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*Research on Social Work Practice* 2007; 17; 324
DOI: 10.1177/1049731506295623

The online version of this article can be found at:
http://rsw.sagepub.com/cgi/content/abstract/17/3Z324

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# Improving Quality of Life and Career Attitudes of Youth With Disabilities: Experiences From the Adolescent Employment Readiness Center

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*Improving quality of life is the primary focus as adolescents with disabilities enter adulthood. They increasingly, however, encounter difficulties transitioning into domains such as employment as these services occur near the end of their high school experience. Using an ecosystems model within a developmental approach, the program sought to improve the likelihood that adolescents will find and maintain meaningful employment as adults. The authors measured physical health, psychosocial functioning, and attitude toward employment of adolescents participating in the program during a 2-year period. Physical health, school functioning, and total functioning improved during the 2 years. Career attitudes were above the norms in earlier grades but fell in later grades. This suggests the need for early and continued intervention.*

**Keywords:** *disability; quality of life; adolescence; ecosystems; complex systems; career attitudes*

Adolescents with disabilities traditionally have poor outcomes when seeking employment and encounter frequent barriers when striving toward adulthood independence (Palmer & Boisen, 2002). These adolescents often follow atypical developmental sequences when compared to their peers without a disability (Hartman, DePoy, Francis, & Gilmer, 2000). This critical transition, while affecting several life domains such as housing, health, and social status (Blacher, 2001), also focuses on developing individual characteristics (Arnett, 2000). Other areas such as health care may require high levels of coordination to ensure survival into adulthood (Lewis-Gary, 2001). These adolescents further encounter difficulties when transitioning into complex systems that include employment and housing domains. Similar to their peers without a disability, they approach this transition of an emerging adulthood by incrementally assuming greater decision-making responsibilities, becoming financially independent, and accepting responsibility of self (Arnett, 2001).

Transition services, if provided to adolescents with disabilities, occur typically near the end of their high school experience (Hagner, Cheney, & Malloy, 1999). This article proposes a program model, describes this promising practice, and provides findings following 2 years of participant enrollment. The roles of providing vocational training and independent living skills to support adolescent transition into adulthood are well recognized. To further support their entry to adulthood, adolescents benefit by having access to supports across several life domains (Clark, Deschenes, & Jones, 2000) and having access to transition services as early as 13 years of age (Betz, 1998; White, 1997). Lack of concise and early direction on transitioning into adulthood further compounds the issue (Bresford, 2004).

Although quality of life measures have typically been used to quantify functioning of categorical diseases such as cystic fibrosis and diabetes (Palmer & Boisen, 2002; Varni et al., 2003), they also provide useful constructs for evaluating improvements in children and adolescents with disabilities (Rajmil et al., 2004; Zekovic & Renwick, 2003).

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Research on Social Work Practice, Vol. 17 No. 3, May 2007 324-333
DOI: 10.1177/1049731506295623

Although interventions designed to improve quality of life for adolescents with disabilities have not consistently demonstrated improvements in physical health, the same interventions have shown to positively affect success related to family and social interactions (Sawyer et al., 2004). The financial benefits of addressing health and quality of life issues of children and adults with disabilities at an early stage have long been recognized (Batavia, DeJong, Halstead, & Smith, 1988). Growing evidence suggests that adolescents with severe mental health issues also have difficulty accessing services as they enter into adulthood (Davis & Sondheimer, 2005). Most notable are the problems occurring when adolescent and adult populations have differential services (Adams, Nolte, & Schalansky, 2000; Davis & Vander Stoep, 1996).

The Adolescent Employment Readiness Center (AERC) in the District of Columbia focuses its services by supporting the youths during their early adolescence to improve the quality of life and employment readiness outcomes of these adolescents with disabilities. Program advocates created the Opening Doors to the Future for Adolescents with Special Health Needs project within the AERC. The project, funded by the Social Security Administration, sought to improve outcomes by increasing the likelihood that adolescents with disabilities will find and maintain meaningful employment as adults. The program's planners addressed employment readiness, transition, and quality of life issues by designing an intervention using an ecosystems approach (Bronfenbrenner, 1994). This approach builds on social work's person-in-environment theoretical approach and believes that people have reciprocal interdependencies with other individuals and their environment (Germain & Gitterman, 1980). These interventions seek to improve community inclusion (Germain, 1978).

