Brief Report: Nature and Implications of Personal Projects Among Adolescents With and Without Diabetes

Vicki S. Helgeson, PhD, and Akiko Takeda, BS
Carnegie Mellon University

Objective. We examined the relation of adolescent goals to psychological well-being and diabetes health.

Method. We used personal project analysis to elicit the goals that adolescents with (n = 110) and without type 1 diabetes (n = 117) have. Adolescents evaluated several project dimensions (progress, stress, typicality, happiness, extent desired by others). Psychological well-being and diabetes health were assessed.

Results. Adolescents with and without diabetes described similar projects, with academic projects being most frequently named. Adolescents with diabetes were more likely to identify appearance projects, and healthy adolescents were more likely to identify self-improvement projects. Among the project dimensions, project progress was associated with better psychological and diabetes health, and project stress was associated with poorer psychological and diabetes health. Conclusion. Results suggest that aspects of the general goals that adolescents set for themselves may have implications for their psychological well-being as well as how they care for their diabetes.

Key words. adolescence; diabetes; goals.

Adolescence is a period of development associated with significant problems for those with type 1 diabetes, including the potential for depression (Hood et al., 2006), decline in self-care (Greening, Stoppelbein, Konishi, Jordan, & Mull, 2007), and deterioration of metabolic control (Greening et al., 2007). Researchers and clinicians alike have focused intervention efforts on ameliorating some of these problems. In the present study, we adopt a different approach to this period of development among teens with diabetes. Rather than focus on difficulties or problems, we use personal project analysis (Little, 1987, 1993) to examine adolescent goals and aspirations. As abstract thinking develops during adolescence, youth begin to contemplate future possibilities and consider the consequences of their actions (Steinberg, 2008). Part of this futuristic thinking involves setting goals and developing plans to achieve those goals. This is of noteworthy significance in the area of diabetes—an area that has been largely prevention-focused as safety and security are daily concerns. We examine the extent to which adolescents with and without diabetes share similar goals, and examine the extent to which characteristics of these goals have implications for psychological well-being as well as diabetes health.

Personal projects analysis is a methodology in which individuals are asked to report their current or ongoing projects in an open-ended format and then to rate each project on a set of dimensions (Little, 1993). Personal projects can be as mundane as keeping one’s room clean to as grand as wanting to become a lawyer. Although the majority of personal projects research has focused on college students and adults, there is a small literature involving adolescents (Little, 1987). Only a few studies have examined personal projects in the context of chronic illness, which is surprising as chronic illness has the potential to disrupt people’s plans and projects.

Research in this area has argued that it is not the content of people’s personal projects as much as the status of those projects that is related to well-being. Little (1987) suggests that the extent to which projects reflect one’s own personal identity or are typical of the self is a central dimension. He notes that the lack of typical projects is associated with depression, whereas the presence of typical projects is related to life satisfaction.
A meta-analysis of personal project dimensions and well-being conducted by Wilson (1990) showed that project efficacy and project stress are the most important determinants of well-being (as cited in Little, 1998). Later studies have confirmed these findings (e.g., Sheldon & Kasser, 1998). Only a couple of studies of people with chronic illness have examined the relation of project dimensions to health (e.g., Affleck et al., 1998), none of which involved adolescents with diabetes.

In the present study, we used the personal projects methodology to examine the content of adolescents’ personal projects and to link dimensions of those projects to psychological well-being and diabetes health. First, we identified the most common projects of adolescents with and without diabetes and then determined if there were group differences in the nature of projects. We were interested in determining whether there were group differences in the identification of health and physical appearance projects, as diabetes has implications for both. The treatment of diabetes causes one to focus on diet and weight, which has implications for physical appearance. In addition, the treatment of diabetes has the potential to be associated with weight gain. We also wondered whether a substantial number of adolescents with diabetes would identify diabetes-related projects. Second, we examined five dimensions of personal projects (progress, stress, typicality, happiness, extent desired by others) and linked these dimensions to health outcomes. These five were chosen because they were dimensions most frequently studied, dimensions for which conceptual links to well-being could be drawn, and dimensions that spanned a diverse array of domains. For those with diabetes, we examined a sixth dimension—the extent to which diabetes interferes with projects; this dimension quantifies the impact of an illness. Although we did not expect the nature of personal projects to be related to health outcomes, we examined this issue in an exploratory way. Instead, we hypothesized that project progress, typicality, and happiness would be related to good health outcomes and that project stress and project desired by others would be related to poor health outcomes. This study makes a substantive contribution to the literature because few studies have examined personal projects in the context of a health problem, and even fewer among adolescents—in this case, type 1 diabetes.

