What are the health education strategies used by physical therapists to promote behavioural modification in people with lifestyle-related conditions? A scoping review

RSPT 572: Group # 8:
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Outline

• Background
• Methods
  – Search Strategy
  – Data Abstraction
  – Quality Assessment
• Results
• Discussion
  – Implications
  – Limitations
Canadian Health Care System

• Current health care system developed to prevent and treat illness and disease

• Decrease in the number of deaths has shown the effectiveness of this system

• However, a new wave of health threatening conditions exist
  – Current health care system may not be equipped to manage this
Lifestyle-Related Conditions

• Health disorders caused by modifiable behaviours

• Include:
  • Obesity
  • Cardiovascular disease
  • Cerebrovascular disease
  • Cancer
  • Type II diabetes
  • Smoking-related conditions

• Recently these have threatened to exhaust resources
Statistics

• Include:
  – Obesity
    • In 2007 more than half of population obese or overweight \(^4\)
    • Cost $4.3 billion in 2005 \(^5\)
  – Cardiovascular and cerebrovascular disease
    • 1.3 million reported cases in Canada \(^5\)
    • 317,500 Canadians living post-stroke \(^5\)
  – Diabetes
    • 3.7 million by year 2020 in Canada \(^6\)
    • Associated costs increased by $5.9 billion over past 10 years \(^4\)
  – Smoking-related diseases
    • 5 million Canadians still smoke \(^8\)
    • $4.4 billion in direct health care costs annually \(^7\)
  – Cancer
    • 40% of women and 45% of men will develop cancer in their lifetime \(^9\)
    • Expected to be cause of \(\frac{1}{4}\) of all Canadian deaths \(^9\)
Physical Therapists and Behavioural Change

• Health care professionals have been shown to influence behaviour change through counseling \(^{10}\)

• Physical therapists are in an ideal position to foster this change \(^{10}\)

• Patients often do not consult physical therapists until after illness has occurred \(^{11}\)
Evolution of Health Care

- A change in the roles of health care service providers is paramount\textsuperscript{3,12}

- Evolve the role of health care professionals toward prevention and patient self-management\textsuperscript{13}
Aim of Systematic Review

• Scope the peer-reviewed literature to determine what health education strategies are being used by physical therapists to promote behavioural modifications in people with lifestyle-related conditions
Methods: Search Strategy

Cochrane Database of SR's (n=234)
CINAHL (n=2410)
EMBASE (n=607)
Psyc INFO (n=189)
Medline (n=291)
Reference mining (n=316)

Potentially relevant studies identified and screened for retrieval (n=4047)

Studies retrieved for abstract evaluation with screening tool (n=92)

Title & Abstract Stage -
Studies excluded with reasons:
- Inappropriate population
- Examined condition is not lifestyle related
- Intervention does not include education
- Physical therapy does not have role (n=3955)

Full Text Stage -
Studies excluded with reasons:
- 3 duplicates
- 9 lifestyle condition not targeted for education
- 18 physical therapist not the educator
- 9 inappropriate patient population
- 39 no description of education strategy
- 6 no access to article (n=84)

Studies included in systematic review (n=8)
Methods: Search Strategy

- Search organized into 3 blocks of terms
  - Education Strategies
  - Physical Therapy
  - Lifestyle Related Conditions

- Search terms/key words determined from
  - Discussion ideas
  - Supervisor & librarian
  - Relevant MeSH terms
  - Review of articles keywords

- Blocks summed using Boolean Operator “or” then combined using “and”
Methods: Search Strategy

• Searches
  – Search terms carried over to appropriate databases, modified as needed/applicable
  – Reference-mining of relevant articles

• Grey Literature
  – Not considered appropriate as we are interested in published materials only
Methods: Search Strategy

- Examine title and abstracts
  - Apply inclusion screening criteria
    - Adult patient population
    - Lifestyle-related condition
      - Obesity
      - Cardiovascular disease
      - Cerebrovascular disease
      - Smoking-related conditions
      - Type II diabetes
      - Cancer
    - Education intervention
    - Physical therapist involved
Methods: Search Strategy

