



Promoting High-Quality Health Communication Between Young Adults With Diabetes and Health Care Providers

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Young adults with diabetes assume increasing responsibility for communicating with their health care providers, and engaging in high-quality health communication is an integral component of overall diabetes self-management. This article provides an overview of the main features of health communication, factors that may influence communication quality, interventions to promote communication skills, and practical strategies for clinicians working with young adults with diabetes. The review concludes with a comprehensive summary of future directions for health communication research.

Conceptual models of diabetes self-management in young adulthood highlight the critical processes associated with increasing ownership for diabetes self-care and transitioning from pediatric- to adult-focused diabetes care, including communicating with the health care team (1,2). Health communication, or the verbal and nonverbal exchange of information with health care providers (HCPs) about health conditions and factors associated with their management, is a particularly important skill for young adults (YAs) with type 1 or type 2 diabetes. High-quality health communication between YAs and HCPs is a cornerstone of diabetes management with implications for long-term engagement in medical care and related health outcomes. It is associated with patient satisfaction, improved motivation for health, better chronic illness self-care in pediatric and adult patients, and better health outcomes into adulthood (3–6), and it is of particular importance during the transition from pediatric to adult diabetes care (7). This article provides an overview of key features of and considerations for health communication between YAs with diabetes and their HCPs, interventions to improve YA-HCP communication, and practical strategies for HCPs working with YAs with diabetes.

Features of YA-HCP Health Communication

HCP communication skills are integral to optimal diabetes care, as HCPs see YAs for relatively frequent, routine diabetes visits to obtain laboratory test values, adjust diabetes care regimens, monitor progress, engage in patient education, discuss lifestyle changes and overall well-being, and

address issues with diabetes technology (8,9). Patient-centered communication (PCC) is an effective HCP communication framework that has been associated with improved glycemic control through improved diabetes self-management (10) and higher patient-reported health-related autonomy and self-efficacy (11,12). Concepts of PCC that are particularly applicable to YAs with diabetes include caring for the whole patient (e.g., asking questions about overall well-being, relationships, and goals), eliciting patient perspectives and preferences, and engaging in shared decision-making regarding treatment plans (13,14). PCC is characterized as an autonomy-supportive communication style and aims to promote openness, trust, and sharing of health information (15). PCC also includes elements of motivational interviewing (MI), a communication strategy through which HCPs purposefully use questions, reflective listening, and affirmations to give attention to patients' statements about change and patients' perceived confidence in making changes (15). HCP use of MI-congruent skills have been related to less HCP dominance of conversations in routine diabetes care for adolescents with type 1 diabetes (16). Furthermore, MI-noncongruent communication styles such as confronting or persuading have been associated with higher A1c values and lower self-efficacy for diabetes care (16). Table 1 summarizes PCC-related strategies HCPs can use to address common YA communication challenges.

Health communication is fundamentally reciprocal. YAs receive information and support from their HCPs that allow them to understand their health status, participate in treatment planning, and use information and related support to enact diabetes self-

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<https://doi.org/10.2337/dsi21-0036>

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TABLE 1 Building Positive Reciprocal Communication Between YAs and HCPs

