



# A Qualitative Study Exploring Coping Strategies in Youth With Type 1 Diabetes

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Adolescents diagnosed with a chronic illness such as type 1 diabetes mellitus (T1DM) face the typical physical and psychosocial challenges associated with adolescence, as well as the additional challenges of having to cope with the daily stressors of living with a chronic illness. In order to explore coping strategies in this population of adolescents, and to compare the constructs with those identified by the Adolescent Coping Scale (ACS), four focus groups were conducted with 13 adolescents with T1DM. The qualitative data was analysed using content analysis and grouped according to the ACS. Prevalent nonproductive coping strategies included Tension Reduction (the use of maladaptive techniques to reduce tension/stress), Ignore the Problem and Keep to Self. Prevalent productive coping strategies included Seek Social Support, Physical Recreation and Seek Relaxing Diversions. The qualitative data not only affirmed the conceptual areas of the ACS for use with adolescents with T1DM, but also highlighted the need to teach coping strategies to adolescents with T1DM to give them an additional skill set to help them better manage the challenges of diabetes.

■ **Keywords:** adolescence, type 1 diabetes, qualitative, coping strategies, stress

## Type 1 Diabetes in Adolescence

Adolescence is a developmental period consisting of significant physical, social, emotional and cognitive maturation (Hazen, Schlozman, & Beresin, 2008). This period is challenging for most adolescents and their families, yet adolescents with type 1 diabetes mellitus (T1DM) must also cope with the daily stressors associated with managing a chronic illness. T1DM is an autoimmune disorder resulting in a deficiency in the hormone insulin (American Diabetes Association, 2010). Twenty-two people in 100,000 have T1DM in Australia, placing Australia at the top end of industrialised countries in terms of prevalence (Australian Institute of Health and Welfare [AIHW], 2008). In Australia the highest incidence rates are among 10–14-year-olds (AIHW, 2008).

Adolescents with T1DM face a number of daily stressors when managing their health condition (Davidson, Penney, Muller, & Grey, 2004). Several times a day adolescents with T1DM must administer and regulate their insulin dosage through injections or using an insulin

pump, monitor their food intake and physical activity, test their blood sugar levels, as well correct high or low blood sugar levels. These self-care tasks are required to maintain adequate glycaemic control (control over blood sugar levels) and prevent life-threatening health complications (Silverstein et al., 2005).

Adolescence is a challenging time in T1DM as the adolescent becomes more independent in all aspects of managing their illness (Silverstein et al., 2005). It is also a time when glycaemic control is likely to deteriorate (Urbach et al., 2005). This is due to a variety of factors including increased insulin resistance due to puberty (Amiel, Sherwin, Simonson, Lauritano, & Tamborlane, 1986), as well as behavioural factors (Morris et al., 1997; Webb et al., 1984).

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As well as a deterioration in glycaemic control, adolescents with T1DM are also at an increased risk for psychological disorders including depression, anxiety and behavioural problems (Northam, Matthews, Anderson, Cameron, & Werther, 2004), which are associated with deteriorating glycaemic control and diabetes-related health complications (de Groot, Anderson, Freedland, Clouse, & Lustman, 2001; Van Tilburg et al., 2001).

## Stress, Coping and Health Outcomes in T1DM

A growing number of studies have suggested that stress affects glycaemic control in T1DM, although the direction and strength of the relationship remains unclear (Aikens, Wallander, Bell, & Cole, 1992; Riazi, Pickup, & Bradley, 2004). Stress is thought to directly affect glycaemic control through the physiological stress response, which may cause hormonal fluctuations affecting blood sugar levels (Barglow, Hatcher, Edidin, & Sloanrossiter, 1984). Stress may also indirectly affect glycaemic control by impacting on self-care behaviours (Aikens, Wallander, Bell, & Cole, 1992; Johnson, 1995). The impact of stress on glycaemic control has led to an examination of the role coping has on T1DM.

Lazarus and Folkman (1984) define coping as the cognitive and behavioural tasks used to manage stressful situations. They conceptualise coping as a dynamic process that fluctuates over time and varies across different situations (Lazarus, 1993; Lazarus & Folkman, 1984). Viewing coping as a continuous, dynamic process is especially relevant for research examining stress and coping in the context of chronic disease, whereby the nature of the disease and the relevant stressors are likely to change over time.