Method
Participants and Procedure
This study was conducted as part of a larger study on the transition to adolescence among children with and without diabetes. Detailed information on the recruitment of both groups has been published elsewhere (Helgeson, Snyder, Escobar, Siminerio, & Becker, 2007). The study was approved by the Institutional Review Boards of the involved institutions. At study start, we recruited 132 adolescents with Type 1 diabetes (70 girls, 62 boys) and 131 adolescents without diabetes (67 girls, 64 boys). Parental consent and child assent were obtained in person at the initial interview. Adolescents with diabetes were interviewed in the General Clinical Research Center before or after their regular clinic appointment, and healthy adolescents were interviewed in their homes on an annual basis for 5 years. At the initial interview, adolescent ages ranged from 10.70 to 14.21, with a mean of 12.08 (SD = 0.73). The majority of participants were white (93% diabetes; 91% healthy). Household structure was the same for both groups with nearly three-quarters living with their biological mother and father (74% diabetes; 73% healthy). As reported in Helgeson et al. (2007), there were no group differences on gender, age, ethnicity, race, or household structure, but adolescents with diabetes had a significantly lower social status, higher body mass index, and more advanced pubertal status than healthy adolescents. Teens with diabetes had the illness between 1 and 13 years, with an average of 4.91 (SD = 2.98) years.

Personal Projects Analysis was employed during the last year of the study, Year 5. Because interviews had started by the time that we developed the personal project methodology, we missed administering the personal projects to a few participants. We administered personal projects to the majority of both groups (110 adolescents with diabetes, 87%; 117 healthy adolescents, 91%). There were no differences between adolescents who did and did not complete personal projects on baseline psychological well-being or diabetes health with the exception that those who missed the personal projects had a higher HbA1c.

Personal Projects Analysis Methodology
To elicit personal projects, we used the instructions of Little (1993). Participants were told that personal projects include activities, concerns, and goals; that they can be focused on achievement or on process; that they may be related to any aspect of daily life, school, work, home or leisure. Adolescents were asked to identify their five most important projects and then responded to the following questions for each project: (a) How much is this project typical of you—reflect who you really are? (b) How much are you doing this project because it is something that other people want you to do? (c) How much progress have you
made on this project? (d) How happy do you feel while doing or thinking about this project? (e) How stressed do you feel while doing or thinking about this project? After all of these ratings were made, teens with diabetes were asked a sixth question: How much does diabetes interfere with this project? Responses to all questions were made on a 0–100% scale (1 = not at all; 6 = very much).

Two authors independently reviewed subsets of the projects and developed 18 content categories, many of which were identified by Little (1987). Two independent coders classified each project into one of the 18 categories, blind to whether the participant had diabetes or not. A third rater was used to resolve all differences. The inter-rater reliability was good (kappa = .87).

### Psychological and Diabetes Outcomes

#### Psychological Well-Being

We administered the 10-item abbreviated form of the Children’s Depression Inventory (CDI; Kovacs, 2001) to measure depressive symptoms (alpha = .74 for diabetes; alpha = .70 for healthy) and the global self-worth subscale from the Self-Perception Profile for Children (Harter, 1985; alpha = .82 for diabetes; alpha = .79 for healthy).

#### Diabetes Health

We administered the self-efficacy subscale from the Multidimensional Diabetes Questionnaire (Talbot, Nouwen, Gingras, Gosselin, & Audet, 1997). Participants estimate their confidence on a 0–100% scale that they can carry out each of seven diabetes-specific behaviors (alpha = .85). We measured self-care behavior with an adaptation (Helgeson et al., 2007) of the Self-Care Inventory (La Greca, Swales, Klemp, & Madigan, 1988). This instrument asks respondents to indicate how well they followed physician’s recommendations for glucose testing, insulin administration, diet, exercise, and other diabetes-related behaviors on a 1 (never do it) to 5 (always do this as recommended) scale. Metabolic control was measured with hemoglobin A1C (HbA1C) from clinic appointments (M = 8.90, SD = 1.83).

