Occupational Skin Disease Prevention: An Educational Intervention for Hairdresser Cosmetology Students

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Disclosures

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► Learner Objectives
  ► Describe OSD background and discuss the importance of worksite health promotion in hairdresser cosmetology students.
  ► Evaluate the impact of the educational intervention on occupational skin disease knowledge and use of preventive practices by hairdresser cosmetology students.
Background

**Occurrence**

- More than 13 million Americans have occupational skin exposures that can result in the development of occupational skin disease (OSD). (Centers for Disease Control and Prevention [CDC], 2012)

- Cosmetology professionals have been identified as high risk for development of OSD. (Centers for Disease Control and Prevention [CDC], 2012)

- Wet work employees

**Global Expenditures**

- $5 billion EUR in Europe (European Cooperation in Science and Technology, 2012)

- $33 million in Australia (Cahill et al., 2012)

- Over $1 billion in the United States (CDC, 2012)
High Individual and Societal Costs

► Personal Costs
  ► Health care
    ► Provider visits, medications, disability, and workers’ compensation (Cashman, Reutemann, & Ehrlich, 2012)
  ► Impact on quality of life
    ► Long-term illness, social isolation, unemployment, or career change (Lerbaek, Kyvik, Ravn, Menne, & Agner, 2008; Meding, Lantto, Lindahl, Wrangsjo, & Bengtsson, 2005)

► Societal Costs
  ► Increased disability and worker compensation payments
  ► Decreased worker productivity (Cashman, Reutemann, & Ehrlich, 2012; Sell, Flyvholm, Lindhard, & Myygind, 2005)
Literature Review

- Educational interventions reduce prevalence and severity of OSD in wet work occupations (Wilke, Gediga, John, & Wulfhorst, 2012).

- Structured education significantly improves disease specific knowledge of OSD (Wilke, Gediga, John, & Wulfhorst, 2014).

- Education and use of preventive measures reduce OSD symptoms:
  - Use of protective gloves, cotton glove liners, barrier creams, moisturizers, and proper hand washing (Bauer et al., 2002; Bregnhøj, A., Menné, T., Johansen, J. D., & Søsted, H. (2012); Held, Mygind, Wolff, Gyntelberg & Agner, 2002; Sell, Flyvholm, Lindhard, & Myygind, 2005).

- Research related to OSD in cosmetologists in the U.S. is lacking (Warshaw et al., 2012).
Problem Statement

- Literature suggests hairdresser cosmetologists frequently develop OSD which can result in high costs to society and the individual. (Lysdal, Sosted, Andersen, & Johnsen, 2011; Warshaw et al., 2012; Cashman, Reutemann, & Ehrlich, 2012)

- Health promotion and disease prevention interventions should be utilized to influence reciprocal interactions between the person, their environment, and their behaviors.
Theoretical Framework: Social Cognitive Theory

**PERSON**
- self-efficacy
- expectations
- expectancies
- goals

**BEHAVIOR**
- use of preventive measures

**ENVIRONMENT**
- Knowledge
- Availability of preventive measures

SELF-EFFICACY

Bandura, 1986; Bandura, 2004
Clinical Questions

In cosmetology students, does an educational program on OSD and prevention increase:
- knowledge of OSD and prevention over three to four weeks?
- use of preventive practices for OSD over three to four weeks?
- intention to use preventive practices for OSD over three to four weeks?

In cosmetology students, is there a relationship between:
- perceived self-efficacy and use of preventive practices for OSD?
- perceived self-efficacy and intention to use preventive practices for OSD?
Study Methodology

- Quasi-experimental design
  - Single group pre-test and post-test
- Educational intervention on OSD and prevention
  - Pretest given immediately before the intervention with a posttest 3-4 weeks later
  - Paper and pencil

- Statistical Analysis
  - Descriptive
  - Paired-samples t-tests
  - Pearson product-moment correlation coefficient

- Protection of Human Subjects
  - WKU IRB
  - Anonymous Survey
Study Questionnaire

- The Cosmetology Occupational Skin Disease Prevention Questionnaire (COSDPQ)
- Reliability
- Demographics

- SCT Determinants Evaluated
  - Self-efficacy
  - Knowledge
  - Intention
  - Behavior
  - Expectations
  - Expectancies
Sample and Setting

- **Convenience sample**
  - Conducted at 4 cosmetology schools

- **Inclusion criteria:**
  - Currently enrolled students in a participating cosmetology school and willing and able to provide informed consent.

