Motivational Profiles of Dental Students: A Person-centred Analysis of Differences in Study Strategies, Academic Performance, Self-esteem and Vitality

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Background

Self-determination Theory distinguishes different quality types of motivation.¹ Intrinsic motivation, as opposed to controlled motivation, has been associated with improved educational outcomes of dental students.² Most research, however, has explored these relationships as group variables, without considering the coexistence of intrinsic and controlled motivation.³ Therefore, our aim is to characterise dental students’ motivational profiles through a person-centred approach and to analyse differences across the key-outcomes of study strategies, academic performance, self-esteem and vitality.

Methods

A cross-sectional study was conducted collecting data from 924 Chilean dental undergraduates on demographics, motivation, deep/surface study strategies, academic performance, self-esteem and vitality. Students were classified into different subgroups through a K-means cluster analysis using intrinsic and controlled motivation as scores. After validating the clusters, a MANCOVA test was used to assess differences in the outcome variables by cluster membership, controlling for the effects of gender and year of study.

Results

Students’ were clustered into four motivation groups: (1) High Intrinsic/High Controlled (n=384/41.6%), (2) High Intrinsic/ Low Controlled (n=190/20.6%), (3) Low Intrinsic/High Controlled (n=253/27.4%), (4) Low Intrinsic/Low Controlled (n=97/10.5%) (Fig 1). Group comparison resulted in significant differences across all outcome variables with medium and large effect sizes. Clusters 1-2 reported more deep study and less surface study strategies, higher self-esteem and vitality, and better academic performance compared to clusters 3-4 (Table 1).

Table 1. MANCOVA differences by motivational profiles, controlling for gender and year of study.

<table>
<thead>
<tr>
<th>Variables</th>
<th>HIHC</th>
<th>HILC</th>
<th>LIHC</th>
<th>LILC</th>
<th>F-Test</th>
<th>Effect Size*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrinsic Motivation</td>
<td>24.43_a</td>
<td>22.93_b</td>
<td>19.50_c</td>
<td>15.84_d</td>
<td>413.54*</td>
<td>.939</td>
</tr>
<tr>
<td>Controlled Motivation</td>
<td>25.02_a</td>
<td>17.72_b</td>
<td>22.73_c</td>
<td>15.22_d</td>
<td>399.36*</td>
<td>.865</td>
</tr>
<tr>
<td>Deep Study</td>
<td>17.47_a</td>
<td>17.43_a</td>
<td>14.81_b</td>
<td>14.40_b</td>
<td>31.41*</td>
<td>.146</td>
</tr>
<tr>
<td>Surface Study</td>
<td>13.44_a</td>
<td>12.09_a</td>
<td>14.00_a</td>
<td>13.46_a</td>
<td>22.40*</td>
<td>.109</td>
</tr>
<tr>
<td>Vitality</td>
<td>5.18_a</td>
<td>4.92_a</td>
<td>4.43_a</td>
<td>4.46_a</td>
<td>13.25*</td>
<td>.067</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>33.22_a</td>
<td>32.84_a</td>
<td>31.42_a</td>
<td>31.88_a</td>
<td>5.40*</td>
<td>.029</td>
</tr>
<tr>
<td>Academic Performance</td>
<td>4.78_a</td>
<td>4.71_ab</td>
<td>4.66_ab</td>
<td>4.66_ab</td>
<td>14.47*</td>
<td>.073</td>
</tr>
</tbody>
</table>

Note: Cluster means are significantly different if they have different subscripts. *p<.0001, *Eta squared

Conclusions

This is the first study in dental education to classify students’ motivational profiles by the quality of their motivation and assess differences in educational outcomes. Intrinsic and controlled motivation were found to coexist, however, results favoured the high intrinsic motivation clusters, as they displayed the most optimal behavioural and affective outcomes. These results mirror previous studies conducted in other higher education areas.⁴,⁵ It seems therefore that, to contribute to the improvement of educational outcomes, dental schools should create environments that support students’ interest and volition so as to encourage their intrinsic motivation.

References


Footnotes:
1. Z-scores
2. Faculty of Dentistry, University of the Andes, Chile.
3. Dental School, University of Glasgow, U.K.
4. 1,5
5. -2