- Remove duplicates then examine **full text articles**
- Confirm inclusion screening criteria
- Apply data abstraction
Methods: Data Abstraction

• Overview:
  – Open-ended answers
    • Narrative synthesis
  – Examined various study designs
    • Oxford Levels of Evidence
# Methods: Data Abstraction

## Data Abstraction Form

<table>
<thead>
<tr>
<th>STUDY TYPE - From Oxford Levels of Evidence</th>
<th>Description of Level</th>
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</thead>
<tbody>
<tr>
<td>1a</td>
<td>Systematic Review (SR) with homogeneity of Randomized Controlled Trials (RCT)</td>
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<tr>
<td>1b</td>
<td>Individual RCT (with narrow confidence intervals)</td>
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<tr>
<td>2a</td>
<td>Meta-analysis</td>
</tr>
<tr>
<td>2b</td>
<td>Individual non-RCT (with or without control group)</td>
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<tr>
<td>2c</td>
<td>Individual non-RCT (no control group)</td>
</tr>
<tr>
<td>2d</td>
<td>Observational Study, Ecological Studies</td>
</tr>
<tr>
<td>3a</td>
<td>Before and after (within group) with or without control group</td>
</tr>
<tr>
<td>3b</td>
<td>Longitudinal, cohort study</td>
</tr>
<tr>
<td>4</td>
<td>Case-control Study</td>
</tr>
<tr>
<td>5</td>
<td>Expert opinion without explicit critical appraisal, or based on physiology, pathogenesis, or both</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
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</tbody>
</table>

## GENERAL

**Description of study design:**

**Purpose of the Study:**
- Was the study approved by an Ethics Review Committee or Institutional Review Board? **[ ] Yes [ ] No**
- Was informed consent obtained from participants? **[ ] Yes [ ] No**
- Where did the study take place? **[ ] Yes [ ] No**
- Was it in an urban or rural setting? **[ ] Yes [ ] No**

## INTERVENTION

**How many participants were there?**
- What is the lifestyle-related condition or lifestyle behavior addressed? **[ ] Yes [ ] No**
- What was the intervention used? **[ ] Yes [ ] No**

**What is the approach used by health professional?**
- Was a family member or a friend involved in the intervention? **[ ] Yes [ ] No**
- Was the intervention delivered in a 1-on-1 fashion or in a group setting? **[ ] Yes [ ] No**
- Was the physical therapist working individually or as part of a team? **[ ] Yes [ ] No**
- Were there any rewards or incentives for the subjects? **[ ] Yes [ ] No**

**PARTICIPANT LEARNING**
- Were there outcome measures (objective or subjective) used to assess the learning? If so, what measures were used (diaries, self-reports, etc)? **[ ] Yes [ ] No**
- Did the study take into account the learning styles of the subjects? **[ ] Yes [ ] No**
- Was there any mention of literacy level, language skills, oral/written method, etc? **[ ] Yes [ ] No**
- Was there follow up? Was the learning retained at follow up? **[ ] Yes [ ] No**
- What are the main points/conclusions of this study? **[ ] Yes [ ] No**
Quality Assessment

• PEDro
  – Validated, Physiotherapy directed \(^{14,15}\)
  – Most studies scored poorly
    • Surveys
    • Uncommon study designs
      – Quasi-experimental
      – Prospective Interventional Study
Health education strategies used by physical therapists to promote behaviour change in people with lifestyle-related conditions

**PEDro Quality Assessment Form**

<table>
<thead>
<tr>
<th>Question</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Eligibility criteria were specified</td>
<td></td>
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<tr>
<td>2 Subjects were randomly allocated to groups (in a crossover study, subjects were randomly allocated an order in which treatments were received)</td>
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<tr>
<td>3 Allocation was concealed</td>
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<tr>
<td>4 The groups were similar at baseline regarding the most important prognostic indicators</td>
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<tr>
<td>5 There was blinding of all subjects</td>
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<tr>
<td>6 There was blinding of all therapists who administered the therapy</td>
<td></td>
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<tr>
<td>7 There was blinding of all assessors who measured at least one key outcome</td>
<td></td>
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<tr>
<td>8 Measures of at least one key outcome were obtained from more than 85% of the subjects initially allocated to groups</td>
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<tr>
<td>9 All subjects for whom outcome measures were available received the treatment or control condition as allocated or, where this was not the case, data for at least one key outcome was analysed by “intention to treat”</td>
<td></td>
</tr>
<tr>
<td>10 The results of between-group statistical comparisons are reported for at least one key outcome</td>
<td></td>
</tr>
<tr>
<td>11 The study provides both point measures and measures of variability for at least one key outcome</td>
<td></td>
</tr>
</tbody>
</table>
Results

