



University of Oklahoma – Tulsa Research Forum 2020

Book of Abstracts

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Dear colleagues,

Welcome to all of you that are joining us for the first time and to those who have been long-time supporters of Research Forum. It is my pleasure to share with you the abstract book for OU-Tulsa's 2020 Research Forum. The OU-Tulsa Research Forum is an annual event to showcase student, staff, and resident research.

This year, Research Forum is hosted virtually due to public health concerns. All posters will stand alone without oral presentations. One upside of this is that the projects will be accessible to a wider audience than ever before due to its online format. We have added People's Choice awards to Research Forum this year so the community can play an important part in awarding prizes to the strongest posters.

We hope members of the research community and the greater Tulsa community enjoy learning about the diverse research projects. This book contains the abstracts of accepted posters to the OU-Tulsa 2020 Research Forum.

We would like to express our thanks to the Tulsa County Medical Society Foundation and the OU-Tulsa Student Government Association for their generous support. We would also like to acknowledge the School of Community Medicine's Office for Research Development and Scholarly Activity and the OU-Tulsa Schusterman Library for their dedicated commitment in planning and organizing the OU-Tulsa 2020 Research Forum. Finally, we would like to extend our sincerest thanks to the individuals who contributed to the research events fundraising campaign in the fall of 2019.

On behalf of the OU-Tulsa 2020 Research Forum Program Committee, we look forward to seeing your research on display. Thank you in advance for your commitment to sharing your research in the Tulsa community.

Sincerely,

A handwritten signature in black ink that reads "Kent Teague". The signature is written in a cursive, slightly slanted style.

Kent Teague, PhD OU-Tulsa 2020 Research Forum Chair

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Biomedical

Abstract #1: BARIATRIC SURGERY OUTCOMES IN PATIENTS WITH CHRONIC LIVER DISEASE - NATIONWIDE STUDY

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Dr. Zhamak Khorgami - The University of Oklahoma School of Community Medicine

Background

Chronic liver disease (CLD) is a risk factor for surgical complications and a relative contraindication to bariatric surgery. This study evaluates early outcomes after bariatric surgery in patients with CLD with and without liver cirrhosis (LC).

Methods

In a retrospective analysis of 2012–2016 Healthcare Cost and Utilization Project-National Inpatient Sample, adult patients with obesity undergoing laparoscopic sleeve gastrectomy (SG) or Roux-en-Y gastric bypass (RYGB) were studied. CLD and LC were identified along with patient comorbidities. Outcomes were Long Hospital Stay (LHS) defined as ≥ 5 days (as a proxy of complicated course), blood product transfusion, total hospital charges, and in-hospital mortality. Binary logistic regression was used for multivariate analysis (MVA).

Results

139,952 patients were analyzed (RYGB 36.6%, female 78.6%, age 44.7 ± 12 years). CLD was listed in 17,423 (12.4%) patients, including 818 (0.6%) with LC. Non-alcoholic fatty liver disease was the most common cause of CLD. Patients with LC were more likely to be older, male, and have diabetes mellitus and hyperlipidemia. 37.7% of LC and 42.1% of non-cirrhotic CLD patients underwent RYGB. Transfusion, LHS, and total charges were higher in the LC group (Table). In-hospital mortality was higher in CLD (0.1%) and LC ($< 0.3\%$). In MVA, LC was an independent predictor of LHS (Odds Ratio (OR): 1.82, 95% CI: 1.25-2.67) but non-cirrhotic CLD was not a predictor of LHS. Subgroup MVA in CLD showed RYGB was independently associated with LHS (OR: 1.85, 95% CI: 1.53-2.25).

Conclusion

Bariatric surgery can be performed safely in appropriately selected patients with non-cirrhotic CLD and LC. Further studies are needed to assess long-term outcomes of bariatric surgery in CLD.

Abstract #2: PREDICTORS OF POSTOPERATIVE RENAL INSUFFICIENCY AFTER PRIMARY BARIATRIC SURGERY

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Dr. Zhamak Khorgami - University of Oklahoma School of Community Medicine

Dr. Laura Fischer - The University of Oklahoma College of Medicine - Oklahoma City, OK

Dr. A. Daniel Guerron - Duke University Health System

Dr. Geoffrey Chow - The University of Oklahoma School of Community Medicine

Background

Postoperative renal insufficiency (PRI) is associated with increased morbidity and mortality. Identifying patients at higher risk of PRI may facilitate patient care and improve outcomes. This study aimed to identify factors associated with postoperative PRI in primary bariatric surgery.

Methods

A retrospective secondary data analysis of Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP) 2015-2017 was performed. Primary sleeve gastrectomy (SG) or Roux-en-Y gastric bypass (RYGB) were included. Exclusion criteria were dialysis before the surgery, revisions or conversions, uncommon and investigational procedures, postoperative sepsis or septic shock, and cardiac arrest requiring CPR. PRI was defined as creatinine rise >2mg/dl, or acute renal failure requiring dialysis. Binary logistic regression was used to identify independent predictors of PRI.

Results

436,482 patients were analyzed (79.5% female, age 44.6±12 years). 435 patients (0.1%) developed PRI with 13(3%) 30-day mortality versus 0.1% in non-PRI patients (P<0.001). Independent predictors of PRI (Table) include male gender, age>50 years, African American race, BMI>50, preoperative creatinine>2mg/dL, hypertension, history of cardiac disease or deep vein thrombosis, therapeutic anticoagulation, diabetes mellitus on insulin, chronic obstructive pulmonary disease, and chronic steroid use, RYGB vs. SG, open surgery, postoperative MI, pulmonary embolism, urinary tract infection, pneumonia, organ/space surgical site infection, and unplanned intubation.

Conclusion

PRI is rare after primary bariatric surgery but is associated with higher mortality. Older age, black race, higher BMI, open surgery, certain comorbidities, and postoperative complications are associated with PRI. Preventive measures and early post-operative vigilance for perioperative renal injury should be considered in these at risk patients.

Abstract #3: EVALUATION OF IMPROVEMENT IN KNOWLEDGE AFTER IMPLEMENTATION OF UROGYNECOLOGY SIMULATION LABS

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Dr. Arianna Fresquez - OU-Physicians Tulsa

Dr. Karen Gold - OU-Physicians Tulsa

Dr. Edgar LeClaire - OUHSC-OKC

Dr. Lieschen Quiroz - OUHSC-OKC

Dr. Nasir Mushtaq - OU-Tulsa

Background

The purpose of this study was to determine the effect of a simulation-based and cadaveric training lab on Ob/Gyn resident knowledge and self-assessed proficiency in urogynecologic surgery.

Methods

Electronic invitations to complete the modified American College of Surgeons' (ACS) multi-domain, global assessment survey were sent OBGYN residents at two separate residency programs. Residents from the intervention site (Institution A) attended a simulation and cadaveric labs, while OBGYN residents from the control site (Institution B) served as the control group. Participants were asked to complete the same survey on two occasions, approximately 8 weeks apart, timed to coincide with the simulation and cadaver labs done by the intervention group. The ACS survey contains 46 questions divided into 5 domains: (1) professionalism, (2) level of independence/graduated responsibility, (3) psychomotor ability, (4) clinical evaluation and management, and (5) academia. Scores pre and post the intervention were compared between the intervention and control site.

Results

Thirty-three residents were consented for the study. Nineteen OBGYN residents from the control site and 14 OBGYN residents from intervention site. Total number of completed surveys was 16. Baseline characteristics of the study participants (n = 16) who responded to both pre- and post-survey respondents were not significantly different. After the intervention, in the clinical evaluation and management domain, residents in OUSCM-Tulsa were noted to have a statistically significant improvement in their perceived proficiency in counseling prolapse patients (36.36% to 90.91%), discussing recommendations and treatment options, and knowing when surgery is indicated (27.27% to 100%). After the intervention, in the domain of psychomotor skills, Institution A residents also felt more proficient in dissection of tissue planes (18.18% to 90.91%) and all surgeries simulated, including: vaginal hysterectomy, anterior and posterior colporrhaphy, sacrospinous ligament suspension, uterosacral ligament suspension, and colpocleisis (27.27% to 90.91%, 9.09% to 81.82%, 0.00% to 81.82%, 0.00% to 72.73%, 0% to 72.73%, respectively) p-value < 0.05

Conclusion

Quantitative and Qualitative outcomes highlight that both OBGYN resident groups perceive themselves as professional and are largely able to evaluate and care for patients, however, further training is needed to achieve improvements in the level of independence/graduated responsibility domain and there is room for further improvement in the domains of psychomotor ability and clinical evaluation and management.

Abstract #4: SURGICAL AND ENDOSCOPIC INTERVENTIONS IN PATIENTS ADMITTED WITH FAMILIAL COLON POLYPS: AN ANALYSIS OF THE NATIONAL INPATIENT SAMPLE

Dr. Jessica Heard - University of Oklahoma - Tulsa

Dr. Zhamak Khorgami - The University of Oklahoma School of Community Medicine

Dr. Nelson Royall - The University of Oklahoma School of Community Medicine

Background

Several genetic disorders are associated with colon polyposis and each disorder is associated with other abnormalities within the gastrointestinal system itself, or even within other organs. The purpose of this study was to gain an understanding of the surgical interventions used in the management of patients with hereditary colonic polyposis in the United States.

Methods

An analysis of the Nationwide Inpatient Sample (HCUP-NIS) 2016 was performed and patients who were admitted with a diagnosis of family history of colonic polyps (Z83.71) were included for analysis. Patient demographic factors and interventions (surgical and endoscopic) were evaluated.

Results

844 patients (age 54.2±18 years, 60% female) were analyzed. These patients underwent a total of 1739 endoscopic and surgical procedures during the time frame analyzed. The most common surgical procedure was colon resection (162, 9.2%). Cholecystectomy (16, 0.9%), pancreatic resection (11, 0.6%), and gastric bypass (1, 0.1%) were other listed surgical procedures. From endoscopic procedures, colon polypectomies (116, 6.5%) and gastric polypectomies (80, 4.5%) were commonly performed.

Conclusion

Gastroduodenal surveillance, esophagogastroduodenoscopy, and pancreatic and gastric resection are needed in patient with familial colon polyps. A multidisciplinary approach is needed in management of these patient by participation of gastroenterology, colorectal and foregut surgery, and hepato-pancreato-biliary surgery teams.

Abstract #5: EXAMINATION OF RELATIONSHIPS AMONG EXERCISE, GRAY MATTER VOLUME, AND MENTAL HEALTH

Ms. Alyssa Clinard - University of Tulsa

Dr. Robin Aupperle - The Laureate Institute for Brain Research

Background

Previous research has shown exercise to have beneficial effects on mental health. It is thought that exercise may exert these benefits through a variety of neural mechanisms, including increasing neurogenesis. Exercise in particular has been linked different regions of the brain that are involved in mental health, including the hippocampus and medial prefrontal cortex (mPFC). The current study used magnetic resonance imaging (MRI) data from a large, community-based sample, to examine relationships between exercise, mental health, and gray matter volume.

Methods

The Tulsa 1000 is a naturalistic, longitudinal study involving 1000 adults with significant symptoms related to anxiety/depressive disorders, substance use disorders, and eating disorders, as well as healthy controls. For the current secondary data analysis, we focused on the first 500 participants of the Tulsa 1000, of which 481 adults completed both the short form International Physical Activity Questionnaire (IPAQ) and NIH PROMIS® depression and anxiety measures. The IPAQ is a self-report measure to determine the number of active minutes versus sitting time a person has during a week. A 3T GE MR750 scanner was used in order to obtain high resolution anatomical scans of tissue contrast. Segmentation of brain regions was completed using FreeSurfer (version 5.3.0) to calculate gray matter volume. The questionnaires and MRI were completed during different sessions. Spearman's Rho correlation analyses were done to determine the relation between IPAQ and PROMIS scales, as well as exercise and brain volume for specific regions of interest (hippocampus, amygdala, mPFC). A Sobel test of mediation will be run to identify whether regional brain volume accounts for a significant amount of variance in the relationship between exercise and mental health. Consideration will be made for other covariants. Regression analyses will be performed for the following mental health diagnoses: substance abuse, mood disorders, and anxiety disorders in comparison to healthy controls.

Results

There was a significant negative correlation between minutes active in a week and both depression ($r(481) = -0.13, p = 0.002$.) and anxiety ($r(481) = -0.10, p = 0.012$), while sitting time did not relate to depression or anxiety symptoms ($ps > .10$). Analyses involving gray matter volume will be completed prior to presentation.

Conclusion

The current data supports previous research suggesting that exercise may be protective against mental health difficulties. Future analyses will be instrumental in determining whether regional gray matter volume (and what regions) may serve a role in this protective effect.

Abstract #6: MATERNAL BODY MASS INDEX AND ITS EFFECT ON EARLY PREGNANCY DATING

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Dr. Monica Tschirhart - OU-Physicians Tulsa

Dr. Jameca Price - OU-Physicians Tulsa

Background

Obesity is a major health epidemic that has far reaching consequences. In obstetrics, a last menstrual period (LMP) is used to date a woman's pregnancy until an ultrasound is obtained. An estimated due date (EDD) obtained from an ultrasound can supersede an LMP EDD if the dating differs by more than 5-7 days in the first trimester, 7-14 days in the second trimester, or 21 days in the third trimester.

Obese women have been known to have menstrual irregularities, meaning that a due date obtained by their LMP could be inaccurate. Long term consequences of an inaccurate EDD include incorrect diagnoses of intrauterine growth restriction or macrosomia, and could lead to unnecessary interventions. The goal of this study is to determine if and how obesity affects early pregnancy ultrasound and a patient's estimated due date.

Methods

We performed a retrospective chart review of patients who delivered from August-December 2018 and included women who received care with OU Women's Clinic and had a first or second trimester dating ultrasound in the OU system. In addition to LMP, BMI, and EDD, other factors were collected including infant birth weight, gestational age at delivery, and medical issues complicating the pregnancy.

Results

121 participants were selected based on the inclusion criteria. 76% were overweight or obese. Analysis showed that 74.3% of them kept the EDD established by their LMP, while only 25.6% had their EDD changed after their first ultrasound. To analyze the information further, we broke BMI down into four categories (underweight, normal weight, overweight, and obese). In all categories participants were more likely to be dated by their LMP as opposed to their ultrasound, but LMP dating was more likely as BMI increased. Other variables were analyzed, and participants aged 15-19 were more likely than other age groups to have their EDD changed after their first ultrasound.

Conclusion

Based on the information collected from the 121 participants, the hypothesis that increasing BMI would lead to more patients being dated by their first ultrasound was not supported. The data instead showed that increasing BMI led to more participants being dated by their LMP. Other variables that were analyzed (i.e. age) did show characteristics that made it more likely for woman to be re-dated after her ultrasound, although these were not statistically significant, likely given the number of participants.

Abstract #7: SYSTEMATIC REVIEW OF THE EFFECTIVENESS OF INTERRUPTIVE MEDICATION PRESCRIBING ALERTS

Dr. Oliver Cerqueira - University of Oklahoma

Dr. Brent Beasley - University of Oklahoma

Mr. Mohsain Gill - OU College of Medicine

Mr. Bishr Swar - OU College of Medicine

Background

Electronic alerts as part of the medical record are meant to be protective, but often can be more disruptive to providers. Our goal was to assess the effectiveness of how different categories of alerts change prescriber behavior and/or improve patient outcomes in ambulatory care settings via computerized provider order entry (CPOE) systems. These alerts mostly include, but are not limited to, drug-drug interactions.

Methods

A standardized search strategy was developed and applied to the following key bibliographic databases: PubMed, Embase, CI-NAHL, and The Cochrane Library. Non-comparison studies were eliminated to allow for assessment of prescribing alert/s in outpatient settings, as related to a control group. A standardized data collection form was developed, pilot tested on ten studies and refined. Data abstracted included setting, study design, category of intervention alert and design specifications, other categories of alerts active in the system, and outcomes measured. The search was completed August 2018 and searched again on November 2019 to identify any new publications during the time lapsed.

Results

Ultimately, 17 non-comparison studies comprising of up to 15 distinct types of triggered alerts were identified, each categorized as interruptive or not. A pre/post study design was the most common type (n=7). All studies looked at least one outcome measure illustrating how the alert affected prescriber decision making. The most common alert categories noted were drug-drug interactions (n=6) and drug-lab warnings (n=4). Non-interruptive alerts were more common overall. Provider behavior was influenced in the majority (n=12), with most noting an affirmative change (n=10). Provider feedback was discussed in only one paper while only two studies commented specifically on subsequent patient outcomes.

Conclusion

Current evidence shows a clear indication that many categories of alerts are effective in changing prescriber behavior. However, based on current literature, it is unclear whether these behavioral changes lead to improved patient outcomes. Despite the rapid transition to CPOE use for patient care, there is a dearth of research involving triggered alerts, and specifically how these workflow interruptions have significant influence for the stakeholders involved. This includes not only patient outcomes, but also provider impact and perceptions. For the future, more medical informatics research is needed, ideally with quality randomized controlled trials, powered appropriately, in order to see if alerts can be palatable to providers, and also lead to improved patient care. Such research should be done without financial bias, for example in the setting of academia.

Abstract #8: MATERNAL ADVERSE CHILDHOOD EXPERIENCES AND EARLY PREGNANCY LOSS IN WOMEN

Ms. LAUREN HELMERICH - OU-Tulsa

Dr. Jameca Price - OU Tulsa Physicians

Dr. Danielle Hendrick - OU Tulsa Physicians

Dr. Karen Gold - OU Tulsa Physicians

Dr. Priyanka Patel - University of Kansas Medical Center

Dr. Mary Williams - University of Oklahoma Health Sciences Center

Background

Previous studies have found adverse childhood experiences (ACEs) are strongly related to negative health outcomes and more than four ACEs is associated with an increased risk. Maternal health is associated with adverse pregnancy outcomes, but no previous work has examined maternal ACEs on pregnancy outcomes. Early pregnancy loss (<13 weeks) accounts for 80% of all pregnancy losses. This study examined whether maternal ACEs were associated with a recent pregnancy loss in an ambulatory obstetric clinic population.

Methods

This cross sectional study assessed baseline information of a larger longitudinal study designed to identify risk factors associated with a recent history of pregnancy loss. Recent pregnancy loss was defined as a reported miscarriage or stillbirth in the most recent pregnancy reported. We assessed the relationship between ACEs and pregnancy loss among clinical patients who reported a recent pregnancy. Women accessing care at the OU-Physicians, Tulsa OB/GYN clinic between 1/3/18- 2/4/20 were recruited if they were either 1) currently less than 13 weeks pregnant, or 2.) recently had a pregnancy loss that occurred in less than 13 weeks. Participants completed a comprehensive structured survey that included ACEs and pregnancy outcomes. Individual ACE scores were calculated on a scale from 0-10, then categorized as less than or greater than 4 ACEs. Data analysis was performed in MS Excel and SAS 9.4.

Results

A total of 129 women were included in these analyses from 1/4/18-2/4/20. These women were between 15-45 years and 71.3% reported previous pregnancies. Overall, the mean ACE score was 7.25 (SD=3.06) with 85.3% reporting 4 or more ACEs. Among women with prior pregnancy outcomes (n=90), 27% reported experiencing a pregnancy loss in their most recent pregnancy. Mean ACE scores did not differ between those who experienced a pregnancy loss vs those who did not (6.6 vs 7.4, p=0.295) and the percent of women with a pregnancy loss did not differ among those with more than 4 ACEs compared to those with less than 4 ACEs.

