Exploring Therapeutic Alliance with an Internet-Based Self-Management Program with Brief Telephone Support for Youth with Arthritis: A Pilot Study

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Abstract
Findings from a pilot study are presented exploring therapeutic alliance between adolescent juvenile idiopathic arthritis patients and a trained nonprofessional health coach during the feasibility testing of a 12-week self-management program delivered online with brief telephone support. Therapeutic alliance was measured using the Working Alliance Inventory Client Scale (WAI-C), and qualitative information about the experience was gathered using the Distance Experience Questionnaire. WAI-C scores were found to be comparable to previously published pediatric face-to-face data and pediatric distance treatment data. Therapeutic alliance scores were also found to be correlated with improved treatment outcomes (decreased reported pain).

Key words: distance treatment, therapeutic alliance, Internet, self-management, adolescent

Introduction
Over the past decade, a substantial effort has been made by researchers across the world to harness the power of the Internet to create online prevention, treatment, and management programs.1,2 Interventions based on effective face-to-face cognitive-behavioral interventions are increasingly being transformed for delivery via the Internet with the goal of improved health outcomes (i.e., symptom reduction, improved health status/health-related quality of life).3 These interventions are usually highly structured, self-guided or partly self-guided (i.e., professional therapist or nonprofessional support [trained non–healthcare professional or lay peers] through regular brief telephone and/or e-mail contact), tailored to the user’s needs, and interactive.1–6 This new vehicle for delivering cognitive-behavioral treatments overcomes the current barriers (accessibility, availability, and costs) that prevent children and youth from accessing these health services.7,8 Positive outcomes have been found for Internet self-management interventions for adult9–15 and pediatric16,17 health problems across a range of outcomes related to knowledge, behavioral change (improved treatment adherence), symptom management, and health status/health-related quality of life.

As innovative distance treatment applications are developed, one of the primary clinical concerns is the possible difficulty, or even inability, to establish a strong therapeutic relationship in the absence of nonverbal cues.17 In the delivery of traditional face-to-face interventions, the relationship that develops between client and provider is pivotal in effectively addressing client problems. This relationship, termed the therapeutic alliance,18 has been found to be correlated with positive treatment outcomes18–22 and may predict treatment adherence,23 which can affect health-related quality of life.20 Therefore, in the early development of distance treatment programs it is essential to establish whether therapeutic alliance exists.

Current distance treatment evidence suggests that a strong therapeutic alliance can be achieved with adults online17 and in telephone-based treatments.18,24 Although research has focused on this relationship occurring with adults, there is evidence that this relationship can also be achieved between a child and provider in face-to-face chronic disease management20 and distance, telephone-based mental health treatment.25 However, little is known about whether an alliance can exist between a child and a non–healthcare professional in an Internet-based intervention program for chronic disease management.

The purpose of this study was to begin to examine the following: (a) whether a therapeutic alliance is achievable with an Internet-based self-management program for adolescents with weekly phone contact by a trained non–healthcare professional health coach and (b) to compare results with existing studies in pediatric face-to-face and distance treatment.

Subjects and Methods
PARTICIPANTS
Participants were a sample of adolescents recruited from four Canadian tertiary-care centers (Vancouver, BC; Toronto, ON; Montreal, QC; and Halifax, NS) who were participating in the intervention arm of a pilot randomized controlled trial testing the feasibility of an Internet-based self-management program.5 Adolescents were eligible to participate in the trial if they were (a) between 12 and 18 years...
of age, (b) diagnosed with juvenile idiopathic arthritis, (c) able to speak and read English or French, and (d) able to complete online baseline outcome measures. Adolescents were excluded if they had (a) cognitive impairments or (b) major comorbid illnesses (medical or psychiatric) as determined by their healthcare team that may have impacted their ability to understand and use the Web-based program. Following completion of the online program participants were contacted by phone and invited to participate in the current study by answering a telephone-administered questionnaire. Ethical approval was obtained to conduct the study exploring therapeutic alliance with participants in the intervention arm of the pilot randomized trial. Therapeutic alliance study data were collected from April to June 2009.

INTERNET SELF-MANAGEMENT TREATMENT PROGRAM

The “Teens Taking Charge: Managing Arthritis Online” Internet program is a 12-week treatment program comprising disease-specific information, self-management strategies, and social support with a weekly telephone call and supplemental e-mailing from a trained health coach. Participants completed one online module per week for 12 weeks and received a prescheduled telephone call from a trained health coach (non-healthcare professional with an undergraduate degree in psychology [M.W.]). The weekly telephone calls were structured, and the coach’s primary duties were (a) to review the previous week’s homework, knowledge quiz, and goals, (b) to determine whether the participant completed the module and to answer questions regarding the material and/or practice exercises (self-management strategies), and (c) to provide guidance and help solve any issues that had arisen. If participants asked questions that the coaches could not answer, the coach redirected them to their professional rheumatology provider. Pilot testing of the program has been completed. The program is currently undergoing minor revisions before a large-scale randomized controlled trial is conducted.