• 8 articles were retrieved
  – 5 from search of databases
  – 3 from reference-mining

• Study Design
  – 3 RCTs
  – 3 Surveys
  – 1 quasi-experimental study
  – 1 prospective interventional study
# Included Articles

<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molenaar et al.(^{16})</td>
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</table>
Results

• Publication dates
  – 1995 – 2010

• Location of study
  – 2 Finland, the Netherlands, Sweden, England
  – United States of America
  – 2 Australia
Participants

- 4 papers focused on patients\textsuperscript{16,18,21,23}
- 3 papers focused on physiotherapists \textsuperscript{17,19,20}
- 1 paper looked at both patient and physiotherapist \textsuperscript{22}
Results: Interventions
Role of the Physical Therapist

• Primarily educators for exercise-based interventions\textsuperscript{16-23}
  – Increasing physical activity for better health\textsuperscript{19-22}
  – Using exercise as a treatment to reduce risk factors\textsuperscript{16-23}
Educational Strategy Components

**Theory**
- Transtheoretical model
- 5 A’s

**Timing**
- Pre-assessment
- Post-assessment
- Follow-up

**Session structure**
- Brief advice
- One-on-one
- Group
- Telephone

**Technique**
- Motivational prompts
- Individualized programs
- Goal setting

**Delivery medium**
- Brochures
- Diaries
- A/V or video
- Handouts
- Skills demonstration
Theories

- Transtheoretical Model of Change
  - Identified in 3 studies\textsuperscript{19, 22, 23}
  - Can be used as assessment to tailor intervention and outcome measure

- 5As strategy for health behaviour counseling \textsuperscript{18}
  - Address the agenda, assess, advise, assist and arrange follow up
Timing: Pre-Assessment

- Strength, exercise capacity, anthropometrics\textsuperscript{16,18,21,23}
  - Used as outcome measures
  - Used to create individualized exercise programs
- Previous physical activity habits\textsuperscript{16,18,22,23}
- Stage of Change\textsuperscript{18,22,23}
- Smoking habits\textsuperscript{23}
Physical therapists reported being more comfortable with assessment for exercise-related interventions than for general healthy lifestyle counseling\textsuperscript{17}
Timing: Follow-up

- Varied between studies
  - Some only re-evaluated outcome measures\textsuperscript{16,21,22}
  - Others provided more comprehensive telephone or group counseling sessions\textsuperscript{18,23}
Timing: Follow-up

- More than 60% of professionals surveyed rated follow-up as difficult
  - only 5% rated this item as easy\textsuperscript{17}
Session Structure: Brief Advice and Discussion

- Educational counseling provided as a brief addendum to other intervention sessions
  - Found in four studies\textsuperscript{17,19,20,22}

- The majority of physical therapists use short advice and encouragement for health education daily or nearly daily\textsuperscript{17}

- 97\% of physical therapists* believe brief counseling is feasible to improve physical activity levels\textsuperscript{19}
**Session Structure:**

**Counseling Methods**

- Face-to-face or one-on-one counseling was found in three studies\(^{16,18,23}\)
- Group counseling found in two studies\(^ {21,23}\)
- Physical therapists rated feasibility\(^ {19}\)
  - Separate consultations (63%) vs. group sessions (60%)
Technique: Motivational Prompts

• Found in five Studies\textsuperscript{16,17,18,22,23}

• Prompts used most frequently\textsuperscript{17}:
  – Health and general fitness enhancement
  – Prevention of disease and reduction of risks
  – Decreasing symptoms and feeling well
  – Work and functional capacity
  – Enjoyment of life and recreation
Technique: Identification of Barriers and Problem Solving