By focusing on the context of the coping process, Lazarus and Folkman's transactional framework of coping (1984) explored how coping strategies could be adaptive or maladaptive depending on the situation, the individual and the type of stressor. Examples of adaptive outcomes include improvements in health, morale and social functioning (Lazarus, 1993). Research on chronic health conditions such as diabetes have adopted a similar approach, with studies assessing the relationship between coping strategies and psychosocial and health outcomes (Martz & Livneh, 2007; Wagner & Tennen, 2007). Coping styles are thought to affect health outcomes in T1DM either by buffering or exacerbating the effects of stress on glycaemic control, or by influencing self-care behaviours and thereby affecting glycaemic control (Jacobson et al., 1990; Peyrot & McMurry, 1992).

Numerous cross-sectional studies in T1DM have found associations between coping skills and glycaemic control, quality of life and adherence to the diabetes treatment regimen (Delamater, Kurtz, Bubb, White, & Santiago, 1987; Graue, Wentzel-Larsen, Bru, Hanestad, & Sovik, 2004; Hanson et al., 1989). For example a cross-sectional study by Graue and colleagues (2004) examined the asso-

ciation between coping styles, glycaemic control and quality of life in 103 adolescents with T1DM. Coping styles were assessed using several different subscales and then grouped as either problem-focused or emotion-focused coping. A significant association was found between emotion-focused coping styles, poor glycaemic control and lower quality of life. A more recent study of adolescents with T1DM found similar results, reporting that low levels of avoidance-coping and emotion-focused coping and high levels of problem-focused coping were associated with better glycaemic control (Skočič, Rudan, Brajković, & Marčinko, 2009).

Despite growing interest in the topic of coping with T1DM, many aspects of the relationship between coping and health outcomes in T1DM remain inconclusive and warrant further investigation (Skočič et al., 2009). For example, studies assessing the association between coping and glycaemic control are inconsistent, with some studies reporting significant associations between coping strategies and glycaemic control (Delamater et al., 1987; Graue et al., 2004; Luyckx, Seiffge-Krenke, & Hampson, 2010), while others are less conclusive (Hanson et al., 1989; Yi, Yi, Vitaliano, & Weinger, 2008).

As well as the need to clarify the link between health outcomes and coping, additional research on the developmental aspects of coping is required (Skinner & Zimmer-Gembeck, 2007). The research on coping in children and adolescents has largely overlooked the developmental aspects of coping and mostly used definitions of coping from adult research (Skinner & Zimmer-Gembeck, 2007).

Over the past few decades several adolescent-specific coping measures have emerged (Frydenberg, 2008). One adolescent-specific instrument used to measure coping is the Adolescent Coping Scale (ACS) (Frydenberg & Lewis, 1993). The ACS has been used widely in Australia and is made up of 80 items that represent 18 different coping strategies, which can be grouped under three main categories (productive coping, reference to others, and nonproductive coping). The ACS was developed to capture the range of coping strategies used by adolescents. It began with a series of studies using open-ended questions that explored adolescent coping (Frydenberg, 2008). The first adolescent sample ( $n = 643$ ) generated more than 2,000 descriptions of coping, which was reduced to 80 items over five years of piloting.

The ACS demonstrates satisfactory reliability, with Cronbach's alphas ranging from .54 to .85 for the 18 scales (with a median of .70) and test-retest stability coefficients ranging from .44 to .88 (Frydenberg & Lewis, 1993). These are comparable to other coping measures (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001). The scale also demonstrates good construct and predictive validity, and is correlated with measures such as self-efficacy and depression (Bugalski & Frydenberg, 2000; Frydenberg, 2008; Frydenberg & Lewis, 1993). The three

main coping categories can also be classified into a dichotomous grouping of productive (adaptive) and non-productive (maladaptive) coping techniques, and are compatible with Lazarus and Folkman’s framework of coping (Lazarus & Folkman, 1984).

