Influencing Self-rated Health Among Adolescent Girls With Dance Intervention

A Randomized Controlled Trial

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Objective: To investigate whether dance intervention influenced self-rated health for adolescent girls with internalizing problems.

Design: Randomized controlled intervention trial with follow-up measures at 8, 12, and 20 months after baseline.

Setting: A Swedish city with a population of 130,000.

Participants: Girls aged 13 to 18 years with internalizing problems, ie, stress and psychosomatic symptoms. A total of 59 girls were randomized to the intervention group and 53 were randomized to the control group.

Intervention: The intervention comprised dance classes twice weekly during 8 months. Each dance class lasted 75 minutes and the focus was on the joy of movement, not on performance.

Main Outcome Measures: Self-rated health was the primary outcome; secondary outcomes were adherence to and experience of the intervention.

Results: The dance intervention group improved their self-rated health more than the control group at all follow-ups. At baseline, the mean score on a 5-point scale was 3.32 for the dance intervention group and 3.75 for the control group. The difference in mean change was 0.30 (95% CI, −0.01 to 0.61) at 8 months, 0.62 (95% CI, 0.25 to 0.99) at 12 months, and 0.40 (95% CI, 0.04 to 0.77) at 20 months. Among the girls in the intervention group, 67% had an attendance rate of 50% to 100%. A total of 91% of the girls rated the dance intervention as a positive experience.

Conclusions: An 8-month dance intervention can improve self-rated health for adolescent girls with internalizing problems. The improvement remained a year after the intervention.


Recent research has found an increasing prevalence of psychological health problems among adolescents, especially girls. This may have long-term consequences for the individual, such as poor academic performance, social dysfunction, substance abuse, and suicide. The number of adolescents who rate themselves to have poor health is 3 times higher for girls than boys. Many young girls with internalizing problems (ie, depressed mood, low self-worth, psychosomatic symptoms) need more help than the school or primary health care can offer but are too healthy to be patients within Child and Adolescent Psychiatric Care. The need to develop treatment and intervention alternatives for young girls with internalizing problems is evident.

Exercise is considered an active strategy to prevent and treat depression and anxiety for school-aged youth. It has been shown to promote positive thoughts and feelings, enhance confidence to cope with problems, and provide increased confidence and self-control. Participating in physical activity can also improve self-esteem and foster positive self-worth. To increase physical activity in young age, an organized, noncompetitive, leisure-time intervention is considered beneficial.

Dance is a well-established and popular form of physical activity, particularly for young women. It can provide a supportive environment and an opportunity to enhance low body attitudes and physical self-perceptions. It is suggested that dance can reduce disabling conditions resulting from stress.

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The primary aim of this article is to describe whether and how a dance intervention for adolescent girls with internalizing problems can influence self-rated health (SRH). A secondary aim is to describe the adherence to and experience of the dance intervention.

METHODS

STUDY DESIGN

A randomized controlled intervention trial was conducted for 3 years. Data were collected with a questionnaire that was administered regularly (Figure). The 8-month dance intervention was performed during years 1 and 2, from October to May. Both interventions were prompted by a randomization. By running the dance intervention during 2 years, it was possible to offer the intervention to more girls.

STUDY POPULATION

The study population comprised girls aged 13 to 18 years with internalizing problems who had recurrent visits to the school nurse for psychosomatic symptoms such as pain in the head, stomach, neck, back, and/or shoulder and for persistent feelings of tiredness, being worried, or being in low spirits. Exclusion criteria were severe hearing impairment, intellectual disability, difficulties with the Swedish language, or if Child and Adolescent Psychiatric Care had advised against participation. Baseline characteristics are presented in Table 1.

DANCE INTERVENTION

The dance intervention took place in a central gym twice weekly for 8 months under the guidance of 3 educated dance teachers (1 at a time). The duration of the class was 75 minutes, which included 15 minutes of warm-up, 40 minutes of dance practice, 15 minutes of stretching, light massage in pairs, and relaxation, and 5 minutes of reflection. The dance practice was classified as moderate to vigorous physical activity, and the intention was to offer an opportunity to experience the own body in a positive way. The choreography included a part when the girls created their own dance routine and moved spontaneously.

During the intervention year, the theme of dance styles varied between African dance, jazz, and contemporary dance. The internalizing problems were not brought up during the dance classes. At the end of the intervention, the participants were presented with a number of alternatives to keep up dancing or exercise elsewhere.

PROCEDURE

Recruitment was carried out in collaboration with the school health care program. The school nurses asked eligible girls who sought consultation for internalizing problems or stress whether they wished to participate in the dance project. Written and oral in-
Table 1. Baseline Characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Intervention (n = 59)</th>
<th>Control (n = 53)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, y&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13-14</td>
<td>8 (13)</td>
<td>13 (25)</td>
</tr>
<tr>
<td>15-16</td>
<td>27 (46)</td>
<td>23 (43)</td>
</tr>
<tr>
<td>17-18</td>
<td>24 (41)</td>
<td>17 (32)</td>
</tr>
<tr>
<td>Weight class&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underweight</td>
<td>1 (2)</td>
<td>3 (6)</td>
</tr>
<tr>
<td>Normal</td>
<td>46 (78)</td>
<td>44 (83)</td>
</tr>
<tr>
<td>Overweight</td>
<td>12 (21)</td>
<td>5 (9)</td>
</tr>
<tr>
<td>Born in Sweden</td>
<td>55 (93)</td>
<td>49 (93)</td>
</tr>
<tr>
<td>Lives with both parents</td>
<td>24 (41)</td>
<td>30 (57)</td>
</tr>
<tr>
<td>Parent on sick leave</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>6 (10)</td>
<td>6 (11)</td>
</tr>
<tr>
<td>Father</td>
<td>3 (5)</td>
<td>3 (6)</td>
</tr>
<tr>
<td>Both</td>
<td>1 (2)</td>
<td>0</td>
</tr>
<tr>
<td>Parents’ employment status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Both unemployed</td>
<td>4 (7)</td>
<td>0</td>
</tr>
<tr>
<td>Both employed</td>
<td>41 (69)</td>
<td>36 (68)</td>
</tr>
<tr>
<td>Rates health as poor or very poor</td>
<td>8 (14)</td>
<td>3 (6)</td>
</tr>
<tr>
<td>Experiences feeling of stress frequently</td>
<td>41 (69)</td>
<td>28 (53)</td>
</tr>
<tr>
<td>Participated in dancing before start of study&lt;sup&gt;c&lt;/sup&gt;</td>
<td>33 (56)</td>
<td>36 (68)</td>
</tr>
</tbody>
</table>