Common YA Behaviors	What to Do	What Not to Do
<p>The YA speaks minimally or appears too agreeable throughout the visit.</p> <p>At the beginning of the visit:</p> <ul style="list-style-type: none"> Proactively give a question prompt list or list of commonly discussed topics, and ask the YA what topics he or she would like to discuss. If the YA does not reply, offer a choice. ("You can ask me questions at the end and/or throughout the visit.") Ask about school, work, and friends (non-diabetes-related topics). <p>During the visit, verbal strategies:</p> <ul style="list-style-type: none"> Ask open-ended questions ("What questions do you have for me today?") or questions with choices ("A lot of YAs ask me about birth control, finding an adult doctor, or drinking. What do you want to know about those topics?") Normalize the YA's fear of asking questions. ("OK, I tell all my patients they have to ask me a question, and there are no dumb questions. If you had to ask me one question, what would it be?") Use the teach-back method to assess understanding. ("I shared a lot of information with you. I'd like you to explain it back to me to make sure I explained it well to you.") Point out the YA's behavior in a gentle manner. ("You seem quiet today. Is everything OK?" or "I noticed you're not asking me very much.") <p>During the visit, nonverbal strategies:</p> <ul style="list-style-type: none"> Allow silence after an HCP question (rather than immediately asking more questions). This communicates to the YA that, if he or she is silent, the visit will pause. Use body language that conveys you are listening. (Face the YA, turn toward him or her, make eye contact, and so forth.) 	<p>The YA says "I don't know" or shrugs in response to specific questions.</p> <p>Verbal strategies:</p> <ul style="list-style-type: none"> Assess for the reason behind the YA's response or restate the question. ("Was my wording confusing, or are you not sure of the answer?") Normalize not knowing and give options in your questions. ("It makes sense that your schedule varies during the summer, so you don't know what time you're waking up. Do you think it is closer to 7:00 a.m. or 3:00 p.m.?" More extreme options sometimes help people figure out where they are with regard to the question.) Normalize not knowing and give examples of answers. ("Sometimes, it's hard to remember what we eat. Some YAs tell me they eat yogurt, eggs, bacon, cereal, and toast for breakfast [or foods that are culturally appropriate for the YA/family]. Do you eat any of these for breakfast?") <p>Nonverbal strategies:</p> <ul style="list-style-type: none"> Use nonverbal gestures to demonstrate the options (e.g., putting your left hand out as you say one option and putting your right hand out as you say another option). Nod along and smile as YAs respond to encourage them to continue talking. 	<ul style="list-style-type: none"> Ask, "Do you have any questions?" Most YAs will just say, "No." Just carry on the visit as usual without satisfactory communication. Ask questions of the parent/partner instead of the YA. Ask, "Why are you so quiet?"
<p>The YA expresses hesitation about or disagrees with suggestions.</p> <p>Normalize YA hesitation and ask for their input. ("I noticed my suggestion about changing your insulin:carb ratio gave you pause. What are you thinking would work instead?")</p> <p>Give other options. ("Sounds like you forget to wear your diabetes ID when you drive. What about putting a cover over the seatbelt or a sticker on the car window that indicates diabetes?")</p> <p>Ask what they have previously tried and how it went. ("When you experienced lows after working out in the past, what did you do? How did it go?")</p> <p>Ask them to set a goal for the next visit focused on behavior, not numbers.</p>	<p>Use nonverbal gestures to demonstrate the options (e.g., putting your left hand out as you say one option and putting your right hand out as you say another option).</p> <p>Nod along and smile as YAs respond to encourage them to continue talking.</p> <p>Normalize YA hesitation and ask for their input. ("I noticed my suggestion about changing your insulin:carb ratio gave you pause. What are you thinking would work instead?")</p> <p>Give other options. ("Sounds like you forget to wear your diabetes ID when you drive. What about putting a cover over the seatbelt or a sticker on the car window that indicates diabetes?")</p> <p>Ask what they have previously tried and how it went. ("When you experienced lows after working out in the past, what did you do? How did it go?")</p> <p>Ask them to set a goal for the next visit focused on behavior, not numbers.</p>	<ul style="list-style-type: none"> Push the suggestion more. Try to persuade by using fear or threatening the YA about negative future health outcomes.
<p>The YA's parent/partner speaks for most of the visit.</p> <p>Normalize the situation and offer alone time. ("Most patients meet with me alone. I would like to meet with [YA] alone now for a portion of the visit" [assuming it is culturally normative in the YA/family's own context].)</p> <p>After the parent speaks, solicit the YA's opinion. ("Your mom just said you are not consistently bolusing while you are on campus for your classes. What is your view of how you're doing with bolusing?")</p>	<p>Normalize the situation and offer alone time. ("Most patients meet with me alone. I would like to meet with [YA] alone now for a portion of the visit" [assuming it is culturally normative in the YA/family's own context].)</p> <p>After the parent speaks, solicit the YA's opinion. ("Your mom just said you are not consistently bolusing while you are on campus for your classes. What is your view of how you're doing with bolusing?")</p>	<ul style="list-style-type: none"> Talk only to the parent/partner. Ignore the YA and do not ask for input from the YA.
<p>YA is emotionally distressed.</p> <p>Normalize crying/emotional distress. ("It's OK to cry and feel sad/angry.")</p> <p>Provide support and connect the YA with resources for additional support. ("What can I do to help right now?")</p>	<p>Normalize crying/emotional distress. ("It's OK to cry and feel sad/angry.")</p> <p>Provide support and connect the YA with resources for additional support. ("What can I do to help right now?")</p>	<ul style="list-style-type: none"> Say "Don't cry" or "Don't worry."

care behaviors, whereas HCPs rely on YAs to disclose their symptoms, behavioral strengths and challenges, and needs, beliefs, and preferences related to diabetes care (17).