While numerous coping measures exist, the ACS was chosen for this study because it was developed in the local context and specifically for adolescent populations. Unlike the majority of coping measures, the ACS identifies a much wider range of coping responses, allowing for a richer description of coping strategies to be examined (Frydenberg, 2008). Moreover, the ACS has not been applied to adolescents with a chronic illness, therefore exploring whether the coping strategies identified in the ACS are consistent with those used by adolescents with T1DM can help determine its suitability for this population.

### Aims and Research Questions

Adolescents with T1DM have reported lacking both information and experience in using certain coping skills (Davidson et al., 2004). As part of a randomised controlled trial of a coping skills training program, we conducted a preliminary study to assess coping strategies used by adolescents with T1DM. We were interested in exploring the use of coping strategies, as well as examining the applicability of the ACS in this population of adolescents. We therefore recruited 13 adolescents with T1DM to participate in focus group discussions. Our study was guided by two research questions: (1) what coping strategies do adolescents with T1DM use to manage stress? and (2) are the coping strategies identified by young people with T1DM reflected in the ACS?

## Method

### Participants

Thirteen patients with T1DM participated in the focus groups. Participants were recruited using purposive sampling from the diabetes outpatients clinic at a tertiary paediatric hospital. Ethics approval was granted from the hospital’s Human Research Ethics Committee. Adolescent and parental consent was obtained for the adolescents to participate in the focus groups.

Inclusion criteria included being 13–17 years old and diagnosed with T1DM for at least 6 months. Exclusion criteria included patients with other significant and ongoing health conditions, patients who did not speak fluent English

and patients with developmental disorders. Our aim was to recruit a minimum of 15 adolescents, because we believed this number would allow us to reach data saturation (where no more new information is being reported). Eighteen patients agreed to attend the focus groups; however, 5 participants did not attend. Nine boys and 4 girls participated in age-appropriate groups (3–4 participants/group) that lasted 1–1.5 hours and were held at the Royal Children’s Hospital. Small focus groups were considered important to help younger participants feel comfortable when contributing to the discussion (Heary & Hennessy, 2002). Participant characteristics are shown in Table 1.

### Procedure and Qualitative Methodology

A semistructured interview schedule was developed by the research team to guide the focus group discussions. The groups were facilitated by a health psychologist, experienced in running focus groups, who was not a member of the clinical diabetes team and therefore did not have a previous relationship with the participants. The questions were open-ended to encourage detailed responses, with prompts to explore the use of productive or nonproductive coping strategies. The questions regarding coping strategies were: What are some different ways of coping or managing with a problem or stressful situation? What are some of the ways that you cope when you are feeling stressed about something to do with your diabetes? Can you give me some examples of ways that you cope that you find useful or helpful? Can you give me some examples of ways that you cope that you think are unhelpful or unhealthy?

The focus group discussions were audiotaped and transcribed, and then analysed using directed content analysis (Hsieh & Shannon, 2005). Content analysis offers a systematic approach for identifying and categorising qualitative data. In directive content analysis the analysis is deductive and aims to substantiate an existing theory, concept or categories (Hsieh & Shannon, 2005; Marshall & Rossman, 1995). In this type of analysis the categorisation matrix (coding scheme) is often predetermined by the existing theoretical framework. In this study, we analysed the data against the backdrop of the ACS. The analysis dealt mostly with the manifest or semantic content. The manifest content is the explicit meaning of the data rather than its underlying ‘latent’ meaning (Graneheim & Lundman, 2004).

After transcription was complete, the transcripts were read several times before coding formally began. This was

**TABLE 1**

Participant Characteristics

Sex	Age	Insulin regimen	Duration of diabetes	Glycaemic control (HbA1c)
9 boys, 4 girls	Age range: 13–17 years, Mean age: 15.4 years (± 1.7)	4 injections/day = 9 2 injections/day = 1 Pump therapy = 3	5.8 years (± 3.9)	8.1% (± 1.2)*

Note: \*Clinic mean is 8.3% (± 1.4)  
Data are means ± SD

done to ensure that any interesting segments of text relating to coping strategies were identified, before using the coding scheme based on the ACS. This procedure is recommended to ensure all aspects relating to the topic under investigation are identified (Hsieh & Shannon, 2005). The coding scheme consisted of the 18 coping strategies identified in the ACS (see Table 2). Prevalence of coping strategies was measured by whether the coping strategy was raised in all groups and how many individual participants discussed the strategy. After coding was complete, any data that did not fit into the 18 coping strategies were assigned to a new category. The final aspect of analysis consisted of determining whether the data supported the conceptual areas of the ACS.