Progress in these areas is encouraging, as suggested by evidence that adolescents with learning disabilities or mild mental retardation completing an inclusionary high school have higher rates of employment and earned income when compared to similar students not attending an inclusive high school (Luftig & Muthert, 2005). Inclusionary schools are where students, regardless of the severity of their disability, receive the resources needed for an individualized education in typical age-appropriate classrooms. Approximately 10% to 20% of the participating adolescents planned to attend postsecondary education. These participants were enrolled in the College Bound service provided under the intervention.

Developing a positive attitude toward employment provides a vital link to work readiness. Because younger adolescents can begin employment at age 14 (e.g., babysitting, paper routes), an essential element of developing a positive career attitude in adolescents with disabilities is to have these youth on an age-appropriate trajectory as their peers without disabilities. The intervention components sought to build resilience in the participating adolescents. Resilience in this instance was addressed using a strength-based perspective to prepare adolescents who may face severe difficulties as they reach adulthood with the requisite ability to recover and cope with stress (Boyle, Hull, Mather, Smith, & Farley, 2006; Garmezy, 1991). Life areas such as needing family support, readiness for employment, having a disability, and getting exposure to substance abusing behaviors are a few potential stressors that these adolescents encounter and must address as they move through the later years of adolescence.

This proposed intervention used a complex systems paradigm whereby the participating adolescents were operating in a dynamic system that used feedback for both coordinating and planning functions (Kaufmann, 1995; Warren, Franklin, & Streeter, 1998). The ability to function in such complex systems—where multiple transition concerns such as employment, postsecondary education, health, and housing domains are addressed (Hudson, 2000)—presents a promising framework for viewing the various treatment paths that the adolescents chose as they moved through the intervention. To evaluate the progress made by the participating adolescents toward improved quality of life and employment attitude, we developed the following two research hypotheses:

*Hypothesis 1:* Youth who participate will demonstrate significant improvement in their quality of life and attitude toward work.

*Hypothesis 2:* Younger adolescents at time of enrollment (age 14 years or younger) who remain active in the program for 2 years will demonstrate more improvement than will older adolescents (age 15 years or older) who remain active.

To test these hypotheses, we used a developmental program model based on an ecosystems approach (Figure 1). The approach relies on the importance of interactions with micro systems, or settings in which the adolescent lives (Bronfenbrenner, 1994), and stresses the importance of interpersonal learning environments (Vygotsky, 1978). To ensure consistency of priorities of the adolescents and staff, program activities were consumer intensive (Wolf-Branigin & LeRoy, 2004).

## METHOD

During a 2-year period, we obtained measures at intake, at the end of 1 year of program participation, and following 2 years of program participation. Using the

Group Intervention Descriptions

| Intervention | Description |
|---|---|
| After School Activities | Promotes healthy development and wellness. Meets twice weekly and clusters around five foundations: mental health, health promotion, academic achievement, arts and culture, and social development. |
| Job Boot Camp | Provides work orientation and introductory skill training in an intensive 2-day program designed to prepare youth and their parents/caregivers for summer employment, training programs, and long-term career and employment goals. |
| Summer Employment Preparation (STEP) | Targets younger adolescents with limited skills and exposure by encouraging volunteering and work experiences. Activities include video taping practice interviews, listening to guest speakers, grooming, dressing appropriately, developing resumes, and completing job applications. |
| Project College/ Career Bound | Focuses on transition to career and future education. Increases career development by developing self-advocacy skills and promoting student choice. Includes a six-week "Summer Institute" of work experience and classroom activities. |
| Monthly Workshop Series | Provides workshops on topics generated by the adolescents and their families. Topics include college planning, career development, summer jobs, sexuality, benefits, transition, individualized education plans, and community resources. |
| Parenting Support Class | Provides parents/caregivers who can become overwhelmed due to the program's complexity with supports including parenting skills classes on raising healthy productive young people. |
| Youth Leadership Forum | Provides a four-day residential program held in a campus setting that focuses on enhancing personal advocacy and leadership skills. Topics include government, disability culture, assistive technology, community leadership, disability and civil rights, community resources, and self-advocacy. |
| High School Diploma Program "Passages" | Provides youth with a viable education option for earning a High School Diploma through intensive individualized instruction. Conducts a one-day conference for youth and their parents/caregivers. Focuses on transition including school-to-work, secondary to postsecondary education, home to independence, and pediatric to adult health care. |

