S'more than just a camp: Exploring youths' development of life skills within a Type 1 Diabetic sport camp

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Abstract

Approximately 26,000 people under the age of 19 are living in Canada with type 1 or type 2 diabetes (CCDSS, 2009). Type 1 Diabetes Mellitus (T1DM) is an autoimmune disease (CDA, 2015) that can encroach on youths' social and psychological development (Guthrie, Bartsocas, Jarosz-Chabot, & Konstantinova, 2003). Almost a century ago, diabetes focused camps emerged as a way to provide ongoing diabetes self-management education (DSME) to youth and their families in a physically active context (John, 1946). Past diabetes camp research has focused on the ability of youth participation at a camp to enhance glycemic control and glucose monitoring abilities in participating youth (Nabhan, Rardin, Meier, Eugste & DiMeglio, 2006; Perwin, Bennett Johnson, Dymtrow & Silverstein, 2000); however, recent studies have shifted to evaluate the psychological and social impact of attending a diabetes focused camp. As such, the current study integrated a positive youth development (PYD) framework to: (a) identify life skills developed and (b) explain processes and factors involved in youths' development of life skills in a diabetic focused youth camp. A content analysis of funding agency and camp mission statements, as well as focus group interviews of 54 youth living with T1DM attending a sport camp were conducted. Increases in self-efficacy for self-management of diabetes and physical activity, and improved social skills were reported. Results are presented within the framework proposed by Garst, Browne, and Bialeschki (2011). Findings highlight interactions between camp characteristics that optimize life skills development in youth living with T1DM.

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Worldwide it is estimated that over 490,000 children under the age of 15 are living with Type 1 Diabetes Mellitus (T1DM) (IDF, 2011). Approximately 26,000 individuals under the age of 19 are living in Canada with type 1 or type 2 diabetes (CCDSS, 2009). T1DM is an autoimmune disease resulting in a chronic condition where the pancreas does not produce enough insulin for the body (Hanas, 2010). T1DM affects the heart, blood vessels, nerves, eyes and kidneys, and poor blood glucose management can lead to heart disease, neuropathy, nephropathy and eye damage (Hanas, 2010). In addition to the physical aspect of a youths' lives, diabetes can also encroach on youths' social and psychological development (Cappelli, McGrath, Heick, MacDonald, Feldman, & Rowe; Guthrie, Bartsocas, Jarosz-Chabot, & Konstantinova, 2003). Youth living with T1DM have been identified as having increased desire for peer acceptance, poorer school performance, employment difficulties, increased risk of negative psychosocial outcomes, delays in the development of independence during adolescence, and a higher prevalence of depression (Grey, Cameron, Lipman & Thurber, 1995; Kakleas, Kandyla, Karayianni, & Karavanaki, 2009; Karlsson, Arman & Wikbald, 2008).

Diabetes focused camps were developed to provide youth and their families an alternative educational program about diabetes self-management (John, 1946). Moreover, physical activity and sport have been identified as a positive lifestyle promoting context, whereby youth living with T1DM can enhance their well-being and thus physical activity is often included into diabetes management strategies (Edmunds, Roche, Stratton, Wallymahmed & Glenn, 2007). While there is a growing body of research exploring the physiological, psychological and social outcomes associated with youth participation at T1DM camps there remains little understanding

of how these outcomes are facilitated (De Loach, 2009). Therefore, this study aimed to provide a deeper understanding of the impact of youth participation at a diabetes specific camp by identifying the outcomes, processes and factors associated with life skills development at a youth diabetes sport camp.

Diabetes Focused Camps

In 1925, diabetes focused camps emerged as a way to provide ongoing diabetes self-management education (DSME) to youth and their families in a physically active context (John, 1946). Marble (1952) stated that "a yearly stay at a well-run summer camp will contribute much to the regulation, education and development of diabetic children and will help them to live longer, healthier and happier lives". The initial objective of these camps was to facilitate the development of good diabetes care and education by providing safe recreational experiences in an environment that promoted a healthy childhood and good a quality of life (Cheung, Young Cureton & Canham, 2006); camps typically utilized an illness integration model and included a comprehensive medical staff, with an onsite team of doctors and nurses (John, 1946).

Since their inception, research studies have focused on enhancing glycemic control and glucose monitoring abilities in youth who attend camp (Nabhan, et al., 2006; Perwin, et al., 2000); however, recent studies have shifted to include identifying the psychological and social impact of attending a diabetes focused camp. Past research has highlighted that participating in a diabetes specific camp can increase youths' knowledge about diabetes and nutrition, improve their coping skills, decrease trait anxiety about diabetes, and increase youths' number of social relationships with peers (Briery & Rabian, 1999; Harkavy, Bennett-Johnson, Silverstien, Spillar, McCallum & Rosenbloom, 1983; Santiprabhob, Likitmaskul, Kiattisakthavee, Weerakulwattana, Chaichanwattanakul, et al., 2008; Semiz, Ozarslan Bilgin, Bundak, & Bircan, 2000); however

these studies have been framed primarily within a deficit-reduction paradigm (Lerner, 2004) driven by the assumption that youth with T1DM are disadvantaged as a result of their disease, and the need for interventions to 'fix' their psychological or social challenges (Fraser-Thomas, Coté, & Deakin, 2005; Guthrie, Bartsocas, Jarosz-Chabot & Konstantinova, 2003; Kakleas, Kandyla, Karayianni & Karavanaki, 2009).

Positive Youth Development

In developmental psychology, research has shifted over the past several decades from a *deficit reduction* approach, to an *asset building* approach under the lens of positive youth development (PYD; Lerner, 2004). PYD focuses on the mechanisms and components of youth experiences that lead to positive developmental outcomes (Gould & Carson, 2008), emphasizing the promotion of behavioral, cognitive, interpersonal, and intrapersonal life skills that allow youth to succeed in different environments (Larson, 2000). Life skills most commonly explored using the PYD approach include effective communication, decision making, problem solving, goal setting, leadership, and time management (Danish, Petitpas, & Hale, 1993). Below, we briefly discuss the 5Cs model (Eccles & Gootman, 2002; Lerner, 2004; Roth and Brooks-Gunn, 2003), one of the most extensively utilized frameworks of PYD, particularly among youth involved in camp and sport / physical activity settings.

