Health Behavior Change

Does the physical therapy literature reflect the pandemic of lifestyle-related conditions?

Jamie Bumiston, Faezeh Eftekhari, Sarah Hrabi, Rachel Worsley
“Lifestyle-related conditions” are leading causes of death worldwide

Key lifestyle behaviors contribute to preventable lifestyle-related conditions

Lifestyle-related conditions decrease quality of life of individuals and strain health care system resources
• Physical therapy is a health care discipline that is well poised to tackle lifestyle conditions through non-invasive practices such as healthy lifestyle education

• This research examined if the physical therapy literature has adequately responded to the increasing prevalence of co-morbidities and lifestyle-related conditions
PURPOSE

To determine whether the pandemic of lifestyle-related conditions has lead to a change in the volume of literature on physical therapy involvement in lifestyle behaviours over the last 20 years, specifically:

- Physical activity and exercise
- Smoking cessation
- Nutrition optimization
- Weight control
- Stress management
- Sleep hygiene
AIMS

1. To determine if the proportion of peer reviewed articles published on each of the six lifestyle behaviors in physical therapy journals has changed from 1986-1989 to 2006-2009.

2. To determine if the overall proportion of peer reviewed articles on lifestyle behaviors published in physical therapy journals has changed from 1986-1989 to 2006-2009.
# OPERATIONAL DEFINITIONS

<table>
<thead>
<tr>
<th>Health</th>
<th>A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO)</th>
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<tbody>
<tr>
<td><strong>Lifestyle-Related Conditions</strong></td>
<td>Multi-factorial health problems that can result from negative lifestyle behaviors (e.g.: ischemic heart disease, chronic bronchitis and emphysema, hypertension, stroke, diabetes mellitus, and some cancers)</td>
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<tr>
<td><strong>Lifestyle Behaviors</strong></td>
<td>Modes of living that impact an individual’s health status (e.g. physical activity and exercise, smoking cessation, nutrition optimization, weight control, stress management, and sleep hygiene)</td>
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<tr>
<td><strong>Physical Activity</strong></td>
<td>A general term used for any activities that involve voluntary movement of the skeletal muscles resulting in increased energy expenditure. (CINAHL)</td>
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<td><strong>Exercise</strong></td>
<td>Physical activity which is usually regular and done with the intention of improving or maintaining physical fitness or health. (CINAHL)</td>
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<tr>
<td><strong>Smoking Cessation</strong></td>
<td>Discontinuing the smoking habit. (CINAHL)</td>
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<td><strong>Nutrition Optimization</strong></td>
<td>Obtaining the nutrition essential for healing and repair, immunity, maintaining an optimal body weight as well as providing energy for metabolism (Dean, 2009b)</td>
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<td><strong>Weight Control</strong></td>
<td>The process by which individuals attempt to achieve and/or maintain a healthy body weight. (CINAHL)</td>
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<td><strong>Stress Management</strong></td>
<td>Strategies to minimize physical, psychological or emotional stressors of the body.</td>
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<tr>
<td><strong>Sleep Hygiene</strong></td>
<td>The environmental factors, nightly habits or other practices that can influence sleep length and quality (ICSD 2001)</td>
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<td><strong>Responsiveness of Literature</strong></td>
<td>Change over time in the proportion of peer reviewed articles on lifestyle related conditions and lifestyle behaviours to reflect the changing prevalence in society of those issues.</td>
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METHODS

- **Journals:**
  - Australian Journal of Physiotherapy
  - Physical Therapy
  - Physiotherapy
  - Physiotherapy Canada
  - Physiotherapy Theory and Practice