### Results

#### Adolescent Projects

The first aim of the study was to elicit adolescents’ personal projects. We present the nine projects identified by more than 15% of the sample in Table I. The most common personal projects were academic, followed by self-improvement, athletic, health, occupational, and social. Among those with diabetes, 22% identified diabetes-related projects. Next, we determined whether having diabetes or not influenced the nature of the projects identified with logistic regression analysis. We controlled for body mass index, socioeconomic status, and pubertal status in these analyses because there were baseline group differences (Helgeson et al., 2007). There was a significant group difference for self-improvement, such that those projects were identified more often by healthy adolescents than adolescents with diabetes. There was a group difference for appearance projects, such that these were identified more often by the diabetes group. There were no group differences on the other projects. Equal numbers of adolescents with and without diabetes identified general health projects.

#### Relation of Projects to Psychological Well-Being and Diabetes-Related Outcomes

We conducted 2 (group) by 2 (those who did and did not identify the project) analyses of variance on depressive symptoms and self-worth. Four of the nine projects were related to depressive symptoms. Those who identified athletic projects were less depressed (M = 1.13) than those who did not (M = 1.20), F(1, 223) = 5.36, p < .05. By contrast, those who identified self-improvement projects were more depressed (M = 1.21)

<table>
<thead>
<tr>
<th>Table I. Personal Project Categories: Percentage of Adolescents with and without Diabetes Identifying Each Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diabetes (%)</strong></td>
</tr>
<tr>
<td>1. Academic (e.g., get good grades, get into college)</td>
</tr>
<tr>
<td>2. Self-improvement (e.g., clean my room, listen to parents)</td>
</tr>
<tr>
<td>3. Athletic (e.g., play basketball, be a better golfer)</td>
</tr>
<tr>
<td>4. Health (e.g., cut down on junk food, exercise more)</td>
</tr>
<tr>
<td>5. Occupational (e.g., get a job, become a teacher)</td>
</tr>
<tr>
<td>6. Diabetes (e.g., take better care of diabetes, lower A1c)</td>
</tr>
<tr>
<td>7. Social (e.g., time with friends, keep in touch with friends)</td>
</tr>
<tr>
<td>8. Recreational (e.g., travel, finish reading a book)</td>
</tr>
<tr>
<td>9. Appearance (e.g., lose weight, grow out hair)</td>
</tr>
</tbody>
</table>

*Note. *This project only appeared for adolescents with diabetes, thus the percentage reflects the proportion of those with diabetes who identified this project. n/a = not applicable.
than those who did not ($M = 1.16$), $F(1, 223) = 3.84$, $p = .05$; those who identified recreational projects were more depressed ($M = 1.24$) than those who did not ($M = 1.17$), $F(1, 223) = 5.64$, $p < .05$; and those who identified appearance projects were more depressed ($M = 1.30$) than those who did not ($M = 1.16$) $F(1, 223) = 7.16$, $p < .01$. Three projects were related to self-esteem. Those who had athletic projects had higher self-esteem ($M = 3.43$) than those who did not ($M = 3.28$), $F(1, 223) = 4.89$, $p < .05$. Those who had social projects had lower self-esteem ($M = 3.17$) than those who did not ($M = 3.37$), $F(1, 223) = 6.56$, $p < .05$, and those who had appearance projects had lower self-esteem ($M = 3.02$) than those who did not ($M = 3.39$), $F(1, 223) = 5.47$, $p < .05$. There were no group effects or group by project interactions.

For diabetes outcomes, we conducted one-way analyses of variance. For diabetes self-efficacy, those who identified athletic projects scored higher ($M = 81.63$) than those who did not ($M = 74.44$), $F(1, 108) = 4.79$, $p < .05$. For self-care behavior, those who identified occupational projects scored lower ($M = 3.37$) than those who did not ($M = 3.60$), $F(1, 108) = 4.20$, $p < .05$, and those who identified diabetes projects scored lower ($M = 3.29$) than those who did not ($M = 3.60$), $F(1, 108) = 6.67$, $p = .01$. No projects were associated with metabolic control.

**Relations of Project Dimensions to Psychological Well-Being and Diabetes-Related Outcomes**

The zero-order correlations between project dimensions (averaged across the five projects) and outcomes are shown in the top of Table II. To determine which dimensions were unique predictors of outcomes, we conducted simultaneous regression analyses which are shown in the bottom of Table II. We tested group by project dimension interactions but none were significant. To determine whether diabetes interference was a unique predictor of psychological well-being for adolescents with diabetes, we reran these analyses by including this dimension for the diabetes group only. It never emerged as an independent predictor.