The transcripts were also co-coded by a psychologist experienced in qualitative analyses but external to the research group in order to demonstrate interrater reliability. The external coder was familiar with the coping literature and also used the ACS as the coding scheme. The separate analyses were compared and similarities and discrepancies were discussed and resolved by the research team.

## Results

Of the 18 coping strategies identified in the ACS, 14 were discussed in the focus groups (see Table 2). The four that were not reported included Social Action, Not Coping, Self-Blame and Seek Spiritual Support. The most prevalent nonproductive coping strategies across the four groups included Tension Reduction, Ignore the Problem and Keep to Self; while the most prevalent productive coping strategies included Seek Social Support, Physical Recreation and Seek Relaxing Diversions. The following analysis only includes the prevalent strategies, which were reported by at least 4 participants across the groups.

### NONPRODUCTIVE COPING STRATEGIES

#### 1. Tension Reduction

Reducing stress or tension by engaging in maladaptive behaviours was the most common nonproductive coping strategy discussed by participants, which was reported by 7 participants across four groups. The most common behaviours were drinking alcohol and getting angry. Drinking alcohol was only described as a coping strategy by older adolescent boys (16- to 17-year-olds). Drinking alcohol was described by these participants as something that occurred in a social context, possibly to normalise the use of alcohol to cope with stress.

And then drinking ... but it's not like I sit at home by myself with a slab or something, but yeah that's one way. (Boy, 16 years)

Drinking when you're stressed. It's certainly very appealing. It's good to just hang out with people when you're stressed. (Boy, 17 years)

Although none of the girls reported drinking alcohol to manage stress, one girl said she coped with stress by

smoking cigarettes. Another response that stands out is that by a 15-year-old boy, who mentioned that he copes with stress by eating.

I smoke. (Girl, 16 years)

Sometimes I just eat. (Boy, 15 years)

Across all four groups the participants described arguing or getting into fights as a common reaction to feeling stressed. Arguing with family members was especially prevalent, illustrating the negative impact that stress and nonproductive coping can have on the family as a whole.

I just get in a really bad mood and stuff. So, whoever's like around me, like my family. (Girl, 15 years)

Taking it out on your siblings. (Boy, 13 years)

#### 2. Ignore the Problem

Ignoring the problem was another common nonproductive coping strategy, reported by 4 participants across three groups. One boy described how, after he was diagnosed with T1DM, he simply ignored that he had diabetes, which made him feel better in the short-term until the illness became something that he had to manage on a daily basis.

I coped by ignoring it and it just all went away, but it changed from being new to being something that I had to do. (Boy, 16 years)

Another participant discussed using this coping strategy when he was newly diagnosed. In the following statement he described that he did not think that ignoring the problem was similar to denial, perhaps indicating that he did not consider it to be a maladaptive strategy to use.

It's not denial, it's just like ... ignoring that anything's different. (Boy, 15 years)

#### 3. Keep to Self

Keeping to oneself and not disclosing problems or concerns to others was reported as a way of coping by 4 participants across two groups. This technique seemed to be used for diabetes-related concerns or stressors, where the adolescents felt that they could not talk to others as they would not understand what they were going through.

