
THE UNIVERSITY OF VERMONT
COLLEGE OF NURSING AND HEALTH SCIENCES

ZEIGLER RESEARCH FORUM

Wednesday, May 8, 2019

8:15 a.m. to 12 p.m.

Dudley H. Davis Center

University of Vermont

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FORUM SCHEDULE

Dudley H. Davis Center
Fourth Floor
Silver Maple Ballroom

8:15 a.m.	Breakfast
9:00 a.m.	Welcome
9:15 a.m.	Keynote
10:10 a.m.	Poster Session
11:15 a.m. – 12 p.m.	Research Incentive Grant Presentation

KEYNOTE SPEAKER



Kushang V. Patel, Ph.D., M.P.H.

Kushang Patel is a research associate professor in the Department of Anesthesiology and Pain Medicine at the University of Washington in Seattle. He is an epidemiologist and gerontologist who completed doctoral training in preventive medicine at the University of Texas Medical Branch and a post-doctoral fellowship in the Intramural Research Program of the National Institute on Aging/NIH. Dr. Patel has authored over 100 publications and serves on editorial boards of journals in the field of aging. He is broadly knowledgeable about issues related to health and aging in older adults, with particular expertise in the areas of pain management and physical function assessment. His current research involves (1) investigating the epidemiology of pain and aging; (2) developing and evaluating behavioral interventions to improve pain management and function among older adults; and (3) evaluating outcome assessment tools for observational studies and clinical trials of chronic pain and aging.

KEYNOTE PRESENTATION

9:15 A.M. to 10 A.M.

Dudley H. Davis Center, Fourth Floor, Silver Maple Ballroom

Chronic Pain in Older Adults: Opportunities to Translate Epidemiologic Findings to Promote Healthy Aging

Dr. Kushang Patel, University of Washington – Seattle

Chronic pain is the most commonly endorsed condition underlying disability among community-dwelling older adults. Further, preservation of independent living and pain relief are two of the most commonly reported health care goals of older adults. In this seminar, epidemiologic research on the distribution and impact of pain in older adults will be presented. In addition, ongoing efforts to translate these findings into effective interventions to promote healthy aging will be discussed.

RESEARCH INCENTIVE GRANT PRESENTATION 11:15 A.M. to 12 P.M.

Dudley H. Davis Center, Fourth Floor, Silver Maple Ballroom

Semantic Processing of Linguistic and Non-linguistic Stimuli in Individuals with Autism

Dr. Emily Coderre, Communication Sciences and Disorders

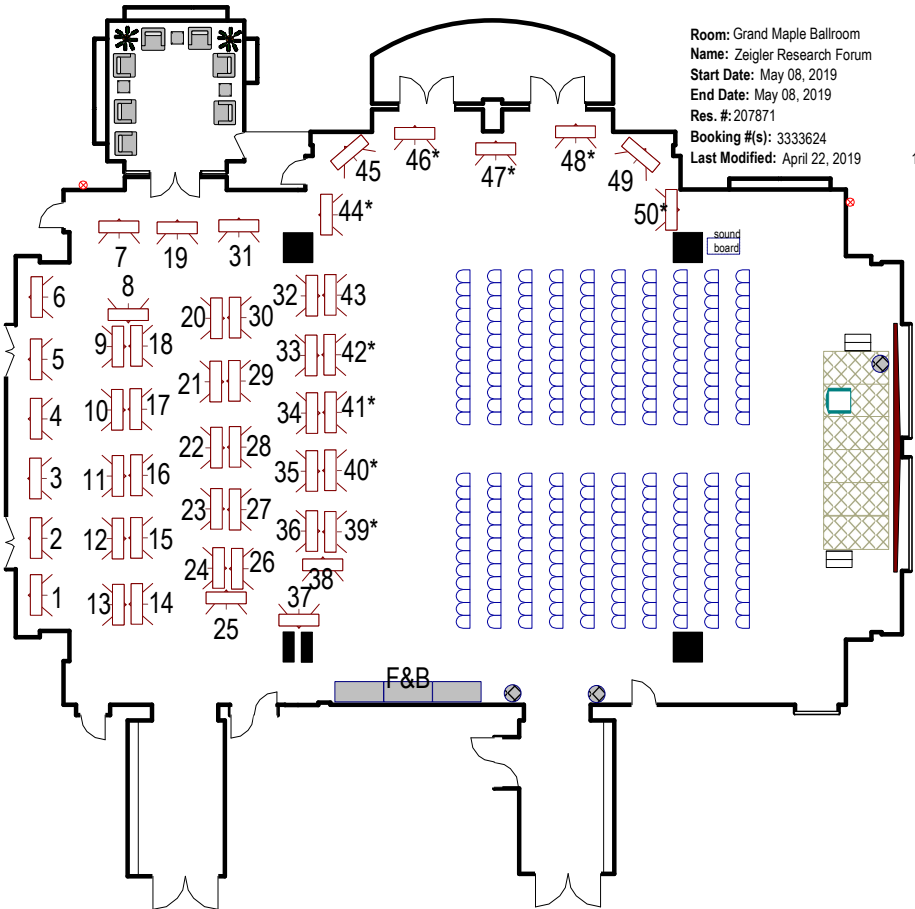
Individuals with autism spectrum disorder (ASD) have notable language difficulties, especially with complex linguistic processes like sentence and narrative comprehension. Impairments in semantic integration, or the ability to integrate the meanings of various pieces of information to arrive at a holistic understanding, may underlie many of these language difficulties. However, some research has shown that semantic integration of non-linguistic stimuli, like pictures or environmental sounds, is not impaired in ASD. This dissociation suggests generally intact semantic processing but a language-specific deficit in semantic integration in individuals with ASD. The presence of such a language-specific deficit would influence how the field conceptualizes semantic processing in ASD and could inform language interventions for children with the disorder. I will present preliminary data from two studies investigating the neural processes underlying semantic integration of linguistic stimuli (words) and non-linguistic stimuli (pictures) in children and adults with ASD. The results will be discussed with regards to implications for clinical interventions.

MAP OF POSTER PRESENTATIONS

Dudley H. Davis Center, Fourth Floor, Silver Maple Ballroom

Room: Grand Maple Ballroom
Name: Zeigler Research Forum
Start Date: May 08, 2019
End Date: May 08, 2019
Res. #: 207871
Booking #(s): 3333624
Last Modified: April 22, 2019

18:14:20



INDEX OF POSTER PRESENTATIONS

(alphabetical by first author)

Poster 1

David Alpert, Kelsey Barklund, Caroline Buchanan, Derek Roberts, Kelsey Spitalnic, Denise Peters

Coupling of Lower Extremity and Upper Extremity Forces during Gait with Assistive Devices in Community Dwelling Older Adults

Background & Objectives: This study was conducted to establish reliable methodology to examine the coupling between upper extremity (UE) and lower extremity (LE) force production (FP) in older adults who use an assistive device (AD) for gait. ADs are used in the community dwelling population to aid in mobility, balance, propulsion, and speed. It is understood that ADs may limit FP potential through the LE resulting in increased forces placed throughout the UE during gait. Maladaptive strategies, as a result of AD use, may lead to overuse injuries in the UE. Currently, there are no studies that have examined the coupling of UE and LE forces simultaneously. Results from our study may provide insight regarding the coupling of FP with ADs to guide clinicians to a better understanding of the strategies utilized by older adults during gait with ADs.

Methods: Data will be collected from participants between the ages of 40-80 years of age who have no significant pain or previous neurological condition, and regularly use an AD during gait. After initial screenings, participants will complete clinical measures of strength and mobility. Participants will walk across an instrumented walkway while using an instrumented cane or walker reflective of their typical AD. Multiple walking trials will be performed in order to capture a minimum of 3-5 trials of combined UE and LE FP for both self-selected walking speed and fast walking speeds. The order of walking speeds will be randomized between subjects to minimize order and fatigue effects. Normality of data will be assessed using the Shapiro-Wilk test. Test-retest reliability of FP across walking trials will be assessed using intra-class correlation coefficient. Correlational analyses will be used to examine relationships between FP and clinical measures of strength and walking, as well as muscle activity and measures of FP.

Results: Data collection is currently ongoing.

Poster 2

Ellie Anderson

Exploring Evidence-Based Mental Health Prevention Programs to Build Resiliency in College Students

Purpose: Mental health diagnoses and utilization of services are increasing amongst college students. Mental health prevention programs can cultivate resiliency traits that are protective of mental health. The purpose of this project is to assess for the need of a mental health prevention program at a small urban-college in Vermont and make program recommendations based on staff and student needs.

Methods: A needs assessment project was conducted at the college student health center. Separate needs surveys were created and distributed to students and student wellness staff. Student resiliency was assessed using the Brief Resiliency Scale, a validated tool. Literature review was performed to identify potential mental health prevention programs based on student and staff needs.

Results: 14 surveys were completed by student health staff. Staff expressed a need for psychoeducation and skills building programs. Majority of staff believe the program should be

required and delivered in a seminar/class or small group format. 12 student surveys were completed and resulted in an average resiliency score of 3.06 (normal resilience), median 2.83 (low resilience). Students identified stressors such as shared-living, homesickness, adjusting to college courses and mental health. Students expressed need for better access to counseling, explanation of resources and campus modifications. Three evidence-based mental health prevention programs that matched identified needs were selected.

Conclusion: Data suggests there is a need for mental health and resiliency building programming in the college setting. Several evidence-based mental health prevention programs exist and could address the needs of students and staff. Further study is needed to know if program implementation would lead to improved resiliency and mental health outcomes amongst students.

Keywords: Mental health prevention program, resiliency, college

Poster 3

Christina Barr, Jeremiah Crawford, Tyler Gregory, Marta Topor, Brittany von Oldenburg, Mathew Failla

Shoulder Muscle Activation during Aerobic and Rehabilitative Exercise

Background & Objectives: Patients who have recently undergone shoulder surgery often experience postoperative weight gain. Weight gain can lead to debilitating and potential morbid diseases. Regular physical activity has been shown to reduce, or in some cases prevent, post-operative weight gain. Typically, orthopedic protocols following shoulder surgery do not include physical activity. With an introduction to safe aerobic activity in a post-operative protocol, patients would be able to reduce the possibility of weight gain. The purpose of this study is to compare shoulder muscle activity, using EMG, during a common rehabilitation exercise to aerobic exercises to analyze whether muscle recruitment during aerobic activity may be considered a safe implementation within a rehabilitation protocol.

Methods: The participants in this study are healthy adults without a history of shoulder pathology. Participants undergo a single testing session utilizing surface electromyography of shoulder muscles, both with and without a sling, during 3 aerobic exercises and a rehabilitation exercise, pulleys. Using EMG SENIAM Guidelines, electrodes are placed on the upper trapezius, biceps, long head of triceps, middle deltoid, and infraspinatus. Maximal voluntary isolated contractions (MVIC) of each muscle are collected referencing the Muscles Testing and Function with Posture and Pain text for each of the manual muscle tests. The raw EMG data is filtered, smoothed, and normalized to the MVIC for each muscle. The mean EMG peak amplitude is analyzed to compare muscle recruitment during the pulley and aerobic exercises in conditions with and without a sling.

