Actigraph Measurements of Nursing Home Residents in TURN Study

Nikhil S. Padhye, Nancy Bergstrom, Mary Pat Rapp, LuAnn Etcher, Nancy S. Redeker

ABSTRACT:

Background: Activity and mobility subscales are components of the Braden scale, which is widely used in nursing homes for assessment of the risk of pressure ulcers. Objective measurements of activity levels are rarely conducted in this population, and their relationships to the Braden scale components are unknown.

Aim: To examine activity levels during the day and night, measured with actigraphs, in a large study of nursing home residents and to investigate associations between the objectively measured activity, repositioning frequency groups, and assessments made by staff using the Braden scale and its component subscales.

Methods: The study is a secondary analysis of data obtained from a phase III randomized controlled trial of an intervention for turning to prevent pressure ulcers in nursing home residents (TURN study). Nursing home residents (n=969) at moderate and high risk for pressure ulcers were recruited from 27 nursing homes across USA and Canada. TURN study participants were randomly assigned to repositioning while in bed at 2-, 3-, and 4-hour intervals and activity levels were measured every minute by actigraph worn on the ankle for approximately one week.

Results: Median activity levels measured with actigraphs did not differ by repositioning frequency groups and displayed a nonparametric trend associated with Braden activity subscale (BSc-A) scores, both during the day (p=.020) and at night (p=.041). Upon controlling for covariates, the BSc-A score was associated with the diurnal amplitude of activity (p=.016), while the Braden mobility subscale was predictive of the dispersion of activity (p=.021). Mean day-time activity decreased by 20.6% per decade of age. Mean night-time activity was 54.9% higher in men, and 119% higher in residents with dementia.

Conclusion: Assessments of activity and mobility components of the Braden scale were related to actigraph measurements in nursing home residents, which provided objective validation of the subscales.
Patient Ventilator Asynchrony: Associated Patient Behaviors

Karen G. Mellott, Mary Jo Grap, Cindy L. Munro, Curtis N. Sessler, Paul A. Wetzel, Jon O. Nilsestuen, Jessica M. Ketchum

ABSTRACT:

Background: Patient ventilator asynchrony (PVA) occurs in up to 27% of ventilated breaths. It is associated with distressful symptoms and poor outcomes. Clinicians may use waveform analysis to detect PVA, although nurses are not usually well-prepared. Nurses may use patient behaviors to solely detect asynchrony. However, there are few data that describe patient behaviors associated with PVA.

Aims: The study’s purpose was to describe patient behaviors associated with an empirical measure of PVA.

Methods: Pressure-flow time waveform data were collected in 30 subjects for up to 90 minutes/subject with simultaneous video recordings. Blinded waveform analysis conducted to detect normal, unknown and asynchronous breaths. Video recordings coded for altered respiratory and agitation behaviors.

Results: Sample total observation time was 35 hours with mean of 79 minutes/subject (range 53 - 92). Overall PVA was found in 23% of all breaths (n= 43,758). The most common type of behavior was categorized as altered respiratory dynamics with accessory muscle use as most common type, followed by altered breathing patterns. For agitation behaviors, facial grimace occurred most, followed by extremity movement. In comparing those with PVA to those without, those with PVA had longer durations of all behaviors, except accessory muscle use. Those with PVA had greater numbers of behaviors in subcategory of breathing pattern (F(1,25)= 13.64, p-value= 0.0011) and specific behaviors of 1) stacked breath (F(1,25)= 11.88, p-value = 0.0020), 2) forced inhalation (F(1,25)= 14.01, p-value= 0.0010), 3) forced exhalation (F(1,25)= 13.90, p-value= 0.0010) and 4) shallow breath (F(1,25)= 9.84, p-value= 0.0043).

Conclusions: PVA occurs frequently and patients manifest a variety of behaviors based on an empirical PVA measure. Since nurses may be the first to detect PVA, and are unskilled at waveform analysis, behavior may be a reasonable PVA measure. Nurse education to recognize behaviors should promote earlier investigation and interpretation of waveforms.
Partial Validation of Salivary Interleukin-6 and Tumor Necrosis Factor – alpha by Enzyme Immunoassay

Sandra K. Hanneman, David McCue, Gabriel L. Blog

ABSTRACT:

Background: Studies with longitudinal and/or time-series designs would benefit from non-invasive methods to assess immune response. Immune response levels typically are measured with blood obtained by venipuncture, which is distressing to subjects and, thus, may adversely affect recruitment and retention of subjects in studies with multiple or repeated biological sampling.

Aims: The study aims were to partially validate commercially available enzyme immunoassays (EIA) for interleukin (IL)-6 and tumor necrosis factor – alpha (TNF-α) in saliva.

Methods: We performed spike and recovery experiments at seven dilutions and correlated levels of IL-6 and TNF-α in saliva and plasma from 20 healthy adult volunteers (6 male and 14 female). All assays were done by the same technician with a microtitration plate reader, using wavelength correction and EIA products from a single vendor.

