University of Oklahoma – Tulsa Research Forum 2023

Book of Abstracts

Sponsored by:
OU School of Community Medicine Office for Research Development and Scholarly Activity
Office of the OU-Tulsa Assistant Vice President for Research
OU-Tulsa Schusterman Library

Dear colleagues,

I would like to extend a warm welcome to all of you who are joining us for the first time as well as 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 2023 Research Forum. The OU-Tulsa Research Forum is an annual event to showcase student, staff, and resident research.

We are happy to continue the Research Forum in person this year. In addition to presenting posters live at the Research Forum, the presenters have an opportunity to upload their posters to the Open Science Framework (OSF). Posters uploaded to OSF will be more widely disseminated to a global community. We hope this will enhance what people can learn about each research project. First, second, and third place winners will be selected from all presented posters along with two awards for our special categories.

The Diversity, Equity, and Inclusion special category award recognizes research that focuses on social justice issues. Competitive posters for this award focus on social inequality or bias and discrimination. The Convergence Research special category award recognizes strong cross-disciplinary research with collaboration among multiple academic areas.

We hope members of the research community and the greater Tulsa community will enjoy the array of research projects presented this year. This book contains the abstracts of accepted posters for the OU-Tulsa 2023 Research Forum.

I would 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 2023 Research Forum.

On behalf of the OU-Tulsa 2023 Research Forum Program Committee, we look forward to learning about the innovative research projects across our campus. Thank you in advance for your support of research in the Tulsa community.

Sincerely,

Kent Teague, PhD
Assistant Vice President for Research, OU-Tulsa

Table of Contents

*Please note that the abstracts in this book are from the authors' original submissions. Any revisions an author has made to an abstract upon acceptance are available to read when opening their poster on the Open Science Framework.

Biomedical

Abstract #7 Binge Eating Disorder Prevalence in a University-Based Obesity Clinic

Authors

Ms. Cindy Ho - University of Oklahoma, OU-TU School of Community Medicine
Ms. Maria Paszkowiak - University of Oklahoma, OU-TU School of Community Medicine
Ms. Courtney McCorkle - University of Oklahoma, OU-TU School of Community Medicine
Dr. Zhamak Khorgami - University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery
Dr. Robert Lim - University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery
Dr. David Meehan – Oklahoma State University, College of Medicine, Department of Internal Medicine
Dr. Jesse Richards - University of Oklahoma, OU-TU School of Community Medicine, Department of Internal Medicine

Introduction

Binge eating disorder (BED) is the most common eating disorder in the US with a prevalence of 2.6%, but it remains underrecognized and undertreated. BED is characterized by episodes of consuming large amounts of food rapidly with loss of control and is identified with a binge eating score (BES). Episodes lead to feelings of shame and distress. The relationship between obesity and BED is not well understood. This study compares the prevalence of BED in populations with obesity and the general US population.

Methods

This retrospective chart review evaluated patients seen at a university-based obesity and bariatric surgery clinic over a 1-year period. BES was routinely calculated. The primary endpoint was diagnosis of BED (BES≥18). Other patient characteristics that may be associated with a BED diagnosis including sex, body mass index, and diabetes mellitus (DM) were also recorded.

Results

From 100 patients evaluated (age 40.9±13 years, 81% female, 32% with DM, BMI 49.76±12.12), 56 (56 %) had BED. BES was greater in higher BMIs, but not statistically significant. There was no significant difference in BED rate in male and female patients (52.6% vs 56.8%). BED was diagnosed more in younger patients. 59.5% of patients with age <50 had BED versus 46.2% with age ≥50 (P=0.24). BED was diagnosed in 64.7% of non-diabetic patients versus 37.5% of patients with diabetes (P=0.011).

Discussion

The prevalence of BED is high in patients of obesity and bariatric surgery clinics. BED can be as prevalent in all obesity classes and both genders, and especially prevalent in patients without diabetes. Therefore, further research is needed to better understand BED and obesity.

Abstract #15 Diabetes Technology in the Pediatric Inpatient Setting

Authors

Ms. Chloe Ngo - University of Oklahoma
Ms. Abby Bailey - University of Oklahoma, OU-TU School of Community Medicine
Ms. Nitya Rajagopal - University of Oklahoma, OU-TU School of Community Medicine
Mrs. Amy Hendrix-Dicken - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics
Dr. Shelly Mercer - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics
Dr. Michelle Condren - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics

Due to an embargo, this abstract will be made available for viewing online in July 2023.

Abstract #16 Mental Health Screening for Children Before and During Elexacaftor/Tezacaftor/ Ivacaftor Therapy

Authors

Mr. Gregory Merrell - University of Oklahoma, OU-TU School of Community Medicine
Ms. Heather McIntosh - University of Oklahoma, OU-TU School of Community Medicine, Office for Research Development and Scholarly Activity
Ms. Nicole Hendrix - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics
Dr. Michelle Condren - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics

Introduction

Since the approval of elexacaftor/tezacaftor/ivacaftor (ETI) in 2019, and subsequent approval for children ages 6-12 in 2021, case reports indicate it may contribute to mental health related adverse effects. Patients 12 and older typically receive annual mental health screenings that may identify mental health concerns, however there are no routine screening recommendations for younger children.

The objective of this study was to evaluate the frequency of anxiety or depression symptoms in children 5-11 years of age before and after ETI treatment.

Methods

This was a retrospective cohort study of children, 5 –11 years of age, seen in an outpatient cystic fibrosis center from May 2021 to July 2022. Any screen for anxiety or depression completed was included. Screening tools used by the clinic included the Screen for Child Anxiety Related Disorders (SCARED) Child version, the SCARED-Parent, and the Center for Epidemiological Studies Depression Scale for Children (CES-DC). Screening results were grouped as before or after starting ETI.

Results

Of the 16 patients screened, none completed the SCARED-CHILD pre-ETI and two completed it post-ETI. One respondent indicated possible separation and social anxiety as did the matched SCARED-Parent responses. There were 6 SCARED-Parent pre-ETI screens with 2 instances of school avoidance. Of the 11 post-ETI surveys, positive screens included panic disorder (n=1), separation anxiety (n=4), social anxiety (n=4), and school avoidance (n=1). Seven children completed the CES-DC pre-ETI with a mean score of 3.57 ± 4.65, with no positive depression screens. Ten children completed the post-ETI CES-DC with a mean score of 6.60 ± 5.97 with one respondent reporting a concern for depression. There were not enough matched pairs to compare individual screen results pre- and post-ETI.

Discussion

Due to a small sample size and lack of matched pairs, we are unable to determine if ETI use in children 6-11 correlates with an increase in anxiety or depression. However, screening revealed concerns that may have otherwise been missed, suggesting practitioners consider routine screening in this age group. Further research is needed to determine if ETI may cause or exacerbate anxiety or depression symptoms in children with CF.

Abstract #18 Evaluating Mental Health Effects Related to Elexacaftor/Tezacaftor/Ivacaftor Therapy

Authors

Ms. Jordan Neighbors - University of Oklahoma, College of Pharmacy
Dr. Alizay Paracha - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics
Mr. Nicholas Yelverton - University of Charleston, School of Pharmacy
Mrs. Amy Hendrix-Dicken - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics
Dr. Michelle Condren - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics

Introduction

Since its approval in 2019, elexacaftor/tezacaftor/ivacaftor (ETI) post-marketing reports have suggested potential mental health adverse effects. Case reports have revealed some individuals experiencing an increase in baseline depression, insomnia, and cognitive changes. Individuals with cystic fibrosis can exhibit some degree of underlying mood disorder due to their chronic systemic disease. Given the mental health concerns associated with ETI treatment, we sought to assess mental health adverse events reported to the FDA Adverse Events Reporting System involving individuals undergoing ETI therapy.

Methods

A retrospective review of 7,591 adverse event reports occurring from January 16, 2019 - June 29, 2022, with ETI was conducted using the FDA Adverse Events Reporting System (FDA AERS). Reports were excluded if they mentioned other suspected ingredients, fetal loss, or child abuse. Adverse mental health events were grouped into six major categories: “Aggression Symptoms/Disorders,” “Anxiety Symptoms/Disorders,” “Depression Symptoms/Disorders,” “Sleep Disturbances,” “Suicidal Behavior,” and “Completed Suicide.” Other mental health reports that did not fall into these six categories were also excluded. Descriptive statistics were utilized to summarize the mental health concerns within the reports assessed.

Results

Five hundred and fifty-one cases met study inclusion criteria by having one or more of the six mental health adverse event categories reported. Of these cases, there were 231 (41.9%) cases with anxiety symptoms/disorders, 219 (39.8%) with depression symptoms/disorders, 216 (39.2%) with sleep disorders, 71 (12.9%) with aggression symptoms/disorders, 66 (12.0%) with suicidal behavior, and 8 (1.45%) with completed suicide. The reported cases contained a mean of 1.47+0.79 different mental health concerns.

Discussion

Although only a small portion of AERs for ETI were related to mental health, these findings emphasize the importance of conducting mental health screening before and after the start of ETI therapy. It is important to note that causality cannot be proven by FDA AERs alone. Other coinciding variables such as the recent COVID-19 pandemic may also contribute to mental health adverse effects that cannot be accounted for in this data set. Further studies regarding CFTR modulator therapies and their involvement in the central nervous system are warranted. Ongoing monitoring while on ETI therapy is needed to determine the true significance of these mental health-related adverse effects, and if FDA intervention is necessary.

Abstract #21 Pediatric Montelukast Adverse Event Reports Before and After Black Box Warning

Authors

Dr. Samer Abdelkader - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics

Mrs. Amy Hendrix-Dicken - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics

Dr. Michelle Condren - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics

Introduction

In March 2020, the U.S. Food and Drug Administration (FDA) required a Black Box Warning for montelukast due to serious mental health side effects. We hypothesized the warning would lead to an overall decrease in reports of mental health symptoms and disorders related to montelukast in both pre-adolescent and adolescent groups.

Methods

A retrospective review of 1,570 pediatric (1-17 years) adverse event reports involving montelukast sodium from 03/01/2018-02/28/2022 was conducted using the FDA Adverse Events Reporting System. Reports involving other suspected active ingredients/products and child abuse were excluded. Adverse reactions were grouped into the following categories: “Aggression,” “Anxiety,” “Depression,” “Attention Deficit and Hyperactivity Disorder” “Sleep,” “Suicidal Behavior,” “Completed Suicide,” and “Other Mental Health.” The pre-period was 03/01/2018-03/03/2020 and the post-period was 03/04/2020-02/28/2022. Cases were grouped into two age categories, 1-10 years and 11-17 years. Chi-square tests were used to test associations between time periods and reports of the mental health categories.

Results

Of the 1,570 reports assessed, 1,295 (82.5%) included >1 mental health concern. Nine hundred and ninety-six (84.2%) of the 1183 pre-adolescent reports and 299 (77.3%) of the 387 adolescent reports included >1 mental health reaction. Statistically significant decreases in reports for pre-adolescents were found in both depression (pre n=234, post n=125) ($X^2(1)=5.73$, p=0.017), and sleep (pre n=317, post n=178) ($X^2(1)=5.74$, p=0.019). Pre-adolescent reports for aggression (pre n=324, post n=220), anxiety (pre n=305, post n=192), ADHD (pre n=64, post n=36), suicidal behavior (pre n=100, post n=76), and other mental health (pre n=261, post n=177) events decreased (*n.s.*).

The only statistically significant change for adolescents was a reduction in aggression reports (pre n=54, post n=40) ($X^2(1)=8.5$, p=0.004). Adolescent reports for anxiety (pre n=78, post n=100), depression (pre n=66, post n=104), ADHD (pre n=3, post n=10), suicidal behavior (pre n=66, post n=93), and other mental health events (pre n=55, post n=81) increased while reports involving sleep (pre n=31 post n=23) and completed suicide (pre n=9, post n=6) decreased (*n.s.*).

Discussion

After placement of FDA black box warning, reports including mental health adverse events decreased in pre-adolescents; however, several categories assessed increased for adolescents.

Abstract #41 Successful Treatment of Self-Reported Alcohol Use Disorder with GLP-1 Agonist Semaglutide

Authors

Ms. Kyleigh Royal - University of Oklahoma, OU-TU School of Community Medicine
Dr. Danielle Lewis - University of Oklahoma, OU-TU School of Community Medicine, Department of Internal Medicine
Dr. Jesse Richards - University of Oklahoma, OU-TU School of Community Medicine, Department of Internal Medicine

Introduction

Alcohol use disorders are the most prevalent of substance use disorders worldwide with nearly three million deaths reported annually. Current first-line pharmacotherapy for alcoholism includes naltrexone, acamprosate, and disulfiram. The aforementioned medications are not benign drugs. Naltrexone poses the risk of hepatoxity and can precipitate opioid withdrawal. Acamprosate is taken three times a day. If patients consume alcohol while on disulfram, reactions can be fatal. Novel treatment options are needed for patients currently suffering from alcohol use disorder. The purpose of this case series is to assess the utility of semaglutide treatment of patients with severe self-reported binge drinking episodes in disease improvement.

Methods

Patients were selected retrospectively based on the initiation of semaglutide for metabolic syndrome, diabetes, or obesity who also had self-reported binge drinking disorder. In-person follow-up appointments were scheduled with medical providers before patients left initial encounters as part of routine bariatric care. Patients' initial AUDIT (Alcohol Use Disorders Identification Test), BES (Binge Eating Scale), weight, and semaglutide dose were reported along with time interval to follow-up. Repeat AUDIT, BES, and weight were collected during the follow-up encounters.