The 5Cs model highlights five key outcomes of optimal youth development: competence, character, connection, confidence and caring, suggesting that the development and positive interactions of these 5Cs will in turn facilitate the development of a sixth C – contribution (Lerner, Fisher, & Weinberg, 2000; Lerner, 2004). More specifically, the model suggests that PYD results from an alignment between youths' strengths and the growth promoting resources within youths' environment (i.e., family and community) (Dukakis, London, McLaughlin &

Williamson, 2009; Lerner, 2004). The 4-H Study of PYD has been ongoing since 2002 and is longitudinal investigation of youth in various contexts exploring the individual and ecological bases of healthy, positive development (Lerner, Lerner, Almerigi, Theokas, et al., 2005); studies conducted in camp settings have found youth develop life skills such as decision making, use of resources, responsibility, citizenship, respect and leadership within the camp context (American Camp Association, 2005; Garst, 2003; Garst & Johnson, 2005).

The 4-H camp context provides youth with the presence of caring adults, emotional and physical safety, age-appropriate programming, sense of belonging and opportunities for life skills development (National 4-H Headquarters, 2001) – factors identified as essential for PYD among youth (Fraser-Thomas & Côté**,** 2009). A growing body of research has also investigated organized sport as a context for facilitating PYD with findings highlighting teamwork, cooperation, communication skills, respect, and goal setting as potential outcomes (Camiré & Trudel, 2008; Holt, Tink, Mandigo, & Fox, 2008; Strachan, Coté, & Deakin, 2011; Larson & Verma, 1999). While PYD outcomes have been examined in both camp and sport settings, few studies have investigated the processes and factors within these contexts, which may be facilitating these outcomes (Henderson, Bialeschki, Thurber, Schueler Whitaker, & Marsh, 2007). Further, no studies to our knowledge have specifically examined PYD outcomes in diabetic focused camps, nor the factors and processes facilitating these outcomes.

Features of Camp Contexts

Garst and colleagues' (2011) features of a camp context can be adapted to best understand how camps may be facilitating PYD. Garst et al. (2011) outlined three key features of camp contexts as a guiding framework: a) structure, b) programming and activities, and c) setting characteristics. They suggested the structural characteristics of the camp include camp norms,

group organization, and traditions which produce camp rules for behaviour, values and morals. The structural characteristics are also established by the actions of the adult leaders at the camp that develop or reinforce camp norms through adherence to camp policy. Mission statements and camp philosophy statements contribute to the development and reinforcement of camp norms as Forneris, Camiré, and Trudel (2012) identified the mission statement or camp philosophy shaped the objectives, communication of the values of the organization, and influenced the practice and expectations of the stakeholders. Their findings are in line with Henderson and colleagues' (2007) investigation among 92 American Camp Associations (ACA) which found 90% of camps had a mission statement and purpose aimed at providing a developmental framework, program structure, accountability of adult leaders, assessment of outcomes, and opportunities for skill building; mission statements and purposes were in turn associated with PYD within camps (Henderson, Bialeschki, Scanlin, Thurber, Whitaker & Marsh, 2007). These studies provide evidence that camp norms are influenced by camp mission statements and beliefs. These factors provide the initial foundation for camp norms and the persons involved in the camp to further these norms through their behaviours while at the camp. Subsequently, youth can adopt camp norms and values though their interactions and relationships with adult leaders and counselors within the camp setting (Garst et al., 2011).

A second structural component of camps that facilitate life skills development is group living. Garst and colleagues (2011) described that in the camp setting youth share many aspects of their lives in a social group. These aspects can include eating, activities, and sleep, and can occur in either large or small social group settings. To ensure that there is group cohesion amongst all campers, effective camp strategies are often employed. These strategies can include establishing creative group language, having campers wear similar clothing, and creating group

cohesion by establishing camp slogans, songs, names and mascots (Garst, Browne & Bialeschki, 2011). One outcome of group living is the development of supportive relationships with the members of the group (Gillard, Watt & Witt, 2009). The members of the group can include adult leaders in addition to peers and other campers. Group living can foster supportive relationships, sense of community and connectedness in the camp setting that echoes the camp established norms (Garst et al., 2011).

Next, Garst and colleagues (2011) identified camp programs and activities as a second characteristic that can facilitate life skills development. Type and context of programming and activities can impact life skills development. Two types of camp activities are recognized: unstructured or structured. Unstructured activities are identified as free play time for youth have the potential to provide youth with meaning, enjoyment, autonomy, connection to the community, opportunities to connect with adult leaders and a sense of competence (Hansen, Larson, & Dworkin, 2003). However, unstructured activities are also associated with higher rates of antisocial conduct among youth, in part as a result of youth spending unsupervised time socializing with peers and engaging in fewer positive behavioural outcomes (Eggert & Harting, 1993). In contrast, structured activities, offer an organized and planned activities for youth that are facilitated by an adult leader, can offer a goal oriented environment, can promote skill building in multiple domains, as well as positive interactions with peers (Larson, 2000).

The composition of programming and activities at a camp can also influence life skills development in youth. Camp activities that include features that promote experiential learning and choice can enhance opportunities to promote life skills development (Garst et al., 2011). Illness specific camps have been found to be particularly beneficial, as they provide youth with an opportunity to connect with other youth sharing their illness, where they can share

experiences and feelings regarding their disease (Santiprabhob, et al., 2008). This is essential given that some youth may not have an opportunity to interact with other youth living with T1DM. Safety while engaged in camp activities provides youth with an overall sense of competence and can assist in the camper's personal growth (Garst, 2011). Also, when campers have the choice to participate in camp activities they are more likely to engage in activities that interest them and youth who enroll into their camp of choice are more likely to maintain interest and enjoyment for the activity (Garst et al., 2011; Larson, 2000).