**Figure 1: Brief Descriptions of the Group Interventions Used Within the Adolescent Employment Readiness Center in the District of Columbia**

Pediatric Quality of Life Inventory 4.0 (PedsQL), we measured physical health functioning and psychosocial functioning (emotional, social, and school). With the Career Maturity Inventory—Attitude Scale (CMI-AS), we measured the employment readiness of these same adolescents. These measures appeared valid given the medical home setting of the project (Upton, Maddocks, Eiser, Barnes, & Williams, 2005).

## Sample

Adolescents receiving Supplemental Security Income (SSI), who were 12 to 20 years old and residing in the District of Columbia, were identified and recruited (N = 256), with 178 completing baseline and 132 agreeing initially to participate as program targets. Of the adolescents, 64 completed the 2 years. The cohort was primarily

African American (97%). The local Medicaid Managed Care Plan identified and solicited this target population for participation by mailing a questionnaire to the residence on record. Data were collected from adolescents and their parents or caregivers within 2 weeks of admission into the program. Respondents received financial compensation for their participation.

The five primary diagnostic categories for program adolescents included mental retardation (44% of sample); medical disability including asthma, arthritis, obesity, diabetes, and seizure disorders (34%); attention deficit/hyperactivity disorder (10%); learning disability (8%); and cerebral palsy (4%). All participating adolescents had diagnosed functional delays to qualify for services according to the SSI *Zebley* standards (U.S. Department of Health and Human Services, 2004). The sample was consistent with suggested size for identifying moderate effects using group comparisons (Cohen, 1977) and for repeated measures (Rosenthal, 1991).

**Intervention**

The planning aspect detailed in the Transition Service Matrix (Figure 2) included four key service stages: data collection, assessment and planning, coordination and skill building, and transition and evaluation. In the first stage, staff collected data and conducted individual strengths, needs, and abilities assessments to develop a transition plan. In the second stage, staff and the youth implemented and coordinated the services required to facilitate the transition plan. In the third stage, staff continually coordinated care by reassessing, updating, and modifying the plan to address the adolescent's challenges and strengths. In the final stage, follow along and additional supports as needed were provided as the adolescent transitioned into adult systems. The individualized interventions were developmentally and age based, with program services occurring after school, on weekends, and during the summer months.

The four primary components included in the intervention were listening, outreach, service planning, and service. The first component, listening, was based on receiving substantial guidance from key stakeholders throughout the grant period to guide staff and ensure that project services were responsive to and appropriate for the needs and strengths of the youth and families enrolled. A community-based advisory structure was the primary source for soliciting this guidance. The outreach component identified and recruited the adolescents with disabilities who were participating in a managed care plan for children with special needs and who met the diagnostic and developmental criteria. These adolescents and parents or caregivers received a recruitment letter with a return postcard. If the youth had an illness or families were homeless or in financial crisis, additional social and emotional supports were provided to increase the likelihood of program retention. This provided resilience from possible exigencies that might keep the youth from participating.

The program used group and individual interventions to improve outcomes. Group interventions vital to adolescents participating in the program and their transitioning successfully included after-school activities, job boot camp, summertime employment preparation, project college/career bound, monthly workshops, parenting support classes, a youth leadership forum, high school diploma program, and Passages, a 1-day conference for youth and their parents or caregivers. Figure 1 provides an overview of these interventions.

Individualized services were integrated into the transition plan and available for each adolescent or family depending on need. Counselors met regularly with participants and their parents or caregivers to determine further needs and to offer additional services that would be responsive to these identified needs. Counselors developed close relationships with their participants and parents or caregivers that enabled them to have increased access and influence with the adolescent. Counselors worked to develop these relationships to increase opportunities for the adolescents. The counselors become a primary support system for the adolescents and their families and could be contacted for any event or emergency. Staff developed a cadre of resources and supportive services at their disposal to assist families.