Results

Twelve patients were involved in the case series. The average age of patients was 50 years. Seven patients had an initial reported BES score, three were positive, with only one being positive on follow up. Thirty-three percent of patients were treated with 0.25mg of semaglutide weekly, 50% with 0.5mg, and 17% with 1mg. The average time from initial encounter to follow up was 7.4 weeks. Every patient had an initial high AUDIT score with a follow-up lower AUDIT score. Average weight loss from initial encounter to follow-up was 11.2 pounds.

Discussion

Limited literature exists for semaglutide as a therapeutic agent for binge drinking disorders. In this case series, one hundred percent of patients had a lower AUDIT score after initiation of semaglutide. GLP-1s are expressed in the mesolimbic pathways of the brain and modulate dopaminergic circuits involved in the regulation of hunger, satiety, and hedonic eating. It is further postulated that GLP-1s regulate the "rewards" of drugs of abuse such as alcohol, making GLP-1 agonists such as semaglutide a viable option for alcohol use disorder pharmacotherapy. Limitations of this case series include small sample size, patients self-selected to divulge alcohol use disorder history, and possible unmeasured confounding variables affecting patients' lower AUDIT scores during follow-up encounters. Semaglutide is a promising pharmacotherapy agent for binge drinking disorder that warrants further clinical investigation.

Abstract #43 Longitudinal Ataxia Findings in Wolfram Syndrome

Authors

Mr. William Runion - University of Oklahoma, OU-TU School of Community Medicine
Dr. Ling Chen - Washington University, School of Medicine in St. Louis
Dr. Toni Pearson - Washington University, School of Medicine in St. Louis
Ms. Heather Lugar - Washington University, School of Medicine in St. Louis
Dr. Tamara Hershey - Washington University, School of Medicine in St. Louis

Introduction

Wolfram syndrome is a rare autosomal recessive disorder resulting from mutations in the WFS1 gene encoding the wolframin protein. Individuals with Wolfram syndrome experience progressive disease over the course of their lives including diabetes mellitus, diabetes insipidus, optic nerve atrophy, hearing loss, and ataxia. The onset and range of ataxia symptoms has previously not been well-described. The purpose of this study is to understand the type and progression of ataxia symptoms in Wolfram syndrome to better inform individuals, their families, and their healthcare providers and to determine the potential use of ataxia as an outcome measure for future clinical trials.

Methods

The study participants (n=36) were individuals from ages 6-33 with confirmed recessive WFS1 gene mutations who attended an annual Washington University Wolfram Research Clinic between 1 and 7 times. In addition to many other tests, pediatric neurologists performed neurologic exams and completed the Scale for Assessment and Rating of Ataxia (SARA) and the Wolfram Unified Rating Scale (WURS). A linear mixed effects model was used to examine the effect of time on the WURS and SARA ratings for ataxia symptoms. Finally, a Kaplan-Meier survival curve was created to estimate the probability of displaying ataxia symptoms for a given age or diabetes mellitus duration.

Results

78% of participants in the 2019 clinic displayed symptoms of ataxia on the SARA scale. 72% displayed gait/stance impairment, 8% showed speech impairment, 31% had upper limb dysmetria, and 14% had lower limb dysmetria. Additionally, a main effect of time was found on gait and overall ataxia symptoms ($t= 2.51$, $p=0.02$). Survival curves showed that, by the late teenage years, around 50% of Wolfram patients can be expected to display ataxia symptoms. When measuring based on onset of diabetes mellitus symptoms, 50% of Wolfram patients can be expected to display ataxia symptoms by 13-14 years after their diabetes mellitus diagnosis.

Discussion

The results show that a majority of individuals with Wolfram syndrome have at least mild ataxic symptoms. Most often, these symptoms involve gait and balance whereas effects on speech are very uncommon. Most individuals can expect ataxia symptoms to emerge during their teenage years and to gradually worsen over time. The gradual progression of ataxia symptoms and the relatively late onset of symptoms could make ataxia a good possible marker for future clinical trials.

Abstract #49 Treatment of Moderate to Severe Binge Eating Disorder with GLP-1 agonist Semaglutide

Authors

Ms. Courtney McCorkle - University of Oklahoma, OU-TU School of Community Medicine
Ms. Maria Paszkowiak - University of Oklahoma, OU-TU School of Community Medicine
Ms. Cindy Ho - University of Oklahoma, OU-TU School of Community Medicine
Dr. Jesse Richards - University of Oklahoma, OU-TU School of Community Medicine, Department of Internal Medicine
Dr. Neha Bang - University of Oklahoma, OU-TU School of Community Medicine, Department of Internal Medicine
Dr. Zhamak Khorgami - University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery
Dr. Kyle Simmons - Oklahoma State University, Biomedical Imaging Center

Introduction

Binge eating disorder (BED) is the most common eating disorder in America. It involves episodes comprising significant oral ingestion within a certain time period. Its severity is measured by the Binge Eating Scale (BES). Several medications have been studied for treatment of BED. The only FDA-approved medication for BED is lisdexamphetamine. New and novel treatments are needed for the millions of patients currently suffering from BED.

Methods

This was a retrospective chart review of patients with moderate to severe BED at an obesity medicine and bariatric surgery clinic. Certain patients were prescribed semaglutide (0.25 mg to 2.4 mg) (n = 74). Other patients were not prescribed semaglutide for obesity treatment. Many of these individuals were prescribed lisdexamphetamine or topiramate. These drugs have known efficacy in BED. Patient age, gender, semaglutide dose, date of semaglutide initiation, percentage of total body weight loss, BMI, and BES score were collected.

Results

Participants treated with semaglutide achieved better BES score reduction than those treated with alternative anti-obesity medications, including topiramate and Vyvanse. P value for ANOVA with covariate adjustment was <0.001.

Discussion

Semaglutide use correlates with weight loss and improved BES scores in patients with moderate to severe BED. This drug represents a potential treatment for patients with contraindications to alternative therapies. Effective BED treatment may contribute to improvements in obesity and quality of life.

Abstract #52 Comparison of Two Methods for the Isolation and Characterization of Exosomes

Authors

Mr. Zachary Selvidge - University of Oklahoma, Health Science Center
Ms. Lauren Taylor - University of Oklahoma, OU-TU School of Community Medicine
Dr. Ahlam Alarbi - University of Oklahoma, OU-TU School of Community Medicine, Integrative Immunology Center
Dr. Chibing Tan - University of Oklahoma, OU-TU School of Community Medicine, Integrative Immunology Center
Dr. Kent Teague - University of Oklahoma, OU-TU School of Community Medicine, Integrative Immunology Center

Introduction

Exosomes are extracellular membrane vesicles (EVs) that nearly all types of cells can produce under both normal and pathological conditions. It has been proven that EVs play essential roles in cell communication and epigenetic regulation by transporting crucial protein and genetic materials. Consequently, the identification of these biomarkers could assist in the diagnosis and treatment of various pathologies and disease states. Nevertheless, lacking a standardized exosome separation technique is a major challenge. This study aimed to compare two different protocols (ExoQuick and Norgen) on their exosome isolation efficacy as well as their respective advantages and limitations.

Methods

Polymer-based reagents from ExoQuick and Norgen Exosome Purification Kit were used for total EV isolation from serum. ExoQuick is a proprietary polymer that precipitates exosomes, whereas Norgen is a new technique that uses Silicon Carbide resin (SIC) for exosome purification. Neuronal-enriched extracellular vesicles (NEEVs) were enriched from total EVs by a magnetic streptavidin bead immunocapture kit against a neural adhesion marker (CD171) biotinylated antibody. Once the NEEVs were captured and stabilized, the bead/antibody/EV complex was coupled to the EV marker – CD63, EXO-FITC, and neuronal marker – CD171 and subsequently analyzed by flow cytometry to confirm EV capture and NEEV enrichment. Protein concentration in EVs and NEEVs were assessed by the bicinchoninic acid (BCA) method. Exosomes were characterized by immunoblotting for the presence of EV markers (Western blotting).

Results

Flow cytometry results confirmed the presence of EV markers CD63 and EXO-FITC and NEEV marker CD171 in both protocols. The BCA protein assay demonstrated a higher exosome protein concentration with the Exoquick protocol than the Norgen protocol. Western blot analysis showed that 1) CD171 marker was enriched in NEEVs in both protocols, with a higher concentration in ExoQuick, 2) CD9 exosome marker was positive in both protocols, with a higher concentration in ExoQuick, 3) EV negative marker Calnexin was observed in both protocols, with less concentration with Norgen.

Discussion

Based on the flow cytometry and western blot results, the ExoQuick protocol yielded a higher concentration of exosomes than the Norgen protocol. Conversely, the EV-negative marker, Calnexin, was more notable in the ExoQuick isolation method. This study presents preliminary findings concerning a new technique using Silicon Carbide resin (SIC) for exosome purification, comparing it to precipitation. Exosomes were separated from serum, and the initial findings indicated that Norgen resulted in higher-purity exosomes with a lower yield than ExoQuick.

Abstract #53 Repair of Upper Extremity Non-Union by Reamer-Irrigator-Aspirator Bone Graft and Masquelet Technique

Authors

Mr. Chase Gaddis - University of Oklahoma, OU-TU School of Community Medicine
Ms. Cindy Ho - University of Oklahoma, OU-TU School of Community Medicine
Ms. Courtney McCorkle - University of Oklahoma, OU-TU School of Community Medicine
Dr. Brent Norris – Orthopaedic Traum Services of Oklahoma
Dr. Jake Checketts - Oklahoma State University, College of Medicine, Department of Orthopedic Surgery

Introduction

Treatment of long bone nonunion is challenging and is associated with known complications and failure rates. Nonunion can occur for many reasons but bone defect and devitalized/infected bone are common causes. In these situations, many have advocated for use of the Masquelet technique followed by some form of bone graft. The technique involves debridement of the nonunion/devitalized/infected bone with placement of a temporary antibiotic cement spacer in the defect. Four to six weeks later, the cement spacer is removed, and a planned staged bone grafting is performed. The use of the Masquelet technique combined with reamer-irrigator-aspirator (RIA) autologous bone graft harvest has been a successful treatment algorithm for long bone nonunion in the lower extremity. However, literature and evidence of this treatment algorithm for similar upper extremity nonunion repair is sparse. This study evaluates the use of Masquelet technique and RIA bone grafting for the treatment of upper extremity fracture nonunion.

Methods

Between 2009 and 2020, a retrospective chart review was performed on patients who underwent Masquelet and RIA for upper extremity fracture nonunion. All patients had prior surgical treatment of a humerus, radius or ulna and gone onto nonunion. All nonunion's were treated with Masquelet technique and RIA intramedullary bone (harvested from the femur). Standard demographic data was collected with the addition of medical comorbidities and defect size. The primary endpoint was successful bone consolidation characterized by clinical and radiographic findings. Secondary endpoints included postoperative complications and healing time.

Results

A total of 38 patients (mean age 54 years, 20 females and 18 males) with upper extremity nonunion were evaluated and follow-up data was available for 23 of these patients. 15 patients (39.47%) were lost to follow-up, which is reflective of a trauma population. Following the Masquelet with RIA bone graft, 20 of the 23 (86.95%) nonunions healed. Of the three persistent nonunions, 2 healed upon a tertiary procedure, and 1 is still awaiting further treatment. The mean healing time was 22.77 ± 9.76 weeks. 4 complications occurred: 1 hematoma, 1 wound dehiscence, 1 infection, and 1 subacromial bursitis needing hardware removal.

Discussion

This study suggests the Masquelet technique and RIA bone grafting protocol can be an effective surgical treatment for upper extremity fracture nonunion. Mean time to union of 23 weeks with limited complications suggests this technique is a promising strategy for treatment of upper extremity long bone nonunion.

Abstract #58 Identification of Biomedical Factors in Patient Limb Loss Using Grounded Theory

Authors

Ms. Dana Thomas - University of Oklahoma, OU-TU School of Community Medicine
Mr. Austin Milton - University of Oklahoma, OU-TU School of Community Medicine
Mr. Freddie Wilson - University of Oklahoma, OU-TU School of Community Medicine
Dr. Juell Homco, PhD, MPH - University of Oklahoma, OU-TU School of Community Medicine, Department of Medical Informatics
Dr. Blake Lesselroth, MD, MBI - University of Oklahoma, OU-TU School of Community Medicine, Department of Medical Informatics
Dr. Peter Nelson - University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery
Dr. Kelly Kempe - University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery

Introduction

End-stage peripheral arterial disease (PAD) and poorly controlled diabetes mellitus (DM) lead to an increased risk of leg amputations. The goal of this study is to identify barriers to care that impede the proper management and treatment of PAD and DM patients and ultimately lead to limb loss.

Methods

Seven semi-structured, IRB-approved interviews were conducted with primary care physicians (PCPs). All were recruited electronically. This analysis utilized one of seven questions (i.e., what barriers patients face that can lead to amputation). Interviews were conducted one-on-one, de-identified, and transcribed. Codes were created independently using a 2-person coding team, MAXQDA software, and a qualitative grounded theory approach. Meetings amongst 4 members took place to reconcile the codes and determine arising themes. A word cloud was generated to sort and identify the barriers and further transform the data.

Results

The top coded segments for barriers to limb salvage in ascending order are: “Specialty Care Issues” (freq. 15), “Transportation/Rural Locations” (freq. 13), “Financial Strain on Patient” (freq. 11), “Patient adherence” (freq. 10), “Provider Education” (freq. 9), and “Insurance Barrier” (freq. 9). Other segments with a frequency of 8 were “Lifestyle behavior,” and “Low health literacy.” “Challenges by rural environment,” “Medication costs/Navigation,” and “Lack of Resources for Clinic” had 7 repeats in the interviews.

Discussion

Structural, social, and financial barriers were cited by primary care providers as what may impede limb salvage. Specialty care referrals and availability of specialty providers may introduce roadblocks for patients as transportation becomes a limited resource. Providers and patients may also need additional education in these end-stage patients to reduce limb loss. Patients, providers, and clinical institutions work together—barriers complicate these relationships and restrict patient care.

