Journal of Family Psychology*, *36*(8), 1296–1305. https://doi.org/10.1037/fam0000986

Spencer, C., Main, A., & McKeown, G. (2018). *Towards the development of a coding scheme for empathic effort and dyadic empathic alignment*. Consortium of European Research on Emotion.

Thomson, R. A., Overall, N. C., Cameron, L. D., & Low, R. S. T. (2018). Perceived regard, expressive suppression during conflict, and conflict resolution. *Journal of Family Psychology*, *32*(6), 722–732. https://doi.org/10.1037/fam0000429

Tilton-Weaver, L., Kerr, M., Pakalniskeine, V., Tokic, A., Salihovic, S., & Stattin, H. (2010). Open up or close down: How do parental reactions affect youth information management? *Journal of Adolescence*, *33*(2), 333–346. https://doi.org/10.1016/j.adolescence.2009.07.011

Tucker, C., Wiebe, D. J., Main, A., Lee, A. G., & White, P. C. (2018). Adolescent information management and parental knowledge in non-Latino White and Latino youth managing type 1 diabetes. *Journal of Pediatric Psychology*, *43*(2), 207–217. https://doi.org/10.1093/jpepsy/jsx111

Wiebe, D. J., Berg, C. A., Mello, D., & Kelly, C. S. (2018). Self-and social-regulation in type 1 diabetes management during late adolescence and emerging adulthood. *Current Diabetes Report*, *18*(5), 23. https://doi.org/10.1007/s11892-018-0995-3

Appendix

Observed Empathy Rating Scale

Rating	*Description*
5	The [parent/child] answers questions with high engagement and interest, and continuously shares their perspective. The [parent/child] takes the [parent's/child's] perspective a few times throughout the conversation. EX: "I understand because the insulin goes bad" (direct expression of understanding"; "I agree with you…"
4	Takes [parent's/child's] perspective at least once in conversation, shares their perspective more than once, and shows fairly high interest and engagement. EX: "Do you feel like it would hurt me?"; "I understand."
3	The [parent/child] shares own perspective when asked questions, shows interest in conversation. EX: Sentence finishing, asks open-ended questions; "how do you feel?"
2	Shows minimal interest in [parent's/child's] perspective. EX: Some back-channeling, eye contact, body orientation toward [parent/child].
1	The [parent/child] shows no interest and makes no effort to engage in the conversation. EX: Gives basic answers to questions, not oriented toward [parent/child].