Conclusion

This population reported a high number of ACEs (≥ 4) with a mean ACE score of 7.2. In this population ACE scores were not related to pregnancy loss because mean ACE scores were not different for women with a history of a recent pregnancy loss and those with no loss history. However, this lack of association may be due to high ACEs reported in the entire sample of women included in these analyses.

Education

Abstract #9: EARLY CHILDHOOD TEACHERS' PERSPECTIVES AND NEEDS FOR PROFESSIONAL DEVELOPMENT

Mrs. Samantha Evans - University of Oklahoma

Dr. Kyong Ah Kwon - University of Oklahoma

Ms. Adrien Malek - University of Oklahoma

Background

Many early childhood programs offer various professional development opportunities in different formats for teachers (Guskey, 2003). However, the effectiveness of professional development trainings on teacher practices is often questioned (Son, Kwon, Jeon, & Hong, 2013). This could be due to trainings not being tailored to individual teachers' characteristics, needs, and preferences. There have been few studies that examined teacher experiences with professional development trainings, their views on future training opportunities (Buell et al., 2000; Dunst & Raab, 2010) and an assessment of the teachers' unique professional development needs. Thus, this phenomenological study examined early childhood teachers' experiences with and needs for professional development trainings and how their views differ by their characteristics (i.e., age group they serve, level of education, teaching certification).

Methods

Forty teachers from 14 early childhood settings were interviewed for an hour and completed a survey created for the Early Childhood Educator Workforce study. They came from diverse racial (17.1% African American, 43.9% Caucasian, 12.2% Hispanic, 17.1% Native American, 9.8% Biracial) and educational backgrounds (39.1% hold bachelor's degrees or higher). Participants had a range of teaching experiences with a mean of 11 years (SD = 9.27, range of 0.7 to 41.0). Participants were purposefully selected to participate by teaching in an infant/toddler or preschool classroom in a southwestern state. InVivo coding was used for data analysis as way to gain a better understanding of the participants' perceptions on professional development.

Results

Preliminary analysis using InVivo revealed 100% of participants found conferences, workshops, and coaching style trainings effective for learning. Desired content for future trainings varied by teachers' characteristics. For example, needs for learning more about effective instructional and individualized learning strategies, including differentiating between student levels, individualized learning plans, and new activities for children, were prevalent among teachers with higher educational levels and infant and toddler teachers. How to handle challenging and difficult behaviors were the content focus for future trainings from non-bachelor's degree holding educators and non-certified teachers. Conscious discipline was identified as a desirable topic for preschool teachers.

Conclusion

Regardless of individual characteristics, all teachers believed more curriculum related training was needed and preferred an interactive hands-on approach to learning. From these results, we suggest professional trainings may be more effective in engaging early childhood teachers if they accommodate the situation, needs, and characteristics of teachers.

Abstract #10: PARENTING IN PRISON: A QUALITATIVE CASE STUDY REGARDING INCARCERATED MOTHERS

Ms. Kimberly Phillips - OU-Tulsa

Background

One of the most shocking calamities our country has witnessed in the last two decades has been the escalation of mass incarceration and the damaging effects families are feeling for generations to come. It is not the children's fault, yet they suffer the most when a parent is incarcerated. Children are struggling to function in society with a mother in prison. Despite the negative long-lasting impacts on children, there are limited studies available on parenting in prison. Thus, the present study examined parenting experiences of incarcerated mothers while they are in jail: their feelings about, contacts, and relationships with their children.

Methods

Through an in-depth semi-structured interview with 17 mothers in prison enrolled in a college level parenting class at a Midwestern State Women's Correctional facility, were asked to share their story of parenting in prison. The interviews took place in January 2020 and lasted for an average of 45 minutes. A qualitative approach was taken in order to understand how mothers soon to be released from prison felt about their current parenting practices and if they could end the intergenerational incarceration cycle. Using a phenomenological approach, open coding and axial coding were conducted to develop themes and categories from the transcribed interviews.

Results

Our findings showed that preserving a mother-child relationship benefits both sides. Hearing from a child and knowledge of their well-being can bring comfort and happiness, dispel uncertainty, and lessen the incarcerated mother's guilt. Regular communication seemed serve as a reminder to the mother to work at reuniting with her child through self-improvement opportunities. Most of the children they left behind reside with grandparents or relatives while their mothers were serving their sentence. Although they desired frequent visits from their children, they stated that the visitation place in jail is not family-friendly. Other barriers for having a close contact with their children included cost of travel to the correctional facility and the current custodial caretaker's willingness to bring the children to visit. Some of the mothers mentioned that their children do not even know they are even in prison.

Conclusion

All participating mothers indicated their greatest desire for her child/children is to be happy and successful. Many mothers agreed that the one piece of advice they would give their children is to not follow in thier footsteps. The results shed light on how to minimize the negative impacts of maternal incarceration and absence on children's adjustment.

Abstract #11: CASE PRESENTATIONS: A METHOD OF SURGICAL RESIDENCY PREPARATION FOR FOURTH-YEAR MEDICAL STUDENTS?

Dr. Zakiya Shakir - OU Tulsa Department of Surgery

Dr. Zhamak Khorgami - The University of Oklahoma School of Community Medicine

Dr. Geoffrey Chow - The University of Oklahoma School of Community Medicine

Background

Current literature in surgical education highlights the importance of standardized examination scores, published research, and research presentations for successful graduates of surgical residency programs. Programs such as wet labs, boot camps, and mock pages have been effective in pre-internship education, but do not address the challenges of understanding complex cases or structured oral presentations. We added oral case presentations for surgical sub-interns at our institution from 2018-2019. We hypothesized that after completion of the presentation, students would feel better prepared for residency, and that this activity would have a positive impact on student perception of oral case presentations.

Methods

Seventeen graduating medical students completed a four-week surgical sub-internship at our institution between 2018 and 2019. Students completed a 10-minute case-based oral presentation at the end of their rotation. At the end of each rotation, a sixteen question Likert-scale survey was emailed to all students. De-identified data was collected and analyzed retrospectively. Statistical analysis was performed using SPSS to characterize the responses.

Results

Survey response rate was 100%. 35% of the respondents were attending an allopathic medical school. 53% of the students were male. 100% planned on applying for a surgical residency, believed the assignment was beneficial for medical education, helped them prepare for future presentations, added value to their surgical education, allowed them to develop public speaking abilities, and planned on completing future presentations in residency. >75% believed the assignment should be required for future rotations, helped them summarize and present pertinent aspects of patient care, and felt comfortable with public speaking. >50% reported their efforts in completing the assignment were driven by the graded evaluation.

Conclusion

Medical school education can prepare students for surgical training in many facets, and assigned oral presentations can improve the transitioning student's understanding of patient care. These results demonstrate that students benefit from structured oral case presentations, and this also improves student preparation for residency. Regular implementation of structured case presentations may benefit graduating medical students and facilitate the transition to residency.

Abstract #12: QUALITY OF MEALTIME PRACTICE ON SUPPORTING CHILDREN'S HEALTHY EATING AND LEARNING

Ms. Adrien Malek - UNIVERSITY OF OKLAHOMA--TULSA

Dr. Kyong Ah Kwon - University of Oklahoma

Dr. Diane Horm - UNIVERSITY OF OKLAHOMA--TULSA

Dr. Susan Sisson - University of Oklahoma Health Sciences Center

Dr. Dipti Dev - University of Nebraska - Lincoln

Dr. Sherri Castle - University of Oklahoma – Tulsa

Background

Given the substantial number of children eating a majority of their meals in early childhood education (ECE) settings, teacher mealtime practices are increasingly recognized as highly influential in children's development of healthy eating behaviors. However, the application and use of high-quality teacher mealtime practices is still being understood, and therefore remains unclear. The mealtime is an integral part of the daily routine in ECE settings and practices may vary by context. Therefore, it is critical to examine how mealtime practices are linked to overall classroom quality. Thus, this study seeks to examine the occurrence of recommended teacher practices observed during the mealtime routine, and how the quality of the mealtime is associated with classroom quality.

Methods

The data for this study came from a larger study that examined teacher well-being. A subsample of 31 early childhood teachers in a Midwestern state were randomly selected from the large sample. The subsample had racially diverse and educational backgrounds. Teachers' mealtime practices were observed using the Mealtime Observation in Childcare (MOCC) checklist during lunch, and classroom quality was measured using the Classroom Assessment Scoring System (CLASS). Analysis of descriptive statistics on key variables and correlations were used to describe mealtime practices and examined the associations among mealtime practices and classroom quality variables.

Results

Most (77%) teachers sat with the children during mealtimes, but 55% were observed not eating with the children. Only 17% of teachers were observed using peer modeling to encourage children to try new foods. Many (88%) were observed pressuring children to eat when they refused to try a food instead of a responsive and supportive strategy. About 26% and 13% of teachers were observed talking to children about hunger and fullness respectively, and 8% were observed modeling their own feelings of hunger or fullness. Surprisingly, 42% of teachers provided an uninvolved feeding style during mealtime which limits opportunities for role modeling and supporting healthy eating. Peer modeling, role modeling, and self-regulation were significantly associated with both emotional-behavioral and instructional support. (Tables with values will be on poster)

Conclusion

Our findings show teacher mealtime practices vary, which is consistent with the current literature. Despite recommendations, teachers continue to pressure children to eat and are not using strategies to support eating self-regulation. Our findings also suggest teachers who have high-quality classroom interactions may implement more high-quality mealtime practices. Future studies are needed to determine challenges and barriers that prevent teachers from using all recommended practices. work with DLLs.

Abstract #13: TODDLERS' PLAY BEHAVIORS AND INTERACTIONS WITH TEACHERS AND PEERS DURING FREE-PLAY

Ms. Sun Geun Kim - University of Oklahoma - Tulsa

Ms. Amanda Bueno - University of Oklahoma - Tulsa

Dr. Kyong Ah Kwon - University of Oklahoma

Dr. Hyun-Joo Jeon - University of Nevada, Reno

Background

The development of toddlers' prosocial behaviors can be fostered through interactions with adults and peers. Despite the importance of toddlerhood as a critical period of emerging interests in peers and prosocial skills, limited research is available on this topic. Thus, the present study examined the patterns of toddlers' play behaviors and interactions with teachers and peers in the classroom and the role of child gender and play contexts in their play and interactions.

Methods

Current research is secondary data analysis. The video data were recorded by the trained researchers from Georgia State University. The videos recorded toddlers' behaviors and interactions with teachers and peers for 30 minutes during indoor free play. Eighty-four toddlers (45.2% male and 54.8% female; 76.2% Caucasian, 10.7% African American, 9.5% Asian, and 3.6% Hispanic) and their teachers from four university-affiliated child development programs in two southern cities in the US participated in the study. The videotapes were coded independently by a researcher who is trained until the inter-rater reliability of 90 percent agreement had been attained across all key variables.

Results

Toddlers spent almost 45% of the time not interacting with peers and adults and were mostly engaged in unoccupied or non-peer play, spent 34% interacting with teachers, and spent 15% interacting with peers. However, when they participated in pretend play, they are more likely to engage in play by verbalizing actively ($r = .36, p < .01$) and positively interact with peers ($r = .49, p < .01$) and teachers ($r = -.31, p < .01$). Moreover, teachers actively interacted with toddlers during creative play ($r = .34, p < .01$) compare to other contexts. Overall, girls were more likely to participate in pretend play than boys ($t = -1.86, p < .05$), and boys were more likely to participate in manipulative play than girls ($t = 2.12, p < .05$).

Conclusion

Toddlers were engaged with teachers or peers for 55% of the time. During the interaction, teachers interacted with the toddlers through reading books and singing songs the most. Although toddlers were not actively engaged with peers, they showed high verbalization and positive interaction when they were involved in pretend play. Lastly, gender is not related to the toddler's interaction with peers and teachers. However, play context showed association with toddler's interaction. Through the analysis of toddlers' play behaviors and interactions, we can analyze that teacher's purposeful elicitation, and interaction with toddlers is necessary to help the toddlers to engage in meaningful play and interaction.

Abstract #14: PRESERVICE TEACHERS' USE OF A TRANSLATION APP WITH DUAL LANGUAGE LEARNERS

Ms. Raeanne Ross - University of Oklahoma-Tulsa, Jeannine Rainbolt College of Education

Dr. Vickie Lake - University of Oklahoma-Tulsa, Jeannine Rainbolt College of Education

Mrs. Amber Beisly - University of Oklahoma-Tulsa, Jeannine Rainbolt College of Education

Background

Many practicing teachers face challenges with effective technology integration (Keengwe & Onchwari, 2009). Teachers who do integrate technology into their educational practices understand that it is not an end-all solution, but rather a support to their current pedagogical and content practices. However, a simple question remains among current early childhood educators, how can technology be effectively used and integrated into classroom environments in order to facilitate children's learning and development? Therefore, the purpose of this study was to explore how pre-service teachers (PSTs) integrated technology (a translation app) into their lessons and how students (or dual language learners) responded to the use of this technology. The study was guided by the following research questions:

How do pre-service teachers integrate Speak & Translate with dual language learners?

Based on PST's observations, how do dual language learners respond to the use of Speak & Translate?

Methods

This qualitative, phenomenological research study was conducted in a teacher preparation program in the Midwest. Thirty-one female PSTs participated in the study. During their field placement experience, each PST taught 3 small group lessons with preschool children using the Speak & Translate (S&T) app. After each lesson was taught, PSTs completed a lesson reflection that was uploaded into Dedoose. Analysis included level 1 (p priori coding) and level 2 (thematic coding) in order to analyze the reflections and explore PST's use of S&T with DLLs and how DLLs responded to this experience.

Results

Across all lessons, S&T was utilized a total of 46 times and was primarily used to translate key vocabulary of the lesson or content of the book. PSTs also used the app to model an activity, model material use, and provide instructions and directions. The most exciting finding was the changes PST's noticed in DLL's body language, engagement, and motivation when they used the app in their lessons.

Conclusion

PSTs were asked to focus on the integration of technology (S&T), which produced a lesson that met all aspects of the TPACK framework. Based on PST's reflections, they not only experienced a shift in their own thinking and pedagogical approaches, but they also noticed a shift in DLLs' engagement and motivation during their technology supported lessons. Findings from this study hold promising and important educational implications for pedagogical practices not only for PSTs, but also for current educators who work with DLLs.

Abstract #15: GME INDEBTEDNESS: IMPACT ON STRESS AND BURNOUT IN OBGYN RESIDENTS

Dr. Andrew Kajioka - University of Oklahoma College of Medicine - Tulsa, OK

Dr. Karen Gold - University of Oklahoma College of Medicine - Tulsa, OK

Dr. Jesse Richards - University of Missouri-Kansas City

Dr. Krista Kezbers - Office for Research Development and Scholarly Activity, OU-TU School of Community Medicine

Dr. Jameca Price - University of Oklahoma

Ms. Heather McIntosh - OU-Tulsa School of Community Medicine

Dr. Carol Cox – OU

Background

Rising medical education associated indebtedness is a reality for the majority of resident physicians. The majority of Graduate Medical Education (GME) trainees will graduate from their Obstetrics and Gynecology residency with over \$170,000 of medical education debt.¹ In 2018-2019, there were a total of 4,917 OBGYN residents. Of these residents, 77.5% were female.² Our study aimed to examine the current level of indebtedness incurred by OBGYN GME trainees as well as their level of stress and burnout.

Methods

The anonymous survey was sent out via email a total of 3 times over the course of 5 months (January 2019 to May 2019), utilizing RedCap software. The survey was distributed to residency program directors of all GME accredited OBGYN residency programs. We requested that residency program directors distribute this survey to the OBGYN residents. The survey consisted of the following 7 sections: Consent, Demographics, Perceived Stress Scale/ Modified Maslach Burnout Inventory, Loan Repayment, Financial Literacy, Career Choices, Retirement and Education. There were a minimum of 69 questions and maximum of 89 questions depending on responses and subsequent branching logic. The descriptive statistics were calculated using SPSS (Version 26).

Results

450 OBGYN residents completed the survey (PGY-1 = 123, PGY-2 = 131, PGY-3 = 100, PGY-4 = 94). The majority of the sample was female (89.3%) and the average age was 29.73 (range 24-44 years). Scores on the Perceived Stress Scale (0-40) ranged from 1 to 37, with the average being 18.51. Over half of the sample (55.3%) was positive for Burnout. 373 (82.9%) indicated that they currently have student loans and 58% of residents responded that it was difficult or very difficult to budget student loan repayment on a resident's salary. Over two-thirds (68.7%) of residents have greater than \$200,000 of student loan debt.

Conclusion

Over 68% of OBGYN residents that responded to our survey had greater than \$200,000 of student loan debt. This is slightly higher than the median education debt of \$200,000 based on data from the 2019 AAMC Medical Student Graduation Questionnaire. Our data revealed that OBGYN residents are "moderately stressed." 55% of OBGYN resident respondents were positive for burnout. Based on this data, we believe there is a role for further education regarding stress management and financial planning during OBGYN residency. However, we also understand that more work needs to be done to understand the complex relationship between stress, financial debt, and medical education.

Abstract #16: THE JINGLE FALLACY: MEASUREMENT ISSUES RELATED TO APPROACHES TO LEARNING

Mrs. Amber Beisly - University of Oklahoma - Tulsa

Dr. Claudette Grinnell Davis - University of Oklahoma - Tulsa

Dr. Sherri Castle - Early Childhood Education Institute

Background

Approaches to Learning (AtL) has gained prominence in the field of early childhood education and is now included in most state learning standards (Barbu, Yaden, Levin-Donnerstein, & Marx, 2015). AtL describes process-oriented dispositions like curiosity, problem-solving, and creativity that support children's school readiness. Through the years, the operationalization of AtL has expanded, with each study using a different combination of skills and measurement methods. Researchers are faced with a jingle fallacy, wherein the scope of the construct is unclear; many constructs are now described as AtL (Marsh et al., 2019). To provide measurement clarity, this study uses confirmatory factor analysis and the multi-trait multimethod matrix to evaluate measurement models of AtL.

Methods

This study uses secondary data from a dataset of local Head Start programs. Participants included 268 children, ranging in age from 28-59 months, enrolled in 61 Head Start classrooms. Many were Hispanic (35%) and spoke Spanish (36.8%) as their home language. Children's AtL was measured via multiple measures and informants. The inCLASS (Downer et al., 2010) is an observational assessment of children's engagement in three domains--teachers, peers, and tasks. Summary scores were created by averaging items across domains. The Devereaux Early Childhood Assessment (DECA; LeBuffe & Naglieri, 1999) is a standardized rating scale used to assess the behavior and functioning of young children. Teachers rate the frequency of children's behavior on a 5-point Likert scale. These item-level scores are averaged to create four subscales—initiative, self-regulation, behavioral problems, and attachment. The Leiter-R (Roid & Miller, 1997) is a behavior rating scale completed by assessors after a testing session. Children were rated on attention, organization, and sociability.

Results

First, using the DECA, a CFA was conducted from operationalizations used in five different studies of AtL; model fit was examined using comparative fit index (CFI), RMSEA, and the SRMR (Hu & Bentler, 1999). The best-fitting model was Li-Grinning et al. (2010) and Kagan and Bredekamp (1991) with similar CFI of .99, RMSEA of .04 and SRMR of .02. These 1-factor models support AtL as a latent construct of curiosity, persistence, and initiative. Multi-trait multi-method analysis, utilizing the DECA, inCLASS, and Leiter-R demonstrated high hetero-trait monomethod correlation, indicating that traits within each measurement were more strongly associated than traits across different measurements.

Conclusion

These results highlight the contextual nature of AtL; each method provides empirical insight into measuring AtL. To resolve the jingle fallacy, a conceptual framework better articulating the characteristics of AtL is needed.