Abstract #63 A Descriptive Review of a Multidisciplinary Approach to Patients with Obesity in an Indigenous People Cohort

Authors

Dr. Stephanie Garcia - University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery
Mrs. Carah Horn - University of Oklahoma, OU-TU School of Community Medicine
Dr. Zhamak Khorgami - University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery
Dr. Robert Lim - University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery
Dr. Geoffrey Chow - University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery

Introduction

Indigenous patients have high rates of obesity and related comorbidities. The goal of this study is to review the outcomes of Indigenous patients after they undergo bariatric surgery through a multidisciplinary program. This program includes bariatric medicine, surgery, physical therapy, psychiatry, and nutrition.

Methods

A retrospective review of Indigenous patients who underwent bariatric surgery from June 2021 to August 2022 and who are part of a comprehensive bariatric program were included. All patients met the National Institutes of Health consensus statement guidelines. Patient comorbidities, operative details, percentages of weight loss, BMI change, and improvement or resolution of diabetes mellitus at 6-month intervals were compared.

Results

A total of 38 patients were included in this study. Of the patients studied, 16 had a diagnosis of diabetes and a total of 18 patients were treated with anti-obesity medications. Mean preoperative weight and BMI were 142.61 kg and 46.93 kg/m2, respectively. Surgical intervention included primary RYGB (58%), Sleeve gastrectomy (32%), SADI (8%), and conversion to RYGB (3%). At 6 months, percent change from the highest recorded weight average for the cohort was –13%, BMI 42.63 kg/m2. Post-operatively patients with diabetes had an average HbA1c of 5.6%.

Discussion

Multidisciplinary combined therapy should be considered in Indigenous patients with obesity. Indigenous patients undergoing bariatric surgery have higher rates of DM and low rates of perioperative complications. It is important to consider racial disparities not limited to power, privilege differentials and structural determinants of health in our population studied that can be seen in these results. More research is needed to determine how bariatric surgery improves the lives of patients with obesity and how to improve access to comprehensive bariatric programs.

Education

Abstract #36 Vascular Surgery Positions and Applicants: Ten-Year Trend Analysis and Expansion Consideration

Authors

Mr. Joseph Edmonds - University of Oklahoma, OU-TU School of Community Medicine
Mr. Nolan Henning - University of Oklahoma, OU-TU School of Community Medicine
Dr. Hannah Jayroe - University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery
Dr. Peter Nelson - University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery
Dr. William Jennings - University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery
Dr. Wato Nsa - University of Oklahoma, OU-TU School of Community Medicine, Department of Medical Informatics
Dr. Kimberly Zamor - University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery
Dr. Kelly Kempe - University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery

Introduction

There is a significant shortage of vascular surgeons in the United States, and when considering the aging population and worsening disease, projections estimate this shortage will worsen. Two trainee tracks are offered to practice vascular surgery, an integrated residency and fellowship track. Both tracks provide similar overall case experiences and outcomes. The aim of this study is to gain a concentrated understanding of the interest in vascular surgery compared to the annual growth in positions offered for both training paradigms. Annual appraisal is imperative to satisfy the rapidly growing shortage of vascular surgeons.

Methods

Retrospective data was analyzed utilizing the National Resident Matching Program (NRMP) from 2012-2022 applicant appointment years (specialty code for vascular surgery 450). Simple linear trend analysis was performed for all positions offered, the number of applications, and unmatched applicants and stratified by fellowship or residency.

Results

Over ten years, the total vascular surgery trainee positions expanded from 161 to 202. Integrated residency positions increased (41 in 2012 vs 84 in 2022) while fellowship positions remained stagnant (120 in 2012 vs 118 in 2022). Total applicants rose as well, from 213 to 311. In 2022, unmatched applicants increased for both paradigms, (25 fellowship and 84 residency applicants), and 100% of programs filled. On average, the number of residency positions offered increased by 4 each year ($p < 0.0001$), but the number of fellowship positions remained statistically unchanged with an increase of 0.5 each year ($p = 0.1617$). The number of applicants for integrated residency positions increased by approximately 9 per year ($p = 0.001$) while the number of fellowship applicants increased by approximately 1.5 per year ($p = 0.121$).

Discussion

Applicants for both vascular tracks have increased since 2012 indicating successful recruitment; however, all 2022 programs filled, leaving many applicants unmatched. Residency positions continue to expand while fellowship positions have not. With the demonstrated surge amongst applicants, limited positions, and known shortage of vascular surgeons, there is an urgency to meet the increasing demand. A concerted effort should be made toward adding additional fellowship positions where feasible.

Abstract #42 Medical trainee experiences of patient-perpetrated sexual harassment: A pilot study

Authors

Dr. Danielle Lewis - University of Oklahoma, OU-TU School of Community Medicine, Department of Internal Medicine

Dr. Martina Jelley - University of Oklahoma, OU-TU School of Community Medicine, Department of Internal Medicine

Dr. Bernadette Miller - University of Oklahoma, OU-TU School of Community Medicine, Department of Internal Medicine

Introduction

Workplace sexual harassment perpetrated by persons in positions of power has been a focus of media attention. Many programs are used by organizations for training regarding how to avoid becoming a perpetrator of sexual harassment in the workplace. However, sexual harassment by clients, or, in our case, patients, has not been well studied. A variety of factors contribute to physician burnout, such as work-life imbalance, fast-paced work environment, and demanding work duties. Sexual harassment can add to the risk of burnout by negatively impacting physician wellness, such as added stress, harmed working relationships, and creating a hostile work environment. The goal of this study was to assess the adverse patient encounters of resident physicians based on what forms of harassment occur, how often, and in which settings.

Methods

An anonymous voluntary electronic survey characterizing the experiences of patient-physician boundary transgressions was distributed to a convenience sample of medical residents and fellows. 190 physicians were given the opportunity to participate in this study, with 39 responding.

Results

The average age of respondents was 29 years. Thirty-two percent were male and 68% were female. Twenty-eight percent of respondents were PGY-1s and 48% would be classified as primary care specialists. Sexist comments, being referred to using an inappropriate term, comments on physical appearance, and asking intrusive or unwanted personal questions were most frequently reported. Verbal abuse, physical abuse, and inappropriate touching were viewed most negatively. All incidents were reported as negatively impacting the patient-physician relationship. Eighty-seven percent expressed a need to educate medical professionals on how to maintain appropriate boundaries with patients, however, only 83% received any formal training. Training experiences included OSCEs, medical school seminars, residency didactics, and medical school simulation sessions. Only 36% reported prior training on reducing the risk of boundary transgressions. Alarmingly, only 54% reported awareness of formal hospital policies against sexual harassment of staff by patients and/or family members. Further, experiences of racism and comments regarding age were reported among other transgressions committed by patients.

Discussion

Boundary transgressions negatively impact the patient-physician relationship. These harassments also negatively affect the well-being of the physician. Physicians in training are uncomfortable addressing unwanted behaviors from patients. The development of a standardized curriculum to maintain appropriate boundaries and reduce risk of boundary transgressions is necessary to combat the risk of physician burnout and promote a safe work environment for all. Further research to implement specific training curriculum into residency programs is warranted.

Abstract #44 Future Medical Professionals' Knowledge Concerning Care for Gender Minority Patients

Authors

Mr. James Elias - University of Oklahoma, OU-TU School of Community Medicine
Ms. Lana Mnajjed - University of Oklahoma, OU-TU School of Community Medicine
Mr. Mohamad Akel - University of Oklahoma, OU-TU School of Community Medicine
Ms. Mackenzie Martin - University of Central Oklahoma
Dr. Tyler Sparkman - University of Oklahoma, OU-TU School of Community Medicine, Department of Psychiatry
Ms. Amy Abercrombie - University of Oklahoma, OU-TU School of Community Medicine, Office for Research Development and Scholarly Activity
Dr. Sarah Beth Bell - University of Oklahoma, OU-TU School of Community Medicine, Office for Research Development and Scholarly Activity

Introduction

Health career curriculum must be finely cultivated to effectively prepare students. Regardless of role, students must be simultaneously trained in hard and soft skills including developing cultural competence. For this reason, gender minorities such as nonbinary people have become one focus of new efforts to adapt and update health career curriculum. To assess the efficacy of this new training area, we surveyed a variety of students about their knowledge of gender minorities and their healthcare needs.

Methods

116 students participated in this study including 45 MD, 33 social work, 36 PA, and 2 other students on the OU-Tulsa Campus. Participants were 30.7% male, 68.5% female, and no students identified with other genders. The mean age was 27.32 (SD=5.15), and 18.3% were LGBTQ+ while 81.7% were heterosexual. Participants completed 13 knowledge questions (10 open-response and 3 multiple choice) assessed by two independent coders as correct or incorrect. The coders initially had an inter-rater reliability of 77.0% determined by experts in the field, and all differences were resolved. Participants were also asked about their attitudes toward gender minorities and whether these topics were effectively covered in their current curriculum.

Results

Participants' knowledge assessments had an average score of 6.37/13 (SD=2.48) with no differences between the three main educational programs. When asked if they felt their program taught enough about nonbinary or transgender people on a scale of 1 to 10, participants responded with average scores of 5.39 (SD=2.70) and 5.86 (SD=2.89) respectively with no differences between educational programs. Participants were also asked about their political identity on a 1 to 7 scale as well as their religiosity (regardless of specific religion) on a 1 to 10 scale. More liberal people had higher knowledge scores ($r=0.36$, $p<0.001$). In addition, more religious people had lower knowledge scores ($r=-0.38$, $p<0.001$).

Discussion

Results indicated that MD, PA, and social work programs on the OU-Tulsa campus educate their students about gender minority populations with approximately the same efficacy. While no differences existed between programs, it was clear that differences existed between other demographics such as religiosity or political affiliation. Future research could examine possible reasons these differences emerged. While the current curriculum attempts to teach about gender minorities, knowledge scores from the survey indicate room for growth.

Abstract #50 Myanmar Parents' Awareness of Home Math Environment: Video-Cued Multivocal Ethnography in Myanmar, Korea, the U.S.

Authors

Mrs. Boo Young Lim – University of Oklahoma, Jeannine Rainbolt College of Education

Dr. Vickie Lake - University of Oklahoma, Jeannine Rainbolt College of Education, Department of Instructional Leadership and Academic Curriculum in Early Childhood Education

Introduction

This study investigates the similarities and differences in Myanmar mothers' reflections on their home math environment (HME) across the U.S., South Korea, and Myanmar. Despite the importance of early math skills for school readiness, most studies on Myanmar immigrant parents primarily focused on the literacy learning environment. In addition, cultural factors impact the quality of parent-child interactions in HME. Through cross-cultural video-cued stimulated interviews, these research questions are as follows: What are the similarities and differences between Myanmar parents' views on their home numeracy environment across the three countries?

Methods

This qualitative study used video-cued multivocal ethnography to uncover Myanmar parents' taken-for-granted cultural boundedness and their cultural negotiations in three countries. 2 mothers and their children from Myanmar, 2 Myanmar immigrant mothers and their children in South Korea, and the U.S. were recruited through purposeful sampling and participated in this study. All children participating in this study were aged 3-5 years. Using culturally appropriate materials, the researcher video-recorded the participants' three activities. Researchers edited the videos into two one-minute videos to stimulate self-reflection on their home numeracy environment and explore others' HME. The collected data was analyzed with a three-level qualitative analysis.

Results

Myanmar mothers in the US, Korea, and Myanmar have limited math knowledge and struggle to support their children's math, with differences in teaching methods revealed through the physical distances between mothers and children in their interactions. However, Myanmar immigrant mothers in the U.S. knew the importance of play-based math activities. In addition, mothers in the U.S. allowed children autonomy and ownership compared to mothers in Myanmar and Korea. Mothers in Myanmar realized that they preferred formal math instruction to acquire mathematics knowledge and skills. As a result, mothers in Myanmar rely heavily on schools for their children's math education. In contrast, parents in Korea and the U.S. face challenges in providing home math environments due to cultural and language differences.

Discussion

Social-cultural contexts influence the HME and the quality of mother-child interactions. The cross-cultural conversations on home numeracy activity revealed how home numeracy environments are influenced by their situated environmental systems. Due to the small sample size, the results may not represent mothers in these regions as a whole. Given the importance of play-based informal math activities at home, it is essential to uncover Myanmar parents' implicit cultural beliefs in formal math activity. The results showed the possibility of developing culturally responsive home math parents' intervention, particularly for Myanmar parents.

Abstract #55 Healthcare Failure Mode and Effect Analysis for a Telemedicine Educational Needs Assessment

Authors

Mr. Cade Church - University of Oklahoma, OU-TU School of Community Medicine
Dr. Juell Homco, PhD, MPH - University of Oklahoma, OU-TU School of Community Medicine, Department of Medical Informatics
Dr. Helen Monkman, PhD - University of Victoria
Ms. Liz Kollaja - University of Oklahoma, OU-TU School of Community Medicine
Mrs. Kristin Rodriguez, MPH - University of Oklahoma, OU-TU School of Community Medicine
Dr. Andrew Liew, MD - University of Oklahoma, OU-TU School of Community Medicine, Department of Psychiatry
Mrs. Shannon Ijams, MPAS, PA-C - University of Oklahoma, OU-TU School of Community Medicine
Dr. Blake Lesselroth, MD, MBI - University of Oklahoma, OU-TU School of Community Medicine, Department of Medical Informatics

Introduction

Telehealth appointment use has increased by over 6,000% since the beginning of the COVID-19 pandemic. However, the lack of a standardized curriculum in health professional training programs has negatively affected the adoption and effectiveness of this technology in practice. In an effort to build a telemedicine curriculum, we used an adapted Healthcare Failure Mode and Effect Analysis (HFMEA) aimed at identifying common failures in telemedicine practice across the country. HFMEA is a systemized approach to proactively identifying failure modes (breakdowns) in a clinical workflow.

