

investigated the effect of residence type and socioeconomic status on child stunting in Zambia. Household wealth index was constructed based on ownership of using household assets. Chi-square tests, univariate and multiple logistic regression models were used to estimate the effect of many covariates including residence type and household wealth on chronic child undernutrition in Zambia. **Results:** The findings indicate that children under five years from urban areas and those from disadvantaged households are more likely to be stunted compared to their counterparts in rural areas and wealthier households, respectively. Specifically, the results follow a wealth gradient; with children from the poorest households showing higher odds of being stunted compared to their peers in the wealthiest households and a quarter of children of the wealthiest households being stunted. However, the wealth gradient is consistently higher in rural areas compared to urban areas; and much wider than the overall rural-urban odds ratios. **Conclusions:** This study concludes that child stunting is largely a major concern in urban areas that are characterized by a large wealth gradient in which children from less privileged households have a higher burden and risk of being stunted. However, one in four children residing in the wealthiest households is stunted. Although this finding may be counter-intuitive, it has important implications for policies that are aimed at addressing child stunting.

PAM5 EFFICACY OF VACUOTHERAPY (CUPPING OR CUPPING THERAPY) IN OSTEO MUSCULAR PATHOLOGY

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Objectives: to identify, critically evaluate and synthesize the available scientific evidence on the safety and efficacy of cupping or cupping therapy, in the treatment of selected clinical conditions compared to alternatives of usual reference treatment for each of these clinical conditions, in terms of quality of life or improvement of symptoms **Methods:** A search was carried out in at least PUBMED, EMBASE and Cochrane Library. In order to locate possible studies on suction cup therapy that are currently planned or in progress, the International Clinical Trials Registry Platform (ICTRP) has been consulted on the Platform of International Clinical Trials Registries of the World Health Organization. Selection was carried out blindly and independently by two researchers on a list of selection criteria that will be prepared before starting this process. Disagreements were resolved by consensus. The papers identified were evaluated with AMSTAR-II for systematic reviews and Cochrane ROB for clinical trials, independently by two researchers. a narrative description was made and a synthesis of the main outcome measures was offered **Results:** The published results studies do not show safety problems, although numerous published references have been found communicating health problems in relation to the use of this therapy. In addition to this, patients treated with vacuum therapy or cupping therapy presented very small differences in pain reduction of any osteomuscular etiology (osteoarthritis, low back pain, carpal tunnel syndrome, etc.) It is important to emphasize that these few improvements were shown in studies of very low scientific quality. **Conclusions:** The use of vacuum therapy shows, in a good number of studies of very low quality, few benefits and relatively frequent side effects, some of them serious, so its use in this indication would not be recommended

Alternative Medicine & Nutrition - Health Service Delivery & Process of Care

PAM6 COMPARISON OF CHARACTERISTICS AND COSTS OF EXTENSIVE AND SPORADIC USERS OF CHIROPRACTIC SERVICES

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Objectives: This study compared the characteristics and costs associated with extensive and sporadic users of chiropractic services. **Methods:** A retrospective study design was used, utilizing year 2017 nationally representative Medical Expenditure Panel Survey (MEPS) database. Adults age 18 and older with at least one chiropractic visit were included in the study. Extensive chiropractic utilization was defined as 6 or greater visits to a chiropractor within any two-month time-frame or at least 12 total visits, in 2017. This is a conservative definition consistent with American Chiropractic Association (ACA) low back pain treatment guidelines and the International Chiropractors Association (ICA) best practices and guidelines for treatment duration and frequency. Sporadic use was defined as not meeting the criteria for extensive use. Factors compared include proportion of costs paid out-of-pocket, region, race, age, health insurance status, and employment status. Comparisons between the groups were made with Chi-squared tests and t-tests for categorical and continuous variables, respectively. Analyses conducted with SAS version 9.4, significance set at 0.05.

Results: There were 4,373,580 (22.7%) and 11,163,515 (77.3%) adults classified as extensive sporadic chiropractic-users, respectively. The mean (95% CI) total cost of chiropractic services was and \$2070 (\$1750-\$2390) (33% out-of-pocket) and \$348 (\$314-\$382) (47.4% out-of-pocket) for extensive and sporadic users respectively, with the proportion paid out-of-pocket significantly different between the groups. Significant difference was detected between extensive and sporadic chiropractic-users for employment status (employed for full-year)[30.0% versus 36.7%] and sex[44% Male versus 39% Male]. Age, Family income, Region, race, and insurance coverage were not significantly different. **Conclusions:** Most chiropractic users were sporadic users, which may indicate inefficiencies in treatment based on ACA and ICA treatment guidelines. Significant differences were detected among characteristics and proportion of costs paid out-of-pocket between extensive and sporadic users of chiropractic services. Future research should investigate the appropriateness of treatment and cost-effectiveness of treatment among this population.