Finally, camps' setting characteristics described by Garst and colleagues (2011) as nature and time also can impact youths' experiences that facilitate life skills development. Garst and colleagues (2011) described the camp setting as giving youth a chance to remove themselves from everyday life, and escape from their home environments. The change in location and regular daily activities of the camper's life can provide a context for personal restoration (Garst et al., 2011). For youth living with T1DM, camp can provide relief from the psychological burden of living with T1DM and the reliance on family to help support effective diabetes management (Santiprabhob et al., 2008). Regarding time, camps typically run longer than other youth programming, with youth participating in up to eight hours a day over a five-day period at a standard day camp. Garst and colleagues (2011) suggest that the longer periods can promote experiences different than other youth programming experiences that are shorter in duration.

Rationale and Purpose

Over the past several decades there has been tremendous growth in diabetes focused camps, promoted as important developmental opportunities for youth with diabetes. While there is growing understanding of the effectiveness of youths' self-management of their diabetes within these camps (Nabhan, et al., 2006; Perwin, et al., 2000), there remains little understanding

of *how* illness specific camps positively facilitate positive developmental outcomes (De Loach, 2009). Bialesckhi and colleagues (2007) highlighted that future research must examine factors within illness specific camps that may be contributing to the beneficial outcomes, and conduct evaluations of practice. PYD offers an important framework for examining youths' psychological, social, and life skills development, and has been used to examine youths' outcomes in both camp and sport settings, yet no studies have investigated the factors (i.e., programming, camp leaders, camp counselors, peers) and processes involved in facilitating PYD in diabetes focused camps (Henderson, Bialeschki, Thurber, Schueler Whitaker & Marsh, 2007). Garst and colleagues' (2011) three features of camp contexts offer a means for understanding how structure, programming and activities, and setting characteristics may interact to facilitate PYD that will enhance our understanding of the factors and processes of PYD. The current study aimed to address limitations and gaps of past work, by exploring youths' experiences at a T1DM camp. Specifically, the purpose of this study was: (a) to identify life skills youth developed through their camp participation, and (b) to provide a deeper understanding of the processes and factors involved in youths' development of life skills.

Methods

Context: The Camp

We chose to study youths' experiences in an integrated camp, given Maslow and Lobato's (2009) concern that the majority of previous research has been conducted strictly in "diabetic only" environments. An integrated camp provides medical care and T1DM monitoring, and camp programing for both diabetic and non-diabetic campers. We argue that such investigations are essential given diabetic youth will not always have the opportunity of engage in activities amongst only diabetic peers; integrative camps provide a more realistic setting

similar to that of their general life, where diabetic youth are a minority within their community. We were also interested in studying a diabetes camp with a sport focus, given past work highlighting the role of sport in facilitating PYD, coupled with the somewhat unique issues or concerns surrounding sport participation among diabetic youth (Nabhan, et al., 2006). The selected camp was established in 2008 at a large university in Toronto, Canada and is supported by the funding of two national agencies (i.e., focused on providing support for children and youth living with diabetes, and on integrating medical technology into the lives of those living with chronic illness to enhance their overall quality of life; Diabetes Hope Foundation, 2012; Medtronic Canada, 2010). At the time of data collection (summer 2011) funding supported camp administration and operation costs as well as all medical T1DM monitoring devices and supplies. At the time of data collection (summer 2011), there were approximately 150 youth participating in the camp over the two-week period, with 61 of these youth living with T1DM. This study was part of a larger research project examining the effectiveness of using constant glucose monitoring (CGM) by youth attending a diabetes sport camp (see Riddell & Miliken, 2011).

The day camp ran for two weeks throughout the summer, with some participants enrolling for only one week, and others enrolling in both weeks. The camp offered four sport options (i.e., soccer, tennis, basketball or track and field), with each child participating in one sport for either a one or two-week period at the camp. An integrative approach was also taken to staffing; camp counselors were both older youth also living with T1DM or varsity athletes (non-diabetic) who attended the university. All counselors were required to complete the standard health and safety training and diabetes care specific training seminars prior to the start of the camp. Onsite nurses were also present to provide complete medical care for campers. The

primary focus of the camp was the development of sport skills, with a secondary goal of teaching diabetes self-management while being physically active. This was viewed as an innovative approach to the diabetes-focused camp, given previous camps had placed precedence on diabetes self-management over other camp related activities (McAuliffe-Fogarty, Ramsing & Hill, 2007).

Participants and Procedure. Data was collected in August 2011, during both weeks of the camp. The study aimed for maximum recruitment of youth within the camp living with T1DM. A total of 54 of a possible 61 youth ages 8-16 participated in the study, with males representing 63% (n=34) of the sample, and average years living with diabetes being four. Prior to the start of the camp, youths' parents were provided information packages and consent forms approved by the university's ethics committee which they completed before children engaged in the study. Data was collected through two primary means: focus groups with campers, and key supporting documents about the camp (i.e., from funding agencies).

