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Innovations in Diabetes Care

Creative Arts Diabetes Initiative: Group Art Therapy and Peer Support for Youth and Young Adults Transitioning From Pediatric to Adult Diabetes Care in Manitoba, Canada

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Key Messages

- For ongoing health and well-being, First Nation youth with type 2 diabetes need transition support provided in a holistic way.
- Medical professionals can be empowered to consider how to support emotional and psychological aspects of their patients' experiences.
- Creative arts methodologies are useful for youth to recognize and find meaning in their feelings, helping to improve psychosocial functioning.

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Introduction

Living with diabetes is difficult and psychologically challenging. Many youth struggle with the complexities of the medical system in addition to the disease itself. Emotional distress, depression, fear, anxiety, loneliness, negative mood and feelings of hopelessness are common in people with diabetes (1). Improved psychosocial functioning may lead to better glycemic control, facilitate self-management and improve health outcomes (2). Engagement with creative activities has the potential to contribute towards reducing stress and depression, increasing understanding of oneself and others, developing a capacity for self-reflection and self-expression, altering behaviour and thinking patterns and enhancing coping mechanisms (3). Peer support through the reciprocal relationship that occurs through the sharing of life experiences can enable exploration of feelings, social support, problem-solving, goal setting and self-efficacy (4). Although there is growing evidence for using creative art approaches for therapeutic benefit in a number of medical specialties, namely cancer care, palliative care, mental health and eating disorders, there is limited evidence describing the effects of art therapy in people living with diabetes, and none to date in Canada have focused on the transition-aged population (5-12).

Although youth and young adults with type 1 and type 2 diabetes share many commonalities of living with and managing a chronic disease, these populations are quite distinct in Manitoba, Canada, with needs that may require uniquely targeted approaches for engagement, care and support. Early reports describing strategies to support youth transitioning with type 1 diabetes in our population have been published, but what is less understood is how

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to support transitioning youth with type 2 diabetes in a more holistic way (13). In Manitoba, the pediatric diabetes clinic currently follows >300 youth living with type 2 diabetes, and >80% of these youth are of First Nation heritage (14). Evidence suggests that youth-onset type 2 diabetes in Manitoba's First Nations population is a result of a complex multifactorial etiology with strong genetic and environmental risk factors and is associated with complications that are similar to those seen in adults with type 2 diabetes, but with a rate of progression that can be more rapid than seen among youth with type 1 diabetes or adults with type 2 diabetes (15-18). In Manitoba, youth with type 2 diabetes have a 6.15-fold increased risk of any vascular disease (15). Major complications (dialysis, blindness and amputation) start to manifest 10 years after diagnosis, with 50% of youth with type 2 diabetes developing serious kidney disease by 40 years of age (15). Therefore, a diagnosis of type 2 diabetes in childhood puts the individual at increased risk for morbidity and mortality during the most productive years of life. Psychosocial dysfunction is also common in young adults with type 2 diabetes. Approximately 47% of youth <18 years of age with type 2 diabetes in Manitoba have had an admission to mental health services (14). Furthermore between 50% and 60% of youth 16 to 17 years of age with type 2 diabetes struggle to attend pediatric medical appointments for their diabetes care and are lost to routine medical surveillance before the age to transfer their care to adult medical care is reached (14). Most youth with type 2 diabetes in Manitoba live in rural or remote communities and require travel to attend specialty care. Given the high rates of morbidity at the time of transfer, default from routine medical surveillance, geographic and jurisdictional systems challenges, supporting transition for this population remains a serious concern for our health-care system. Interventions successfully addressing behavioural and psychosocial issues could be beneficial.