Interagency collaboration was vital and integrated into the project. Five primary strategic partners were involved in the project. First, the AERC at the Children's National Medical Center served as the medical home and location of project services. Second, the Social Security Administration was the primary funding source. Third, the Health Services for Children with Special Needs (HSCSN), the Medicaid Managed Care Program in the District of Columbia, functioned as the primary recruitment source. Fourth, various subspecialty departments within the Children' National Medical Center provided additional medical services as needed. Finally, the Rehabilitation Services Administration—the vocational rehabilitation agency in the District of Columbia—and other community services provided ancillary services as defined in the service plans. The AERC designated coordinator, who was responsible for the coordination of project activities, served as the primary contact person with the project.

Transition Service Matrix

| Stage | Objectives | Individual Interventions | Group Interventions |
|---|---|---|---|
| Data Collection | Patient Data Collection<br>-Youth<br>-Parent/Caregiver<br>Research Data Collection | Individual Intake<br>Family Intake<br>Research Interviews<br>Document Coordination | |
| Internal/External Service Assessment<br><br>Transition /Care Plan Development | Cross Systemic Care Coordination<br>Medical Records Review<br>-Primary Pediatric Care<br>-Sub-Specialty Care<br>Educational Records Review<br>IEP/504 Assessment, Planning,<br>Coordination & Advocacy<br>Community Partnership Integration<br>Nonprofits<br>Faith-Based | Transition Planning<br>Care Planning<br>Care Coordination<br><br>Records Review<br>Educational Assessment | Orientation Sessions |
| Care Coordination & Skills Building | Care Coordination<br>Career Development<br>Educational Enrichment<br>Workforce Development<br>Parent Training & Enrichment<br>Youth Development<br>Health Promotion<br>Disease/Disability Management | Individual Counseling<br>Group Counseling<br>Family Counseling<br>Job Counseling<br>Job Placement<br>GED Preparation<br>Health Maintenance<br>Advocacy<br>Patient Tracking<br>HS Diploma Program | Project College Bound<br>Job Boot Camp<br>STEP<br>Youth Leadership Forum<br>Youth Workshops<br>Parent Workshops<br>Parent Training<br>After School Program |
| Transition to Adult Care, Follow-Along & Outcome Evaluation | Transition Implementation | Referral<br>Provider Education<br>Patient Tracking<br>Counseling (limited) | Transition to Adult Care<br>Follow-Along<br>Outcome Evaluation |

**Figure 2: Overview of Service Planning by Four Key Service Stages: Data Collection, Assessment and Planning, Coordination and Skill Building, and Transition and Evaluation**

NOTE: The adolescents' project stages by the interventions used.

Investment from strategic partners allowed the project to leverage funding through the effective administration of funds that were available from a variety of federal and district programs. In this project, continuity of care was essential to the successful outcomes in adolescent transition to adulthood.

## Instruments

We used two instruments, the PedsQL to measure the physical and psychosocial functioning of adolescents (Varni, Seid, & Rode, 1999) and the CMI-AS 1995 to assess the adolescent's attitude toward career readiness

(Crites & Savickas, 1995). Data were collected through face-to-face interviews, with each lasting about 60 to 90 minutes. Each of the two instruments was administered three times: at service initiation, at 1 year of program participation, and again at 2 years of participation. In cases where the interview was not completed, brief telephone follow-up interviews were conducted. The outcome measures were operationalized with quality of life measured by the PedsQL and attitudes toward employment measured by the CMI-AS.

*PedsQL.* This 23-item psychosocial scale measures physical health and three psychosocial functional domains—emotional, educational, and social—on a 5-point response scale (0 = *never a problem*,4 = *always a problem).* Items are reverse scored and transformed on a 0.0 to 1.00 scale, so the higher the score, the greater the quality of the adolescent's life. The scale has a Cronbach's reliability coefficient of .90 (Schwimmer, Burwinkle, & Varni, 2003). Validity, established using concurrent methods, included factor analysis using morbidity and illness burden measures (Varni, Seid, & Kurtin, 2001). The PedsQL comprehensively measures pediatric chronic health conditions as delineated by the World Health Organization (WHO).