- **Electronic Databases:**
  - CINAHL
## SEARCH STRATEGY

**Dates:**

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<td>CINAHL</td>
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| 1       | **Name of all Journals**  
\(((\text{ZJ } "\text{physiotherapy canada}"	ext{)}) \text{ or } (\text{ZJ } "\text{physiotherapy theory and practice}"	ext{)}) \text{ or } (\text{ZJ } "\text{physical therapy}"	ext{)}) \text{ or } (\text{ZJ } "\text{australian journal of physiotherapy}"	ext{)}) \text{ or } (\text{ZJ } "\text{physiotherapy}"	ext{)}) |                    |
| 2       | **Smoking Behaviour** – MeSH  
\text{(MH } "\text{Smoking Cessation Programs}" \text{) or } (\text{MH } "\text{Smoking/PC}"\text{)} | 1986-1989          |
| 3       | **Smoking Behavior** – Key Terms  
\text{stop* w3 cigar* or stop* w3 tobacco or stop* w3 smok*} | English language   |
| 4       | **Smoking Behavior** – Key Terms  
\text{quit* w3 cigar* or quit* w3 tobacco or quit* w3 smok*} |                    |
| 5       | 2 or 3 or 4                                                                     |                    |
| 6       | 1 and 5                                                                        |                    |
| 7       | **Single Journal**  
\text{(ZJ } "\text{physiotherapy canada}"\text{)} |                    |
| 8       | 7 and 5                                                                       |                    |
METHODS

Article Selection:

- Titles and abstracts were retrieved and reviewed for inclusion by two reviewers independently.

- Each article was assigned to the appropriate lifestyle behaviors.

- If agreement was not obtained, a third reviewer was consulted to make the final decision on inclusion.
INCLUSION CRITERIA

Articles which are:

i. Peer reviewed

ii. Written in English

iii. Published in Australian Journal of Physiotherapy, Physical Therapy, Physiotherapy, Physiotherapy Canada or Physiotherapy Theory and Practice

iv. Published in one of two time periods: 1986 to 1989 and 2006 to 2009

v. Focused on key lifestyle behaviors: physical activity and exercise, smoking cessation, nutrition optimization, weight control, stress management and sleep hygiene

vi. Promoting health according to the WHO definition: “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.”
Articles which discuss:

i. Long term lifestyle modifications for any one condition, with the exception of: cardiovascular disease, smoking-related respiratory conditions, hypertension, stroke and cerebrovascular disease, cancer, diabetes mellitus, obesity.

ii. Short term treatments as opposed to ongoing interventions that address health behavior changes.
Total Counts:

- Proportions were calculated to account for any change in the total number of articles published during each time period and avoid skewing our results.

- Title page counts were conducted by two independent reviewers.
INCLUSION CRITERIA

Articles which are:

i. Peer reviewed

ii. Written in English

iii. Published in Australian Journal of Physiotherapy, Physical Therapy, Physiotherapy, Physiotherapy Canada or Physiotherapy Theory and Practice

iv. Published in one of two time periods: 1986 to 1989 and 2006 to 2009.
Specific inclusion criteria for total count:

- Case Reports
- Clinical Reports
- Reprints from other journals
- Technical Reports
- Anatomy Reviews
- “Discussions” (Physiotherapy)
- “Perspectives” (Physical Therapy)
- “Reading Tips” (Physical Therapy)
- “General Communications” (Physiotherapy Canada)
- “Brief Communications” (Physiotherapy Canada)
- “Education” (Physical Therapy)
- “Administration” (Physical Therapy)
- “Clinical Notes” (Physiotherapy Canada)
- “Special Communications” (Physical Therapy)
Specific exclusion criteria for total counts:

- Editorials
- Commentaries
- Letters and Responses
- Conference Proceedings
- Congress Reports, Symposiums
- Rejoinders (Physical Therapy)
- “Mary McMillan Lectures” (Physical Therapy)
- “The Bottom Line” (Physical Therapy)
- “Suggestions From the Field” (Physical Therapy)
- “Enid Graham Memorial Lecture” (Physiotherapy Canada)
- “Founder’s Lecture” (Physiotherapy)
- Corrections
- Book/Manuscript/Multimedia Reviews
- Equipment/Product Reviews
- Scholarships
- Fellowships, and Grants
- News/Notices
- Association Business
- Supplements
- Progress Reports
- Presidential Addresses
- “Equipment Notes” (Physiotherapy)
- “Treatment Notes” (Physiotherapy)
Figure 1a. Search strategy flow chart for the time period of 1986-1989

Flow Chart:

