Beyond Safety: Safety Climate's Influence on Organizational Outcomes
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Keywords: safety climate, job satisfaction, turnover intentions, counterproductive work behaviors, organizational citizenship behaviors

Objective: An organization's safety climate can be defined as its employees' collective perception of safety in the workplace. A stronger safety climate has been shown to increase safety-related behaviors, such as compliance with safety guidelines. However, little research involving safety climate has looked beyond safety outcomes. The purpose of this study is to examine the mediating effect of job satisfaction on the relationships between safety climate and turnover intentions (TIs), counterproductive work behaviors (CWBs), and organizational citizenship behaviors (OCBs).

Methods: Three hundred and sixty nurses in the U.S., mostly female (93%) and Caucasian (79%), participated in this study. Safety climate was measured using the NIOSH Safety Climate scale. Job satisfaction and TIs were measured by two subscales of the Michigan Organizational Assessment Questionnaire. Behavioral outcomes were measured using a CWB and OCB scale. Questionnaires were completed through a web-based survey.

Results: Safety climate was significantly correlated with job satisfaction, TIs, and CWBs. However, it did not correlate with OCBs. Using a bootstrapping method for deriving indirect effects and standard errors (MacKinnon, Lockwood, & Williams, 2004), we found that job satisfaction mediates the relationship between safety climate and TIs, but not the relationship between safety climate and CWBs or OCBs.

Conclusion: Our results suggest that the impact of an organization's safety climate may be limited, but it reaches beyond the scope of safety-related outcomes. Our study furthers the research on safety climate by attempting to understand the multitude of its influence in the workplace.

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Nanoparticle Generation and Size Characterization
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Keywords: nanoparticle, aerosol, generation, agglomeration

Objective: The generation of nanoparticles is a necessary component for determining health outcomes as they relate to exposure in animal models. Unfortunately, a bulk nanopowder cannot simply be aerosolized into nano-sized particles due to the agglomeration that nanoparticles undergo. The objectives of this research are to generate and characterize two kinds of nanoparticles.

Methods: This research attempts to generate nanoparticles using two different methods, nebulization of sodium chloride and aerosolization of aluminum oxide. Test aerosols are collected for visual inspection using electron microscopy. Samples are concurrently characterized using particle counters. Comparative data analysis of the particle counters relative to visual inspection is performed.

Results: Results indicate that nebulized particles can be generated and characterized at a predetermined size. Characterization of the aerosolized aluminum oxide has been less conclusive since the output of the generator was less than predicated. Preliminary results from the visual inspection of the aerosol indicate that the aluminum oxide consists of agglomerates ranging from 130 nm to 6 um.

Conclusion: The generation of particles from salt solutions is not new or novel. For the purpose of this research, it is a necessary aspect as a demonstration of our ability to characterize an aerosol. However, the generation of a nano-aerosol from a bulk nano-powder would be significant. If this method proves successful, it could offer a means to do research on the exposure, dose, and effect of nanoparticles in an animal model.

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