Results: Spike and recovery performances were as follows: Salivary IL-6 – intra-assay percentage coefficient of variation (CV), 8.4%; sensitivity, 0.11 pg/mL; mean recoveries, 81% in spiked saliva and 110% in spiked controls; and linearity, $r = .995$; salivary TNF-α – intra-assay CV, 10.8%; sensitivity, 2.3 pg/mL; mean recoveries, 44% in spiked saliva and 92% in spiked controls; and linearity, $r = .950$. The correlation between IL-6 in saliva and plasma was $r = .472$ ($p = .04$); the correlation between TNF-α in saliva and plasma was $r = .039$ ($p = .88$).

Conclusions: Spike and recovery and linearity performance was adequate for salivary IL-6, but not for salivary TNF-α. Whereas salivary IL-6 was modestly and significantly correlated with plasma IL-6 in healthy adult volunteers, salivary and plasma TNF-α were weakly and insignificantly related. Saliva may be used as an alternative matrix to plasma with EIA to measure IL-6, but not TNF-α. Use of noninvasive IL-6 to assess immune response will benefit longitudinal studies and those with time-series designs.

Grant Support: Vivian L. Smith Foundation and Jerold B. Katz Foundation Endowment for Nursing Research
The Experience of Family Members of ICU Patients Who Require Extensive Monitoring: A Qualitative Study

Claudia D. Smith, Kristi Custard

ABSTRACT:

Background: Monitoring technology is high tech and complex. Sensitive invasive and non-invasive equipment monitors and delivers therapy to critically ill patients. A growing gap has emerged between knowledgeable clinicians and patients’ family members who strain to understand and cope with its use. Little is written about family members’ perceptions and their needs related to high tech monitoring equipment.

Aim(s): Explore the family members’ perceptions and experiences with high tech monitoring equipment in the CVICU to determine their personal and learning needs.

Methods: In a mixed methods study, investigators used purposive sampling to recruit English-speaking family members whose loved one underwent cardiac surgery followed by the use of extensive monitoring technology. The data collection methodology included demographic and survey data, and audio recordings of family interviews. Participants completed Spielberger’s State Trait Anxiety Inventory (STAI) at the outset of the interview session. Each family member (<4 family members) was consented and interviewed as a family. Diekelmann’s descriptive phenomenological method was used to analyze interview data. To ensure data trustworthiness, the PI secured the services of a professional colleague, familiar with qualitative research, to review transcripts and interpretive findings for accuracy and consistency.

Results: Five general themes emerged from the analysis of five family interviews. They were: 1. Overwhelmed by all of the equipment; 2. Feelings of uncertainty; 3. Methods of coping with uncertainty; 4. Meaning of the numbers on the monitors; 5. Need for education.

Conclusion: Younger family members and those with technology-associated jobs were more likely to educate themselves using online resources. Older family members preferred to ask nurses questions as a means of educating themselves. Early in each of the interviews families praised nurses for providing “all the necessary education”, while later in the interviews all family members identified educational needs and missed opportunities for education.


Effect of a Behavioral Intervention with Smart Phone Based Self-Monitoring on Weight Loss and Glycemic Control in Adults with Type 2 Diabetes: A Pilot and Feasibility Study

Jing Wang, Stan Cron, Duck-Hee Kang

ABSTRACT:

Background: Self-monitoring is cornerstone of behavior interventions for obesity and diabetes. Previous studies found that mobile technology has potential to improve adherence to self-monitoring and patient outcomes.

Aims: To examine the effect of a behavioral lifestyle intervention with smartphones for self-monitoring in overweight or obese adults with type 2 diabetes from an underserved community.

Methods: A pilot randomized controlled clinical trial was conducted. A total of 26 overweight or obese patients with type 2 diabetes were recruited from an underserved minority community health center in Houston, TX. They were randomly assigned into one of the three groups: 1) Mobile group, 2) Paper group, and 3) Control group. Both Mobile and Paper groups received a total of 11 group sessions over 6 months. Mobile group received an android-based smart phone with two applications loaded to record diet, physical activity, weight, and blood glucose, while the paper group is using paper diaries. Primary outcomes of the study included % weight loss and HbA1c changes at 6 months.

Results: We had 96% retention rate at 6 months. The sample is predominantly African Americans with an average age of 56.4 years and BMI of 29.6. Participants lost an average of 2.73% (Mobile group), 0.13% (Paper Group) weight at 6 months, while the control group had an average .49% weight gain. The HbA1c changed from 8% to 7 % in Mobile group, 10% to 9% in Paper group, and maintained at 9% for the control group. No statistical significance was found on % weight loss and HbA1c changes among the groups with small sample size, P=.20, however, we found large effect size of .40 for weight loss and medium effect size of .28 for glycemic control.

Conclusions: Delivering a simplified behavioral lifestyle intervention using smartphone-based self-monitoring in an underserved community is feasible and acceptable.
Patterns of adherence to self-monitoring of diet and physical activity using smart phones versus paper diaries in a pilot intervention study among diabetes patients

Nikhil S. Padhye, Jing Wang

ABSTRACT:

Background: Self-monitoring is a cornerstone of behavioral interventions for obesity and diabetes. Mobile technology may improve adherence to self-monitoring and patient outcomes. However, no study has tested the use of a smartphone to facilitate multiple-behavior self-monitoring in overweight or obese adults with type 2 diabetes among the underserved community.