Abstract #17: THE EFFECT OF SOCIAL MEDIA ON UTILIZATION OF A HEALTH-BASED WEBSITE

Dr. Camille Meehan - OU-Tulsa School of Community Medicine

Ms. Hannah Estes - OU-Tulsa School of Community Medicine

Dr. Sarah Beth Bell - OU-TU School of Community Medicine

Dr. Carol Cox - OU-Tulsa School of Community Medicine

Dr. Monica Henning - OU-Tulsa School of Community Medicine

Dr. Nirupama DeSilva - University of Texas Southwestern Medical Center

Background

Introduction: 39% of teenagers access the internet to obtain health information (1). In tune with this trend, the GirlSmarts website is a health-based site created to educate teens on the consequences of high-risk situations. In an effort to promote anticipatory guidance, the website discusses topics that teens struggle with including pregnancy, alcohol or tobacco use, “sexting”, and eating disorders. The website also provides teens with fact-based answers on frequently asked health questions, and links readers to other medically accurate websites. 96% of viewers noted that their interactions in certain situations would change due to the information gleaned from the GirlSmarts website. (2)

Given their reliance on the internet, and in conjunction with teenager’s robust use of social media (3), this study explores whether posting health facts via social media platforms can increase the utilization of health-based resources, such as the GirlSmarts website.

Methods

For 16 weeks, the social media platforms Facebook, Instagram, and Twitter were utilized for posting health-related information. Two social media posts, with teen-relevant facts from reputable sources such as the Center for Disease Control, the American Academy of Pediatrics, and the American College of Obstetricians and Gynecologists, were uploaded weekly at regularly scheduled times. Each post included a link to the GirlSmart’s website should the viewer desire more information. If a viewer went to the GirlSmarts site, they were required to complete an anonymous pop-up survey that requested demographic information. GirlSmarts website analytics from the 4 months prior to the study were used as a control.

Results

During the intervention period, the Girlsmarts website noted an 8.5% increase in viewers (1,761 users during the control versus 1,910 users during the study period). In addition, the number of pages viewed on the site increased during the study period (7,897 vs 5,180) by 52.5%. During the control period, only 0.02% of users said they accessed the website through social media, but with the posting of health information, 0.6% of users accessed the site via a social media platform. The most effective platform for reaching users was Facebook, with 47.7% of referrals coming from Facebook during our study period.

Conclusion

The GirlSmarts website noted an increase in utilization and an increase in the time spent on the website during the social media posting period. Facebook was the most effective platform for reaching users in this study. Social media can play a role in providing access to fact-based health information.

Abstract #18: INDIVIDUAL MYANMAR CHILDREN'S EXPERIENCES IN HEAD START CLASSROOMS

Mrs. Boo Young Lim - University of Oklahoma - Tulsa
Dr. Sherri Castle - Early Childhood Education Institute

Background

Early childhood is a crucial period for children who are dual language learners (DLLs), struggling to learn the new language as well as other skills for school readiness. In contrast to comprehensive research in ECE, there are relatively few studies conducted with DLLs, and mainly for the Latino DLLs, no other language groups. Recently, Myanmar migrants are growing rapidly and make up 25% of the total migrant population in Tulsa (NBC news, 2017). Previous studies have shown that DLL children differ in various developmental outcomes because of a myriad of factors including poverty, systemic racism, and oppression. The researchers examined the classroom experiences of Myanmar children in a Head Start program by measuring their individual language use and level of engagement then, comparing them to other racial groups.

Methods

The participants included 3- and 4-year-old children (n=1,101) in a Head Start program in Northeast OK. The measure used the Child Observational Protocol, which involved 3-second sweeps which snapshots of individual children's behavior across a period of time in the classroom. Observers spent approximately 4 hours in the classroom on a typical morning. All children in the classroom were observed and had an average of 9 sweeps per child. The current study specifically focused on the proportion of sweeps in which a child was listening to or talking to someone else in the classroom (in any language) and the proportion of sweeps a child was observed speaking in English. Descriptive analyses were conducted using ANOVA in SPSS.

Results

Results indicated that children who speak Myanmar at home had fewer times observational sweeps in which they were speaking in English (15%) compared to their African American and White peers (19-20%). However, whereas Latino children were observed more frequently to be neither speaking nor listening (45% of sweeps), Myanmar children were not significantly different than their Latino peers. Instead, Myanmar children were more likely to engage in passive instruction (15%) than their African American (10%) and White (12%) peers.

Conclusion

Our findings suggest that Myanmar children who were enrolled in a Head Start program had bit fewer opportunities to practice their language skills and are less likely to be engaged in their classroom activities. Further research is needed to see whether these outcomes are due to language proficiency, cultural aspects, or influenced by others. This information also leads to the need for further study of how teachers interact in the classroom based on the racial groups.

Abstract #19: APP-BASED LONGITUDINAL INFECTIOUS DISEASE CURRICULUM FOR PEDIATRICS RESIDENCY

Dr. Andrew Nguyen - University of Oklahoma School of Community Medicine

Dr. Janitzio Guzman - University of Oklahoma School of Community Medicine

Background

Infectious disease comprises 7% of the American Board of Pediatrics general pediatrics board exam and covers hundreds of different organisms that cause disease. Covering each of these topics all together in one presentation at our weekly academic afternoon quickly becomes overwhelming. Additionally, we understand residents have dozens of other responsibilities. Our aim was to develop a longitudinal weekly curriculum that could be replicated at other programs that would deliver the required material to all residents, allow residents to cover material quickly at their own pace, and improve Infectious Disease sub-scores on the in training exam.

Methods

Starting in summer 2019, the Pediatrics and Medicine-Pediatrics chiefs at University of Oklahoma-Tulsa School of Community Medicine have developed a longitudinal infectious disease curriculum that uses technology to aid in education. Every week, a short board-style quiz is released to the residents via Google Classroom, which gets pushed directly to the phones of our residents. Each week a different organism or group of organisms is covered, focusing on the most common organisms on the test. Google classroom allows us to attach study guides, the appropriate Red Book chapters, and YouTube videos that explain each topic, allowing for residents to review topics and answer questions at their own pace.

Results

We have recommended, but have not required our 24 residents to complete each assignment. Since beginning the project, 58% of our residents have completed at least 75% of the assignments with an average score of 70%. Initial participation was robust, but as the busy winter season approached, participation rates decreased. Reminder notifications, and an incentive was introduced in the winter which temporarily improved participation from 54% to 75-83%. Our academic benchmark is to measure average infectious disease In-Training Exam sub-scores per class in comparison to our baseline test in June 2018 and 2019.

Conclusion

Educating residents on infectious disease as a year-long longitudinal curriculum has the potential to be an effective way to present material relevant to the ABP General Pediatrics exam. Providing this content as an mobile-app based curriculum allows for self-pacing and interactive content. Our first cycles have shown residents will voluntarily participate in this curriculum and the seasonal limitations of voluntary participation, with possible steps programs could take to improve participation. The extent to which this curriculum improves ITE sub-scores will be determined at the next exam this summer. We hope this information can be used by other programs wishing to implement similar curricula.

Engineering and Applied Research

Abstract #20: WHERE TO GO NEXT? : A REALISTIC EVALUATION OF AI-ASSISTED MOBILITY PREDICTORS FOR HETEROGENEOUS NETWORKS

Mr. Marvin Manalastas - University of Oklahoma - Tulsa

Mr. Asad Zaidi - University of Oklahoma - Tulsa

Dr. Hasan Farooq - University of Oklahoma - Tulsa

Dr. Ali Imran - University of Oklahoma – Tulsa

Background

5G is considered as the ecosystem to abet the ever growing number of mobile devices and users requiring an unprecedented amount of data and highly demanding Quality of Experience (QoE). To accommodate these demands, 5G requires extreme densification of base station deployment, which will result in a network that requires overwhelming efforts to maintain and manage. User mobility prediction in wireless communications can be exploited to overcome these foregoing challenges. Knowledge of where users will go next enables cellular networks to improve handover management. In addition, it allows networks to engage in advanced resource allocation and reservation, cell load prediction and proactive energy saving. However, anticipating the movement of humans is, in itself, a challenge due to the lack of realistic mobility models and inefficiencies of cellular system models in capturing a real network dynamics

Methods

In this paper, we have evaluated Artificial Intelligence (AI)-assisted mobility predictors. We model mobility prediction as a multi-class classification problem to predict the future base station association of the mobile users using Extreme Gradient Boosting Trees (XGBoost) and Deep Neural Networks (DNN). We have tested several input features that will help in predicting the next base station association of a mobile user.

Results

Using a realistic mobility model and a 3GPP-compliant cellular network simulator, results show that, XGBoost outperforms DNN with prediction accuracy reaching up to 95% in a heterogeneous network (HetNet) scenario with shadowing varied from 0dB to 4dB. We have also found out that the best input features that assist in predicting the next base station a user will camp on are: 1) current cell user is camped on, 2) 1 previous base stations user camped on and 3) the amount of time (sojourn time) user camp on a base station. Moreover, incorporating the handover location and increasing number of training sample further improve the performance of the models.

Conclusion

In this paper, we have evaluated the capabilities of AI-assisted mobility predictors in predicting the future base station association of mobile users. We have found out several input features can help in assisting the prediction and that a technique XGBoost is the method of choice for predicting mobility.

Abstract #21: THE EFFECTS OF LOAD ON LIMITS OF STABILITY IN FIRE CADETS

Mr. Jacob Thomas - University of Tulsa

Mr. Alex Long - The University of Tulsa

Mr. Cameron McLaury - University of Tulsa

Dr. Davis Hale - University of Tulsa

Dr. Gabe Sanders - Northern Kentucky University

Dr. Will Peveler - Liberty University

Dr. Jay Dawes - Oklahoma State University

Dr. Roger Kollock - University of Tulsa

Background

Twenty percent of firefighter injuries at the fireground were attributed to trips, slips, falls, and jumps. While at the fireground, firefighters are required to wear personal protective equipment (PPE) weighing approximately 19kg. Little research has been conducted regarding the influence of load on balance. Therefore, the purpose of this study was to determine the effects of load on limits of stability (LoS) in fire cadets.

Methods

Twenty-six male fire cadets (Age, 26.15±4.16 yrs; Height, 178.92±6.27 cm; Mass, 86.61±9.09 kg) were recruited for this study. Participants were asked to complete a balance task under two conditions: unloaded and loaded. For the unloaded condition, participants wore shorts, t-shirts, and tennis shoes. For the loaded condition, participants wore a self-contained breathing apparatus, turnout coat, pants, boots, hood, gloves and helmet. For each condition, participants performed two 30-second balance tests. The first test (normal stability/quiet stance) required the participants to stand as still as possible on a 50cm x 46cm balance platform with their eyes open, hands on hips and feet equidistant from the midline of the balance platform at a width equal to their shoe length. Upon completion of the first test, the participants immediately performed test two (LoS). The second test required the participants to shift their center of mass forward, backward, left and right as far possible without losing their balance. The main outcome measure was LoS score. A LoS score range from 0% to 100%. A LoS score of 100% indicates that the participant was able to maintain perfect stillness during the normal stability test (test 1). The Shapiro-Wilk test for normality revealed that all data used in the study was normally distributed (greater than .05). Therefore, a paired sample t-test was calculated to compare the mean unloaded LoS score to the mean loaded LoS score.

Results

No significant difference was found in LoS scores between unloaded (89.88±3.83) and loaded (89.15±4.84) conditions ($t(25)=.677$, $p>.504$, 95% IC=-1.49 to 2.95).

Conclusion

Firefighter specific load does not significantly affect fire cadet's stability during a quiet stance under normal visual conditions. Further research should focus on the effects of load on dynamic postural control in cadets, as load may have a greater effect on balance while in motion.

Abstract #22: MULTI-USER FREE SPACE OPTICAL COMMUNICATION

Mrs. Federica OU-Tulsa - University of Oklahoma

Prof. Hazem Refai - University of Oklahoma

Background

Tactical and commercial communication networks currently host a wide variety of air-, space-, and terrestrial-based systems that require more demanding services and applications. Likewise, increasing usage of and higher demand for wireless traffic are causing a critical need for increased bandwidth and capacity communication networks. Recent successful experimental results of state-of-the-art, available free space optical communication (FSOC) solutions for space- and air-based networks proved that FSOC links are a valuable and promising solution for satisfying such emerging network requirements. To further advance optical wireless networking capabilities and reduce size, weight, and power (SWaP) system specifications, multi-user communication should be provided. This work investigated a blind, unsupervised signal-processing algorithm, namely independent component analysis (ICA), for performing multi-user FSOC when users share time and bandwidth resources. Experimental analysis and validation in a high-speed FSOC link is presented.

Methods

FastICA algorithm was employed for multi-user detection in an FSOC link. The experimental setup was composed of two independent transmitting users (i.e., laser diode at 1310nm and 1550nm wavelengths) that propagated in free space for 1.5m before they were received by two photodetectors. A turbulence box was used to simulate atmospheric turbulence heavily affecting FSOC. This work investigated the effects of varying power ratio and data rate between two users, as well as changing atmospheric turbulence severity affecting signal demodulation accuracy. Computational complexity and system capacity were also studied.

Results

Results proved ICA effectiveness for performing multiuser FSOC. An extensive experimental analysis identified transmission parameters for achieving optimal performance. A power ratio of 0.5 achieved the highest performance for signal reconstruction. Good signal reconstruction was observed when users had either the same data rate or a difference of only 95 Mbps. Notably, a greater difference resulted in worsening separation performance. The turbulence box simulated diverse turbulence levels (e.g., low, medium, and high) with good accuracy, as evidenced by a beam profiler, scintillation index, and index refractive constant parameter validation. ICA was performed in all three turbulence scenarios, with all cases achieving good performance.

Conclusion

Experimental results confirmed that ICA can be successfully implemented for multi-user FSOC, in spite of an ICA assumption that the number of receiving sensors should equal the number of transmitting users. To address this issue, results suggest that a nonorthogonal multiple access technique (NOMA)—which uses successive interference cancellation at the receiver side for separating multiple signals multiplexed in power—could be employed.

Abstract #23: TOWARDS INTERPRETABLE MACHINE LEARNING TO MODEL COMPLEX SYSTEMS

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Background

Mathematically modeling the relationships between different inputs and outputs in complex systems is necessary for identifying the optimal system configuration in order to automate future systems. Currently, design and optimization of systems relies on two main approaches: analytical modeling or through simulators. The use of analytical models enables insights into the system behavior. However, they are based on many assumptions, and hence are rarely sufficient for accurate system design of real systems. The use of system-level simulators, on the other hand, leads to functional system designs. However, while far more accurate than assumptions-based analytical models, this approach offers limited insight into system behavior particularly in terms of optimality of its performance for given design parameters. Due to the limitations of these existing approaches, a third emerging approach is the machine learning based approach. However, traditional machine learning based techniques suffer from the challenges of interpretability, determination of model hyper-parameters and vastness of hypothesis space. Consequently, leveraging traditional machine learning to build input-output models is not likely to yield desired results or requires a lot of human effort.

Methods

We propose to combine analytical modeling and domain knowledge to custom design machine learning models such as a neural network with the aim of moving towards interpretable machine learning models. Using domain knowledge and available data sets, we first develop crude analytical models of the system. Then, using the insights gained from this crude mathematical model, we design a neural network, using custom layers (activation functions, weights and biases) that are based on the initial mathematical model. After this custom-designed neural network is trained, we extract the weights and biases from the model and use them to improve the crude initial mathematical model. The closer the coarse analytical model is to the actual system, the lesser the time it will take for neural network training. Our approach is tested using both simulated data and real data of a cellular network system.

Results

Proposed approach outperforms existing mathematical models. The MSE using proposed approach is reduced to 11.02 as compared to MSE of 41.79 using analytical only approach. Results demonstrate that a neural network model is capable of deriving a mathematical model of the system output as a function of inputs.

Conclusion

Instead of using machine learning as a black box, this approach allows insights and discovery of relationships between different inputs and output and can be used to derive better mathematical models of complex systems.

Abstract #24: USER TRANSMIT POWER MINIMIZATION THROUGH UPLINK RESOURCE ALLOCATION AND USER ASSOCIATION

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Background

The popularity of internet of things (IoT) is increasing day by day and billions of IoT devices will be connected to the internet. Many of these devices will be battery operated and long battery life of these devices is very important. Just to give an example, consider a sensor in your body measuring temperature, blood pressure, heart rate etc. and transmitting it to the network for health monitoring. It is highly desirable to have long battery life for this device because it is not feasible to take out the device very frequently for battery replacement. There are countless other examples in IoTs where long battery life is very important. High power consumption in cellular networks restricts the deployment of these IoT devices in 5G. To enable the inclusion of these devices, 5G should be supplemented with strategies and schemes to reduce device power consumption. Lower transmit power will enable new use cases of IoT in smart homes, elder care, medical and transportation applications, manufacturing, agriculture, smart cities, energy management, environmental monitoring, military applications and underwater applications and monitoring.

Methods

Therefore, we address this problem by designing a scheme in which these IoT devices can transmit data at a lower power. Transmit power is the power required to carry data from the device to the network. So, reducing the transmit power will increase the battery life of the devices. We present a novel joint uplink user association and resource allocation scheme in heterogeneous networks (HetNet) for minimizing user transmit power while meeting the quality of service requirements. We exploit the idea of bandwidth expansion to reduce the transmit power in low load scenarios. Bandwidth expansion is the allocation of more bandwidth to a user than the minimum required.

Results

We proposed two algorithms to minimize transmit power. A simulated analysis of our scheme for two-tier HetNet shows an average transmit power reduction of 22.8 dBm and 11.8 dBm for our algorithms compared to state-of-the-art Max reference signal received power (RSRP) and channel individual offset (CIO) based association schemes.

Conclusion

The reduction in transmit power paves way for including battery constrained IoT devices in 5G and makes a strong case for cellular IoT. This increase in battery life will open new avenues in IoT research.

Abstract #25: A MACHINE LEARNING BASED 3D PROPAGATION MODEL FOR INTELLIGENT FUTURE CELLULAR NETWORKS

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Background

In modern wireless communication systems, radio propagation modeling has always been a fundamental task in system design and performance optimization. These models are used in cellular networks and other radio systems to estimate the pathloss or the received signal strength (RSS) at the receiver. An accurate and agile estimation of pathloss is imperative for achieving desired optimization objectives. The state-of-the-art empirical propagation models are based on measurements in specific environments and limited in their ability to capture idiosyncrasies of various propagation environments. To cope with this problem, ray-tracing based solutions are used in commercial planning tools, but they tend to be extremely time consuming and expensive.

Methods

We propose a framework for a robust and scalable Machine Learning (ML) based 3D propagation model for cellular networks. To enable this framework, we have identified a novel set of smart predictors, that can characterize the complex physical and geometric structure of the propagation environment. These smart predictors are readily available at the network-side and need no further standardization.

Results

Performance comparison of several state-of-the-art machine learning algorithms is done to highlight their strengths and weaknesses in their ability to capture the channel characteristics using the proposed novel smart predictors as input features, even with sparse availability of training data. The proposed ML-Based model is compared against state-of-the-art empirical models including COST-Hata, Stanford University Interim, Standard Propagation Model and ITU 452 Model. Proposed ML-based model yields 28% higher accuracy in RSS estimation as compared to empirical propagation models, as it's leveraging a novel combination of smart features which are not included in traditional empirical models (e.g. indoor/outdoor distance), when highly sophisticated ray-tracing based data for the city of Belgium from a commercial planning tool is used as ground truth. On the other hand, proposed model offers 12x reduction in prediction time as compared to ray-tracing because it only uses the smart features as input to the trained ML-based model for estimating RSS, as compared to ray tracing, which approximates the interactions of all rays with the neighboring environment to estimate the RSS, hence computationally inefficient.