Conceptual frameworks and national policy statements related to the transition from pediatric- to adult-focused care identify engagement in health communication during medical visits as a key self-management skill during this transition period (7,18). Yet, comparatively less research has directly examined patient contributions in health communication exchanges, and very few studies have examined YA communication specifically, often including YAs either in pediatric samples with younger adolescents or in broad samples including adults ≥ 18 years of age.

One study evaluating patient communication in adult primary and specialty care found that patients initiated 84% of active participation behaviors in medical visits and, in turn, greater patient participation elicited higher-quality HCP communication (19). Greater patient contribution during medical visits is associated with better health outcomes regardless of whether the patient is managing a chronic condition (4). For YAs with diabetes, active participation such as question-asking, information-disclosing, and decision-making may improve diabetes self-management and buffer against the common challenges of this developmental period (20,21). Thus, health communication may be most effective in supporting diabetes self-management and promoting health outcomes when there is adequate attention to YAs' health communication skills and contributions.

It is important to understand YA preferences for health communication and engagement in medical care. YAs with diabetes prefer friendly, warm, collaborative communication with HCPs; such collaboration can lead to more frequent, responsive discussions around health behaviors and improve diabetes self-management (21,22). Trust in the HCP is important and often facilitated by HCP assurances of confidentiality, honesty, good listening skills, and empathy (23). YAs with chronic illnesses also prefer direct communication with their HCPs rather than having HCPs communicate with their parents (24,25). These preferred characteristics mirror the elements of PCC characterized by trust, support, and patient engagement (26).

Factors Influencing Health Communication Quality in YAs With Diabetes

Several factors influence the quality of health communication among YAs with diabetes and HCPs, including YA age/maturity, the process of transitioning to adult-focused diabetes care, visit structure and topics discussed, and cultural considerations.

Age and Developmental Maturity

Communication skills may develop with age as youths enter young adulthood, but research in this area has been inconclusive. One study involving adolescent and YA patients with inflammatory bowel disease found that health communication skills, including answering and asking questions, did not improve with age (27). Another study with adolescent and YA patients with chronic kidney disease found that HCP communication did not vary with patient age (28), but older patient age was associated with more patient and less caregiver talk (29). As YAs assume increasing responsibility for communicating with their HCPs and often initiate care with new adult-focused HCPs, direct intervention to support communication skills may be particularly beneficial for older adolescents and YAs.

Additionally, caregiver presence, particularly for YAs in pediatric diabetes care, may influence how YAs and HCPs communicate. Research with adolescents with chronic conditions suggests that greater parental involvement in YA health care is associated with lower YA independence in key skills, including communication (30). Developmentally appropriate levels of parent support and increasing autonomy of YAs with diabetes before the transition to adult health care contribute to successful transitions for YAs and their parents (31).

When considering caregiver involvement, the unique developmental needs of each patient must be considered. YAs with developmental delays or cognitive concerns may require continued parental support for medical visits into young adulthood, and communication should be tailored to both elicit YA preferences, needs, and concerns and also engage key sources of support (e.g., parents) to promote optimal outcomes (32).

Transition to Adult Diabetes Care

One of the most significant normative challenges of young adulthood for YAs with diabetes is the planned transition of care from pediatric- to adult-focused care. During this transition, many YAs must change HCPs and identify and establish care with a new, adult-focused HCP, which can affect health communication (33). Furthermore, YAs may receive limited information related to the transition to adult diabetes care, and YAs desire more transition counseling and communication from their pediatric HCP about new adult clinic settings (34). Interviews with YAs with type 1 diabetes transitioning to adult diabetes care indicate that YAs prefer adult HCPs who are nonjudgmental and have strong communication skills with an engaged listening style. However, during the transition process, YAs report anticipatory concerns about finding an adult HCP with these qualities, as well as anxiety associated with initiating communi-

cation with an adult HCP because they perceive disinterest on the part of adult HCPs and experience stress related to newly disclosing their personal medical history (33).

