

Assessing the Physical and Mental Impact of a Healthcare Specialty Encampment: An Analysis through Self-Determination Theory

¹Dr. Irum Khan, ²Dr. Manjusha Saikia D, ³Dr. Salim Khan

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¹Assistant Professor, Department of General Management, JAIN (Deemed to-be University), Bangalore, India, Email Id- dr.irus_khan@cms.ac.in

²Associate Professor & Asst. Professor, Department of Clinical Psychology, Assam down town University, Guwahati, Assam, India, Email id- manjushadeka@adtu.in , Orcid id- 0000-0003-0830-0131

³Assistant Professor, Department of Medicine, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, India, Email id- drsalimkhan17@gmail.com

Abstract

Introduction: The American Diabetes Association has acknowledged the need of diabetes-specific camps because kind 1 diabetes is a common chronic illness affecting young people. For young people with diseases, these medical camp programs have improved self-esteem, self-image, and motivation.

Objectives: This study aimed to determine how the medical specialty camp affected the campers' perceptions of their knowledge of diabetes.

Methods: In 2021, the western part of the United States hosted the medical specialty camp. Assessments were done before and after camp to gauge how well-versed in diabetes the campers felt. Higher scores on the Likert scale used for the tests indicated more significant perceived ability levels. A statistical analysis was done to look at changes in perceived levels of competence.

Results: The perceived competency of campers' understanding of diabetes increased statistically significantly from pre-camp ($M \pm SD = 5.2 \pm 1.02$) to post-camp ($M \pm SD = 5.4 \pm 1.01$). The 95% confidence interval for the mean increase ranged from 4.69 to 5.70, with a mean increase of 0.05. The analysis of variance (ANOVA) identified a significant effect with a moderate effect size (partial $\eta^2 = .438$), $F(1, 11) = 8.33$, $p = .015$.

Conclusions: The results of this study offer essential support for the use of medical specialty camps in educating young adults with diabetes on how to manage their illnesses.

Keywords: Healthcare specialty encampment, self-determination theory, physical health, mental health

1. Introduction

A well-known psychological framework that examines human motivation and behavior is called self-determination theory (SDT). It holds that people have fundamental psychological requirements for autonomy, competence, and relatedness, and that when these needs are met, people are more likely to act in ways that are constructive and adaptive. Recently, interventions and therapies aiming at promoting healthy behaviors and enhancing the outcomes of mental and physical health have been developed using SDT concepts by researchers and practitioners. The effect of SDT-informed treatments on behaviors related to health, as well as on mental and physical health, is covered in this article (Ntoumanis et al., 2021). A person's entire well-being can be improved and maintained through engaging in healthy actions. Exercise, a balanced diet, taking medications as prescribed, and routine health exams are examples of typical health practices. Adopting and maintaining these behaviors, nevertheless, can be difficult for certain people. Treatments based on SDT address this issue by emphasizing intrinsic drive, promoting autonomy, and meeting psychological needs. SDT therapies encourage internalization of health behaviors, resulting in sustainable behavior change, by acknowledging and fostering people's autonomy, competence, and relatedness. Examples of programs that have had a beneficial impact on medication compliance, healthy eating habits, and exercise adherence include those that emphasize choice, offer a compelling justification, and promote supportive connections (Teixeira et al., 2020).