**Psychological Well-Being**

Zero order correlations showed that project happiness was related to fewer depressive symptoms and higher self-worth, engaging in typical projects and project progress was associated with higher self-worth, and project stress was related to more depressive symptoms and lower self-worth. Regression analysis revealed that project stress independently predicted more depressive symptoms and lower self-worth, and project progress independently predicted higher self-worth.

**Diabetes Health**

Zero-order correlations revealed that engaging in typical projects and making progress toward projects was related to higher diabetes self-efficacy, project progress was related to better self-care, and project stress and project interference were related to worse self-care. Regression analysis revealed that project progress significantly predicted greater diabetes self-efficacy, better self-care, and better metabolic control, whereas project stress emerged as an independent predictor of poorer self-care and the more others wanted these projects was associated with worse metabolic control.

**Discussion**

The primary goal of the study was to examine the implications of projects and project dimensions for psychological well-being and diabetes health. Among the project dimensions, the most robust predictors of health were project progress and project stress, consistent with the earlier meta-analysis (Wilson, 1990, as cited in Little, 1998). Project progress was a unique predictor of higher self-worth, and project stress was a unique predictor of depressive symptoms and low self-worth for adolescents with and without diabetes.

The most significant finding in this study is that project dimensions predicted diabetes outcomes. Project progress

---

**Table II. Zero-order Correlations and Standardized Beta Coefficients from Simultaneous Regression of Project Dimensions to Health Outcomes**

<table>
<thead>
<tr>
<th></th>
<th>Depression</th>
<th>Self-worth</th>
<th>Self-efficacy</th>
<th>Self-care</th>
<th>A1c</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero-order correlation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typical</td>
<td>–.08</td>
<td>.18**</td>
<td>.28**</td>
<td>.16+</td>
<td>–.11</td>
</tr>
<tr>
<td>Happy</td>
<td>–.19**</td>
<td>–.14*</td>
<td>.13</td>
<td>.10</td>
<td>.04</td>
</tr>
<tr>
<td>Others want</td>
<td>.02</td>
<td>–.05</td>
<td>–.04</td>
<td>–.05</td>
<td>.15</td>
</tr>
<tr>
<td>Progress</td>
<td>–.12**</td>
<td>.22**</td>
<td>.33***</td>
<td>.30**</td>
<td>–.14</td>
</tr>
<tr>
<td>Stressed</td>
<td>.24***</td>
<td>–.30***</td>
<td>–.10</td>
<td>–.21*</td>
<td>.10</td>
</tr>
<tr>
<td>Interfere</td>
<td>.17+</td>
<td>–.16*</td>
<td>–.03</td>
<td>–.19*</td>
<td>.08</td>
</tr>
<tr>
<td>Simultaneous regression</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typical</td>
<td>.01</td>
<td>.11</td>
<td>.18</td>
<td>.04</td>
<td>–.12</td>
</tr>
<tr>
<td>Happy</td>
<td>–.14+</td>
<td>–.03</td>
<td>–.06</td>
<td>–.04</td>
<td>.16</td>
</tr>
<tr>
<td>Others want</td>
<td>.01</td>
<td>–.08</td>
<td>–.18+</td>
<td>–.13</td>
<td>.22*</td>
</tr>
<tr>
<td>Progress</td>
<td>–.10</td>
<td>.23**</td>
<td>.37***</td>
<td>.40***</td>
<td>–.25*</td>
</tr>
<tr>
<td>Stressed</td>
<td>.24**</td>
<td>–.33***</td>
<td>–.17+</td>
<td>–.23*</td>
<td>.10</td>
</tr>
<tr>
<td>Interfere</td>
<td>n/a</td>
<td>n/a</td>
<td>.04</td>
<td>–.14</td>
<td>.01</td>
</tr>
</tbody>
</table>

Note: Higher A1c numbers indicate worse metabolic control. ns = not significant, n/a = not applicable.