Methods

Based on a review of the literature and anecdotal evidence, we created 1) a field data collection form for nonparticipant observation, and 2) a semi-structured interview script. Two members of the research team observed telemedicine appointments and provided qualitative data on the types of failure modes encountered in practice. Medical students rotating in the department then used the modified tools to observe telemedicine visits at their home institutions. The initial instrument was adapted over multiple observations to increase its efficiency. Additionally, free-form notes were used to record novel failure modes as they arose during further observations.

Results

Commonly observed failure modes found during initial observations fell within four generalized themes including video quality, audio quality, general connectivity, and non-technological issues. An example of each theme includes 1) the patient not being able to visually see the provider, 2) the patient not being able to hear the provider, 3) the videoconference call dropping mid-encounter, and 4) patients connecting from non-HIPAA-compliant areas, respectively. Preliminary data collection revealed connection quality to be the most common challenge encountered. We also found that clinicians often neglected to confirm the patient's location or develop a reconnection plan should the call drop mid-encounter. After reviewing these findings, members of the research team assembled a normative workflow for telemedicine visits at multiple organizations to provide a scaffolding for further analysis and curriculum development.

Discussion

While HFMEA is typically used to identify engineering problems and design health-system solutions, we adapted this method to identify clinician knowledge and training gaps. Education on the use of telemedicine software as well as interpersonal training will be necessary to address all of the failure modes observed during our data collection. In the next phase of this project, we will evaluate curricula that address the identified training needs.

Engineering & Applied Research

Abstract #13 Towards Digital Twin Empowered Risk-aware Reinforcement Learning in User-centric O-RAN Architecture

Authors

Mr. Shahrukh Khan Kasi - University of Oklahoma, Gallogly College of Engineering
Dr. Ali Imran - University of Oklahoma, Gallogly College of Engineering

Introduction

The full potential of Open radio access network (O-RAN) can be tapped only if online learning is exploited in tandem with architectural flexibility that allows the orchestration of key configuration and optimization parameters (COPs) in a live network. Current rigid cell-centric radio access network (RAN) does not offer the desired level of flexibility. On the other hand, despite their recent popularity, the practical deployment of online learning frameworks, such as Deep Reinforcement Learning (DRL) based COP orchestration solutions, remains limited due to their risk of deteriorating network performance during the exploration phase. We propose and analyze a novel digital twin-assisted DRL framework for user-centric RAN (UC-RAN), which offers both architectural flexibility and risk-free COP orchestration to exploit this flexibility.

Methods

We introduce and investigate two key UC-RAN configuration and optimization parameters; 1) size of user-centric virtual cells (S-zones), and 2) number of UEs scheduled per S-zone, which are leveraged through an rApp to control latency satisfaction, reliability satisfaction, area spectral efficiency, and energy efficiency. Our extensive investigation shows that both COPs offer a powerful mechanism to control multiple network KPIs in a flexible and scalable fashion. To cope with the performance deterioration risk associated with online network reconfiguration, we leverage a digital twin to instill risk awareness in the DRL optimization framework. We conduct manifold experiments to evaluate the convergence and risk of the proposed risk-aware rApp against the brute force results.

Results

Our results show that the proposed novel risk-aware rApp can deliver impressive performance by converging to the near-optima in less than a few hundred iterations. In addition, the risk-aware rApp significantly improves the convergence and associated risk by a factor of ten compared to risk-oblivious optimization framework by leveraging offline learning from the digital twin.

Discussion

The risk-aware optimization framework indicates the viability of online learning techniques in live cellular networks with controlled and safe exploration. This work demonstrates a highly flexible O-RAN-based user-centric architecture coupled with a risk-aware DRL optimization framework that can address the fundamental tradeoff between latency, reliability, and throughput in live emerging cellular networks.

Abstract #17 Clinical Uses of Artificial Intelligence in Otolaryngologic Surgery: ChatGPT

Authors

Ms. Lana Mnajjed - University of Oklahoma, OU-TU School of Community Medicine
Dr. Rusha Patel – University of Oklahoma, College of Medicine, Department of Otolaryngology

Introduction

The growth and development of artificial intelligence (AI) over the years has allowed for its applications in numerous fields, including medicine. AI has already proven useful for diagnosis, surgery, drug development, medical management, and education. ChatGPT, a 'life-like' chatbot released by OpenAI late in 2022, is the latest development in AI expected to extend to several professional fields. This study utilized ChatGPT to provide perioperative counseling of patients undergoing otolaryngologic surgery and compared responses to those typically given to patients by providers.

Methods

ChatGPT access was obtained through institutional email registration. Clinical scenarios were selected based on common clinical questions and triage queue messages posed by patients undergoing routine head and neck (H&N) surgery, including thyroidectomy, tonsillectomy, neck dissection, tympanoplasty, and epistaxis surgery. Scenarios were divided into two groups: those involving perioperative counseling and those involving surgical complications. Mock scenarios using lay language from a patient point-of-view were presented to the chat. Responses were recorded and analyzed for inclusion of key points in education and management.

Results

Mock scenarios were created involving common complications that occur after H&N surgeries and included hematoma, chyle leak, and incisional separation. For scenarios involving a surgical complication, ChatGPT was able to direct the patient to assistance; however, the chatbot was unable to assess the type or severity of the complication or provide specific support details. Specifically, the chatbot was unable to identify the complication in cases with a chyle leak. Counseling scenarios were also created around common surgeries. For scenarios involving perioperative guidance and education, ChatGPT responses covered most key points that are covered during routine perioperative counseling without additional prompting.

Discussion

Our study suggests that ChatGPT may be useful in the perioperative education of H&N patients. ChatGPT did not perform as well with scenarios involving complications, though this is likely to change with time. While not a complete substitute for person-based clinical counseling, ChatGPT performed well in counseling patients about their diagnoses, guiding them through surgery, and providing management in most post-operative complications. With further refinement of AI, we anticipate basic perioperative triage can be performed appropriately without a human interface, and chatbots like ChatGPT can potentially be used as a ‘first-pass’ method of addressing patient concerns during the perioperative period.

Abstract #23 MDT-based Intelligent Route Selection for 5G-Enabled Connected Ambulances

Authors

Mr. Muhammad Umar Bin Farooq - University of Oklahoma, Gallogly College of Engineering
Mr. Marvin Manalastas - University of Oklahoma, Gallogly College of Engineering
Dr. Haneya Qureshi - University of Oklahoma, Gallogly College of Engineering
Dr. Ali Imran - University of Oklahoma, Gallogly College of Engineering

Introduction

The fifth generation of cellular network (5G) can facilitate in-ambulance patient monitoring, diagnosis, and treatment by a remote specialist. However, 5G coverage and link quality can vary in time and location. Legacy approaches to determine the optimal ambulance route only consider the minimum time to reach the hospital. These methods do not consider the ambulance network connectivity along the route. To fully support the connected in-ambulance treatment, the patient connectivity requirements should also be considered in choosing the optimal ambulance route.

Methods

Hence, we propose an ambulance route selection framework incorporating both the connectivity needs and ambulance travel time. We formulate the route selection as an optimization problem that can adjust the solution according to the in-ambulance connectivity needs. This flexibility allows the optimization problem to meet various ambulance requirements such as: (1) fastest route without 5G connectivity constraints, (2) fastest route with 5G coverage constraint, and (3) fastest route with 5G coverage and capacity constraints. The framework leverages the minimization of drive test (MDT) data to estimate the 5G network coverage along the ambulance routes. We show the adverse effect of uneven distribution of MDT data on the ambulance route selection framework. To address the uneven distribution of location-based user-generated MDT data, we examine the performance and trustworthiness of several interpolation techniques to enrich the global MDT map for route selection.

Results

We perform an extensive performance evaluation to test the proposed framework for different ambulance connectivity needs and network conditions. A simulated analysis shows that the proposed framework can dynamically adapt to varying application requirements as well as rapidly changing network conditions such as outages.

Discussion

To mitigate the adverse impact of uneven distribution of MDT data on ambulance route selection, our analysis shows that nearest neighbor and kriging interpolation techniques help complement the proposed framework by addressing the data sparsity problem.

Abstract #31 Effects of Military Load Carriage on Limits of Stability

Authors

Mx. Maddie Fulk - University of Tulsa
Mx. Greysee Floyd - University of Tulsa
Mr. Jacob Thomas - University of Missouri
Dr. Roger Kollock - University of Tulsa, Oxley College of Health Sciences, Biomechanics Research Laboratory

Introduction

Military personnel often wear heavy loads while marching, running, and performing other job-related activities. Heavy loads may alter one's stability (i.e., balance) and increase the risk for fall and slip related injuries. Limits of stability (LoS) is an important measure of balance. LoS determines how far a person can lean forward, backward, left, and right without losing balance. The purpose of this study was to determine the effects of military equipment and gear on LoS.

Methods

University students (13 males, 13 females, and zero others) were recruited (21.9±3 yr., 174.5±9.5 cm, 76.2±16.5 kg). Participants performed balance assessments under two conditions: unloaded and loaded. The unloaded condition (UC) consisted of shorts, t-shirt, and combat boots. The loaded condition (LC) consisted of a helmet, tactical vest, rucksack, and combat boots totaling ≈22 kg. For each condition, participants performed a 30-second normal stability (NS) test followed by a LoS balance test. The NS required the participants to stand as still as possible on a 50 cm x 46 cm 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. The LoS required the participants to shift their center of mass forward, backward, left, and right as far as possible without losing their balance. The main outcome measures were normal stability score (NSS) and LoS stability score (LoS-SS). An NSS ranges from 0% to 100%. NSS of 100% indicates that the participant was able to maintain perfect stillness during the NS test. LoS-SS range from 0 to 100, with a score of "0" indicating that the participant used all of their LoS during the NS test and was unable to maintain any balance during normal standing. Due to violations of normality, a Wilcoxon Signed Rank Test was used to analyze paired differences. The alpha level was set at 0.05.

Results

NSC did significantly ($p<.001$) differ between UC (med=96.01) and LC (med=93.60). LoS-SS did significantly ($p<.001$) differ between UC (med=91.30) and LC (med=81.60).

Discussion

The results suggest that a helmet, tactical vest, and rucksack load of ≈22 kg does significantly alter balance. The findings further suggest that military loads may cause a person to utilize a greater percentage of their LoS to maintain stability in a quiet stance. Future studies should explore if these same findings are present during single-leg balance activities.

Abstract #32 Effects of Load Carriage on Sagittal Plane Kinematics during a Hurdle-Step Task

Authors

Mx. Greysee Floyd - University of Tulsa
Mx. Maddie Fulk - University of Tulsa
Mr. Jacob Thomas - University of Missouri
Dr. Roger Kollock - University of Tulsa, Oxley College of Health Sciences, Biomechanics Research Laboratory

Introduction

The supplies and equipment carried by military personnel are essential to completing job-related tasks; however, the effects of load carriage on the hip, knee, and ankle kinematics may alter the individual's ability to dissipate landing forces and increase injury susceptibility. The purpose of the study was to determine the influence of load on sagittal plane kinematics during a hurdle-step task (HST).

Methods

University students (nine males, eleven females, and zero others) were recruited. Participants performed 3 trials of an HST under two conditions: unloaded and loaded. The unloaded condition (UC) consisted of shorts, t-shirt, and combat boots. The loaded condition (LC) consisted of a helmet, tactical vest, rucksack, and combat boots totaling ≈22 kg. The HST required participants to be 40% of their height away from a 40 x 60 cm force plate (FP). A 20 cm high hurdle was 20% of the participant's height away from the FP. When prompted, the participant bounded over the hurdle by pushing off the non-dominant limb and landing onto the FP with the dominant limb. The dominant limb was defined as the foot the participant would use to kick a soccer ball with maximal force. Initial ground contact was the time point at which 10 N of force was generated at contact. Normally distributed data were analyzed using a paired sample t–test. Paired data not normally distributed were analyzed using a Wilcoxon Signed Rank Test. The alpha level was set at 0.05.

Results

The hip flexion (HF) displacement did not significantly ($p=0.546$) differ between UC (med=3.45°) and LC (med=3.12°). The knee flexion (KF) displacement did not significantly ($p=0.855$) differ between UC (9.79±7.5°) and LC (9.45±7.6°). The AD displacement did not significantly ($p=0.171$) differ between UC (1.80±19.4°) and LC (7.60±25.8°). The HF at maximum vertical ground reaction force (MVGRF) did not significantly ($p=0.277$) differ between UC (med=41.92°) and LC (med=37.45°). The KF at MVGRF did not significantly ($p=0.854$) differ between UC (22.15±9.1) and LC (22.46±9.6°). The AD at MVGRF did not significantly ($p=0.494$) differ between UC (med=-14.16°) and LC (med=-15.72°).

Discussion

The results suggest that a helmet, tactical vest, and rucksack load of ≈22 kg does not impact sagittal plane kinematics at the hip, knee, or ankle. Thus, limitations in sagittal plane motion (that contribute to an inability to dissipate landing forces) may not be the result of donned equipment and gear, but other unidentified factors.