Conclusion

We propose a framework for an ML-based 3D propagation model for cellular networks that is scalable and robust to the variation in environment geography and can provide an accurate and agile estimation of received signal strength, which can act as a cornerstone for modeling network performance as a function of plethora of network configuration parameters for Artificial Intelligence-driven Network Automation.

Abstract #26: THE INFLUENCE OF PERSONAL PROTECTIVE EQUIPMENT ON FMS SCORES IN FEMALES

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Mr. Alex Long - The University of Tulsa

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Dr. Gabe Sanders - Northern Kentucky University

Dr. Roger Kollock - University of Tulsa

Background

Musculoskeletal injuries are commonplace in tactical professions such as military warfighters, in 2018 service members suffered from MSI more than any other medical issue. Compared to their male counterparts, females are almost twice as likely to suffer a MSI during deployment. Similar injury patterns have also been observed in female Army Trainees, with injury rates ranging from 2 to 2.5 times that of male trainees. Possible alteration in movement characteristics resulting from body borne loads has been proposed as a potential injury risk factor. Therefore, the purpose of this study was to determine the impact of military personal protective equipment (PPE) on movement quality in females.

Methods

Twelve recreationally active female participants (20.5±1 yrs; 162.94±5.04 cm; 66.03±14.86 kg) were recruited for this study. The functional movement screen (FMS) was used to evaluate movement quality. The FMS required participants perform seven tests: 1) deep squat, 2) hurdle step, 3) inline lunge, 4) shoulder mobility, 5) active straight leg raises, 6) trunk stability test and 7) rotary stability test. Each of the seven tests were graded as either a 1, 2 or 3 as described by the FMS guidelines, with 3 being the best possible score. The scores of the seven tests were totaled to determine the FMS™ composite score, with a max score of 21. Participants wore shorts, t-shirt and combat boots while performing the FMS with and without PPE (5.2 kg improved outer tactical vest and 0.7 kg combat helmet). The main outcome measures were composite FMS scores with and without PPE.

Results

A paired-samples t-test was run to compare the composite FMS scores with and without PPE. The mean composite FMS scores without PPE was 15.92±1.881. The mean composite FMS scores with PPE was 13.67±2.741. There was a significant decrease in composite FMS scores with the addition of PPE ($t(11) = 4.864, p < .001$).

Conclusion

These findings suggest that PPE has a significant negative impact on functional movement in females. Further research should incorporate males and compare the differences in FMS scores between males and females while donning body borne loads.

Abstract #27: THE EFFECTS OF LOAD ON STATIC STABILITY IN FIRE CADETS

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Dr. Will Peveler - Liberty University

Dr. Jay Dawes - Oklahoma State University

Dr. Roger Kollock - University of Tulsa

Background

Firefighters are required to wear specialized personal protective equipment while on duty, in training, and on the fireground. The additional load may lead to increased injury risk due to loss of balance. Little research has been conducted regarding the influence of load on static stability within fire and rescue. The purpose of this study was to determine the effects of load on static stability in fire cadets.

Methods

Twenty-six male fire cadets (Age, 26.15 ± 4.16 yrs; Height, 178.92 ± 6.27 cm; Mass, 86.61 ± 9.09 kg) were recruited for this study. Participants were asked to complete a 30-second balance task under two conditions: unloaded and loaded. For the unloaded condition, participants wore shorts, t-shirts, and tennis shoes. For the loaded condition, participants wore a self-contained breathing apparatus, turnout coat, pants, boots, hood, gloves and helmet. The trial required participants to stand on a 50cm x 46cm balance platform with their eyes open and their feet equidistant from the midline of the balance platform at a width equal to their shoe size. Participants maintained their center of mass while centering their vision on a mark in front of them. The main outcome measure was a stationary stability score. 100% indicates that the participant maintained perfect stillness. 0% indicates that the participant lost their balance completely. A Wilcoxon test was used to compare the loaded and unloaded static stability scores.

Results

Unloaded stability scores (Median= 93.52 ± 10.26) were not significantly different ($Z = -0.038$, $p > 0.05$) from loaded stability scores (Median= 93.49 ± 9.48).

Conclusion

Load did not have a significant effect on a fire cadet's static stability under normal visual conditions. Further research should focus on postural control under eyes-closed scenarios that simulate the low light smoke-filled environment often encountered at the fireground.

Abstract #28: THE EFFECT OF MILITARY PERSONAL PROTECTIVE EQUIPMENT ON LANDING MECHANICS

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Background

Musculoskeletal injuries are commonplace in tactical professions such as military warfighters, in 2018 service members suffered from MSI more than any other medical issue. Arguably, many of these injuries can be attributed to the excess load of military equipment and gear. Therefore, the purpose of this study was to determine the impact of load on landing mechanics in recreationally active participants.

Methods

Fifteen (6 men and 9 women) recreationally active participants (20.27 ± 0.704 yrs; 170.57 ± 11.33 cm; 75.86 ± 19.91 kg) were recruited for this study. Participants performed three drop jump (DJ) tasks from a 30cm box placed 10% of the participant's height away from a target. These tasks were performed with and without personal protective equipment (PPE) (improved outer tactical vest [5.2 kg] and combat helmet [0.7 kg]). Trials were recorded using two, digital HD video cameras at 120 frames per second. Videos from these trials were then evaluated using the landing error scoring system (LESS). Total scores from each of the three trials were averaged. The main outcome measures were average LESS scores with and without PPE.

Results

A paired-samples t test was calculated to compare mean unloaded trial LESS scores to mean PPE trial LESS scores. The mean of the unloaded condition was 4.85 ± 1.40 , and the mean of the PPE condition was 4.70 ± 1.49 . No significant difference from unloaded to loaded trials was found ($t(14) = 0.467$, $p = 0.648$).

Conclusion

The results of this study show that there is no significant impact on landing mechanics which result from PPE conditions. Future research should seek to incorporate active military personnel into the subject group in order to evaluate differences in LESS scores.

Abstract #29: REVISITING UNLICENSED CHANNEL ACCESS SCHEME OF 5G NEW RADIO

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Background

As the second phase of 5G standardization efforts encapsulated in Release 16 comes to its freeze and completion date in June 2020, aspects of some promised features and services started to crystallize. Among of which, New Radio (NR)-based access to unlicensed spectrum, commonly known as 5G NR-U. Current technical reports have identified Listen-Before-Talk (LBT) as a working assumption in the process of standardizing NR-U channel access scheme. LBT was originally developed for Licensed-Assisted Access (LAA) in release 13 of the 3GPP specifications, which was based on ETSI regulations. This research examines how next-generation wireless systems using LBT perform under vastly presumed 5G NR dense deployments, and how the coexistence landscape manifests in the homogeneous prospect rather than the widely investigated heterogeneous counterpart, e.g. with Wi-Fi.

Methods

In this work, a simulator was developed in C++ to help analyze different intra-network NR-U co-channel scenarios under saturated traffic. The simulator was validated with Markov Chain analytical model to confirm the procedures and algorithms conform to the standard delineated by the 3GPP specifications.

Results

Simulation results indicated inefficiency in channel utilization of homogeneous dense deployments with high priority traffic classes. For instance, the effective channel utilization drops to less than 10% when only 20 devices share the channel with traffic tagged as priority 4, e.g., voice calls. Moreover, mean delay between successful packet transmissions in aforesaid scenario turned out to be around 1 second and exponentially increasing with the number of devices sharing the channel. We demonstrated through simulations how LBT devices can be unfair when sharing the channel with others exhibiting different traffic priority classes. A video streaming device – i.e. class 3 – for example, takes away 42% of the channel when sharing it with other 7 devices browsing the internet – i.e. class 2 – leaving them with 34% of useful channel time to split. The remaining 24% of the time packets collide with each other, rendering the channel futile and reducing the overall throughput.

Conclusion

Literature is inundated with research on cross-technology coexistence analysis. This work aims to study same-technology wireless coexistence performance and underlines the importance of improving channel access mechanisms in next-generation wireless communication.

Abstract #30: ON SAFEGUARDING VISIBLE LIGHT COMMUNICATION SYSTEMS AGAINST ATTACKS BY ACTIVE ADVERSARIES

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Background

We consider an indoor visible light communication (VLC) system comprising of a transmitter (Alice) and a receiver (Bob). The communication from Alice to Bob is prone to active attacks by a malicious node (Eve) installed nearby. Specifically, when the VLC channel contains idle slots, Eve launches an impersonation attack—thus, the VLC channel becomes orthogonal multiple access (OMA). On the other hand, when the VLC channel remains fully occupied by Alice, Eve is left with no choice other than to transmit simultaneously and this constitutes a jamming attack—thus, the VLC channel becomes non-orthogonal multiple access (NOMA). To thwart the impersonation attack, Bob authenticates the received packets via binary hypothesis testing (BHT) by utilizing the channel gain as the transmit device fingerprint. As for the jamming attack, Bob treats Eve’s interference as Gaussian noise to recover the data sent by Alice. We further study two different physical scenarios: a room and a corridor, respectively. In the former, Bob remains static, while in the latter, Bob is mobile. Thus, for the corridor scenario, Bob tracks Alice’s channel via a linear Kalman filter whose prediction is then fed to the BHT as the ground truth.

Methods

We study active attacks on a VLC system under two different physical scenarios: a room whereby Bob remains static, and a corridor whereby Bob is mobile. For both scenarios we do: i) feature-based impersonation detection for OMA VLC channel; ii) recovery of Alice’s data by treating Eve’s interference as noise for NOMA VLC channel.

Results

Simulation results show that: i) for OMA VLC, authentication becomes more effective as Eve’s distance to Bob becomes more dissimilar to Alice’s distance to Bob; ii) for NOMA VLC, the average decoding error probability increases approximately logarithmically with the increase in the interference power of Eve.

Conclusion

This work utilized feature-based BHT to thwart the impersonation attack by Eve. As for the jamming attack, Bob recovered Alice’s data by treating the interference of Eve as Gaussian noise. Noting that the received power at Bob due to NOMA is greater in general than the received power due to OMA, the discrimination between NOMA and OMA could be done via a simple energy test to trigger the appropriate defense mechanism accordingly. Finally, mobility of Bob degrades the performance of the BHT for VLC OMA, and prompts us to use lower-order modulation schemes for VLC NOMA.

Quality Improvement

Abstract #31: MANAGEMENT PATTERNS OF CHRONIC PANCREATITIS: AN ANALYSIS OF THE NATIONAL INPATIENT SAMPLE

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Background

Chronic pancreatitis is a complex disease associated with recurrent hospitalizations and interventions. A lack of standardized management algorithms and lack of access to the necessary highly specialized physicians has led to highly variable care for these patients. The purpose of this study was to evaluate the trends in management of patients with chronic pancreatitis in the United States.

Methods

A retrospective analysis of the Nationwide Inpatient Sample (HCUP-NIS) from 2007 to 2016 was performed. Patients 18 years of age and older who were admitted under primary diagnosis of chronic pancreatitis were included for analysis. Patient demographic factors, interventions (surgical, endoscopic, percutaneous), length of stay, discharge disposition, and mortality over the study period were evaluated. Statistical analyses to evaluate significant trends in care were performed.

Results

A total of 32,563 patients (age 48.87 ± 13.9 years, 49.1% female) were analyzed. Alcoholic chronic pancreatitis was identified in 8793 patients (27%). Average overall length of stay was 5 ± 5.7 days. The majority of the patients were discharged home to self-care (72.0%), 1.6% were discharged to an inpatient rehab, 6.7% with home health care, and 3.2% were sent to skilled nursing facility. 114 (0.4%) of patients died during their hospitalization. 4904 patients (15.1%) underwent interventions, which increased during the study period from 13.3% in 2007 to 15.8% in 2016 ($P < 0.001$). Endoscopic interventions were performed in 2462 (7.6%) and percutaneous procedures in 440 (1.4%) patients, which were both stable during the study period. Surgery was performed on 2235 (6.9%) patients, which increased from 4.8% in 2007 to 8.2% in 2016 ($P < 0.001$). Pancreatic surgical procedures were the most common (2187 of 2235; 97.9%), of which resective procedures were most commonly performed (1589/2187; 72.7%). Pancreatic surgical procedures increased in frequency over the study period from 4.7% in 2007 to 8.2% in 2016 ($P < 0.001$), with resective procedures increasing from 3.3% to 6.1% ($P < 0.001$). Overall mortality was 0.9% in surgical group ($P < 0.001$), but 0.4% in patients with endoscopic interventions ($P = 0.893$).

Conclusion

There is an increasing rate of interventions being performed on chronic pancreatitis patients in the United States. Surgical procedures are becoming more frequently performed on chronic pancreatitis patients, with an increased frequency and predominance of resective procedures. These results suggest a surprisingly long length of stay and low rate of endoscopic interventions compared to surgical interventions. There is therefore a need for evidence-based consensus guidelines for the management of chronic pancreatitis, including centralization of care to centers with advanced endoscopic and surgical specialists.

Abstract #32: IMPROVING PRIMARY CARE FOLLOW-UP AFTER PEDIATRIC HOSPITALIZATION

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Ms. Gabby Fleming - OU-Tulsa

Ms. Heather McIntosh - OU-Tulsa

Dr. Michelle Condren - OU-Tulsa

Background

Transitioning patient care to primary care physicians after pediatric hospitalization plays a critical role in children's health. Follow-up appointments are an ideal time to provide education, address concerns, and arrange for continuity of care.

This quality improvement (QI) study aimed to improve the percentages of primary care clinic follow-up within 7 days of hospital discharge.

Methods

Using the Plan-Do-Study-Act (PDSA) Model for Improvement, a multidisciplinary team examined pre-implementation data for patients discharged from the children's hospital in February 2018. Electronic medical record (EMR) review was performed to determine if follow-up appointments were scheduled and attended within 7 days of discharge. Four week PDSA cycles were then completed by the medical residents, pediatric hospitalists and a care transition coordinator. Cycle 1 (n=25) involved developing an EMR-based shared patient list to identify all patients needing follow-up. In Cycle 2 (n=69), monthly standardized resident education was implemented to optimize use of the shared patient list. In Cycle 3 (n=81), a discharge appointment template was used to schedule appointments for patients discharged on weekends.

Results

Percent of appointments scheduled increased throughout the PDSA cycles from baseline (baseline - 60%; cycle 1 - 72%; cycle 2 - 74%; cycle 3 - 85%), as well as percent of appointments attended (baseline - 56%; cycle 1 - 56%; cycle 2 - 61%; cycle 3 - 70%) with $p < 0.001$. Clinic follow-up was lower for patients with chronic illnesses but did improve from cycle 1 (42%) to cycle 3 (67%). The percentage of appointments scheduled for weekend discharges was not significantly different from weekday discharges, and increased from baseline over the course of the PDSA cycles.

Conclusion

The number of follow-up appointments both scheduled and attended increased throughout the study, suggesting that the QI measures implemented were effective. Further interventions will focus on patient and system barriers to appointment attendance.

Abstract #33: EMERGENCY DEPARTMENT UTILIZATION AND HIERARCHICAL CONDITION CATEGORY RISK SCORES

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Dr. Juell Homco - OU-TU School of Community Medicine

Background

The Centers for Medicare and Medicaid Services (CMS) introduced Comprehensive Primary Care Plus (CPC+) to improve the quality of primary care services nationwide. CPC+ utilization measures use a risk-adjustment model to predict utilization for different patient populations. Risk is determined using Hierarchical Condition Categories (HCCs), which are based on ICD-10 codes and patient demographics. Since patients with higher HCC scores are expected to have higher utilization rates, CMS uses these calculations to compare practices and categorize patients into “risk tiers,” which guide payments.

OUSCM participates in CPC+ (Track 2). In order to track our patients’ emergency department utilization (EDU), search for patterns of use, and identify opportunities for quality improvement, we sought to determine (1) what associations exist between HCC risk tiers and patterns of EDU and (2) what patient characteristics are associated with HCC risk scores.

Methods

We analyzed cross-sectional CPC+ data for fiscal year 2018 provided by CMS. We performed multiple linear regression, Tukey’s method, and independent-samples t-tests to explore possible relationships between EDU, HCC risk score and associated risk tiers (range 1-5), and patient characteristics, such as dual-eligibility status and age. The study population included 906 Medicare-only and 1173 dual-eligible patients aged 18 years and older attributed to the OUSCM Internal Medicine (n=1122) or Family Medicine (n=957) practice.

Results

Our patient population had a median HCC risk score of 0.93 (CMS-reported Oklahoma median risk score = 0.74). We found that 56.4% of our patients were dual-eligible compared to the national average of 19.4%. Tukey multiple comparison test demonstrated significant differences between risk tiers and ED visits ($p < .05$). Dual-eligible patients had a higher average HCC risk score than Medicare-only patients ($t(2072) = 8.491$; $p < .00001$) and a higher average number of ED visits ($t(2077) = 3.9577$; $p < .00001$). Age was weakly correlated with HCC risk scores ($r = .074$, $p = .0228$). Density analysis of HCC scores by age revealed evidence of low-risk clustering for adults between 45 and 75 years of age.

Conclusion

HCC risk tier classifications are predictive of EDU rates in our patient population. However, our overall HCC score was lower than anticipated given the complexity of our patient population. Dual-eligible status was associated with higher risk and EDU rates. However, age—typically an independent predictor of morbidity and mortality—was only weakly correlated with HCC scores, suggesting clinicians may be undercoding encounters for adults between the ages of 45 and 75 years, which decreases revenue.

Abstract #34: RACIAL AND ETHNIC DISPARITIES IN PATIENTS WITH RUPTURED ABDOMEN AORTIC ANEURYSM

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Dr. Vernon Horst - The University of Oklahoma School of Community Medicine

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Dr. Hyein Kim - The University of Oklahoma School of Community Medicine

Background

The incidence of abdominal aortic aneurysm (AAA) continues to rise and high morbidity and mortality exist among patients with ruptured AAA (rAAA). Therefore, screening and prevention are critical. Previous studies suggest that clinical presentation and treatment modalities for intact AAA vary among racial groups. The aim of our study was to assess racial and ethnic disparities in patients with rAAA

Methods

We performed a 2-year (2015-2016) retrospective analysis of the National Surgical Quality Improvement Program (NSQIP) database including all patients with AAA undergoing surgical intervention. Patients were stratified based on ruptured and non-ruptured and based on race and ethnicity. Primary outcome: racial and ethnic disparities on presentation and in-hospital patient outcomes. Missing variable analysis was performed. Regression analysis was performed to assess outcomes measures

Results

A total of 7043 patients with AAA were included of which 14% (n=986) were rAAA. 18.7% (n=1317) were open repair. African American (p=0.01) and Hispanics (p=0.04) were more likely to present with rupture while Caucasians were less likely to present with rupture (p=0.01). There was no difference in open or endovascular treatment between racial and ethnic groups. Among rAAA African Americans were more likely to have complications (1.18 [1.02 – 3.7], p=0.04) and higher mortality (1.15 [1.05 – 4.2], p=0.048). For Hispanics they were more likely to have complications post intervention for rAAA (1.12 [1.09 – 2.5], p=0.036). However, there was no difference in mortality.