Aim: Compare adherence rates and patterns between groups that use either smart phones or paper diaries for self-monitoring.

Methods: A total of 16 participants were recruited and randomly assigned into two behavior lifestyle intervention groups, 10 of whom used a smart phone with Lose It application for self-monitoring, while the other 6 participants used Calorie King Diary books. Data collection spanned 181 days during which participants were asked to record meals, calories, fat, carbohydrate, as well as physical activity and calories expended.

Results: Participants in the smart phone group had at least one diet self-monitoring entry for a median 96.0% of days, compared to a median of 10.6% for the paper diary group. For physical activity, participants in the smart phone group had at least one entry on 37.3% of days, compared to a median of 1.2% for the paper diary group. Differences in both proportions were statistically significant ($p < 0.05$). Furthermore, patterns of adherence were different in the groups, as noted by comparing the distributions of consecutive missing entries. The Kolmogorov-Smirnov statistic for diet was high but not significant ($d=0.23, p > 0.05$), while the K-S test for physical activity was significant ($d=0.79, p < 0.05$).

Conclusions: The smart phone group was more likely to be adherent to self-monitoring of diet and physical activity compared to the paper diary group. When a discontinuity appeared, the smart phone group was also less likely to have an extended span of missing entries for physical activity.
The Role of Acculturation in Shaping the Health of Asian Indian Women: The Relationship between Acculturation and Physical Activity

Nitha Mathew Joseph

ABSTRACT:

Background: Asian Indians are at greater risk for morbidity and mortality from coronary heart disease and diabetes and have been shown to have lower levels of physical activity (PA). Acculturation has been associated with increased risk for obesity, DM, metabolic syndrome and coronary artery disease among Asian Indians.

Aims: To identify relationships between acculturation and five types of activity (job-related, transportation, household, leisure time PA and sedentary activity) in U.S. Asian Indian women.

Methods: A cross-sectional descriptive comparative design was used on a convenience sample of 262 Asian Indian women in Houston, TX. Data were collected by survey method using the International Physical Activity Questionnaire (IPAQ), Modified Suinn-Lew Asian Self-Identity Acculturation Scale (M-SL-ASIA) and Physical Functioning Scale (PF-10). Data analysis included the descriptive analysis, correlations between different types of activity and acculturation. Data analysis also included differences in levels of activity across all five types of activity between high and low acculturated U.S. Asian Indian women and between immigrant status utilizing analyses of covariance (ANCOVA).

Results: The median PA for the sample was 55.96 MET hours/week with job related physical activity (12 MET hours/week), household physical activity (6.00 MET hours/week), leisure physical activity (6.60 MET hours/week) and the sedentary activity was 30.50 hours/week. In correlational analysis, higher acculturation was associated with higher levels of leisure time physical activity (p=0.01), sedentary activity (p=0.01) and more years in the U.S. (p=0.01). In ANCOVA analysis, more highly acculturated women showed significantly lower levels of job-related (p=0.01), household (p=0.01), and total physical activity scores (p=0.01) as well as higher leisure (p=0.01) and sedentary activity (p=0.01).

Conclusions: The information on the association of five types of activity and acculturation can be used to design health nursing interventions to promote physically active lifestyles in Asian Indian women, thus reducing health disparities in the U.S.
THE RELATIONSHIP OF PET OWNERSHIP AND PET ATTACHMENT ON PSYCHOSOCIAL, BIOLOGICAL, AND EXECUTIVE FUNCTION IN THE DISADVANTAGED HOMEBOUND ELDERLY

Branson, S., Boss, L., Kang, D., & Cron, S.

ABSTRACT:

Background: Elderly homebound individuals are prone to psychosocial stress, depression, and loneliness, leading to chronic hypercortisolism and increased inflammation, which can ultimately decrease cognitive function. A companion pet may reduce the negative impact of these biobehavioral processes.

Aim: Examine the differences between pet owners and non-pet owners in psychosocial stress, depression, loneliness, salivary cortisol, C-reactive protein, Interleukin-1β and cognitive function in the homebound elderly receiving a Meals on Wheels program.

Method: Cross-sectional study using psychometrically reliable and valid instruments (Perceived Stress Scale, Geriatric Depression Scale, Revised University of California at Los Angeles, and CLOX I). Level of pet attachment was measured using a Likert scale (0-10) and salivary biomarkers were assessed for cortisol and inflammation (C-reactive protein, Interleukin-1β).

Results: Mean age for the total sample (N=88) was 75 ± 9 years. Forty-eight (55%) participants owned pets (31% dogs, 14% cats, 2.3% other pets, 8% both cats and dogs). Pet owners reported a high level of attachment to pets (M=9; SD=2.3). No significant differences were found between pet owners and non-pet owners in age, BMI, education, gender, or marital status. A t-test for independent samples revealed that pet owners had significantly higher executive function (CLOX I scores; p = .041) than non-pet owners. There were no significant differences between pet owners and non-pet owners in stress, depression, loneliness, and salivary cortisol, C-reactive protein, Interleukin-1β.