In recent years, there have been a number of qualitative studies focused on what diabetes and its related issues mean to patients (19-21). Although this search for meaning might be difficult to quantify in terms of measures of glycemic control, the meaning patients attribute to an illness does seem to affect how they rate their overall health, and these perceptions may influence treatment effectiveness, psychological symptoms, coping and somatic outcomes (22). Meaning is not only a cognitive, rational process, but also one interacting with multiple parts of learning (3). The arts are increasingly being used in multiple aspects of health care, but they have long been used in psychotherapeutic contexts in helping people verbalize their feelings and communicate beyond words, to give voice to parts of life that people may have been encouraged not to discuss (7,8). Camic (8) discusses at length how and why such approaches are useful from a health psychology perspective, and Lane et al (9) discusses how it is being used in nursing practice. Stuckey and Nobel (3) conducted a review of the literature that explored the relationship between engagement with the creative arts and health outcomes, specifically the health effects of music engagement, visual arts therapy, movement-based creative expression and expressive writing. In all 4 areas they found clear indications that artistic engagement has significant positive effects on health. Much of the visual arts research has been done with patients suffering from cancer, particularly women. Engaging in different types of visual arts has been shown to help women with cancer in 4 main ways: 1) to focus on positive life experiences, 2) to enhance self-worth, 3) to maintain a social identity undefined by cancer and 4) to allow them to express their feelings in a symbolic manner, especially during chemotherapy. Monti et al (10) found, in a quantitative trial of mindfulness art therapy targeting women with breast cancer, that those who engaged in art making demonstrated statistically significant decreases in symptoms of physical and emotional distress during treatment. Samoray (23) saw reductions in stress and symptoms of compassion fatigue and increases in well-being, healing and sense of purpose in patients affected by trauma who engaged in creative expression. Arts in medicine programs in the United States have shown significant improvements in Medical Outcomes Study 36-Item Short-Form Health Survey symptom scores with a trend towards reduced levels of depression, improved quality of life and social functioning measures in an outpatient hemodialysis unit and reduced stress during hospitalization (11,12).

The overall purpose of this initiative was to determine if group art therapy for youth and young adults with diabetes will decrease diabetes-related distress and increase levels of emotional and social support.

Methods

This study was of mixed methods design with validated pre- and post-test measures in diabetes-related emotional distress, social support and emotional well-being. Portfolio review/case studies and a participant satisfaction evaluation to determine influence on quality of life were also explored. Ethics approval was granted by the University of Manitoba Health Research Ethics Board and the Health Sciences Center Pediatric Research Coordinating Committee. The study was registered with ClinicalTrials.gov (NCT02790892). Data were collected for the study from May 2016 until August 2018 from 5 art therapy groups.

Recruitment and population

Participants 15 to 25 years of age with either type 1 or type 2 diabetes were recruited through the provincial pediatric diabetes program (Diabetes Education Resource for Children and Adolescents), a young adult diabetes program in adult endocrinologist offices. All recruitment sites were in Winnipeg, Manitoba. Posters were placed in clinical waiting rooms at these sites. In addition, the study was advertised in newsletters distributed through the Diabetes Education Resource for Children and Adolescents and the diabetes transition program in Manitoba (The Maestro Program). If youth expressed interest in participating, they were provided with a brochure that outlined the project by the study coordinator/art therapist. Youth were given time to ask questions. If the youth chose to pursue participation, an individual introductory session was arranged. Each participant (and their guardian if <18 years of age) attended a 1-on-1 initial orientation session to meet the art therapist and review their goals for art therapy. This session was briefly attended by a research assistant who obtained informed consent. The preintervention testing was performed at this session once consent was obtained.

Intervention

After the initial individual session, youth participated in 12 weekly group art therapy sessions (Supplementary Appendix 1, Creative Arts Diabetes Initiative art therapy intervention schedule). The intervention art therapy groups were closed (once established) and explored what it is to live with diabetes. The sessions were led by a graduate student in art therapy (C.M.) and used elements of existentialist and cognitive behavioural theories that stress transformative thinking processed through a decolonizing lens, with phenomenologic-based talking about/dialoguing with the artwork (24). Four therapeutic factors based on the therapeutic factors for group therapy from Yalom and Leszca (25) were used as a framework for development and intervention: 1) universality, 2) self-understanding, 3) existential factors and 4) instillation of hope. In keeping with indicators of success for working with peer support in chronic disease management, group discussion was facilitated with a person-centred approach with emphasis on respect,

empowerment and self-efficacy, not only addressing issues of clinical importance, but also reflecting individual values, realities and problems that influence chronic disease management (26).

