The transition of medical students to the residency training: the effects on physical activity and mental health.

Working team
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Leeds University: Dr. James McKenna

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What’s Galatea Foundation?

- Created by the Catalan Medical Association in 2001 in accordance with the autonomous government of Catalonia.

- Devoted to enhancing the health and the wellbeing of doctors and other health professionals.

- Integral care programmes for health professionals (doctors, nurses, veterinarians and pharmacists).

- Framework to manage programmes for health care and prevention addressed to professionals.
Methodology (1)


Population: 420 Students (52% of enrolled students)
478 Initial Residents
290 Residents

Self-administered survey

<table>
<thead>
<tr>
<th>Year</th>
<th>Type</th>
<th>Year</th>
<th>Type</th>
<th>Year</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>Students</td>
<td>2013 (May to June)</td>
<td>Initial Residents</td>
<td>2014 (May to June)</td>
<td>1st year Residents</td>
</tr>
<tr>
<td>Self-administered</td>
<td>On line</td>
<td>Self-administered</td>
<td>On line</td>
<td>Response rate: 60.7% 290 residents</td>
<td></td>
</tr>
</tbody>
</table>
Survey: based on the Catalan Health Survey

Health variables
Mental health: GHQ-12
Lifestyle behaviours:
Smoking, alcohol consumption, substances use, sleep pattern...

PA level (IPAQ-short version)

Active: complying with current PA guidelines
+150min/week Moderate intensity PA (MPA) or
+ 75min/week Vigorous intensity PA (VPA)

Highly active
+300min/week MPA or
+ 150min/week VPA

Under-exercisers
Not meet the minimum recommended PA for health
Sociodemographic characteristics (1)

Feminized degree
75% women in students
68% women in residents

Distribution of the sample of students and residents by gender and age

4th grade, 22y
26-27y
Residents
Patient-care specialties

Medical specialties:
30% Family Medicine
9% Pediatricians
6% Internal Medicine
6% Gynecology
49% others

66% from Spain (50% from Catalonia)
34% from other countries (South America)
Physical activity level
High compliment with current PA guidelines before Residency

Physical activity performed the last 7 days by IPAQ

- Students: 75%
- Initial residents: 74%
- Residents: 58%

Compliment with PA guidelines

- Active
- Under-exercise
High level of PA in students
Under-exercise increase after the 1st year of residency

Physical activity performed the last 7 days by IPAQ

- **Students**: 42%
- **Initial residents**: 25%
- **Residents 1st year**: 45%

Legend:
- Red: Under-exercise
- Blue: Active
- Green: Highly active
Which type of PA they engaged in?

- Walking
- VPA

Physical activity performed the last 7 days by IPAQ

- Walking (+150min/week): 63%
- MPA (+150min/week): 16%
- VPA (+75min/week): 40%
Lifestyles behaviours determining health
LIFESTYLE BEHAVIOURS: STUDENTS

↑ Under-exercise  ↑ alcohol consumption  ↑ sleep deprivation

<table>
<thead>
<tr>
<th>Behaviour</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under-exercise</td>
<td>26%</td>
</tr>
<tr>
<td>High risk alcohol consumption</td>
<td>21%</td>
</tr>
<tr>
<td>Marijuana consumption (last 30 days)</td>
<td>24%</td>
</tr>
<tr>
<td>Tranquilizers, sleeping pills (last 30 days)</td>
<td>14%</td>
</tr>
<tr>
<td>Sleep deprivation (&lt;6h/day)</td>
<td>23%</td>
</tr>
</tbody>
</table>
The most prevalent unhealthy behaviours
Under-exercise

LIFESTYLE BEHAVIOURS: INITIAL RESIDENTS

INITIAL RESIDENTS

- Under-exercise: 17%
- Smoking: 13%
- High risk alcohol consumption: 6%
- Marijuana consumption (last 30 days): 7%
- Tranquilizers, sleeping pills (last 30 days): 7%
- Sleep deprivation (≥6h/day): 12%
LIFESTYLE BEHAVIOURS: RESIDENTS 1st year

The most prevalent unhealthy behaviour: Under-exercise and Sleep deprivation

RESIDENTS 1st year

- Under-exercise: 42%
- Smoking: 17%
- Marijuana consumption: 7%
- Tranquilizers, sleeping pills: 10%
- Sleep deprivation (<6h/day): 10%
Health status

The medical training showed differences in the health status of doctors.

Higher risk of poor mental health and stress (especially in students and residents 1st year) but good self-perceived health.
HEALTH: STUDENTS

Almost half of students reported poor mental health

General health assessed by SF-12
Mental health assessed by GHQ-12

Students

<table>
<thead>
<tr>
<th>Health Status</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent general health</td>
<td>60%</td>
</tr>
<tr>
<td>Good general health</td>
<td>33%</td>
</tr>
<tr>
<td>Poor Mental health</td>
<td>47%</td>
</tr>
</tbody>
</table>
HEALTH: INITIAL RESIDENTS

Positive self-perception of health

General health assessed by SF-12
Mental health assessed by GHQ-12

Initial residents

- Excellent general health: 71%
- Good general health: 27%
- Poor mental health: 15%
HEALTH: RESIDENTS 1st year

Poor mental health increased

General health assessed by SF-12
Mental health assessed by GHQ-12

Residents 1st year

- Excellent general health: 57%
- Good: 38%
- Poor Mental health: 29%
Unhealthy weight: under or overweight

The majority of students and residents reported healthy weight

• Only over 21-27% reported unhealthy weight.