*CMI-AS.* The CMI-AS contains 25 agree-disagree items. Responses from these 25 items form the basis for five subscales relating to career decision making, including Orientation, Involvement, Independence, Compromise, and Decisiveness. The Attitude Scale demonstrated an internal consistency of .74 using the Kuder-Richardson 20 (Crites & Savickas, 1995). Construct-related and criterion validity have been supported through analyses to indicate congruency of career choices (Walsh & Hanley, 1975; Walsh & Osipow, 1973).

### Data Analysis

Statistical analyses during the baseline period were composed of descriptive statistics, comparing active versus inactive participants at baseline, and comparing participant scores to norm-referenced means. Because the instruments were norm referenced, initial group comparisons to their respective norms were conducted using one-sample *t* tests. Norms for the PedsQL (Schwimmer et al., 2003) were established on healthy adolescents (N = 401) consistent with the age cohort within the program. To improve internal validity, we performed an ANOVA among adolescents not active at baseline, those active at baseline but not completing, and those completing 2 years of intervention to identify initial differences.

**TABLE 1: Analysis of Variance of Adolescent Baseline Scores**

| Source | | *df* | Mean Square | *F* | *p* |
|---|---|---|---|---|---|
| PedsQL Physical Health | Between | 2 | 0.080 | 2.92 | .057 |
| | Within | 170 | 0.028 | | |
| PedsQL Emotional Functioning | Between | 2 | 0.007 | 0.16 | .855 |
| | Within | 174 | 0.041 | | |
| PedsQL Social Functioning | Between | 2 | 0.020 | 0.52 | .599 |
| | Within | 172 | 0.039 | | |
| PedsQL School Functioning | Between | 2 | 0.017 | 0.48 | .619 |
| | Within | 163 | 0.034 | | |
| PedsQL Total | Between | 2 | 0.036 | 1.81 | .578 |
| | Within | 157 | 0.020 | | |
| CMI Attitudes | Between | 2 | 4.480 | 0.55 | .578 |
| | Within | 167 | 8.140 | | |

NOTE: PedsQL = Pediatric Quality of Life Inventory; CMI = Career Maturity Inventory.

We conducted paired *t* tests to identify within-subject changes in quality of life of those remaining active in the program during the 2-year period. When skewed distributions were identified, we conducted Friedman nonparametric tests at the conclusion of the 2-year period. All tests were nondirectional and conducted at the .05 level unless otherwise noted. We applied Bonferroni corrections in multiple comparisons and calculated effect sizes using Cohen's (1977) *d* for independent samples and Rosenthal (1991) for paired samples. To measure career attitude, cohort percentile ranking scores and one-sample *t* tests compared adolescent scores to norms.

## RESULTS

The 64 adolescents who completed the 2 years were 60% male and 40% female, had a mean age of 14.8 years, and ranged in age from 12 to 20 years. As noted in Table 1, no significant initial differences were present in the baseline scores for three groups on the PedsQL or CMI Attitudes scales. The three groups were adolescents who only completed baseline *(n* = 43), adolescents completing baseline but not 2 years *(n* = 68), and adolescents completing 2 years of program participation *(n* = 64).

We compared the scores of those remaining active in the program for 2 years to their scores at baseline (Table 2). Results indicate improvements across all domains of the PedsQL, with statistically significant improvements in physical health (M difference = 0.0738, *SD* = 0.14725, *p* = .000, effect size [ES] = .496), school functioning (M difference = 0.0989, *SD* = 0.17233, *p* = .002, ES = .562), and total score (M difference = 0.0719, *SD* = 0.13038, *p* = .000, ES = .483). Both the emotional functioning and social functioning demonstrated nonsignificant improvements.

**TABLE 2: PedsQL Active Adolescents at Baseline Versus 2 Years of Participation**

| Subscale | *n* | *df* | Baseline *M* | Baseline *SD* | 2 Years *M* | 2 Years *SD* | *p* | ES |
|---|---|---|---|---|---|---|---|---|
| Physical Health | 58 | 57 | 0.7926 | 0.14875 | 0.8664 | 0.14725 | .000** | .496 |
| Emotional | 60 | 59 | 0.6842 | 0.21303 | 0.7033 | 0.19064 | .517 | .090 |
| Social | 59 | 58 | 0.7551 | 0.21610 | 0.8034 | 0.19802 | .067 | .224 |
| School | 48 | 47 | 0.6167 | 0.17605 | 0.7156 | 0.17233 | .002** | .562 |
| Total | 47 | 46 | 0.7025 | 0.14889 | 0.7744 | 0.13038 | .000** | .483 |

NOTE: ES = effect size.
**p < .01.