Quality Improvement

Abstract #14 Transitional Care Clinic with Multidisciplinary Team to Prevent Hospital Readmission

Authors

Ms. Rachel Ngo - University of Oklahoma, OU-TU School of Community Medicine
Dr. Dru Albin - University of Oklahoma, OU-TU School of Community Medicine, Department of Internal Medicine Mr. Nick Hollman - University of Oklahoma, OU-TU School of Community Medicine, Office for Research Development and Scholarly Activity
Dr. Sarah Beth Bell - University of Oklahoma, OU-TU School of Community Medicine, Office for Research Development and Scholarly Activity
Mrs. Kristine Myers - University of Oklahoma, OU-TU School of Community Medicine, Department of Medical Informatics
Ms. Lindy Sullins - University of Oklahoma, OU Health Physicians
Ms. Jessica Cannon - University of Oklahoma, OU Health Physicians
Dr. Robin Milton - University of Oklahoma, Health Sciences Center, Department of CMT Internal Medicine
Ms. Tiffany Boyd - University of Oklahoma, OU Health Physicians
Ms. Carmen Lewis - University of Oklahoma, OU Health Physicians

Introduction

In the U.S., approximately 14% of adults who are discharged from the hospital are readmitted within the next 30 days for various medical problems. Furthermore, the average cost of a 5-day readmission stay is about $15,000, and patient mortality increases. Factors like poor handoffs from inpatient to outpatient care or medication adherence that precipitate readmission may be avoided through better care planning and prompt follow up. The Transitional Care Clinic (TCC) is a quality improvement project that aims to prevent readmission through a multidisciplinary approach through follow up with a patient within 14 days of leaving the hospital.

Methods

A follow-up appointment is made by a care manager after discharge for patients to see the transitional care team (TCT)—physician and nurse—or multidisciplinary team (MDT)—adding a pharmacist and social worker—to go over their care plan, which may include work up tests, continuing treatments, medication reconciliation, clarifying follow up appointments, and addressing financial or social barriers, ultimately transitioning patient care back to the primary care provider. The variables collected were if the patient was seen by the following: TCT, MDT, and/or within a fourteen-day period. The main outcome of interest was if a patient was readmitted to the hospital within a 30-day period. Data was analyzed using chi-square tests to determine univariate significance ($p<0.10$) between each exposure of interest and the outcome of hospital readmission within 30 days. Backwards stepwise selection was then performed to create a logistic regression model with a significance level of $p<0.05$ for exposures to remain included in the final model.

Results

There were 345 patients in the 5-month sample from chart review (01/2022-06/2022). Among the entire sample, 20.0% (*n*=69) were readmitted to the hospital within 30 days. While each exposure of interest was significant at the univariate level, only the combined event rate of being seen by the TCT and MDT remained statistically significant with odds of 30-day readmission after performing backwards stepwise selection from the full logistic regression model (OR=0.30, *p*=0.007).

Discussion

This quality improvement study showed 70% lower odds of 30-day readmission among those seen by either the TCT or MDT. Having no demographic data is a limitation and will be collected moving forward. Each patient's unique situation is approached from different angles to increase their understanding, achieve a higher quality of life, and optimize health outcomes. Through the TCC, patients can avoid the need to revisit the hospital—saving stress, time, money, and improving their well-being.

Abstract #22 Utilizing Immunization Order Forms as a Communication Tool: A Quality Improvement Project

Authors

Dr. Jackson Wood - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics
Dr. Alizay Paracha - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics
Dr. Ashley Vanasse - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics
Dr. Jack Manquen - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics
Dr. Jazeb Ifikhar - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics
Dr. Scott Puckett - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics
Dr. Stephanie Amorim - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics
Dr. Victoria Woods-Reinicke - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics
Dr. Brian Hall - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics
Dr. Samie Sabet - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics

Introduction

Immunization administration is an essential function of pediatric clinics. The OU-Tulsa Pediatric clinic is the largest pediatric Medicaid provider in the state of Oklahoma, administering over 100 vaccinations to an average of 40 children daily. In this clinic, vaccinations are administered in a separately staffed "shot-room." Prior to implementation of this quality improvement program in the Spring of 2022, resident physicians, mid-level providers, and faculty physicians ordered immunizations by selecting a general "age-appropriate" immunization option within the EMR system. This process was suboptimal in communicating individualized immunization plans to the shot-room staff. The goal of this QI project was to assess and improve the efficacy and utilization rate of an immunization order form in communicating immunization plans to our shot-room.

Methods

This quality improvement project was designed in collaboration with members of the pediatric care team using the "Plan-Do-Study-Act" cycle methodology. The "Plan" phase included designing a novel immunization form by the project team and shot-room nurses. In the "Do" phase, usage of the new form was promoted during provider meetings to all the clinic providers and by making the form readily available in the clinic workspace. Next, in the "Study" phase, utilization rate and efficacy of the form in communicating individual immunization needs was evaluated via chart reviews. The efficacy was analyzed by measuring differences between clinicians' orders and immunizations administered in the shot-room. Based on these findings, the order form was modified during the "Act" phase.

Results

Utilization of the immunization order form increased over time from 3% of patients in April to 35% in October. From April to June, the frequency of differences between immunizations ordered and given was 17% (50 of 289 order forms) compared with 14% (76 of 537) in September and October following modification of the form. Most differences were related to indicated vaccines not being ordered by clinicians (48% pre-modification and 60% post-modification) or individual vaccines being ordered too early by clinicians (27% pre and 6% post).

Discussion

The utilization of the new order form increased over time. Once modifications to the order form were made, there was a decrease in differences between immunizations ordered and given in September and October. However, the decrease was not seen across all categories of reasons for differences. Next steps include providing individualized feedback to the clinicians, increasing use of the form, and modifying the order form as necessary.

Abstract #24 A Structure, Process, and Outcome Model for Categorizing Limb-Salvage Barriers and Facilitators Using Qualitative Frequency and Proximity Analysis

Authors

Mr. Austin Milton - University of Oklahoma, OU-TU School of Community Medicine
Mr. Freddie Wilson - University of Oklahoma, OU-TU School of Community Medicine
Ms. Dana Thomas - University of Oklahoma, OU-TU School of Community Medicine
Dr. Juell Homco, PhD, MPH - University of Oklahoma, OU-TU School of Community Medicine, Department of Medical Informatics
Dr. Blake Lesselroth, MD, MBI - University of Oklahoma, OU-TU School of Community Medicine, Department of Medical Informatics
Dr. Peter Nelson - University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery
Dr. Kelly Kempe - University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery

Introduction

This study's objective was to identify biopsychosocial and system-level factors contributing to diabetes or peripheral artery disease (PAD) related limb-loss and limb-salvage reported by Oklahoma primary care providers (PCPs).

Methods

PCPs were recruited via an email survey. Seven semi-structured virtual interviews were conducted, recorded, and transcribed. Transformation of the interview data to themes was then performed by coding each interview with themes that describe semantic meaning of the text, then using a constant comparison method with a group of 4 researchers to reach consensus on the codes and then creating and assigning themes. Student's t-tests were performed to identify differences in how frequently certain themes were used throughout the 7 interviews. Additionally, MAXQDA was used to identify themes mentioned in proximity (within 1 paragraph). A chi-squared test was used to identify significant associations between themes which regularly occurred in close proximity.

Results

"Specialty care issues" is a theme that describes contributing factors stemming from lack of communication between providers, difficulty in getting referrals, and confusion about the expertise of different specialists. This code came up more frequently than other contributing factors: "insurance status" ($p=.02$), "medical costs & finances" ($p=.01$), "challenges of a rural environment" ($p<.01$), and "transportation challenges" ($p<.01$). "Specialty care issues" was frequently linked with "transportation challenges" ($p<.01$)).

"PAD screening & foot exams", describing additional methods to prevent amputations and labeled as a facilitator, was linked frequently to "specialty care issues" ($p<.01$), "patient education" ($p<.01$), "provider education" ($p<.01$), "clinic staff going above and beyond" ($p=.03$), and "lifestyle interventions" ($p=.04$). "Clinic staff going above and beyond" and "community facilitator" referred to leveraging of social, language, or cultural ties were also frequently mentioned.

Discussion

Qualitative analysis and subsequent mapping with a Donabedian's structure-process-outcome model was used to attribute facilitators and barriers of limb-loss and limb-salvage to patient, community, provider communication, and workflow. This comparison highlights how frequently occurring barriers and facilitators can be most effectively targeted with different interventions such as workflow improvements, communication habit changes, and use of a community facilitator role in clinic.

Abstract #57 The Effect of COVID-19 on Pediatric Surgical Case Volume

Authors

Dr. Beatriz Junqueira - University of Oklahoma, Health Science Center, Department of Urology
Ms. Lauren Taylor - University of Oklahoma, OU-TU School of Community Medicine
Dr. Adam Rensing - University of Oklahoma, Health Science Center, Department of Urology
Dr. Christopher Aston - University of Oklahoma, Health Science Center, Department of Pediatrics
Mr. Bob Bewley - University of Oklahoma, OU Health Physicians
Ms. Joy Mason - University of Oklahoma, OU Health Physicians

Introduction

Hospital policy changes during the COVID-19 pandemic led to decreased surgical case volumes. Hospitals sought policies to preserve resources and to minimize peri- and postoperative sequelae. The literature on pediatric surgical case volume during the pandemic is sparse. We reviewed the outcomes of our children's hospital's response to COVID-19. We identified trends in surgical case volume and cancellations. We reviewed postoperative outcomes of cases with a positive test.

Methods

The institutional IRB approved this study. Data were retrospectively collected from electronic medical records (EMR) on all surgical cases between March 2019 and March 2021. We marked the start of the COVID-19 pandemic as March 2020, when the hospital policies changed. A required preoperative negative COVID-19 test was implemented in May 2020. We identified preoperative COVID-19 test results, the urgency of each case, and 30-day outcomes. When assessing outcomes, we looked for postoperative respiratory complications among patients with a concomitant COVID-19 infection who proceeded with the surgery. We defined respiratory complications as either prolonged intubation, reintubation, or prolonged O2 requirement.

Results

From March 2019 to March 2021, we identified 25,496 completed surgeries and 3,503 (12%) cancellations. 12,024 cases proceeded during the first year of the pandemic, which appeared lowered compared to pre-pandemic case numbers. Of those, 2,785 (23%) cases were considered urgent or emergent.

The average number of completed monthly cases fell from a pre-pandemic number of 1123 to a pandemic number of 925. The average monthly case volume declined by 19%, with the largest decline noted to be 66%. A monthly average of 189 total cancellations occurred between March 2020 and March 2021. 18 (10%) of those were for a positive preoperative COVID test, which was relatively low.

A total of 139 surgeries commenced despite concomitant COVID-19 infection. 25 (18 %) had identifiable respiratory symptoms documented preoperatively. 13 (9 %) had respiratory complications afterward. Of those, three patients (2%) had a prolonged, and one (1%) had an unexpected reintubation. The remaining nine (6%) patients had a prolonged O2 requirement.

Discussion

The COVID-19 pandemic left operating rooms struggling to determine how to provide patient care safely. As the literature is sparse regarding the effect of the pandemic on surgical case volume within the pediatric setting, this study aimed to assess the degree of impact of COVID-19 on pediatric surgical case volume in addition to how concomitant COVID-19 infection affected those that proceeded with surgery.

Abstract #59 Key Themes for a Holistic Support System in Vascular Limb Salvage

Authors

Mr. Freddie Wilson - University of Oklahoma, OU-TU School of Community Medicine
Mr. Austin Milton - University of Oklahoma, OU-TU School of Community Medicine
Ms. Dana Thomas - University of Oklahoma, OU-TU School of Community Medicine
Dr. Juell Homco, PhD, MPH - University of Oklahoma, OU-TU School of Community Medicine, Department of Medical Informatics
Dr. Blake Lesselroth, MD, MBI - University of Oklahoma, OU-TU School of Community Medicine, Department of Medical Informatics
Dr. Peter Nelson - University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery
Dr. Kelly Kempe - University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery

Introduction

Diabetic and peripheral arterial disease (PAD) patients are at high risk for amputations. Many patients and providers may successfully manage these conditions. This project works to identify ongoing and future facilitators from the viewpoint of primary care physicians (PCPs) to maximize patient care and ultimately reduce limb loss.

Methods

A series of 7 interviews were conducted by 1 researcher. PCPs were recruited through email from a database that organizes practices with high rates of cardiovascular disease. One of seven questions that asked PCPs about environmental and patient protective factors was used for this analysis. The design utilized in this qualitative study was grounded theory, due to the topic's unyielding complexity. The interviews were transcribed and deidentified and coded by 2 members separately. MAXQDA software was used for coding. Reconciliation meetings were held between 4 team members to consolidate codes, ensure inter-rater reliability, and transform the data to themes. A word cloud was created to broadly explore facilitators that occurred at the highest frequency.

Results

The word cloud generated a total of 11 codes occurring at a minimum of 2 times amongst all 7 interviews. "Social Facilitator" was the code with the highest frequency of 6. "Patient Education" was next with a frequency of 5. The following codes had a frequency of 4: "Diabetes," "Nutrition," "Successful interventions," and "Community facilitator." Lastly, "Exercise," "Educational handouts," "Foot exams," "Language facilitator," and "Entire body affected" had a frequency of 2.

Discussion

Primary care physicians in Oklahoma most frequently mentioned a social facilitator and patient education as being key to cardiovascular prevention and limb loss. In addition, increased foot exams and specifically educational handouts at clinics may also aid in this process. These key themes suggest that a more holistic support system for patients may lead to improved limb salvage.

Abstract #60 Improving Contraceptive Access: A Quality Improvement Project

Authors

Dr. Helga Skaftason - University of Oklahoma, OU-TU School of Community Medicine, Department of Family Medicine
Dr. Livia Maruoka Nishi - University of Oklahoma, OU-TU School of Community Medicine
Dr. Palak Krushiker - University of Oklahoma, OU-TU School of Community Medicine
Dr. Simone Bigelow - University of Oklahoma, OU-TU School of Community Medicine, Department of Family and Community Medicine
Dr. Jennifer Weakley - University of Oklahoma, OU-TU School of Community Medicine, Department of Family and Community Medicine

Introduction

Long-acting reversible contraceptives (LARCs), including intrauterine devices (IUDs) and contraceptive implants, are highly effective methods for reducing unintended pregnancies. In the United States, approximately 45% of pregnancies are unintended. Scheduling a second visit for LARC placement increases the risk for unintended pregnancy and can incur additional costs of up to $2000 per patient per year. Prior to our quality improvement project, patients seeking contraception at OU Tulsa Family Medicine (OUTFM) clinic were required to have an initial consultation visit, followed by a second visit for device placement. Our objective was to place 50% or more LARCs on the same day they are requested at OUTFM.

