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A more sustainable nail care service

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ABSTRACT

Nail care salons have become a profitable, familiar business around the world; however, this service business has been linked to occupational exposures and, occasionally, to air pollution. Despite these alleged links, there is currently no scientific evidence to conclude whether activities in nail salons affect the health of workers or the environment. Under this context of uncertainty, a Sustainable Service Program was conducted to prevent, eliminate, and/or reduce the creation of occupational and environmental risks in five nail salons in Hermosillo, Mexico and six nail salons in Sao Paulo, Brazil. The findings of this study indicate a need to strengthen the organizational structure of nail salons in order to address their general lack of strategic planning. The integration of occupational and environmental concepts was more feasible at the strategic level, but even with a low level of integration on the operating level, it was possible to pick some lowhanging fruits. There is nothing wrong with setting easier goals and targets at the beginning, but at some point, owners have to aim for more challenging goals. Hopefully, the program would improve after each iteration, and each nail salon would offer a more sustainable service. The Sustainable Service Program changed the way the participating salons operated, but without a doubt, this would not have been possible to implement without the partnership between nail salons, the University of Sonora, and the Paulista University. The scientific value of this article is the confirmation of a Sustainable Service Program as an effective tool for preventing, eliminating, and/or reducing risks at Small and Medium Enterprises. Notwithstanding the differences in economic circumstances in both countries, findings highlighted the benefits in participating nail salons, providing information on which to base future research on Sustainable Service Program applied to Small and Medium Enterprises.

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1. Introduction

1.1. Nail industry: an unsustainable development

The number of American nail care salons have increased substantially over the last decades. According to the United States Department of Labor (2014), there were 79,090 manicurists and pedicurists by May 2014 earning a mean hourly wage of $10.82 US dollars and representing 3.6% of total employment. However, behind this notable prosperity, there have been growing concerns over allegations of poor labor conditions, occupational risks, and environmental pollution (Balkissoon, 2012).

The starting point for this conflict was two studies conducted by Quach et al. (2008) and Roelofs et al. (2008) that attempted to establish a link between compounds in nail products, mainly volatile organic compounds (VOCs), and occupational diseases through multiple routes of exposure.

These studies caught the attention of other researchers, who continued this research line and reached similar conclusions: a potential chemical exposure to workers. For instance, Henriks-Eckerman and Korva (2012) found in their study a low exposure to methacrylates in nail salons, which cause irritation of skin, eyes and respiratory tract in short term exposure and in long term may cause skin sensitization and may have effects on the nervous system (Campos et al., 2013; NIOSH, 2015a, b). Through air sampling,

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Alaves et al. (2013) found that workers are continually exposed to VOCs; for that reason, they suggested the use of personal protective equipment and the installation of engineering controls. Goldin et al. (2014) also demonstrated that the nail salon workforce is exposed to VOCs that exceeds typical levels found in residential and possibly other occupational environments.

The occurrence of musculoskeletal disorders has been another topic of inquiry. Harris-Roberts et al. (2011) studied manicure and office activities, and their findings suggest that nail technicians report high levels of work-related musculoskeletal complaints compared to unexposed workers, with the neck, shoulders, and back being the body parts where pain is most frequently reported (Alojado et al., 2015). Nail salon workers spend long hours standing or sitting; consequently, they are likely to have spine problems (Chaves et al., 2010). Scientific studies have confirmed the presence of work-related exposures to infectious microbiological agents, primarily bacteria and fungi (Ladeira and de Oliveira, 2012). Recognizing these hazards, US Occupational Safety and Health Administration (OSHA, 2012) has issued materials noting the potential for chemical exposure, aches and pain, and biological hazards in nail salons.

From the perspective of the social dimension of sustainable development, working conditions of immigrant workers have become increasingly important. According to Bernhardt et al. (2005), there are numerous examples of nail salons where immigrants are vulnerable to workplace violations, because job laws are often broken or because employment and labor laws do not legally cover immigrant workers.

The nail care industry is one of the major employers of Asian-American workers (Rho et al., 2011). In Southern California, self-employed Vietnamese women maintain a virtual monopoly over nail salons (Gold, 2014). Nearly forty percent of nail salon workers in the United States are Vietnamese, and in states with large Vietnamese populations, the percentage is even more significant (Le-Thanh, 2012).