But they're a little bit, they're pretty ignorant as well, which I don't know about everyone else's parents, but mine, they know they are ignorant but they don't like to think they're ignorant ... because of that reason, it's a little bit like you can't really talk to them cause they don't really know ... you just think about it yourself. (Boy, 17 years)

Keeping it in, not talking about it. Pushing it aside. (Girl, 14 years)

#### 4. Pushing Yourself to Improve

This was the only coping response that did not fit into the ACS categories. We did not think it fit the category Work Hard and Achieve as it was the extreme version of that behaviour. The example was raised by a 13-year-old girl

**TABLE 2**  
Prevalence of Coping Strategies Identified in the Focus Groups (Adapted from Frydenberg, 2008)

Coping strategies from the Adolescent Coping Scale	Prevalence of coping strategies identified in focus groups
1. Seeking Social Support is represented by items that indicate an inclination to share the problem with others and enlist support in its management (e.g., Talk to other people to help me sort it out).	10 participants across four groups
2. Focus on Solving the Problem is a problem-focused strategy which tackles the problem systematically by learning about it and takes into account different points of view or options (e.g., Work at solving the problem to the best of my ability).	1 participant
3. Work Hard and Achieve is a factor describing commitment, ambition and industry (e.g., Work hard).	2 participants in one group
4. Worry is characterised by items that indicate a concern about the future in general terms or more specifically concern with happiness in the future (e.g., Worry about what is happening).	3 participants across two groups
5. Investing in Close Friends is about engaging in a particular intimate relationship (e.g., Spend more time with boy/girl friend).	3 participants across two groups
6. Seek to Belong indicates a caring and concern for one's relationship with others in general and more specifically concern with what others think (e.g., Improve my relationship with others).	1 participant
7. Wishful Thinking is characterised by items which are based on hope and anticipation of a positive outcome (e.g., Hope for the best).	1 participant
8. Social Action is about letting others know what is of concern and enlisting support by writing petitions or organising an activity such as a meeting or a rally (e.g., Join with people who have the same concern).	Not reported
9. Tension Reduction is characterised by items which reflect an attempt to make oneself feel better by releasing tension (e.g., Make myself feel better by taking alcohol, cigarettes or other drugs).	7 participants across four groups
10. Not Coping consists of items which reflect the individual's inability to deal with the problem and the development of psychosomatic symptoms (e.g., I have no way of dealing with the situation).	Not reported
11. Ignore the Problem is characterised by items that reflect a conscious blocking out of the problem (e.g., Ignore the problem).	4 participants across three groups
12. Self-Blame indicates that an individual sees themselves as responsible for the concern or worry (e.g. Accept that I am responsible for the problem).	Not reported
13. Keep to Self is characterised by items which reflect the individual's withdrawal from others and wish to keep others from knowing about concerns (e.g., Keep my feelings to myself).	4 participants across two groups
14. Seek Spiritual Support is characterised by items that reflect prayer and belief in the assistance of a spiritual leader or Lord (e.g., Pray for help and guidance so that everything will be all right).	Not reported
15. Focus On The Positive is represented by items that indicate a positive and cheerful outlook on the current situation. This includes seeing the 'bright side' of circumstances and seeing oneself as fortunate (e.g., Look on the bright side of things and think of all that is good).	2 participants in one group
16. Seek Professional Help denotes the use of a professional adviser, such as a teacher or counsellor (e.g., Discuss the problem with qualified people).	3 participants across two groups
17. Seek Relaxing Diversions is about relaxation in general rather than about sport. It is characterised by items that describe leisure activities such as reading and painting (e.g., Find a way to relax, for example, listen to music, read a book, play a musical instrument, watch TV).	4 participants across three groups
18. Physical Recreation is characterised by items that relate to playing sport and keeping fit (e.g., Keep fit and healthy).	8 participants across four groups

who described coping with stress (in particular, stress associated with the strict diabetes treatment regimen) by pushing herself to improve her self-care behaviours. In the following example, the girl described how she pushed herself to do better, sometimes to the extent that nothing else seemed to matter. By saying this, the girl seemed to acknowledge and reflect on the fact that this coping strategy could be maladaptive if used in excess.

Trying to do what you've done wrong, again, but doing it too much, trying to do it, to improve yourself so much that you've kinda forgotten about everything else. (Girl, 13 years)

## PRODUCTIVE COPING STRATEGIES

### 1. Seek Social Support

The most prevalent productive coping strategy was seeking social support. This strategy was discussed by 10 participants across all the groups, with several participants acknowledging the benefits of this coping strategy.

There's a coach at my gym, I speak to him sometimes. (Boy, 17 years)

Maybe talk to your parents or something and then go back to it, like the answers might come a bit easier or something. (Girl, 14 years)

A few of the adolescents also discussed the advantages of confiding in friends who have diabetes, as they were more likely to understand what they were going through.