Another critical component of well-being is mental health, and SDT-informed treatments have shown considerable improvements in this area. SDT claims that when people feel independent, capable, and a part of a community, their mental health improves. As a result, lowering the symptoms of anxiety, sadness, and stress has been successful with therapies that support autonomous motivation, stimulate personal growth, and facilitate supportive relationships. SDT-informed treatments enable patients to take control of their mental health, build resilience, and promote well-being by addressing the underlying psychological requirements (Perlman et al., 2017). Exercise, food, and preventative care are just a few examples of behavioral aspects that have a significant impact on physical health outcomes. Treatments based on SDT have shown promise in enhancing physical health outcomes by encouraging long-term engagement in health-promoting habits. For instance, programs that encourage people to be competent and autonomous in their physical activity have higher rates of adherence and better long-term results. Interventions emphasizing autonomy support and intrinsic incentive have also proven successful in fostering better eating habits and weight management. As interventions concentrating on autonomy and relatedness have shown higher compliance with health screenings and preventive measures, SDT concepts also apply to preventive care (Fall et al., 2018). Total Worker Health® (TWH) is based on the idea that creating robust and supportive safety and health climates—generally called employees' impressions of their organization's value and commitment to their security and health—is essential. TWH is defined as policies, programs, and practices that integrate the prevention of workplace injuries and illnesses with the promotion of preventive efforts to advance worker well-being (Schwatka et al., 2020). According to the American Spinal Damage Association and the American Paralysis Association (1996), a spinal cord injury (SCI) is any damage to the spinal cord that results in a change that is either temporary or permanent in the spinal cord's normal function, leading to a complete or partial loss of sensation and motor functions. Approximately 86,000 people in Canada currently live with SCI—physical activity during free time (Chemtob et al., 2019).

According to the literature, positive organizational psychology is a positive psychology approach to the workplace and organizational context that is concentrated on circumstances that can be positively enhanced through workplace interventions and human resource management practices (HRMPs). The investigation of employee well-being has been actively pushed by research in organizational and work psychology (Gomez et al., 2018). Psychological well-being involves assessing satisfaction with their home lives, educational pursuits, ability to handle pressure, and interpersonal interactions. It offers a multi-dimensional view of psychological well-being. These multifaceted elements are autonomy, self-acceptance, environmental mastery, interpersonal harmony, and life purpose. Evidence links positive affect with psychological well-being (Davids et al., 2017).

The purpose of this study was to ascertain how the medical specialty camp impacted the campers' perceptions of their diabetes knowledge. The remainder of the paper is divided into subsequent parts. Part 3 contains the proposed method explained. Part 4 includes the results and analysis. While Part 5 discusses the conclusions.

2. Literature Review

Migliorini et al., 2019 determined how self-determination theory (SDT) might help overcome obstacles to health innovation while also presenting the SDT's characteristics in the context of health. Scientific discoveries with more nuanced connections to health are the foundation for health innovation. Alessandri et al., 2020 stated higher education students frequently experience psychological distress and problems with their mental health. According to paradoxical research on students who are performance-oriented, like athletes and musicians, the needs of highly skilled professions may improve well-being while harming both mental and physical well-being. Institutions must be aware of whatever aspects of students' health and well-being are affected to offer timely and practical assistance.

O'Neil et al., 2022 explained self-Determination Theory holds that one's motivation, engagement, and overall well-being are significantly influenced by the satisfaction of the basic psychological requirements of autonomy, skill, and relatedness. Treatment compliance and, thus, the efficacy of therapeutic interventions might be affected by how a therapist is seen to support or impede these requirements. Focusing on Self-Determination Theory (SDT), Kritz et al., 2021 aimed to understand what actions older persons perceived as need-supportive behaviors of peer walk leaders. They used framework analysis to analyze the data after conducting semi-structured interviews to find leader behaviors that support competence, relatedness, and autonomy. Weman-

Josefsson et al., 2017 investigated the results of a pilot exercise programme motivated by self-determination theory. Randomization was used to divide the 64 participants into experimental and control groups. The findings reveal intriguing details regarding the underlying processes of altering exercise behavior.

Sim et al., 2022 stated the self-determination theory to transplant recipients, even though it is valuable for describing how kidney transplant patients maintain their postoperative well-being, including prescription regimes. According to the self-determination theory, the goal of this study was to investigate how autonomy support, autonomy motivation, and competency of health professionals affected kidney transplant patients' ability to manage their care. Niemiec et al., 2019 stated that to create a digital intervention for alcohol abuse that offers individualized normative feedback while supporting basic psychological requirements and to assess the impact of this kind of therapy on the consumption of alcohol, experiences with peer drinking norms, and experiences of peer pressure to drink.