Conclusions: Although a precise reason for why pet owners had higher executive function than those not owning a pet, it is possible that pet owners had to take care of their pets every day and such sustained responsibility may have helped to preserve a better executive function in the pet-owning elderly. Future studies with larger samples and a longitudinal design are needed to investigate the biobehavioral changes over time in relation to pet ownership and cognitive function in the elderly.
**Measurement Issues in Genomic Research**

**Catherine Yu, Marina Paz De Jesus, Magen Mitchel, Malini Udtha and Jennifer Sanner**

**ABSTRACT:**

**Background:** Immunological measurements for protein markers and genome sequencing for genetic markers use highly specific laboratory methods that are often used in research to interpret data. The laboratory methods used to obtain this data have a high chance of error considerations; therefore, appropriate steps must be taken when creating research designs that use these methods.

**Aim:** To examine laboratory measurement issues in genomic research.

**Methods:** Articles were identified with Medline using select keywords. Studies available in English including reviews, commentaries, and original research published were searched. Bibliographies of pertinent articles were used to identify relevant studies that were not initially identified by the original database searches.

**Results:** Laboratory methods used are enzyme-linked immunosorbent essay (ELISA), immunohistochemistry (IHC), polymerase chain reaction (PCR), and real time PCR. ELISA is a fast, highly specific test that measures either single or multiple cytokines from samples, can be used with minimal training and is highly sensitive; however the kit is expensive. IHC determines the presence and location of proteins from tissue sections, which can assess the progression and treatment of diseases. PCR is used to characterize DNA fragments from small samples, detect infectious agents, and genetic diseases. Real time PCR detects and quantifies sequence-specific PCR products in “real-time” as the products accumulate. It is highly sensitive and specific, and is the method of choice for quantitative gene expression.

**Conclusions:** Careful attention to experimental quality control measures help reduce the chance of errors. Additionally, use of error prevention control measures that physically separate work areas and using sterile technique for specific procedural steps of data amplification further reduce the risk of sample contamination. Decreasing the number of errors in the laboratory allows for the most accurate and precise data as possible.
Genetic Knowledge: Implications for Nursing Practice

Yun-Hua Chiang, Marina Paz De Jesus, Magen Mitchel, Jennifer Sanner and Erica Yu

ABSTRACT:

Background: Genetics is becoming the forefront of health care after the completion of Human Genome Project and other research efforts. Our understanding of genetics and its implication is moving into another level that will pave the way for a revolution in health care. Emphasis has been placed on genetic research, necessitating the development of genetic nursing education at both the undergraduate and the graduate levels. This emphasis on genetics and genomics has led to the incorporation of genetic education into nursing curriculum to increase genetics awareness and establish nursing competency in genomic literacy and clinical practice. However, our understanding of the knowledge level among nurses and advanced practice nurses are still limited.

Aim: To explore the current knowledge and education needs among nurses and advanced practice nurses

Methods: Articles were identified with CINAHL, PsychINFO, Pubmed, and Medline using select keywords. Studies available in English including reviews, commentaries, and original research published between 2008 and 2014 were searched. Bibliographies of pertinent articles were used to identify relevant studies that were not initially identified by the original database searches.

Results: Most identified articles focus on nursing knowledge of broad research terminology and guidelines specific to genetic research or genetic core competencies related to nursing practice. Experiences or educational needs of nurses specific to genetic research as well as unique ethical and practice considerations were identified from limited reviewed literature.

Conclusions: There is a continued need for education and support underpinning genetic knowledge development for nurses. A body of literature exists that emphasizes the need for nurses to obtain skills and literacy specific to genetic conditions; however, little documentation exists underscoring the importance of obtaining the skills and knowledge relevant to advanced practice nurses.
Big Data Research Experience: UTHealth Center for Clinical and Translational Sciences CCTS Biobank

Jennifer E. Sanner, Malini Udtha, Mariana Aguirre and Erica Yu

ABSTRACT:

Background: The UTHealth Center for Clinical and Translational Sciences (CCTS) Biobank consists of two different components of data: biological material and a database, which includes associated genomic, demographic, and clinical data. Here we present a description of the Biobank, which serves as a big data resource available to qualified researchers. More than 14,800 biological samples have been distributed to 53 researchers since 2002.

Aim: The main goal of the Biobank is to collect, store, and share data. Continued goals of the Biobank are to increase the number of contributors, fulfilled requests, and to expand the amount of available data.

Methods: The Biobank uses a federated model of sharing in which the contributor maintains ownership of the donated data. The contributor has agreed to share the data based upon scientific merit, inventory availability, and correlation with their studies. Interested researchers can search and request data using an online search web application termed SLED (Sample Location and Enhanced Distribution).

