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Peer Coaching Interventions for Parents of Children with Type 1 Diabetes

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Abstract

Purpose of review—Peer support is a promising model of providing psychosocial support to parents of children with type 1 diabetes. This review seeks to discuss the findings of the existing literature in peer coaching as it relates to parents and diabetes as well as to identify gaps in knowledge for future intervention development and implementation.

Recent findings—Peer support programs vary widely with regard to recruitment, training, and delivery protocols. Across most programs, ongoing support and supervision is provided to peer coaches. Despite inconsistent effects on psychosocial and child health outcomes, parent coaching is consistently a highly acceptable and feasible intervention with parents of children with T1D. Current evidence supports use of parent coaching as part of a multicomponent intervention or program to increase patient satisfaction, but more research is needed to determine if it can stand alone as an active mechanism for behavior change.

Summary—The use of peer coach interventions for parents of young children with diabetes is feasible to implement and highly acceptable. However, more research is needed to understand the enduring impact for target parents and peer coaches alike, as well as impact on child outcomes.

Keywords

diabetes; peer mentor; parent coach; parents; child; psychosocial

Introduction

Peer coaching has emerged as a promising approach to bolster psychosocial support as a complement to routine clinical care in a variety of chronic illness populations [1,2]. Dennis

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Compliance with Ethics Guidelines

Conflict of Interest

Carrie Tully, Caitlin Shneider, Maureen Monaghan, Marisa E. Hilliard, and Randi Streisand declare that they have no conflict of interest.

Human and Animal Rights and Informed Consent

This article does not contain any studies with human or animal subjects performed by any of the authors.

(2003) defined peer coaching as addressing a health-related issue from a social contact with experiential knowledge and similar characteristics [3]. Peer coaches typically provide three types of support: emotional (e.g., active listening), affirmational (i.e., validating and supporting self-efficacy), and practical/informational (i.e., someone with “lived experience” who can share “trade secrets” [4]. In this way, peer coaches provide support that is not typically available through routine healthcare interactions. Consistent with social support theories (e.g., Ireys, 2001), communication delivered via peer coaches allows recipients to receive information and also feel respected and valued. [5]. Coaching is delivered by trained patient (or parents of patient) mentors in group settings, such as the Chronic Disease Self-Management Program [6; 7], or individually through patient matches and one-on-one interactions. A variety of terms have been used to describe this relationship, including mentor, advisor, and coach. We use the term ‘coaching’ – peer coach or parent coach for the person providing the coaching, and target peer or target parent as the individual receiving the coaching. The purpose of this paper is to review the existing literature in peer coaching as it relates to parents and diabetes, and outline practical considerations to develop, evaluate, and implement effective peer coaching protocols to better support parents of youth with T1D.

Peer coaching has been beneficial in promoting self-management and lowering hemoglobin A1c (A1c) in adults with diabetes. Specifically, some studies have found that peer coaching for diabetes self-management is most effective at improving A1c when targeting patients with low levels of medication adherence and self-management support [8]. From this work, methods for most effectively working with peer coaches have been identified: features of successful peer mentorship programs include providing realistic portrayals of time commitments to potential peer coaches before enrollment, planning for sufficient initial training and ongoing support from the medical team, and meeting at regular intervals to share experiences with one another or receive appreciation from the medical team [9].

Parents of children with type 1 diabetes (T1D) might be particularly likely to benefit from peer coaching, as the experience of parenting a child with type 1 diabetes T1D is multifaceted and challenging [10]. Parents take responsibility for complex daily diabetes management involving but not limited to blood glucose monitoring, insulin administration, and careful monitoring of nutrition and exercise. In addition, parents describe a sense of “constant vigilance” to prevent hypoglycemia and promote glycemic control [11]. While parents’ experiences of the diabetes diagnosis and related initial adjustment can be difficult, there is also ongoing stress related to the complexity of the chronic illness management and the relentless intrusions of diabetes into daily life [12]. Parents of young children may be particularly susceptible to persistent stress and fatigue, as they must assume sole responsibility diabetes tasks [13].