Visit Structure and Topics Discussed

The structure of a diabetes clinic visit also influences the content and quality of YA-HCP communication. YAs with diabetes are at increased risk of psychosocial concerns and engagement in risky behaviors, including those related to substance use, sexual behaviors, and diabetes self-management challenges (35,36). Starting in adolescence, having time alone with HCPs is recommended to facilitate the discussion of sensitive topics such as sexual health, substance use, mood/emotional concerns, and other questions that have direct relevance for daily diabetes management (37,38) but may be infrequently discussed in routine diabetes care (39,40). Trust in the HCP and expectations for privacy and confidentiality also influence YA disclosure of sensitive information (41). However, given the time constraints within diabetes care clinics, it can be challenging to build the trust needed for YAs to disclose sensitive topics. This challenge is particularly relevant in adult diabetes care clinics, as representative surveys suggest that the majority of HCPs spend ≤ 24 minutes with each patient (42), despite the known benefits of longer appointment times (43,44). A better understanding of the specific content, themes, and characteristics of the dialogue that occurs between YAs and their diabetes HCPs is needed to identify best practices for raising sensitive topics and providing needed education, resources, and support.

Cultural Considerations

Culture influences one's worldview, which in turn affects one's views on illness and thus health communication. It is important for HCPs to recognize their own position of authority and be attuned to preferences regarding communication style (e.g., tone, eye contact, and question-asking) among different cultures. Culturally competent communication focuses on understanding these differences and thereby reducing the barrier between patients and HCPs and enhancing communication quality (45). In adults with varying chronic illnesses, HCP engagement in culturally competent communication during medical visits has been associated with increased patient satisfaction, comprehension, and self-management of their illness (46). Evaluating health communication in YAs with diabetes can provide opportunities to implement existing culturally competent interventions to improve trust in HCPs and clinical outcomes (47).

Little research has evaluated culturally competent communication among HCPs working with YAs from historically marginalized

backgrounds. YAs of color represent the largest growing population of YAs with type 1 diabetes and the majority of those with type 2 diabetes and experience more negative health outcomes as compared with non-Hispanic White youths (48–50). Furthermore, YAs of color are less likely to experience high-quality communication with HCPs (51,52), which is a likely contributor to adverse diabetes health outcomes.

Research has found that topics discussed during a medical visit and perceptions of the communication quality also differ based on racial background. For example, caregivers of children and adolescents of color in the general pediatric population report more HCP inquiries about violence/substances and less partnership-building verbalizations with HCPs (53). Similarly, compared with non-Hispanic White youths with type 1 diabetes, caregivers of Hispanic youths with type 1 diabetes reported more problems with communication, getting diabetes information, and receiving care that takes into account the child and family circumstances (54). Additionally, one qualitative study of adolescents (13–18 years of age) with type 2 diabetes from racially/ethnically diverse backgrounds found that youths reported discomfort with health communication (e.g., feeling shy or having difficulties forming questions), as well as a preference among Black families for a Black doctor because of perceptions of receiving more effective care (25), which has been echoed in the adult literature (55).

YAs in the lesbian, gay, bisexual, transgender, and queer (LGBTQ+) community also face unique challenges when communicating with their HCPs. These YAs have the additional responsibility of disclosing their sexuality and/or gender identity to their HCP, and although research has demonstrated that some HCPs respond to such disclosures with affirmation and respect, others exhibit discrimination (56). HCPs who are unaware of a patient's sexuality or gender identity may not address topics that disproportionately affect the LGBTQ+ community (e.g., mental health or substance use issues), as well as other relevant concerns such as sexual health (57). For YAs with diabetes, failing to address these health disparities can compromise their diabetes care plan and potentially alienate patients from seeking ongoing support (58,59).

The native language of YAs and their family also influences the quality of communication with HCPs. Pediatric and adult patients with limited English proficiency are at increased risk for medical errors and physical harm (60). Use of professional medical interpreters, compared with ad-hoc interpreters, is associated with improved quality of care, communication, clinical outcomes, and overall satisfaction with care (60,61); yet, interpreter use is highly variable across clinical care settings (61). Although it is clear

that preferred language affects health care experiences, few studies have examined effective ways to improve health understanding and communication among individuals with limited English proficiency living with diabetes.

Interventions to Promote High-Quality Health Communication

Communication interventions specifically for YAs with diabetes have been understudied. The following sections review key literature on interventions to promote HCP and youth communication. Existing interventions target YA behavioral change through several low-intensity strategies such as video interventions, question prompt lists (QPLs; lists of typical questions asked by patients during medical visits about their illness/treatment), behavioral screens combined with brief HCP follow-up, and a combination of the aforementioned strategies. Given the limited literature focused on YAs specifically, interventions focusing on the developmental period of adolescence into young adulthood are included. Table 2 provides an overview of representative interventions.