Group sessions were then held weekly for 12 weeks and lasted 90 min each. Bus tickets to help offset the cost of transportation were provided. No monetary honoraria were paid for participation nor were fees charged for the art therapy services. Bottled water and a light healthy snack were provided at each session. All art supplies were provided. Art work produced by participants was digitally photographed and documented as data for the study. Art work was kept in individual portfolio cases by the art therapist until completion of the intervention and then returned. Sessions began with a grounding or centring relaxation exercise. Art therapy sessions consisted of a mixture of directed and/or self-directed activities designed to both engage and work on introspection and self-awareness for individuals and to facilitate the development of trust and respect within the group dynamic. Assorted media for drawing, painting, collage and creating sculpture from paper, plasticine, self-hardening clay, fabrics or found objects were explored. Discussion and debriefing after the major art exercise followed. A closing exercise to recentre and relax was used to complete the session. After completion of the 12 weeks of sessions, a participant satisfaction evaluation form and the second set of psychometric assessment measures were administered, a portfolio review was completed with the participant and the participants were given their portfolios and all their work to take home. The end of the sessions were typically marked by a celebration-type event, such as a participant art show to which guests were invited, a trip to a special showing at the Canadian Museum for Human Rights or local art gallery or an in-house ceremony or celebration event, with the decision of the group.

Outcome measures

Social support

Social support is considered an important factor that may affect a person's functioning and well-being. The Medical Outcomes Study (MOS) Social Support scale was developed for patients with chronic conditions to determine how social support contributes to health (27). This scale contains 19 questions of functional support measuring 5 dimensions of social support: 1) emotional or informational support, which includes feedback and guidance that can provide a solution to a problem; 2) tangible support; 3) affectionate support, which involves care, love and empathy; 4) positive social interaction, which involves information relevant to self-evaluation and 5) social companionship, which involves spending time with others in leisure and recreation activities. The scale is scored on each subscale and with an overall functional social support index. For the purpose of this study, only the overall functional social support index was used.

Well-being

The Mental Health Continuum Short Form (MHC-SF) scale was validated to measure positive mental health and comprises 14 items, representing various feelings of well-being rated on a 6-point Likert scale (never, once or twice a month, about once a week, 2 or 3 times a week, almost every day and every day) (28,29). The MHC-SF scale contains 3 items of emotional well-being, 6 items of psychological well-being and 5 items of social well-being. It is scored based on both continuous scoring with the sum for each subscale and a total score, and on a categorical diagnosis of flourishing, moderate or languishing mental health. If someone feels 1 of the 3 emotional well-being symptoms every day or almost every day, and feels 6 of the 11 positive functioning symptoms every day or almost every day in the past month, they are given a flourishing diagnosis. A languishing diagnosis is given when someone feels 1 of the 3 emotional well-being symptoms never or once or twice, and feels 6 of the 11 positive functioning symptoms never or once or twice in the past month. Positive functioning symptoms are indicators of social well-being and psychological well-being. Individuals who are neither flourishing nor languishing are given a moderately mentally healthy diagnosis.

Table 1
Characteristics of participants

Demographics	All participants (N=12)	Completed (n=7)	Not complete (n=5)
Mean age, years (range)	17.75 (15–21)	17.43 (15–21)	18.20 (17–20)
Sex			
Male	2 (16.67)	1 (14.29)	1 (20.00)
Female	10 (83.34)	6 (85.72)	4 (80.00)
Self-reported heritage			
White	2 (16.67)	2 (28.58)	0 (0.00)
Metis	1 (8.34)	1 (14.29)	0 (0.00)
First Nation	9 (75.00)	4 (57.15)	5 (100.00)
Type of diabetes			
Type 1	1 (8.34)	1 (14.29)	0 (0.00)
Type 2	11 (91.67)	6 (85.72)	5 (100.00)
Diabetes care team			
Pediatric	6 (50.00)	4 (57.15)	2 (40.00)
Adult	6 (50.00)	3 (42.86)	3 (60.00)
Mean age at diagnosis, years (range)	12.67 (9–19)	12.43 (9–19)	13.00 (10–15)

Note: Values are n (%) or as otherwise indicated.