Normative developmental challenges present additional challenges for parents of children for T1D. In young children, for example, mealtime problems are common (e.g., food refusal, disruptive behavior), and serious medical consequences including hypoglycemia are possible, for example if parents gave insulin expecting the child to eat more than they actually eat [14]. At the other end of child development, parents of adolescents may be conflicted about how much responsibility they should retain for diabetes management as their child progresses through normative developmental tasks including increased influence

of peers and needs for autonomy and independence. Parents of older youth report that their roles in daily management include supporting nutritional and medical needs, monitoring and reminding, managing parent-child conflict, and organizing and structuring schedules and routines [15]. Though the particular parenting tasks may differ depending on child age, the potential for parenting stress across parents of children of any age is universal.

Due to high daily demands, there is likely a need for more support for parents beyond regular clinical care. Parents of children with T1D report higher levels of stress compared to parents of children without diabetes, and nearly 20% of parents of youth with T1D report persistent stress up to 4 years after diagnosis [12]. Further, up to 40% of mothers of children with T1D report clinically elevated anxiety or depressive symptoms [16–19]. Greater parenting stress has been associated with parents' feeling less able to manage parts of the diabetes regimen, taking more responsibility for diabetes management, and having more fear of hypoglycemia [13]. Poor parent psychological functioning is also associated with poorer parent and child quality of life and more child mood symptoms [17, 20]. Further, higher levels of parent stress are associated with worse child glycemic control [13]. Thus, there is the significant potential to improve child health by improving parent functioning.

Given the consistent evidence of widespread parental distress and associations with poor diabetes outcomes, family-based interventions have been developed to address the high rates of parental distress with the aim of improving child glycemic control [21]. Interventions such as Family Teamwork, Behavioral Family Systems Therapy for Diabetes and Coping Skills Training have documented positive effects on parent and child psychosocial functioning and glycemic control among pre-adolescents and adolescents with T1D [22–26]. As these programs were delivered by specialized interventionists (i.e., PhD level psychologists or licensed social workers) and typically delivered outside the clinic appointments, they were time and resource-intensive thus limiting the potential for translation. However, recent efforts have focused on adapting effective behavioral interventions to enhance dissemination and improve cost-effectiveness [27, 28]. Use of lay workers to deliver intervention content – particularly those with specific experience in parenting a child with T1D - may be an adaptation leading to further intervention reach.

This review provides an overview of peer coaching, including intervention development of coaching programs across pediatric and adult chronic conditions, and outcomes of peer coaching interventions used in adults with diabetes or parents of children with diabetes. Peer coaching programs designed for adults with diabetes are first reviewed, followed by a description of the relatively few parent coaching programs that have been evaluated within pediatric diabetes. Methodological and implementation considerations for a peer or parent coach component program are provided. To provide ideas for future directions for the pediatric diabetes parent coach research, we highlight parent coach programs in other pediatric chronic illness populations. Although there are community-based programs for peer mentoring (e.g., JDRF), these have not historically been evaluated and represented in the scientific literature, and therefore inclusions of these is beyond the scope of the paper. Preliminary outcomes are presented from the authors' ongoing parent coach intervention trials to provide a detailed overview of the development and execution of a peer coaching program for parents of young children with T1D.