Methods

We implemented two PDSA cycles over a four-month period. The first PDSA cycle, we introduced a same-day LARC placement workflow via an educational session that involved the clinical director, nursing staff, and providers. The second PDSA cycle, we created a contraception “pro-con” handout for providers to facilitate discussion with patients and shorten visit time. Pre- and post- satisfaction surveys were used to assess resident response to the new workflow. One resident was responsible for chart and schedule review to evaluate the impact of our interventions. We tracked the percentage of LARCs placed same-day, the number of in-person office visits required for LARC placement, and the number of days between consultation and placement. We excluded LARC removal and replacement for patients with a pre-existing LARC.

Results

Prior to the quality improvement period, no same-day LARCs were placed, and 2 visits were required. After the first PDSA cycle, 60% (n=6) of LARCs were placed same-day, requiring an average of 1.4 visits and a 15-day wait. After the second PDSA cycle, 50% (n=2) of LARCs were placed same-day, with an average of 1.5 office visits and 19.3-day wait. Upon survey review, residents’ perception of having enough time for same-day LARC insertion increased from 36% to 75%.

Discussion

The same-day LARC workflow and education session increased the percentage of same-day LARCs placed and reduced the number of office visits. These results demonstrate the feasibility of same-day LARC placement in a family medicine clinical setting. The identified barriers to placement including time constraints and provider confidence in LARC placement, will inform future PDSA cycles for continued same-day LARC availability at OUTFM.

Abstract #62 Hospital Transitions of Care for Adult Patients: A Quality Improvement Project

Authors

Dr. John Duke - University of Oklahoma, OU-TU School of Community Medicine, Department of Family and Community Medicine
Dr. Melissa Gerald - University of Oklahoma, OU-TU School of Community Medicine, Department of Family and Community Medicine
Dr. Jocelyn Gray - University of Oklahoma, OU-TU School of Community Medicine, Department of Family and Community Medicine
Dr. Simone Bigelow - University of Oklahoma, OU-TU School of Community Medicine, Department of Family and Community Medicine
Dr. Tyler Wines - University of Oklahoma, OU-TU School of Community Medicine, Department of Family and Community Medicine
Ms. Liuyi Chen - University of Oklahoma, OU-TU School of Community Medicine

Introduction

Transition of care (TOC) visits are important because they reduce medical errors that can lead to adverse outcomes, the need for readmission and unnecessary healthcare costs. It is estimated that 20% of patients experience an adverse event following discharge, while one in 12 is readmitted within 30 days. Annually, this increases healthcare costs by $16 billion. This quality improvement project aimed to increase the percentage of TOC visits completed by patients discharged from Hillcrest Medical Center (HMC) and followed up at OUFM clinic by 15%.

Methods

We assessed changes in clinic processes, specifically scheduling and hospital discharge, to identify those that improved TOC. Our first PDSA cycle designated specific clinic appointment slots for hospital transition visits and created a process with our Care Management nurse to schedule the appointments and call the patients. The second PDSA cycle designed a patient handout explaining the purpose and importance of TOC visits. Appointment date and time were added to the handout. We tracked the number of appointments scheduled, appointments achieved, and patient handouts distributed.

Results

Prior to this project, designated hospital follow-up appointments were not included in clinic scheduling. For the project, two TOC appointments were incorporated into every resident's schedule. At this time, 8 to 10 hospital follow-up appointments are available each day. Baseline aggregate data of all hospital follow-up visits for Family Medicine patients showed 68% of these appointments were kept. At the end of this project, that rate remained relatively unchanged at 67.5%. Appointments were scheduled for 33 patients discharged from HMC in December and January, of which 54% were kept. Patient handouts were delivered to 8 of the 33 patients.

Discussion

Only aggregate data of all hospital follow-up appointments, including discharge from other hospitals and the HMC ED, was available. This was a limitation for the project as our PDSA cycles only applied to patients discharged from HMC, which ultimately is a small portion of all discharges. Although an increase in completed TOC visits was not accomplished, the most significant outcome is the implementation of a new workflow incorporating hospital follow-up appointments into the daily clinic structure and providing a designated staff member to schedule these appointments. Future PDSA cycles could include resident education on workflow implementation, structured patient reminders on upcoming appointments, and continued efforts toward decreasing hospital readmissions.

Social/Behavioral & Community Service

Abstract #6 "That's Oklahoma for You": Community-Based-Participatory-Research Uncovers Causes of Obesity in Oklahoma

Authors

Ms. Madisen Fae Dorand - University of Oklahoma
Ms. Emily Allen - University of Oklahoma
Dr. Sarah McClanahan - Saint Francis Hospital, Psychiatry
Dr. Kevin Smith – University of Oklahoma, OU-TU School of Community Medicine, Department of Internal Medicine
Dr. Jesse Richards - University of Oklahoma, OU-TU School of Community Medicine, Department of Internal Medicine
Dr. Todd Hasenstein - University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery
Dr. Zhamak Khorgami - University of Oklahoma, OU-TU School of Community Medicine, Department of Surgery

Introduction

At 39.4%, Oklahoma has the 5th highest rate of obesity in the United States (CDC, 2021). Despite efforts including developing a state plan to reduce obesity and the recent expansion of Oklahoma Medicaid to cover bariatric surgery, Oklahoma continues to have one of the highest rates of obesity in the country. This qualitative study aims to assess patients' perspective on factors contributing to a higher rate of obesity in Oklahoma, as well as propose potential solutions to this issue.

Methods

We utilized a community-based participatory research method called PhotoVoice to better understand the factors contributing to high rates of obesity in Oklahoma. Individuals with obesity were recruited via the primary care clinic of a university health system based in Tulsa. At their initial interview, participants were educated on the PhotoVoice method and instructed to take photographs throughout their daily life of places and situations that they felt contributed to their personal struggle with obesity or to the prevalence of obesity in Oklahoma. After a photo collection period, semi-structured interviews were conducted with each participant, during which participants discussed the content and meaning of each submitted photograph and were invited to propose potential solutions to the obesity-promoting phenomena identified in their photography. Interviews were transcribed and analyzed qualitatively for common themes and potential actionable solutions to the factors identified as contributing to obesity in Oklahoma.

Results

Oklahomans with obesity identified several attributes that they felt contribute to the high rates of obesity within the state. Common themes identified by participants included poor neighborhood infrastructure to allow for outdoor physical activity, difficulty accessing healthy food options due to the presence of food deserts, high financial cost of nutritious foods, and lack of access to physicians and other healthcare services. Proposed solutions to combat obesity in Oklahoma included interdisciplinary primary care offices with readily available nutritional educators, improved nutritional education for individuals utilizing public benefits such as WIC and SNAP, and investment in accessible infrastructure for outdoor exercise.

Discussion

Community-based participatory research provides unique insight into the causes of, and potential solutions to, Oklahoma's high rate of obesity. This data can be used to inform community stakeholders and policymakers of proposed solutions identified as potentially beneficial by the community under study, individuals with obesity. Those who seek to care for patients with obesity can better do so by using a multidisciplinary approach based on the precipitants of obesity that are unique to the community they serve.

Abstract #12 The Impact of COVID-19 and Social Isolation on Child Maltreatment Medical Evaluations

Authors

Ms. Hannah Williams - University of Oklahoma, OU-TU School of Community Medicine
Dr. Morgan Bayouth - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics
Mrs. Amy Hendrix-Dicken - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics
Dr. Lauren Conway - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics
Prof. Ric Munoz – University of Oklahoma, Anne and Henry Zarrow School of Social Work
Dr. Michael Baxter - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics

Introduction

Events like the COVID-19 pandemic threaten to disrupt interventional and support services to children and their families while also exacerbating caregiver stress. The most acute phase of the pandemic led to the closure of schools along with other services, which are often sources of suspected child maltreatment reports, causing concern for child safety.

We hypothesized that the number of medical evaluations at the Tulsa Children's Advocacy Center (CAC) during the first year of the COVID-19 pandemic would be significantly higher than the year prior to the pandemic.

Methods

An observational study was conducted of medical evaluations at the Tulsa CAC from 03/01/2019-02/28/2021. Data was collected from OU Health's electronic medical record. Visits were excluded if they were: team meetings, cancelled, consultations outside of OU Health, or follow-up visits. Since hospital consultations could not be included, those follow-ups were included as "new" visits. Visits from 03/01/2019-02/29/2020 were defined as pre-COVID visits, and visits from 03/01/2020-02/28/2021 were defined as during-COVID visits. Analysis included descriptive statistics and Chi-square tests to determine if changes in medical evaluations between pre and during-COVID periods were significant with a threshold of $p<0.050$ for significance.

Results

A total of 947 visits met study inclusion criteria. The number of medical evaluations decreased by 14.68% from 511 in the pre-period to 436 in the COVID-period. Of these visits, the median age for children decreased by 1 year from the pre-COVID age of 6 (IQR 7) to the COVID-period age of 5 (IQR 7). When assessing confirmed maltreatment diagnoses, overall confirmed maltreatment and physical abuse decreased by 19.05% (n=126, n=102) and 33.93% (n=112, n=74), respectively, while neglect and sexual abuse increased by 61.54% (n=13, n=21) and 100% (n=5, n=10); however, none of the changes were statistically significant.

Discussion

At the time of the study's inception, we expected the acute phase of the pandemic to diminish within a year, which we originally considered "post-COVID," thus ceasing disruption to surveillance and investigation systems. Unfortunately, the arrival of variants delayed consistent in-person school presence in Tulsa until the end of the study time period. We plan to assess the Spring 2021 term to determine if increases in medical visits happened after in-person school resumed.

Abstract #25 Opportunities to Improve Healthy Food Access for Families in Transitional Housing

Authors

Ms. Natalie Frech - University of Oklahoma, Hudson College of Public Health
Ms. Maggie Hoey - Lindsey House
Dr. Marianna Wetherill - University of Oklahoma, Hudson College of Public Health

Introduction

Through evidence-based design, food pantry environments have a unique potential to support healthy food access, nutrition security, and better eating habits, while preserving client dignity. Design examples include client-choice models, tailored nutrition education materials, established mechanisms for client feedback, and clear documentation of pantry policies. The Nutrition Pantry Program (NPP) by Leah's Pantry provides food pantry administrators with systematic guidance for planning and implementing these designs. As part of an Albert Schweitzer Fellowship, the current project applied the NPP to conduct a needs assessment and inform a healthy pantry re-design at Lindsey House, a transitional housing facility for single mothers.

Methods

For this community-based project, we used a mixed methods approach. In summer 2022, we completed a needs assessment using a validated Healthy Food Pantry Assessment Tool (HFPAT). The HFPAT evaluates five domains: pantry location and entrance, food selection, policies, storage and food safety, and client services. Possible points range from 0-100 with higher scores indicating greater adherence to evidence-based practices. Additionally, we completed semi-structured interviews with Lindsey House residents and staff to gain qualitative insights regarding residents' satisfaction with the on-site food pantry.

Results

HFPAT scores indicated nearly full adherence for the Pantry Location and Entrance domain (14 out of 15 points) with opportunities for improvement in the four remaining domains: Food Available to Clients (29 out of 57 points); Policies (2 out of 12 points); Food Safety and Storage (4 out of 10 points); and Client Services (2 out of 6 points) – totaling 51 out of 100 points. Most missed points were due to lack of signage, absence of policies posted within the pantry, and unavailability of frozen foods, dairy products, and lean proteins. Similarly, interviews with Lindsey House residents and staff revealed an interest in enhanced nutrition education materials and improved variety of food.

Discussion

Following the completion of the HFPAT and interviews, an implementation plan was drafted and finalized with Lindsey House staff. Findings from this community enrichment project indicate that improvements to the variety of food offered at the Lindsey House pantry are needed. To enhance the organization's ability to support residents' autonomy and nutrition-related self-efficacy, implementation of the NPP workplan will include consistent restocking of the food pantry with fresh produce and nutritious shelf-stable foods, ongoing client feedback collection, distribution of nutrition education materials, and documentation of pantry policies. A follow-up HFPAT will be conducted in March 2023 to reevaluate changes to the food pantry environment.

Abstract #29 Sociomoral Climate and Intent to Leave at a Large Academic Pediatric Practice

Authors

Dr. Morgan Bayouth - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics
Dr. Keith Mather - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics
Mrs. Amy Hendrix-Dicken - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics
Dr. Jody Worley - University of Oklahoma, Department of Human Relations
Dr. Brigitte Steinheider - University of Oklahoma, Dodge Family College of Arts and Sciences, Department of Psychology, Organizational Dynamics
Dr. Laura Campion - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics

Introduction

The COVID-19 pandemic exacerbated an already ongoing national employee retention crisis in healthcare with similar effects noted at OU-Tulsa Pediatrics. The Sociomoral Climate (SMC) scale was utilized to determine if specific departmental practices could be improved. The aim of this study was to evaluate the mean values and variations of SMC and the intent to leave scores for employees across HR classifications in the department.