3. Methodology

3.1. Data collection

Family diabetes camp lasting three days was held in southwest New Orleans, and data from that camp was gathered. Self-report questionnaires were filled out by campers and parents both before the diabetic center started and after it was over. In this study, only camper data are provided. All times, campers were to be accompanied by an adult family member. The camp included numerous activities that are typically seen at traditional centers, including canoeing, courses with obstacles, archery, movie night, etc, courses that focused on developing self-determined habits and effective diabetes self-management were also offered. For instance, to encourage the campers' independent thought and skill and to let them adjust their insulin, several carbohydrates were displayed (and verbally shared) before each meal. Activity level was used to target further encouraged self-determined behaviors. Camps aimed to keep the campers very active all day; they have to regularly check their blood sugar levels during the task and make any necessary adjustments. Campers were given a chance to be reminded to monitor their blood sugar levels and make necessary adjustments without having to "tell" them to do so; instead, they may take the initiative to do so themselves or could imitate other campers who are acting in a manner that promotes positive behavior (fostering autonomy assistance). As a result, campers and their families had the chance to learn about managing diabetes through practical experience. The camp also included lessons for young campers who wished to practice giving themselves insulin shots (promoting ability, independence, and relatedness). Another time, the action was chosen or determined by the individual and was not compelled. The younger, less seasoned campers were encouraged as they thought about administering their first insulin shot. Additionally, the typical camp environment promoted friendships and provided opportunities for campers to interact with others with Kind 1 diabetes and talk about their everyday struggles. The teenagers at camp had their first opportunity to interact with the recreational therapy (RT) students in the evening for their own social time and conversation, building relationships, discussing challenges, and even allowing the campers to test the RT learners' blood sugar with their glucometer (promoting autonomy-supportive surroundings).

3.2. Participants

In 2021, Participants went to the camp for relations diabetics. Parents, siblings of campers, and campers themselves attended the three-day family diabetic camp. It may have been the first time for these young people to participate in such camp activities due to the participants' potentially fatal disease. By signing assent and agreement forms, the camper and parent gave their consent for their child to take part in this study. Ages of campers ranged from 7 to 18 ($M = 11.69$). The majority of campers were male (49.8% were women), had a median of 4.60 yrs since been diagnosed with kind 1 diabetes. ($SD = 3.90$ years), and had an average HbA1C level of 8.80 ($SD = 2.19$) when last tested. HbA1C readings are used to track glucose levels over long periods of time; a score below six is usually ideal. Based on the self-reported severity of their diabetes management, the campers were classified into three categories for the sake of data analysis: low experience, 0-28 month; medium experiences, 29–50 months; and extremely experienced, 51–162 months. There were numerous pretests that were not taken because individual campers and their families arrived late after check-in had completed, thus

they only finished the posttests. The pretest was finished by 25 campers, and the posttest was finished by 36 campers. Each participant in this study has been given a Kind 1 diabetes diagnosis.

3.3. Measurement

Four subscales of the Family Diabetic Camp Questionnaire: Competence, Autonomy Support, Campers Relatedness, and Campers Satisfaction are used in Dia- 318 Evaluating the Effect of a Healthcare Specialty Camp. Parents and campers provided the information, yet this paper solely reports camper dependent factors. The three things Basic Psychological Needs Scale (BPNS), the four-item Perceived Competence Scale (PCS), and Camper relatedness were evaluated using a camper satisfaction rating and the four-item Diabetes-Specific Parental Support for Adolescents (DPSA) questionnaire. Due to their retrospective nature and shared application in earlier studies on diabetes camps, only a posttest was administered for the Basic Psychological Needs Scale and Diabetes-Specific Parental Support for Adolescents. The Diabetes-Specific Parental Support for Adolescents conducted a series of inquiries into the support for parental independence and the value of the parent's actions. The items on the measure, evaluated on a 0–5 Likert-kind scale, included, "How often have your parents questioned you about what has to be done about your insulin since camp began?" SDT is supported by this subscale autonomous support. Competence is a psychological component from the three requirements identified by self-determination theory. Pre- and post-tests for the camp were conducted using the PCS. Has previously been confirmed as an appropriate measure of diabetic competence. Questions about camper satisfaction included statements like "I enjoyed diabetes camp" and "I plan to return to diabetes camp next year." Finally, data were gathered via the BPNS regarding the emergence of relationships with other campers with diabetes using questions addressing the psychological demand for relatedness, such as "While at camps, I felt cared about" and "I made new pals at camp."