Conclusion

Racial and ethnic disparities present among patients with AAA during initial presentation (intact vs ruptured) and outcomes after intervention for rAAA. African American and Hispanics were more likely to present with rAAA. African Americans and Hispanics had higher complications rate after intervention for rAAA. In our study, there was no difference in treatment modality offered. Further studies are warranted to help better understand the reasons for potential disparities in AAA screening and prevention of rupture among different racial and ethnic groups in order to provide effective and equitable health care to prevent vascular emergency such as rAAA.

Abstract #35: IMPROVING THE UTILIZATION OF AN INTERNAL MEDICINE CLINIC PATIENT PORTAL

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Dr. Mark Street - University of Oklahoma
Dr. Kory Drake - University of Oklahoma
Dr. Amritanshu Singh - University of Oklahoma
Dr. Kaleb Vaughn - University of Oklahoma

Ms. Lindsey Gusman - OU Physicians
Ms. Gina Mullins - OU Physicians
Ms. Vicki Minton - OU Physicians
Dr. Brent Beasley - University of Oklahoma
Dr. Audrey Corbett - University of Oklahoma

Background

Our internal medicine clinic utilizes an electronic patient portal to improve communication and help achieve the healthcare triple aim of reducing costs, enhancing patient experience, and improving health. Previous quality improvement efforts focused on improving patient enrollment in the portal. Subsequently, these endeavors resulted in greater portal utilization by patients. We intended to continue to employ quality improvement methods to increase use of portal secure messaging to staff and decrease the patient call to visit ratio. Our aim was to increase utilization of portal secure messaging by 10% by March 2020.

Methods

Previous improvement efforts utilized the Plan-Do-Study-Act (PDSA) model. These PDSA cycles included care managers advertising the portal during phone calls and front desk staff explaining the portal during the check-in process. We implemented further changes with this model.

PDSA #1: Laminated flyers containing instructions for portal registration were placed at the check-in desk. PDSA #2: The resident physicians were instructed in communication through the portal and encouraged to use it with their patients. PDSA #3: Instructions for portal registration were placed at the top of the clinical visit summary document given to patients at the end of their office visit.

Data was collected which included the monthly number of secure portal messages from patients to clinic staff and patient call to visit ratios. The ratios were calculated by comparing the total number of calls to the clinic to the number of visits over a month-long period. These data points were plotted on XmR charts to determine significant trends and averages.

Results

After implementation of the previous and current PDSA cycles, the number of monthly portal messages improved by 54% from an average of 101 to 156 messages per month. Of the current PDSA cycles, advertising with flyers had the greatest impact on messaging. The monthly call to visit ratios decreased from a mean of 3.33 to 3.03 calls per visit. The previous intervention of advertising by front desk staff had the largest impact on decreasing this ratio.

Conclusion

Our project indicates patient portal utilization improved through education of medical staff and simple marketing approaches incorporated into the clinical workflow. Further data collection is needed to assess if there is additional improvement due to recently implemented PDSA cycles. Also, correlating time saved by staff and the content of portal messages would provide valuable information. Ultimately, greater adoption of the patient portal could lead to improvements in healthcare cost, quality, and effectiveness.

Abstract #36: QUALITY IMPROVEMENT PROJECT TO IMPROVE RATES OF GONORRHEA AND CHLAMYDIA SCREENINGS

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Dr. Syeachie Dennis - OU-TU School of Community Medicine

Background

Gonorrhea and chlamydia (GC/CT) are the two most common sexually transmitted infections (STIs) reported in the US, with more than 1.4 million cases of CT and 330,000 cases of GC reported to the CDC in 2012. Age is a strong predictor of GC/CT infections, with the majority of infections occurring in females under 25. The US Preventive Services Task Force recommends screening sexually active females age 24 and younger. Up to 85% of commercially insured patients who meet screening guidelines are not screened. Reasons for under screening include social stigma, clinician reluctance to discuss sexual history, the unwillingness of certain payers to cover STI screening. Screening is cost-effective due to the significant financial burden from the sequelae of untreated infections. The goal of this quality improvement project was to increase the screening rates for GC/CT for female patients age 15-24 years old.

Methods

An EMR query was conducted to collect baseline data on OU Family and Community Medicine clinic female patients ages 15-24 years old seen in the clinic between 10/09/2018-10/09/2019. PDSA-1 (11/01/2019-12/31/2019) used huddle reports to identify eligible patients at the beginning of each clinic session. In an effort to decrease a potential barrier to discussing STI screening, PDSA-2 (01/01/2020-02/29/2020) utilized a patient survey to identify patient eligibility and their willingness to screen. To further test our methods, PDSA-2 was expanded to include an adjacent clinic module.

Results

At baseline, 10% of females age 15-24 years who were seen in the clinic within the last year were screened for GC/CT. PDSA-1 resulted in an increase in screening rates, for eligible individuals, initially to 11% and then to 28.6%. PDSA-2 screening rates fell to 15.0% in the original module and 22.5% in the adjacent clinic module; however, data collection is still ongoing for PDSA-2.

Conclusion

The baseline data showed a screening rate of 10%, but the query was not able to determine if all patients met eligibility criteria, which may skew baseline data. The national screening rates for GC/CT range from 15 to 50%. Barriers to screening are multifactorial and were recognized throughout the data collection. Our initial PDSAs attempted to overcome the barriers of patient and provider unwillingness to bring up the topic and lack of time during the visit. Provider-nursing communication was also identified as a barrier. Future directions include educating patients via printed materials and continued education of providers-nurses on the importance of this screening recommendation.

Abstract #37: ENHANCING AAA SCREENING AT THE OUFCEM CLINIC

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Dr. Franklin T. Perkins - OU-TU School of Community Medicine

Dr. Jennifer Weakley - OU-TU School of Community Medicine

Background

Abdominal Aortic Aneurysms (AAA) are enlarged, dilated, and weakened portions of the aorta within the abdominal cavity. They are often benign and asymptomatic but can be life threatening if they rupture with an estimated mortality of 81%. People with the highest risk are older male smokers. The US Preventive Service Task Force (USPSTF) recommends that all men aged 65-75 who have ever smoked receive a onetime ultrasonography screening. The goal of our Quality Improvement project is to improve AAA screening at the OU-TU Family and Community Medicine (OUFCM) Clinic by 5% for this population by 06/2020, through education and bedside ultrasonography (BSUS).

Methods

Baseline data was collected from the clinic dashboard and patient panels of two residents at OUFCM (intervention group) and two of the three clinic modules comprised of other residents (control group) 09-10/2019. Patients who met the criteria for the study were males aged 65-75 who had ever smoked and were due for an AAA screening. Clinic staff or the physician called all participants in 11/2019 to discuss the importance of AAA screening. The intervention group was scheduled for an appointment with education and BSUS and then referred for a formal AAA screening. The control group was only referred for a formal AAA screening. All patients were then followed from 12/2019-03/2020 to see if they obtained a formal AAA screening.

Results

Fifty-two (52) patients met inclusion criteria (control N=37, average age 69; intervention N=15, average age 68). The PDSA resulted in 53% (8/15) patients from the intervention group being scheduled and seen for an appointment with education and BSUS, of which 38% (3/8) patients completed the formal AAA screening. For the control group, 46% (17/37) agreed to a referral but only 6% (1/17) completed a formal AAA screening.

Conclusion

The OUFCM outpatient clinic serves an older patient population with a high prevalence of tobacco use who would benefit from the USPSTF recommended screening for AAA. The USPSTF report population-based screenings have a low uptake, ranging from only 1.6%-7.2%; therefore, the authors felt that a 5% increase would be clinically meaningful. BSUS is a simple tool for primary care providers, and in our study, it did enhance completion rates for our patients. Areas of concern include entry of the result into the correct location within the electronic medical record, timely follow-up to ensure completion of screening, and communication between AAA screening facility and patient for scheduling effectiveness.

Abstract #38: RESIDENT-LED EHR TRAINING IN AN ACADEMIC AMBULATORY CLINIC, CONTINUED

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Dr. Rachel Wilson - OU-Tulsa School of Community Medicine

Dr. Shannon Gwin - University

Dr. Bernadette Miller - OU-Tulsa School of Community Medicine

Dr. Martina Jelley - OU-Tulsa School of Community Medicine

Dr. Blake Lesselroth - OU-TU

Background

Despite widespread use of electronic health records (EHR), residents continue to struggle with effectively navigating these systems. Evidence shows that the traditional classroom training is insufficient for new EHR users, yet we found no studies that have evaluated or disseminated the effectiveness of alternative training methods. Consequently, during the previous academic year we developed a comprehensive, “hands-on” training course for the incoming PGY1 residents with the aim of improving the competency and efficiency of using the EHR system. We continued the training course this academic year.

Methods

Participants included all PGY1 Internal Medicine residents (n=12). The incoming interns participated in the standard 4-hour classroom EHR training taught by the on-campus EHR specialist during orientation week. After completion of the conventional training, a faculty member not involved in the training administered an assessment to evaluate the interns’ understanding and utilization of basic functions of Centricity EHR. Time spent to complete each task was measured during the assessment. From these results, we identified common problem areas/deficiencies and designed a comprehensive resident-led training that included placing orders, e-prescribing, reviewing labs and test results, etc. The training was delivered during the first week of +1 ambulatory block by PGY2/PGY3 residents (n=18) and consisted of three one-hour sessions. At the conclusion of the training, the interns completed an assessment administered by the same faculty member. Time spent per task was again measured during the assessments. Finally, interns completed a satisfaction survey after the training course.

Results

Interns were evaluated by a 13-item workflow skills assessment before and after receiving the resident-led training. The assessment required the intern to demonstrate each function/skill in real-time with each skill graded based on the ability to complete tasks independently, with assistance, or needing additional training. Before the training, 38% of interns were able to perform basic EHR tasks independently. After the training, 76% of participants achieved competency. Overall there was an average of 10 min. and 39 s. saved from pre to post, indicating interns became more efficient after receiving the training. Finally, the interns indicated they would likely recommend the training course with a mean score of 8.38 out of 10.

Conclusion

Although EHR systems are a necessity in clinics, resident’s EHR training remains subpar. We demonstrated that conventional EHR training is insufficient and that resident-based training has a significant impact on the effective utilization of EHR in every day clinical situations.

Abstract #39: AN INFORMATIONAL LETTER'S IMPACT ON PARENT PERCEPTIONS AND UNDERSTANDING OF ADOLESCENT CONFIDENTIALITY

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Dr. Susan Studebaker - OU- Tulsa School of Community Medicine

Background

Adolescence is a period of rapid emotional, behavioral, social, and physiological change in a child's development. Evidence is conclusive that teens are more likely to engage and revisit their provider in a confidential setting. Parents frequently express hesitancy or opposition when asked to leave the room for the confidential portion of the visit. Studies have shown that while 89% of parents believe that adolescents should speak to a provider one-on-one, about 61% of parents wish to be in the exam room for the entire visit.

The goal of this quality improvement project was to determine if parental perceptions and understanding of confidentiality in the adolescent visit could be improved by providing an informational letter before the clinical visit.

Methods

A letter that defined adolescent confidentiality was created and addressed to parents regarding their child(ren)'s transition to adolescent care. This letter, along with a pre- and post-letter survey, was given to parents at annual adolescent well-visits. The survey assessed attitudes and knowledge related to adolescent confidentiality. The knowledge section asked parents to define confidentiality in the adolescent context. The responses were graded as "correct," "partially correct," and "incorrect." Three Plan-Do-Study-Act (PDSA) cycles were completed, revising the succinctness and clarity of the letter and the survey in between each cycle. This yielded a total of 64 responses between spring 2018 and fall 2019.

Results

Across all PDSA cycles, the letter was reportedly easy to read. A 60% and 17% increase in parental favorability regarding adolescent confidentiality was seen in cycles 1 and 2. Letter clarity and succinctness were not correlated with parental perceptions, indicating little association between letter "improvements" and parental perceptions. Parental understanding of confidentiality was mixed. With each cycle, there was no significant correlation between reading the letter and likelihood of choosing the most "correct" answer. However, a 25% and 100% increase in combined "slightly correct" and "correct" answers in 2 of 3 cycles was seen. There was also an average 34% decrease of "incorrect" answers across all 3 cycles.

Conclusion

An explanatory letter may advance parents' understanding and appreciation for adolescent autonomy; however, there is room for improvement in both areas, which will require alternative interventions.

Abstract #40: INITIAL EXPERIENCE WITH PERCUTANEOUS CREATION OF ARTERIOVENOUS FISTULA FOR DIALYSIS ACCESS

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Dr. Vernon Horst - The University of Oklahoma School of Community Medicine

Dr. Kelly Kempe - The University of Oklahoma School of Community Medicine

Dr. Hyein Kim - The University of Oklahoma School of Community Medicine

Dr. Mark Randel - Eastern Oklahoma VA Health Care System

Dr. William Jennings - The University of Oklahoma School of Community Medicine

Dr. Peter Nelson - The University of Oklahoma School of Community Medicine

Background

800,000 people in the United States are currently being treated for end-stage kidney disease with 1600 per million on hemodialysis. Creation of an arteriovenous fistula (AVF) has long been the procedure of choice for hemodialysis access; however, until recently this procedure required a surgical incision. The recent development of the Ellipsys device has allowed physicians to perform this through a simple needle stick and ultrasound guidance. Here, we describe our initial experience and patient outcomes with percutaneous AVF (pAVF) creation.

Methods

We reviewed prospectively collected data on our first 43 patients undergoing percutaneous creation of AVF using the Ellipsys Vascular Access System (Avenu Medical Inc.). We examined if the created fistula displayed blood flow on ultrasound the day of the procedure (technical success), and whether that fistula reached maturation without further intervention or if another procedure was required.

Results

All cases were performed in an outpatient procedure center. Technical success was 88.3%. There were 7 early occlusions requiring standard surgical AVF creation and 21 patients required early fistulagrams/ maturation procedures. 11 patients have clinically mature AVF but are not yet on dialysis, while 15 patients are currently dialyzing. Overall, the primary-assisted patency; those pAVF procedures that had initial technical success but later required another procedure to aid in maturation, is 79.1% for the entire cohort.

Conclusion

Utilizing the Ellipsys pAVF device leads to a shorter procedure time, usually only local or regional anesthesia is required, and results in higher patient satisfaction due to the fact that it is minimally invasive. However, for the physician there is a significant learning curve that exists. This is due to the interpretation of the low-flow hemodynamics in these fistulas, when and where to access the mature pAVF, and how to effectively communicate strategy with dialysis centers. Our initial results for technical success and primary-assisted patency are slightly lower than seen in other cohort, but this can largely be contributed to the physician learning curve.

Social Behavioral

Abstract #41: THE UNDERSTANDING OF SKIN CANCER, SUSCEPTIBILITY, AND PREVENTION IN UNINSURED PATIENTS

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Dr. Sarah Beth Bell - ORDSA, OU-TU School of Community Medicine

Dr. Martina Jelley - University of Oklahoma School of Community Medicine

Background

This study examined skin cancer and sun protective awareness in a student-run clinic for uninsured patients. As part of the healthcare safety net for the underserved, these clinics allow medical students opportunities for hands-on experience while building patient-physician relationships and providing access to an unmet need in their communities. The goal of this study was to identify subpopulations within the uninsured clinic population with knowledge gaps in sunscreen and skin health in order to target additional sun protection education towards these populations.

Methods

Study participants completed a short survey which was available in both English and Spanish. It adapted questions from two scales, the Skin Cancer Awareness Scale and the Sun Protection Scale. In addition, it contained questions the study authors wrote to supplement the information in these two scales. We used an independent samples *t*-test to make a gender comparison about skin cancer awareness. We also used a linear regression to see how age affected sun protection behaviors.

Results

256 participants completed the survey. This study had several primary results. Women were found to have higher skin cancer awareness than men ($t(124)=2.42, p=0.017$). PoC were found to use more sun protection behaviors than White people, $t(118)=2.47, p=0.015$. There were no differences in skin cancer awareness between PoC and White populations. In all groups, sun protection behaviors were found to increase with age, $B=0.04, SE=0.02, p=0.027$.

Conclusion

There are several conclusions from this study. These results suggest that young men are the most likely lack sunscreen awareness and consequently have poorer unprotected sun behavior, reflecting trends seen on a national level. The differences in PoC and White populations is multifaceted, pertaining increasing physician awareness of racial biases, differences in motivation for sun protection, and occupational education. There are several ways that providers can improve the health awareness gap among this population from through public health initiatives. First, culturally appropriate education is a proven method increasing skin cancer awareness and knowledge of susceptibility. Second, cost of sunscreen is a barrier to many of these patients. Providing free sunscreen dispensers in public facilities, like parks, outdoor labor sites, or gathering places for those without shelter could increase sunscreen usage and decrease incidence of regular sun damages.

Abstract #42: DEVELOPMENT OF ASSESSMENT TOOL TO MEASURE SOFT SKILLS OF HEALTHCARE PROVIDERS

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Background

The objective of the study is to develop and validate an assessment tool to measure soft skills in the performance of healthcare providers during patient encounters in primary care settings. The assessment tool will address a gap in performance measurement systems of healthcare providers and patient surveys about soft skills that most influence the way service is delivered and perceived during provider-patient interactions. In this study, the Iceberg Model of Managerial Competencies was used to define the construct and develop a conceptual model of soft skills. Soft skills are commonly referred to as *bedside manner*.

Methods

The study implemented a mixed methods approach. The first phase used qualitative focus groups and semi-structured personal interviews to collect primary data from 62 participants from users (n=35) and providers (n=27) of healthcare services using a purposeful and snowball sampling strategies. Quantitative surveys were utilized to examine content and face validity. The first refined draft of the assessment tool was developed and obtained content and face validity through conducting qualitative focus groups and semi-structured personal interviews with six subject matter experts and a quantitative survey of 14 individuals representing users of healthcare services. Subject matter experts were recruited using purposeful sampling strategy, and users of healthcare services were recruited using availability sample from the target population. Ongoing data collection using a quantitative survey will further inform the factorial structure of the scale.

Results

Ten soft skills were identified as the most essential soft skills for provider-patient interaction in primary care setting. A pool of 198 items were generated from the content analysis process. The final refined draft of the assessment tool consists of 49 items rated on 6-point Likert-type scale, measuring Verbal (personal) and non-verbal communication (15 items), empathy (5 items), compassion (4 items), caring (6 items), listening (5 items), respect (4 items), friendliness (4 items), and trust (6 items).

Conclusion

The scale obtained excellent content validity with S-CVI/Ave = .96, and S-CVI/UA = .92. Psychometric evaluation of score reliability and construct validity for the final draft of the assessment tool will be reported.

Abstract #43: PERCEIVED ORGANIZATIONAL AND SOCIAL SUPPORT AS PROBABLE MITIGATORS OF BURNOUT AMONG MEDICAL TRAINEES AND PROVIDERS

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Mr. Auston Stiefer - OU-TU School of Community Medicine

Ms. Marie Fawad - University of Oklahoma

Ms. Heather McIntosh - Office for Research Development & Scholarly Activity

Dr. Krista Kezbers - Office for Research Development and Scholarly Activity

Dr. Bryan Touchet - OU-TU School of Community Medicine

Background

National trends show that employees and trainees in the medical field are susceptible to burnout. To our knowledge, no studies have been published on burnout moderators, such as perceived support and lifestyle behaviors. This study is part of a larger, longitudinal investigation examining the relationships among burnout, levels of perceived stress, levels of perceived support (social and organizational), and several lifestyle behaviors for faculty, staff, residents, fellows, and students at the OU-TU School of Community Medicine (OUSCM).

