

Title:

Improving Occupational Skin Disease Knowledge and Prevention for Cosmetology Students

Kara Haughtigan, DNP¹

Eve Main, DNP²

Tonya Bragg-Underwood, DNP, MSN¹

Cecilia Watkins, PhD³

(1)School of Nursing, Western Kentucky University, Bowling Green, KY, USA

(2)School of Nursing, Western Kentucky University School of Nursing, Bowling Green, KY, USA

(3)Public Health Department, Western Kentucky University, Bowling Green, KY, USA

Session Title:

Interventions in Nursing: Can Education and Protocols Make a Difference?

Slot:

G 03: Monday, 30 October 2017: 1:15 PM-2:30 PM

Scheduled Time:

1:35 PM

Keywords:

cosmetology, occupational skin disease and prevention

References:

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/SWA/about/Publications/Documents/674/Occupational%20Contact%20Dermatitis.pdf>

Centers for Disease Control and Prevention, The National Institute for Occupational Safety and Health. (2012). *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

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., & ... Ebbelhøj, 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

Abstract Summary:

Cosmetologists frequently develop occupational skin disease related to workplace exposures. The results of this study suggest use of an educational intervention can increase knowledge of occupational skin disease and use of preventive strategies for hairdresser cosmetology students.

Learning Activity:

| | |
|----------------------------|---------------------------------|
| LEARNING OBJECTIVES | EXPANDED CONTENT OUTLINE |
|----------------------------|---------------------------------|

| | |
|---|--|
| The learner will be able to evaluate the impact of the educational intervention on occupational skin disease knowledge and use of preventive practices by cosmetology students. | Study outcomes evaluating the impact of the educational intervention on occupational skin disease knowledge and use of preventive practices for cosmetology students will be reviewed. |
| The learner will be able to discuss the importance of workplace health promotion and disease prevention of occupational skin disease. | Occupational skin disease occurrence rates and impact on society and the individual will be discussed. |

Abstract Text:

Background and Significance: Occupational skin disease (OSD) is a common and costly global concern. Annual OSD treatment costs exceed five billion EUR in Europe (European Cooperation in Science and Technology, 2012) and over \$33 million in Australia (Cahill et al., 2012). More than 13 million Americans have occupational skin exposures which can result in the development of OSD (Centers for Disease Control and Prevention [CDC], 2012). In the United States (U.S.), OSD accounts for 17.1% of nonfatal occupational illnesses among private industry (U.S. Department of Labor, 2014). Among OSD cases, contact dermatitis accounts for 90 to 95% and results in annual expenditures of over one billion dollars. Cosmetologists, which include hairdressers, estheticians, and nail technicians, have increased risk for development of OSD related to job hazards such as repeated irritant exposure and mechanical trauma (CDC, 2012). The purpose of this study was to evaluate an educational intervention on OSD knowledge and prevention in hairdresser cosmetology students (HDCS).

Design and Methods: A quasi-experimental design was utilized which included a single group pretest posttest, self-selected sample. This study was reviewed and approved by the university Institutional Review Board and was conducted at four cosmetology schools with student populations ranging from 12 to 100 students. The pretest, educational intervention, and posttest were conducted during the hours of the school day. All participants provided informed consent after receiving a printed explanation of the study. The pretest was given immediately before the educational intervention with the posttest performed between three and four weeks later.

A two page printed educational handout on OSD and prevention was provided to all participants. The handout included information regarding a description of OSD, symptoms, occupational risk factors for cosmetologists, recommendations for prevention of OSD, and instructions on how to apply and remove gloves. A 20-minute verbal presentation of the printed information was provided by the principal investigator lasting approximately 20 minutes. Four color pictures of hands with OSD were provided as an example of the appearance of OSD.