Results: The Biobank has collected over 200,000 human samples and related demographic and clinical data and includes the genetic data of approximately 7,000 participants that have undergone whole exome sequencing. The primary disease categories are cardiovascular disease, cancer, inflammatory diseases, stroke, aortic aneurysms, and diabetes mellitus. The Biobank strives to be representative of Texas, which has a large Hispanic population, representing the changing landscape of the United States. We are currently recruiting contributors primarily working with Hispanic populations, which currently represent 20% of the Biobank participant population.

Conclusions: Our key to big data research success is the implementation of administrative policies and procedures that guard and respect the quality and quantity of the data collected while enabling big data sharing among our Biobank community. The ultimate goal is to promote translational research via the sharing of big data to interested researchers.
The Usefulness of Utilizing Bloom’s Taxonomy into Multiple Choice Questions to Evaluate Student Learning Outcomes

Yuh-Fong Hong and Erica Yu

ABSTRACT:

Background: Assessing student learning outcomes have encountered challenges with the increasing number of online course enrollments. Multiple choice questions (MCQs) are widely used in online testing environments. According Bloom’s model, lower levels of learnings focus on recall of information while higher thinking levels require the application of knowledge. Applying Bloom’s taxonomy to create MCQs can further evaluate student learning outcomes in the online learning environment and to identify learning gaps at various cognitive levels.

Aim: The purpose of this study was to evaluate the results of using multiple choice questions (MCQs) developed using defined Bloom’s levels to assess student learning outcomes in an online undergraduate research course.

Methods: Main concepts from each module were used to develop MCQs based on the Bloom’s taxonomy with a ratio of 30% Knowledge, 30% Comprehension, and 40% Application. Contents validity and Bloom’s Taxonomy categories of the questions were reviewed and verified by content experts. Midterm assignment that asked students to analyze research articles was used to establish benchmarks for comparison.

Results: The data showed significant differences in student performance within each Bloom’s level (knowledge 92.1%, comprehension 77.2%, and application 76.4) ($F(2, 37)= 19.83, p<0.001$). A significant correlation was observed between the comprehension domain and the mid-term assignment ($t(39)= 1.83; p<0.01$), and application domain and the mid-term assignment ($t(39)= 1.86; p<0.01$).

Conclusions: MCQs can be effective assessing student learning outcomes when Bloom’s Taxonomy was utilized to identify level of questions. Strategic use of MCQs with comprehension and application levels is recommended when assessing student performances in online courses. This study was conducted with an online undergraduate course with limited number of students. Further studies with graduate students and larger sample size are needed to validate the usefulness of utilizing Bloom’s Taxonomy into multiple choice questions to evaluate student learning outcomes.
Exploring Student Perceptions of the FNP HESI

Robert Hanks and Luba Yammine

ABSTRACT:

Background: HESI provides a standardized exit exam for Family Nurse Practitioner (FNP) programs as a preparatory tool for post-graduation FNP certification exams. Prior studies correlated higher FNP HESI scores with successful certification exam passing, but little is known about student perceptions of the usefulness FNP HESI examination. Exploring student perceptions helps faculty guide students in preparing for HESI and certification exams.

Aims: The aim of this study is to determine the student perceptions about the usefulness of the HESI exam.

Methods: The research design was exploratory descriptive research. Participants (n=37) completed computer-based survey that consisted of 5 scale items rating the usefulness of HESI (1=strongly disagree, 5=strongly agree) and 4 narrative questions. Quantitative data were analyzed using descriptive statistical methods. Narrative survey data were analyzed using a content analysis design.

Results: Item results indicated that HESI provided useful feedback for studying for FNP certification exams. Narrative data indicated students found HESI to be useful overall. Feedback (i.e. areas of strengths, weaknesses, rationales) provided at completion of HESI was cited as one of the most helpful aspects. However, some students did not feel that HESI provided them with confidence in their ability to complete the certification exam and thought that additional studying would be necessary prior to taking the certification exam. Positive impacts of HESI included the opportunity to identify areas that needed remediation and simulated certification exam experience. Negative aspects of HESI include lack of ability to return to previous questions during the exam and inability to review rationales at home.

Conclusion: Student perceptions of FNP HESI have not been studied in depth and this study helps to provide a knowledge base about the usefulness for students. Knowledge gained from this contributes valuable preliminary data and helps guide faculty about the usage and usefulness of the FNP HESI.
Brain-Cutting: Bench Evidence to Clinical Practice in Nursing Neuroscience

Simon, Marc; Gonzales, Reyna; Papasozomenos, Sozos; Chuang, Pei-Ying

ABSTRACT:

Background: Translational research significantly applies findings from basic science to enhance human health and well-being. Several universities nationwide, in collaboration with numerous health institutes, have successfully incorporated basic science knowledge and clinical skills into medical curriculum. However, the gap of learning resources challenges the progress of nurse translational scientists, especially in the field of neuroscience and human genetics/genomics.

Aims: The purpose of this pilot translational curriculum design is to create the most effective learning strategies by using a BRAIN CUTTING seminar for undergraduate nursing students to gather advanced neurological pathophysiology and comprehend the foundational methods of basic science.

