



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

KARA HAUGHTIGAN, DNP, APRN

EVE MAIN, DNP, APRN-FNP

TONYA BRAGG-UNDERWOOD, DNP, APRN-FNP, CNE

CECILIA WATKINS PHD, CHES

Disclosures

▶ Authors

- ▶ Kara Haughtigan, DNP, APRN
- ▶ Eve Main, DNP, APRN-FNP
- ▶ Tonya Bragg-Underwood, DNP, APRN-FNP, CNE
- ▶ Cecilia Watkins PhD, CHES

▶ No disclosures related to this presentation or study.

▶ 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, Wrangsjö, & Bengtsson, 2005)

▶ Societal Costs

- ▶ Increased disability and worker compensation payments
- ▶ Decreased worker productivity (Cashman, Reutemann, & Ehrlich, 2012; Sell, Flyvholm, Lindhard, & Myyging, 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



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.



Results: Characteristics

Characteristics	Completers (n = 52)	Non-completers (n = 28)	p
Mean age (SD)	24 (8.3)	23 (6.6)	.733
Mean training months (SD)	7 (4.6)	11 (3.8)*	.0001
Female, n (%)	50 (96)	26 (100)	.186
Training program, Hairdresser, n (%)	52 (100)	25 (100)	0.55
Education			.305
High school graduate or GED, n (%)	26 (50)	11 (41)	
Trade, technical or vocational, n (%)	4 (8)	1 (4)	
Some college, no degree, n (%)	21 (40)	12 (44)	
College degree, n (%)	1 (2)	3 (11)	
<i>Note.</i> Sample sizes may vary due to missing data.			

Results: Paired Samples T-Tests

Outcome	Pretest M(SD)	Posttest M(SD)	p	95% CI	n
Knowledge	5.87(2.08)	7.55(1.44)	<.0001	-2.47, 1.94	47
Intention Scale	13.24(3.31)	15.60(3.47)	<.0001	-3.19, 2.72	50
Behavioral Scale	17.10(4.10)	19.47(4.46)	<.0001	-4.28, 4.16	50
Gloves frequency	1.42(1.14)	2.37(2.04)	<.0001	-1.64, 1.38	41
Moisturizer frequency	1.76(1.79)	2.22(2.06)	<.0001	-1.22, 1.47	47
Handwashing frequency	6.63(4.25)	7.31(5.20)	.9645	-1.07, 2.80	42
Expectations	4.50(.67)	4.60(.63)	<.30	-.28, .56	51
Expectancies	3.39(.72)	3.68(.54)	<.0019	-.47, .53	51

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

- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (2004). Health promotion by social cognitive means. *Health Education and Behavior, 31*, 143–164.
- Bauer, A., Kelterer, D., Bartsch, R., Pearson, J., Stadeler, M., Kleesz, P., ...Williams, H. (2002). Skin protection in bakers' apprentices. *Contact Dermatitis, 46*(2), 81-85. doi:10.1034/j.1600-0536.2002.460204.x
- Bregnhøj, A., Menné, T., Johansen, J.D., & Søsted, H. (2012). Prevention of hand eczema among Danish hairdressing apprentices: An intervention study. *Occupational and Environmental Medicine, 69*(5), 310-316. doi:10.1136/oemed-2011-100294
- Cahill, J., Williams, J., Matheson, M., Palmer, A., Burgess, J., Dharmage, S., & Nixon, R. (2012). *Occupational contact dermatitis: A review of 18 years of data from an occupational dermatology clinic in Australia*. Retrieved from Safe Work Australia website: <http://www.safeworkaustralia.gov.au/sites/SWAabout/Publications/Documents/674/Occupational%20Contact%20Dermatitis.pdf>
- Cashman, M., Reutemann, P., & Ehrlich, A. (2012). Contact dermatitis in the United States: Epidemiology, economic impact, and workplace prevention. *Dermatologic Clinics, 30*(1), 87-98. doi:10.1016/j.det.2011.08.004
- Centers for Disease Control and Prevention, The National Institute for Occupational Safety and Health. (2012, April 30). *Skin exposures and effects*. Retrieved from <http://www.cdc.gov/niosh/topics/skin/>
- Dewar, D. L., Lubans, D. R., Plotnikoff, R. C., & Morgan, P. J. (2012). Development and evaluation of social cognitive measures related to adolescent dietary behaviors. *International Journal of Behavioral Nutrition & Physical Activity, 9*(1), 36-45. doi:10.1186/1479-5868-9-36