4. Result and Analysis

4.1. Scales measuring basic psychological needs and perceived competence

Using a self-report survey method, participants were asked about their level of autonomy support, perceived competence, relationship growth with peers, and program satisfaction. For the PCS items, important internal consistency was discovered. A score that is lower for the BPNS items and has a high level of internal constancy for the DPSA objects. There was a statistical association between Participants' perceived competence scores (PCS) before and after the camp, so a Pearson's correlation was done to evaluate if further investigation was necessary (see Table 1). Results show a significant correlation between pre and after-PCS levels.

Table 1. Variables using Pearson correlations

Variable	DPSA	Satisfaction	Pre-PCS	Post-PCS	BPNS	Age
DPDS	2	.254	-.343	-.224	-.09	-.276
Satisfaction		2	-.010	.329	.486**	.134
Pre-PCS			2	.663**	-.038	.364
Post-PCS				2	.444*	.206
BPNS					2	.273
Age						2

4.2. Increases in Perceived Competency

The following analysis looked to see if there were any differences in how each group of campers rated their level of competency after camp. Based on the number of years after diagnosis and the level of experience the trailers self-reported having with controlling their diabetes, the campers were classified into three groups. To accomplish this, "natural" breaks in the data were sought after using frequency tables and histograms. The data for each group had a normal distribution, and no outliers were present, according to a box plot analysis. The

PCS scores substantially varied between groups according to experience level ($F(3, 26) = 6.30, p = .015, \eta^2 = .48$). From little experience ($m = 6.69, SD = .60$), to moderate experience ($m = 6.33, SD = 2.01$), to high experience ($m = 5.26, SD = 2.19$), the scores decreased. From low to high, there was a significant decline (1.36, $p = .013$), and from moderate to high, there was an approaching significance (2.07, $p = .069$), according to Tukey post-hoc analysis (Table 2). Other significant group differences were not found.

Table 2. Results from a 1-way ANOVA with PCS and AS based on Participant Experience Level

	Low Experience		
	n	M	SD
PCS	10	6.69	.60
AS	10	1.62	1.36
	Medium Experience		
	n	M	SD
PCS	11	6.33	2.01
AS	11	2.29	1.23
	High Experience		
	n	M	SD
PCS	10	5.26	2.19
AS	10	2.14	1.22
PCS- $F = 5.26^*$			
PCS- $\eta^2 = .45$			
AS- $F = .368$			
AS- $\eta^2 = -$			

4.3. Knowledge and Relationship

To determine the impact post-program perceived competence (PCS) had on BPNS connection, a linear regression was conducted (Table 3). According to this regression, a participant's perceived competence level may statistically significantly predict their relatedness level. The PCS level accounted for 17.8% of the reported variability in relatedness levels (Cohen's f^2 effect size = .22) and $F(2, 33) = 6.39, p = .015$, in this study. According to this regression, a camper's relatedness levels were a particular prediction of their level of satisfaction ($F(2, 33) = 8.31, p = .009$). Relatedness levels explained 21% of the variation in camper levels of fulfillment (Cohen's f^2 effect size = .25). A linear regression analysis was carried out to look at the connection between relatedness (BPNS) and camper satisfaction (Table 4).