*p < .10; **p < .05; ***p < .01; ****p < .001.
was associated with diabetes self-efficacy, self-care behavior, and better metabolic control. Thus, the extent to which adolescents felt that they were making progress on projects largely unrelated to diabetes was associated with better diabetes outcomes. Project stress was related to worse self-care, and others’ desire for projects was associated with poor metabolic control. Adolescents who are pursuing projects in which others are highly invested may suffer metabolically. It is not clear whether ‘others’ are family, physicians, or friends. The finding is consistent with research that shows personal control is linked to health (Taylor, Kemeny, Reed, Bower, & Gruenewald, 2000), and may speak to the importance of adolescents pursuing goals that they have set for themselves.

These findings have implications for the treatment of adolescents with diabetes. Families, physicians, and educators spend a great deal of time identifying diabetes-related goals and investigating obstacles to achieving those goals. These data suggest a more novel approach to the behavioral treatment of diabetes. The health care team and families in particular, should try to understand the nature of the goals that adolescents have for themselves—regardless of whether they are related to diabetes. The extent to which others can help adolescents achieve their own goals might instill a sense of self-confidence that adolescents can apply to the area of diabetes.

We were surprised to find that the nature of the projects identified had implications for psychological well-being. Participants who named athletic projects had higher levels of self-esteem and lower levels of depressive symptoms than those who did not. Among those with diabetes, those who identified athletic projects had higher levels of diabetes self-efficacy than those who did not. There is evidence from other research that involvement in athletics is good for teens’ psychological health (e.g., Dishman et al., 2006).

By contrast, adolescents who named physical appearance projects had lower self-esteem and more depressive symptoms, those who identified recreational projects had more depressive symptoms, those who identified social projects had lower self-esteem, and those who had self-improvement projects had more depressive symptoms. The direction of causality is important in interpreting these findings. We do not know if goals lead to mental health or if mental health leads to goals. The deficit model suggests that adolescents may develop a personal project to improve in a domain. The enhancement model suggests that investment in a project leads to psychological benefits. Only longitudinal data will clarify the issue.

Another goal of the study was to examine the nature of adolescents’ personal projects and to determine whether there were group differences in the projects identified. Academic projects were by far the most frequently named project—equally so by those with and without diabetes. There were only two categories for which significant group differences appeared. First, healthy adolescents were more likely than those with diabetes to identify self-improvement projects. It may be that adolescents with diabetes have enough to take care of related to their diabetes without having to worry about more mundane areas of self-improvement, such as cleaning their room and being on time for class. Second, adolescents with diabetes were more likely than those without diabetes to identify appearance projects. Teens with diabetes may feel that their illness or the treatment of their illness has negative implications for appearance. We do not know if adolescents’ attention to appearance is due to a general concern with feeling different from peers, a specific concern with treatment behaviors (e.g., testing) drawing attention to their appearance, or due to weight gain associated with intensive insulin therapy. Apart from this one fairly large group difference, adolescents with and without diabetes identified similar kinds of projects.

Our data certainly do not show that diabetes tops the list of personal projects among which adolescents are invested. Diabetes projects were named by 22% of participants, which is similar to the 20% figure among other studies of those with chronic illness (Peterman & Lecci, 2007). Notably, those who identified diabetes projects reported lower scores on self-care behavior than those who did not, suggesting some insight on the part of adolescents. It is interesting that the same number of adolescents with and without diabetes identified general health projects (32%), a figure that is higher than that found in previous research on people with other health problems (Peterman & Lecci, 2007). Many health projects had to do with diet and exercise, which might be especially common among adolescents.

There are several study limitations. First, the vast majority of adolescents in both groups are middle class and Caucasian, limiting the generalizability of the findings. Second, the cross-sectional nature of the study precludes our ability to discern whether projects affect health or health affects projects. Future research should employ longitudinal designs to identify the determinants of projects and the outcomes of project endeavors.

Acknowledgments

The authors extend their appreciation to Pamela Snyder for her management of the day-to-day aspects of the project as well as for the statistical analyses that she conducted.
The authors are grateful to Merrie Cousins, Ashley Episcopo, Laura Kiley, Abigail Kunz Vaughn, Michelle Merriman, Elizabeth Muia, Erin Nowak-Vache, and Laura Viccaro for their assistance with this research. We also acknowledge the support of the clinic staff of Children’s Hospital of Pittsburgh.

**Funding**

National Institutes of Health (R01 DK60586); Pediatric Clinical and Translational Research Center at Children’s Hospital (GCRC grant, 5MO1 RR00084).

**Conflict of interest:** None declared.

**References**