Methods

Investigators sent an email survey to every member of the OUSCM in April 2019. It included validated measures such as the Maslach Burnout Inventory (MBI), University of Delaware Survey of Perceived Organizational Support, and the Multidimensional Scale of Perceived Social Support, alongside questions about lifestyle behaviors. MBI subscores of exhaustion and cynicism were stratified in the analysis. SPSS software was used to conduct Pearson correlations among these variables.

Results

318 responses were collected (35% response rate), with respondents' demographic data representing the white (67.7%), women (78.1%), and staff (57.2%) members of the population. Among the whole sample, levels of perceived organizational support had a moderate negative correlation relative to burnout subscores of exhaustion ($r = -.556$, $p < 0.001$) and cynicism ($r = -.558$, $p < 0.001$). Likewise, levels of perceived social support had a weak negative correlation to exhaustion ($r = -.169$, $p = 0.008$) and cynicism ($r = -.233$, $p < 0.001$). Among the disaggregated subgroups of students and faculty, moderate negative correlations were found between perceived social support and burnout subscores. Social support had a moderate negative correlation only with cynicism among students ($r = -.453$, $p = 0.006$), while social support had moderate negative correlations with both exhaustion ($r = -.514$, $p < 0.001$) and cynicism ($r = -.555$, $p < 0.001$) among faculty. There were no significant relationships found between these two variables among staff members and resident physician subgroups.

Conclusion

Because of a low response rate, our sample's demographics may not be representative of our populations and may potentially limit generalization based on these results. However, the significant correlations found in whole sample analysis between perceived organizational and social support relative to burnout suggest that these variables may lessen the effects of burnout in our population. Moreover, subgroup analysis suggests that social support is a more important potential mitigator of burnout only in students and faculty, when compared to staff and residents. Furthermore, this finding supports that burnout levels within distinct subgroups of our population may be mitigated by different variables.

Abstract #44: HIGH CRIME NEIGHBORHOODS AS A DRIVER FOR TOXIC STRESS LEADING TO ASTHMA

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Ms. Amy Hendrix - OU-TU School of Community Medicine
Ms. Eden Hemming - OU-TU School of Community Medicine
Mr. Ric Munoz - OU-TU School of Community Medicine
Dr. Taylor Couch - OU-TU School of Community Medicine
Dr. Carmen Gent - OU-TU School of Community Medicine
Dr. Juell Homco - OU-TU School of Community Medicine
Mr. Shawn Schaefer - OU-Tulsa
Ms. April Merrill - OU-TU School of Community Medicine

Background

Social determinants of health and allostatic load theory suggest social environment can drive asthma diagnoses via the mechanism of toxic stress, the prolonged activation of stress response systems. While research has linked neighborhood crime to asthma, multivariate causal modeling has not been used to test toxic stress as the mechanism that links the two. The current study investigates neighborhood crime as a driver of pediatric asthma diagnoses via toxic stress.

Methods

A retrospective geospatial analysis of health and crime data was conducted. Health data was collected from the OU-Tulsa General Pediatric Clinic's Electronic Medical Record while crime data was collected from the Tulsa Police Department. All variables were mapped geospatially using census tract as the unit of analysis. Structural equation modeling was used to test the causal model. Neighborhood crime indicators included homicide, rape, and narcotic-related offenses. Diagnoses of conduct, attention deficit, and other anxiety disorders were used in the analysis as toxic stress indicators. Asthma diagnoses were the outcome variable. To further test the model, data from 2016 was used as a calibration sample while data from 2017 was used as a validation sample.

Results

A full mediation model of high crime neighborhoods ($n = 134$) as a driver of toxic stress resulting in increased asthma diagnoses fit the 2016 data well ($X^2 = 15.6$, $p = .27$; $df = 13$; RMSEA = .04 [90% CI: .00, .10]; CFI: .99; SRMR = .04). The results indicated the model accounted for 78% ($R^2 = .78$) of the variance in asthma diagnoses. The model also provided a good fit to the 2017 data ($X^2 = 23.6$, $p < .001$; $df = 13$; RMSEA = .08 [90% CI: .02, .13]; CFI: .96; SRMR = .06).

Conclusion

The results of the current study have important practice and research implications. While clinicians and researchers have become increasingly aware of the impact of social determinants of health, there has been little focus on improving clinical practices. Physicians interested in alleviating the burden of toxic stress and asthma should explore ways to reduce neighborhood crime at the policy level while also being aware of each of their patients' unique circumstances in relation to where they live.

Abstract #45: FACTORS INFLUENCING PHYSICIAN TREATMENT STRATEGIES IN CROTALINE SNAKE ENVENOMATION

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Ms. Elise Knowlton - OU-Tulsa School of Community Medicine

Ms. Amy Hendrix - OU-Tulsa School of Community Medicine

Dr. Michelle Condren - OU-Tulsa School of Community Medicine

Dr. Megan Woslager - OU-TU School of Community Medicine

Background

Crotaline snake envenomation is a potentially serious medical condition that affects thousands of Americans each year. There continues to be variation in treatment practices by physicians in the United States despite guidelines establishing the use of antivenom and supportive care as the mainstays for treating crotaline snake envenomation.

Methods

This study sought to determine associations between physician treatment strategies, snake identification (ID), venom effects, bite location and patient presentation. A cross-sectional review of electronic medical records (EMR) for patients diagnosed with venomous snake bites from July 1, 2014 to August 31, 2019 was completed. Data collected from the EMR included: patient demographics, transfer information, length of hospital and ICU stays, snake ID, bite site, progression of local tissue effects, additional clinical and lab results, patient comorbidities and complications, and provider treatment strategy.

Results

Of the 83 patients who met inclusion criteria, 68 patients (81.9%) received antivenom. None of the 15 patients who were under observation (no antivenom) for treatment went to the ICU. These patients experienced the shortest hospital stays ($H(2)=16.76$, $p<0.001$). Hospital stays were longest for patients envenomated by an identified rattlesnake or cottonmouth compared to patients envenomated by an unknown snake or copperhead ($H(2)=14.32$, $p<0.05$). Rattlesnake envenomations used more vials of antivenom than copperhead envenomations ($H(2)=8.76$, $p=0.01$). In a regression model of treatment strategy, progression of local tissue effects was the only statistically significant predictor of receiving antivenom while other independent variables including snake ID, patient age, hemotoxicity, systemic symptoms, site of the snakebite, and patient comorbidities were not significant predictors. Lastly, there was a statistically significant association between treatment strategy and opioid prescription, with 77.9% of patients who received antivenom also receiving an opioid for pain management vs. 33.3% of patients under observation (no antivenom) who received opioids (Fisher Exact Probability Test, $p=0.001$).

Conclusion

Envenomated patients are likely to be treated with antivenom if there was progression of local tissue effects. For patients in this study who were bitten by copperheads and unknown snakes, close observation without antivenom administration had favorable outcomes including shorter hospital stays and likely decreased hospital costs.

Abstract #46: QUEER-AFFIRMATIVE PRACTICE FOR MEDICAL AND SOCIAL WORK STUDENTS: AN INTRODUCTORY MODULE

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Mr. Ian Peake - OU-Tulsa School of Community Medicine

Mrs. Kristin Rodriguez - OU-Tulsa Simulation Center

Dr. Whitney Latham - College of Osteopathic Medicine, Oklahoma State University

Dr. Jedediah Bragg - Anne and Henry Zarrow School of Social Work; Hope Research Center

Mx. Eden Nay - Hope Research Center; Oklahoma State University

Dr. Tuan Nguyen - College of Osteopathic Medicine, Oklahoma State University

Background

Research suggests members of the sexual and gender minority (SGM) community fail to seek out medical care despite a higher prevalence of negative health outcomes, ranging from implicit bias to structural violence. In response, the OU-TU School of Community Medicine, the Anne and Henry Zarrow School of Social Work, and the Simulation Center at OU-Tulsa partnered with faculty from the OSU College of Osteopathic Medicine to design and implement a three-part education and training module promoting queer-affirmative practice among medical school and social work students.

Methods

This introductory module begins with a lecture-based overview of human sexuality that emphasizes caring for the specific healthcare and social needs of SGM populations. The initial lecture is followed by a high-fidelity simulation with standardized patient actors (SPs) to implement the practices discussed. To better provide an authentic simulation experience, special attention is taken to recruit SPs who identify as members of the LGBTQIA+ community. The simulation cases begin with a patient presenting a complaint of anxiety related to SGM status, requiring students to work collaboratively to adequately address those needs. Skills emphasized throughout the simulation include interprofessional communication, queer-affirmative practice, expressing empathy and building rapport with patients. Finally, all students engage in a debriefing process—first as pairs with their respective SPs, then as a collective group with all SPs and training facilitators.

All participants (N = 24) completed a standardized pre-post educational assessment, evaluating the development of clinical skills related to SGM populations, the importance of this material to their profession, their comfort working with SGM populations, their confidence in working with SGM populations, and the importance of affirmative practice to their profession.

Results

A repeated measures ANOVA analyzed changes over time, both within groups (i.e., all students) and between groups (i.e., medical/social work students). Results indicated statistically significant improvements within groups on all measures ($p < .05$) except attitudes (a subscale of the LGBTDOCSS) ($p = .382$) with all significant results having large effect sizes ($\eta^2_p > .2$). Additionally, results indicated no statistically significant difference between groups ($p > .05$). In sum, the results validate the affirmative-practice module as an effective teaching method for students, regardless of discipline.

Conclusion

The results of this study illustrate the capabilities of interdisciplinary education in the form of didactics and high-fidelity simulation to educate students on how to address the complex issues faced by SGM populations.

Abstract #47: PREDICTIVE FACTORS OF FOLLOW-UP IN EARLY LIFESTYLE INTERVENTION FOR CHILDHOOD OBESITY

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Ms. Elise Knowlton - Department of Pediatrics

Dr. Lamiaa Ali - Department of Pediatrics

Background

The Early Lifestyle Intervention (ELI) Clinic is an OU Physicians Pediatrics specialty clinic dedicated to helping children achieve healthier weights via behavioral modification through a multidisciplinary team approach. Children between 2–18 years of age from North Eastern Oklahoma are eligible for ELI referral if their BMI is at the 95th percentile or above. It is estimated that 30–40% of patients never make their ELI appointments after referral. This study explored predictive factors of patient follow-up to these appointments.

Methods

A retrospective chart review of 121 pediatric patients with ELI referrals made between January 2010 and March 2018 was conducted. Patients were grouped into three categories based on follow-up status for this intervention: immediate (attended first ELI appointment made at time of referral), late (did not attend first ELI appointment but eventually saw ELI provider), and never attended an ELI appointment. Demographic, medical, and social data were extracted from each patient's medical record, including comorbid conditions such as musculoskeletal pain and past medical interventions such as obesity counseling. Reported comorbidities and conditions in family medical histories were documented for each patient according to the organ system affected. Associations between clinical and family factors and follow-up status were evaluated using the χ^2 test, Fisher exact test, 1-way analysis of variance, and Kruskal-Wallis H test in SPSS.

Results

The majority of patients were Hispanic (n=73, 60.3%) and male (n=65, 53.7%), with an average age of 7.81 years (+ SD, 3.82 yrs). Frequency of obesity counseling from a healthcare provider and reported musculoskeletal pain differed significantly among groups. 31% of patients with timely follow-up experienced musculoskeletal pain compared to 3% of those with no follow-up and late follow-up. In addition, patients in the timely follow-up group had the highest frequencies of obesity counseling. The organ systems-based approach of conditions in family histories showed cardiovascular disease and endocrine disorders to be present in all patient groups with no significant difference across groups.

Conclusion

The results suggest that providers who document counseling their patients about childhood obesity more frequently prior to ELI referral can improve their patients' follow-up rates. Additionally, musculoskeletal pain was the only comorbidity significantly associated with attending ELI clinic. This suggests that most comorbid conditions associated with childhood obesity have a limited effect on motivating parent/patient behavior to seek longitudinal intervention.

Abstract #48: IMPACT OF AN INTERDISCIPLINARY TEAM ON WEIGHT MANAGEMENT FOR OBESE PEDIATRIC PATIENTS

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Ms. Elise Knowlton - Department of Pediatrics

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Mrs. Hollie Hawkins - Department of Pediatrics

Dr. Lamiaa Ali - Department of Pediatrics

Background

Pediatric obesity is a growing problem in the United States. The University of Oklahoma-Tulsa has an Early Lifestyle Intervention (ELI) clinic specifically created to care for patients with pediatric obesity. At the ELI clinic, patients see a pediatrician or nurse practitioner, psychologist, dietitian, and a physical therapist or exercise physiologist depending upon assessed needs at each visit.

Methods

A retrospective analysis of 36 ELI clinic patients who agreed to participate in the Pediatric Obesity Weight Evaluation Registry from 2018 to 2019 was completed. The progress of each participant was followed for six months. The investigators collected total number of ELI visits, as well as the number of unique healthcare providers seen at each visit to produce an average measure of providers per visit. The relationship between the average number of providers per visit and BMI status (whether BMI increased or decreased across two or more clinic visits spanning a six month time frame) was evaluated using SPSS, version 26. Statistical assumptions of point-biserial correlation were examined and satisfied, including no outliers, normality, and equal variances.

Results

A majority of participants were white (n=31), Hispanic or Latinx (n=20), and male (n=20). Average age was 11.1 + 3.23 years. Across all participants, the average number of visits to the clinic was 1.94. Nineteen of 36 participants visited the ELI clinic more than once. Comparing initial vs. last measured BMI for these 19 participants, 11 (57.9%) experienced decreases in BMI. Average BMI decrease was 0.88 + 0.98 kg/m². For those participants with more than one clinic visit (n=19), a point-biserial correlation was run to determine the relationship between participant BMI status and the average number of healthcare providers seen per ELI visit. There was a moderate, negative correlation between BMI status (specifically, BMI decrease) and unique providers seen per visit, which was statistically significant ($r_{pb}=-0.477$, $p=0.041$).

Conclusion

At OU-Tulsa's ELI clinic, the more healthcare providers a participant saw per visit was related to a decrease in BMI. Seeing an interdisciplinary team of healthcare providers may offer an improved outcome over seeing a single provider. Continued research on ELI participant outcomes may help assess possible benefits of multidisciplinary healthcare teams. For other pediatric conditions such as cystic fibrosis and chronic pain, a multidisciplinary approach is associated with positive treatment outcomes.

Abstract #49: PREDICTING SYMPTOMS OF POST-TRAUMATIC STRESS DISORDER IN JOURNALISTS

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Ms. Amanda Gentz - The University of Tulsa

Dr. Elana Newman - University of Tulsa

Dr. Bradley Brummel - The University of Tulsa

Dr. Susan Drevo - The University of Tulsa

Dr. Kelsey Parker - The University of Tulsa

Background

Journalists often may face potentially traumatic events and as a result may experience posttraumatic stress disorder (PTSD; e.g. Smith, Drevo, & Newman, 2017). Common symptoms of PTSD include unwanted thoughts of the traumatic event, increased arousal, and avoiding reminders of the trauma. However, journalists have qualitatively reported the more they identify with their role as a journalist, the less likely they are to experience PTSD symptoms (Novak & Davidson, 2013). Occupational embeddedness is defined as external and internal forces (e.g., community, values) that connect people to their occupations (Adams, Webster, & Buyarski, 2010). Therefore, this may relate to how much journalists describe themselves as identifying with their occupation. Identifying as a journalist (high occupational embeddedness) may lead to fewer PTSD symptoms.

Methods

As part of a larger study on the occupational health of journalists, the responses of 131 journalists were used to test the hypothesis that occupational embeddedness predicts PTSD symptoms. To measure PTSD symptoms the PTSD Checklist for the DSM-5 (PCL-5) was utilized (M = 20.01, SD = 17.05). This is a questionnaire consisting of 20-items measuring various PTSD symptoms, on a five-point Likert scale, ranging from 1 (not at all) to 5 (extremely). An abbreviated version of the Occupational Embeddedness Scale (OES) was also used (M = 24.08, SD = 3.89). This is a six-item questionnaire measuring commitment to one's occupation, on a six-point scale. The PCL-5 was negatively skewed while OES was not. However, when attempting to transform the PCL-5, the measure remained skewed. A linear regression was conducted to determine if occupational embeddedness predicted PTSD symptoms.

Results

Contrary to the hypothesis, occupational embeddedness did not significantly predict trauma symptoms in journalists [$F(1,129)=.08$, $MSE=292.88$, $p=.77$]. Results indicate that higher levels of occupational embeddedness do not lead to lower PTSD symptoms.

Conclusion

While occupational embeddedness was not significant, future research could explore the reason for these results. The difference between the PCL-5 and OES distributions could be a reason why no significant results were found in this sample. It is also possible that the sample's low levels of PTSD symptoms and reportedly high levels of embeddedness further obscured differences. In addition, embeddedness may affect trauma symptoms in less direct ways, for example, perhaps journalists who are highly embedded in their occupations experience more trauma. Additionally, since trauma precedes PTSD, future research should control for trauma exposure.

Abstract #50: IDENTIFYING EARLY RISK OF IMPULSIVITY: EVIDENCE OF SIGN-TRACKING BEHAVIORS IN CHILDREN

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Ms. Jennifer Coronado - The Laureate Institute for Brain Research

Mrs. Florence Breslin - The Laureate Institute for Brain Research

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Background

Environmental cues representing resources such as food can trigger varying behaviors in individuals¹. A Pavlovian conditioning paradigm called the “sign-tracker/goal-tracker” (ST/GT) model has been used in animals to measure these individual differences. In this paradigm, animals classified as GTs are more likely to approach the reward whereas STs are more likely to approach the cue¹. STs, but not GTs, tend to be more vulnerable to impulsivity and addiction². While theoretical sources explain that similar ST/GT behaviors may be measurable in humans,³ most studies using this model have tested animals. Measuring similar behaviors in humans has implications for identifying risk for addictive behaviors that could lead to prevention or early interventions.

Methods

Participants included 17 children (males=10) aged 9-12 (M=9.41) with no history of neuropsychiatric disorders. Two response boxes were presented; a conditioned stimulus (CS) box that contained an illuminated lever that extended for 8 seconds⁴; an unconditioned stimulus (US) box that dispensed \$0.20 tokens into a pan. Sessions included 4 blocks of 10 trials each. MATLAB software recorded the number of physical contacts with CS and US for trial periods and randomized (8, 16, 24, 32 sec) intertrial intervals (ITI). Each trial included a paired presentation of a response-independent lever and, immediately upon retraction, reward delivery. Participants began each block 3ft from the table between boxes. The child was instructed to freely interact with the boxes.

Results

We calculated the Pavlovian Conditioned Approach (PCA) index: a measurement of an individual’s propensity to contact the reward or lever boxes. It ranges from -1 to 1 where negative scores indicate a propensity toward the reward (GT) and positive scores indicate a propensity toward the lever (ST). Preliminary data show clear evidence of ST behaviors in our sample (range = 0-.87, m= 1.7, sd= 0.27), demonstrating that we are able to adequately measure the ST phenotype in humans.

Conclusion

By measuring ST behaviors in our sample, we were able to demonstrate promise of effective translation of the ST/GT paradigm to humans. Since the ST phenotype in animals appear to be more at risk for developing maladaptive cue response behaviors,² measurement of these behaviors in humans is the first step to determine whether this phenotype is predictive of similar risky outcomes, such as substance use disorders, and has the potential to inform future behavioral preventative interventions. Future analyses will examine psychopathological behaviors correlated with the ST/GT phenotypes.