Interventions Promoting YA Communication Skills

Relatively few communication interventions focus on the promotion and development of YA communication skills. Existing interventions incorporate person-reported outcomes via self-report measures and behavioral screens, which give YAs an opportunity to think about and document strengths, challenges, and concerns, particularly those of a sensitive nature (62), and can facilitate collaborative communication between YAs with type 1 diabetes and their HCPs (63). When structured assessments capturing key behaviors or patient-reported outcomes are used, both YAs and HCPs report positive communication outcomes, and qualitative data show that behavioral screens guide HCP conversation topics (62).

One of the most rigorous communication studies, conducted with adolescents and YAs with asthma, compared usual care to a QPL-plus-video intervention. Compared with usual care, participants in the intervention group asked more questions and, as a result, received more information from the HCP (64). Additionally, asking at least one question (vs. no questions) was associated with better asthma control and quality of life 1 year later in the intervention group only (65). Thus, the use of QPLs by adolescents and YAs in the intervention group may have led to more questions germane to asthma management and, therefore, improved health or psychosocial outcomes. Furthermore, among adolescents and YAs with endocrine conditions who were given a menu of different brief communication interventions, YAs who used at least one communication support (vs. no intervention) asked their

HCPs more questions and reported better communication quality (66).

In the type 1 diabetes literature, communication interventions are in their nascent stage. Ongoing studies target YA behavior change, focusing on increasing the number of questions asked (67), improving YA communication skills across the transition to adult diabetes care (68), or improving type 1 diabetes health outcomes (69), with YA-HCP communication being one hypothesized mediator in the association between the intervention strategies and improved glycemic and diabetes management outcomes.

Interventions Focused on Modifying HCP Behavior

Interventions also have focused on enhancing HCPs' communication skills, as high-quality HCP communication can elicit more communication from YAs and support behavioral change (69,70). For example, research has evaluated strategies to modify HCP communication behaviors, such as use of MI techniques, inclusion of sensitive topic discussions, a combination of motivational enhancement and psychosocial interventions, and teach-back methods (71).

In a primary care setting, discussion of sensitive topics resulted in increased YA involvement in treatment decision-making (38) regardless of treatment condition. Although increasing discussion of sensitive topics was not an intervention target, the content of conversations (e.g., sensitive topics), rather than the process of conversations (e.g., listening and reflecting), positively affected YA engagement in health care visits, aligning with other data showing that YAs prefer to discuss sensitive topics with their HCPs (72).

Another intervention focused on HCP behavior change is the teach-back method, through which the patient repeats medical information discussed in the visit, and the HCP corrects any inaccuracies. A study of the teach-back method with adults with diabetes (≥ 18 years of age) found that patients with teach-back experience rated their interactions with HCPs more favorably and rated themselves as more confident in their diabetes care (73).

Overall, positive communication outcomes result from interventions that focus on modifying YA or HCP behaviors. However, not all YAs who receive brief interventions use them and thus benefit from them (64,66). Active YA participation after a communication intervention is required to achieve positive health outcomes; simple exposure to an intervention is not sufficiently beneficial. Thus, modifying both HCP and YA behaviors may be necessary for YAs who require more intensive communication interventions. Future research should examine medical, psychosocial, and health

TABLE 2 Results of Communication Intervention Studies Among Adolescents and YAs With Chronic Conditions and HCPs