- **Exclusion Criteria:**
  - Inability to understand the English language, age less than 18 years and anyone currently receiving medical treatment for OSD.
<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Completers (n = 52)</th>
<th>Non-completers (n = 28)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (SD)</td>
<td>24 (8.3)</td>
<td>23 (6.6)</td>
<td>.733</td>
</tr>
<tr>
<td>Mean training months (SD)</td>
<td>7 (4.6)</td>
<td>11 (3.8)*</td>
<td>.0001</td>
</tr>
<tr>
<td>Female, n (%)</td>
<td>50 (96)</td>
<td>26 (100)</td>
<td>.186</td>
</tr>
<tr>
<td>Training program, Hairdresser, n (%)</td>
<td>52 (100)</td>
<td>25 (100)</td>
<td>.55</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td>.305</td>
</tr>
<tr>
<td>High school graduate or GED, n (%)</td>
<td>26 (50)</td>
<td>11 (41)</td>
<td></td>
</tr>
<tr>
<td>Trade, technical or vocational, n (%)</td>
<td>4 (8)</td>
<td>1 (4)</td>
<td></td>
</tr>
<tr>
<td>Some college, no degree, n (%)</td>
<td>21 (40)</td>
<td>12 (44)</td>
<td></td>
</tr>
<tr>
<td>College degree, n (%)</td>
<td>1 (2)</td>
<td>3 (11)</td>
<td></td>
</tr>
</tbody>
</table>

Note. Sample sizes may vary due to missing data.
## Results: Paired Samples T-Tests

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Pretest M(SD)</th>
<th>Posttest M(SD)</th>
<th>p</th>
<th>95% CI</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>5.87(2.08)</td>
<td>7.55(1.44)</td>
<td>&lt;0.0001</td>
<td>-2.47, 1.94</td>
<td>47</td>
</tr>
<tr>
<td>Intention Scale</td>
<td>13.24(3.31)</td>
<td>15.60(3.47)</td>
<td>&lt;0.0001</td>
<td>-3.19, 2.72</td>
<td>50</td>
</tr>
<tr>
<td>Behavioral Scale</td>
<td>17.10(4.10)</td>
<td>19.47(4.46)</td>
<td>&lt;0.0001</td>
<td>-4.28, 4.16</td>
<td>50</td>
</tr>
<tr>
<td>Gloves frequency</td>
<td>1.42(1.14)</td>
<td>2.37(2.04)</td>
<td>&lt;0.0001</td>
<td>-1.64, 1.38</td>
<td>41</td>
</tr>
<tr>
<td>Moisturizer frequency</td>
<td>1.76(1.79)</td>
<td>2.22(2.06)</td>
<td>&lt;0.0001</td>
<td>-1.22, 1.47</td>
<td>47</td>
</tr>
<tr>
<td>Handwashing frequency</td>
<td>6.63(4.25)</td>
<td>7.31(5.20)</td>
<td>0.9645</td>
<td>-1.07, 2.80</td>
<td>42</td>
</tr>
<tr>
<td>Expectations</td>
<td>4.50(0.67)</td>
<td>4.60(0.63)</td>
<td>&lt;0.30</td>
<td>-0.28, 0.56</td>
<td>51</td>
</tr>
<tr>
<td>Expectancies</td>
<td>3.39(0.72)</td>
<td>3.68(0.54)</td>
<td>&lt;0.0019</td>
<td>-0.47, 0.53</td>
<td>51</td>
</tr>
</tbody>
</table>
Discussion

- Findings similar to the literature
  - Educational intervention on OSD and preventive measures showed significant improvements in knowledge (Held et al., 2002; Wilke et al., 2014)
  
  - Significant improvements in frequency of moisturizer application and use of gloves (Bregnhøj et al., 2012; Sell et al., 2005)
  
  - Decreased wearing of finger rings after an educational programme (Held, et al., 2002)

- No significant increase in handwashing frequency
**Implications**

- Helps meet government health promotion and disease prevention initiatives and goals.
  - Healthy People 2020

- Identifies educational interventions for OSD which have the potential to increase knowledge of OSD, use of preventive practices, and decrease incidence of OSD.

- Promotes workplace health and safety
  - Health promotion, disease prevention, and general safety for employees contribute to overall health and well-being of an individual.
Limitations

- Convenience sample
- Findings are not generalizable

Threats to internal validity
- No comparison group
  - History
  - Testing
- Attrition

- Short duration of the study
Future Research

- Replication of current study with increased geographical diversity.
  - Longitudinal studies

- OSD prevention strategies and interventions in the U.S.
  - Cosmetology industry
  - Other occupations considered at high risk for development of OSD.


References


Questions?