- Physical Activity and Exercise (n=3,450)
- Smoking Cessation (n=192)
- Nutrition Optimization (n=270)
- Weight Control (n=402)
- Stress Management (n=803)
- Sleep Hygiene (n=156)
- Health and Lifestyle (n=1,374)

- Australian Journal of Physiotherapy (n=0)
- Physiotherapy Canada (n=29)
- Physiotherapy Theory and Practice (n=7)
- Physical Therapy (n=199)
- Physiotherapy (n=69)

Print Copies:
- Physiotherapy (n=258)
- Physiotherapy Canada (n=91)

Title Page Searches:
- Australian Journal of Physiotherapy (n=81)
- Physiotherapy Theory and Practice (n=97)

CINAHL (n=304)

Total articles to be reviewed (n=831)

Studies Excluded by Title and/or Abstract Screen and/or Full Text Review by Two Independent Reviewers (n=803)

Studies Included by Title and Abstract Screen of Two Independent Reviewers (n=28)

Articles under Question 3rd Party Review (n=9)

Studies Excluded by 3rd party review (n=5)

Total Articles Included (n=23)
Figure 1b. Search strategy flow chart for the time period of 2006-2009

- Physical Activity and Exercise (n=85,459)
- Smoking Cessation (n=3,558)
- Nutrition Optimization (n=4,242)
- Weight Control (n=25,840)
- Stress Management (n=10,737)
- Sleep Hygiene (n=4,738)
- Health and Lifestyle (n=19,17)

  - Australian Journal of Physiotherapy (n=130)
  - Physiotherapy Canada (n=76)
  - Physiotherapy Theory & Practice (n=51)
  - Physical Therapy (n=318)
  - Physiotherapy (n=75)

  - CINAHL (n=650)
    - Print Copies: (n=0)
    - Title Page Searches: (n=0)
    - Studies Excluded by Title and/or Abstract Screen and/or Full Text Review by Two Independent Reviewers (n=591)
    - Studies Included by Title and Abstract Screen of Two Independent Reviewers (n=59)
    - Articles under Question 3rd Party Review (n=23)
    - Studies Excluded by 3rd party review (n=17)

  - Total Articles Included (n=42)
Fisher’s Exact Test

- Data analyzed using the computer program SPSS
- p-value
  - each lifestyle behavior
  - overall number of articles on all lifestyle behaviors combined
- < .05 = significant
RESULTS: SUMMARY TABLE

- **Physical Activity and Exercise**
  - 12 → 34 articles
  - 1.2% → 3.67%
  - \( P < 0.001 \)

- **Smoking Cessation**
  - 2 → 4 articles
  - 0.20% → 0.43%
  - \( P = 0.363 \)

- **Nutrition Optimization**
  - 4 → 5 articles
  - 0.40% → 0.54%
  - \( P = 0.655 \)
RESULTS: SUMMARY TABLE

- **Weight Control**
  - 2 → 5 articles
  - 0.20% → 0.54%
  - P = .216

- **Stress Management**
  - 15 → 5 articles
  - 1.50% → 0.54%
  - P = 0.018

- **Sleep Hygiene**
  - 0 → 3 articles
  - 0.00% → 0.32%
  - P = 0.038
RESULTS: SUMMARY TABLE

- Total Articles on Lifestyle Behaviors
- 23 → 42
- 2.30% → 4.53%
- P = 0.007
Table 2a. Number of Articles Related to Lifestyle Behaviours in Leading Physical Therapy Journals over Two Time Periods

<table>
<thead>
<tr>
<th></th>
<th>Australian Journal of Physiotherapy</th>
<th>Physical Therapy</th>
<th>Physiotherapy Canada</th>
<th>Physiotherapy Theory and Practice</th>
<th>Total Articles</th>
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<tr>
<td><strong>1996-89</strong></td>
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<td><strong>Total Articles on Lifestyle Behaviors</strong></td>
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<td>17</td>
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<td><strong>Total Articles</strong></td>
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<td>268</td>
<td>91</td>
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<td><strong>2006-09</strong></td>
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<td><strong>Total Articles on Lifestyle Behaviors</strong></td>
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<td>15</td>
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<tr>
<td><strong>Total Articles</strong></td>
<td>105</td>
<td>456</td>
<td>138</td>
<td>82</td>
<td>144</td>
<td>927</td>
</tr>
</tbody>
</table>
Table 2b. Percentage of Articles Related to Lifestyle Behaviours in Leading Physical Therapy Journals over Two Time Periods