Methods: Twenty undergraduate nursing students participated in the BRAIN CUTTING seminar. Inclusion criteria included current nursing students at UTHealth and completion of the following courses: Adult Health Care I, Health Assessment, and pathophysiology. Dr. Papasozomenos lead and presented five neurological case studies once a month. The medical report, slides, lab data, and human brain tissues were used to identify pathophysiological mechanisms associated with clinical medical diagnoses at the UTHealth and Memorial Hermann Hospital at Texas Medical Center. A survey questionnaire was used. Personal demographics, professional background, and four open-ended questions relevant to neuroscience and human genetics were collected.

Results: A total of fifteen students completed their questionnaire. Of those students nine were female (60%), six were seniors, and five had a previous degree in medical fields. This seminar provided a 100% learning satisfaction; 95% of students would like to attend similar events; 90% believed it matched their curriculum content; 70% gained more interest in neuroscience; 40% gained new knowledge in human genetics/genomics.

Conclusions: It motivated students’ self-assessment competencies and gained interest in translational research. Nurse translational scientists, working with scientists from a diversity of backgrounds, will focus on finding a better way for students to discover their potential strengths/talents in health care.
Outcome of Advance Provision of Hormonal Emergency Contraceptives

Daisy Mullassery

ABSTRACT:

Background: Unintended pregnancy is a major public health and social concern in the United States. It is considered as the most significant indicator of reproductive health in any given community. Nearly 49% of all pregnancies were unintended in the United States in 2006, about 80% of which happened among the adolescent and young adult populace. There are multiple reasons for unintended pregnancy, the main being non-use or underuse of contraceptive methods. When couples engage in intercourse without employing effective contraceptive methods, their last chance to prevent a pregnancy is through Emergency Contraception (EC).

Aims: The purpose of the literature review was to determine if advance provision of hormonal Emergency Contraceptive (EC) agents to reproductive age group women (a) improve its use when needed, (b) decrease pregnancy rates, and (c) identify areas of knowledge gap

Method: The literature review was conducted by searching for articles related to the topic in Medline Ovid, Medline PubMed, CINAHL, and Cochrane library.

Results: Study characteristics and findings related to advance provision of EC, perceived efficacy of EC to prevent pregnancy, pregnancy rates, effect on safe sexual practices, and improved awareness were extracted and synthesized. 7 out of the 10 (70%) studies concluded that women who were provided with EC in advance used it more. 6 (60%) studies concluded that the advance provision did not decrease unintended pregnancies.

Conclusions: Advance provision of EC and increased awareness improved its use; but unintended pregnancies did not decrease significantly despite of its increased use. Hence it can be concluded that further studies are needed to determine why advanced provision did not help in preventing unintended pregnancies.
Loneliness and cognitive function in the older adult: A systematic review

Lisa Boss, Duck-Hee Kang and Sandy Branson

ABSTRACT:

Introduction: The elderly are especially prone to psychosocial factors, such as loneliness, which place them at high risk for cognitive decline. Examination of cognitive function is a research priority due to irreversibility, lack of effective treatment, and accompanied social and economic burdens. Recent evidence indicates that loneliness may influence cognitive function, however, the relationship is complex and better understanding is necessary.

Aim: To summarize current findings on associations between loneliness and cognitive function in older adults ≥ 60 years.

Methods: A comprehensive, electronic review of literature was performed in PubMed, Medline (Ovid), and Psycinfo. Studies were limited to original quantitative research, written in English, used human subjects with a mean age ≥ 60 years, and published from January 2000 through July 2013. The initial search elicited 2,059 articles, of which 15 were retrieved. After further exclusion, 11 were included in this review.

Results: Overall findings indicate that loneliness was negatively associated with cognitive function. Findings of cross-sectional and longitudinal studies consistently indicated significant and negative associations of loneliness and over 10 different cognitive domains, including, verbal fluency, immediate and delayed recall, working memory, semantic memory, and episodic memory, but not global cognitive function.

Conclusions: Overall findings indicate that higher loneliness is associated with lower cognitive function in the elderly. Although preliminary evidence is promising, additional evidence is necessary to determine causality and potential biological mechanisms underlying the relationship between loneliness and cognitive function. Furthermore, findings should be verified in culturally diverse populations in different ages and settings using rigorous research designs.
The Trajectory of the Mirror Experience over Time for Amputees

Wyona M. Freysteinson, Lisa Thomas, Amy Sebastian-Deutsch and Stacy Drake

ABSTRACT:

Background: Researchers have demonstrated that a visible disfigurement such as an amputation may have a profound psychological impact on individuals, including one’s perception of his/her own body image. An aspect of body image that appeared to be neglected in the literature for amputees was the mirror-viewing experience.

Aim: The aim of this multi-disciplinary, phenomenological research study was two-fold: to generate a description of the trajectory of the mirror experience over time following a limb amputation, and to gain an understanding of appropriate clinical and/or educational mirror interventions for individuals who have had an amputation.

Methods: Data was collected during audio-taped, multi-cultural focus groups. Participants in the focus groups consisted of 9 women and 8 men, ages 19-73 years, who had experienced an amputation of a lower or upper limb. Ricouer’s hermeneutic methodology of a structural description and phenomenological interpretation were used to analyze the data.