Data Collection

Focus groups. Nine focus groups were conducted with three to nine youth per group. A group of six or seven youth has been identified as an optimal group size for focus groups (Krueger & Casey, 2009). Campers were grouped for the focus group based on sport and camp group. If there was a larger response rate for participation in the focus group within sport and camp section, this resulted in a larger focus group size because of time and space limitations for focus group interviews to occur. Krueger and Casey (2009) suggest keeping youth age range within two years. The organization of ages at the camp and the restricted timelines limited the researcher's ability to keep the youth within a two-year age range. Therefore, youth focus groups were within a four-year age range. Groups were mixed sex and organized around sports of enrollment (i.e., soccer, basketball, track and field, tennis) for practical facilitation. Focus group

discussions followed a semi-structured interview guide, allowing for a discussion to flow amongst the youth. Interview guides were developed based on previous PYD through sport research focused on the outcomes and processes of life skills development (Camiré, Forneris, Trudel & Bernard, 2011; Fraser-Thomas, Coté & Deakin, 2005; Harkavy, Bennett-Johnson, Silverstein, Spillar, McCallum & Rosenbloom, 1983; Petitpas, Cornelius, Van Raalte & Jones, 2005). The interview guide was focused on exploring the experiences of campers that contributed to their psychological and social development. Previous PYD has suggested adult leaders had the potential to be an integral part of the life skills development process, therefore the interview guides were developed largely to explore the role of the camp counselor (Camiré et al., 2011; Fraser-Thomas et al., 2005). Probes were used to further explore the environment, contributors, life skills developed, and specific context of the youths' experiences. For example, youth were asked "Have aspects of the camp impacted you? If so, can you explain?" Youth were probed on how the camp specifically impacted their development of personal and social skills, cognitive skills, goal setting, initiative, self-esteem. Furthermore, youth were asked to describe how their camp counselors, nurses, peers and parents all were a part of their development at the camp. All focus group interviews were conducted by the primary researcher at the end of the camp session (i.e., last day or second last day the youth was enrolled in the camp), and recorded on a digital recorder.

Camp Documents. Camp documents regarding the two national funding agencies and the diabetes focused summer sport camp were obtained from associated websites. All data was collected using deductive content analysis methodology as outlined by Elo and Kyngäs (2007). Websites were located using a Google search engine and explored to locate the funding agencies' mission statements, philosophies and beliefs; these were extracted and used as data for further

analysis as outlined below. Information regarding mission statements, beliefs, or values of the camp, in line with the two national funding agencies were selected as the unit of analysis. Units of meaning (sentences) or words that reflected the information in the unit of analysis were extracted from websites and placed into an excel spreadsheet corresponding to their source (i.e., National funding agency website, University website, camp website). Following the placement of the units of meaning into the spreadsheet the researcher utilized deductive content analysis methodology to identify meaning (Tesch, 1900).

Data Analysis

Focus group interviews. All recorded interviews were transcribed verbatim by two research assistants; accuracy was verified by the primary researcher. All participants were assigned a pseudonym. Data analysis was guided by the principles established by Strauss and Corbin (1988; 1990). First, transcripts were coded into meaning units - meaningful pieces of information identified as ideas, concepts, terms and phrases that emerge from the transcripts. Second, open coding was used to categorize similar and different meaning units into themes, allowing for the identification of key concepts and their specific properties and dimensions. A third phase of analysis, axial coding, was employed to establish connections between the themes and create categories for the data. Categories were formed on commonalities between the themes based on context, conditions, and actions. Specifically, categories were formed based on the role of the camp counselor, nurses, parents, peers and the overall camp environment on the life skills development of the campers living with T1DM. Finally, all meaning units, themes and categories were systematically aligned to provide a complete description of the data during selective coding, the final stage of analysis.

Document analysis. A deductive content analysis as described by Elo and Kyngäs (2007), was conducted on the two national funding agencies' website data and the camp website. A deductive content analysis was chosen given the suitability of Garst and colleagues' (2011) framework for youth development of life skills. This data complemented focus group data, to inform broader concepts and principles of the camp at the levels of structure, programming and activity, and setting characteristics. All data collected from websites was placed into a spreadsheet; the main categories and themes were coded from the funding agencies' mission statements to provide the data for the study.

Results

The aim of this study was to explore youths' experiences at a T1DM camp with a specific focus on identifying life skills youth developed through their camp participation, and providing a deeper understanding of the processes and factors involved in youths' development of life skills. Overall findings suggested that participation in an integrated diabetes focused sport camp was associated with: (a) enhanced self-efficacy for self- monitoring of blood glucose, (b) enhanced self-efficacy for sport while living with T1DM and (c) development of social skills. Youth described during the focus group interviews that experiences associated with dealing with the highs and lows of blood glucose, carbohydrate counting, and self- maintenance of a normal blood glucose range throughout a day enhanced self-efficacy for self-management of diabetes. Enhance self- efficacy for physical activity was discussed in the context of youths' increased belief in their ability to be physically active, increased comfort testing blood glucose in sport settings, and ability to engage in constant glucose monitor reinsertion after falling out. Development of social skills was evidenced in communication skills, making new friends living

with or without T1DM, speaking to others about T1DM, and receiving information about diabetes management.

Youths' development of life skills was facilitated by several processes and factors, which can be understood through Garst and colleagues' (2011) framework of camp settings. Garst and colleagues' (2011) framework provided three main categories for results: (a) structural characteristics of the camp (i.e., establishment of camp norms, counselors and peers as facilitators of camp norms), (b) program and activity characteristics (i.e., camp safety, non-diabetic camper presence, sport and activity choice), and (c) setting characteristics (i.e., length of diagnosis, start date at camp, being away from parents). Categories and sub-themes are further described below.

Structural Characteristics of the Camp

Establishment of camp norms. Camp norms were important in facilitating youths' development of life skills, with funding agencies playing a key role in creating camp norms. Specifically, one of the funding agencies had the primary purpose of helping young people living with diabetes lead productive lives, thrive in school, sport and in their communities, while managing their diabetes, as their mission was to "improve and enhance the quality of life for Ontario children and adolescents living with type 1 and type 2 diabetes, to achieve their full potential in education, self-management and future independence" (Diabetes Hope Foundation, 2012). The foundation proposed that this mission could be achieved through partnerships between and within families, volunteers, and corporations, to establish a network of care services for youth – often provided through community services. The agency also had a particular focus on meeting the needs and aspirations of students transitioning from pediatric health care to adult health care, and from high school to university (Diabetes Hope Foundation, 2012). The aims of

the funding agency were clearly reflected in the camp's mission statement, "to enhance the quality of life for young persons with diabetes through sport, physical activity and physical fitness in a unique camp experience with their peers" (Diabetes Hope Foundation, 2012). In turn, this mission shaped the camp's norms, and subsequently the actions of the counselors and campers, as evidenced by youths' enhanced self-management skills, self-efficacy for sport and physical activity, and social support networks.