Emotional distress

The Problem Areas in Diabetes (PAID) instrument is used to measure emotional distress in people with diabetes (30). It is a 20-item scale consisting of emotional problems commonly reported in type 1 and type 2 diabetes. It has been found to be valid, reliable and responsive in its ability to detect change when used in intervention studies with adults and also with youth (31,32). Clinically, the PAID instrument can be used as part of assessment and monitoring of patient's emotional functioning and as an alert to diabetes burnout. Each item has 5 possible answers with a value from 0 to 4, with 0 representing no problem and 4 representing a serious problem. The overall score out of 100 is a measure of the emotional burden of diabetes. If patients score $\geq$40 on the scale, this indicates a level of emotional burnout. Conversely, an extremely low score (0 to 10) combined with poor glycemic control may be indicative for denial of diabetes.

Participant satisfaction

We developed a 12-item evaluation survey to better understand participant's experience and satisfaction with the art therapy intervention. The first 4 questions were about satisfaction with length and time of sessions, and with how the sessions were delivered. Questions 5 and 6 asked what they liked best or least about the program. Question 7 and 8 asked if the program helped them in any way and how. Question 9 asked what they learned about themselves that was of significance. Questions 10 and 11 were about the peer-support aspects of the intervention and if they would recommend it to other youth or young adults with diabetes. The final question asked for their feedback or suggestions for improving the program.

Results

Participants

Sixteen youth 15 to 25 years of age were recruited. Two youth participated but were excluded from the analysis because they did not have a diagnosis of diabetes but attended the art therapy

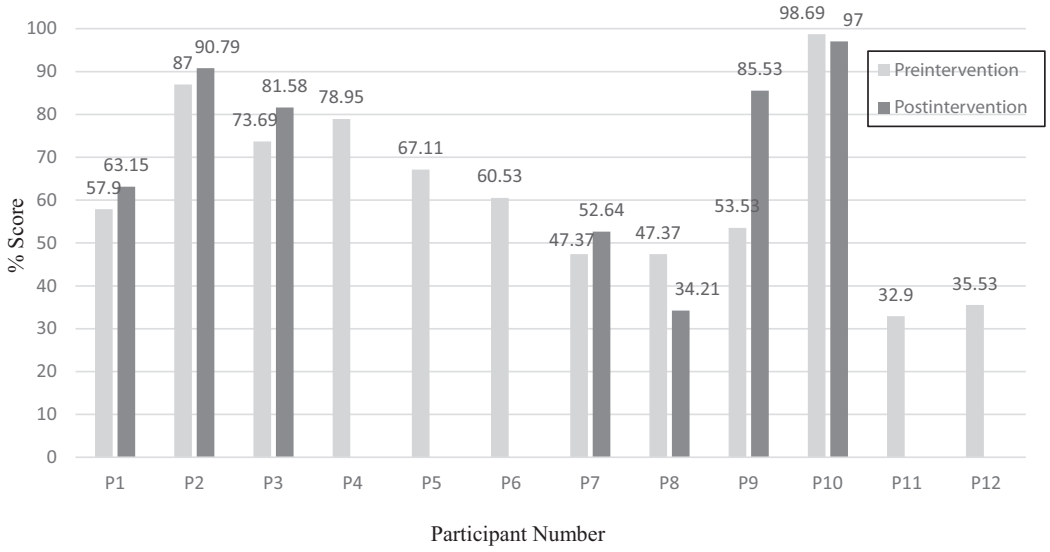

Figure 1. Results: Social support/Medical Outcomes Study (MOS) Social Support scale.