Alternative Medicine & Nutrition - Medical Technologies

PAM7 DEVELOPING AN AUTOMATED VIRTUAL WALKING COACH FOR UNDERSERVED, SEDENTARY PATIENTS IN PRIMARY CARE: ANALYSIS OF PILOT DATA

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Objectives: Scalable, accessible interventions to increase physical activity in underserved patients are needed. We pilot-tested an mHealth intervention to help ethnic-minority patients set weekly walking goals, ultimately aiming to create an automated virtual walking coach. **Methods:** Sedentary adults ages 21-65 years with body mass index (BMI) >25 kg/m² and a smartphone were recruited from a minority-serving academic primary care clinic. Patients received a Fitbit and 8 weeks of two-way text-based coaching. Using texts, patients set weekly specific, measurable, attainable, relevant, timely (SMART) step goals with reminders and encouragement from their coach. In addition to descriptive statistics, a linear mixed-effects model assessed overall trends in daily steps. Linear regression assessed trends within patients. Bivariate linear mixed-effects models examined associations between patient characteristics and daily steps. **Results:** The analytic sample consisted of 1,323 days with step data from 28 patients with multiple comorbidities. Twenty-one (75.0%) patients were female, 23 (82.1%) were African American, 4 (14.3%) were Hispanic, and 1 (3.6%) was White. Average baseline age was 47.3 years (SD=9.9), weight was 237.3 pounds (SD=58.6), and BMI was 39.3 kg/m² (SD=9.3). Daily average number of steps was significantly higher in Week 8 than in Week 1 (8,336 [SD=3,913] vs. 7,018 [SD=3,704]; p=0.04). Each day in the intervention was associated with a non-significant average increase of 9 steps (p=0.17). Seven (25.0%) patients had a significant increase in daily steps during the intervention, 2 (7.1%) had a significant decrease, and 19 (67.9%) had no significant change. In bivariate analyses, variables significantly associated with increased steps were younger age, lower BMI, Hispanic and White vs. African American ethnicity, higher self-reported health, and employment vs. unemployment. **Conclusions:** Weekly facilitated text-based goal-setting showed early promise towards increasing steps in vulnerable patients. Future work will use imitation learning, sentiment analysis, dialogue modeling, and behavior change theory towards developing an automated virtual walking coach.



Alternative Medicine & Nutrition - Methodological & Statistical Research

PAM8 SUPPRESSION OF TGP ON MYOCARDIAL REMODELING BY REGULATING THE NF-KB PATHWAY

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Objectives: Myocardial remodeling is one of the main mechanisms which leads to chronic heart failure (CHF). Thus, the drugs which suppressed the process of myocardial remodeling showed better clinical outcomes to deal with CHF. Total glucosides of paeony (TGP) which is used in many traditional Chinese medicines (TCM) exhibited promising ethno-pharmacological effects such as immunosuppressant, anti-inflammatory, analgesia, anti-stress, liver disease, allergies, anticoagulant, and cardiovascular activities. This study aims to investigate the effects of TGP on myocardial remodeling by regulating the nuclear factor kappa B cells (NF-κB) pathway. **Methods:** SD rats were selected and divided into five groups (n = 8),



control, sham-operated, Captopril, low dose TGP and high dose TGP respectively. The pressure-overload method was adopted by abdominal aorta ligation to induce the CHF. Furthermore, collagenfibers detected by picosirius red staining and expression of NF- κ B, TGF- β 1 by immunohistochemistry and observed under a polarized microscope and assessed by image-pro plus 6.0. Matrix metalloproteinase's (MMP)-2, -9 mRNA levels by reverse transcription PCR (RT-PCR), the concentration of angiotensin II was determined by radioimmunoassay and ELISA was employed to determine the cytokine IL-1 β . **Results:** It was observed that TGP could relieve myocardial remodeling in rats induced by abdominal aorta ligation and decrease the level of angiotensin II and I/III collagen ratio, pathogenic cytokines and inhibit the expression and activities of MMPs. **Conclusions:** Consequently, the observations suggested that myocardial remodeling was mediated by the NF- κ B pathway.