<sup>a</sup>Mean age for both the intervention group and the control group was 16 years.
<sup>b</sup>Weight class is based on body mass index adjusted for age. Missing data for 1 person (2%) in the control group.
<sup>c</sup>This variable was dichotomized into rarely (never, rarely, or sometimes) or frequently (frequently or always).

The current analysis includes 112 adolescent girls with internalizing problems. The baseline characteristics of the participants in the 2 groups were well balanced in most variables (Table 1), but the control group scored higher at baseline concerning good SRH. This has been adjusted for and will be described further.

ADHERENCE TO THE INTERVENTION

A total of 59 girls were randomized to the intervention group, of whom 11 dropped out (10 girls due to scheduling conflicts between the dance class and their school curriculum and 1 girl because the dancing did not suit her interest) and 48 girls remained. The dance classes were given 48 times during the 8-month period. A total of 6 girls (13%) attended more than 89% of the classes, 26 girls (54%) attended 50% to 89%, and 16 girls (33%) attended 10% to 49%.

EXPERIENCE OF THE DANCE INTERVENTION

At the 8-month follow-up, directly after the intervention had ended, the remaining 48 girls rated their experience of the intervention; 47 answered the question. Forty-three girls (91%) rated the intervention to be a positive experience, 3 girls (6%) rated it as neutral, and 1 girl (2%) rated it as negative.

SELF-RATED HEALTH

The dance intervention group improved their SRH more than the control group at all follow-ups (Table 2). The difference in mean change was 0.30 (95% CI, −0.01 to 0.61) at 8 months, 0.62 (95% CI, 0.23 to 0.99) at 12 months, and 0.40 (95% CI, 0.04 to 0.77) at 20 months.
Owing to the differences in SRH at baseline, a linear regression also including baseline values was conducted. This analysis, including study group as well as baseline SRH as independent variables, showed an association between the study group and changed SRH of 0.082 at 8 months (P = .001).25 The suggestion to use dance in an intervention for adolescent girls is supported in a descriptive epidemiologic study in the United States including 3598 adolescents.26 The investigators describe dance as a viable avenue to increase physical activity in adolescent girls owing to the popularity among girls (prevalence of 34.8%) and the intensity level (contributes 39.3% of daily moderate to vigorous physical activity).

Self-rated health is not an objective physical health evaluation. Given the subjectivity of the possible answers, this could reflect how the girls may have felt. Still, the severe nature of the girls’ problems makes it important not to underestimate the value of feeling better. We would like to suggest 3 possible reasons for this increased feeling of better health reported in our study. First, the girls experienced the dance intervention to be enjoyable and undemanding, without the usual associated school pressures. The importance of enjoyment to increase participation in physical activity for adolescent girls is emphasized by Barr-Anderson et al.27 Second, the girls included had the opportunity to provide some input into the dance classes regarding music, and the girls themselves always created part of the choreographies. This is said to facilitate a sense of ownership.28 Finally, the social aspect is very important. The opportunity to make new friends and spend time doing something they enjoy with others who have a similar interest might be a main issue that can affect recruitment, retention, and interest to participate.28 It is possible that the social aspect combined with the attention given to the girls affected SRH. In future studies, it would be interesting to have several intervention arms for comparison. The current study examines the effect of a whole intervention, not the actual dancing. However, research shows that dance appeals to adolescent girls, which in turn incorporates involvement29 and contributes to an increased physical effect.30,31

Some limitations in the design should be noted. The baseline scores were lower in the intervention group compared with the control group, and lower scores generally improve more than high scores. There is a risk that the treat-
ment effect is overestimated by looking at change scores.\textsuperscript{32} Nevertheless, linear regression showed that a significant difference between the groups remained at the 12-month follow-up, despite the inclusion of baseline values. Moreover, given the subjective nature of the study outcome (SRH) and that the girls knew the study purpose, there is a risk of potential bias in favor of the dance intervention arm. This sort of bias easily arises in subjective measures. The risk that the girls in the intervention group reported higher values to please the instructors or to show gratitude to the research team needs to be taken into consideration. In all, however, the questionnaire comprised 88 questions, and analyses show that there are areas without any differences between the groups and some areas where the control group had improved more. This might illustrate straightforwardness in how the girls answered the questionnaire, and further results will be illuminated in coming articles.

This study points out the role of joyful social physical activity in influencing health. We conclude that an intervention with dance twice weekly for 8 months is feasible and can improve SRH in adolescent girls with internalizing problems, even if the girls lacked previous experience in dancing. According to these results, despite problems such as stress and psychosomatic symptoms (and other potential challenges in being an adolescent girl), dance can result in high adherence and a positive experience for the participants, which might contribute to sustained new healthy habits.

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REFERENCES