Counselors as facilitators of camp norms. Camp counselors were key in ensuring the campers adopted and acted according to the camp norms as outlined in the camp's mission statement. Campers identified that counselors acted as role models for fulfilling camp norms, this was achieved through counselor's ability to provide assistance with diabetes management and encourage open communication and discussion about diabetes. Youth discussed how counselors living with T1DM served as role models, as they lived physically active lifestyles while effectively managing T1DM; they openly shared their experiences about playing sports and managing blood glucose levels.

Campers also discussed how the counselors living with T1DM shared many of the same experiences as them and often provided guidance or advice. Youth felt they were better able to communicate with the counselors with T1DM than other staff, because the counselors were knowledgeable about T1DM and therefore able to understand them Bailey said,

> If there's a counselor who doesn't understand diabetes, you can't tell them "I'm low" what are they going do? They won' have supplies, they don't know how to treat it, they won't understand what you're trying to tell them. If they don't know and they don't have any experience it becomes really frustrating because you need to explain to them and give

them a small tutorial and as time goes by and you're explaining to them, your blood sugar is becoming lower and lower.

To facilitate the camper cohesion between all campers (i.e., campers living with T1DM and non-diabetic campers), counselors encouraged youth living with T1DM to share and discuss their experiences with non-diabetic youth. Campers explained that this made learning about diabetes fun. Additionally, youth explained that counselors used the strategy of creative group language to establish a secret word that was used to remind them to test their blood sugar; they were excited to discuss the word and their experiences with fulfilling the action of testing associated with hearing the word. Youth recalled that they would shout the word out after long periods of activity or after meals to remind each other to test. Collectively, these experiences facilitated the adoption of camp norms established by the funding agencies and camp's mission statements and philosophies, which in turn increased campers' own self-efficacy for sport and physical activity.

Peers as facilitators of camp norms. While camp counselors appeared to play the most significant role in establishing camp norms, peers also contributed to adoption of camp norms through the aspect of group living. Youth suggested there were two types of peer groups at the camp: peers living with T1DM and peers living without T1DM. While campers identified that there were two distinct types of peers (i.e., peers living with T1DM and peers living without T1DM), they were both included within the group living characteristics of the camp experience.

Camp peers living with T1DM indirectly facilitated better glucose management among youth, as noted above, they made the action of checking blood glucose in public as a camp norm. As Carter stated,

> I liked the fact they if you're doing a sport and you have a low blood sugar it wouldn't be weird if you go out and if you leave what you're doing to go check your sugar, because like everyone's going to do that.

Campers suggested that when engaged in sport and physical activity outside of the camp, their non-T1DM coaches, teammates or trainers made a spectacle out of them when checking their blood glucose levels. They explained how they would be benched or told to sit out after checking their blood sugar levels even when their glucose levels were within normal range. Bailed stated, "It's more comfortable being at this camp because it's with other diabetics but also there's non-diabetics around and they'll understand too because it's been explained to them or they understand like a little more."

A salient theme that emerged for all focus groups was that in other sport contexts, youth felt "left out" or that they were "missing something" as the rest of their team or group would move forward, they would be left behind. One participant said,

> When you check your blood sugar people ask you why you are going off the field and the non-diabetics, they can stay on the field and have more fun and then you miss something…something fun happens and you miss it 'cause you had to check your sugars.

However, campers living with T1DM consistently expressed that they did not feel "left out" or that they were "missing something" among non-diabetic youth while at the diabetes sports camp. At this particular camp, campers living with T1DM emphasized that the camp norms, which reinforced open communication with between diabetic and non-diabetic youth about T1DM, enhanced their self-efficacy for participation in physical activity.

Participants also discussed how the camp provided youth living with T1DM the opportunity to make friends living with T1DM - but that these friendships were different than

many they had made before – because they were friendships formed over the common interest of sport and not over their similar challenges of living with a chronic illness. This was particularly important for the youth that were recently diagnosed with T1DM. Additionally, many campers reported that they had never met another diabetic youth of similar age, and that in their other life contexts where they were often the only diabetic. Carter said,

> I was depressed about being diagnosed. I just wanted to stay inside all the time and I never wanted to come out. My mom kept telling me that there were other people that have diabetes but I didn't believe her. When I came to the diabetes camp, I realized there actually are some benefits to it (the camp) because you get to experience new people that have diabetes and they might have different personalities and different experiences with it.

The opportunity to develop supportive relationships and establish a sense of community amongst campers living with T1DM encouraged enhanced diabetes education. Furthermore, being in a camp with peers living without T1DM gave them the opportunity to discuss and talk openly about diabetes with both peer groups. Youth described that their pervious experiences with non-diabetic youth were coupled with stigma and lack of knowledge regarding type 1 diabetes. Peers were an important part of group living at the camp. Through the acceptance of discussion regarding diabetes and the normalization of testing blood glucose in public, campers living with T1DM were able to effectively engage in self-management of their diabetes in a physically active environment.

Program and Activity Characteristics

Camp safety. The camp provided structured programming and activities for the youth. One aspect of the camp programming was to provide a safe camp environment that the campers

living with T1DM could actively participate in. This aspect of the camp program was established through the camp's mission statement, which highlighted the importance of providing a fun sporting experience for youth in a safe, diabetes friendly environment. Youth discussed that they felt safer being physically active at this camp, making several comparisons to their school sport environments and on their club sport teams one participant said:

> I came to this camp because it's more safe and comfortable. You have more trained nurses and everything, and like you have glucose pills and index pills and stuff… so like its more helpful and my mom can like rest easy knowing that I'm safe.