OUTCOME MEASURES

To determine if a therapeutic alliance existed between the coach and the participants, the Working Alliance Inventory Client Scale (WAI-C) and the Distance Experience Questionnaire (DEQ) were telephone-administered to participants upon treatment completion.

The WAI-C was used to measure therapeutic alliance. The WAI-C is a 36-item, 7-point Likert scale consisting of three subscales (Task Agreement, Goal Agreement, and Bond) that has demonstrated evidence of reliability as well as convergent, discriminant, concurrent, and predictive validity. The WAI-C was originally developed for use with adults; however, the present study used a simplified version of the scale modified with permission from Dr. Adam Horvath (granted to co-author Patricia Lingley-Pottie for research purposes) for pediatric use in a distance treatment setting (i.e., words were simplified without changing item context). A trained research assistant with no prior association with the participants administered the WAI-C to adolescents following completion of the 12-week program (A.V.).

The DEQ, developed by Lingley-Pottie and McGrath and modified slightly for this study, is a qualitative form designed to explore the meaning of the distance treatment experience. It consists of closed- and open-ended questions. The closed-ended questions ask the participants to rate their relationship and level of comfort with their coach/therapist and their comfort with self-disclosure. The open-ended questions pertain to the constructs of Bordin’s theory (i.e., bond, goal agreement, and task agreement) and explore the distance experience (i.e., self-disclosure and advantages and disadvantages with distance versus face-to-face experiences). The DEQ was administered over the phone after the WAI-C. To elicit honest answers participants were assured that their answers would not be shared with their coach.

DATA ANALYSIS

Descriptive data and quantitative data from the WAI-C were analyzed using SAS software. Welch’s t tests were performed to compare the WAI-C composite score means from the current study with previously published pediatric face-to-face data from the development and validation of the Working Alliance Inventory for Chronic Care (WAICC), a modified version of the WAI-C used to measure therapeutic alliance among patients with chronic conditions and their healthcare providers. Additionally, scores from the current study were compared with previously published pediatric distance data from the Family Help treatment program of Lingley-Pottie and McGrath. Correlation analysis was performed for WAI-C composite scores and intervention outcome data using SAS software. A two-sided z of 0.05 was used to determine significance. The qualitative data from the DEQ were analyzed using simple content analysis to generate categories and emerging themes, and the remaining quantitative responses were tallied and frequencies were generated.

Results

SAMPLE CHARACTERISTICS

Fourteen (10 female, 4 male) of the 22 participants randomized to the intervention arm of the “Teens Taking Charge: Managing Arthritis Online” pilot randomized control trial agreed to participate. Reasons for not participating included not interested, too busy, and unable to be reached by telephone. Participants were between the ages of 12 and 18 years (mean = 14.57 years, SD = 1.23 years) A global disease severity rating using a 10-cm visual analog scale obtained from the responsible physician and other baseline disease characteristics of the sample are outlined in Table 1.

INTERVENTION

Participants received a mean of 1.6 phone calls per week to maintain weekly contact with an average duration of calls of 17.3 min (range, 7–30 min). Program attrition rate was 9%, and of the adolescents who stayed in the program 100% completed all 12 modules. Participants took 12–21 weeks to complete the program allowing for breaks due to exams, illnesses, and hospitalizations, with an average completion time of 14.7 weeks (SD = 2.1 weeks).
WORKING ALLIANCE INVENTORY SCORES

Composite and subscale scores from the current study were compared with scores from the WAICC development and validation study. Participants from the pediatric face-to-face comparison study were 13 adolescents (mean age = 17.1 years, SD = 1.9 years) with a chronic hematologic disorder who were rating their relationship with their physician. Participants from the pediatric distance treatment comparison group were 55 children (mean age = 9.05 years, SD = 2.65 years) participating in the Family Help treatment program for pediatric anxiety or recurrent headache/abdominal pain. There were no significant differences found between the current study and those of the face-to-face comparison group ($t$ = 1.37, $p$ = 0.18, 95% confidence interval –2.83, 14.07) or the pediatric distance treatment comparison group ($t$ = 1.51, $p$ = 0.15, 95% confidence interval –2.01, 12.97). Scores from the three studies can be seen in Table 2.

DEQ

All participants described the relationship they had with their coach positively, with the most common descriptors being “really great” (36%) and “understanding” (21%). When asked, participants rated the relationship they had with their coach strongly (mean = 4.2, SD = 0.6), where 0 = “not strong at all” and 5 = “very strong.” As stated by one teen, “It was a good relationship. We understood what we wanted to do...and worked well together to accomplish that.”