The Cosmetology Occupational Skin Disease Prevention Questionnaire (COSDPQ) included 26 questions which examined variables including knowledge, self-efficacy, intentions, behaviors, outcome expectations, and expectancies. Demographic data included age, gender, educational level, primary occupational training, and length of time in training. Knowledge was measured by two items requesting participants to select all that apply. The first question asked participants to select which precautions would help to protect their skin. The second question asked participants to identify skin symptoms associated with OSD. Self-efficacy was measured utilizing a 5-item version of the 10-item General Self-efficacy Scale (GSE) (Schwartz & Jerusalem, 1995). The GSE is a widely utilized scale which has an internal consistency for a variety of samples and countries ranging .75 to .91 (Scholz, Doña, Sud, & Schwarzer, 2002; Luszczynska, Scholz, & Schwarzer, 2005). This 5-item version of the GSE has a previously reported Cronbach's alpha of 0.83 (Ystrom, Niegel, Klepp, & Vollrath, 2008). The measures of intention, behavior, outcome expectations, and expectancies were measured using a modified version of a questionnaire developed by Dewar, Lubans, Plotnikoff, & Morgan (2012). Modifications were made to

each item using the recommendations for prevention of hand eczema by Fisker et al. (2013). Additional questions were included to further evaluate use of preventive practices. Responses were fill in the blank and included frequency of glove application, moisturizer application, and hand washing.

Results: Statistical analyses were performed using SAS® software, Version 9.3. Descriptive statistics were computed for all variables. Paired-samples t-tests were conducted to compare knowledge, behaviors, and intentions between pretest and posttest. Analyses were conducted using two-tailed tests and significant findings were an α value of 0.05 or less. A total of 80 participants completed the pretest, 52 participants completed the pretest and posttest with an overall completion rate of 65%. There were no statistically significant differences in age, gender, educational level, or primary training program between completers and non-completers. Length of time in the program was statistically significant ($p = .0001$) with mean time in the program of 7 months for completers and 11 months for non-completers. This result could be attributed to participants completing their training before administration of the posttest. The training programs ranged from 11.2 months to 22.5 months in length depending upon how many hours of weekly instruction each student attended the program.

Paired-samples t-tests were conducted to evaluate the impact of the educational intervention on student's scores for the variables of knowledge, behaviors, intentions, expectancies, and expectations. Knowledge included OSD prevention and symptoms. Behaviors were measured by frequency of glove application, moisturizer application, and hand washing along with the behavioral strategies subscale. Intentions were measured using the intention subscale. Expectancies and expectations were measured with single questions. The mean scores for knowledge increased from 5.87 to 7.55 ($p < .0001$). The mean scores for frequency of glove application per day while at school increased from 1.42 to 2.37 ($p < .0001$). The mean scores for frequency of daily moisturizer application increased from 1.76 to 2.22 ($p < .0081$). The mean scores for the behavioral strategies subscale increased from 17.10 to 19.47 ($p < .0001$), the mean score for the intention subscale increased from 13.24 to 15.60 ($p < .0001$), and the mean scores for expectancies increased from 3.39 to 3.68 ($p < .0019$).

Conclusions: Overall, there is a significant lack of studies on OSD education and prevention interventions in the United States. Numerous studies related to OSD in HDCS industry have been conducted in Europe; however, research in the U.S. is lacking (Warshaw et al., 2012). No other studies were identified regarding education and primary prevention of OSD in the U.S. for HDCS students. This is the first study to evaluate an educational intervention for OSD knowledge and prevention in cosmetology students in the U.S. and documents several key findings. The educational intervention significantly increased knowledge of OSD, frequency of glove use, and frequency of moisturizer application. Significant increases were also seen in intentions and behaviors utilizing OSD prevention practices along with expectancies regarding the personal importance of decreasing the risk for development of OSD. The significant findings regarding intentions and expectancies represent new outcome findings, which have not previously been reported in the literature. These findings indicate participant intentions and expectancies can be impacted by an educational intervention which could result in improved dermatologic outcomes for HDCS.

With the passage of The Patient Protection and Affordable Care Act (ACA) in 2010, in the U.S., there has been an increased emphasis on health promotion and disease prevention to improve health outcomes and decrease health care costs (U.S. Department of Health and Human Services [HHS], 2015b). Additionally, Healthy People 2020 identifies national healthcare goals regarding occupational safety and health with the overall goal to "Promote the health and safety of people at work through prevention and early intervention" (HHS, 2015a, para. 1). One occupational safety and health objective seeks to reduce OSD among workers by 10 percent. Through the implementation of disease prevention practices, occurrence and associated treatment costs can potentially be reduced which will aid in the achievement of national public health goals.

Workplace health and safety are important factors for both the employee and the employer with health promotion, disease prevention, and general safety for employees contributing to the overall health and well-being of an individual. The results of this study suggest use of an educational intervention can

provide cosmetology students with increased knowledge of OSD and use of OSD preventive strategies to decrease their risks for the development of OSD throughout their career.