Many youth suggested that supervisors/leaders in programs they had been involved in in the past, did not know how to manage their diabetes, making it difficult for them to learn how to self-manage their diabetes. In contrast, counselors and nurses at this camp were trained in diabetes management, and participants felt assurance that camp counselors and nurses had the competence to deal with T1DM, allowing them to fully engage in camp activities.

Camp sport and activity choice. Youth mentioned that they felt their parents were more trusting of this camp in comparison to other programs because of the trained staff, allowing them to attend and participate in all camp activities, rather than just the most risk-averse activities. As Pat said,

> Like at soccer my mom would be like, "Is your sugar low?" And I'm like, "No.", And she'll ask me like repeatedly. But when I'm here she doesn't really mind. Like even if it's low, she knows I can take glucose pills and stuff. So she's not as jumpy.

Campers consistently described that while attending the camp their parents felt assured that the camp staff were sufficiently prepared to take care of them if they experienced hypoglycemia.

Camp program and activity options allowed for youth to participate in non-modified sport activities similarly to their pre-diagnosis activities, an important aspect as youth expressed that they wanted to regain their pre-diagnosis level of physical activity involvement. For these youth, the opportunity to have the option to participate in sports to regain their previous lifestyles in a way that allowed for effective self-management of their diabetes, enhanced their self-efficacy to be physically active while managing their blood glucose effectively. Sam said,

> Well, like before I was diagnosed I was like really athletic. I'd do all these sports, and then ever since I was diagnosed I've been really scared to exercise and stuff – scared of lows. So if I came here I knew that like people would know what to do and stuff.

Non-diabetic camper presence. Youth described that the composition of camp programming and activities provided the unique opportunity for a large number of youth living with T1DM to participate in a camp setting with non-diabetic youth. This integrative camp experience was associated with the development of self-efficacy for self-management of diabetes and participation in physical activity. Youth described how they initially would test with only fellow diabetic campers, then transitioned to testing in front of non-diabetic campers. Youth expressed that this actually helped them feel more comfortable testing around non-diabetic people outside of camp settings. Riley said, "The camp has helped me test in front of people, because before I felt nervous to do it, but now I am able to do it in front of all people", This was due largely to past experiences they'd had in other sports programming where they'd felt embarrassment testing in front of non-diabetic people. Bailey described one past experience: "When I was getting ready for hockey I went really, really high and I had to stick a needle in and my whole team is like watching me. I really felt on display." Yet, in other diabetes programs they'd been involved in, (only for youth living with T1DM), they had not had an opportunity to

be comfortable with non-diabetic youth observing them in sport settings. They emphasized the importance of meeting peers under a common interest of sport, rather than diabetes. As Casey said,

> I think it's good that other people that don't have that diabetes are here so that way they know more about it and that if they ever meet somebody else that has diabetes, they won't be as annoying as the people who don't have any idea of what diabetes is and that's good.

Camp Setting Characteristics

Being away from parents. The camp setting characteristics could also be associated with the development of youths' life skills. Specifically, the camp offered a setting without parents, which youth suggested contributed to their development of social skills and skills necessary to self-manage diabetes. For example, Casey outlined her mother's anxiety when she attended other camps, in comparison to this diabetic specific camp,

> Well, when I would go to other camps, my mom would be calling me every ten minutes and she'd show up with like the reddest face and be like, "Oh my God, are you okay? Did you take your insulin?" But, here she's like, okay… She's fine.

At the T1DM sport camp the campers' parents felt less concern for their child's diabetes self-monitoring. Youth suggested that parents expressed less anxiety about reminding their child to test or concern for their health. This is particularly important, as youth suggested that when their parents were anxious or worried about their diabetes management, this made them feel the same way. Casey stated further elaborated, "I enjoy not having to worry. Well, it's not exactly me worrying. Like, sometimes my parents will worry, which will kind of lead to me worrying."

An interesting consequence of parents' decreased anxiety was that the focus of parent-child conversations outside the camp changed. Parents began to focus on general events and activities within the camper's day, or the new friends that they were making. For many youth this allowed for the development of effective communication between themselves and their parents.

> When I go to other camps they always ask me when I get home, "How was your day?" and like, "Were you okay?" and stuff. But now they just ask me what happened at camp, instead of asking if I was okay. (Jesse).

Youth expressed the salient theme that the change in conversational topics with their parents improved their overall communication with their parents; however, this trend only began to occur after attending a week at the camp among the 2-week camp participants.

Length of diagnosis and start date at the camp. While Garst and colleagues (2011), intended the definition of time within the category camp setting characteristics to capture length of time engaged in an activity, it can be expanded within the T1DM camp setting to include length of diagnosis of the camper. The camp was described as an optimal context for experiences associated with the development of self-efficacy for self-management, social skills, and self-efficacy for physical activity. Interestingly however, newly diagnosed youth discussed these experiences to a greater extent than youth that had been diagnosed for some time. As Kerry explained,

> I learned more about diabetes, because I was only diagnosed three months ago. Most people here were diagnosed for more so they know twice as much about diabetes as me. So sometimes like an interesting fact, so they teach me a little more about it. I like learning it from everyone.

Discussion

This study identified life skills youth developed through their participation in a T1DM camp, and provided a deeper understanding of the processes and factors involved in youths' development of life skills. Findings suggest that participation in an integrated diabetes focused sport camp was associated with: a) enhanced self-efficacy for self- monitoring of blood glucose, b) enhanced self-efficacy for sport while living with T1DM and c) development of social skills. Garst and colleagues' (2011) work provided a framework to understand the processes and factors that facilitated life skill development: (a) structural characteristics of the camp (i.e., establishment of camp norms, counselors and peers as facilitators of camp norms), (b) program and activity characteristics (i.e., camp safety, non-diabetic camper presence, sport and activity choice), and (c) setting characteristics (i.e., length of diagnosis, start date at camp, being away from parents). Categories and sub-themes are further described below.

