Online Proceedings

POSTER SESSION 3

MGH 241, Easel 162

2:30 PM to 4:00 PM

Research Experiences with an Ongoing Project about Musical Experiences of Residents in a Retirement Community

Marianne Unite, Senior, Biology (General), Nursing
Mentor: Basia Belza, Biobehavioral Nursing & Health Informatics
Mentor: Musetta Fu, School of Nursing

Healthy aging is influenced by social and physical activities in which older adults participate. Musical activities such as singing, listening to music, and/or playing instruments may serve as an accessible and low cost activity to provide benefits to older adult health. The purpose of the parent study was to learn older adults' insights about music and singing. Informants were recruited from an independent-living retirement community in the Puget Sound. Four resident focus groups were conducted with 20 open-ended questions with topics related to their first images of singing, how do they feel when they sing, and their insights of group-singing. The purpose of this study is to describe the lessons learned in assisting with recruitment, data collection and analysis of data from the parent study. Recruitment efforts varied and included flyers distributed to residential units, telephone calls, announcements before residential meetings, and word of mouth. Running focus groups required training of all research staff, adequate personnel to lead and take notes at the focus group, and adherence to IRB regulations. Analysis of qualitative data required training for the identification of themes. A model was developed and included positive and negative memories from structured and unstructured childhood experiences such as their mothers singing to them, participation in music class, and religious services. Psychosocial, cognitive, and physiological outcomes were identified from their past and current musical experiences, and are supported by the literature. Maintaining good communication and collaboration with the staff in the community was a crucial factor of the successful recruitment and arrangement for the focus groups. The findings of working in collaborative teams through discussion, negotiation, and brainstorming for processing the information, and establishing a community partnership have important implications for future health science research that is conducted in the community setting.

POSTER SESSION 3

MGH 241, Easel 171

2:30 PM to 4:00 PM

The Influence of a Diabetes Reality Experience on Nurses' Insight and Attitudes Towards Diabetes Care and Management

Kendra Loebs, Fifth Year, Nursing
Mary Gates Scholar
Mentor: JoAnne Whitney, Biobehavioral Nursing & Health Systems
Mentor: Dawn Corl

According to the CDC, diabetes mellitus affected 11.3% of US residents over 20 years of age and 26.9% of those over 65 in 2011. Because this disease can lead to severe health complications, patients with diabetes are over-represented in healthcare settings. A person with diabetes must incorporate disease management into every aspect of his or her life, remaining constantly vigilant and accommodating continual lifestyle modifications. Despite the daily challenges that confront these individuals, healthcare providers often practice without fully understanding the impact this diagnosis has on a patient's life. As a result, patients may experience negative attitudes from healthcare workers that make them feel objectified and stigmatized, ultimately leading to poor health outcomes. Studies have shown that health simulation experiences, in which a person experiences the reality of a disease or condition, can be powerful tools for influencing the perceptions of healthcare workers. However, little is known about how these programs impact the perceptions of nurses who work closely with patients to manage chronic conditions such as diabetes. The purpose of this research study is to explore and describe the perceptions of nurses after completion of the Diabetes Reality Experience, an educational program in which they live for several days as though they have diabetes by incorporating monitoring, treatment, and prevention measures into their daily life. Evaluations and reflections written by participants will be qualitatively analyzed and interpreted to identify themes related to how the simulation experience influenced their insight and attitudes. This research has the potential to contribute to our understanding of how nurses and other healthcare workers can be better prepared to work sensitively with patients who have complex chronic conditions.

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Visualizing Mobility Data

Kelly Ann Ridge, Fifth Year, Nursing
Mentor: Hilaire Thompson, Biobehavioral Nursing and Health Informatics
Mentor: George Demiris, Biobehavioral Nursing and Health Systems

Mobility is a sensitive indicator of overall health in older adults. Objective mobility data can provide insight into patterns of function including sleep, behavior, and activity, which is valuable information for both individuals and their healthcare providers. By visualizing objective mobility data, providers can assess for trends that could indicate a shift in overall health in order to intervene earlier, whereas older individuals with mobility goals may benefit from feedback in order to better meet goals or sustain behavior change. The purpose of this project is to perform a secondary data analysis and determine methods for visualizing objective mobility data for both individual users and healthcare providers. Participants of the original study were older adults with a recent history of mild traumatic brain injury. Data was collected with an active sensor system requiring participants to wear a sensor device during waking hours. Working through an interface designed by the University of Washington Ubicomp Lab I aim to create a composite profile of a single participants mobility and movement within their life-space. I am using Excel to sort and create visual representations of data. Key factors to include in visualizing these data are total amounts of active versus passive time spent per participant and the participant's mobility within his or her life-space. Data analysis is in process and prototypes for visualization are under development. With any visualization effort, it is important to address the different stakeholders' needs and expectations. Visualizing mobility data for individuals to better understand their own activity levels requires an approach that may be different from visualization targeting clinicians to support clinical decision making. Differences include preferences for granularity of data, level of abstraction, and annotation of context specific details that complement the visualization data. This study demonstrates that visualization can maximize the utility of health monitoring data.

POSTER SESSION 3

MGH 241, Easel 173

2:30 PM to 4:00 PM

Comparison of Organic Photochromic Compounds' Properties and BSA Interaction

Courtney Holland, Senior, Nursing, Cell Biology Neuroscience, Montana State University
McNair Scholar
Mentor: Philip Sullivan, Chemistry and Biochemistry, Montana State University

Organic photochromic compounds (OPC) undergo reversible chemical and physical changes when irradiated with the appropriate wavelength of light. These changes are manifested both at the molecular and bulk material level and include photo-induced shifts in color, refractive index, molecular length, and polarity. Such photo-controllable properties are of interest for bio-orthogonal control of biological processes, as well as in the fields of optical computing and data storage. A thorough understanding of molecular and material level structure-property relationships is imperative to enable effective design and optimization of organic photochrome structures for each specific application. Our lab is trying to create a azobenzene dye that isomerizes at about 120 hrz, within milliseconds, in the visual range of wavelength, and can be tethered to proteins. The focus was placed on physical and photophysical properties, such as isomerization wavelength, quantum yield, and decay rate to create such an azobenzene. If a usable azobenzene were created, it could be tethered to the sodium or potassium channels in the eye to initiate an action potential similar to the innate response in the eye's photoreceptors that causes a release of neurotransmitters that, in turn, affect sodium and potassium channels causing an action potential. Used in this fashion, it can help treat the most common eye disease causing blindness, retinitis pigmentosa. In lab, I used time-resolved laser spectroscopy, fluorescence, and fluorescence lifetime analysis to analyze the three photochromic Azobenzene dyes: PheNAQ, TVI, TVI acid, and MeNAQ created by my mentor, Phillip Sullivan.