sessions as a peer-support person to someone who was participating. Two youth attended the initial individual session but did not start the intervention, one youth was admitted to a group home and was not available for the sessions and another youth came for the initial visit but then relocated and could no longer be contacted. In all, 12 youth living with either type 1 or type 2 diabetes participated in the intervention and were part of the analysis. Table 1 presents the characteristics of the study sample. The mean age was 17.75 years, and the mean age at diagnosis was 12.67 years. Eleven youth were diagnosed with type 2 diabetes, 1 youth was diagnosed with type 1 diabetes and 10 of 12 participants were of self-declared First Nations or Metis heritage. Ten youth reported a history of psychosocial dysfunction, 2 were followed by psychiatrists at the time of the intervention and 1 youth was followed by adolescent mental health services. All 12 participants completed the pretest questionnaires, and 7 of 12 (58.34%) were available to complete the post-test questionnaires.

Social support

Analysis of the MOS Social Support scale (Figure 1) showed that 71.43% of those that completed the post-test questionnaires showed an increase in functional social support index scores. One participant went through a period of acute family dysfunction and had a postintervention score that was understandably and significantly lower. One participant scored very highly on both pre- and post-test questionnaires and the change was not significant.

Well-being

The MHC-SF scale (Figure 2) results indicated that 3 of 12 participants (25%) scored flourishing mental health, 4 of 12 participants (33.34%) scored languishing mental health and 5 of 12 participants (41.67%) scored moderate mental health on the MHC-SF questionnaire before the intervention. Two participants (28.57% of the 7 that completed pre- and post-test questionnaires) were able to move their mental health status from languishing to moderate mental health after completing the intervention. The other 5 participants had mild fluctuations in scores that did not alter their category of mental health status.

Emotional distress

Results of the PAID scale (Figure 3) reveal that >50% (7/12) of youth were at a level of emotional burnout before the onset of the intervention. Four of the 7 participants (57.14%) that completed pre- and post-test questionnaires showed improved diabetes distress scores after the art therapy intervention. During the last portion of the intervention period, one participant was diagnosed with secondary renal disease and another participant was given an additional new diagnosis, which contributed to their levels of distress being much higher at the second time point (Figure 3, starred bars). One youth scored very low on the PAID measure, and this can be interpreted as confirmation of diabetes denial. Regrettably, this participant did not complete the intervention.

Participant satisfaction

Results showed that 10 of 12 participants (83.34%) completed the participant satisfaction survey (Supplementary Appendix 2, Client evaluation and experience with Creative Arts Diabetes Initiative: Results of the satisfaction survey). Youth readily responded to the opportunity to learn about and express themselves. The art therapy intervention was acceptable and efficacious for approximately 80%. Youth commented that they found art making to be enjoyable and a good distraction from other sources of stress in their lives. Some participants felt that the art therapy intervention helped them to be more reasoning and understanding (patient) with their diabetes and that art making was a positive mental health support and a good reminder of positive influences in life. The peer-support (group work) aspects of the intervention were well tolerated and appreciated by most. Some youth commented on how they enjoyed spending time with and getting to know other youth living with diabetes. One youth commented that participating in the intervention made them feel less isolated and more in touch with their peers. For another, the peer-support aspect of the intervention was important for reassurance and to help him regain his confidence as he grieved his diagnosis, coming to terms with it while reconciling his sense of self. Of those that completed the intervention, most (90%) would recommend the study to other youth with diabetes. Youth who completed the intervention did find art making to be enjoyable and a beneficial way to work on personal growth and well-being, confirming the