Ecological Systems Theory

To assist in the conceptualization of the findings, with a specific focus on understanding the relationships between the funding agencies, the camp, and the camp counselors and campers, we utilized Ecological Systems Theory (EST; Bronfenbrenner, 2005) to guide our discussion. EST provides an appropriate framework for a systematic understanding of processes and outcomes of human development as a function of the person and the environment (Bronfenbrenner, 2005). Furthermore, in regards to the specific purpose of this study, EST can explain children's development at a camp within five environmental systems: (a) macrosystem, (b) exosystem, (c) mesosystem, (d) microsystem and (e) chronosystem. Additionally, EST proposes that development occurs as a result of the bi-directional influences between the child and these systems. Explaining the findings guided by the EST framework allows for the establishment of a stronger understanding of the diabetes camp environment, and the impact on

positive life skills development in youth. Specifically, the findings of the content analysis informed the macrosystem level, while and the results of the focus group interviews informed the subsequent layers of the EST.

Bronfenbrenner (2005) outlines the macrosystem as "the most distal level of human ecology, comprised of public policy, governments and economic systems, and encompassed by the norms, social beliefs, and ideologies of society or governing body" (p.149). In this study, the camp's funding agencies were identified as making up the macrosystem for camper life skills development. The exosystem connects influences of the macrosystem to individual level policies – whereby. "This can include the influence processes within the immediate setting that does contain that person" (Bronfenbrenner, 2005, p.148). The exosystem was evident in the influence of the funding agencies beliefs and values as identified in their mission statement, as these were reflected in the camp's specific mission statement and goals. Next the mesosystem level "describes the linkages and processes taking place between two or more settings" (p.148). The findings of the study revealed that the camps mission statement and goals directly impacted the values and behaviours of camp counselors, nurses and fellow campers, to establish three environments that were conducive for providing opportunities for life skills development in youth living with T1DM. The three categories that facilitated development were described: (a) structural characteristics, (b) program and activity characteristics and (c) setting characteristics. Finally, the microsystem, regarded as "the most proximal human ecological system, consists of patterned activities, roles and interpersonal relations a person experiences in a setting" (p.147). In the camp context, the microsystem included the specific interactions between parent, peers, counselors and nurses, and campers. These interactions elicited specific experiences that were associated with development of life skills.

Development of Life Skills and Processes of Development

Overall, the findings of this study strengthen the current understanding of how an integrative diabetes summer sport camp can facilitate life skills development of youth living with T1DM. The results of this study expand upon the findings of Bialeschki and colleagues (2007) who suggested that diabetic camps are not inherently good without purposeful and directed efforts by the camp professionals. Current PYD through sport has focused on exploring the mechanisms, process and facilitators of PYD through sport (e.g., Gould, Collins, Lauer & Chung, 2007; Pepitas, Cornelius, Van Raalte & Jones, 2005). Pepitas and colleagues concluded that participation in sport contexts alone does not ensure automatic life skills development in youth, but rather, youth development is dependent on the sport context's delivery, and how this delivery is experienced by youth participants. The results of the present study highlighted the funding agency's policy as a strong influential factor for the camp's mission and goals. Traditionally, sport focused programs are designed to enhance specific sport skills without focus on PYD (Camiré, Forneris, Trudel & Bernard, 2011). However, this study demonstrated that camps can offer a sport-focused approach, while also promoting PYD, when their funding agency has highlighted the importance of PYD through established missions and goals.

Past research has identified that diabetes camps are focused primarily on measuring increases in disease knowledge and self-management of diabetes (Maslow & Lobato, 2009; Santiprabhob et al., 2008; Wang, Stewart, Tuli & White, 2008). Findings of this study identified positive increases in self-efficacy for self-management of T1DM, reinforcing past findings which identified increases in disease knowledge and self-management among camp participants (Maslow & Lobato, 2009; McAuliffe-Fogarty, Ramsing & Hill, 2007; Santiprabhob et al., 2008; Wang, Stewart, Tuli & White, 2008). However, increased knowledge and self-management of

diabetes was experienced by older youth, which sought out increased responsibility of their diabetes (Karlsson et al., 2008). Thurber and colleagues (2007) also suggested older youth experience increased benefits pertaining to knowledge and self-management than younger youth. The findings of this study build on the conclusions of Karlsson et al., (2008) and Thurber et al., (2007) to the benefit of participation in a diabetes camp for increase knowledge and self-management skills to include youth that have a longer time since diagnosis. However, despite the empirical evidence to support positive development for knowledge and self-management of diabetes, past research has identified that following the end of camp, youths' self-management and blood glucose control decrease (Santiprabhob et al., 2008). Furthermore, Karlsson and colleagues (2008) have identified that the positive changes in disease knowledge and self-management tend to decrease over time, particularly during teenager years. As such, longitudinal research is necessary to better understand the long-term implications of processes and mechanisms described by participants in this study.

Additionally, the results of this study support existing research suggesting that PYD through sport occurs when purposefully taught by adult leaders and when opportunities for youth to utilize newly developed life skills are offered (Gould, et al., 2007). The opportunity for PYD to occur in sport contexts has been attributed primarily to opportunities for positive learning experiences, facilitated by coaches (Fraser-Thomas, Côté & Deakin, 2005). This study extends these findings into the camp context whereby counselors are understood by campers to be like coaches (i.e., adult leaders), and peer campers are recognized as teammates, with both being identified as key facilitators of PYD in a camp context.