• Increased in residents
PA and associated factors
PA and gender (1)

Males are more physically active

Significant associations with PA level
PA and gender (2)

Males are more physically active at vigorous intensity

Significant associations with PA level
PA and leisure time: Residents 1st year

Having free time was positively associated with PA level.

Significant associations with PA level.

52% of residents after the 1st year are not satisfied with their personal leisure time.
PA and Poor mental health (1)

High risk in students and residents 1st year

Significant associations with PA level

Low level of PA (MPA and walking)

Poor Mental Health

47% in students and 29% in 1st year residents
PA and Poor mental health by gender (2)

Women the most affected

Significant associations with PA level

In students: 50% of women vs. 37% in men

In residents: 18% of women vs. 9% in men

Women less physically active
PA and substances use

11.9% of students (86% women)
9.7% of residents

Significant associations with PA level

↑ tranquilizers and sleeping pills

↓ VPA

Women less physically active
PA and stress level: Residents 1st year

55% of residents (59% women)

Significant associations with PA level

↑ stress level

↓ PA
### The most physically active

<table>
<thead>
<tr>
<th>Significant associations with PA level</th>
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<tbody>
<tr>
<td>Men</td>
</tr>
<tr>
<td>Normal-weight</td>
</tr>
<tr>
<td>Good Self-perceived Health</td>
</tr>
<tr>
<td>Good Mental Health</td>
</tr>
<tr>
<td>Satisfied with Leisure time</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No Significant associations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical specialty</td>
</tr>
<tr>
<td>Smoking</td>
</tr>
<tr>
<td>Alcohol</td>
</tr>
<tr>
<td>Marijuana consumption</td>
</tr>
<tr>
<td>Sleeping hours</td>
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</table>
Transition of medical students to residency
Transition to residency: PA level

PA level decreased 16% after 1st year residency

PA level distribution by training stages

42% under-exercisers
Transition to residency

Negative effect on health after 1st year residency

**Smoking**

**Risk alcohol consumption**

- Alcohol at risk score
- Smoking

<table>
<thead>
<tr>
<th>Smoking Level</th>
<th>Alcohol at Risk</th>
<th>Smoking</th>
</tr>
</thead>
<tbody>
<tr>
<td>21%</td>
<td>13%</td>
<td>17%</td>
</tr>
<tr>
<td>24%</td>
<td>17%</td>
<td>19%</td>
</tr>
</tbody>
</table>

Students vs. Initial Residents

- Students
- Initial Residents
- Residents 1st year
Transition to residency

Negative effect on health after 1st year residency

Substances use

- Substance use, marijuana
- Substance use, tranquilizers, sleeping pills

14% 12% 10%

6% 7% 7%
Transition to residency

Negative effect on health after 1st year residency

Unhealthy weight
Sleep deprivation

- Over- or underweight
- Low sleeping hours (<6h)

<table>
<thead>
<tr>
<th></th>
<th>Students Initial</th>
<th>Residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overweight</td>
<td>20%</td>
<td>23%</td>
</tr>
<tr>
<td>Underweight</td>
<td>26%</td>
<td>20%</td>
</tr>
<tr>
<td>Low sleeping</td>
<td>26%</td>
<td>12%</td>
</tr>
<tr>
<td>(under 6 hours)</td>
<td></td>
<td>42%</td>
</tr>
</tbody>
</table>
Before Residency all lifestyle and health parameters improved. PA level stay similar.

After 1st year Residency:
↑ unhealthy lifestyle behaviors:
  Smoking
  Alcohol
  Substances use

Self-perceived general and Mental health worsen
Conclusions

High PA level before starting Residency training. Doctors exercise mainly by walking and high intensity PA.

Those who exercise reported better health and mental health and healthy weight.

High risk of poor mental health in students and residents 1st year. Low level of PA related to poor mental health. Those who exercise reported lower use of substances such as tranquilizers and low stress level.
Medical students showed worse lifestyle behaviors than residents.

From all unhealthy lifestyle conditioning behaviors, **Under-exercise** is the most prevalent.

The first year of Residency training have some negative effects on health and lifestyle behaviors.

- ↓ PA level
- ↑ Poor mental health
- ↑ Sleep deprivation
- ↓ Satisfaction with Leisure time
- ↑ unhealthy behaviors
Next steps

In students:
- Promoting healthy lifestyle behaviors during medical school.
- Medical programs should address mental health in students at high risk: Strategies based on healthy exercise.

In residents
- Planning strategies to integrate PA in residents daily routine: informal PA and/or PA at work setting
- Women, specially those at risk of psychosocial problems could benefit from PA interventions.
More information

www.fgalatea.org