Results: Data has yet to be analyzed for results.

Implications: No data has been collected for discussion or conclusion.

Poster 4

Brittany Belanger, Susan Kasser, and Michael Cannizzaro

Cognitive Dual-Task Cost in Individuals with Multiple Sclerosis

Multiple sclerosis (MS) is a neurodegenerative disease that negatively impacts a wide variety of cognitive and motor functions. Previous research indicates that individuals perform more poorly when completing a motor task and cognitive task simultaneously (dual-tasking), than when performing a cognitive or motor task in isolation. This decrement in performance, or dual-task cost (DTC), negatively impacts persons with MS to a greater degree than it does for healthy controls. However,

a disproportionate amount of the DTC research in persons with MS has focused on the cost to motor performance and its association with fall risk, while there is limited understanding of the dual-task cost in cognitive performance. The present study involved fifteen adults with MS who were assessed on a battery of cognitively challenging tasks singly and while walking. Additionally, blood flow in the pre-frontal cortex (PFC), an indirect measure of neural function, was measured using functional near-infrared spectroscopy (fNIRS). Results indicated statistically significant DTC in cognitive and motor performance, as measured on behavioral and motor measures. Motor performance was negatively impacted to a greater extent than cognitive performance. Cortical blood flow measures also provided some insight on task prioritization strategies and/or attentional switching needs in the study sample.

Poster 5

Gussie Belisle

Screening for and Intervening in Food Insecurity in Vermont Pediatric Primary Care

Purpose: Food insecurity places patients at risk for adverse health outcomes, and in VT, one in six children are food insecure. Despite this finding, the validated 2-item food insecurity screening tool is not routinely being utilized in pediatric primary care settings. The purpose of this project was to increase rates of food insecurity screening and subsequent connection to appropriate resources in a pediatric practice in VT.

Methods: In this quality improvement project, the 2-item food insecurity screening tool was implemented in the health maintenance visits of patients age 1-21 at three pediatric primary care offices. Positive screenings were referred for intervention utilizing the community health team at the practice, or HelpMeGrow Vermont. Data was analyzed for frequency of screening tool completion, positive screenings, and intervention options. Variance and statistical significance of screening rates over time were analyzed using descriptive statistics.

Results: Fourteen practice providers participated. Between May and December 2018 4,243 children were screened. 47 % of children seen for health maintenance visits were screened. Of the children screened, 6.33% screened positive. There was a 42% increase in screening rates throughout the 8-month study period. Results were further delineated by provider, office location, zip code, and age of patient. An intervention was documented for 19.5% of the positive screens from September to December 2018.

Conclusion: Implementing a 2-item questionnaire increases screening rates and facilitates connection of food insecure patients with appropriate resources. Further study is recommended to determine if identifying food insecurity and subsequent intervention leads to improved health outcomes.

Keywords: Food Insecurity; pediatric screening

Poster 6

Catherine Bergeron-Radoux, Kelsey Buerge, Beca Gever, Daniel Olmschenk

Do Racial Minority Patients in the United States Have Similar Patient Outcomes to Majority (White) Patients Regarding Inpatient Rehabilitation?

Background: As the emphasis on patient-centered care and the use of the biopsychosocial model increases in the field of physical therapy and rehabilitation, it is crucial for practitioners to understand the impact of social determinants on patient outcomes. Evidence of racial/ethnic disparities in health exist across disciplines, but little synthesis of data has been done in rehabilitation services to understand disparities among patients in these settings.

Purpose: To explore how physical therapy and rehabilitation medicine is affected by existing trends between race and health disparities. This systematic review investigates the current understanding of the effects that race has on population health and outcomes within inpatient rehabilitation.

Data Sources: Databases accessed included OVID Medline, Cochrane, CINAHL, ERIC, and psycINFO.

Study Selection: Assessment of methodological quality was performed using Oxford's Center for Evidence Based Medicine "Levels of Evidence", the Strengthening the Reporting of Observational Studies in Epidemiology checklist for observational studies, and Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

Data Extraction: The database search resulted in 14 observational studies matching specified inclusion/exclusion criteria. Data synthesis utilized 12 parameters highlighting racial disparities in patient outcomes.

Data Synthesis: A qualitative and quantitative research approach revealed themes from the observational studies. Studies were categorized based on whether or not significant differences in FIM outcomes were seen by racial or ethnic group.

Conclusions: This review indicates that there are significant differences in outcomes by race after inpatient rehabilitation across conditions based on FIM scores. Although there is a substantial number of studies that suggest that racial and ethnic disparities affect health outcomes, there is limited research that examines the relationship between health outcomes and race in inpatient rehabilitation within the US. Current literature indicates there is a need for further research to demonstrate the significance of the impact of health disparities on health outcomes.

Poster 7

Hannah Bernier

Effect of Fatigue on Standing Balance and Cognition in Mild Traumatic Brain Injury

Problem Statement: Annually, 2 million Traumatic Brain Injuries (TBI) are recorded and 70-90% are considered mild Traumatic Brain Injuries (mTBI). Fatigue is one of the most frequently reported symptoms in those with mTBI. This study will evaluate the effects of a moderately fatiguing exercise on standing balance and cognition in individuals who have sustained a mTBI. The results of this project will help us to design a better rehabilitation intervention for individuals with mTBI.

Methods: We will recruit 10 individuals with mTBI for one visit that will last 2.5 hours. Standing balance and cognition will be assessed before and after a moderately fatiguing exercise. A standardized force platform will be utilized for quantifying various parameters of postural sway during four conditions: bipedal-eyes open (BEO), bipedal-eyes closed (BEC), staggered-eyes open (SEO) and staggered-eyes closed (SEC). Cognition will be assessed using NIH Toolbox- Cognitive battery. We will primarily measure processing speed, attention, memory and executive function domains of cognitive function.

Results: Thus far, we have finished data collection and initial analysis of 3 participants with mTBI. Additional 7 participants are currently being enrolled for the study. Our preliminary analysis reveals that postural sway area and velocity decreased after fatiguing exercise in all conditions except SEO. Cognitive measures for all domains showed improvement after the fatiguing exercise with least improvement in episodic memory.

Conclusion: Our initial results indicate potential beneficial effects of moderately fatiguing exercise in individuals with mTBI. Decreased postural sway would imply an increase in postural stability during Activities of Daily Living (ADLs). Further improved cognitive function can explain the need of moderate exercise in patients who have cognitive deficits. Future research should be done to determine the full spectrum of fatigability in mTBI.

Poster 8

Ashley Brien, Tiffany L. Hutchins

Autobiographical Memory in ASD, ADHD, Childhood Trauma, and Hearing Loss: Implications for Social Communication Intervention

Autobiographical memory (ABM) is foundational to the development of self-concept and identity and co-develops with a wide range of related cognitive achievements, including theory of mind, executive functioning, and language. Because of its link to these cognitive achievements, ABM is highly vulnerable to insult. It is not surprising then that ABM is disrupted in some of the most prevalent clinical conditions affecting children, including autism spectrum disorder, attention deficit hyperactivity disorder, childhood trauma, and hearing loss. Despite the widespread challenges in ABM in many populations, few researchers have examined ABM in these populations. Furthermore, clinicians and health care professionals are presented with little guidance on supporting ABM in these populations. Using a causal model (i.e., biological, cognitive, behavioral levels), we trace the disruption of ABM in these prevalent clinical conditions and suggest assessment and treatment strategies to support ABM and social communication. Understanding the interactions between the biological, cognitive, and behavioral challenges in each condition will provide clinicians with a deeper understanding of the root of behavioral challenges and a foundation for developing and implementing successful social cognitive interventions.

Poster 9

Rebecca Booth, Emily Heckler, Molly Reese

Efficacy of Problem-Solving Interventions for Improving Executive Functioning Outcomes in Patients with Acquired Brain Injuries: A Systematic Review

Background and Objective(s): Individuals with acquired brain injury (ABI) often demonstrate executive functioning (EF) impairments that impact their ability to identify and solve problems within their daily lives. This systematic review attempts to consolidate available research supporting problem-solving interventions as effective, evidence-based practice for addressing EF deficits in individuals with ABI.

Methods: A systematic review of 14 published studies (12 randomized controlled trials and 2 Phase I studies) using the databases Ovid Medline, CINAHL, and PsycINFO. Studies met the following inclusion criteria: 1) problem-solving intervention, 2) EF outcomes, 3) individuals with acquired brain injuries. Studies were excluded based on the following criteria: 1) single-case study design, 2) family-centered interventions and outcomes. All studies were then quality assessed using components of the Assessment of the Quality and Applicability of Systematic Reviews.

Results: A total of 531 studies were identified and 14 met inclusion criteria. The overall quality of the studies was 'moderate.' Interventions identified include Counselor-Assisted Problem-Solving, analogy-based problem-solving, problem-solving skills training, teen online problem-solving, metacognitive strategies, Short-Term Executive Plus, Interactive Strategy Modelling Training, and attention and problem-solving training.

Conclusions: Problem-solving interventions are effective for use as management strategies for individuals with problem-solving deficits following ABI. The available evidence does not support the use of these interventions as remediation for EF deficits. Explicit teaching of problem-solving frameworks has been found to improve individual's ability to recognize solutions to daily problems and determine a plan to reach an appropriate solution. Variables such as age, injury severity, and cognitive reserve may contribute to the level of success of the problem-solving interventions. More research is warranted to support the use and generalization of explicit problem-solving interventions to improve EF in individuals with ABI.

Poster 10

Noah Book, Alexa Crosby, Ashley Mitson, Marcus Soto, Sambit Mohapatra

Physical Fatigue and its Effects on Postural Control and Cognitive Function in Older Adults

Background: As the older adult population continues to age, the risk for falls becomes more prevalent and leads to higher rates of injury and mortality. Typical aging accounts for less mobile joints, decreased muscle force productions, reduced coordination, and cognitive decline, which all contribute to an increased risk of falling in older adults. Cognition and postural stability both play a role in a person's ability to effectively ambulate. These two aspects are vital for the completion of activities of daily living (ADL's). This study will investigate the effects of fatigue on postural control and cognitive function in older adults.

Methods: We will recruit approximately fifteen participants to complete standing balance and cognitive tasks. The standing balance tasks include bipedal and semi-tandem stance with eyes open and eyes closed. The cognitive tasks include memory, concentration, processing speed, attention and executive function through the NIH toolbox. Standing balance and cognition will be tested before and after the fatiguing exercise using a stationary bicycle. Muscle activity, kinematic data, forces and moments during postural sway will be measured

Results: Data collection is ongoing.

Discussion: After analyzing our results we would anticipate that there would be decreased postural stability and increased cognitive performance after moderately fatiguing exercise.