**TABLE 3: Pediatric Quality of Life Inventory (PedsQL) Active Adolescents Following 2 Years Versus Norms**

| PedsQL Subscale | At Baseline | After 2 Years | Norm |
|---|---|---|---|
| Physical Health | | | |
| *N* | 58 | 58 | |
| *M* | 0.793 | 0.866 | 0.844 |
| *SD* | 0.149 | 0.147 | 0.173 |
| *t* | -2.633 | 1.157 | |
| *p* | .011* | .252 | |
| ES | -.295 | .127 | |
| Emotional | | | |
| *N* | 60 | 60 | |
| *M* | 0.684 | 0.703 | 0.809 |
| *SD* | 0.213 | 0.191 | 0.196 |
| *t* | -4.539 | -4.293 | |
| *p* | .000** | .000** | |
| ES | -.638 | -.541 | |
| Social | | | |
| *N* | 59 | 59 | |
| *M* | 0.755 | 0.803 | 0.874 |
| *SD* | 0.216 | 0.198 | 0.172 |
| *t* | -4.227 | -2.739 | |
| *p* | .000** | .008** | |
| ES | -.692 | -.413 | |
| School | | | |
| *N* | 48 | 48 | |
| *M* | 0.617 | 0.716 | 0.786 |
| *SD* | 0.176 | 0.172 | 0.205 |
| *t* | -6.664 | -2.829 | |
| *p* | .000** | .007** | |
| ES | -.824 | -.341 | |
| Total | | | |
| *N* | 47 | 47 | |
| *M* | 0.702 | 0.774 | 0.830 |
| *SD* | 0.149 | 0.130 | 0.148 |
| *t* | -5.870 | -2.925 | |
| *p* | .000** | .005** | |
| ES | -.865 | -.378 | |

NOTE: ES = effect size.
***p*< .05. ****p*< .01.

During the baseline period, PedsQL scores indicated that in all domains, these adolescents functioned below their norm-referenced peers (Table 3). The adolescents

**TABLE 4: Pediatric Quality of Life Inventory (PedsQL) Repeated Measures With Years of Participation**

| PedsQL Subscale | *N* | *M* | *SD* | *M* Rank | *p* | ES |
|---|---|---|---|---|---|---|
| Physical Health | 57 | | | | .000** | .540 |
| | Baseline | 0.7988 | .1422 | 1.62 | | |
| | Year 1 | 0.8454 | 0.1444 | 2.09 | | |
| | Year 2 | 0.8756 | 0.1308 | 2.29 | | |
| Emotional Function | 60 | | | | .065 | .090 |
| | Baseline | 0.6842 | 0.2130 | 1.82 | | |
| | Year 1 | 0.7525 | 0.1743 | 2.21 | | |
| | Year 2 | 0.7033 | 0.1906 | 1.98 | | |
| Social Function | 56 | | | | .095 | .190 |
| | Baseline | 0.7634 | 0.2163 | 1.81 | | |
| | Year 1 | 0.7911 | 0.2191 | 2.00 | | |
| | Year 2 | 0.8045 | 0.2010 | 2.19 | | |
| School Function | 45 | | | | .003** | .589 |
| | Baseline | 0.6111 | 0.1793 | 1.72 | | |
| | Year 1 | 0.6344 | 0.1830 | 1.90 | | |
| | Year 2 | 0.7167 | 0.1729 | 2.38 | | |
| Total Functioning | 42 | | | | .060 | .471 |
| | Baseline | 0.7147 | 0.1446 | 1.70 | | |
| | Year 1 | 0.7671 | 0.1436 | 2.15 | | |
| | Year 2 | 0.7828 | 0.1274 | 2.14 | | |

NOTE: ES = effect size.
***p*< .01.

on physical health had *M* = 0.793 (norm = 0.844) and *SD* = 0.149, emotional functioning *M* = 0.684 (norm = 0.809) and *SD* = 0.213, social functioning *M* = 0.755 (norm = 0.874) and *SD* = 0.216, school functioning *M* = 0.617 (norm = 0.786) and *SD* = 0.176, and total *M* = 0.702 (norm = 0.830) and *SD* = 0.149. Only on the Physical Health subscale was the difference not significant at the .01 level.