Study	Age, years	N	Population	Intervention	Selected Results
Brown and Wissow, 2009 (38)	11-16	358	Primary care setting	Communication intervention (motivational enhancement + patient-centered care, solution-focused cognitive behavioral therapy) vs. control	Primary care provider discussion of sensitive topics (e.g., substances, sexual activity, mental health, and relationship problems) resulted in improved adolescent-reported treatment decision-making, involvement in treatment, and taking responsibility for treatment; treatment condition was unrelated to these adolescent-reported communication outcomes.
Carcone et al., 2013 (70)	12-17	37	Obesity	One MI session targeting weight loss	HCP questions and reflections about change led to adolescent statements about change. HCP questions and reflections about statements against change or reflections about ambivalence led to adolescent statements against change.
Carcone et al., 2020 (69)	Adolescents and YAs, age range not reported	80	HIV	MI with HCPs who had previous MI training	HCP questions (both closed and open ended), reflections, and affirmations about change led to adolescent and YA statements about change. HCP statements focused on patient autonomy also led to youth statements about change. HCP information-giving in a manner that did not encourage patient autonomy also led to youth statements against change.
Idalski et al., 2020 (87)	16-25	320 (estimated enrollment)	Type 1 diabetes	QPL, motivational enhancement, and texts using an eight-arm, multiphase optimization strategy design	To be determined; this ongoing study seeks to examine efficacy of QPL, computerized motivational enhancement (grounded in MI framework), and texts. Adolescent and YA self-efficacy and autonomy and HCP-adolescent/HCP-YA communication (communicative and practical support) are hypothesized to mediate associations between treatment condition and outcomes (improvements in glycemia and type 1 diabetes management).
Downing et al., 2017 (66)	11-25	58	Endocrine conditions	QPL, website, and/or a personalized visit summary	Compared with adolescents and YAs who chose no intervention, participants who used at least one intervention asked their HCPs more questions and had higher communication quality ratings.
Martyn et al., 2013 (62)	15-27	186	Primary care setting	Guidelines for Adolescent Preventative Services vs. Event History Calendar, two different behavioral screens	Both YAs and HCPs improved shared decision-making in both conditions, and several communication indicators (mutuality, satisfaction, involvement, and patient-centered care) also improved in both conditions.
Pembroke et al., 2021 (67)	11-17	13	Type 1 diabetes	Video intervention	To be determined; this ongoing study seeks to examine the efficacy of a video intervention to increase adolescent question-asking and HCP education-giving during a clinic visit.
Sleath et al., 2018 (64) and 2020 (65)	11-18	359	Asthma	QPL + video intervention vs. usual care	Compared with usual care, adolescents in the intervention arm asked more questions, and their HCPs provided more education. At 1 year follow-up, asthma control and quality of life did not differ between conditions (i.e., they improved in both). However, in the intervention condition only, adolescents who had previously asked at least one question experienced better asthma control and quality of life compared with adolescents who asked no questions.