Poster 11

KC Bruch, Nicholas Franssen, Kaleigh Mulpeter, Leanne Scott, Mariana Wingood, Sharon Henry, Nancy Gell

Physical Activity for Patients with Chronic Low Back Pain: What are Physical Therapists Prescribing? A Mixed-Methods Study

Background: The benefits of physical activity (PA) in the management of chronic low back pain (CLBP) are supported by systematic reviews and clinical practice guidelines. Physical therapists are well-suited to promote and prescribe PA to patients with CLBP. However, physical therapists' practice of PA prescription to patients with CLBP are not well known.

Methods: This study employed a mixed methods design. In 2019, 18 practicing physical therapists from mixed regions in the U.S. were interviewed about their experiences prescribing PA to patients with CLBP. These interviews were transcribed, coded, and analyzed thematically. The electronic health records (EHR) of physical therapists from a single health system were also examined for documentation of PA prescription including frequency, intensity, type, and time (FITT) components. Data were abstracted from the EHR for 18 patients with CLBP (n=56 encounters).

Results: Five themes were identified in regards to physical activity prescription for patients with CLBP: 1) consideration of personal factors, 2) non-structured movement, 3) pain as a key player, 4) "Sellin' it!", and 5) physical activity prescriptions are conditional. Based on the EHR analysis, 67% (12/18) of the charts had documented PA history at baseline, however, only 5% (3/56) of sessions had documentation of PA prescription, of which none had all four FITT components, while 32% (18/56) of sessions had documented general movement discussions.

Conclusion: Despite the universally acknowledged benefits of physical activity, the thematic analysis reveals a number of factors impact physical therapists' specificity in prescribing PA to the CLBP population. The lack of FITT components and specificity of PA prescription observed in the documentation mirror this phenomenon. It was evident that patient factors supersede the FITT principles in PA prescription in CLBP patients. Therefore, those who might benefit from structured PA prescriptions may not receive them.

Poster 12

Virginia Cheng, Jenna Dalton, Kathryn Howrigan

The Efficacy of Electrical Stimulation Intervention in Treating Adults with Dysphagia: A Systematic Review

Purpose: Dysphagia can have significant impacts on an individual's quality of life, and it has been suggested that nearly 15 million adults in the United States present with swallowing disorders. Common medical complications associated with dysphagia are malnutrition, dehydration, aspiration pneumonia, and even death. Traditional dysphagia treatment (TDT) for adults currently consists of diet modification, compensatory strategies involving postural adjustments, and swallowing exercises to strengthen musculature. Electrical stimulation (ES) is a treatment modality that delivers electric impulses via electrodes placed on the skin surface to improve muscle function. The objective of this systematic review is to determine whether electrical stimulation improves swallowing function in adults with dysphagia.

Methods: Four databases were searched to obtain articles pertaining to the efficacy of ES in dysphagia treatment. Application of inclusionary and exclusionary criteria narrowed the results and relevant studies were selected for this systematic review. Inclusionary criteria included individuals age 18 and older, dysphagia diagnosis, dysphagia resulting from any etiology, ES independent of other dysphagia treatment OR ES used in conjunction with TDT. Studies were quality assessed using a modified Assessing the Quality and Applicability of Systematic Reviews (AQASR) document.

Results: A total of 527 studies were identified and 25 met inclusionary criteria. The overall quality of the studies was moderate.

Conclusion: The results of the systematic review suggest efficacy of ES is highest when it is used in conjunction with TDT. Studies with statistically significant results reported on only a minor improvement with ES. None of the studies reported negative outcomes related to ES intervention. Additional research is needed to determine overall efficacy of ES intervention as an evidence-based intervention for adults with dysphagia resulting from various etiologies (CVA, tumor, head and neck cancer).

Poster 13

Meaghan DeCara, Thomas DiRenzo, Kyle Gadapee, Elizabeth Platz, Brittany Rose, Sharon Henry, Nancy Bianchi, Reuben Escorpizo

Clinical Effectiveness of Dry Needling on Pain & Function in the Lower Extremity: A Systematic Literature Review

Background & Objectives: Musculoskeletal (MSK) health conditions are one of the leading causes of disability in the United States. Conventional approaches for addressing MSK pain such as therapeutic exercise, patient education, and pharmacological management often have mixed results. Dry needling is an alternative intervention that may be included in a treatment plan when myofascial trigger points (MFTPs) are present. Research to date supports the effectiveness of dry needling in the upper extremity, but evidence is lacking for the lower extremity and current research uses data from dated studies. Therefore, the objective of this review was to analyze the most current research and determine the clinical effectiveness of dry needling on MSK conditions in the lower extremity.

Methods: Articles were retrieved from electronic databases using a search strategy informed by our research question. The articles satisfying the predefined eligibility criteria were selected for the review. The methodological quality of each study was assessed using the Physiotherapy Evidence Database (PEDro) scale and data such as study characteristics and key findings were extracted. Recommendations were made based on a preponderance of evidence and assigned a grade using the OCEBM Grades of Recommendation.

Results: A total of 97 articles were retrieved and after duplicates were removed, 75 articles remained. Upon review of the abstracts, 65 articles were excluded because they did not satisfy the eligibility criteria. Of the 10 articles included in the full-text review, 9 articles satisfied the eligibility criteria and have moved on to the critical appraisal.

Implications: This systematic review will aim to identify whether patients with lower extremity MSK conditions will have reductions in pain and/or increases in function following dry needling. The results of the study will assist clinician decision making in identifying lower extremity MSK conditions that may benefit from the use of dry needling.

Poster 14

Jessica Desorcie, Samuel Gagnon, Danielle Saad, Roman Weber, Michelle Yargeau, Suzanne Lawrence, Nancy Bianchi, Reuben Escorpizo

Prognostic Factors that Contribute to the Prevention of Pressure Injury in Individuals with Spinal Cord Injury: A Systematic Literature Review

Background and Objective: Individuals with spinal cord injuries (SCI) are at a higher risk for developing pressure injuries than individuals without SCI. Pressure injuries are the second most common complication in individuals with SCI and pose a burden on patients' health, well-being, and quality of life. They are also a burden on families/caregivers and the healthcare system. Identification of prognostic factors of pressure injury for individuals with SCI will improve the ability of the healthcare system to prevent these life-altering injuries.

Methods: This systematic literature review was performed following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Databases searched for this systematic review included Ovid MEDLINE, CINAHL, PEDro, PsycInfo, and The Cochrane Library. Data extraction included participant characteristics, study characteristics, risk factors examined, the significance and the clinical implications of these factors.

Results: Initial search resulted in 685 studies. After screening, 18 studies were reviewed and analyzed. A variety of modifiable and non-modifiable variables, including injury characteristics, participant characteristics, comorbidities and outcome measures were found to be related to an individual's risk of pressure injuries.

Implications: Modifiable and non-modifiable risk factors have clinical importance, as modifiable factors can be influenced and non-modifiable factors can be used in screening. The International Classification of Functioning (ICF) model is useful in determining areas for future research. Several common SCI comorbidities are also associated with risk of pressure injury and prevention of these conditions can affect risk of pressure injury.

Poster 15

Meghan Foster

Improving Adolescent Health Care Transition: Piloting the Transition Readiness Assessment Questionnaire

Purpose. Successful adolescent health care transition (HCT) is a vital process in providing developmentally appropriate care and minimizing negative outcomes, especially in adolescents with special health care needs. The purpose of this mixed-methods quality improvement project was to pilot the Transition Readiness Assessment Questionnaire (TRAQ) tool in a pediatric rheumatology clinic and assess its utility as a transition tool as well as to inquire about specific patient and family-based transition needs.

Methods. The TRAQ tool and follow-up survey were administered in dyads to all established pediatric rheumatology patients between the ages of 12-18, and one caregiver, who presented to the clinic during the two-month intervention period. A post-intervention interview with the treating team was also conducted to assess provider experience.

Results. 29/30 paired TRAQ and surveys returned with overall acceptance of the tool across adolescents, caregivers and providers. 84% of adolescents and 91.3% of caregivers agreed that they were seeking greater independence for themselves or their child and the skills listed on TRAQ would help them take care of themselves. Caregivers found the TRAQ easier to fill out, understand and more helpful as a transition tool than the adolescents. The treatment team reported the TRAQ was useful in starting a conversation about transition and highlighted the need for a structured transition process.

Conclusions. The TRAQ is an accepted and valuable HCT tool for adolescents, caregivers and providers. Future projects could be aimed at piloting the TRAQ or other readiness assessment tools in other sub-specialty clinics, building a transition framework to support utilization of transitional tools and addressing the transition themes identified by adolescents and their caregivers.

Keywords. adolescent health care transition, pediatric to adult health care transition, pediatric rheumatology transition, transition readiness, transition readiness assessment questionnaire, TRAQ

Poster 16

Brett Gennero, Hailey Sarausky, David Seward

The Absence of Sirtuin 5 Causes Hyper-succinylation and Increased Activity of Native Thioredoxin

Background: Idiopathic pulmonary fibrosis (IPF) is a progressive disease of the lung that is characterized by scarring of the interstitial space. This progression culminates in the death of the patient, and while the disease symptoms can be treated therapeutically, the origin of the disease is unknown. Thioredoxin (TXN) is a ubiquitous enzyme within the cytoplasm of mammalian cells that play a large role in redox homeostasis, and may play a large role in the propagation of IPF. It is believed that Sirtuin 5 (Sirt5) targets TXN for desuccinylation, and that an environment that has reduced Sirt5 would cause hypersuccinylation of TXN, increasing its enzymatic activity. To test this hypothesis, the goal of this study was to investigate whether TXN is hypersuccinylated in the absence of Sirt5

Methods: A549 human lung epithelial cell lines were engineered to lack Sirt5 using Crispr/Cas9 gene editing technology. Control A549 or Sirt5 *-/-* were grown in similar conditions and then the succinylation status of thioredoxin was measured using immunoprecipitation and western blot technology. Thioredoxin activity was measured using an enzymatic insulin assay

Results: The developed immunoprecipitations are highly suggestive that thioredoxin is hypersuccinylated in the absence of Sirt5 *in vitro*. Moreover, hypersuccinylation of thioredoxin correlated with a 20% increase in enzymatic activity.

Conclusion: The presence of hypersuccinylation of TXN in the absence of Sirt5 along with preliminary results showing a 20% increase in enzymatic activity of TXN in a hypersuccinylated state suggests that an absence of Sirt5 creates an environment that is pro-inflammatory and pro-fibrotic, implicating Sirt5 as a potential target, treatment of IPF.

Poster 17

Abby Goldman

Functional Outcome Measures for Patients Who Have Undergone Total Hip Arthroplasty

Background: As life expectancy and the number of overweight adults increase, the number of patients with hip osteoarthritis (OA) is also expected to grow drastically, resulting in a major public health problem and high health care costs. Severe hip OA is usually treated by total hip arthroplasty (THA) and is performed annually on more than 280,000 patients in the United States at a cost of nearly \$1 billion (Gwam et al., 2017) implant failure and revision continues to burden the healthcare system. THA failure has evolved and displays variability throughout the literature. In order to understand how THAs are failing and how to reduce this burden, it is essential to assess modes of implant failure on a large scale. Thus, we report: (1. To regain function, patients are typically referred to physical therapy following their THA procedure. However, outpatient physical therapist clinicians do not have a standard toolbox of performance outcome measures to assess functional status or response to treatment for patients who have undergone THA.