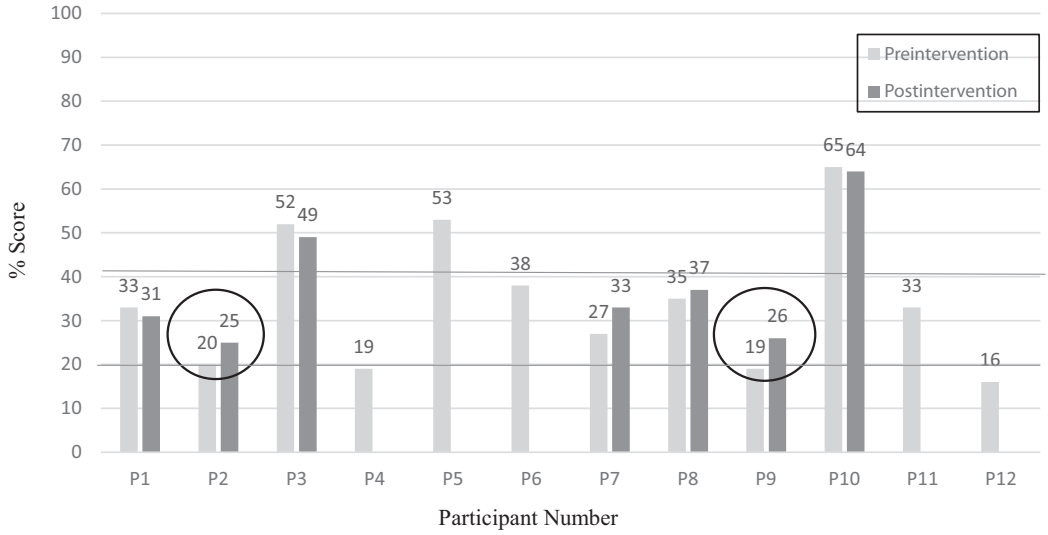

Figure 2. Results: Emotional well-being/Mental Health Continuum Short Form.

ability of art therapy to be purposeful and effective in providing youth with type 2 diabetes a way to recognize and construct positive narratives about themselves and their ability to live with and cope with their circumstance.

Discussion

Consistent attendance was an issue for a significant portion of the participants in this study. Two youth were able to complete >80% of the intervention sessions, 5 completed 60% to 75% of the sessions, 1 completed 50% of the sessions and 4 completed <50% of sessions. For these youth, attendance is also an issue complicating their clinic engagement and school completion. In this intervention, there was a perceived difference between those seeking art therapy intervention because of diabetes-related distress issues, and those seeking art therapy intervention because of anxiety/depression and mood-related distress issues. Although anxiety may often be the only reason given as to why a young person from our study population was seeking art therapy intervention, the cause of the anxiety needs to be closely examined and understood to appropriately support the youth with how to come to terms with addressing their issues (Supplementary Appendix 3, Participant personal goals for art therapy; Case Study of Two Participants in the Creative Arts Diabetes Initiative, Supplementary Material). Research regarding access to mental health services has found that as distress increases, individuals can become less likely to seek help (33). The results showing high levels of emotional distress in our study population were unsurprising because the high levels of social and family stress in relation to diabetes in this population are well known and deeply concerning. This is indeed one of the precipitating factors for piloting the intervention. How to address this in both the recruitment and resourcing of patients in future interventions, and how to determine what factors impact clinic attendance during the transition period, will be of primary importance going forward. It is likely that strategies for re-engaging youth after long periods of nonattendance at diabetes clinics are likely to be more effective by explicitly targeting the management of distress than focusing on diabetes care alone.

Our findings should be interpreted in the context of its limitations. Most youth with type 2 diabetes and their families from our clinical population live in rural or remote communities at a considerable distance from Winnipeg. Because participants needed