Abstract #51: CAMP HOPE: DEVELOPING HOPE AND RESILIENCE IN YOUTH EXPOSED TO DOMESTIC VIOLENCE

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Dr. Eva Muilenburg-Trevino - Hope Research Center

Dr. Chan Hellman - Hope Research Center

Background

Camp HOPE America (www.camphopeamerica.com) is the first local, state, and national camping and mentoring initiative in the United States to focus on children exposed to domestic violence. The vision for Camp HOPE America is to break the generational cycle of family violence by offering healing and hope to children who have witnessed such violence. The purpose of this study is to evaluate the camp's effectiveness at increasing hope and resilience in youth after participating in Camp HOPE.

Methods

This study utilized pre, post and thirty day follow-up surveys from 1,127 campers at twenty-eight camp sites across fifteen states and their counselors' observations to examine hope and resilience factors. The surveys were conducted a few days before camp, during camp, and approximately thirty days after the camp ended. To assess hope, the Children's Hope Scale (Snyder et al., 1997) was utilized to examine the extent to which children believe they can establish pathways to their goals as well as develop and maintain the willpower to follow these pathways. On the first and last day of camp, counselors also provided assessments of 1,063 campers using the Children's Hope Scale, reworded to reflect this observational approach. Following the Camp HOPE America theme of believing in yourself, believing in others and believing in your dreams, OU's Hope Research Center created six items to assess each child's self-reported resiliency. For both hope and resilience, a six point Likert-type response format was utilized (1=none of the time; 6=all of the time).

Results

Hope and Resiliency scores increased from pre-camp test to at-camp test and again at the 30-day follow-up assessment. Repeated measures ANOVAS showed that the increase was statistically significant for both hope [$F(2,781)=36.80$; $p<.001$] and resilience [$F(2, 769)=26.34$; $p<.001$]. In regard to hope observed by the camp counselors, a repeated measures ANOVA was computed to examine the differences in pre-camp and at-camp test mean scores [$t(1062)=-16.66$; $p<.001$] and showed that individuals' levels of observable hope increased after participating in Camp HOPE America.

Conclusion

The results of this study provide compelling evidence that Camp HOPE improves the hope of children exposed to domestic violence and their resilience. This study serves to evaluate the success of current camp programming and will inform future curriculum and programming for Camp HOPE America. It also serves to stimulate further interest in organizations' ability to nourish hope and resilience in children impacted by domestic violence.

Abstract #52: RELATIONSHIP BETWEEN THE SECOND VICTIM PHENOMENON AND OCCUPATIONAL BURNOUT IN HEALTHCARE

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Dr. Jennifer Kisamore - University of Oklahoma – Tulsa

Background

Unexpected events or outcomes in healthcare that create considerable harm or lasting damage to a patient are called adverse patient events (Mira et al., 2015). Providers affected by such events are called “second victims.” The current study examined personal and organizational outcomes related to involvement in adverse events including psychological and physical symptoms, burnout, and employee withdrawal behaviors.

Methods

Participants were recruited through social media sites. The population of interest was healthcare providers who potentially had been involved in an adverse event. Consent to participate was given by 204 individuals of which 127 were current or former healthcare providers. The remaining 77 respondents were excluded from the study.

All measures were self-report and administered online through Qualtrics. All scales demonstrated acceptable internal consistency reliability. First, burnout was measured using the Oldenburg Burnout Inventory (Demourti et al., 2003). Participants were then asked if they had experienced an adverse patient event. Individuals who affirmed having such an experience were considered second victims and remained in the study; participation from other healthcare respondents was complete at that point. Responses to items from the second victim experience and support tool developed by Burlison and colleagues (2017) were collected from the second victims. Factor analytic work and internal consistency reliability analyses resulted in three factors: “personal distress,” “organizational support,” and “withdrawal behaviors.”

Results

Results indicated that second victims had significantly higher rates of burnout ($M=3.88$, $SD=.97$) than did other healthcare providers ($M=3.46$, $SD=.84$), $t(119)=-2.07$, $p<.05$. Results also revealed personal distress was significantly positively correlated with both burnout ($r=.56$) and withdrawal behaviors ($r=.56$) while perceptions of organizational support were significantly negatively correlated with both burnout ($r=-.46$) and withdrawal behaviors ($r=-.35$). A mediation model tested using Hayes SPSS PROCESS macro revealed the negative relationship between organizational support and withdrawal behaviors was partially mediated by burnout. Percent mediation was 52.9%.

Conclusion

This study has important implications for healthcare organizations. Adverse patient experiences were related to higher likelihood of provider burnout and withdrawal behaviors. Perceptions of organizational support, however, were inversely related to these outcomes. Results suggest healthcare organizations should prioritize support mechanisms for second victims to potentially mitigate undesirable employee and organizational outcomes related to adverse patient events. Due to the cross-sectional design of the study, causal relationships between involvement in adverse events and these consequences cannot be assumed however, thus, further research is suggested.

Abstract #53: PERCEPTIONS OF WELL-BEING IN CARE CAREERS: COMPARING SPORTS COACHES AND MEDICAL PROFESSIONALS

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Ms. Dana Thomas - University of Tulsa

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Dr. Christine Langner - OU-TU School of Community Medicine

Dr. Bryan Touchet - OU-TU School of Community Medicine

Background

Despite the differences in specific duties associated with medicine and sports coaching, both fields fall into the category of "care careers," high-stress professions where the entire focus is the physical or mental health and well-being of others. Burnout, health, and well-being are currently explored in famously high-stress arenas like medicine, yet are less studied in the field of sports coaching. This comparative study attempts to delineate the similarities and differences between what medical professionals and sports coaches believe impacts their burnout levels, personal health, and well-being in the context of their chosen profession.

Methods

Two de-identified qualitative datasets from IRB-approved studies were used for this analysis. Study 1 data consisted of 157 medical professionals (57 residents, and 97 physicians). One question used in Study 1 was: Please describe any stressors that have a detrimental effect on your work. Study 2 consisted of 240 swim coaches who were asked, What are your thoughts on the health and well-being of swim coaches? Both datasets were coded separately and individually using a 3 person coding team, MAXQDA software, and Creswell's exploratory qualitative approach. Meetings were held to reconcile codes and determine themes that arose from the codes. Themes from both datasets were used to explore potential similarities and differences between the two professions.

Results

A dataset with two-hundred forty swim coaches (23-70 years old) and a dataset with 154 medical professionals (26-70 years old) contained self-reported burnout, health, and well-being data for sports coaches and medical professionals. The researchers found remarkably similar results in perceived burnout, poor health, and well-being, as well as similar reasons given for these results. Both groups reported the administrative burden, long work hours, and finances to be significant contributors to their current burnout levels. Further, both groups do not feel they have time to spare for physical health and family or relationships, which they believe would benefit their overall well-being.

Conclusion

Both coaches and medical professionals express concern about how their occupation impacts their current levels of physical and mental health. Individuals in these careers face pressure to role model good behaviors for those in their care, and yet feel unable to take care of themselves because of the time it takes to focus on others. Those in "care careers," whose entire professional focus is on the health and well-being of others, may be at significant risk for burnout as a result of neglecting the health and well-being of themselves.

Abstract #54: RACIAL AND ETHNIC DISPARITIES IN LOWER EXTREMITY AMPUTATION: THE ROLE OF FRAILITY

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Dr. viraj pandit - The University of Oklahoma School of Community Medicine

Dr. Hyein Kim - The University of Oklahoma School of Community Medicine

Dr. Kelly Kempe - The University of Oklahoma School of Community Medicine

Dr. William Jennings - The University of Oklahoma School of Community Medicine

Dr. Peter Nelson - The University of Oklahoma School of Community Medicine

Background

Frailty is defined as a state of decreased physiologic reserve contributing to functional decline and adverse outcomes. Racial disparities in frail patients have been described in the literature. We aimed to assess whether race is associated with frailty status in geriatric patients undergoing amputation of lower limb.

Methods

A 3-year (2010-2012) analysis of NSQIP-database and included all geriatric (age \geq 65y) patients who underwent amputation of lower limb. The frailty index was calculated using 11-variables mFI and a cut-off limit of 0.27 was defined for frail status. The variables included functional status, history of diabetes, lung disease, hypertension, congestive heart failure, myocardial infarction, cerebrovascular disease, transient attacks, angina, mental status, peripheral vascular disease, Hispanics were classified as ethnic group while white and African- American (AA) as racial groups. Outcomes were 30-d complications, mortality and readmission. Multivariate regression analysis was performed.

Results

A total of 4,218 geriatric patients underwent surgical amputation of a lower extremity (Above knee: 41%; below knee:59%) Of these patients, 29% were frail. Mean age was 73 \pm 7years and 65% were male. Majorities (62%) of patients were Caucasians, 26% were African-Americans, 9% of the patients were Hispanic by ethnicity and 12% belonged to other races. African-Americans were more likely to be frail compared to Caucasians (33%vs.20%; p<0. 01). On regression analysis, African-Americans (OR:1.6[1.3 – 1.9]) were more likely to be frail compared to White race. Frail African-American had higher odds of 30day-complications (OR: 3.2[1.9-4.4]), 30day-readmissions (OR: 2.9[1.8-3.6]), compared to frail White patients, however, there was no difference regarding 30-day mortality (OR: 1.7[0.9-2.4]). Similarly, frail Hispanics were more likely to have 30day-complications (OR: 2.6[1.9-3.1]) and 30day-readmissions (OR; 1.4[1.1-2.7]) compared to non-frail Hispanics/Latinos.

Conclusion

Race and ethnicity influence frailty status in geriatric patients undergoing lower limb amputations. These disparities exist regardless of age, gender, co-morbid conditions and location of amputation. Understanding these difference will help provide evidence for developing strategies to provide equitable and effective care for surgical patients.

Abstract #55: THE IMPACT OF HOPE, PERCEIVED ORGANIZATIONAL SUPPORT, AND SECONDARY TRAUMATIC STRESS ON BURNOUT IN A MENTAL HEALTH AGENCY SETTING

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Dr. Chan Hellman - Hope Research Center

Dr. Eva Muilenburg-Trevino - Hope Research Center

Background

The staff of Non-Profit agencies seeking to address mental health needs as well as gaps in existing services demonstrate exceptional awareness and protection for vulnerable individuals in society. Staff turnover is a relevant concern among Non-Profits. The staff of Non-profits likely face exhaustion, disengagement, and secondary trauma as a reaction to serving vulnerable individuals.

Methods

Utilizing Hope as a conceptual framework, Hope Research Center aims to evaluate the level of Hope among the staff, as well as the effect of Perceived Organizational Support, Burnout and Secondary Stress on the staff. The purpose of this study is to indicate the correlation of Burnout on Hope, Perceived Organizational Support and Secondary Stress in the workplace. The study used an email survey to examine the Hope, Burnout, Collective Hope, Perceived Organizational Support, Flourishing, as well as demographic information from 244 staff members from an Oklahoma Non-profit.

Results

The survey results found that relationship of Burnout with Hope, Perceived Organizational Support, and Secondary Traumatic Stress to be statistically significant. The data indicated an inverse relationship of Hope and Perceived Organizational Support with Burnout, and Secondary Traumatic Stress to be a strong predictor of Burnout.

Conclusion

The findings of this study indicate the importance of Hope and Perceived Organizational Support as principal factors staff members should consider when focusing on both emotional exhaustion and turnover. Another finding from the data suggested the necessity of addressing Secondary Traumatic Stress as a cause of Burnout and turnover in non-profit agencies.

Abstract #56: ARE THERE GENDER DISPARITIES IN CHILD MALTREATMENT RELATED CRIMINAL COURT OUTCOMES?

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Dr. Lauren Conway - OU-TU School of Community Medicine

Dr. Michael Baxter - OU-Tulsa School of Community Medicine

Background

Oklahoma's failure to protect law, which holds non-offending caregivers who fail to report maltreatment to the same standard as perpetrators, has received increased scrutiny at the national level. This is in part due to cases such as Tondalao Hall, a mother from Oklahoma City who was sentenced to 30 years in prison for failing to report child maltreatment while the perpetrator, who was also allegedly abusing Hall, was sentenced to two years in jail with credit for time served and probation. Due to the increased focus for criminal justice reform in Oklahoma the investigators sought to evaluate gender disparities in the criminal court outcomes of child maltreatment cases investigated by a multidisciplinary team.

Methods

A cross-sectional study was conducted of defendants of 151 medically diagnosed child maltreatment cases from 2013–2014. Data included both clinical data from the University of Oklahoma Electronic Medical Record as well as publicly accessible data from the Tulsa District Attorney's Office and Oklahoma State Courts Network. Only defendants with criminal cases prosecuted within Tulsa County were considered for analysis. Expunged cases were also excluded from analysis. To test for associations between gender and court outcomes, chi-square tests of independence were used in SPSS, version 25.

Results

There were a total of 138 defendants, with a slightly male majority (n=76, 55.1%). There was a significant association between gender and neglect charges ($\chi^2(1)=3.96$, $p<0.046$), with 46.8% of females charged with neglect vs. 30.3% of males. There was also a significant association between gender and verdict type ($\chi^2(1)=14.35$, $p<0.001$), with a greater percentage of females (43.5%) receiving deferred verdicts than males (15.8%). Conversely, a greater percentage of males (71.1%) received guilty verdicts than females (41.9%). Gender was also associated with incarceration being included in sentencing ($\chi^2(1)=6.63$, $p<0.01$), with a greater percentage of males (56.6%) receiving jail/prison time than females (35.5%).

Conclusion

The results indicate that males within the cohort typically received higher rates of guilty verdicts, fewer deferred sentences, and harsher sentencing outcomes, such as incarceration. Notably more females than males were charged with neglect (46.8%); however, the difference between convictions for neglect by gender was not statistically significant. Further research regarding criminal court outcomes in child maltreatment cases is still needed to fully understand the impact of failure to protect laws across the entire state.

Abstract #57: DOES HAVING A PLAN INCREASE THE RISK OF SUICIDE ATTEMPTS?

Ms. Kasey Rinehart - OU-Tulsa Hope Research Center

Background

Practitioners and researchers have long strived to identify predictors of adolescent suicide. Many have considered a suicide plan as indicative of a higher risk. However, little research has empirically tested this assumption. Such research is important if practitioners are triaging adolescent clients based on the belief that those without a plan are at less risk.

Methods

To test the longstanding notion that planning for suicide increases the risk of suicide, we tested a model of suicide planning as a predictor of suicide attempts among a large sample (N = 9,029) of adolescents (12-18 years old). The data was collected via a statewide survey of adolescents conducted by a state child welfare agency in the Pacific Northwest. The survey captured demographics, the presence of suicide ideation, suicide planning, and frequency of suicide attempts. To analyze the data, we employed a 3-step hierarchical regression analysis to control for the effects of suicide ideation and demographics on suicide attempts. This allowed us to better isolate the unique influence of planning on suicide attempts.

Results

The results indicated that while thoughts of suicide were a significant, robust predictor of suicide attempts ($R^2 = .187$ $p < .000$), having a plan for suicide accounted for very little additional variance in suicide attempts ($\Delta R^2 = .054$; $p < .000$). In fact, the additional variance in suicide attempts accounted for by having a plan was so small, the result may have been a statistical artifact.

Conclusion

While more research is needed, the current results suggest that practitioners should be cautious in triaging clients based on the notion that suicidal adolescents without a plan are at less risk.

Abstract #58: THE INFLUENCE OF FOOD ACCESS AND SECURITY ON FRUIT AND VEGETABLE INTAKE

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Dr. Sarah Beth Bell - University of Oklahoma - Tulsa
Dr. Brent Beasley - University of Oklahoma - Tulsa
Dr. Marianna Wetherill - University of Oklahoma – Tulsa

Background

Community food access is an important determinant of food security and nutritional intake. Access to fruits and vegetables (F/V) is of particular importance, as consumption of these foods is essential for chronic disease self-management. For patients with diet-related conditions, like diabetes and hypertension, community food access may be an important factor in health disparities, especially for the Medicaid population, who often face limited incomes and transportation barriers. The purpose of this study is to describe healthy food access, food security, and F/V intake among a sample of low-income patients in Tulsa, OK with prediabetes, diabetes, and/or hypertension.

Methods

We analyzed baseline data from the first 3 cohorts of participants (n=78) enrolled in the Produce Drop, a randomized control trial evaluating the effects of home-delivered F/V on health outcomes among OU Internal Medicine patients living in Medicaid-receiving households. Baseline survey measures include a modified NEMS-P community food environment survey, 10-item USDA adult food security survey, and 7-item University of California fruit and vegetable behavior checklist as a measure of F/V intake. Medical data was obtained via chart review and included diabetes, prediabetes, or hypertension diagnosis. Descriptive statistics (percentages and means) were calculated. We used multiple regression to estimate effects of food security and F/V access on F/V intake.

Results

17.3% of participants had a diagnosis of prediabetes or diabetes only, 18% hypertension only, and 64% prediabetes or diabetes and hypertension. Low (24%) and very low (39%) food security were common in the sample. While a majority (61.7%) agreed it was easy to buy fresh F/V in their neighborhood, fewer (41%) agreed that the produce was of high quality, with 17.8% strongly disagreeing. Only half (49.3%) agreed there was a large selection of F/V in their neighborhood, while 19.2% strongly disagreed. In a multiple regression model including community food environment and food insecurity as predictors of F/V intake, food insecurity contributed significantly to the model ($p=0.005$), with F/V consumption inversely associated with food insecurity, while community food environment did not contribute significantly to the model ($p=0.320$) (overall model $R^2= 0.123$, $F(2,68) = 4.56$, $p = 0.012$).

Conclusion

In this study of Medicaid patients with chronic disease, many reported limited access to a large selection of high-quality fresh produce. Food insecurity is a common problem and is associated with lower F/V intake. Community medicine models of care should explore strategies for connecting patients with resources to address F/V access barriers and build food security.

Abstract #59: ORGANIZATIONAL SUPPORT AND KNOWLEDGE SHARING: AN INVESTIGATION OF CORRELATES OF ORGANIZATIONAL INNOVATION

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Dr. Jennifer Kisamore - University of Oklahoma – Tulsa

Background

As work increasingly is knowledge- rather than production- or service-based, organizations are at increasing risk of losing vital resources and their competitive advantage due to employee separations, retirements, layoffs, knowledge hoarding, and attrition. As a result, organizations must cultivate cultures which support and encourage employees to share their knowledge. The current study investigated the relationship between knowledge sharing, employees' perceptions of organizational support (POS) and several aspects of organizational innovation.

Methods

Participants were recruited using network sampling via social media. A total of 145 people consented to participate; 112 participants provided complete, usable data. Data was collected on scales available in the extant literature, specifically: climate for innovation, climate for autonomy, solution innovation, solution reuse (Durcikova, Fadel, Butler, & Galletta; 2011), perceived organizational support (Eisenberger & Rhoades, 2002) and knowledge sharing (Han, Chiang, & Chang, 2010). All measures were self-report and administered online via Qualtrics. All scales utilized a Likert-type response format and demonstrated acceptable internal consistency reliability.

Results

Results indicated perceived organizational support and knowledge sharing are significantly positively correlated ($r = .294, p < .01$). Additionally, knowledge sharing was found to be significantly related to climate for innovation ($r = .332, p < .01$) and solution innovation ($r = .276, p < .01$) and marginally related to climate for autonomy ($r = .187, p = .051$). Knowledge sharing was not significantly correlated to solution reuse ($r = .076, p = .431$). Perceived organizational support was significantly correlated with climate for innovation ($r = .612, p < .01$), climate for autonomy ($r = .317, p < .01$), and solution for innovation ($r = .293, p < .01$) but only marginally correlated with solution reuse ($r = .176, p = .065$). A mediational analysis conducted to determine whether knowledge sharing mediates the relationship between perceived organizational support and climate for innovation did not reveal a significant mediation effect, $P_M = .0765, ns$.