Objective: The objective of this project was to use a systematic and well-defined search strategy to guide the review of current guidelines for physical therapy treatment for patients who have undergone THA in order to develop a set of standardized outcome measures for this population.

Methods: Relevant literature related to outcome measures for patients with THA was reviewed and a list of outcome measures with sound psychometric properties was created. A dissemination plan was created to establish documentation templates and smart phrases for the clinicians to increase their efficiency. Baseline data was extracted through manual chart audits for patients with THA who received physical therapy services.

Results: The preliminary baseline data results showed that not all outcome measures were being used or with the same frequency across clinicians. Specifically, only 25% to 50% of patients had a functional performance outcome measure at initial visit. Furthermore, only 8% to 17% of physical therapy clinicians repeated outcome measures a second time.

Conclusions: A standard toolbox of outcome measures will improve the consistency of care and provide information regarding the effectiveness of the THA standard of care.

Poster 18

Christine Griffin, Paula Deming, Katrina Moreau, Burton W. Wilcke, Jr.

University of Vermont Medical Laboratory Science: Public Health Laboratory Science Concentration

Public Health Laboratories are critical to the US Public Health system, providing surveillance and response to promote better population health outcomes. There has been a long-standing shortage of public health laboratorians and current demographic data indicate this trend will continue. Undergraduate public health laboratory education would prepare competent entry level professionals to enter into the public health workforce. To address this need, in 2006, the University of Vermont's Bachelor of Science in Medical Laboratory Science (MLS) degree program developed a track for students interested in pursuing careers in public health laboratory settings. Students enrolled in the Public Health Laboratory Science (PHLS) concentration complete a modified MLS curriculum with coursework in biostatistics, clinical microbiology, food microbiology, epidemiology and molecular biology. PHLS students apply their learning through a project based, hands-on practicum in a public health laboratory at one of our affiliate sites throughout the Northeast. Projects span a wide array of topics from the development of molecular assays to public health laboratory education related to the identification and prevention of infectious microorganisms. The curriculum meets the requirements for the MLS major with a concentration in PHLS emphasizing microbiology. Students who also complete a clinical microbiology practicum are eligible for the ASCP technologist in microbiology certification exam. Approximately 10% of our MLS students complete the MLS PHLS concentration. Alumni surveys indicate graduates were very satisfied with the program and all are either employed in the field of public health or continuing their education.

Poster 19

Matthew R. Guy

Developing an Evidence-Based Mentorship Program for New Graduate Nurse Practitioners

Purpose. Excessive job turnover in the novice nurse practitioner (NP) population is a stressful phenomenon for providers, adversely affecting institutional financial performance, and has the potential to lead to poorer health outcomes for the individuals we serve. The purpose of this investigation was to assess the need for the establishment of a structured mentorship program for new graduate nurse practitioners. As an aspect of an institutional quality improvement project, the overall goal is to reduce new graduate NP employment turnover.

Methods. A literature search was conducted in order to appraise and synthesize available knowledge regarding employment turnover and mentorship programs for the new graduate NP population. There was substantial evidence to support the value of mentorship programs for new graduate NPs, as well as cost savings and return on investment. Meetings with facility leaders and stakeholders were conducted to better understand the institutional phenomena regarding employment turnover in the NP population. Institution specific employment turnover data were obtained to form a basis for comparison to national trends. Financial projections were made based on an established formula adapted from a nurse mentorship program. Utilizing this data, a formal needs assessment was prepared for presentation to nursing and hospital leadership.

Results. Facilitators and barriers were identified for an NP mentoring program. Nursing leadership was receptive to the concept of such a program and a pilot project was approved to start in the fall of 2019.

Conclusion. The results of this needs assessment provided valuable data to nursing leadership in planning a mentorship component for a proposed NP residency program in critical care. Further research is needed to better understand programs that foster effective NP mentorship.

Keywords. Mentorship, Education, Nurse Practitioner, Personnel Retention

Poster 20

Madeline Howe

Assessing Need and Resources for Providing On-site Access to Long Acting Reversible Contraceptives in University Student Health Setting

Purpose. Over 50% of all pregnancies in the state of Vermont are unintended, despite the availability of effective contraceptive methods. Long-acting reversible contraceptives (LARCs), including intrauterine contraceptive devices and implantable contraceptive devices, are the most effective form of reversible contraception. However, they make up a minority of contraceptive use. Studies have established that women overwhelmingly choose LARCs when educated about their efficacy, cost, and convenience.

Methods. A needs assessment was conducted using data query of electronic health records and informal interviews with Student Health Services (SHS) providers and administrators at a northern New England university. Suppliers and insurers were contacted and costs calculated. Documents and a presentation with data, analysis, and initial steps to of implementation process were prepared.

Results. There is a perceived need for SHS to offer onsite LARC placement. SHS can feasibly and affordably offer this by sourcing devices from specialty pharmacies and having two scheduled placement days per week.

Conclusions. SHS is scheduled to begin offering LARC placement by the end of the 2018-2019 academic year. The impact of this project on LARC placement and unintended pregnancy cannot be determined at this time.

Keywords: LARC, IUD, IUC, contraception, long acting reversible contraception, Nexplanon, Mirena, Skyla, Kyleena, student health, college health, reproductive access

Poster 21

Julia Hurd

Are There Any Differences in Adult Perceptions in Spanish vs. English Speaking Cultures Towards Those with Craniofacial Differences?

The stigma surrounding those with a craniofacial difference has been well documented among the countries/cultures in the eastern hemisphere. However, cultures in the western hemisphere, especially in the United States have not been looked at as closely (?). This study investigated the possibility of differing perceptions and attitudes of typical adults in Spanish versus English speaking cultures towards those with a craniofacial difference. In the teenage and young adult populations, beauty is important and the possibility of bullying and teasing due to not looking like everyone else can affect an adolescent's emotional growth (?). Two similar surveys were taken and combined to make one survey that rated a picture of an individual with a craniofacial difference from 1 to 6 (1 being strongly disagree and 6 being strongly agree) on different favorable and unfavorable traits. The pool of participants recruited came from the University of Vermont undergraduate and graduate student population, which in retrospect severely limited this research. Based on the first wave of data, the difference between Spanish and English speakers is not statistically significant or there is not a big enough difference between the two populations for it to have a larger affect. From here the research looked into the difference in socioeconomic status (?) and native home (?) as possible alternative reasoning for differing attitudes. Ultimately, this research opens up the conversation for stigmatizing behaviors towards those with craniofacial differences and possible ways to change them (?).

Poster 22

Alyssa G. Jones, Emily M. Mailloux, Emme L. O'Rourke

The Effects of Early Intervention on the Expressive Language Outcomes of Children with Autism Spectrum Disorders: A Systematic Review

Background: Autism Spectrum Disorder (ASD) is characterized by persistent challenges in social communication as well as restricted and repetitive behaviors and is often observable in early childhood. Expressive language delays are common in young children diagnosed with ASD. Expressive language includes any form of communicative output, such as verbal language, sign language, and the use of alternative and augmentative communication (AAC). Early intervention, for the purpose of this systematic review, is defined as speech and language services provided before a child is 5 years (60 months) of age. Evidence suggests that early intervention can lead to positive outcomes in the symptoms of children with ASD.

Objective: To determine whether early intervention of ASD in children between 0-59 months of age has positive effects on expressive language development.

Methods: A systematic search of the PsychINFO, PubMed, CINAHL, LLBA, and ERIC database was conducted, followed by a qualitative analysis of relevant articles. Studies included monolingual (i.e., English) children who were diagnosed with ASD. Studies were systematically graded and processed using inter-rater procedures

Results: Fourteen articles were included based upon inclusionary criteria. The overall quality of the studies was moderate. The most widely used early intervention techniques included the Early Start Denver Model and Pivotal Response Training.

Conclusions: Consistent high-interval (i.e., 25 hours per week), behaviorally-based early intervention (i.e., before 40 months) may lead to positive outcomes in expressive language development. Clinicians working with young children with ASD should implement behaviorally-based, empirically-supported interventions, such as the Early Start Denver Model (ESDM) or Pivotal-Response Training (PRT). Future research should prioritize high-quality study designs (e.g., randomized control trials) with larger sample sizes of children diagnosed with ASD, which is necessary to discern a direct relationship between behaviorally-based early intervention and expressive language outcomes for children with ASD.

Poster 23

Nancy Kelly

Impact of an EHR-based Tool on COPD Management in Primary Care

Background: GOLD (2017) guidelines provide evidence based recommendations for treating COPD, although their employment in clinical practice is inconsistent. Lack of a standardized method to view COPD specific information within the EHR during patient encounters complicates visits and development of GOLD-guided treatment plans. Our goal is to determine the impact of an EHR-based tool on relevant COPD disease measurements (spirometry rates, pneumococcal vaccination rates and COPD Action plans)

Methods: An EHR-based tool (SmartPhrase) was developed and released to providers to facilitate GOLD (2017) guideline reference during patient encounters. Computer based instructional videos of GOLD (2017) guidelines and EHR-based tool were presented to providers prior to 90 day intervention. A two-pronged pre- and post-intervention analysis was carried out examining 1) subjective provider application of GOLD (2017) guidelines, and 2) objective inclusion of GOLD guidelines within the EHR patient encounter of COPD patients aged > 18 at a rural Primary Care clinic.

Results: Compared to pre-intervention, providers reported EHR-tool was rated as 'likely' to improve job performance and effectiveness when treating COPD patients (from 42.8% to 75%) and 'likely' to make documenting COPD-specific data easier (28.5% to 75%), increased tendency to order Spirometry (33.9%) and refer to Pulmonary Rehab more frequently (25%). Compared to pre-intervention, objective changes in spirometry rates increased 3.9%, vaccination rates for PCV13 and PPSV23 increased slightly (both 1.9%); there were no changes in number of COPD Action plans.

Conclusions: Preliminary data suggests that an EHR-based tool is a potentially effective tool to increase awareness and application of GOLD guidelines in the treatment of COPD in Primary Care. Increased intervention period of 12 months may provide more insight into changes in treatment practices.

Keywords: COPD, GOLD Guidelines, EHR-based tool

Poster 24

Sullivan Kiley, Nicholas Nocella, Sarah Romeiser

The Effects of Altered Auditory Feedback (AAF) on Fluency in Adults Who Stutter: A Systematic Review

Background and Objectives: Stuttering affects 70 million people worldwide, which is about 1% of the population. Altered auditory feedback (AAF) is a process by which an individual's auditory speech signal is electronically changed to temporarily increase the fluency of a person who stutters. For the purpose of this systematic review, AAF includes delayed auditory feedback (DAF) and altered auditory feedback (FAF). This systematic review examines fluency enhancement in adults who stutter when using AAF devices.