Results: The phenomenological interpretation uncovered the trajectory of the mirror experience over time. The structural interpretation yielded a detailed description of how an individual who has had a recent amputation should be introduced to the mirror experience. In addition to uncovering an increased understanding of the mirror and body image, results from this study revealed the therapeutic use of mirrors in self-assessment, avoidance of skin breakdown and infection within this population. And finally, the use of the mirror was identified as a method to ensure correct prosthetic fit and to enable correct gait and posture.

Conclusion: This project has unearthed an area of body image research which provides an understanding of the mirror experience after an amputation. It has also provided information that will allow for the development of caring, compassionate, clinical mirror interventions and professional education aimed at enhancing acceptance of body image, avoidance of skin breakdown, infection, and enabling gait and posture.
Multi-parallel, real-time quantitative PCR diagnostic approach for eight gastrointestinal parasites and associations with childhood growth in a rural Ecuadorian birth cohort

Patricia Bryan, Andrea Arévalo, Yosselin Vicuña, Pablo Espinosa, Martha E. Chico, Maritza Vaca, Carlos Sandoval, Peter J. Hotez, Philip J. Cooper, Rojelio Mejia

ABSTRACT:

Background: Accurate diagnosis of parasitic infections is critical for determining appropriate treatment and in the development of new interventions for prevention. Currently, stool microscopy is the diagnostic standard. This method has poor sensitivity and specificity compared to molecular diagnostic methods.

Aim: To investigate the effects of single and multiple parasite infections on growth in children.

Methods: A novel high throughput multi-parallel, real-time PCR approach was used for analysis of 8 GI parasites from stool samples collected from a random sample of 400 children at 13, 24 and 36 months of age. One year old children infected with 2 or more parasites were compared to non-infected children. Growth parameter measurements were converted to growth curve percentiles and z scores for comparisons.

Results: 62% of participants were infected with GI parasite. Approximately 2% of these were infected with 2 or more parasites. Results showed a statistically significant decrease in length for age percentiles (9.6) in children infected with ≥ 2 parasites compared to percentiles of non-infected children (20.1) (p = 0.0087) and Z scores (-1.25 SD) for 2 or more parasites compared to Z scores (-0.66 SD) for non-infected children (p = 0.0183). Similar differences were seen in head circumference percentiles (15.3 and 25.8, p = 0.035) and Z scores (-0.94 and 0.40, p = 0.0264) between poly parasitic infections and non-infections respectively.

Conclusion: In young children GI parasite infections increase in prevalence and burden with age. This is a novel finding for protozoa. Growth delays were found to be associated with poly parasitism during the first years of life.
Contributing Factors of Suicidal Ideation and Attempts Among Female Youth

Eke, S., Choi, J.Y., Arevalo, M., and Padhye, N.S.

ABSTRACT:

Background: Suicide is the third leading cause of death in the United States among individuals 10-24 of age. Understanding factors related to suicide ideation and attempts in youths may help in preventing suicide among this population.

Aim: This study aims to determine whether weight perceptions, unhealthy weight loss practices, bullying, and depression will predict suicide ideation/attempts among female youth, while statistically controlling for age.

Method: The study utilized data from the 2013 Youth Risk Behavior Surveillance System (YRBSS), a nation-wide survey collecting data on youth risk behaviors in public and private high schools. The analysis included 6,621 females in 9th to 12th grades. We used hierarchical logistic regression to assess the effects of perceptions of weight, unhealthy weight loss practices, bullying, and depression on suicidal ideation, which included consideration of suicide, planning suicide, and making suicidal attempts in the last 12 months. Correlation among variables was explored using Phi and Cramer’s V.

Results: The model significantly predicted suicidal ideation or attempts ($\chi^2$=1716.522, p<.001). Among female youth who did not have suicidal ideation or attempts, 89.7% were correctly predicted, whereas 50.7% of female youth who had suicidal ideation or attempt were predicted correctly. Findings suggest that being bullied at school (OR: 1.99, 95%CI: 1.69-2.35) or electronically (OR: 1.46, 95%CI: 1.23 -1.74), feeling depressed (OR: 7.12, 95%CI: 6.17 – 8.21), going without eating for longer than 24-hrs to lose weight (OR: 1.97, 95%CI: 1.65 -2.34), and vomiting or using laxatives to lose weight (OR: 1.66, 95%CI: 1.26-2.20) were salient risk factors for suicide ideation and attempts in this sample.

Conclusion: We found that being depressed, bullied, or having unhealthy weight loss practices increased suicidal ideation or attempts among female youths. Our result suggests school-based interventions regarding healthy weight loss practices, including exercise, counseling for psychological well-being, or healthy eating choices may reduce or prevent suicidal ideation.
Number of Prenatal Visits as a Predictor to Delivery by C Section

Fayez Abuharb, Shatoi Brown and Latia Wade

ABSTRACT:

**Background:** Cesarean section is the most commonly performed major surgical procedure in the US, posing multiple maternal and neonatal risks. Early, regular uptake of prenatal care has been shown to improve maternal and infant health outcomes. Increases in scheduled cesarean sections contribute to the rising number of late-preterm births, however, little is known about the impact of prenatal care utilization on cesarean section incidence.