<table>
<thead>
<tr>
<th>Year</th>
<th>Physical Activity and Exercise</th>
<th>Smoking Cessation</th>
<th>Nutrition Optimization</th>
<th>Weight Control</th>
<th>Stress Management</th>
<th>Sleep Hygiene</th>
<th>Total Percentage of Articles on Lifestyle Behaviors</th>
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<td>4.53</td>
<td>927</td>
</tr>
</tbody>
</table>

Total Articles: 999

Total Percentage of Articles on Lifestyle Behaviours: 2.30

Total Articles: 927
DISCUSSION

- Physical Activity and Exercise
  - Largest increase over time
  - Suggests increased focus on role of exercise in health promotion
  - Core element of physical therapy
  - Important role in other lifestyle behaviors

- And yet, 47% of Canadians remain inactive

- Let’s close the gap!
DISCUSSION

• **Smoking Cessation**
  • No change over time
  • Suggests little attention placed on the role of physical therapists in promoting smoking cessation
  • Physical therapists should play a role:
    • Preventative health educators
    • Adjunct to cardiorespiratory physical therapy
    • Exercise to aid smoking cessation

• How do we prepare physical therapists to fill this role?
DISCUSSION

- **Nutrition Optimization**
  - No change over time
  - All in one journal in 1986-89, spread among three journals in 2006-09
    - Reflects wider spread of focus among physical therapy community?
  - Important role in tissue healing, muscle building, performance sports, weight control and immune function
  - Potential for further research on the role of physical therapists in nutrition guidance
DISCUSSION

- Weight Control
  - No change over time
  - Obesity rates continue to rise
  - Global issue; impacts all areas of physical therapy
  - Only considered independently in two of five articles
  - Linked to exercise and nutrition

- How to incorporate effective weight management interventions into physical therapy treatment plans?
Stress Management

- Only lifestyle behavior to decrease over time
  - Greatest number of articles in 1986-89
- May reflect how prominent an issue stress was at the time
- Stress plays a strong role in motivation, performance and perception of pain and disability

- Do physical therapists recognize the role they could play in stress management?
DISCUSSION

- Sleep Hygiene
  - Increase in volume over time
    - However… 0 → 3 articles
  - Appears to be a new and under-examined topic in physical therapy
  - Risk factor for other health conditions
  - Further research on the role of physical therapists in sleep hygiene management?
DISCUSSION

- **All Lifestyle Behaviors**
  - Total proportion of articles increased over time
    - Physical therapy academic community appears to be placing more attention on lifestyle behaviors and their role in patient health
    - Increase driven by physical activity and exercise results
  - However, the prevalence of lifestyle-related conditions continue to rise
    - Where is the gap between knowledge and practice?
  - Where can we go from here?
LIMITATIONS

- Purely quantitative
  - Does not evaluate the content or quality
  - Does not include editorials or opinion pieces

- Data was extracted from only the five major generalist physical therapy journals
  - Does not include trends in specialist journals

- Current core generalist journals (Nov. 2010)
  - Physical Therapy, Journal of Physiotherapy

- Lifestyle behavior categorization

- Academic ↔ Clinical
CONCLUSION

- Statistically significant increase in proportion of articles focused on:
  - Physical activity and exercise – Greatest increase
  - Sleep hygiene
  - All lifestyle behaviors combined

- Suggests that the academic physiotherapy community has been responsive to the increasing prevalence of lifestyle-related conditions

- Recommendations for future research:
  - Adapt and expand our methods to review all of the physical therapy-related literature and grey literature
Applying for publication in Physiotherapy Canada
We would like to acknowledge Dr. Elizabeth Dean, Charlotte Beck, Dr. Teresa Liu-Ambrose, Dr. Darlene Reid and Jodie Woolner for their contributions to this work!
REFERENCES


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