Methods: A review of the literature was searched using PubMed, Ovid MEDLINE, PsycINFO, and CINAHL databases with key search terms related to stuttering and AAF. Inclusion criteria included: 1) adults ages \geq 18 years old who stutter, 2) comparison of altered auditory feedback forms and/or no altered auditory feedback forms in the treatment of stuttering, 3) outcomes related to aspects of stuttering or people who stutter (e.g., fluency level, speech naturalness, speech rate), and 4) experimental research. Studies were quality assessed and rated by the authors.

Results: A total of 16 articles were included in this review. Articles were of 'moderate' quality.

Conclusions: AAF devices are generally effective in reducing stuttering frequency, with most notable fluency enhancement occurring during oral reading. The degree of fluency enhancement between individuals who stutter is variable and is influenced by factors such as stuttering severity. While research generally supports the use of AAF devices in reducing stuttering frequency, there are inconsistent findings regarding speech naturalness. AAF is likely most effective when used in conjunction with traditional speech therapy. Further research is needed to better understand the relationship between AAF and stuttering, particularly regarding unstructured speaking tasks and speech naturalness.

Poster 25

Alexander Lauzon, Paula Deming, Eyal Amiel, Alan Howard, Bradley Tompkins

Surveying the Burden of Lyme Disease: A Systematic Review of the Underreporting of Lyme Disease's Importance, Impacts, & Potential Resolution

Lyme disease is caused by the spirochete bacteria *Borrelia burgdorferi*, a zoonotic disease transmitted by *Ixodes scapularis* (*deer tick/black legged tick*) **found with the highest incidence in the northeast. As there is no vaccine the only way to prevent Lyme disease is to prevent contact with ticks.**¹ A key part of that prevention is knowing incidence rates, burden, etc and healthcare providers play an important role in the generation ecological and public health data used to bolster awareness / prevention of Lyme disease. Diagnosing a case of Lyme disease helps provides health agencies with passive surveillance on the pathogen. Due to this fact it is required by law that providers report when they have a case of Lyme disease (positive serological testing and/or erythema migrans **lesion seen by provider**) **to help health departments track the spread of Lyme disease and disseminate preventative information to the public**^{2,3}. There is a general belief among many national and state health organizations, that Lyme disease is currently underreported, with VT not being an exception^{2,5}. Such a shortcoming impacts the ecological and public health data generated from such surveillance. Teasing apart how providers report Lyme disease could provide shed insight on the underlying causes of underreporting. The goal of this project was to develop a tool to assess reporting frequencies and causes of underreporting among providers in the state of Vermont. Following a systematic review of the literature review to identify potential shortcomings in how Lyme disease is reported out, in collaboration with the Vermont Department of Health, UVM's Biomedical Science, a survey was developed to potentially help deduce the causes of underreporting of the Lyme disease. The survey that was created focuses on teasing apart how providers are reporting the disease with an emphasis on prophylactic treatment and case definitions. As such factors have been implicated to be the cause of underreporting.^{3,4,5} Utilizing such a survey to determine and help make aware the seriousness behind reporting Lyme disease could help to reshape how it is reported here in Vermont. Proper administration of such a tool could perhaps reveal a complex enigma or paradoxically simple solution.

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Poster 26

Carson Leon-Gambetta, Amanda Matyas, Ruth Huttner

Voice Feminization: Voice Therapy vs. Surgical Intervention: A Systematic Review

Purpose: Transgender individuals often seek to alter their vocal characteristics. For Male to Female (MtF) transgender individuals, attaining a feminine voice may be particularly challenging. The objective of this systematic review is to determine whether MtF transgender individuals who receive voice feminization therapy alone or Wendler's Glottoplasty (WG) surgical intervention with subsequent voice therapy yield greater outcomes in frequency and self-perception.

Method: A systematic review of the literature was conducted by using PubMed and Ovid to search terms pertaining to voice feminization. The articles were reviewed and appraised by the authors for inclusionary criteria, exclusionary criteria, and quality. Inclusionary criteria included: 1) adult MtF Transgender individuals, 2) pre and post measures of fundamental frequency (Fo) 3) post puberty age, 4) measure of self-perception, and 5) patients who underwent WG (articles pertaining to surgical intervention only).

Results: A total of 82 articles were identified and 11 met inclusionary criteria for this systematic review. Overall, the quality of the studies was moderate. Outcome measures included frequency range and frequency gain. The authors were unable to compare measurements of self-perception due to the variability in assessments.

Conclusions: Patients who opted for surgical intervention experienced a greater increase in Fo but a decrease in frequency range. Conversely, patients who participated in voice feminization therapy alone were found to exhibit smaller gains in Fo and an increase in frequency range. This implies that both voice feminization therapy and surgical intervention are effective methods for increasing the frequency of voice. Limitations of this research include the inconsistencies in the subjective nature of self-perception measures, variability in measurements of self-perception, and overall limited research regarding this population.

Poster 27

Casey Little, Connor Moore, Emily Bean, Susan Kasser

The Acute Effects of Axial Loading on Postural Control during Functional Activities in People with Multiple Sclerosis

Background: Individuals with multiple sclerosis (MS) often experience impaired motor, sensory, visual, and autonomic systems, which are heavily involved in postural control, proprioception, and balance. Much research has been done to identify interventions that can mitigate specific impairments and decrease fall risk in this population. Purpose: The aim of this study was to determine the acute effects of non-specifically placed axial loads on indicators of balance in people with MS. Methods: Twelve subjects with MS completed two functional movements, sit-to-stand and walking with turns, while wearing weighted vests with 0%, 2%, 4%, 5%, and then 0% of their body weight. Excluding the 0% pre and 0% post conditions, vest weight was randomized across subjects to control for order effects. Balance control parameters were measured using wireless inertial sensors placed on both feet, wrists, the sternum, and the lumbar spine. Results: A significant main effect was found in multiple gait parameters. Cadence and gait speed increased by 3.51% ($p=0.005$) and 6.53% ($p=0.023$) respectively over the trial conditions. In addition, double support time decreased by 5.51% ($p=0.043$) and stride length increased by 3.10% ($p=0.045$). There were no significant changes in any variables for the sit-to-stand task. Conclusion: This study provided preliminary data on the beneficial acute effects of axial loading on people with MS. Observed changes may likely be due to the increased sensory and proprioceptive stimulus provided by the weighted vest during movement. This study offers insight into axial loading as a potential intervention for ameliorating balance deficits in people with the disease, although more research is needed to determine the exact mechanisms underlying balance changes and any possible long-term benefit.

Poster 28

Sarah Lubic, Jeremy Sibold

Disordered Eating Prevalence and Nutritional Knowledge Assessment in Collegiate Club Sport Athletes

Objective: The purpose of this study was to examine nutritional knowledge and disordered eating symptoms in the undergraduate club sport athlete population using clinical surveys. This study was designed to be exploratory, with the objective of evaluating subclinical disordered eating trends and their potential correlation with other demographic variables in the target population.

Design: An online survey composed of a demographics section, two surveys aimed at assessing subclinical eating disorder symptoms, and two questionnaires that assessed nutritional knowledge, was administered to club sport athletes online.

Main Outcome Measurements: Eating disorder symptoms were assessed using the ORTO-15, a survey designed to detect orthorexia, and the EAT-26, a self-report measure of disordered eating behaviors. The first two sections of the General Nutritional Knowledge Questionnaire were used to test participants' understanding of proper nutrition. Section one evaluated their understanding of expert dietary advice and section two tested their knowledge about the nutrient composition of major food groups.

Results: 14.3% of the subjects that completed the EAT-26 scored at or above the 20-point cut-off typically used to indicate the necessity of referral to mental health services. Over 65% of the sample that completed the ORTO-15 scored below the 40-point threshold used in previous literature to indicate the presence of orthorexia; when using a more modest 35-point threshold, a significant portion (28.1%) still reported clinically significant scores. The average scores on both sections of the GNKQ were relatively high.

Conclusions: The high proportion of athletes that reported significant scores on both the ORTO-15 and EAT-26 is concerning because these athletes are not as well-monitored and do not have the extensive mental health resources provided to varsity athletes. This should be studied further, as the high mean score on the GNKQ indicates that other variables may play a greater role in driving these trends.

Poster 29

Devan C. Lucier

Improving Screening for Depression and Fall Risk in Community Dwelling Older Adults

Purpose. Falls and depressive symptoms are common in the older adult population and are associated with significant morbidity and mortality. The relationship between depression and falls is bidirectional. Given that community health nurses are critical health care personnel in assessing risk for depression and falls in the older adult population, the purpose of this project was to implement screening measures for depression and falls in an older adult population.

Methods: Nurses from a community health outreach team implemented depression and fall risk screening assessment with an older adult population 65 years and older in their homes. The Geriatric Depression Scale, Short Form (GDS-15) was used to assess depression and a risk assessment for falls was developed for the purposes of this project by content experts and piloted. Data was collected over a 4-month period, with results provided to the individuals' primary care providers (PCPs) for referral as indicated. Community health nurses provided screening results to primary care providers (PCPs). Referrals were initiated at the discretion of the PCP.

Results: During the 4-month screening period, thirty depression and fall risk assessments were completed. Seven (23%) of the thirty individuals screened positive for depression and falls; 7 positive screenings for falls; 9 individuals (30%) scored suggestive of depression (GDS-15>5) and 2 individuals (7%) scored indicative of depression (GDS-15 >=10). The screening resulted in 10 referrals to counseling, 7 referrals to physical therapy and 2 referrals to psychiatric nurse practitioners.

Conclusion: Implementation for depression and fall risk screening is feasible by community health nurses. Challenges in understanding whether the referrals were accomplished remain.

Keywords: fall risk, depression, older adults

Poster 30

Narissa McCarthy, Samantha Sayer, Susan Kasser

Self-Determination and Regulation of Physical Activity in Adults with Multiple Sclerosis

Multiple Sclerosis (MS), a disease of the central nervous system, manifests in a range of sensorimotor impairments that negatively impact mobility and increase the risk for falls. Fall risk and the fear of falling subsequently lead to reduced physical activity levels which can diminish health and quality of life. There is strong evidence indicating that self-determination is an important predictor of physical activity behavior and that, when the psychological needs of autonomy, competence, and relatedness are met and internally regulated, individuals are more inclined to be physically active. Yet, little is known about the self-determined physical activity behavior of adults with MS. The present study involved 231 participants with MS recruited through the Greater New England MS Chapter. Participants completed a survey comprised of the International Physical Activity Questionnaire (IPAQ), the Psychological Need Satisfaction in Exercise Scale (PNSE), the Behavioral Regulation in Exercise Questionnaire (BREQ), as well as questions on age, fear of falling, and disability status. The data was analyzed using a negative binomial regression to predict physical activity. Age, fear of falling, and disability status were not found to be significant predictors of physical activity and were removed from the model. Results showed that for every 1 unit increase in PNSE and BREQ scores, IPAQ scores increased by 1.6% and 2.7%, respectively. Understanding the motivational underpinnings of physical activity participation may offer insight into the development of effective behavioral strategies aimed at increasing activity and enhancing health in individuals with MS.