In spite of having developed this nail niche, immigrant Vietnamese women are at a disadvantage in terms of economic affluence, because they earn less than those from other segments of the beauty industry (Eckstein and Nguyen, 2011). Wage and working-time violations are the most easily identified type of workplace violation (Bernhardt et al., 2008). In addition, they may have fewer opportunities to progress in their workplace (Yamane, 2012). This leads to a situation in which Vietnamese immigrants are willing to work in spite of the fact that some chemicals are carcinogenic and can cause allergic reactions (Liaw and Huang, 2012).

1.2. Cleaner production programs: an integrative approach

Cleaner Production is a very important tool to assisting EMSs to address environmental problems at the source. According to the United Nations Environment Program (UNEP, 1991), Cleaner Production (CP) is any integrated preventive strategy applied to processes and products in order to increase efficiency and reduce risks to human beings and the environment by continuously taking action to prevent pollution in every activity relating to processes, products, and services. The National Centers of Cleaner Production has been one of the most important disseminators of the philosophy, principles, and techniques of CP (Petek and Glavic, 2000; Eras et al., 2015; Luken et al., 2015). Universities and other academic and research institutions have also fostered the concept (Onasch et al., 2011; Delp et al., 2013).

Currently, there is a trend toward the integration of management standards (Asif et al., 2013; Simon et al., 2012; Nowicki et al., 2013). An integrated management system is a management system, which integrates several or all components of a business into one coherent system to enable the achievement of its purpose and mission (Weiβ and Bentlage, 2006). However, the procedures for implementing and monitoring an integrated management system are cumbersome and costly (Bénézech et al., 2001; Heras and Arana, 2010; Granly and Welo, 2014), which can affect the capacity of Small and Medium Enterprises (SMEs) to initiate one.

As an alternative to SMEs, voluntary programs based on the CP framework have emerged as a tool for reaching sustainable development (Staniskis and Stasiskiene, 2003), mainly for achieving environmental and economic benefits (de Brujin and Hofman, 2000; Kjaerheim, 2005; Altham, 2007), while neglecting occupational health issues (Munguía et al., 2010).

The obvious challenge for cleaner production programs is the integration of the core dimensions of sustainable development in an affordable way. A way to face this challenge is through what is known as a Sustainable Service Program (SSP), which uses the CP methodology as a foundation for integrating the economic, environmental, and social dimensions of sustainable development. It has been proven that SSPs increase the chances of SMEs to develop service strategies to secure long-term economic growth while improving environmental and working conditions (Zavala et al., 2011).

A practical contribution of the current study is to test that nail salons can use this framework to integrate the sustainability principles within their strategic planning in order to increase their long-term profitability while improving working and environmental conditions.

In this context, the purpose of this article is to provide empirical insights on which to base future research on Sustainable Service Program applied to Small and Medium Enterprises, particularly in nail salons in Mexico and Brazil.

2. Methods

Built off of the structure of a Cleaner Production program, a SSP to prevent, eliminate, and/or reduce the source of occupational and environmental risks was conducted in five nail salons in Hermosillo, Mexico and six nail salons in Sao Paulo, Brazil. These establishments were selected under a convenience sampling.

The program's framework was based on a continuous improvement cycle, the plan–do–check–act, which identifies opportunities and then proposes ideas for solving problems.

This iterative process has been tailored and validated by faculty at the University of Sonora to being implemented at SMEs, where there is a general dearth of adequate managerial and engineering skills.

The methods consisted of surveying all participating nail salons to characterize this service in both countries. Researchers gathered data about economics, demographics, current practices, regulatory framework, and occupational and environmental work practices in order to improve actual standards of productivity without affecting occupational conditions and environmental performance.

The total concentration of volatile organic compounds in each salon was measured using a direct-reading instrument, a photoionization detector, when the service was being carried out. The reading displayed represented the total concentration of volatile organic compounds in the salon. This concentration could be generated by multiple services carried out at the same time.

Lighting conditions were measured using a professional, high-accuracy light meter.

The Rapid Upper Limp Assessment tool was used to evaluate biomechanical and postural requirements of job tasks/demands on the upper arm, lower arm, wrist, neck, trunk, and legs body regions.

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