**Aims:** The purpose of this study is to evaluate the impact of prenatal care utilization on the incidence of cesarean section, among Texas counties.

**Methods:** A secondary data analysis was conducted on Texas county data, extracted from The Centers of Diseases Control and Prevention (CDC) 2010 Vital Statistics Data. Multiple linear regression statistical tests were performed to assess the relationship between prenatal care utilization and delivery outcome, among Texas women. We computed proportions from the population data and analyzed the impact of the following variables; proportions of prenatal care visits, marital status proportions, and proportions of white and nonwhite women on cesarean section outcomes. Pearson’s Correlations were calculated between variables to reveal associations. (Cut off significance was p=0.05).

**Results:** Statistical analysis revealed no significant relationships between cesarean section and prenatal visits (R=0.205, p=0.237), race (R=0.082, p=0.683), nor marital status (R=0.070, p=0.698). Regression results between cesarean section, prenatal visits, marital status, and race were also not significant (p=0.582), with low variable collinearity(VIF: 1.038-1.045). Individual variables were not significant predictors of cesarean section. Descriptive analysis revealed cesarean proportions to be normally distributed, however, marital status, race, and prenatal visit proportions were skewed.

**Conclusions:** In this regression analysis of the public CDC data, we found that the number of prenatal visits, race, and marital status are not significant factors in predicting cesarean section among women in Texas counties.
Symptom Burden of Patients in Follow-up for Primary Brain Tumor

ABSTRACT:

Anna Leisy, Terri Armstrong, Stanley Cron

Background: Primary Brain Tumor (PBT) patients present with symptoms unique from other solid tumor patients because of the location in the central nervous system. After completing therapy they are considered to be in follow-up but are never considered to be in remission because of the high rate of recurrence.

Aim: The purpose of this study is to compare the symptom experience of patients in follow-up (FU) for PBT with those of patients undergoing active treatment (OT).

Methods: Cross-sectional patient-reported outcome (PRO) symptom data was obtained on outpatients at MD Anderson Cancer Center. The survey tool used was the M.D.Anderson Symptom Inventory-Brain Tumor which measures both core oncology and PBT-specific symptoms. OT and FU groups were compared for each of the 22 symptom items. Symptom item scores were also categorized as “low” or “moderate/severe.” Aggregate scores were also obtained for six functional symptom groupings. Group comparisons by symptom item were conducted with the chi-square test, while the t test for independent samples was used to compare aggregate scores.

Findings: 446 patients (216 OT and 230 FU) were included in the sample. No significant demographic differences were found between treatment and follow-up groups. The sample was primarily white (82.9%) and male (58.5%). Mean symptom severity was not significantly different between groups [OT 1.52 (0-7.35), FU 1.75 (0-6.82), p = 0.09]. No significant difference between groups was found in frequency of moderate/severe symptoms for 20 of 22 items. It was found that follow up patients reported more moderate/severe difficulty with remembering (p = 0.0087) and drowsiness (p = 0.0157).

Conclusion: This preliminary analysis shows that patients in follow-up for PBT have a symptom burden that is as significant as patients who are receiving treatment for active disease. Additional research is needed to determine factors that explain symptom pattern or severity over time.
Stranded Motorist Deaths in Harris County: A Deadly Game of Highway Roulette

Chandra L. Hendrix, Julie A. Mercer, Yun Guo, Oghosa W. Ebomwonyi and Stacy A. Drake

ABSTRACT:

Background: The Centers for Disease Control and Prevention recognize that non-intentional injuries are a leading cause of death and disability. In 2012, Texas had 416,870 vehicle crashes with 77,736 occurring in Harris County, Texas. Of those, 360 crashes resulted in death and 8,633 in serious injuries. Current literature identifies risk factors and prevention strategies for motor vehicle crashes (MVC) and auto-pedestrian incidents. However, scant literature exists that provides risk factors or prevention strategies for the stranded motorist (SM).

Aims: The purpose of this study was to identify and describe characteristics of the SM within Harris County.

Methods: An intraprofessional collaboration project was established and a retrospective cohort design initiated. Death data was identified from the local medical examiner. Traffic data captured occurrence of stalls, injuries, and deaths. Finally, data from two area hospitals identified Injury Severity Score, length, and cost of hospitalization.

Results: Harris County had 46 SM deaths between 2004 - 2014. Of those deaths, 74% occurred while outside the vehicle and the majority of motorists become stranded due to mechanical issues (67%). Hispanics represented the majority of SM deaths (41%), followed by Caucasians (28%). Limitations included a small sample size, baseline population data (SM) not clearly identified (either categorized as an MVC or auto-pedestrian), and subjectivity of investigative reports.

Conclusions: Based upon the findings of this study, a public service announcement was produced. It was aimed towards primary injury/death prevention strategies for the SM. Distinct categorization of the stranded motorist population is recommended for hospitals and medicolegal death investigation agencies.