Poster 31

Kristen Mackie

Yoga Intervention for State Anxiety Reduction in University Students

University students are adversely affected by psychological distress, more so than their non-university-attending counterparts (Adlaf, Gliksman, Demers, & Newton-Taylor, 2001; Bewick, Koutsopoulou, Miles, Slaa, & Barkham, 2010). Many students experience decreased psychological well-being and quality of life, which begets feelings of depression, along with thoughts of self-harm and suicide (Furr, Westefeld, McConnell, & Jenkins, 2001).

Yoga, which has become increasingly popular in the United States, has significant benefits on physical and psychological health (Ross & Thomas, 2010)“ a comprehensive search of the research literature from core scientific and nursing journals yielded 81 studies that met inclusion criteria. These studies subsequently were classified as uncontrolled (n=30. Research has shown the effectiveness of yoga interventions to reduce levels of anxiety and decrease symptoms of depression, as well as improve the overall well-being (de Manincor et al., 2016)

Therefore, the purpose of this study is to investigate the effects of a one-hour yoga class on immediate measures of state anxiety and affect amongst university students. Students at the University of Vermont attended a one-hour yoga flow class and completed surveys both before and immediately following the class. The surveys included the State Trait Anxiety Inventory (STAI) and Positive and Negative Affect Scale (PANAS), along with some other field-related questions. Fifty-nine students participated, of which 33% reported using alcohol and 30% reported using marijuana as strategies for coping with life stressors. Results revealed that the yoga intervention significantly reduced students' state anxiety by 25%, improved their positive affect by 21%, and decreased their negative affect by 25%. Future research is recommended to explore the effects on different populations and to determine the duration of positive effects. In conclusion, this research demonstrated that participation in a single yoga class immediately improved affect and reduced anxiety, thus providing a healthy option for anxiety management in university students.

Poster 32

Aenea Mead, Jeremy Sibold

Relationship between Physical Activity, Vaping and Suicidality among U.S. High School Students

This research uses data from the 2017 High School Youth Risk Behavior Survey to analyze the relationship between physical activity, vaping and suicidality among U.S. high school students. According to data released by the CDC in 2017, suicide is the third leading cause of death for all Americans aged 10 to 24. There has been extensive research showing the benefits that exercise has on mental health. Numerous studies examine drug and alcohol use as suicide risk factors. More recent studies have shown that vaping and e-cigarette use is included among those risk factors. Currently there is a paucity of research that examines the role that exercise has on vaping behavior among American youths. The purpose of this study is to examine the effect that exercise has on vaping behavior among U.S. adolescents. Regression models will be run using the 2017 High School Youth Risk Behavior Survey, adjusting for demographics such as age, race and gender, to create odds ratios among physical activity, suicidality and vaping behavior. These ratios will also be divided to account for whether each student is bullied. As this project is currently underway, there have yet to be any findings to report.

Poster 33

Nicholas Montello

Mitigating Negative Impacts of Adverse Childhood Experiences: A Strength-Based Approach

Purpose: Adverse Childhood Experiences (ACEs) are common among Vermont youth, and Vermont has insufficient treatment resources to address their negative impacts. A strength-based approach (SBA) mitigates the negative impacts of ACEs by using a person's assets to build resilience to ACEs. This project is designed to increase healthcare worker and patient/caregiver knowledge of ACEs via the SBA.

Methods: An evidence-based quality improvement intervention was implemented at a pediatric primary care office in rural Vermont, based on the Bodega Model for a strength-based approach. Healthcare worker knowledge and use of the SBA was assessed via survey after an educational intervention. Additionally, a poster with pamphlets with information on the SBA was set up for patients and caregivers in the clinic's waiting room. Surveys in the waiting room assessed patient knowledge and perceptions of the SBA.

Results: 62% of healthcare workers reported increased knowledge of SBA elements after the educational intervention, and workers reported a 50% increase in usage of SBA elements in the 3 months after the educational intervention. 60% of healthcare workers saw the SBA as cost effective. 100% of surveyed patients and caregivers reported confidence in using the SBA and in identifying situations in which the SBA could be useful. All patients/caregivers who responded to surveys believed that the SBA could help them deal with adversity.

Conclusions: Results show that the SBA has potential to be an efficacious tool in the primary care setting for mitigating the negative impacts of adverse childhood experiences as noted by health care providers, patients and caregivers.

Healthcare workers increased their usage of this evidence-based intervention after the educational session, suggesting that lack of knowledge of the SBA could be a prior barrier to use.

Keywords: Adverse Childhood Experiences, strength-based approach, asset-based approach, Bodega Model, resilience

Poster 34

McKenna Neeb

The Effects of a Modified FIFA 11+ Warm-up Protocol on Fitness Variables in Middle School Students

Introduction: Lower extremity injuries, specifically anterior cruciate ligament (ACL) injuries are prevalent in adolescent sports. The FIFA 11+ injury-prevention program has been shown to decrease lower extremity injuries in several sports settings. There is limited literature regarding the effects of the FIFA 11+ on fitness variables, especially among middle school students. The purpose of this study was to retrospectively evaluate if a modified FIFA 11+ warm-up protocol has any effect on cardiovascular endurance, muscular endurance, and flexibility at two Vermont middle schools with different physical education class schedules.

Methods: Outcome data was obtained from the FitnessGram assessment, which all Vermont middle schools utilize to track youth fitness trends. The effects of the modified warm-up protocol on cardiovascular endurance (PACER test), muscular endurance (curl-up test), and flexibility (sit-and-reach) were analyzed using FitnessGram data from Williston Central School (WCS) and Shelburne Community School (SCS).

Results: Statistical analysis for WCS comparing data throughout the intervention year demonstrated a significant decrease in PACER score ($p < 0.001$), a significant increase in curl-up ($p = 0.030$), and a significant increase in sit-and-reach scores ($p < 0.001$). Throughout the intervention year at SCS, PACER and sit-and-reach scores decreased non-significantly ($p = 0.18$ and 0.31 , respectively) and curl-ups increased non-significantly ($p = 0.96$). The declines in PACER score were significant and larger in WCS compared to SCS.

Discussion: The results of this study indicate that utilization of a prolonged injury-prevention warm-up program in lieu of the warm-up traditionally completed at each middle school may have a deleterious effect on some performance-related outcomes. It is important to note that this is a small, retrospective investigation and is hypothesis-generating; however, a larger-scale randomized controlled trial should be performed to validate these findings. This information may be used to alter the modified FIFA 11+ warm-up protocol to be effective in both injury prevention and improving fitness among middle schoolers.

Poster 35

Emma O'Brien, Jessica Symonds, Nancy Gell

Outcomes from Bemobile: A Technology-based Intervention to Support Physical Activity among Cancer Survivors

Background: Exercise has a positive impact on functioning and quality of life for cancer survivors, but few achieve the recommended levels for health benefits. Facility-based oncology rehabilitation exercise programs are beneficial for improved strength and fitness, however, sustained engagement in exercise is a challenge once a program ends, particularly in rural settings. The aim of this pilot study was to evaluate a technology-based intervention to support maintenance of exercise following oncology rehabilitation.

Methods: Participants were recruited during the last month of an exercise-based oncology rehabilitation program and randomly assigned to the full intervention ($n = 34$) or Fitbit-only control groups ($n = 32$), stratified by age (± 65) and sex. In total, 58 rural cancer survivors completed the program (81% female; mean age 61.1 ± 9.9). Changes in Actigraph GT3xt+ data, step counts and moderate to vigorous physical activity (MVPA) were measured pre-post intervention, and questionnaires administered pre-post intervention to evaluate self-efficacy, social support, self-regulation skills, fatigue, sleep disturbance, depressive symptoms, and intervention acceptability.

Results: Participants in the full intervention maintained weekly MVPA from pre-intervention (296.0 ± 126.0) to post-intervention (321.9 ± 199.0 ; $p = 0.55$), whereas those in the Fitbit-only group ($n = 29$) had a significant decrease in MVPA (303.7 ± 184.7 pre vs 242.4 ± 176.5 post; $p = 0.04$, effect size 0.51). Full Intervention participants had improved goal setting, social support for exercise and relapse prevention strategies (all $p < 0.05$), whereas the Fitbit-only group did not. There was no difference in outcomes of sleep disturbance or fatigue for either group.

Conclusions: The findings demonstrate that remote interventions using technology can promote engagement in MVPA outside of a structured program for cancer survivors. However, use of a Fitbit alone was not sufficient to prevent expected decline in MVPA and step counts. Additional research is needed to assess if technology-based intensive interventions can sustain maintenance of MVPA in the long-term.

Poster 36

Elizabeth O'Donnell

The Roles of Semantic Relatedness and Narrative Structure in Narrative Comprehension in ASD

Individuals with autism spectrum disorders (ASD) often struggle with narrative comprehension. These global difficulties may be related to impairments in semantic processing and understanding the narrative syntax or story arc, which are necessary for narrative comprehension. However, most studies investigating semantic processing and narrative structure in ASD have used written or spoken narratives, making it difficult to isolate those processes because of interference from other potential language deficits. Therefore, using visual narratives is ideal in exploring narrative comprehension and the underlying roles of semantic and structural processing in ASD.

Previous work has shown impaired semantic processing for both linguistic and visual narratives in ASD (Coderre et al., 2018), but it remains to be seen whether impairments in structural sequencing abilities might also contribute to difficulties in narrative comprehension. To explore this, we replicated a previous study of sequential image comprehension (Cohn et al., 2012) in a population of adults with ASD and a control group of typically-developing (TD) adults. Stimuli were adapted from Peanuts comic strips and consisted of normal sequences (containing both meaning between panels and narrative structure); semantic-only sequences (containing meaning but no structure); structural-only sequences (containing a structure but no semantic relatedness); and scrambled sequences (randomly-ordered panels with neither semantic relatedness nor narrative structure). We evaluated semantic processing by comparing the effect of sequence type on the N400 component of the event-related potential (ERP), and structural processing through the left anterior negativity (LAN) effect.

Preliminary data analysis has shown similar N400 patterns between ASD and TD groups, suggesting visuo-semantic processing may be intact for individuals with ASD. Current analysis is also exploring the possible presence of a LAN, which is not yet observable due to the sample size, and the effect of panel position on N400 amplitude.

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Poster 37

Emily Scribner

Incorporating Routine Social Media Screening in Pediatric Primary Care

Purpose. Excess or unsafe media use by adolescents can have numerous implications on health and behavior. Pediatric primary care providers (PCPs) play an important role in helping adolescents navigate the digital age, but discussions regarding media use occur inconsistently. This project aimed to develop a routine media screening tool and promote consistent media conversations during every well child visit for adolescents age eleven and older at a pediatric practice.

Methods. This evidence-based QI project utilized a pre- and post-test design with a 30-minute educational in-service provided to PCPs. Data collection lasted for three months. All patients age eleven and older were asked to complete a social media screening form prior to their visit, and PCPs were encouraged to discuss the form during the visit. Consistency of screening was measured with data from the electronic health record (EHR).

