1. INTRODUCTION

Improving the treatment of obesity remains a critical challenge. Several health behaviour change models, often based on a social-cognitive framework, have been used to design weight management interventions (Baranowski et al., 2003). However, most interventions have only produced modest weight reductions (Wadden et al., 2002) and social-cognitive variables have shown limited power to predict weight outcomes (Palmeira et al., 2007). Other predictors, and possibly alternative explanatory models, are needed to better understand the mechanisms by which weight loss and other obesity treatment-outcomes are brought about (Baranowski, 2006). Self-esteem is one of these possible mechanisms, because it is commonly reported to change during the treatment, although these changes are not necessarily associated with weight loss (Blaine et al., 2007; Maciejewski et al., 2005). This possibility should be more evident if the program integrates regular exercise, as it promotes improvements in subjective well-being (Biddle & Mutrie, 2001), with possible influences on long-term behavioural adherence (e.g., diet, exercise). Following the reciprocal effects model tenets (Marsh & Craven, 2006), we expected these changes in changes in weight, self-esteem and exercise to be reciprocal and might present one of the mechanisms by which obesity treatments can be improved.

2. PURPOSE

To analyse reciprocal effects among self-esteem, exercise, and weight loss during (and as a result of) behavioral obesity treatment.

3. METHODS

PARTICIPANTS: Subjects were 193 women (BMI=31.1±4.1 kg/m²; Age=38.4±6.7 y), who were randomly assigned to a 12-month obesity treatment program with weekly/biweekly group sessions covering exercise, nutrition, and behavior modification topics (n=144) or a comparison group (n=49), who received a general health education program. No differences were observed between the 32 non-completers (14.3% attrition) and the 193 completers in the baseline assessments of the variables (p>.10), so further analysis was done only with the completers.

MEASURES: All measures and psychometric instruments were assessed at baseline and 12 months. Self-esteem: Self-esteem was assessed with the Rosenberg Self-Esteem Scale – Revised (RSES; Rosenberg, 1965), composed of 10 items answered on a 4-point Likert scale. Higher scores of the RSES represent greater self-esteem (α=.76). Exercise Stage of Change (SOC): Exercise level was assessed with five items in a multiple-choice format (Courneya & Bobick, 2000), where each item represents a stage of change (SOC). Based on the results of this questionnaire, subjects were classified as non-active (i.e., if they were in pre-contemplation, contemplation or preparation SOC) or active (i.e., if they were in action or maintenance SOC). Weight: Weight was measured using an electronic scale (SECA Model 770, Hamburg, Germany), with a standardized procedure.

STATISTICAL ANALYSIS: A mixed models ANOVA was used to analyze the impact of the program on weight and self-esteem. The comparisons for exercise level were assessed by chi-square tests. In the correlational analysis all test variables except exercise level, were expressed by the residuals of the 12-month value regressed on the baseline value. Multiple mediation was tested by multiple regression following procedures described by Preacher and Hayes (2007). Treatment vs. comparison was the independent variable, while changes in body weight, self-esteem, and exercise were analyzed alternatively as mediators and dependent variables (see figure below for more information).

4. RESULTS

4.1 Weight Changes

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Exercise Status at Program’s End</th>
<th>Multiple Mediation Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>12 Months</td>
<td>Time x Group (F(1,191)=16.79, p=.001)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Comparison</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Active</td>
</tr>
<tr>
<td></td>
<td></td>
<td>80.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>76.1 (ES=.38)</td>
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<tr>
<td></td>
<td></td>
<td>34.3 (ES=.031)</td>
</tr>
</tbody>
</table>

5. DISCUSSION

Self-esteem have improved in both groups, suggesting that social influences, beyond the specific content of the programs, might induce better evaluations of ourselves.

Changes in self-esteem were associated with weight changes, suggesting that there might be an influence of weight loss on self-esteem’s improvement. These results support Blaine et al. (2007) report, strengthening the suggestion that this link should be thoroughly analysed further studies.

Only weight loss have influenced self-esteem’s response to treatment. Blaine and colleagues have proposed that this may be happening because significant reductions in weight prompt us to internalize the more positive body-related self-esteem changes and weight change’s specific indirect effects on self-esteem’s change (p=.036); treatment effects were non-significant, whereas total indirect effects and weight change’s specific indirect effects were significant, i.e., only when treatment produced weight loss did the intervention improve self-esteem.

No reciprocal effects were observed.

REFERENCES


6. CONCLUSION

Self-esteem improvement in both groups, suggesting that social influences, beyond the specific content of the programs, might induce better evaluations of ourselves.

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The present data does not support the inclusion of self-esteem improvement related contents on obesity interventions.

ANTONIO L. PALMEIRA 1,2, PEDRO J. TEIXEIRA2, MARLENE N. SILVA2, DAVID MARKLAND1, TEREZA L. BRANCO1, SANDRA S. MARTINS1,2, CLAUDIA MINDERICO1, SIDNÓIO O. SERPA1, LUIS B. SARDINHA2

1 University Luís de Montes de Oca, School of Sport and Exercise Sciences, Bangor University, Wales

2 Faculty of Human Movement – Technical University of Lisbon, Exercise and Health Laboratory