Methods

A survey study of all faculty, residents/fellows, and staff employed by the OU-Tulsa Department of Pediatrics was conducted. Data were collected anonymously via a REDCap survey administered via email. Optional demographic variables were collected in addition to respondent HR classification (e.g., faculty, staff, or resident/fellow). The Sociomoral Climate Scale, a twenty-one-item measure with five subscales, was utilized to assess employee perceptions of the department. Mean SMC scores were considered positive (>3), neutral (=3), or negative (<3). The Intent to Leave Scale, a four-item measure, was utilized to quantify intentions of leaving with higher scores indicating desire to stay. Descriptive statistics and one-way ANOVA to evaluate scores within groups were performed.

Results

The survey had an initial response rate of 65%, but six responses were removed for further analysis due to incomplete or inconsistent answers resulting in a total of 85 responses (61%). Respondents were primarily White (n=51, 60%), non-Hispanic or Latino (n=65, 76.5%), born between 1981-1996 (n=41, 48.2%), women (n=60, 70.6%) and staff (n=44, 51.8%). Faculty (M=3.51; SD=0.73) and residents/fellows (M=3.75; SD=0.40) scored in the positive range for mean SMC scores. Staff (M=2.85; SD=0.72) evaluated the department climate significantly more negatively than faculty ($p=0.002$) and residents/fellows ($p<0.001$). Across the five subscales, scores only fell within the negative range for (1) concerning conflict management (Oconfl), and (2) open communication (Cc). Staff (M=2.48; SD=0.89) mean Oconfl scores were significantly lower than mean scores for faculty (M=3.14; SD=0.74, $p=0.004$) and residents/fellows (M=3.60; SD=0.51, $p<0.001$). Mean staff Cc scores (M=2.35; SD=0.72) were also significantly lower than mean scores for faculty (M=3.24; SD=0.91, $p<0.001$) and residents/fellows (M=3.41; SD=0.53, $p<0.001$). There were no significant differences in intent to leave scores between faculty (M=3.67; SD=0.96), residents/fellows (M=3.16; SD=0.94), and staff (M=3.34; SD=0.86).

Discussion

This study offered valuable insight into the variance of SMC and intent to leave scores across HR classifications within the Department of Pediatrics. Currently, a peer committee is using the findings to develop interventions to promote a more positive work environment.

Abstract #33 Consult Psychiatrists' Views on Evaluating Maternal Capacity to Care for a Newborn

Authors

Ms. Laura Warning - University of Oklahoma, OU-TU School of Community Medicine
Dr. Felicia Parris - Zucker Hillside Hospital at Hofstra/Northwell, Psychiatry
Mr. Nick Hollman - University of Oklahoma, OU-TU School of Community Medicine, Office for Research Development and Scholarly Activity
Dr. Ashton Gores - Johns Hopkins University, School of Medicine
Dr. Sarah Beth Bell - University of Oklahoma, OU-TU School of Community Medicine, Office for Research Development and Scholarly Activity
Dr. Carolyn Neal - Emory University, School of Medicine
Mr. Ian Peake - University of Oklahoma, OU-TU School of Community Medicine
Mr. Antonio Loper - University of Oklahoma, OU-TU School of Community Medicine
Dr. Taylor Warta - University of Oklahoma, OU-TU School of Community Medicine
Dr. Ondria Gleason - University of Oklahoma, OU-TU School of Community Medicine, Department of Psychiatry

Introduction

Consult psychiatrists are sometimes asked their opinion on a mother's ability to care for her infant, typically in an inpatient post-partum setting. These "maternal capacity consults" are often urgent, before the mother and infant are discharged home. The stakes are high because a decision is to be made as to whether removing a child from its mother's care is warranted. However, psychiatrists often have limited resources to assist them when performing these consults. This study aimed to assess psychiatrists' comfort level with maternal capacity consults and whether it is an area where additional training is needed.

Methods

A 17-item electronic survey was sent to members of the Academy of Consultation-Liaison Psychiatry, a national professional organization, via email. To be eligible, a participant needed to be a physician that self-identified as practicing consultation-liaison psychiatry. The survey assessed how frequently consultation-liaison psychiatrists are asked to evaluate postpartum women for their capacity to mother their newborn, what support they receive in assessing maternal capacity, and if consultation-liaison psychiatrists believe they need more training in conducting these evaluations. Count and frequency statistics on questions of interest were generated using SAS v9.4.

Results

Out of the 74 psychiatrists that completed the survey, 64.9% (n=48) responded they had been asked to perform maternal capacity consultations. Of these 48, 75.0% (n=36) stated there was an immediate concern for the infant's safety to be discharged with the mother. 79.2% (n=38) of psychiatrists responded that they receive assistance from the floor social worker and 47.9% (n=23) stated they received assistance from other services (child protective services). Only 6.3% (n=3) stated that their institution has a standardized process for maternal capacity evaluations. 50% (n=24) of psychiatrists stated they would benefit from additional training, 33.3% (n=16) responded they would not benefit, and 16.7% (n=8) responded they were unsure. 52.1% (n=25) of those responding to the survey felt maternal capacity assessments were not an appropriate request.

Discussion

Our results showed variations in opinion between consult-liaison psychiatrists in their role as maternal capacity consultants. 52% of respondents did not believe it was an appropriate consult, yet 50% of respondents said additional training would be beneficial. Due to the nature of these consults, it will be difficult to propose a universal protocol, but additional resources may help reduce the potential disparities and biases encountered when making these evaluations.

Abstract #34 Comparing Health Outcomes of Traditional and Continuous ACEs Scales

Authors

Ms. Madison Bickle - University of Oklahoma, Health Science Center
Ms. Lana Mnajjed - University of Oklahoma, OU-TU School of Community Medicine
Ms. Sydney Wyatt - University of Oklahoma, OU-TU School of Community Medicine
Ms. Ayah Saleh - University of Oklahoma, OU-TU School of Community Medicine
Ms. Anna Shadid - University of Oklahoma, OU-TU School of Community Medicine
Mr. Dan Nguyen - University of Oklahoma, OU-TU School of Community Medicine
Mr. David Barkyoumb - University of Oklahoma, Health Science Center
Mr. Stephen Klaassen - University of Oklahoma, OU-TU School of Community Medicine
Dr. Sarah Beth Bell - University of Oklahoma, OU-TU School of Community Medicine, Office for Research Development and Scholarly Activity

Introduction

The relationship between adverse childhood experiences (ACEs) and population health has been of interest for decades. While valuable, the ACEs scale is limited in its ability to assess the gradation of traumatic event frequency and severity on wellbeing. We hypothesized that continuous measures of ACEs might better correlate to negative outcomes. In this study, we created two different continuous ACEs scales and compared them to the traditional ACEs scales on a variety of self-reported health and behavioral outcomes.

Methods

A 150-question survey was posted on social media and emailed to all faculty, staff, and students at OU-Tulsa and conducted from January 26th to January 31st, 2023. 212 people participated (mean age=36.48, SD=13.86; 17.5% male, 75.5% female, 7.1% other genders). The first continuous ACEs scale examined frequency of experiences for each ACE on a scale of 1 to 7, while the second measured how severely the participant felt the experience impacted them on a scale of 1 to 9. Dependent variables correlated with the three scales included self-esteem, emotional pain, general health, vaccine hesitancy, social support, financial security, perceived social standing in society, aggression, PTSD, and impulsivity.

Results

The average number of ACEs reported was 3.86 (SD=2.81) in comparison with a national average of around 1.56. The three ACEs scales generally correlated to the dependent variables as expected based on previous literature. Contrary to our hypothesis, the continuous ACEs scales were as equally associated with negative health outcomes as the traditional ACEs scales, while we hypothesized they would better predict outcomes. This may be because the traditional ACEs scale correlated more highly than expected with the continuous ACEs-frequency scale and the continuous ACEs-severity scale ($r=0.89$, $p<0.001$ and $r=0.94$, $p<0.001$, respectively). The two continuous ACEs scales also correlated highly ($r=0.94$, $p<0.001$).

Discussion

Our results suggest an unexpected level of similarity between these ACEs scales and their relationship to physical, social, and mental health. This may suggest that a larger, more severe event has a similar impact on health outcomes as multiple events that are smaller in perceived severity. However, more research is needed to examine this possible interpretation. Notably, our sample contained people extremely at risk for negative outcomes as compared to the national average, with the average ACEs score in our sample being nearly 4. For this reason, we will be conducting a nationally representative replication sample in the coming months to see if results generalize across demographic groups.

Abstract #37 Camp HOPE: Cultivating Hope and Resilience in Youth Exposed to Domestic Violence

Authors

Ms. Ash Horn - University of Oklahoma
Ms. Jennifer Jackson-Stowe – University of Oklahoma, Anne and Henry Zarrow School of Social Work
Dr. Evie Muilenburg-Trevino – University of Oklahoma, Anne and Henry Zarrow School of Social Work
Dr. Chan Hellman – University of Oklahoma, Anne and Henry Zarrow School of Social Work

Introduction

Camp HOPE America is the frontier for local, state, and national camping and mentoring initiatives in the United States, focusing on children who have been exposed to domestic violence. The Camp HOPE program provides a values-based summer camp and mentoring model that lasts for six-days as an overnight experience and provides follow-up activities that are year-round. 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 family violence. Hope is the positive expectation toward the attainment of a future oriented goal, and resilience in this context is the ability to overcome adversity. This study was developed to evaluate the efficacy of the program in creating more hopeful and resilient youth.

Methods

The evaluation utilized 1041 self-report surveys from the youth participants of Camp HOPE as a pre-camp/post-camp/30-day follow-up survey design which included 627 matched across all three assessments and counselor observations from camper's first and last days. The hope assessments were based on Snyder's (2000) Children's Hope Scale, and resilience scales were developed by the Hope Research Center to include a 6-point Likert response format (1=none of the time; 6= all of the time).

Results

The youth participant's Hope scores increased from pre-test to post-test and again at the follow-up assessment. A repeated measures ANOVA was used to evaluate both children's hope and their resiliency. The results showed that the increase in children's hope was statistically significant [$F(2, 1252) = 41.689$; $p < .001$]. This indicates that the individual's level of hope increased after participating in Camp HOPE. The results of the analyses for children's resiliency showed an increase from pre-test to post-test, and again from post-test to follow-up. This increase in children's resiliency was statistically significant [$F(2, 1218) = 17.939$; $p < .001$], indicating that the individual's resiliency also increased attending Camp HOPE.

Discussion

The primary outcome was to change the way children exposed to domestic violence believe in themselves, believe in others, believe in their dreams, and find hope for the future. The results of this study provide compelling evidence that Camp HOPE improves the hope of children in a manner that was self-reported by the children and teens and observed by the camp counselors. The results of this evaluation support a compelling argument for the positive power of Camp HOPE to change the lives of children exposed to domestic violence.

Abstract #38 The Effects of the COVID-19 Pandemic on the Mental Health of Women Using the PHQ-9 Questionnaire

Authors

Dr. Daniel Bond - University of Oklahoma, OU-TU School of Community Medicine, Department of Obstetrics and Gynecology
Ms. Taleigh Davis - University of Oklahoma, OU-TU School of Community Medicine
Ms. Vaishnavi Kumar - University of Oklahoma, OU-TU School of Community Medicine
Ms. Karli Gage - University of Oklahoma, OU-TU School of Community Medicine
Mr. Antonio Loper - University of Oklahoma, OU-TU School of Community Medicine
Ms. Uduak Udoh - University of Oklahoma, OU-TU School of Community Medicine
Ms. Cindy Ho - University of Oklahoma, OU-TU School of Community Medicine
Dr. Carol Cox - University of Oklahoma, OU-TU School of Community Medicine, Department of Obstetrics and Gynecology
Mr. Guimy Castor - University of Oklahoma, OU-TU School of Community Medicine, Department of Obstetrics and Gynecology
Dr. Nasir Mushtaq - University of Oklahoma, OU-TU School of Community Medicine, Office for Research Development and Scholarly Activity
Dr. Jameca Price - University of Oklahoma, OU-TU School of Community Medicine, Department of Obstetrics and Gynecology

Introduction

The most common medical complication during pregnancy and postpartum is depression. One in seven women experience depressive episodes during pregnancy or the first 12 months after delivery. Approximately one in four Oklahoma new mothers reported symptoms of maternal depression between two and six months after giving birth to a child. The Patient Health Questionnaire (PHQ) is a self-administered screening tool that helps clinicians identify and diagnose depression. A large majority of research has been focused on COVID-19 itself with a small amount focused on mental health. To identify these individuals, the PHQ-9, a previously validated questionnaire, was used to identify and compare these individuals pre and post pandemic. Furthermore, an AHC survey was used to identify secondary factors contributing to the changes in the PHQ-9.

Methods

A cross-sectional analysis amongst women in an OBGYN clinic setting was studied over a 2-year period using 02/20/2020 as a point representing the start of the COVID-19 pandemic. These included pregnant, postpartum, and well woman visits. Data was deidentified and was collected using a REDCaps database. Data was analyzed using SAS 9.4. Those who did not complete the PHQ-9 questionnaire were excluded from the study. Total scores of 5, 10, 15 and 20 are values that represent mild, moderate, moderately severe, and severe, respectively. AHC data was analyzed and separated into pre and post pandemic categories for comparison.

Results

A total of 1361 records were queried one year before and after the specified target date. There were 30 records excluded, giving a total of 1331 that were studied. A total of 467 (35%) positive PHQ-9 questionnaires were reported. Of those, 125 and 342 were positive pre and post pandemic, respectively. The percentage of positive PHQ-9 questionnaires compared to the total number of PHQ 9 questionnaires collected was 38.7% and 33.9% (p-value of 0.12). The number of severe results were greater in the post pandemic period at 15 versus 8 in the pre pandemic period (p-value 0.14). A total of 1350 AHC surveys were analyzed.

Discussion

By identifying those affected by the pandemic, resources can be provided to those whose mental health is compromised therefore increasing access to healthcare and improving health outcomes. When identified they are referred to a mental health professional for treatment. Our study not only highlights the effects of the pandemic on the mental health of women but provides further insight into what may be attributing to its decline.