Peer Coaching for Adults with Type 2 Diabetes

We start with an overview of peer coaching programs for adults with diabetes, which have established procedures and lessons that can inform programs for parents of children with T1D. Several reviews have examined the use of peer coaches for adults diagnosed with diabetes, with most focusing on type 2 diabetes. For example, Tang and colleagues' (2001) literature review of 12 volunteer-based peer coach programs identified the impact of peer coaching on diabetes health outcomes [1]. Peer coaching was delivered individually and in groups in person, by telephone, or by Internet group community platforms. Many provided self-management support in the context of diabetes education and strategies to improve both physical fitness and diet quality. Heterogeneous procedures with respect to study design, coach selection and training, and coaching delivery method limited the authors' ability to draw conclusions regarding efficacy. Of the six randomized controlled trials (RCTs) that measured glycemic control as an outcome of interest, three reported improvements in A1c and the remainder found no between-group difference comparted to a usual care condition. Psychosocial outcomes, including improvements in self-efficacy and depression reduction, were the most favorable [1]. Dale and colleagues (2012) identified similar outcomes in their review of 25 studies of peer support for adults with diabetes, 19 of which were not included in the Tang review [29]. Fourteen RCTs and 11 non-randomized controlled trials were included, usually comprised of face-to-face peer support often in combination with phone- or internet-based support. Most of the studies reported peer training, which ranged from two hours to five days in length, though relations between training aspects and patient outcomes were not explored. Improvements in health were inconsistent: of the 14 randomized controlled trials that reported A1c outcomes, three found significant improvement. However, the studies that found statistically significant benefits had much larger (approximately 2–3 times bigger) sample sizes than those that did not find a difference. Effect sizes were not reported. It is possible the smaller studies were not sufficiently powered to find a moderate or smaller effect size. Though improvements in medical and health behavior outcomes were inconsistent, significant improvements in self-efficacy, depression, and perceived social support were consistently reported [29].

Across the studies of peer coaching in adults with diabetes, coaches have been recruited through various methods and from various settings, including ads in diabetes-focused magazines, diabetes care centers, primary care practices, physician referrals, membership at senior citizen centers, previous involvement in diabetes programs, community presentations and word of mouth [1]. Recruited coaches were selected for key qualities associated with successful social partnerships and diabetes care, such as the ability to connect with others, to listen and empathize, flexibility to health management, and use of problem solving skills.

Significant variation in approaches to training peer coaches also has been reported. Training for peer coaches has varied in intensity, ranging from initial workshops of three-hours to four days, to intensive basic training followed by ongoing specialized training sessions [1, 29]. Studies also varied in the content covered during training, though most included at least basic diabetes education, strategies for patient empowerment, group facilitation skills, and communication skills [30]. Of the 12 studies included in the review by Tang and colleagues (2011), six provided compensation to the peer coach, either via honorarium or gift cards [1].

While different procedures for implementing peer coaching have not been directly compared for efficacy, to our knowledge, these processes should be considered in when developing programs and interventions with parents of children with T1D.

Parent Coaching in Pediatric T1D

Parent coaching has also been used for parents of youth with T1D, and initial psychosocial results are promising (Table 1) [4, 31, 32]. Sullivan-Bolyai and colleagues have evaluated parent coaching in a number of studies. In their first RCT, 42 mothers of young children (age 1–10) newly diagnosed with T1D were randomly assigned to parent coach or usual care [31]. Parent coaches were trained to provide guidance and support for day-to-day diabetes management through home visits and phone calls over six months. Parent coaches were recruited and trained by the primary investigator and diabetes clinical team colleagues. Ongoing supervision was provided to the parent coaches by phone after home visits and phone call interactions with their participants, and the study team met in person with parent coaches on a quarterly basis to provide additional support. Parent coaches made an average of three home visits and spoke with participants by phone an average of 13 times over the 6-month study period. Compared to the usual care control group, mothers who received six months of parent coaching perceived a less negative impact of diabetes on their families, reported fewer diabetes management concerns and more self-confidence, and were better able to identify support and resources from their communities [31]. However, a limitation of this feasibility study is that the only significant findings were for parent-reported measures; no between-group differences were detected for child A1c or number of calls from mothers to healthcare providers.