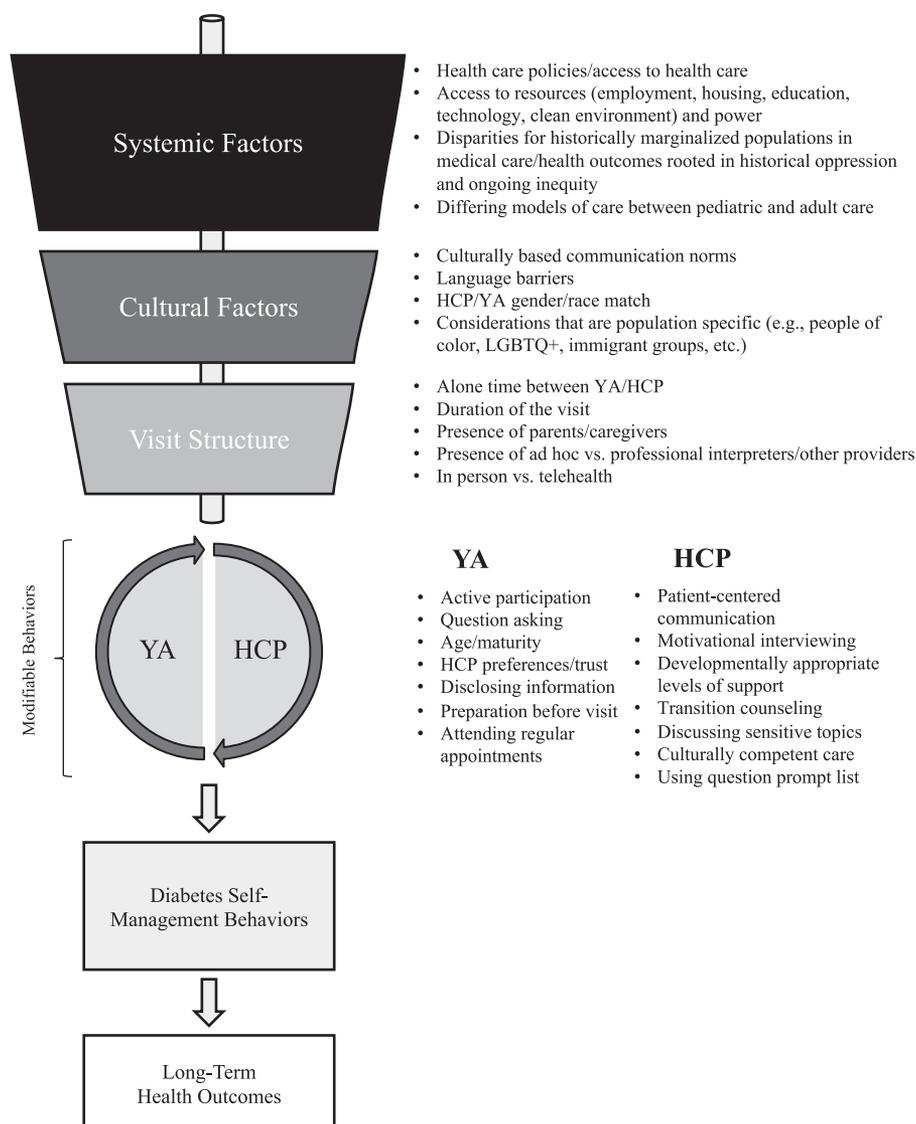


FIGURE 1 The impact of environmental factors and modifiable behaviors on YA-HCP health communication and diabetes health outcomes. This figure provides an overview of systemic, cultural, and environmental factors that influence YA and HCP behavior. YA-HCP communication is reciprocal and influenced by a variety of modifiable factors, which, in turn, contribute to short-term diabetes self-management behaviors and long-term health outcomes.

characteristics that predict for whom brief intervention is sufficient and for whom more intensive intervention may be needed.

Considerations Regarding Technology Use for YA-HCP Communication

YAs are among the top users of technology, with 96% owning smartphones and 90% using at least one social media site (74,75). Communication technology (e.g., telehealth, websites, and apps) can be used to meet the communication needs of patients with type 1 diabetes; additionally, advanced diabetes technologies such as continuous glucose monitoring systems

can be used to share data remotely with HCPs to enhance communication (76). Telehealth services have also been shown to improve patient satisfaction, adherence to diabetes treatment, and clinical outcomes (77,78).

Using communication technologies can reduce barriers of in-person interactions that may be particularly challenging for YAs, including transportation challenges and inability to miss school or work. Furthermore, YAs with chronic illnesses are receptive to receiving medical information electronically, specifically electronic information that is tailored to their needs and includes engaging content (79). YAs with diabetes have expressed a specific interest in text messaging or emailing

before and after their transition to adult care, including information about diabetes care (e.g., reminders for appointments and laboratory work) and communicating with the care team (e.g., for assistance with type 1 diabetes issues and self-management accountability) (80). Using communication technology as a routine part of clinical care delivery to YAs can support type 1 diabetes self-management tasks and decision-making, providing increased opportunities for engagement with HCPs and positive health outcomes.

Future Research Directions

This review illustrates the multitude of behaviors and factors that affect the quality of communication between YAs with diabetes and HCPs and strategies for improving YA-HCP communication. Figure 1 provides an overview of key modifiable factors influencing YA-HCP communication and links with health outcomes. From the systemic to the individual level, YAs with diabetes have unmet needs that influence the quality of health communication with HCPs.

This review reveals several research gaps in our basic understanding of YA-HCP communication. Less research has directly examined YA contributions in health communication exchanges, as the majority have focused on HCPs. Given that communication is fundamentally reciprocal, examinations of YA behaviors, beliefs, and preferences that affect YA-HCP communication are needed. Understanding of health communication among YAs from historically underserved or marginalized backgrounds is particularly lacking. Studies also allude to the potential negative role of parents/caregivers on YA-HCP communication from the YA perspective; however, the role of parents/caregivers on YA-HCP communication is unclear. Clarifying the contexts in which caregiver communication benefits and/or harms YA-HCP communication merits further investigation (e.g., caregiver presence is helpful when discussing management but harmful when discussing sensitive topics). Relatedly, despite data showing that discussion of sensitive topics (e.g., sexual activity, substance use, and mental health) is associated with improved YA communication (38), such topics are not consistently discussed in routine diabetes care (40). Efforts to developing methods to effectively incorporate discussion of sensitive topics under time constraints and tailor such conversations for marginalized populations are needed.