Conclusion

Results suggest climate for innovation and reuse are related to different employee perceptions and organizational characteristics. This is likely because employees in positions which require them to be creative and innovative are less likely to need to reuse an existing solution than are employees whose jobs responsibilities involve more repetitive tasks and solutions. Overall, managers should consider including knowledge sharing when developing employees' performance goals. To encourage employees to share knowledge, management must develop clear structures to reward and acknowledge knowledge sharing while discouraging knowledge hoarding.

Abstract #60: IMPACT OF RESILIENCY TRAINING ON ACADEMIC-ACHIEVEMENT AND RETENTION OF FIRST-SEMESTER COLLEGE STUDENTS

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Ms. Alyssa Clinard - The University of Tulsa, The Laureate Institute of Brain Research

Dr. Robin Aupperle - The University of Tulsa, The Laureate Institute of Brain Research

Background

One in three college students experience significant depression or anxiety interfering with daily functioning, which can have detrimental effects on academic progress and success. Further, even moderate levels of anxiety and depression can lead to lower levels of academic engagement and performance (Regehr, Glancy, & Pitts, 2013; Vaez & Laflamme, 2008) and greater likelihood of dropping out of college (Eisenberg, Golberstein, & Hunt, 2009; Mowbray et al., 2006). In light of these statistics, it is vital to investigate the effect of preventative interventions, which can be used widespread across college campuses, on students' academic achievement and dropout rate.

Methods

First-year students at a private, midwestern university participated. This trial used a pragmatic design, delivering the intervention within university-identified orientation courses and was not randomized. The four-session resilience program, developed by the university and licensed clinical psychologists (RLA, LDC), included goal-building, mindfulness, and resilience skills. The comparison was orientation-as-usual. Previous work has demonstrated the resiliency training to have beneficial effects on mental health outcomes, including perceived stress and depression. For the current analyses, outcomes of interest include grade point average (GPA) and self-reported consideration of leaving the university ("retention risk"; rated on a 7-point Likert scale, with 7 being high consideration of leaving the university). Repeated measures analysis of covariance (ANCOVA) was used to determine the impact of training on GPA and retention risk, while covarying for baseline depression symptoms and college (i.e., Arts and Sciences, Business, etc.).

Results

The analysis included 252 students, 126 who completed resilience programming and a matched comparison sample. Preliminary results suggest that individuals who received training reported less retention risk during the first year ($F(1, 245) = 4.51, p=0.035$), though these differences seemed to dissipate in Year 2. Official GPA, obtained from academic records, will be similarly analyzed.

Conclusion

The current study used a pragmatic clinical trial to identify whether a brief, scalable, universal resilience program could be beneficial for first-year college student academic success. The findings have particular relevance for first-year students, as nationally up to 30% of students drop out in the first year (NCES). Overall, the resilience program was feasible and acceptable to students and was effective at reducing retention risk. However, results also point to the potential need for "booster" training in the second year of college to help maintain benefits.

Abstract #61: THE HEALTH IMPACT OF BEING A SPORTS COACH

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Dr. Krista Kezbers - Office for Research Development and Scholarly Activity, OU-TU School of Community Medicine

Ms. Rachel Nichols - OU-TU School of Community Medicine

Background

Although research concerning that of sports coaches has been explored in avenues of burnout, pressure, and stress, limited research on their physical health exists. The relationship between their physical and mental state is important to acknowledge since coaches' personal and professional lives require many duties and are complex. Coaches may face difficulties in establishing a healthy equilibrium due to such pressures. The purpose of the study was to explore the thoughts, perceptions, and beliefs related to the health and well-being of swim coaches.

Methods

An IRB-approved, 4-question online survey was utilized in this study. The first 3 questions looked at age, location, and past sport experience. An open-ended question asking "What comes to mind when you think about the health and well-being of swim coaches?" was asked at the end. Using the snowball sampling method, participants were recruited via email and social media and asked to share the link in order to reach many possible coaches. The responses were coded independently through a 3-person coding team using MAXQDA and following Creswell's exploratory qualitative data analysis structure. Reconciliation meetings took place to assimilate individual codes into general themes.

Results

Out of the 431 swim coaches who answered the survey, 240 coaches (23-70 years old) answered the open-ended question. Coaches were from different cities in the U.S. and countries internationally, thus, representing the swim coach population. There was also a wide range in coaches' past sport experience, from youth sport participation to international level competition. Tenure ranged from 1 to 49 years. A survey response rate could not be calculated due to the snowball sampling method and exploratory nature of the survey. 5 major themes were identified: 1) work/life balance, 2) coaching health/fitness spectrum, 3) coaching beliefs, 4) physical coaching environment, and 5) lifestyle medicine components. Although some coaches expressed that their work did not interfere with establishing a healthy lifestyle, others differed. Difficulties such as long work hours, self-neglect, and/or awareness of physical activity and eating patterns negatively impacted the coaches perception about their health and well-being.

Conclusion

Sport coaches may face difficulties in maintaining an equal balance between their career and health. The findings suggest that sports coaches may be at risk for fully achieving a healthy lifestyle due to requirements and attitudes attached to the profession. It is important to consider these potential impacts since the coaching profession is a complex and dynamic one that involves many parties, networks, and communities.

Abstract #62: METHAMPHETAMINE AND OPIOID CUE DATABASE: DEVELOPMENT AND VALIDATION

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Dr. Hamed Ekhtiari - The Laureate Institute for Brain Research

Dr. Rayus Kuplicki - The Laureate Institute for Brain Research

Dr. Martin Paulus - The Laureate Institute for Brain Research

Background

Conditioned stimuli (image cues) have shown induction of a subjective craving response and neural activations in brain areas associated with reward processing. There have been many studies using drug cue reactivity (DCR) in experimental settings but there is significant variability in pictorial cues that researchers have recruited thus far.

The Methamphetamine and Opioid Cue Database can help reduce the variability and increase replicability in future studies. This database can be used as a source to select equivalent sets of drug cues and corresponding neutral controls for multiple assessments and intervention. Utilizing conditioned stimuli (image cues) in a controlled environment can predict subjects at high risk of relapse as well as assess response to treatment interventions.

Methods

360 images (120 methamphetamine, 120 opioid and 120 neutral (control)) matched for their content (objects, hands, faces and actions) were selected in focus group sessions with individuals with a history of methamphetamine and opioid use with >5 years abstinence in initial development. 28 participants with a history of both methamphetamine and opioid use (37.1 ± 8.11 years old) with over six months of abstinence were asked to rate 180 images (60 methamphetamine, 60 opioid, and 60 neutral), for how much craving they experienced, how positive or negative they felt, how aroused they were, and both how typical and related the images were to drug-use in two separate sessions.

Results

All drug images were differentiated from neutral images. Drug related images received higher arousal and lower valence ratings compared to neutral images (craving (0-100) for neutral (11.5 ± 21.9), opioid (87.7 ± 18.5) and methamphetamine (88 ± 18), arousal (1-9) for neutral (2.4 ± 1.9), opioid (4.6 ± 2.7) and methamphetamine (4.6 ± 2.6), and valence (1-9) for neutral (4.8 ± 1.3), opioid (4.4 ± 1.9) and methamphetamine (4.4 ± 1.8)). There is no difference between methamphetamine and opioid images in craving, arousal and valence. There is a significant positive relationship between the amount of time that participants spent on drug-related images and the craving reported for the image. Total image completion times and craving rating reaction times were negatively correlated with visit and time for meth and opioid images, indicating that subjects responded overall faster in the second session (all p-value <0.001 for all tests).

Conclusion

This database can be used as a source to select equivalent sets of drug cues and neutral controls for assessments and interventions in the field of addiction medicine. Additionally, this database can assist researchers to predict subjects at high risk of relapse and monitor response to treatment interventions.

Abstract #63: PREDICTING EMPLOYEE-SUPERVISOR RELATIONSHIP STRENGTH: DOES A SINGLE MOMENT MATTER?

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Prof. Brigitte Steinheider - University of Oklahoma

Background

The Leader-Member Exchange (LMX; Dansereau, Graen, & Haga; 1975) theory is a relationship-based framework for understanding how employee-supervisor relationships form. LMX suggests that the strength of the relationship will be established through communication-based exchanges over time (social exchange theory; SET: Blau; 1964; Holman; 1958), whereas anchoring events research (AEs: Ballinger & Rockman, 2010) proposes single communication exchanges may also impact the relationship. This study set out to assess whether anchoring events' impact accounts for significant variance in LMX strength and if anchoring events explain additional variance in LMX over and above communication frequency.

Methods

Participants ($n=367$) consisted of a snowball sample of adults who identified as female ($n=325$, 89%), with a bachelor's degree ($n=167$, 46%), and 44% ($n=163$) were managers. LMX strength was assessed with the Leader-Member Exchange scale (LMX-7; Graen & Uhl-Bien, 1995), the perceived frequency of communication was determined with positive and negative Communication Exchange scales (LCX-P, LCX-N; Omilion-Hodges & Baker, 2017). Qualitative data were gathered to determine positive and negative anchoring events and their impact ($n=851$).

Results

Exploratory factor analysis of positive and negative LCX scales revealed five factors (affective, professional development, trust, disrespect, and social exclusion); Cronbach alphas were .97, .94, .90, .95, and .89. All five factors were highly correlated with LMX ($\alpha = .93$; r between $-.57$ to $.84$). Positive and negative anchoring events' impact correlated with LMX with $r = .64$ and $r = -.48$; $p < .001$. LCX factors explained about 73% of the outcome variance of LMX, whereas anchoring events' impact accounted for 55%.

Conclusion

Findings reveal positive and negative LCX scales can be combined for a more parsimonious factor structure. Strong positive correlations between the affect LCX factor and LMX ($r = .84$) indicate overlap between both concepts. Anchoring events' impact was significantly correlated with LMX, indicating that singular exchanges contribute to the overall relationship strength between supervisors and employees; however, they did not account for additional variance over and above communication frequency. Practical implications for supervisors include acknowledging the potential importance and impact every single interaction with their employees may have on their relationship, positively or negatively.

Abstract #64: META-ANALYSIS OF THE EFFECT OF CULINARY MEDICINE INTERVENTIONS

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Mr. David Barkyoub - Oklahoma State University

Mr. John Carradini - University of Oklahoma School of Community Medicine

Ms. Katie Prentice - OU-Tulsa

Dr. Marianna Wetherill - University of Oklahoma - Tulsa

Dr. Sarah Beth Bell - University of Oklahoma College of Medicine - Tulsa, OK

Background

Culinary medicine is an emerging field that uses cooking and nutrition education to improve health outcomes. Diet and food preparation lessons are tailored to meet specific needs for improvement of a disease status or other health need. Trainings are delivered in multiple formats, but hands-on cooking classes are considered by the American College of Lifestyle Medicine to be the gold standard of treatment. This meta-analysis synthesizes literature to determine the effect of hands-on healthy cooking classes on long- and short-term health outcomes.

Methods

PubMed, Scopus, and Web of Science databases were searched with specific terms to collect articles. 351 articles were reviewed by a team who determined which articles met criteria for inclusion in our meta-analysis. This inclusion criteria required that the study incorporate hands-on cooking classes and adequate statistics for an effect size to be extracted. 33 articles ($N=7,018$) met criteria for inclusion. Hypotheses and planned analyses were preregistered a priori on the Open Science Framework before data extraction began. Statistical tests included the overall effect of culinary medicine, analog ANOVAs and meta-regressions testing moderation, as well as mini meta-analyses testing a variety of dependent variables. Publication bias was assessed using the trim and fill method, PET-PEESE, and Rosenthal's fail-safe N , and the overall effect size was corrected accordingly to account for this bias.

Results

Culinary medicine was found to have a medium overall effect size, $d=0.45$. When corrected for publication bias, the effect size of culinary medicine was $d=0.44$. To investigate trends in the data, exploratory sub-analyses were performed to two domains: the effect of culinary medicine on diseased individuals, and the effect of culinary medicine on lower-income individuals. The analyses found that further adaptation is needed to treat people with diseases. However, culinary medicine was found to be more effective for lower-income populations than the general population. This perhaps could be attributed to larger lapses of knowledge regarding nutrition within this population.

Conclusion

Short-term and mid-term outcomes were especially likely to be improved by culinary medicine classes, but this is related to the participants not being followed for a long enough time to see significant long-term changes. Collectively, these findings suggest that hands-on cooking classes can be a beneficial complement to traditional medicine.

Abstract #65: FACTORS ASSOCIATED WITH MEDICATION ADHERENCE AMONG A HIGH-RISK HEPATITIS C BIRTH COHORT

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Ms. Marie Solberg - University of Oklahoma Health Sciences Center

Dr. Kimberly Crosby - OU-TU School of Community Medicine

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Dr. Summer Frank-Pearce - University of Oklahoma Health Sciences Center

Dr. Mary Williams - University of Oklahoma Health Sciences Center

Background

Multiple studies of hepatitis C virus (HCV) reported that 75% of individuals infected with HCV were born between 1945-1965 and were previously never tested. Therefore, in 2012 the CDC published recommendations that all individuals in this birth cohort should be screened for HCV at least once. Adherence to treatment is essential to achieve a sustained virologic response (SVR) for HCV cure. Patients who do not complete the treatment are at risk of treatment failure. The Adherence to Refills and Medication Scale (ARMS) has been an effective tool for predicting adherence of medication treatment in cardiovascular disease and diabetes and identifying risk factors associated with nonadherence to treatment for these diseases. The purpose of this study is to elucidate which risk factors significantly influence the ARMS score among this birth cohort at risk for HCV to guide future HCV treatment protocol adherence.

Methods

This study recruited patients born between 1945-1965 and accessing care at the OU Physicians-Tulsa Family Medicine clinic between March-July 2019. Data was collected using a prescreening survey consisting of demographics, questions related to HCV risk factors (blood transfusions, tattoos, and intravenous drug use), depression assessed with the PHQ9 tool, and adverse childhood experiences (ACEs). IVDU, ACEs, and PHQ9 were classified into groups. Mean ARMS scores were compared using t-tests for variables with two categories and analysis of variance for variables with three or more categories. All statistical analyses were performed in SAS 9.4.

Results

Among the 75 participants in the study, most were women (57%) and the sample had a mean ARMS score of 16.32 (SD=3.45). About half reported depression (51%) and one-third reported four or more ACEs (33%). Mean ARMS scores were 2.983 points (95% CI: 0.70-5.26) higher among those with moderate depression (PHQ 5-14), and 2.699 points (95% CI: 0.65-4.75) higher among those with severe depression (PHQ 15-27) than those with a minimal depression (PHQ 0-4). Similarly, mean ARMS score was 2.61 points (95% CI: 0.34-4.88) higher among those with at least four ACEs compared to those with three ACEs or less. Mean ARMS scores did not differ for any other variables.

Conclusion

This is the first study to assess the ARMS score as a predictor of medication adherence and risk factors associated with the ARMS score in this high-risk birth cohort for HCV infection. These findings indicate that depression and ACEs may be risk factors for poor medication adherence in this population.

Abstract #66: ONLY IN HOLLYWOOD

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Ms. Brittany Ladd - The University of Oklahoma School of Community Medicine

Dr. Jabraan Pasha - The University of Oklahoma School of Community Medicine

Dr. Martina Jelley - The University of Oklahoma School of Community Medicine

Dr. Brent Beasley - The University of Oklahoma School of Community Medicine

Background

Since 'City Hospital' first aired on television in 1951, medical dramas remain “must-see TV” in American entertainment. From 'Marcus Welby, M.D.' and 'St. Elsewhere' during the 70's and 80's, to 'Grey's Anatomy', in production for over 14 years, each decade brings the viewing public archetypal physicians resonating with laypersons and physicians alike. In many shows, the accuracy of the medical technology and terminology portrayed is lacking. Anecdotally, another aspect of medical TV dramas that appears to be grossly inaccurate: when compared to the actual percentage of U.S. Black doctors, 5%, there is a substantially higher percentage of Black doctors on television. We researched shows of the past and present to measure African-American representation as doctors in medical television dramas.

Methods

We conducted a review of 2 comprehensive lists of medical TV shows to evaluate the representation of African-American physicians on medical drama television series from 1980 to present. Sources used for this search were the Wikipedia page “List of medical drama television programs” and *Internet Movie Database* (IMDb) list of “Medical TV shows.”

Results

From 1980 to present, there were 37 medical dramas featured in the US. Of these shows, we found that Black doctors made up 18.8% of the physicians portrayed. Data also suggested a relative increase in representation of Black doctors as time progressed. In the 1980's, Black doctors comprised 11.36% of the TV physicians as compared to 25.3% in currently airing shows. Three of the most popular and currently running shows, 'Grey's Anatomy', 'Chicago Med', and 'New Amsterdam' show Black doctor percentages of 31.0%, 38.9%, and 30.8%, respectively.

Conclusion

The phrase “diversity in Hollywood” is often a paradox. In many aspects, Hollywood has been slow to progress. Yet, despite its many shortcomings in diversity, Hollywood is outpacing the real-life medical community, especially concerning Black physicians. The US Census Bureau estimates that African-Americans make up 13.4% of the total U.S. population. Our review found that the percentage of Black doctors represented on currently airing medical shows is 25.3%, nearly double the proportion of African-Americans in the U.S. In reality, Blacks are profoundly underrepresented in medicine. The latest comprehensive data estimates that Black physicians total just around 5%. While achieving the equity demonstrated on medical TV dramas would be ideal, it has proven to be an uphill battle. We hope that this review helps continue the necessary discussion to push for equity in healthcare.

Abstract #67: COMPARING EXTENT OF SEXUAL HARRASSMENT BETWEEN ONLINE VS. BROADCAST JOURNALISTS

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Background

Journalists report experiences of sexual harassment with 58% of female and 35% of male journalists reporting sexual harassment (Parker, 2015). This study aims to determine whether there are significant differences in the frequency of workplace sexual harassment journalists between those journalists that work in online versus broadcast media. For this study we hypothesize that those journalists who work in online mediums will report more extensive sexual harassment than those in broadcast mediums, but both groups will experience harassment. Broadcast journalists have a great amount of public visibility and exposure which exposes them to a likelihood of sexual harassment. Yet, online journalists who may be less visible are far more accessible; News consumers' can react with immediacy and often anonymity to online journalists' work.

Methods

This study extracts information from a larger survey data set to include 141 journalists, of which 49 reported solely working in broadcast media, 66 in online media, and 26 in other types of media (e.g., newspaper, radio). Sexual harassment was defined as "sex/gender related talk and/or behavior that was unwanted, uninvited, and in which you did not participate willingly, at work". Participants were asked to rank the frequency of their experiences of a variety of sexual harassment behaviors on a scale from 1 (Never) to 5 (Very Often). For this study, T-tests were conducted to determine if broadcast (vs. non-broadcast) and online (vs. non-online) journalists experience significantly more frequent workplace sexual harassment.

Results

Analysis shows broadcast journalists ($t = .915$; $p > .05$) do not experience more sexual harassment than non-broadcast journalists. Additionally, online journalists ($t = .243$; $p > .05$) do not experience significantly more sexual harassment than non-online journalists. Results suggest there is no significant difference in the frequency of sexual harassment between journalists employed in these forms of media.

Conclusion

Differences specific to these media types may explain this. Broadcast news stations may provide ample protections, policies, and resources to the journalists who work under them. Online journalists may have the ability to remove themselves from digital harassment through blocking and muting features as well as practicing anonymity in publishing stories. Results suggest that sexual harassment resources and company training may not need to be specialized for particular types of journalism.