Sullivan-Bolyai and colleagues built upon their earlier intervention to extend the program to twelve months and to include email/internet communication as another avenue of support between parent coaches and participants [4]. Sixty mothers were randomized to either be paired with a trained parent coach or to a comparison group in which the participant received the name of a parent contact, who was a parent determined to be comfortable and proficient in diabetes management, but who had not been trained by the study team to be a parent coach. Twenty-eight fathers who wanted to participate were assigned to the same group as their partners [33]. Seven mothers and three fathers were recruited to be parent coaches; all parent coaches demonstrated warmth and flexibility and had a child diagnosed with diabetes for at least one year. Parent coaches were in touch with participants five times across the 12 month intervention, most frequently by phone [4]. While participants described valuing their parent coaches, participants randomized to the intervention or comparison group did not significantly differ in their concerns, confidence levels, worries, or perceived community support [4] with one exception: fathers in the parent coach intervention group (range 1–25 contacts) reported higher confidence relating to managing diabetes than those in the comparison condition [34]. Authors offered several hypotheses about the difference in findings from their first trial, including unequal distribution of children by birth order and first time mothers in the two groups causing differential anxiety levels such that mothers experienced higher stress when their child with T1D was their eldest. Other explanations include the possibility that there were not frequent enough contacts over the year to produce an effect, possible selection bias in referrals, possible use

of unmeasured alternate parent mentor programs by the control group, and unexplored mediating or moderating factors.

The study team conducted qualitative interviews with participants to explore those findings. These interviews demonstrated that study participants found parent coaches helpful in decreasing daily stress surrounding managing diabetes [35]. Parents reported they most valued the availability, practical tips, and feeling of common ground they shared with their coaches. Parent coaches described that they provided informational (e.g., travel tips, school tips, planning for social activities and holidays, advocacy), affirmational (e.g., validating parents' experiences, sharing personal experiences, providing hope), and emotional (e.g., active listening, normalization, reinforcing flexibility) support to their target parents. In addition, parent coaches reported personal growth, fulfillment, and benefit from being in their assigned role. These findings suggest target parents did perceive various benefits from the parent coach relationship, despite the null findings in the quantitative analyses [4], possibly due to the use of generic instruments that may not have measured diabetes-specific constructs impacted by the parent coach experience.

More recently, Channon and colleagues (2016) conducted a pilot intervention with nine target parents and parent coaches [36]. Medical providers introduced parent coaching to potential target parents shortly (1–6 months) after diagnosis. Parents' coaches were assigned based on schedule availability, geographical location, age of child, and the medical provider and researchers' impressions of "goodness of fit." Though no quantitative data was available, universally high satisfaction was reported for clinic staff, target parents, and parent coaches.

Our team has used parent coaches as one element in three (two ongoing) multicomponent RCTs focusing on parents of young children (ranging age 1–7) with T1D [32]. Combined to date, there have been 20 parent coaches working with 42 target families in these studies. The use of parent coaches stemmed directly from parents in prior multicomponent supportive intervention studies requesting more contact with other parents [10]. Parent coaches and target parents have been matched by parent coach availability and judgments of goodness-of-fit (e.g., geography if the study protocol includes an in-person visit; family structure).

In our studies, participants have consistently rated satisfaction with parent coaches very high. In our first study using parent coaches, a majority (56%) of target parents stated contact with parent coaches was helpful, and many (44%) reported a wish they could have had even more contact with their coach [32]. In a recent pilot study involving nine target parents of young children with T1D and three parent coaches, satisfaction with parent coaches was rated very high (M=1.4, SD = 0.7, range 1–5, 1 = Very Satisfied). Though the parent coaches from this study did not always perceive themselves as helpful to participants (44%), nearly all target parents rated their conversations with parent coaches as helpful (89%), suggesting coaches may underestimate their benefit. In qualitative interviews across the studies, parent coaches have reported high enjoyment and satisfaction with the role of parent coaching and most have expressed their intentions to continue serving as a parent coach with the research team for future studies.

Selection and Training of Parent Coaches

Across most pediatric T1D interventions, parent coaches have primarily been recruited through recommendations from primary investigators and/or members of the clinical team [4, 31, 36]. Other criteria included their own child having a diagnosis for at least one year and possessing characteristics that would facilitate a connection and relationship with a potential target parent, such as being knowledgeable, friendly, flexible, and a good listener.