The challenges and developmental considerations of YAs in relation to health communication have significant implications for intervention, although few studies have specifically examined communication interventions in YAs with diabetes

(67–69). Given that HCPs use of ineffective communication strategies increases in the presence of adverse diabetes outcomes (i.e., elevated glycemic control), interventions targeting HCPs should specifically focus on tailoring positive communication strategies responsive to YA diabetes management. Furthermore, strengthening social networks outside the family is a hallmark of YA development; therefore, communication interventions should also be expanded to promote diabetes disclosure strategies, including sharing health information with new relationships (e.g., friends, peers, and employers) (81). Improving technology literacy may be a unique intervention target. For example, YAs who master using resources in the health care system (i.e., other primary or specialty care providers, patient portals, and electronic health record [EHR] systems) may subsequently share more information or be engaged outside of visits. Some EHRs can also be programmed to send messages to patients before visits to encourage them to prepare (e.g., identify key questions and concerns to discuss during the visit). Such strategies may be particularly important for YAs initiating new HCP relationships in adult care, as fluid information-sharing between pediatric to adult diabetes HCPs facilitates YA communication and trust (33).

Additionally, a multimodal approach should be used when assessing YA-HCP communication. The assessment of health communication has mainly relied on patient or HCP self-report of health communication quality and satisfaction. Few studies have used objective, observational methods to evaluate communication specifically in YAs with chronic conditions, even though observational data can be more informative than self-report (82). Relatedly, most studies examine explicit verbal communication, and nonverbal communication is rarely examined (83). Thus, both objective assessments of communication via direct observation or video/audio recording and assessments of YA-HCP nonverbal communication are needed to address how nonverbal communication affects verbal communication and health outcomes.

Clinical Implications

This review reveals several key clinical implications. Rapport is foundational to communication, and HCPs should ask about YAs' interests and activities outside of diabetes (e.g., career, academics, social relationships, and living situation). HCPs should also avoid confronting, persuading, or threatening YAs with future negative health consequences as a method to change behavior. Instead, asking open-ended questions and using autonomy-supportive language can facilitate high-quality communication and increased YA engagement (Table 1). Additionally, finding an adult diabetes care provider is a normative challenge. HCPs should initiate conversations

about transition early and provide YAs with transition-related resources, including recommendations for adult diabetes care providers and clinical practices. When family members are present at a clinical visit, it is important to offer alone time with the YA and directly ask about sensitive topics or provide a list of questions relevant to sensitive topics. Some YAs require more HCP communication elicitation than other YAs; tailoring the methods discussed in this review to meet the individual needs of each YA is necessary. For example, using the teach-back method in visits and electronic communication outside of visits may be particularly beneficial to YAs with more complex presentations or history of attendance/management concerns. HCPs will likely benefit from ongoing education on delivering care to historically marginalized populations, given that each population has its own unique history, communication norms, and needs that affect health communication. It is crucial to recognize that HCPs are definitionally in a position of authority and power, which inherently influences YA-HCP communication.

Although not the focus of this review, historical, institutionalized racism and oppression of people of color, the LGBTQ+ community, and other minoritized groups have caused these groups to experience systemic inequities related to access to health care, housing, education, employment, and/or clean environments, and all of these factors affect health care quality and health outcomes. Our understanding of YA-HCP communication and YA health should always be contextualized and understood with these historical inequities in the foreground. Thus, targeting distal factors also has positive downstream effects on YA-HCP communication. For example, a recent review in the adult literature demonstrates positive communication outcomes in race-concordant patients and HCPs (84); thus, YA and HCP gender/racial match may also increase YA trust and improve overall YA-HCP communication. Given that 70% of pediatric endocrinologists identify as White (85), increasing diversity in medicine has been termed “a necessary systems upgrade” (86).

Conclusion

High-quality health communication among YAs with diabetes and HCPs is a key component of diabetes self-management, especially during the vulnerable period of transition into adulthood and adult diabetes care. As highlighted in this review, there are many factors, both modifiable and nonmodifiable, that influence the quality of communication between YAs and HCPs. HCP communication style and information delivery should be developmentally targeted to YAs, focusing on their communication preferences and unique diabetes care needs. Such an approach can ultimately improve health outcomes for YAs with diabetes.

ACKNOWLEDGMENTS

This work was supported by an American Diabetes Association Pathway to Stop Diabetes Accelerator Award 1-18-ACE-27 (2018-2022), awarded to M.M.

DUALITY OF INTEREST

No potential conflicts of interest relevant to this article were reported.

AUTHOR CONTRIBUTIONS

B.L.B., C.H.W., M.E.Z., and M.M. wrote the manuscript. K.R. edited the manuscript and contributed to the conceptual model of health communication. C.H. edited the manuscript and contributed to clinical communication suggestions. All authors edited, reviewed, and approved the manuscript. M.M. is the guarantor of this work and, as such, had full access to all the data included and takes responsibility for the integrity and accuracy of the review.

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