The majority of participants rated their level of comfort with telling their coach things about themselves as high (mean = 4.4, SD = 0.8), where 0 = “not comfortable at all” and 5 = “very comfortable.” Participants commented positively on what it was like to share things about themselves over the phone with responses of “good/nice” (36%), “easy” (21%), “comfortable” (21%), and “understanding” (14%). One teen stated it was “Helpful, it was kind of nice being able to talk to someone about things going on who aren’t your friends, parents or doctor.”

Themes emerged when participants were asked about the advantages and disadvantages of getting help over the phone. Convenience was the most cited advantage, followed by anonymity and then inapprehension/disinhibition, which can be summed up in this quote from one participant: “You don’t know the person and you never meet them face-to-face...so it is not embarrassing.” Table 3 gives a full list of patient-cited advantages and disadvantages. The DEQ also revealed that if the participants were to start over, 86% would choose distance treatment over face-to-face treatment. When asked, 93% of participants indicated that they felt they could tell their coach the same as or more than they could tell someone face-to-face in clinic. Full results from the quantitative data of the DEQ can be seen in Table 4.

Correlation analysis with intervention outcome data revealed that the WAIC composite scores were negatively correlated to a decrease in reported pain ($r$ = 0.625, $p$ = 0.03).

Discussion

The “Teens Taking Charge: Managing Arthritis Online” Internet intervention could be the first step in a “stepped care” approach of healthcare for all youth with juvenile idiopathic arthritis. A “stepped care” approach provides adolescents and their families with a simple, easily accessible disease management intervention and proceeds to more intense (face-to-face) treatments as necessary. A self-guided Internet self-management program with brief telephone support provides patients, families, and healthcare professionals with unparalleled opportunities (a) to learn, inform, and communicate with one another, (b) to receive meaningful social support, (c) to fulfill the
Table 3. Advantages and Disadvantages of Distance Versus Face-to-Face

<table>
<thead>
<tr>
<th>ADVANTAGES</th>
<th>N (%)</th>
<th>DISADVANTAGES</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convenient</td>
<td>6 (43%)</td>
<td>Inability to use visual cues</td>
<td>6 (43%)</td>
</tr>
<tr>
<td>Anonymity</td>
<td>5 (36%)</td>
<td>Inability to meet coach</td>
<td>3 (21%)</td>
</tr>
<tr>
<td>Inapprehension/disinhibition</td>
<td>2 (14%)</td>
<td>Inclination to lie</td>
<td>2 (14%)</td>
</tr>
<tr>
<td>Face-to-face</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to use visual cues</td>
<td>7 (50%)</td>
<td>Inconvenient</td>
<td>7 (50%)</td>
</tr>
<tr>
<td>Ability to meet coach</td>
<td>4 (29%)</td>
<td>Uncomfortable</td>
<td>4 (29%)</td>
</tr>
<tr>
<td>Less inclined to lie</td>
<td>2 (14%)</td>
<td></td>
<td></td>
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</tbody>
</table>

Table 4. Quantitative Distance Experience Questionnaire Data

<table>
<thead>
<tr>
<th>QUESTION</th>
<th>RESPONSE [N (%)]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Could talk to coach versus someone face-to-face</td>
<td></td>
</tr>
<tr>
<td>Less than</td>
<td>1 (7%)</td>
</tr>
<tr>
<td>Same as</td>
<td>8 (57%)</td>
</tr>
<tr>
<td>More than</td>
<td>5 (36%)</td>
</tr>
<tr>
<td>Treatment preference if starting over</td>
<td></td>
</tr>
<tr>
<td>Over the phone</td>
<td>12 (86%)</td>
</tr>
<tr>
<td>In clinic face-to-face</td>
<td>2 (14%)</td>
</tr>
<tr>
<td>Coach gender preference</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>5 (36%)</td>
</tr>
<tr>
<td>Male</td>
<td>0</td>
</tr>
<tr>
<td>No preference</td>
<td>9 (64%)</td>
</tr>
<tr>
<td>Coach role preference</td>
<td></td>
</tr>
<tr>
<td>Trained peer with arthritis</td>
<td>5 (36%)</td>
</tr>
<tr>
<td>Trained non-healthcare professional</td>
<td>6 (43%)</td>
</tr>
<tr>
<td>No preference</td>
<td>3 (21%)</td>
</tr>
</tbody>
</table>
Recent studies have revealed that while adolescents view their healthcare providers as valuable, trusted sources of information, they feel unable to ask questions and to discuss personal and sensitive issues and are afraid to reveal poor adherence.\textsuperscript{32,33} In the current study, the perceived anonymity may explain why 93\% of adolescents felt they could tell their coach the “same as” or “more than” they could tell someone face to face, as reported by the DEQ. In this study the health coach was not a healthcare professional, which may have added to the participants’ level of comfort, as the coach was not viewed as a figure of authority directly involved in their care. Patients who are more comfortable are more likely to disclose personal information.\textsuperscript{18} This may explain the strong therapeutic alliance scores reported in the current study as well as by Lingley-Pottie and McGrath.\textsuperscript{18,24,25}