Training curricula for parent coaches of youth with T1D have primarily been developed by Sullvian-Bolyai and colleagues and usually included education about the pathophysiology of diabetes, key components of diabetes management, and active listening skills. Comprehensive training in research ethics including confidentiality and protecting private health information have been highlighted as central components of parent coach training [4, 32, 36], and some institutions required parent coaches to complete online research education modules that are obligatory for research investigators and staff (i.e., Collaborative Institutional Training Initiative). To provide ongoing training or supervision, the study coordinator or primary investigator debriefed with parent coaches after participant interactions and some met as a group with several parent coaches to share experiences [4, 31].

Methods and lessons from our parent coach interventions

Our team has used parent coaches as one element in three (two ongoing) multicomponent RCTs focusing on parents of young children (ages 1–7) with T1D [32]. Parent coaches in our studies have been instructed that they may make contact with target parents by phone, text, and email. Results indicate parent coaches most commonly make contact by phone (70%) [32]. Although each study has had different instructions given to parent coaches about how often parent coaches should try to make contact with their target parent, most communicate approximately twice a month [32]. Consistent with their training, topics parent coaches discuss with target parents most frequently include eating, general diabetes adjustment, school, daily management, and social support. Parent coaches also frequently refer target parents to diabetes clinical team members when medical management questions arise and to request additional education or individualized support.

To conduct parent coach recruitment, our team has solicited medical team nominations based on child age (current and at diagnosis) and provider perception of parental suitability. After being referred to the study team, most parents have reported interest in learning more about the role of being a parent coach. We have screened potential parent coaches for eligibility including child age, diagnosis duration, relative glycemic control (e.g., A1c < 9.0%), and parent characteristics (e.g., interpersonal warmth, positive coping strategies, flexible perspective toward diabetes management). Using these eligibility criteria, approximately 35% of those initially contacted have enrolled as parent coaches. Ineligibility has been primarily due to parents needing more psychosocial support themselves, and declines to participate have been primarily due to the time required for the role.

In our interventions, all parent coaches are trained and provide informed consent prior to assignment of their first target parent. Training includes a four-hour session focusing on

study orientation and active listening skills, completion of research ethics training, and phone calls with study staff to practice active listening skills. The in-person training session has also included basics of the study protocol, instruction about the limitations of scope of the parent coach role (e.g., not to offer medical advice), provision of resources (e.g., medical team on-call contact information), and role plays of emergency medical and psychosocial crises. Parent coaches complete online surveys reporting on their contact with participants. While earlier interventions asked parent coaches to complete a survey after each contact with their target parent [32], more intensive contact schedules make this burdensome and we have found monthly and end-of-study surveys to be sufficient for data collection. Ongoing support to parent coaches is provided through at least monthly phone calls with a clinician/study coordinator, including debriefing immediately following the first few contacts with target parents after being trained. Parent coaches have requested additional training in active listening and working with participants with different family cultures and contexts. In response to this feedback, we have integrated periodic booster training (once every 6–12 months) and added role playing diabetes-related active listening scenarios, cultural competence training, and protocols to handle emergency situations (e.g., how to contact medical teams after hours) in all parent coach training curricula. It has been our observation that it is useful to set expectations for coaches and participants at the beginning of the peer coaching experience, preferably during informed consent procedures, regarding the expected duration of contact and provide guidance to facilitate the ending of the parent coach relationship at study end.

To enhance parent coach retention, study staff provide ongoing support, including phone calls and emails (at a minimum monthly), financial incentives (for completing trainings and questionnaires, and for ongoing contact with target parent), and personal touches (e.g., holiday cards, small tokens of appreciation, study newsletters). Retention of parent coaches in our studies has been high (93%); those that have discontinued have done so due to moving out of the geographic area or changes in work/family demands leading to less available time. Research is currently ongoing to investigate potential benefits experienced by parent coaches from the mentoring relationship.