I was talking with my friend last night, we were just like having a little angry session about how our parents stress over nothing ... It's heaps easier having friends that are diabetic. (Girl, 16 years)

## 2. Physical Recreation

Physical activity was another popular coping strategy, raised by 8 participants across all the groups. Several participants also discussed the benefits of exercising in response to stress, for example the positive effects on their mood.

Do something I like doing really well, that I like a lot, like my dancing. (Girl, 13 years)

I race on road bikes, cycling, and I just do that and sort of just feel a bit happier. I don't know how, but that's how it works. (Boy, 16 years)

## 3. Seek Relaxing Diversions

Another productive coping strategy was participating in relaxing activities, such as listening to music to reduce stress. This strategy was reported by 4 participants in three groups.

It's gonna sound really lame, like listen to music, and it actually does work. (Girl, 16 years)

I just play my music, really loud, it gets rid of stress for me. (Boy, 13 years)

One of the boys also acknowledged that doing relaxing activities would not help him cope with stress, illustrating the individual nature and preference for coping strategies.

I find that sitting around doesn't help, like with me I just have to do exercise or something, just go out with friends or something or do sport. It seems to work all the time. Just watching TV, just sitting relaxing, or listening to music would not help with me. (Boy, 16 years)

## Discussion

This qualitative study had two key objectives: to explore coping strategies used by adolescents with T1DM, and to investigate the suitability of the ACS for use in T1DM. As is illustrated in Table 2, the majority of the coping strategies identified in the ACS were discussed in the focus groups, with the exception of Social Action, Not Coping, Self-Blame and Seek Spiritual Support. While this data mostly affirmed the conceptual areas of the ACS for use with adolescents with T1DM, it also highlighted the importance of talking about coping in ways that are specific to a particular population of young people (e.g., those with T1DM). By exploring how youth with T1DM cope with stress, it is possible to identify the best way to teach them productive coping strategies, and how to help them reflect on their use of particular nonproductive strategies in order to reduce their reliance on those strategies.

## Nonproductive Coping Styles

The most common nonproductive coping strategy raised was engaging in maladaptive behaviours (e.g., drinking alcohol) to reduce stress. The adolescents described drinking alcohol, smoking, eating and getting into arguments as ways of reducing stress. Recent research has suggested that youth with chronic health conditions are more likely to engage in risky behaviours such as drinking, smoking and aggressive behaviour than their healthy peers (Suris, Michaud, Akre, & Sawyer, 2008; Suris & Parera, 2005). Due to the adverse effects on health, engaging in risky behaviours is especially problematic for youth with T1DM, as behaviours such as smoking and drinking increase the risk for diabetes-related complications (Scott et al., 2001).

Of all the maladaptive behaviours mentioned, getting angry was the most common nonproductive coping response across the groups. This is concerning, as research has shown that emotion-focused coping styles such as aggressive coping is related to worse glycaemic control in T1DM (Graue et al., 2004; Skočić et al., 2009). Studies have also found that parent-adolescent conflict is associated with worse health outcomes in diabetes (Dashiff, Hardeman, & McLain, 2008). For example, studies have reported that unhealthy family functioning and high levels of family conflict are associated with poor glycaemic control in youth with T1DM (Lewin et al., 2006; Pereira, Berg-Cross, Almeida, & Machado, 2008).

Ignore the Problem and Keep to Self were two other prevalent nonproductive coping strategies. Adolescents with T1DM are often frustrated at the lack of knowledge their parents and peers have about T1DM (Weinger, O'Donnell, & Ritholz, 2001). It may be that strategies such as Ignore the Problem and Keep to Self were used by these adolescents as their problems and concerns were often diabetes-related, and they felt reluctant to discuss these problems with others who they perceive to have less understanding of the illness. The use of Ignore the Problem as a coping strategy was also reported by two adolescents after they were newly diagnosed with T1DM. The use of this coping strategy in newly diagnosed patients is not surprising, as adjusting to having T1DM can take as long as 9 months after diagnosis (Kovacs et al., 1985).