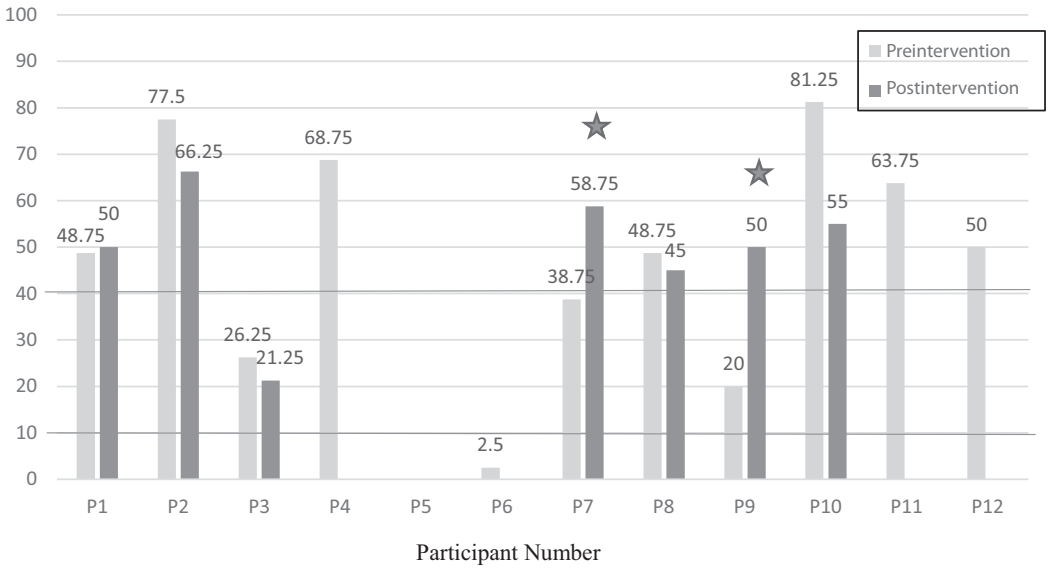

Figure 3. Results: Emotional distress/Problem Areas in Diabetes scale. Stars indicate participant results, mentioned in text under heading "Emotional distress."

to be available for the art therapy intervention on a weekly basis, this limited the ability of those who may have wanted to participate in the intervention but who could not because of where they lived. This may limit the generalizability of our findings.

Future direction should include attempts to involve larger cohorts of patients in art therapy to further assess its effects. Strategies to improve attendance and engagement should be explored, and this could include consultation with cultural leaders, communities and the youth and their families. We were unable to work with an Aboriginal Elder throughout the entire duration of this study. It likely would have been meaningful to have had an Aboriginal Elder engaged in the planning and developmental stages of the study, or available through the delivery of the art therapy intervention. Most participants were of First Nations heritage, and they may have greatly benefited by the presence of an Indigenous cultural leader and role model in the study.

"The therapeutic relevance of art therapy is not in its elimination of pain, trauma or suffering, but in its ability to hold us while surrounded by that pain and turmoil, so we can bear it without flight or denial" (34). The value of art therapy in diabetes is still relatively unknown, and the function of art therapy in the medical system needs to be further explained and championed for it to become an integral part of the care and education process. Although our participant numbers were small, we think our findings indicate a need to further explore art therapy as a mechanism to providing transition support in a holistic way. This needs to be considered for the ongoing health and well-being of youth living with type 2 diabetes. We know diabetes affects a person spiritually, emotionally, mentally and physically, and educators and medical professionals can be empowered to consider how they might support emotional and psychological aspects of their patient's experiences while still attending to the medical realities of dealing with diabetes. Creative expression can be a useful and nonthreatening way to encourage youth to recognize their emotions and attitudes about diabetes, and can help them to understand and find meaning in these feelings, possibly leading to better opportunities for improving self-care and overall wellbeing.

Supplementary Material

To access the supplementary material accompanying this article, visit the online version of the *Canadian Journal of Diabetes* at www.canadianjournalofdiabetes.com.

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Author Disclosures

Conflicts of interest: None.

Author Contributions

C.M. conceptualized the design and methodology, drafted the work and was responsible for the acquisition, analysis and interpretation of data. S.M. provided direction and support for the same. S.F. provided supervision with analysis and interpretation of participant artwork. S.F. and S.M. helped to revise the manuscript and case study critically for intellectual content. All authors are accountable for the work.

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Supplementary Appendix 1
Creative Arts Diabetes Initiative art therapy intervention schedule