Results. Nine pediatric PCPs participated (5 MDs, 3 NPs, 1 PA). Six PCPs (66.6%) completed pre- and post- surveys. 401 adolescents had well child visits and 318 (79.3%) completed a screening form. PCPs estimated their screening rates on pre-survey to be 77%, and 85% on post-survey. Pre-intervention, 48% of PCPs documented media screening in the EHR versus 70% after screening implementation.

On post-surveys, providers reported having more comfort with media discussions, increased knowledge of guidelines, and recommended the Family Media Use Plan more frequently. Due to low sample size, statistical significance could not be determined; however, the results may be clinically significant.

Conclusion. PCPs increased media screening following the in-service and the implementation of a routine screening form. Further study is needed to investigate the impact of routine screening on adolescent behavior and health outcomes, and the efficacy of the Family Media Use Plan.

Keywords. Pediatric Primary Care; Social Media; American Academy of Pediatrics

Poster 38

David Segel

Provider and Staff Education to Improve Health Care for the LGBTQ+ Population

Purpose: It is estimated that collectively the LGBTQ+ population makes up approximately 10% of the total population of the world. In the U.S., Vermont has the highest per capita LGBTQ+ identifying population out of any other state in the U.S. The LGBTQ population is at higher risk than the general population for many health disparities and discrimination in health care. The health disparities of this population include higher rates of STI's, substance use, mental health diagnoses, intimate partner violence, sexual assault, physical assault, and lower rates of routine screenings for cervical cancer and breast cancer. While this population has numerous health disparities compared to the general population, these can be mitigated with providers who are accepting and mindful of their interactions; and are knowledgeable in the specialized care that this population needs.

Methods: This project sought to improve health care for LGBTQ+ individuals in Vermont by offering an in-person seminar educating providers and staff on LGBTQ+ terminology, health disparities and the basics of caring for this population. Outcomes of this educational seminar were determined using a pre-and post-teaching survey, and a follow up survey approximately 2 months post seminar with 2 providers who attended the session to see how it aided in daily patient care.

Results: There was a significant increase in knowledge in LGBTQ+ terminology, health disparities and care for this population indicated in the post survey. The seminar could be improved by having less content per seminar, and breaking up the seminar into multiple sessions. The follow-up survey showed providers being more cognizant of the LGBTQ+ population and making efforts to promote a more inclusive health care environment.

Conclusions: The educational seminar was found to be useful in improving the knowledge of providers. It also showed long term understanding for practice change.

Keywords: LGBTQ, health disparity, queer, gay, lesbian, transgender, provider education

Poster 39

Jude Stevens

Implementation of a Chronic Pain Functional Assessment Tool in Primary Care Practice

Background: An estimated 20% of patients with non-cancer pain symptoms or pain-related diagnoses receive an opioid prescription. Current guidelines advocate use of a functional assessment as a strategy to improve the efficacy and safety of chronic pain management using opioids. This project aimed to integrate functional assessments into patient care visits for chronic pain and optimize safe and effective prescribing.

Methods: This quality improvement project was conducted at a primary care clinic in Burlington, VT. Baseline data on current functional assessment utilization and barriers amongst providers were collected. The validated Pain, Enjoyment, and General Activity (PEG) scale was administered from November 2018 through February 2019 during routine chronic pain visits with a nurse practitioner (NP) identified as having a large panel of patients suffering from chronic pain. Post-visit descriptive statistics were computed. A summative exit interview was completed with the NP.

Results: Baseline data of clinic providers (n = 5) demonstrated that while 80% reported that functional assessments have value in managing chronic pain, only 20% used them regularly.

Following use of the PEG (n = 16 patient encounters) the NP demonstrated consistent documentation of PEG scores in the medical record (94%), increased conversations regarding chronic pain (56%), better use of safe and effective prescribing strategies (44%), improved understanding of patient pain/function (38%), and informed the plan of care (13%). Exit interviews demonstrated that the PEG was quick, easy to use, and helpful in initiating conversations about goals of care and opioid use and ultimately has a role in future care.

Conclusions: While the PEG exhibited limited impact on plan of care, it provided measurable data and may be valuable as a vehicle for broader discussions on chronic pain management and other components of evidence-based prescribing practices for non-cancer, non-palliative pain.

Poster 40

Kailey Stevens

Adults with ASD-Shutdowns

Background: This study explored the experience of having a shutdown in adults with Autism Spectrum Disorder (ASD). Anecdotal evidence suggests that many adults experience “shutdowns,” which are described as uncontrolled reactions to stress that may result in catatonic, unresponsive, and/or expressionless behaviors. There is currently no available literature on the experience of shutdowns for adults with ASD.

Purpose: The purpose of this study was to explore the lived experience of shutdowns in adults with ASD.

Methods: Descriptive phenomenology was used. Participants were recruited via online forums and message boards for adults with ASD and interviewed online. Following Colaizzi’s (1978) method for data analysis, transcripts of the data were read to identify “significant statements” regarding to the phenomenon of meltdowns/shutdowns. The significant statements were used to conclude themes from the data provided. After the themes were recognized, the researcher presented them back to the participants for validation of the gathered themes.

Results: There is variability among individual experiences, but eight themes summarized the experience for most participants. Themes included: precipitating social/sensory stressors; increasing negative feelings; reaching a threshold where control is lost; an inability to respond; a desire to escape/be alone; a focus on survival and basic needs; removal from the immediate situation in attempt to regain control; and experiencing a recovery period.

Conclusions & Implications: Shutdowns are real phenomenon experienced by individuals with ASD that cause a range of distress in a person’s life. Due to the nature of losing control of actions, thoughts, and feelings, nurses should prioritize safety for these individuals. Further research needs to be conducted examining how to maintain safety and wellbeing for these individuals.

Poster 41

Dayna Stimson

Improving Health Literacy among Latino Migrant Dairy Farmworkers

Background/Purpose: Latino migrant farmworkers are a marginalized and medically underserved population in Vermont and nationally. They experience significant health disparities and barriers to healthcare access compared to others living in rural areas. Barriers include limited knowledge regarding available services and low general and health literacy. These barriers lead to poorer health outcomes. The purpose of this evidence-based project was to enhance health literacy and follow-up care for migrant farmworkers by improving health literacy in a community health outreach setting.

Methods: In northwestern Vermont, 33 outpatient migrant farmworkers were recruited following health screening visit and referred for follow-up. AHRQ Health Literacy Universal Precautions Toolkit (HLUPT) provided the framework for follow-up visit conducted in Spanish. Baseline health literacy was determined using the Short Assessment of Health Literacy. Qualitative data was obtained one month later by semi-structured phone interview to assess efficacy.

Results: Of the 33 workers, 17 volunteered for follow-up healthcare. 40% (n=10) workers met the cut-point for inadequate health literacy. Visits consisted mainly of education on medication doses and expected effects and non-pharmacological treatments for various conditions. Most common complaints were dermatologic, sleep-related, and gastrointestinal. Each intervention was tailored based on the HLUPT. The most highly utilized resources were Teach-Back Method and providing easy-to-understand printed materials. Stakeholders endorsed that visits were value-added to pre-existing farm health outreach program by providing the opportunity to reinforce health concepts and strengthen community ties outside farm.

Conclusions: Implementation of the HLUPT to guide follow-up care was an effective means of conducting visits with migrant farmworkers, as it allowed visits to be tailored to specific needs of client. Community outreach to migrant communities using the framework of health literacy helps strengthen ties to farmworker community and closes the loop between health outreach visits and need for further follow-up.

Keywords: health literacy, migrant farmworkers, Latino farmworkers, community health outreach

Poster 42

Jillian Thomson, Elizabeth Cooley, Emily Glover

The Efficacy of Telepractice in the Assessment and Treatment of Speech Disorders: A Systematic Review

Purpose: Children and adults with speech disorders face numerous barriers in accessing traditional face-to-face services with a speech-language pathologist. Telepractice may be a feasible solution. The aim of this systematic review was to investigate the efficacy of telepractice in the assessment and treatment of speech disorders in children and adults.

Methods: Research articles were ascertained from Ovid MEDLINE, PsychInfo, and CINAHL using an established and consistent search strategy that utilized both medical subject headings and subject terms related to telepractice. The predetermined inclusion criteria included diagnosis of a speech disorder, participants across the lifespan, direct comparison of both delivery methods (i.e., telepractice to face-to-face), and objective outcome measures. Articles were excluded due to the lack of a speech disorder diagnosis, use of purely subjective outcome measures, and lack of direct comparison of delivery methods. Quality assessment was established by the authors using the criteria in the Assessing the Quality and Applicability of Systematic Reviews and a rating scale (i.e., 'poor,' 'fair,' 'good,' 'strong').

Results: Electronic searches of the databases resulted in the acquisition of 16 full-text research studies, which were used in this systematic review. The quality of the studies ranged from 'poor' to

'strong' with a majority of the articles rated as 'good.' The studies explored telepractice efficacy in speech sound disorders, fluency disorders, dysarthria, apraxia, and voice disorders.

Conclusions: Generally, the quality of intervention delivered via telepractice is comparable to traditional face-to-face therapy. Additional research involving diverse populations with varied levels of severity in natural environments is required to confirm the efficacy of the delivery method. It is imperative the use of telepractice is considered by each clinician on a per case basis.

Poster 43

Minta Trivette

Development and Implementation of Comprehensive Sexuality Education Programs for Middle School Students

Background: Sexual activity in adolescents carries population health risks such as pregnancy and sexually transmitted infection. Comprehensive sexual health education programs can be an effective strategy to help young people delay initiation of sexual intercourse, reduce the number of sexual partners, increase knowledge and use of contraception, and increase condom use. As of the 2018/2019 school year, Burlington School District (BSD) middle schools did not have a comprehensive sexual health and safe relationship education program.

Purpose: The purpose of this project was to develop and disseminate comprehensive sexual health and safe relationship curricula for Burlington School District (BSD) middle schools.

Methods: This educational intervention was aimed at middle school health educators in Burlington, Vermont. Baseline informal interviews of health educators were completed to determine district demographics and needs, and health education curricular limitations and gaps. In conjunction with health educators, age appropriate curricula were developed. Following implementation, informal interviews with educators were conducted for curricular efficacy.

Results: Two age-appropriate, science and evidence-based comprehensive sexual health curricula were completed and delivered to the 3 health educators, 2 principals, and 2 district curriculum directors. Informal interviews with educators revealed a positive reception of materials and lessons. Curricula are in the process of implementation; at this time, 96 7th/8th graders have received 13 lessons and 86 6th graders have received an average of 5 lessons.

Conclusions: A collaborative and integrative approach to sexual health education development between educators and health professionals is feasible. Sexual health and safe relationship programs in middle schools equip adolescents with knowledge as they prepare for young adulthood.

