Determinants of Attrition from a Healthy Lifestyle Intervention: Experience from the CIRCUIT Program

Prince Kevin Danieles1,2, Marina Ybarra1,3, Andrea Van Hulst1,4, Tracie A. Barnett1,3, Marie-Ève Mathieu1,5, Olivier Drouin1,5, Lisa Kakinami2, Jean-Luc Bigras1,5, Mélanie Henderson1,5

1) CHU Sainte-Justine Research Center, Montréal (2) Concordia University, Montréal (3) Armand Frappier Institute, Laval (4) McGill University, Montréal (5) Université de Montréal, Montréal - Canada

BACKGROUND

Weight management interventions focusing on lifestyles have shown some promising results but:
• Attrition rates are often high
• Reasons for dropout are poorly understood

CIRCUIT (CHU Sainte-Justine, Montréal) is a pediatric lifestyle intervention program focused on increasing physical activity among youth aged 4 to 18 y at risk of cardiovascular disease (CVD).

Over a 2-year period, a personalized strategy is delivered by a team comprising of a kinesiologist, dietitian and psychologist.

Participants are contacted monthly by the kinesiologist and return every 6 months for follow-up evaluations and further adjustments to the treatment plan.

OBJECTIVES

Estimate the prevalence and identify the determinants of drop-out among CIRCUIT participants in the first year of a 2-year lifestyle intervention program.

METHODS

PARTICIPANTS
• Data were of CIRCUIT participants who attended their baseline visit by March 2016
• Participants were referred by a health care professional if they had at least one CVD risk factor

DATA COLLECTION
• Height and weight were measured using standardized protocols, and BMI z-scores were derived according to WHO reference values
• Socio-demographic characteristics such as ethnicity and parental education levels were collected at baseline
• Driving time and distance to the clinic were estimated using Google Maps

ANALYSIS
• Attrition was defined as having done the baseline visit but ceasing attendance prior to the 1-year follow-up
• Differences in baseline characteristics between those who dropped out and those who continued were analyzed using chi-squared- and t-tests (Table 1)
• Logistic regression models identifying predictors of dropout were adjusted for baseline age, sex, BMI z-score, socio-demographic characteristics, and driving time to CIRCUIT (Table 2)

RESULTS

403 participants were included
Median Age 12 yo [IQR: 10-15]
Mean zBMI 3.2 ± 1.1
91% obese 7% overweight

Table 1: Baseline characteristics among participants and drop-outs of the CIRCUIT program

<table>
<thead>
<tr>
<th>Variable</th>
<th>Continued N=205</th>
<th>Dropped out N=198</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)*</td>
<td>11.3 ± 3.0</td>
<td>12.8 ± 3.0</td>
</tr>
<tr>
<td>BMI z-score</td>
<td>3.2 ± 1.3</td>
<td>3.1 ± 1.0</td>
</tr>
<tr>
<td>Estimated Driving Time to CIRCUIT (mins)</td>
<td>37.2 ± 51.3</td>
<td>37.8 ± 45.0</td>
</tr>
<tr>
<td>Driving Distance to CIRCUIT (km)</td>
<td>41.2 ± 79.3</td>
<td>39.0 ± 60.3</td>
</tr>
</tbody>
</table>

Table 2: Determinants of drop-out in the CIRCUIT program: results from the multivariable logistic regression model

<table>
<thead>
<tr>
<th>Effect</th>
<th>OR Estimate</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)*</td>
<td>1.2</td>
<td>1.1-1.3</td>
</tr>
<tr>
<td>Female (vs male)</td>
<td>1.3</td>
<td>0.8-2.1</td>
</tr>
<tr>
<td>Caucasian (vs others)</td>
<td>0.7</td>
<td>0.4-1.2</td>
</tr>
<tr>
<td>BMI z-score</td>
<td>1.0</td>
<td>0.8-1.30</td>
</tr>
<tr>
<td>Mother w/o a High School Diploma (vs others)*</td>
<td>2.1</td>
<td>1.1-4.0</td>
</tr>
<tr>
<td>Estimated Driving time CIRCUIT (10 mins)</td>
<td>1.0</td>
<td>0.9-1.1</td>
</tr>
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Figure 1: Percentage of baseline characteristics among participants and drop-outs of the CIRCUIT program

Figure 2: Prevalence of drop-out among CIRCUIT program participants

CONCLUSIONS

• The attrition rate (49.1%) in the first year of the CIRCUIT program, while comparable to other programs, was high.
• Youth who dropped out were older and had less educated mothers.
• No group differences were observed for sex, ethnicity, BMI z-scores, distance in time or kilometers to the clinic and fathers’ education.
• In covariable-adjusted logistic regression models, only older age at initiation of the intervention and lower maternal education predicted drop-out.
• Promoting earlier initiation and tailoring the program to parental level of education may improve retention to lifestyle intervention programs.

The authors declare no potential conflict of interest