The DEQ results also revealed an interesting interaction between the cited advantages and disadvantages of distance and face-to-face treatment. The advantages of distance treatment almost directly mirror the disadvantages of face-to-face treatment cited by adolescents, similar to the findings reported by Lingley-Pottie and McGrath\textsuperscript{24} describing the adult distance treatment experience. This observation does not imply that one is preferred over the other, but rather that the two modes of treatment delivery may complement each other.

When asked, 86\% of adolescents indicated that they would select a distance treatment program again over a face-to-face program, comparable to 97\% of the adult preferences reported by Lingley-Pottie and McGrath.\textsuperscript{24} While face-to-face treatment is irreplaceable, it may be supplemented by distance treatment, reducing the current heavy demand on face-to-face care and its associated costs.\textsuperscript{5,7,8,34} The strong WAI-C scores and the positive ratings on the DEQ, along with low program attrition rates\textsuperscript{20,24} and high program adherence, perhaps speak to the acceptability of this mode of treatment delivery. As adolescents’ access to, acceptance of, and ability to implement self-management interventions is crucial to treatment adherence,\textsuperscript{15} the importance of these preliminary findings cannot be overstated.

Support for Internet programs has typically been provided by healthcare professionals in the form of phone calls/Skype\textsuperscript{6}, e-mails, or instant messaging.\textsuperscript{1} However, the cost associated with having professionals provide this support has been cited as a significant disadvantage in ensuring sustainability of these programs.\textsuperscript{1} As accessibility and availability needs increase there has been a growing interest in program development whereby nonprofessionals deliver treatment.\textsuperscript{18} In a large meta-analysis, Weisz et al.\textsuperscript{6} found that para-professionals were as effective as professionals in producing positive therapy outcomes. It is important to note that the alliance formed in the current study was with a trained non-healthcare professional. Although further research is warranted, the existence of a therapeutic alliance between a client and a non-healthcare professional suggests increased feasibility of supporting these programs without increasing work load for healthcare professionals and at a reduced cost.

Results from this pilot feasibility study should be interpreted cautiously. With a small sample size, it is difficult to generalize the findings. In addition, the current study involves adolescents with a common chronic illness (juvenile idiopathic arthritis) and a fairly narrow range of disease severity, further limiting the generalizability of the findings to other populations. Further research investigating the therapeutic alliance during online therapy with a larger sample of adolescents with greater variance in diagnosis and disease severity is warranted to strengthen the generalizability of these findings. Furthermore, it is important to recognize that this type of intervention is not suitable for all patients with juvenile idiopathic arthritis. Younger populations and populations with cognitive impairments and/or physical limitations that preclude them from being able to self-manage and/or use a computer would benefit from a modified distance program that facilitates joint client–caregiver management. Alternatively, other populations may require more face-to-face comprehensive care. Also, it should be noted that all participants had the same health coach. Therefore, it is possible that the effect of the individual coach (i.e., differential reactions to the social style and personality of the health coach or to presentation of material) influenced the findings. Thus, further investigation using multiple coach–participant dyads is warranted.

Conclusions

A strong therapeutic alliance can be achieved and is positively correlated with improved treatment outcomes (decreased reported pain) in a distance online treatment between adolescents and a trained nonprofessional. Adolescents felt comfortable sharing with their coach, possibly because of the perceived sense of anonymity, and most preferred distance treatment over face-to-face treatment. Our results were comparable to those of previously studied pediatric distance and face-to-face alliances, indicating that this aspect of quality of care was preserved in this new online treatment program. Findings from this study support existing literature indicating that pediatric therapeutic alliance can exist in the absence of visual cues, while improving the availability and accessibility of healthcare through distance treatment.\textsuperscript{18,25}

Further investigation is needed to determine the generalizability of the pediatric distance therapeutic alliance in Internet-based treatment programs. Moreover, future pediatric distance interventions should further explore the distance experience and correlations with health outcomes. Pediatric Internet-based treatment programs offer easy access to healthcare while eliminating usual treatment barriers (e.g., frequent travel, school nonattendance, and stigma), which may lead to improved attrition and treatment adherence rates.

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Disclosure Statement

No competing financial interests exist.

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