Individual meeting with art therapist		
Session 1	Introduction Getting to know each other and getting in touch with our feelings	1) Internal weather report drawing 2) Scribble drawing Various drawing media 3) Language of lines—how lines can be used to convey our feelings
Sessions 2 and 3	Internal/external masks	Make plaster face masks and paint them Plaster bandages, acrylic paint
Session 4	Self-portrait (4 trees)	Make a regular tree, a wounded tree, a comfort tree, a healing tree Watercolour
Sessions 5 and 6	Safe place drawing (check-in) Internal critic in 3-D	Drawing media Model magic, decorated/painted
Session 7	Transformational prints Body scans (check out)	Acrylic paint, cartridge paper Preprinted sheets to record somatic feelings
Session 8	Personal shields	Explore walls, barriers, protection Preprinted sheets with images of a shield can be used as a check-in/out where 4 aspects of personal strength are explored
Session 9	My favorite place painting	Watercolour or acrylic
Session 10	Important relationships/support	Plasticine sculptures of important people and how they are connected to you. Star/balloon/cat (check out) Star: What do you wish for? Balloon: What do you wish you could let go of? Cat: What could you do—if you could find the courage to do it—that would make your life better?
Session 11	Positive coping cards	Collage with empowering personal message
Session 12	Celebration	Depending on group—a special event or outing, such as going to art gallery or Canadian Museum for Human Rights, may be planned. Something fun to celebrate completion.
Individual portfolio review/feedback		

3-D, 3-dimensional.

Supplementary Appendix 2
Client evaluation and experience with Creative Arts Diabetes Initiative: Results of the satisfaction survey

Results: Participant satisfaction n=10/12 (83.34%) completed the evaluation survey	
1. Overall, how would you evaluate these sessions?	Excellent = 50% Good = 50% Needs improvement = None
2. The length of this program (12 weeks) was	Just right = 40% Too short = 60% Too long = None
3. The length of the sessions (90 min) were	Just right = 40% Too short = 50% Too long = 10%
4. How would you evaluate the art therapist and how she worked with youth?	Excellent = 60% Good = 40% Needs improvement = None
5. What did you like best about this program?	• Getting to know myself through art. • It was a get away from home and life. • I got to hang out with people like me. • Expressing my feelings in my “artistic” way. • Doing the masks and painting. • The art and the people. • That I got to experience art therapy. • I enjoyed everything actually. • Painting. • Face casting and doing the masks.
6. What did you like least about this program?	• I would like there to be more. • I didn’t like how others would stare comparing that it looked like another character. • That there weren’t enough people. • That we couldn’t do the classes more often. • Not painting. • Nothing. • The length of time, extra time added unexpectedly. • The short time spent together.
7. Do you think the program helped you in anyway?	Yes = 80% • Opening up and expressing myself. • Got to know new people. • It helped me to express my own emotions more. • It helped me to express my creative side. • Learning to express yourself is always beneficial. • I think it helped get my mind off things. • Yes, it helped me in many ways. • Helped me find another outlet for when I am stressed. • I like doing art. • I had something to do. No = No answer
8. How did group art therapy change, challenge or focus your thinking about living with diabetes?	• It reminded me how diabetes is well connected with everything. • It made me be more reasoning and understanding with my diabetes. • No, not really. • I thought it had given me more outlook on how life can be and how so much positive stuff to look up to. • I don’t know. • I felt more in touch with peers.
9. What did you learn about yourself that was important to you?	• I learned to paint and to be patient with myself, and never give up. • I learned that I am unique and very mature for my age. • How to deal. • I don’t know, nothing really. • To do art more often because it makes me happy. • My styles of expression. • That I like to paint.
10. Did you enjoy the peer-support aspects of the program?	Yes = 80% Somewhat = 10%. It wasn’t always very much but it was important. Helps create friendships. No = 10%. I don’t enjoy groups.
11. Would you recommend group art therapy to other youth/young adults with diabetes?	Yes = 80% Maybe = 10% No = None
12. Comments or helpful suggestions for improving group art therapy sessions:	• Longer with more sessions. • Be more flexible with time. • More painting. • Bigger tables. • More colouring.

Supplementary Appendix 3
Participant personal goals for art therapy (N=12)

Participant	Personal goal
P1	Do more art and try new mediums/improve my diabetes control
P2	Love myself more
P3	Find relief from anxiety/make friends
P4	Try new things
P5	Do more art/try painting
P6	None stated
P7	None stated
P8	Work on my mood/try watercolours
P9	I want to be more social
P10	Do more painting
P11	Be happy again
P12	Meet new friends/talk to more people