Research has demonstrated developmental changes in coping strategies across childhood and adolescence (Compas et al., 2001; Skinner & Zimmer-Gembeck, 2007). During adolescence there is extensive cognitive maturation, and studies have found that adolescents use more cognitive and behavioural problem-solving techniques as well as cognitive distraction (Skinner & Zimmer-Gembeck, 2007). Research has also shown that Tension Reduction tends to increase in later adolescence, including an increase in aggressive behaviour (Frydenberg & Lewis, 2000; Skinner & Zimmer-Gembeck, 2007). Frydenberg and Lewis (2000) have also found that nonproductive coping strategies tend to increase in the middle-adolescent

years, demonstrating the importance of teaching productive coping skills in early adolescence.

### Productive Coping Styles

Seek Social Support, Physical Recreation and Seek Relaxing Diversions were the most prevalent productive coping strategies across the groups. The most common productive coping strategy was talking to friends to cope with stress, in particular friends who had diabetes. This finding is consistent with the literature, with several qualitative studies demonstrating the importance of social support for youth with T1DM (Davidson et al., 2004; Kyngas & Barlow, 1995; Schur, Gamsu, & Barley, 1999).

It was promising to see the prevalence and variety of productive coping strategies discussed across the groups. It is also noteworthy that several adolescents discussed the benefits of using these strategies, such as their positive influence on their mood and functioning. One of the participants also discussed his preference for certain productive coping strategies over others, demonstrating insight into his own coping habits.

Past research has found that common coping strategies in youth include seeking social support, using problem-solving strategies (strategising, instrumental action, planning), using escape-type strategies (behavioural avoidance, mental withdrawal, denial and wishful thinking) and rumination (Skinner & Zimmer-Gembeck, 2007). This is consistent with our findings, where strategies included seeking social support, using escape-type strategies (especially Ignore the Problem and Keep to Self) and rumination (Worry). Problem-solving was less common in our sample and was only reported by one participant.

Social Action, Not Coping, Self-Blame, and Seek Spiritual Support were not discussed in the groups. There are several possible reasons as to why these strategies were not reported, for example Social Action represents a coping strategy that may not be commonly used with diabetes-specific stressors, which were the most commonly discussed scenarios in the groups. Strategies such as Not Coping and Self-Blame represent maladaptive coping strategies that the adolescents may not have wanted to admit to their peers, or it may be that they were not commonly used in this sample. Lastly, Seek Spiritual Support represents a very private way of coping, which adolescents may also not readily admit to their peers. It is also possible that our sample of adolescents were not religious/spiritual and therefore unlikely to use this strategy.

### Limitations

Despite the rich data generated by qualitative research, there are limitations inherent to this type of research, such as small sample sizes and questions of generalisability. Due to the small sample size, we cannot generalise our findings to the wider population of youth with T1DM. Furthermore, although we recruited 18 adolescents, only 13 attended the focus groups. Therefore we cannot

dismiss the possibility that those 13 who attended were more motivated and also possibly use different coping strategies than the 5 adolescents who did not attend.

### Conclusion

Teaching coping skills is beneficial to all adolescents, but can be especially useful for adolescents with T1DM. Replacing risk-taking or other nonproductive coping behaviours with productive coping behaviours may directly impact health outcomes in T1DM (Silverstein et al., 2005). By teaching young people with T1DM about the different coping strategies available, they are given an additional skill set to help them manage the stressors and challenges associated with diabetes.

More research is necessary to establish the validity as well as acceptability of coping scales for different populations coping with stressful life situations. The adolescents in this study discussed a variety of coping strategies that illustrated how they cope with both diabetes-specific and general stress. The coping responses were generally consistent with the conceptual areas of the ACS, confirming their suitability for use with adolescents with T1DM. The qualitative data also demonstrated the importance of obtaining situation-specific descriptions of young people's coping so that they can be best assisted to self-reflect and change their behaviour to achieve the best health outcomes possible.

### Acknowledgments

We would like to thank the adolescents who participated in the focus groups. We would also like to thank Liz Westrupp for her help with coding and analysis. This research was supported by a grant from the Alfred Kordelin Foundation.

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