First, the identified roles of the camp counselors in this study align with the coaching framework established by Camiré and colleagues (2011) that outlines strategies to enhance

opportunities for PYD through sport. First, Camiré et al. (2011) outlined that coaches develop a coaching philosophy that prioritizes the physical, psychological and social development of athletes. Counselors that participated in this study had the opportunity to develop philosophies derived from the camp's mission statement, with their personal goals and goals for campers established through these philosophies. Secondly, Camiré and colleagues (2011) highlighted that for PYD to be enhanced in the sport setting, coaches must establish meaningful relationships with their athletes. Meaningful relationships allow for the coach to gain creditability and athletes' respect and are often established when the coach is able to effectively demonstrate his/her knowledge and ability to athletes. Additionally, coaches must be willing to learn about their athletes' current life skill abilities. At the diabetes sport camp, counselors were either living with type 1 diabetes or varsity athletes, leading them to typically be viewed as model models and older peers among campers. Campers were able to connect with the counselors because they recognized many shared/similar experiences and entrusted that the counselors would provide guidance regarding sport skill development and T1DM self-management. Counselors made efforts to educate campers living with T1DM on self-management skills. Counselors did not formally establish long-term and short-term goals for their campers, however they were aware of the goals campers, and goal setting has been suggested to be an effective way to intentionally plan for life skills development (Camiré et al., 2011). As such, counselors intentionally planned ways to teach campers about self-management of diabetes while being physically active; they simultaneously provided campers with opportunities to utilize recently developed and enhanced life skills by promoting independence and interaction amongst peers.

Teammates have been identified as another main contributor to positive youth experiences in sport contexts and while a framework of teammate/peer roles in the process of

PYD has not been established, their contribution to PYD has been well noted (Fraser-Thomas et al., 2005). This study explored a unique diabetes focused camp that integrated youth living with and without T1DM. Previous research has examined the life skills outcomes of camps with only type 1 diabetic campers (Maslow & Lobato, 2009; Santiprabhob et al., 2008; Tumini, Anzellotti, Chiarelli, 2003). The findings of this study suggest that youth participating at an integrated diabetes sports camp will experience the same opportunities for life skills develop as youth participating at a diabetic only camp, as well as additional opportunities provided by engagement with non-diabetic youth.

Finally, the findings of this study can be more broadly applied to demonstrate the parallels between existing research for the process PYD though sport in youth without chronic illness and youth with chronic illness suggesting that future sport focused illness specific camps and programs can utilize current PYD evidence to strengthen the effectiveness of their program design. This study highlighted that youth who were recently diagnosed with T1DM appeared to experience greater benefits from participation in the camp. Specifically, additional benefits for youth recently diagnosed with diabetes appeared to be related primarily to having the opportunity to engage with others living with T1DM, coping with the disease, and reducing withdrawal and anxiety associated with diagnosis, typically associated with the initial period following diagnosis (Kakleas et al., 2009). Past research has highlighted that poor adjustment through this initial phase can increase childrens' risk for psychological difficulties later in life (Northam, Matthews, Anderson, Cameron & Werther, 2005).

Strengths, Limitations, and Future Directions

This study expands upon current research, outlining life skills that can be fostered through a diabetes focused camp, as well as the mechanisms and facilitators of life skills

development within this context. While this study offers a rich understanding of youths' experiences while attending the camp, and how these experiences have the potential to enhance the psycho social development of youth, the study did not quantitatively measure the degree to which psychosocial development occurred, or extent to which changes occurred over time. Bialesckhi and colleagues (2007) called for a more rigorous evaluation of the outcomes youth gain from their experience at an illness specific camp. As such, future research should include quantitative and longitudinal designs, to offer a more comprehensive understanding of life skills development over time. Longitudinal designs are also important to advance understanding of other time-related factors related to life skill development. For example, while the camp included in this study was limited at a maximum of two weeks in length, longer camp stays have been suggested to facilitate increased life skills development (Thurber, Scanlin, Scheuler & Henderson, 2007). More research is needed to explore the optimum length of camp programs to for facilitating PYD – or even the minimal length of camp programs for PYD facilitation. Given the findings of this study - that increased self-efficacy for physical activity occurs after participation in a camp for youth living with T1DM, future research should explore youths continued involvement in sport following their involvement in the camp. Further, youth living with T1DM are often are bullied and feel like outsiders within their normal life contexts as they have not met or do not know of other youth living with their illness (Peters, Storch, Geffken, Heidgerken, & Silverstein, 2008). The results of this study provide additional rationale for the importance of shared lived experiences amongst T1DM youth that is optimized in a T1DM camp context. Future research is needed to identify the specific components of the camp over time, that contribute to social skills development.

Conclusions

This study utilized a PYD lens to describe the experiences of youth living with T1DM while attending a diabetes summer sport camp. Bronfenbrenner's (2005) EST was used as a framework for analysis of youths' experiences to provide a deeper understanding of how an integrated T1DM sport camp's characteristics can facilitate youth development. Furthermore, this study described the connection between the camp's mission statement and funding agencies beliefs and values, and how this shaped camp counselors' and campers' values and behaviours. Camps have been identified as an important part of the lives of children and youth (Garst et al., 2011). This study expands our understanding of how PYD occurs in the camp context. Furthermore, we enhanced our knowledge of the camper's experience. Findings of this study suggest that the camper's experience is made up of the people, programming, structure and setting and the relations between these factors can facilitate PYD. Furthermore, this study enhances the understanding of how these factors function within an illness specific camp are integral to ensure the PYD of youth living with T1DM. To date, similar studies investigating the positive outcomes of participation in an illness specific camp have focused on identification outcomes, particularly improvements in glycemic control (Harkavy, Bennett-Johnson, Silverstein, Spillar, McCallum & Rosenbloom, 1983; Karaguzel, Bircan, Erisir & Bundak, 2005; Santiprabhob et al., 2008; Wang, Stewart, Tuli & White, 2008). The findings of this study support the idea that we should decrease our focus on the psychosocial problem of youth living with T1DM, and focus on the aspects of their lives in which we can enhance their developmental experiences so that they are provided an optimal opportunity to develop positively. The results of this study will strengthen our understanding of how positive life skills development is occurring

in the T1DM camp setting so that T1DM focused camps can enhance their programming to optimize positive psycho social skills development amongst their campers.

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