Adolescents choosing continued participation in the project for 2 years (Table 3) demonstrated improvements on the Physical Health (*M* = 0.866, ES = .127) subscale when compared to the norms. When compared to norms, adolescents remaining in the program did improve their functioning on the Total, Physical, Emotional, Social, and School subscales. Although they improved from their baseline scores, the program's adolescents continued to score significantly below the norms for the Emotional (*p* = .000), Social (*p* = .008), and School (*p* = .007) subscales.

Adolescents after 2 years of participation demonstrated their largest improvements on the PedsQL in Physical Health (*p* = .000, ES = .540) and School Functioning (*p* = .003, ES = .589). Adolescents demonstrated improvements on all five subscales from intake to the conclusion of the 2-year period (Table 4); however, on the Emotional Functioning and Total subscales, adolescents indicated slightly lower mean ranks from

**TABLE 5: CMI Attitude Scores of Adolescents Versus Norms**

| Norm by Grade | At Baseline | After 2 Years |
|---|---|---|
| 7th = 11.009 | | |
| *M* | 14.13 | 15.50 |
| *SD* | 3.056 | 1.643 |
| *N* | 32 | 6 |
| *P* | .000** | .014* |
| Percentile rank | 68 | 65 (vs. current grade) |
| Effect size | .448 | |
| 8th = 12.009 | | |
| *M* | 15.09 | 14.33 |
| *SD* | 1.924 | 2.582 |
| *N* | 32 | 6 |
| *P* | .000** | .771 |
| Percentile rank | 68 | 53 (vs. current grade) |
| Effect size | -.395 | |
| 9th = 13.009 | | |
| *M* | 14.57 | 14.17 |
| *SD* | 2.891 | 1.722 |
| *N* | 21 | 6 |
| *P* | .022* | .285 |
| Percentile rank | 60 | 48 (vs. current grade) |
| Effect size | -.138 | |
| 10th = 14.009 | | |
| *M* | 14.65 | 13.91 |
| *SD* | 2.966 | 1.797 |
| *N* | 26 | 21 |
| *P* | .278 | .000** |
| Percentile rank | 55 | 41 (vs. current grade) |
| Effect size | -.249 | |
| 11th = 15.009 | | |
| *M* | 14.14 | |
| *SD* | 3.505 | |
| *N* | 14 | |
| *P* | .372 | |
| Percentile rank | 47 | |
| 12th = 16.009 | | |
| *M* | 14.63 | |
| *SD* | 3.062 | |
| *N* | 24 | |
| *P* | .037* | |
| Percentile rank | 44 | |

*p < .05. **p < .01 level.

the end of Year 1 (M = 2.21, *M* = 2.15) and to the end of Year 2 (M = 1.98, *M* = 2.14), respectively.

Scores on the CMI-AS for the 39 adolescents who remained active and did not age out of the educational system demonstrated mixed results (Table 5). Adolescent scores at the beginning of the program indicated that those in the 7th and 8th grades tested significantly higher (.01 level) than the norms. As adolescents entered higher grades, however, they first approached the norms and began to fall behind beginning with the 11th grade.

Following 2 years of program participation, adolescents who were active and in the 9th grade continued to be above the norm at the 65th percentile. The group's mean (M = 15.50) was significantly greater than the norm mean of 13.009 (*p* = .014, ES = .448) and higher than the mean at the beginning of the program. Adolescents in the 10th grade, following 2 years of participation, while remaining higher than norms, began to demonstrate a decrease in their mean score (M = 15.09 at baseline, *M* = 13.91 at 2 years of participation). In the 11th grade, adolescents fell below norms. By the 12th grade, adolescents fell significantly below the norms (p = .000, ES = -.249) and demonstrated a slight decrease in performance when compared to their scores at the beginning of the program.