Parent Coaching in Pediatric Chronic Illness

Next, we highlight work from groups using peer coaching in other pediatric chronic illness groups to inform the potential future directions the T1D parent coach research. Peer coaching has been adapted to serve parents across a variety of pediatric populations and medical settings. For example, Donegan and colleagues (2016) demonstrate developing a coach program for parents of youth with inflammatory bowel disease (IBD) [37] in a large sample. This program matched 200 parent coaches who had a child with IBD with 300 target parents of similarly-aged children with IBD to provide support after diagnosis. Parent coach training included review of a handbook with information about IBD, the specific hospital setting, and frequently asked questions. Coaches and target parents were matched based on child’s gender, diagnosis, age at diagnosis, surgical history, and classes of therapies used. Contact between coaches and families included: initial phone contact within the first four weeks of IBD diagnosis, one call one to two months later, and a final call four to six months after that; parent coaches also contacted families during any hospitalizations [37]. This

program was expanded hospital-wide to include 30+ other health diagnoses with a reported 378 parent coach-parent target matches over two years and hiring of a dedicated part-time coordinator. As this was a quality improvement effort, no individual outcomes were reported. However, anecdotal evidence pointed to high patient satisfaction, in addition to reported benefits to the hospital including improved patient communication with healthcare team and improved standardization of patient education. This study is an example of how to scale up a parent coach intervention and implement it in a clinical practice, rather than in a structured research program.

Flores and colleagues (2016) reported on a randomized controlled trial to evaluate a manualized intervention for parents of children with asthma using parent coaches who had similarly aged children with asthma [38]. Parents randomized to the intervention were assigned to a parent coach who focused on promoting 10 health behaviors during monthly phone contacts [38]. Parent coaches were trained over multiple days using a manual detailing disease management information, cultural factors relating to asthma care, and tips on being a successful parent coach. They were matched with target parents by race/ethnicity, language, and region. Parent coaches were compensated $50 per target family per month. As compared to usual care group, target families demonstrated reductions in asthma symptoms (wheezing, coughing, and difficulty breathing: ~30 percent-point reduction), asthma exacerbations (3.0 fewer exacerbations/month), ED visits (0.60 fewer visits/month), and missed parent work days (~2.60 fewer missed work days/month). Further, the program demonstrated cost effectiveness through incremental cost ratios by demonstrating a monthly cost of $60.42 per patient, and showing a net cost savings for patients who participated with their coach at a high rate [38]. The authors provide an example of using parent coaching to explore a variety of family-oriented outcomes including health, medical care utilization, and costs.

Processes & Considerations in Parent Coach Program Implementation

A number of processes are important to consider when implementing a parent coach program including parent coach eligibility, recruitment, training, administrative logistics, program format and evaluation (Table 2). Lorig (2015) recommends researchers select meaningful outcomes for their stakeholders; for example, health behaviors, symptoms, and healthcare utilization might be of interest to behavioral scientists, patients/providers, and administrators, respectively. Further, it is important to keep in mind that parent coaches in most studies serve two roles: they serve as both interventionists and study participants to facilitate research about the parent coach experience [4, 32].

Liability may be an issue for parent coach intervention research at some institutions, and institutional legal departments have assisted with developing consent forms or waivers of liability for parent coaching relationships [37]. The Veterans Health Administration published recommendations for peer coaching to limit provider/institution liability, which include conducting coach-target peer meetings offsite, enrolling peer coaches in hospital volunteer services to ensure liability coverage, using hospital legal counsel, having peer coaches and patients sign release of information forms, and having non-profit organizations

provide additional liability coverage [39]. Checking institutional requirements should be an early step for any interested in implementing a parent or peer coaching program.