Keywords: Sexual health, safe relationships, middle school

Poster 44

Kelly Walton

Early CAS Symptoms in 7q11.23 Duplication Syndrome

7q11.23 Duplication Syndrome (Dup7) is a very rare genetic disorder that results in distinctive facial features, cardiovascular disease, neurologic abnormalities, behavior problems, social problems, intellectual disability, and speech sound disorders. The majority of children diagnosed with Dup7 are later diagnosed with Childhood Apraxia of Speech (CAS), a neurological speech sound disorder among children in which the consistency and accuracy of movements necessary for speech are impaired. Unfortunately, CAS cannot be diagnosed until the late age of 3, which makes it challenging

to provide early intervention. Considering the high rate of comorbidity, comprehensive speech profiles were generated for three toddlers diagnosed with Dup7 across two ages each, ranging from 18-36 months. These profiles represent each participant's speech and language abilities and how they may or may not mature over time. These profiles were inter- and intra-analyzed in order to determine similarities among the participants. Results indicated that, generally, the participants had limited phonetic/syllabic repertoires, low mean babble level and fewer words when compared to typically developing children of similar ages. The participants' improvement was also slow over time. The rarity of this disorder has imposed limitations on this study including small sample size (n=3) and varied test ages among participants. However, the consistency in results between this study and others focused on children later diagnosed with CAS indicate that limited phonetic and phonotactic repertoires are major potential, very early, symptoms of CAS in these participants. Clinical implications based on this study may include focus on phonetic and phonotactic repertoires during speech therapy, perhaps via alternative communication methods, and thorough tracking of progress with careful identification of successful intervention strategies to enhance improvement rates.

Poster 45

Caroline Ward, Noah Jarvis, Eleni Cawley, Laura Lewis

The Experience of Being an Adult with Autism Spectrum Disorder who Expresses a Sexual Minority Orientation

Background and Objective: Autism Spectrum Disorder (ASD) is a neurodevelopmental

disorder that is characterized by "restricted, repetitive patterns of behavior, interests, or activities" and "persistent deficits in social communication and social interaction" (American Psychiatric Association, 2013). Previous studies show a high incidence of individuals with ASD who identified as sexual minorities, such as gay, bisexual, asexual, pansexual, etc. However, there is a gap in the literature about individuals with ASD who identify as sexual minority identities and their experiences. The purpose of this study is to explore the experiences of adults with ASD who identify as sexual minority orientations (SMO).

Methods: Descriptive phenomenology was used to explore the meaning of this phenomenon. Participants were 67 adults formally or self-diagnosed with ASD who identified as SMO. Participants were recruited via online message boards and interviewed asynchronously via an online platform. Colaizzi's seven-step method for data analysis was utilized.

Results: Six themes emerged from the data. Themes included: self-acceptance of ASD

diagnosis, SMO or both is a continual journey; sexuality and ASD affected each other and interplayed in formulating identity; concern about finding mutually satisfying relationships; inability to communicate needs or desires in relationships; feeling misunderstood by family, friends, potential partners, ASD and LGBT communities and misunderstanding others' intentions and societal "norms"; and feeling like ASD affected sexual desire.

Conclusions & Implications: Some characteristics of ASD, such as struggling to form relationships and feeling isolated and ostracized are only increased by the presence of a SMO. In practice, nurses should screen for feelings of isolation and suicidality, as well as for signs of abuse in relationships, as this is a high risk population. Education can be implemented in order to teach effective communication strategies specifically for sex and relationships. Future studies should explore interventions to expedite the self-acceptance process, such as counseling.

Poster 46

Jessica L. White

Adapting the “Get Real” Curriculum: Improving Sexual Health in School Age Children

Background: Vermont does not have standardized sexual health education. Curriculums such as “Get Real” have been shown to increase the age of sexual debut in middle school students and improve their relationships with parents. One barrier to implementing “Get Real” in Vermont is it has not been adapted to match the health proficiencies required by the Vermont Department of Education for students to graduate middle school.

Purpose: Increase buy-in of curriculum by Vermont school districts by applying proficiencies and adaptations to meet graduation criteria.

Methods: “Get Real” was adapted to meet the new health proficiencies implemented by the Vermont Department of Education via a quality improvement project. The curriculum was reviewed, health proficiencies were matched to each lesson and lessons adapted to meet proficiencies. Qualitative data from school districts was collected to assess buy-in. This project focused on Chittenden east, Milton and Orange North school districts.

Results: Health proficiencies were met by all lessons in the middle school curriculum. Adaptations facilitated teachers’ decisions to choose certain lessons that were time and content effective. Further intended results will be the adoption of the “Get Real” curriculum by middle schools around the state of Vermont.

Conclusions: The Get Real middle school curriculum meets the Vermont Department of Education’s health proficiencies required to graduate from middle school. Adaptation of lessons allowed for a greater number of proficiencies to be met in classrooms with limited time for the curriculum. If these proficiencies improve buy-in by school districts in Vermont is still to be determined.

Keywords: sexual health, health proficiencies, sex education curriculum

Poster 47

Mariana Wingood, Tiffany Hutchins, Nancy Gell, Denise Peters

Initial Development Phase of the Physical Activity Barrier Scale

Introduction: Physical Activity (PA) has multiple health benefits when performed at the recommended level of intensity and duration. Lack of PA has been identified as the fourth leading risk factor of global mortality, and yet, 77% of adults in the United States do not meet the recommended levels of weekly PA. One of the keys to meeting the recommended levels of PA is identifying and addressing the barriers. Currently, there are no well-rounded tools that can be used to identify PA barriers among adults.

Purpose: To develop a questionnaire that measures perception of PA barriers in adults 18 years and older by incorporating the social ecological model.

Methods: The first phase of scale development includes 1) domain identification, 2) item generation, 3) expert opinions, and 4) pilot data collection. Domain identification and item generation were completed via a deductive approach, using a thorough literature review of PA barriers and previously validated scales. A draft of the scale was developed and underwent initial feedback from a panel composed of scale development and content experts. This was followed by pilot data collection.

Results: Using the deductive approach we identified 19 previously validated scales and 13 systematic-reviews, resulting in an initial scale with 172 items. After the initial round of feedback, the scale was

decreased to 148 items, with 82 intrapersonal, 34 interpersonal, and 32 community and organizational domain items.

Discussion: The scale's initial round of feedback highlighted items being repetitive, unclear, vague, double-barreled, double negatives, and too long. Next steps include using the pilot data to revise the scale and undergo scale validation.

Poster 48

Karen Westervelt, Rebecca Ouellette-Morton, Howard Badillo, Alyssa Chmielewski, Maddie Hobaugh, Siobhan Sullivan

The Effects of a Single Session of Yoga on Anxiety Levels in Doctor of Physical Therapy Students over 24 Hours: A Pilot Study

Problem Statement: Emerging research indicates that students in Doctor of Physical Therapy (DPT) programs have elevated levels of anxiety.¹ High anxiety levels negatively impact academic learning;^{2,3} impair clinical performance;³ and, if sustained, have negative consequences for long-term health and well-being.^{4,5} Research indicates that a single yoga class can have the immediate effect of decreasing anxiety levels in university students.⁷

Methods: In part I of the study, participants completed a survey that included questions on demographics and triggers and alleviators of anxiety during graduate school. In part II of the study, researchers employed a repeated-measures study design, using a single yoga class and a quiet-study session as two interventions. The State-Trait Anxiety Inventory (STAI-S) was used to measure anxiety before and at several intervals in the 24 hours following each intervention.

Results: In part I of the study, the mean anxiety level on the STAI-S was 42 (n = 63), indicating a clinically significant anxiety level. 84% of students reported that anxiety has negatively impacted their ability to perform academically. Students most commonly reported using the coping strategies of exercise; meditation/breath work; and seeking social support. In part II of the study, a statistically and clinically significant reduction in anxiety was found for up to 12 hours following a single yoga class for participants (n = 13). The intervention of quiet study did not significantly reduce anxiety.

Conclusion: This study confirms that DPT students have significantly elevated levels of anxiety, adding to a growing body of literature identifying this as a concerning issue. Assisting DPT students in the development of effective coping strategies to manage anxiety, such as the practice of yoga, could be beneficial. Further research in this area is warranted in order to guide the incorporation of stress management strategies into DPT curricula.

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Poster 49

Grace Wolcott

Improving Inpatient Pediatric End of Life Care Education for Bedside Nurses

Purpose: 45,000 infants, children and adolescents die in the US annually. Bedside nurses in inpatient pediatric units receive minimal education on the topic of pediatric end of life care. The purpose of this project was to assess the needs of pediatric inpatient nurses and trial an online educational module for effectiveness in teaching nurses about pediatric end of life care

Methods. This was a quality improvement project aimed at inpatient nurses on 4 different units. Electronic 7 question pre-surveys were sent via email, followed by an educational module accompanied by a 3 question post-survey.

Results. Of 78 participants, 51% reported feeling only moderately comfortable providing pediatric end of life care, and 54% of participants did not feel that their training in pediatric end of life care was adequate. Of 28 follow up participants, 57% found the educational module very helpful and 63% would be very likely to participate in further education.

Conclusions. Data supports that pediatric nurses feel uncomfortable caring for pediatric end of life care patients and further education is warranted for bedside nurses who are providing end of life care as part of their job duties.

Keywords: Pediatric palliative care, inpatient nurse education, end of life care

Poster 50

Gena Zollman

Improving Contraception Access for Female Syringe Exchange Clients: A Reproductive Needs Assessment

Purpose: Women with opioid and other substance use disorders have a high rate of unintended pregnancy and a low rate of effective contraceptive use. Integrating family planning (FP) services into medication-assisted treatment (MAT) clinics has increased rates of initiation and adherence to contraception among this population. This study assesses the reproductive health needs of female clients in a syringe exchange program (SEP) to assess if integrating FP services would improve access to contraception.

Methods: Female clients of a SEP voluntarily completed an anonymous survey to determine demographics, FP needs, and barriers to accessing care, and were compensated with \$20 gift cards. Descriptive statistics were used to analyze survey results. Interviews with SEP personnel and MAT researchers were thematically analyzed to determine key considerations relevant to implementing FP within the novel setting of a SEP.

Results: Women (N=42) averaged 32 years of age, had a high school education, and most were unemployed and on Medicaid. Preliminary results show familiarity with all contraception methods,

with 50% reporting a history of using the most effective methods. About half (45%) reported their most recent pregnancy was unintended. Most (93%) were not currently seeking pregnancy, despite 50% not using any contraception or using less effective methods. Thirteen potential barriers to accessing contraception were endorsed, led by concerns about cost, transportation, provider coercion, and provider stigma. The majority of women (70%) were interested in receiving FP services at the SEP. Qualitative interviews with SEP staff and MAT researchers strongly supported integration of FP services with adaptation to the unique SEP setting.

Conclusions: There is client and staff interest in integrating FP services within the SEP setting, with the majority of clients at risk of unplanned pregnancy. Successful implementation of this care would overcome barriers to accessing FP services, and will require a model specifically tailored to the SEP setting.

Keywords: Opiate use disorder, contraception, harm reduction, syringe-exchange