## DISCUSSION AND APPLICATIONS TO SOCIAL WORK

This initial study documents the need for early (age 13) intervention services with adolescents who have disabilities to improve their attitude toward work and quality of life. These life skills and positive attitudes toward future employment provide necessary skills, knowledge, and abilities that can increase their likelihood of becoming self-sufficient and reducing their need to continue receiving SSI as their sole income source. The need for finding meaningful employment as these adolescents reach adulthood becomes greater because they likely had lower family incomes than those not receiving SSI.

As these adolescents encounter emerging adulthood, approximately age 18 to 25, they will need additional support to moderate this fluid and evolving period as they seek and find employment and long-term careers (Arnett, 2001). Federal, state, and local interventions typically do not include life skill preparation for career readiness and attitude toward work. When governmental sources do provide assistance, they typically begin at age 14 for evaluation and ages 16 to 18 for intervention service. To fully demonstrate this initial effect of early intervention, as reflected by the decreased gap in life skills and attitudes when compared to norms and the improvement compared to inactive adolescents at later ages, continued funding until the youth are 18 to 21 is crucial.

Remaining active in the program provided these adolescents with the opportunity to close the gap between themselves and referenced norms. Not knowing to what extent the gaps between adolescents not continuing past baseline and the norms changed remains a limitation of this study. Younger adolescents reported a higher career readiness when compared to aged norms. The disparity between adolescents' scores and the scores of the age-referenced norms increased with age, suggesting that individuals with disabilities have more difficulty in keeping up with their peers living in other areas.

Interest in prevocational services appeared to peak around ages 13 and 14 for these adolescents. To date, it has been the thought that the developmental period from about age 18 to age 26 was critical because formal school ends and changes in living arrangements, employment, and social status are likely to occur. This transition process therefore is vital to success (Blacher, 2001); however, our results indicate that much earlier intervention (e.g., age 13) is better. Interventions beginning at this earlier age to deal with these complex systems, and that use an ecosystems approach, can capitalize on the smaller gap in their quality of life and prevent them from falling behind, as demonstrated among active older adolescents involved and those not involved in a program. These results suggest the need for earlier intervention for employment preparedness. This has the strong possibility that given federal and state funding priorities, reauthorization for SSI when they enter into adulthood may become increasingly difficult. The findings suggest that policy makers should redouble efforts on younger adolescents to improve the likelihood of successful transition to adulthood.

These adolescents require a high level of service to compete in school and work so that they can improve their quality of life through independence from SSI. This is vital, given that attitude toward work was higher than norm for seventh graders but was lower as the adolescent moved to higher grades. There was an increasing gap compared to norms with increasing grade level. Quality of life of adolescents decreases with age and was lower than norms. This includes the need to reinforce the competency of the younger age groups as they mature through developmental stages. A recommended next step includes broadening the scope of the current study with larger cohorts of youth involved in the intervention and evaluation. As further research evolves, developing a theory of change model may provide a valuable contribution to understanding how adolescents with disabilities can improve their long-term employability outcomes. As social work phenomena have become increasingly complex, future research directions may include investigating why certain adolescents and their families self-organize into either remaining active or not.

It was of interest that the largest improvement on the PedsQL was on physical health. Although the AERC did not focus primarily on their medical conditions, it appeared that focusing on career readiness skills provided the adolescents with transferable skills that improved their health conditions (e.g., having to use public transportation to participate). There were several additional lessons learned by the AERC program staff that it is believed had major effects on the program's success. First, it was vital to respond to the adolescent's and family's immediate needs first, even though these issues were not being identified in the program plan. This increased the participants' trust of the staff by facilitating their continued participation in the program. Second, the program was always responsive to its strategic partners, which included employers, youth, families, and community agencies, and as a result the content of the program was always relevant. Third, it was important that the staff knew and honored the beliefs of the family and youth and that the racial composition of the staff matched the diversity of the participants. Fourth, we believed that having a parent or significant adult in the youth's life component to the AERC program was essential in helping all involved with their role evolution as the youth transitioned to independence and interdependence.

Suggestions for future research include additional and more sophisticated treatment comparisons to determine treatment trajectories, in addition to further subgroup analyses to identify trends within disability groups. We did not control for severity of disability in this present study, but it does merit greater attention as a potentially vital mediating variable to predicting employability and supports needed for emerging adulthood. Other potential research can test for long-range effects to determine whether impacts remain robust in the long term.

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