Questions remain regarding the most effective method to assign target peer/parents to coaches. Because this is an emerging area of research, little evidence is available to guide the selection of characteristics to consider, if any, when assigning pairs. Studies have matched on child age, parent gender, couple/single parent, geographic region; however, logistical barriers make matching difficult and time-consuming, and each additional factor adds complexity and requires a large pool of coaches from whom to select the ideal match [4, 29, 36]. The target population and design of the program must dictate the methods used to pair targets and coaches. For example, while matching targets and coaches based on location might enhance a coach's ability to provide local resources, it may also raise questions about boundaries outside of study-based relationships if children attend the same school or families are involved in the same community [36].

The ideal time for a parent coach match also needs careful consideration. While many of the papers included in this review used parent coaches for families at the time of diagnosis of T1D, there may be other salient developmental events when a peer support system would be helpful. In particular, families in our trials have indicated a desire for parent coaching surrounding regimen changes (e.g., transition to pump therapy, transition to continuous glucose monitor technology), developmental milestones (e.g., starting kindergarten, puberty onset), or significant challenges in management (e.g., emergency department visits for diabetic ketoacidosis [DKA]). The intensity of training, types of contact, frequency and duration of contact, and supervision needs would be expected to vary across these situations. For example, a parent coach working with parents primarily around starting kindergarten may need regional information regarding kindergarten cut off dates as well as sample 504 plans, while transitions around regimen changes would require coaches to understand the various technologies in some detail.

Future Directions

The relatively small literature on parent coach use for parents of youth with T1D makes it difficult to draw conclusions about efficacy. As with much behavioral research in this area, samples of parent coaches have been largely homogenous with regards to race/ethnicity and gender, enrolling primarily Caucasian mothers. More research is needed with more diverse participant pools to understand the efficacy and limitations of the currently described procedures for a wider range of parents.

Cautious conclusions on the efficacy of parent coaches for T1D are possible from the relatively limited research available. Limitations to existing studies include small sample sizes, limited measures of diabetes-related outcomes, particularly with regards to child health outcomes, and equivocal findings with regards to benefits for parent psychological functioning. More research is needed to evaluate the role and efficacy of parent coaching in pediatric diabetes, particularly the ability of coaching to improve overall T1D management and glycemic outcomes. Results are mixed with regards to influence of coaching on parents' psychosocial outcomes, though this relationship could be clarified with more precise

measurement. Apparent advantages of coaching relationships for parents of youth with T1D include parent satisfaction with the coaching relationship, and when measured, parent coaches and clinic staff also report satisfaction. At this time, evidence supports use of parent coaching as part of a multicomponent intervention or program to increase patient satisfaction, but more research is needed to determine if it can stand alone as an active mechanism for behavior change.

Future research should assess the impact of coaching on parent psychosocial functioning, parent health behaviors, and child health outcomes, including glycemic outcomes, self-efficacy, parenting stress, psychological symptoms (e.g., depression, anxiety), family functioning, perceived social support, and quality of life. To maximize its impact, parent coaching may be evaluated as part of a multicomponent intervention that targets psychosocial outcomes, diabetes management, and glycemic outcomes each with different strategies, with further work in dismantling or single-component studies needed to understand the relative impact of coaching alone. Preliminary work in this area suggests that both target parents and parent coaches may perceive benefits from these relationships, suggesting that future research continue to evaluate these outcomes for both parties. It is also recommended to explore systems-level outcomes for possible benefits such as cost-effectiveness and decreased provider burden, as has been found in adjacent pediatric fields.

Further research is needed as to who benefits most from parent coaching, at what intensity, and for how long. For example, research in adults with diabetes suggests peer coaching is most beneficial to people with low levels of adherence and self-management support [8]. Some parents appear to enjoy and benefit from parent coaches a great deal, and other parents, including in our own work, are less interested in connecting with a parent coach. It is possible that target parents need assistance in understanding how they may benefit from parent coaching or assessment of target parent preferences may guide whether or how much parent coaching to offer. As noted by Channon et al. (2016), each target parent-parent coach pair creates their “own bespoke package” and further research is needed to define the active ingredients of a beneficial parent coaching relationship [36]. Comparisons of different models of matching parent coaches-parents, particularly in more heterogeneous samples, should be explored. The appropriate intervention intensity also needs attention: a wide variation in amount of time, training, and supervision was observed with equivocal results. Better descriptions parent coach training methods would allow for comparison across trials.