References

- European Cooperation in Science and Technology. (2012, Nov 24). *Development and implementation of European standards prevention of occupational skin diseases*. Retrieved from http://www.cost.eu/domains_actions/isch/Actions/TD1206
- Fisker, M. H., Agner, T., Lindschou, J., Bonde, J. P., Ibler, K. S., Gluud, C., & ... Ebbenhøj, N. E. (2013). Protocol for a randomised trial on the effect of group education on skin-protective behaviour versus treatment as usual among individuals with newly notified occupational hand eczema - the prevention of hand eczema (PREVEX) trial. *BMC Dermatology*, (13)16. doi:10.1186/1471-5945-13-16
- Held, E., Mygind, K., Wolff, C., Gyntelberg, F., & Agner, T. (2002). Prevention of work related skin problems: An intervention study in wet work employees. *Occupational and Environmental Medicine*, 59(8), 556- 561. doi: 10.1136/oem.59.8.556
- Lerbaek, A., Kyvik, K., Ravn, H., Menné, T., & Agner, T. (2008). Clinical characteristics and consequences of hand eczema: An 8-year follow-up study of a population-based twin cohort. *Contact Dermatitis*, 58(4), 210-216. doi:10.1111/j.1600-0536.2007.01305.x
- Lysdal, S.H., Sosted, H., Andersen, K.E., & Johansen, J.D. (2011). Hand eczema in hairdressers: A Danish register-based study of the prevalence of hand eczema and its career consequences. *Contact Dermatitis*, 65(3), 151-158. doi:10.1111/j.1600-0536.2011.01935.x
- Meding, B., Lantto, R., Lindahl, G., Wrangsjö, K., & Bengtsson, B. (2005). Occupational skin disease in Sweden a 12-year follow-up. *Contact Dermatitis*, 53(6), 308-313. doi:10.1111/j.0105-1873.2005.00731.x

References

- Schwarzer, R., & Jerusalem, M. (1995). Generalized self-efficacy scale. In J. Weinman, S. Wright, & M. Johnston, *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). Windsor, England: NFER-NELSON
- Sell, L., Flyvholm, M., Lindhard, G., & Mygind, K. (2005). Implementation of an occupational skin disease prevention programme in Danish cheese dairies. *Contact Dermatitis*, 53(3), 155-161. doi:10.1111/j.0105-1873.2005.00674.x
- Warshaw, E., Wang, M., Mathias, C., Maibach, H., Belsito, D., Zug, K., ... Sasseville, D. (2012). Occupational contact dermatitis in hairdressers/cosmetologists: Retrospective analysis of North American contact dermatitis group data, 1994 to 2010. *Dermatitis: Contact, Atopic, Occupational, Drug*, 23(6), 258-268. doi:10.1097/DER.0b013e318273a3b8
- Wilke, A., Gediga, G., Schlesinger, T., John, S., & Wulfhorst, B. (2012). Sustainability of interdisciplinary secondary prevention in patients with occupational hand eczema: A 5-year follow-up survey. *Contact Dermatitis*, 67(4), 208-216. doi:10.1111/j.1600-0536.2012.02132.x
- Wilke, A., Gediga, K., John, S., & Wulfhorst, B. (2014). Evaluation of structured patient education in occupational skin diseases: A systematic assessment of the disease-specific knowledge. *International Archives Of Occupational & Environmental Health*, 87(8), 861-869. doi:10.1007/s00420-014-0926-9
- Ystrom, E., Niegel, S., Klepp, K., & Vollrath, M. E. (2008). The impact of maternal negative affectivity and general self-efficacy on breastfeeding: The Norwegian mother and child cohort study. *The Journal of Pediatrics*, 152(1), 68-72. doi:10.1016/j.jpeds.2007.06.005

Questions?