Table 3. Perceived Competence Results from Linear Regression

Variable	Relatedness
B	.253
SE(B)	.094

β	.444
t	2.706
Sig. (p)	.012*

Table 4. Findings from a Linear Regression Model Predicting Relatedness in Camp Satisfaction

Variable	Satisfaction
B	.311
SE(B)	.102
β	.486
t	3.036
Sig. (p)	.006*

4.4. Supporting autonomy

To determine whether there were any differences, a one-way ANOVA was used to investigate the levels of independence support for groups with a range of experience managing their diabetes. Depending on how many years after diagnosis and the level of self-reported experience that campers had dealing with their diabetes, Three separate groups were created for the campers. Data for each group had a normal distribution according to the Shapiro-Wilk test, which determined no outliers ($p > .05$). Additionally, the Levene variance homogeneity test revealed that the variances were homogeneous. According to a second single-way ANOVA, there was no discernible difference in the autonomy scores of the groups according to their HbA1C levels.

4.5. Constraint, strength, and future course

The study's sample size was quite small, although meeting the minimum requirements for statistical analysis. Furthermore, due to their tardy arrival at camp, one-third of the sample failed the pretest. Future years will require addressing the limitation on pretest data collecting. This limits but gives optimism to the assertions about the self-determination theory's ability to impact change in diabetic communities. There was little internal consistency with the Basic psychological requirements Scale. This needs to be reliability-tested further.

Further investigation into the efficacy of diabetes camps for various groups will only benefit the field, particularly since diagnoses of Kind 1 diabetes are rising in different regional and racial groupings, even though this was not recorded for the group of participants. Additionally helpful for this study would have been socioeconomic status indicators. Many participants were scholarship recipients; thus, it would have been interesting to look into how these groups would have benefited differently. Future research should examine this topic. Since diabetes of kind 1 is typically inherited, studying people with several generations of diabetes diagnoses and the effectiveness of pharmacological interventions may shed light on previously unexplored elements of the disease. The basic psychological needs scale and perceived competence scale were shown to be proper measures of connection and competence in this study. The efficacy of these measurements as reliable and accurate markers for young persons with diabetes is supported by this study, a fundamental research objective that seeks to replicate earlier findings. In addition to parents, health care professionals and camp counselors should also be included in an efficient measure to evaluate the requirement for support of independent surroundings. This would allow for the complete adoption of SDT as a theoretical structure. Prior research has examined the association between perceptions of autonomy and assistance and the handling of Kind 1 diabetes; as a result, using measures. In previous studies using a qualitative method and limited sample sizes, the four-item Diabetic-Specific Parent Support for Adolescents questionnaire was successfully used; as a result, this tool should be further examined for family diabetes camp.

4.6. Practice Implications

The APIE technique was not entirely followed in this camp study. Its necessity was established by the RT student impact, targeted results, and excellent parent response. Health-related camps could incorporate more participation of students in the evaluation with the utilization of university RT students—components for program planning and program assessment to strengthen comprehension of the APIE process in operation. Although crucial, the current emphasis is on the implementation phase, which might offer these young professionals various educational opportunities. A "learning lab" opportunity with a distinctive participant demographic is also provided by RT, and CTRS students have been added to the diabetic camp. These students could tremendously benefit from this opportunity to learn about the RT process. The administration of the diabetes camp has been spared the cost of staffing thanks to the relationship with a nearby university, which has also given aspiring RT professionals real-world experience. In the RT field, the advantages of academic and community collaborations have long been understood and valued. To satisfy the expanding demands of both sectors, this Diabetes camp serves as an emerging paradigm of a productive partnership between higher education and community partners. Data on diabetes management motivation, which had not previously been gathered from this camp, has also been made possible by this relationship. Since our involvement, this family diabetes camp has embraced a socio-emotional evidence-based approach even more.

5. Conclusion

The American Diabetes Association acknowledges the significant significance of diabetes-specific summer camps for kids and teens. Programs like these at medical commands have been demonstrated to boost participants' motivation, self-worth, and self-image. Based on the concepts of self-determination theory, participants' opinions on their knowledge of diabetes underwent significant changes during a health-related camp across the West of the US in the summer of 2021. This information is helpful for Certified Therapeutic Recreation Specialists (CTRSs), students studying recreation therapy, and other medical professionals creating medical specialty camps. By setting standards for diabetes camps, evidence-based programs like these can effectively empower kids to manage their diabetes as they move to healthy young adulthood.

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