Conclusions

The present review indicates that parent coaching has demonstrated some initial evidence of feasibility and acceptability to parents of children with T1D as a method of providing psychosocial support. Peer coach intervention research has shown these types of programs to be feasible to implement in small- or large-scale settings, acceptable to participants, and related to promising outcomes for well-being. Initial research also indicates the relative low costs of implementing parent coach interventions are offset by savings [36, 37]. Further research with families of youth with T1D may consider exploring cost effectiveness alongside acceptability, psychosocial, and health outcomes. Gaps in knowledge remain

regarding the long-term sustainability of these programs or longer term patient-related benefits; however, the results are encouraging.

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Table 1

Parent Coach Programs in Pediatric Diabetes

	Study Characteristics			Parent Coach procedures	
Study	**Sample**	**Control group**	**Outcomes**	**Recruitment and Training**	**Contact Framework**
Sullivan-Boylai et al., 2004 *;	Target parents (n=22)	Usual care (n=19)	Psychosocial improvement (fewer concerns, greater confidence, identified more resources, perceived less negative impact of diabetes)	Selected by primary investigator and diabetes team; pre-determined personality characteristics Trained in parent coach curriculum	Baseline home visit; throughout intervention, coach did home visits and phone calls
Sullivan-Boylai et al., 2010 *	Target parents (n= 32) Parent coaches (n = 10)	Parents (n = 28) assigned to an untrained, experienced parent	No differences observed between mothers in intervention and control group Fathers demonstrated higher confidence relating to managing diabetes than those in the control condition (Sullivan-Boylai et al., 2011)	Selected by primary investigator and diabetes team; pre-determined personality characteristics Trained in parent coach curriculum	Baseline home visit; throughout intervention, coach did home visits and phone calls
Channon et al., 2016 *	Target parents (n = 7) Parent coaches (n = 11)	none	Demonstrated feasibility and acceptability	Selected by team nurses a) At least two years with diagnosis b) pre-determined personality characteristics (e.g. knowledgeable, friendly, empathetic, etc.) Trained in 6 hours of training across two sessions	Three face-to-face meetings and 6 months of contact by phone
Mackey et al., 2016 **	Target parents (n = 16) Parent coaches (n = 4)	Education comparison	Part of a multicomponent intervention which showed feasibility and acceptability; limited evidence of efficacy. Intervention may have buffered impact of parent depression on glycemic control.	Nominated by clinical team; child was diagnosed when young and now older; screened for personality characteristics Trained 1 in-person training; online ethics training	Parent coaches made up to 3 attempts to contact target parents after each of the 4 intervention sessions

* single-component interventions

** multi-component interventions

Table 2

Considerations in Implementing a Parent Coach Program

Category	Decision-Points to Consider
Coach Eligibility	• Child's age at diagnosis, and age now • Diabetes management regimen and parent's control style • Parent personality • Recruitment procedures and screening
Training	• Format: in-person, telemedicine, etc • Content: psychoeducational, supportive/active listening, confidentiality, cultural competence, diabetes pathology, logistics, institutional requirements • Process: use of a manual, didactics, use of role plays, rehearsals with mock target parents • Ongoing: frequency and format for ongoing support from clinical/research team
Administrative Processes	• Reimbursements/honoraria • Liability protection • Institutional requirements (e.g., research ethics training, volunteer services training)
Structure of Program	• Length, frequency, and format for communcation between target parent and coach • Event qualifying for coaching (e.g., time of diagnosis, time of DKA admission, time of new regimen change, etc)
Program Evaluation	• Unit of analysis: Child with diabetes, target parent, parent coach, medical providers, systems-level • Outcomes of interest: glycemic indicators, adherence, diabetes knowledge, psychosocial, healthcare utilization