- Found in two studies\textsuperscript{22,23}

- Counseling sessions included identification of barriers to activity and exploration of strategies to handle threats\textsuperscript{22,23}
Technique: Individualized Plans and Goal Setting

- Developing personalized exercise programs was found in five studies\textsuperscript{16,17,18,21,23}
- Goal-setting was found in three studies\textsuperscript{16,22,23}

- Perceived ease\textsuperscript{17}:
  - 40\% of physical therapists reported ‘devising a personal program to change health habits’ as difficult
  - However, most thought that devising a personal exercise plan as easy
Delivery Media: Handouts, Brochures and Diaries

- Found in six studies\textsuperscript{17,18,19,20,21,22}

- Participants were provided with:
  - Written copies of prescribed exercise program\textsuperscript{18,21,22}
  - Brochures for promotion of physical activity\textsuperscript{22}
  - Physical activity diaries\textsuperscript{22}

- Frequency:
  - Handing out written materials occurred in 14\% of patient contacts\textsuperscript{20}
  - The majority of physical therapists gave and explained handouts to patients at least once a week\textsuperscript{17}
52% of participants who were given a **brochure** recalled receiving it and 48% reported reading it\(^\text{22}\)

80% of those participants who were given an **exercise diary** recalled receiving it

– Median completion time 3 weeks (total possible 6 weeks)\(^\text{22}\)
Delivery Medium: Skills Training

- Found in five studies\textsuperscript{17,18,20,21,23}

- Skill training regarding proper exercise technique\textsuperscript{18,21,23}

- Physical therapist reported use of skill training:
  - Is included in 45\% of patient contacts involving counseling\textsuperscript{20}
  - Most physical therapists used skills training daily or nearly daily\textsuperscript{17}
Delivery Media: Visual Model/Presentation

- Found in three studies\textsuperscript{17,20,21}
- Video demonstrating technique\textsuperscript{21}
- Frequency:
  - Used as a method of counseling in 23\% of patient contacts\textsuperscript{20}
  - 60\% reported using visual models or demonstrations at least once a week\textsuperscript{17}
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<td>Follow-Up</td>
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Discussion

• Educational strategies only listed in methods
  – No detailed descriptions

• Surveys provided more detail
  – Self-reported information

• Information is lacking in its ability to guide clinical practice
Is exercise enough?

• Physical therapists identified as exercise specialists\textsuperscript{16-23}

• Physical therapists may not address other lifestyle-related conditions as frequently\textsuperscript{17}

• The goals of our educational interventions must be broadened beyond exercise
Changing the focus of education

- Well-recognized\textsuperscript{3,12,13}

- Educational strategies used by other health professionals are similar to what was found in our review

- Further research to determine if physical therapy training is suitable
Brochures

• Educational strategy favored by physical therapists\textsuperscript{19}

• Only half of participants who received brochures recalled receiving them\textsuperscript{21}

• Further research to determine effectiveness
Future Research

• What strategies are actually being used in practice

• Effectiveness of educational strategies

• Cost-effectiveness of various strategies

• Adequate training to utilize strategies employed by other health professionals
Limitations

- Full text limit applied
- Inconsistent application of inclusion criteria at full text evaluation stage
- Data abstraction was not applied to all full texts
- Quality assessment tool was not appropriate for all included studies
Thank You!

Ms. Charlotte Beck and
Dr. Elizabeth Dean

“The smallest act of kindness is worth more than the grandest intention.”
Questions?
References

- (10) Bodner ME, Dean E. Advice as a smoking cessation strategy: A systematic review and implications for physical therapists. Physiotherapy Theory and Practice 2009 01/01;25(5-6):369-407.
References

• (13) Verhagen E, Engbers L. The physical therapist’s role in physical activity promotion. BJSM online 2009 Feb;43(2):99-101.
• (19) Shirley D, van der Ploeg HP, Bauman AE. Physical activity promotion in the physical therapy setting: perspectives from practitioners and students. Phys Ther 2010 Sep;90(9):1311-1322.