Abstract #45 Vaccine Hesitancy Among LGBTQ+ People Compared to Heterosexual People

Authors

Ms. Anna Shadid - University of Oklahoma, OU-TU School of Community Medicine
Ms. Sydney Wyatt - University of Oklahoma, OU-TU School of Community Medicine
Ms. Madison Bickle - University of Oklahoma
Mr. David Barkyoumb - University of Oklahoma, Health Science Center
Mr. Dan Nguyen - University of Oklahoma, OU-TU School of Community Medicine
Ms. Ayah Saleh - University of Oklahoma, OU-TU School of Community Medicine
Ms. Lana Mnajjed - University of Oklahoma, OU-TU School of Community Medicine
Mr. Stephen Klaassen - University of Oklahoma, OU-TU School of Community Medicine
Dr. Sarah Beth Bell - University of Oklahoma, OU-TU School of Community Medicine, Office for Research Development and Scholarly Activity

Introduction

Since the start of COVID-19 pandemic, vaccines have become a divisive part of the national conversation. Various factors, such as politics and one's general health, are assumed to play into where a person stood in this debate. This project looked at the factors surrounding vaccine hesitancy. The data for this project was collected via a survey that was part of a larger study about wellbeing across the lifespan. We examined LGBTQ+ and heterosexual differences on vaccine hesitancy due to the large proportion of LGBTQ+ people in the survey.

Methods

212 people participated including OU-Tulsa faculty, staff, and students, as well as people who saw the study on social media (mean=36.48, SD=(13.86); 17.5% male, 75.5% female, 7.1% other genders). There was a high proportion of LGBTQ+ participants (64.6% heterosexual people (n=137), 35.4% LGBTQ+ people (n=75)). Vaccine hesitancy was measured on a scale of 1 to 7, with 1 being not at all hesitant and 7 being very hesitant.

Results

The average hesitancy score out of 7 was 2.27 (SD= 1.85). 84.9% of participants got the vaccine voluntarily (n=180), 9.0% got it only because it was required for them (n=19), and 6.1% did not get it at all (n=13). LGBTQ+ people had significantly less vaccine hesitancy than heterosexual people, <0.01. LGBTQ+ people also were significantly more likely to receive the vaccine voluntarily, $p<0.01$. 96.0% (n=72) of LGBTQ+ people got the vaccine voluntarily, while 4.0% (n=3) got it only because it was required or did not get it. In contrast, 78.8% (n=108) of heterosexual people got the vaccine voluntarily, while 21.2% (n=29, $p<0.01$) got it only because it was required or did not get it.

Discussion

LGBTQ+ participants had lower vaccine hesitancy than heterosexual participants. However, our sample had very low vaccine hesitancy, which likely does not match US demographics. Despite low overall hesitancy in our sample, LGBTQ+ still were significantly less likely to have vaccine hesitancy as compared to heterosexual people. Notably, LGBTQ+ people often receive poorer healthcare and healthcare access than their heterosexual counterparts but were still more likely to get the vaccine. Both LGBTQ+ people and people with low vaccine hesitancy tend to be more progressive, which might help explain the study outcomes. The low vaccine hesitancy exhibited by this sample suggests that in our sample, LGBTQ+ people were more willing to take an active role in preventing disease through vaccination, speaking to their strength as a community.

Abstract #46 COVID-19 Hospitalization Risk in Oklahoma Pediatric Patients: A Socio-Ecologic Analysis

Authors

Mr. Ozair Naqvi - University of Oklahoma, Health Sciences Center, Hudson College of Public Health, Department of Biostatistics & Epidemiology

Dr. Morgan Bayouth - University of Oklahoma, OU-TU School of Community Medicine, Department of Pediatrics

Dr. Ann Chou - University of Oklahoma, Health Sciences Center, College of Medicine, Department of Family & Preventive Medicine

Dr. Aaron Wendelboe - University of Oklahoma, Health Sciences Center, Hudson College of Public Health, Department of Biostatistics & Epidemiology

Introduction

COVID-19 has the potential for severe outcomes among children and adolescents. Disparities in outcomes and infection rates may vary by population density of residence and race/ethnicity. This study aims to estimate the association, if any, between population density, racial minority status, and COVID-19 hospitalization among persons aged 19 and younger in Oklahoma and assess if these associations varied during the first and second pandemic waves.

Methods

COVID-19 data reported to the Centers for Disease Control and Prevention (CDC) National Notifiable Disease Surveillance System (NNDSS) from March 1, 2020, to December 5, 2021, were analyzed. The sample included 136,698 Oklahoma residents aged 19 and younger. Summary statistics on the burden of COVID-19 infection and hospitalizations were compiled and logistic regression modeling was computed to determine the association between population density, racial minority status, and COVID-19 hospitalization. All racial/ethnic categories other than White/Non-Hispanics were combined into a single category to maximize statistical power, though impact of different races on different lived experiences is acknowledged.

Results

Higher incidence of COVID-19 was observed among persons younger than 19 years during the first wave (5,128.87 per 100,000) compared to the second wave (4,922.32 per 100,000). However, incidence of COVID-19 hospitalizations was higher during the second wave (1,740.55 per 100,000), compared to the first (1,455.11). Further, COVID patients living in a rural county were less likely to be hospitalized compared to their counterparts living in urban counties during both waves (odds ratio: 0.64 [95% CI: 0.55, 074]). However, those identified as racial/ethnic minorities, regardless of rural/urban residency, were more likely to become hospitalized compared to non-minorities during the first wave (odds ratio: 1.22 [95% CI: 1.05, 1.41]).

Discussion

This study found a higher incidence of COVID-19 hospitalizations in urban areas and among racial/ethnic minorities during the early phases of the pandemic. The lower incidence of the Delta variant observed among rural residents may be due to the lower population density, as the Delta strain is more infectious, and that some may have been vaccinated. The incidence, in turn, affected hospitalization rate. However, similar to those trends across the US, racial/ethnic minorities in Oklahoma suffer worse outcomes than their White counterparts, as part of a broader social context related to the social determinants of health. These findings highlight the need for targeted public health interventions to mitigate the impact of COVID-19 among children and adolescents in Oklahoma, based on socio-ecologic factors.

Abstract #47 Adverse Childhood Experiences and Outcomes on Adults Living in Rural Areas

Authors

Ms. Shannon Ashworth - University of Oklahoma, OU-TU School of Community Medicine
Ms. Lauren Taylor - University of Oklahoma, OU-TU School of Community Medicine
Dr. Sarah Beth Bell - University of Oklahoma, OU-TU School of Community Medicine, Office for Research Development and Scholarly Activity

Introduction

The state of Oklahoma is consistently among the worst in the nation in nearly every measurement of health and well-being, with people living in rural areas having some of the poorest outcomes. One risk factor is adverse childhood experiences (ACEs), which are particularly high in Oklahoma. Another risk factor for these outcomes is rejection, which is linked not only to feelings of loneliness but also to disordered substance use and suicidality. Our study measured the intersection of feelings of rejection and adverse childhood experiences in Oklahomans living in rural areas. This experiment was a collaboration among a multidisciplinary team of professionals made possible through the funding of a convergence research grant.

Methods

The participants (n=42) resided in five rural Oklahoma towns. The mean age was 40.9 (SD=18.3). Participants played Cyberball, a virtual game of catch used to induce feelings of rejection. Two players are computer-programmed avatars that the participants are told are real people, and the third is the participant. In the acceptance condition, participants receive the ball ⅓ of the time. In the rejection condition, participants receive the ball twice and never again for the rest of the three-minute game. Participants completed both conditions. During Cyberball, participants also had EEG electrodes attached to measure brain activity. After Cyberball, the participants completed a scale about feelings of rejection during each game.

Results

People with more ACEs experienced a greater increase in their feelings of rejection during the rejection condition compared to the acceptance condition ($r=0.45$, $p=0.048$). EEG measures theta waves, which relate to feelings of well-being. ACEs were correlated with changes in theta waves between the conditions. More specifically, those who had experienced physical and emotional neglect experienced decreases in theta activity during the Cyberball rejection condition compared to the acceptance condition. Mirroring the EEG findings, the largest two ACEs correlations with Cyberball changes in feelings of rejection were related to neglect (emotional neglect $r=0.39$, $p=0.079$; physical neglect $r=0.46$, $p=0.016$).

Discussion

Our study found that ACEs affected psychological and biological measures of rejection. Among the adverse childhood experiences, physical and emotional neglect correlated the most with an elevated rejection response. In this way, people who experience physical and emotional neglect may be particularly at risk for negative outcomes associated with rejection sensitivity compared to people who experience other ACEs. Implications include targeting interventions related to feelings of loneliness and distress towards people who have experienced neglect.

Abstract #54 From desert to Oasis? Healthy food accessibility at a North Tulsa fresh market

Authors

Mr. Nile McCullough - University of Oklahoma, OU-TU School of Community Medicine
Ms. Charlotte Love - Oasis Fresh Market
Dr. Marianna Wetherill - University of Oklahoma, Hudson College of Public Health

Introduction

As a social determinant of health, food insecurity disproportionately affects Black and Hispanic households relative to non-Hispanic Whites. Although primarily influenced by household income, food insecurity can also be caused by structural barriers, including limited food access within local communities. In North Tulsa, where residents repeatedly lost food access to a full-service store due to multiple grocery store closures from 2014-2020, residents experienced food insecurity at more than twice the rate (38%) of Tulsa County (16.8%). In 2021, Oasis Fresh Market, was established in North Tulsa to reduce barriers to fresh fruits, vegetables, and other healthy foods, for community residents. The aim of this study is to objectively measure the availability, relative cost, and quality of healthy foods at Oasis Fresh Market to better understand how this retail food environment contributes to healthy food access within North Tulsa.

Methods

The standardized store audit assessment tool Nutritional Environmental Measure Survey for Stores (NEMS-S) was used to estimate three dimensions of healthy food accessibility at Oasis Fresh Market: healthy food availability, pricing, and quality in January 2023. The availability dimension evaluates stocking of healthier options across 11 commonly consumed food categories (0-30 points). The pricing dimension assesses the cost of healthy foods compared to less healthy varieties within 9 of these categories (-9 to 18 points). The quality dimension evaluates the perceived freshness (acceptability) of fresh fruits and vegetables (0-6 points). Higher scores indicated greater access to healthy foods within the environment, with a total range of -9 to 54 points. After independent assessment by two raters, discrepancies were reconciled through a comprehensive store walk-through to finalize scores.

Results

Oasis Fresh Market received a total NEMS-S score of 29 points. While the quality domain achieved a perfect score (6/6 points), the availability domain met most criteria except availability of lean ground beef option and multiple categories in which the number of healthy food options can be expanded (22/30 points). Multiple opportunities for improvement were identified in the pricing domain (1/18 points) with healthy options in the meats, baked goods, beverages, breads, and cereals costing more than less healthy options.

Discussion

Oasis Fresh Market is a resource that provides healthy food options across most food categories and quality fresh produce. More competitive pricing for healthier food options may help to further increase accessibility of available items.

Abstract #56 Maternal Health for Women Who Intend Pregnancy: A Qualitative Perspective

Authors

Dr. Livia Maruoka Nishi - University of Oklahoma, OU-TU School of Community Medicine
Mr. James Elias - University of Oklahoma, OU-TU School of Community Medicine
Mrs. Natalie James - University of Oklahoma, OU-TU School of Community Medicine
Dr. Juliana Meireles - University of Oklahoma, OU-TU School of Community Medicine, Department of Family and Community Medicine
Mrs. Ginger Sutton - University of Oklahoma, OU-TU School of Community Medicine, Office for Research Development and Scholarly Activity
Dr. Syeachia Dennis - University of Oklahoma, OU-TU School of Community Medicine, Department of Family and Community Medicine

Introduction

Oklahoma performs poorly in most health metrics, while many statistics are improving, women's health statistics continue to lag behind the rest of the country. A gap still exists in our health care system where we are failing to educate and assist people planning to get pregnant. Early initiation of comprehensive pre-conception care has shown to be an effective strategy to reduce poor outcomes often associated with pregnancy and the postpartum period. The aim of this study was to explore the needs, concerns, and attitudes towards future pregnancies of women who are planning to, or previously have been pregnant.

Methods

Recruitment was accomplished through OU email distribution, fliers in the OU Schusterman and Family Medicine clinics, and Facebook. Of the 126 individuals who expressed interest, 16 met inclusion criteria and participated in the focus groups. Three focus groups were conducted, comprised of 5 to 6 women, age 18 to 44 years. Written informed consent was obtained from each participant. Focus group discussions were developed in a semi-structured script with questions related to health, pregnancy, society, and a planned preconception care program. Recorded sessions were imported and transcribed using MaxQDA analytic software. Content analysis was used to interpret data.

Results

25% (n=4) of participants identified as African American or belonging to an Indigenous population, and 50% (n=8) had been pregnant before. Participants viewed health as a combination of physical, mental, and social health. They also agreed that pregnancy itself can act as a motivator for healthy living. Doctors and family members, especially those with pregnancy experience, were cited as primary sources of pregnancy information while the internet was used by many for its accessibility. When asked what they wished they knew before their first pregnancy, participants brought up realistic expectations of physical changes during pregnancy, what to expect post-partum, and how to eat/exercise during pregnancy. The vast majority of participants showed interest in the proposed preconception care program.

Discussion

Contrary to expectations, the majority of the participants believed a healthy pregnancy should be focused on making sure the mother is healthy compared to focusing on specifically the baby. Most people want out of a comprehensive preconception program is information about what to expect financially, socially, emotionally, and physically for themselves. The results of this project can be used to inform a developing preconception care program directed to patient needs and interests.