Alternative Medicine & Nutrition - Patient-Centered Research

PAM10 SIGNIFICANCE OF STOOL TESTS IN CHILDREN WITH COW'S MILK PROTEIN ALLERGY

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Objectives: The most common food allergy in children is cow's milk protein allergy (CMPA). The aim of this research is to observe gastrointestinal changes induced by this nutritional allergy and to monitor the effect of dairy elimination diet on these symptoms. **Methods:** Children with symptoms suggesting CMPA were included in this study (n=47). The investigation was performed at the Balassa János County Hospital in Szekszárd, Hungary. Stool samples were collected from the children at the time of the diagnosis, and after 3 months of elimination diet. During visits, a self-edited questionnaire was filled by the parents. Stool samples were evaluated using Bristol stool scale and Quantum Blue fecal calprotectin (FC) rapid test. **Results:** In the entire study population (n=47, mean age:7.36 years, 42.6 % female), no significant difference in FC values was observed before (mean: 73.98 μ g/g, SD: 71.12) and after (mean: 68.11 μ g/g, SD: 74.04) elimination diet (p=0.21). However, after dividing the participants into two subgroups according to the questionnaires, the following was observed: a significant decrease in FC values (p<0.001) was detected in children who strictly followed the diet (n=35) comparing the first (mean: 84.057 μ g/g, SD: 79.48) and the second (mean: 41.114 μ g/g, SD: 34.24) stool sample. Evaluating the results of Bristol stool scales before elimination diet, 36.2% of the study population presented with normal stool, 63.8% had stool abnormalities. After 3 months of elimination diet, the former results changed as the following: 93.6% showed normal stool, 6.4% still had constipation or diarrhea. **Conclusions:** According to our data, FC can be an objective parameter in monitoring of allergic colitis in children with CMPA. Significant improvement in symptoms can only be expected after a strict diet. Beneficial effects of elimination diet on the gastrointestinal symptoms can also be confirmed using the Bristol stool scale among children with CMPA.



PAM11 DEVELOPMENT AND EVALUATION OF THE BLOOD DEFICIENCY QUESTIONNAIRE (BDQ)

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Objectives: To develop and evaluate the blood deficiency questionnaire(BDQ) which provide an effective clinical efficacy evaluation tool for patient self-evaluation. **Methods:** The theoretical framework and initial BDQ were established by literature review and semi-structured interview. After a pilot study, the final BDQ with 3 domains including 'brain blood deficiency (BBQ)' 'heart blood deficiency (HBD)' and 'meridian, collateral body constituents blood deficiency (MCBD)' was developed. Confirmatory factor analysis (CFA) was used to evaluate the construct validity of BDQ. Discriminant validity was evaluated by T-test between two groups. Internal consistency reliability was assessed using Spearman correlation coefficients and Cronbach's α coefficients. Test-retested reliability was evaluated by Spearman correlation coefficients. **Results:** The scale consisted of 11 items which included 'dizziness' 'avoid thinking because dizzy' 'need a break because dizzy' 'forgetfulness' 'palpitation' 'dream more' 'bad complexion or yellowed' 'dazzling or dry eyes' 'dry skin' 'numbness of limb skin' and 'limb restraint', and the additional menstrual information. The results of T-Test were significant which the BDQ can distinguish normal people from patients. In CFA, items were divided into 3 factors (KMO=0.812, p<0.001). The Cronbach's α coefficient of total scores was 0.821, and the Spearman correlation Coefficients between items and total scores were good (0.420-0.766). The Spearman Correlation coefficients of test-retested reliability were significant (0.518 -1.0). **Conclusions:** In this study, 3 domains with 11 items and the additional



menstrual information in the BDQ were developed. The BDQ is a reliable and valid instrument for evaluating blood deficiency in the clinical.

Alternative Medicine & Nutrition - Real World Data & Information Systems

PAM12 ESTIMATING EXCESS HEALTHCARE COSTS OF MALNOURISHED PATIENTS IN A LEARNING COLLABORATIVE OF U.S. HOSPITALS

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Objectives: Malnutrition carries significant economic burden to the U.S. healthcare system. This study extrapolates excess costs using national cost estimates, associated with increased length of stay (LOS) and 30-day readmissions experienced by patients with a malnutrition diagnosis compared to non-malnourished patients in a real-world sample of 56 U.S. hospitals. **Methods:** We identified two cohorts of patients using ICD-10-CM codes: 421,125 patients and 296,023 patients, with a variable tag of LOS and 30-day readmission, respectively. Both cohorts included 26,428 patients with a medical diagnosis of malnutrition \geq 18 years-old upon admission. A 2016 national claims-based analysis by the Healthcare Cost and Utilization Project calculated costs for 1.45M inpatients with malnutrition in 2016, representing 5.27% of the 27.6 million total non-maternal and non-neonatal stays. To evaluate the total excess costs among malnourished patients to the healthcare system, we calculated excess cost per patient associated with increased LOS and 30-day readmissions (\$12,635 and \$3,700, respectively) and extrapolated that over the total patient cohorts. **Results:** Our analysis indicates that a medical malnutrition diagnosis amounts to excess costs of \$333.92M and \$16.86M, associated with increased LOS and readmission within 30 days of discharge, respectively. Our data shows 82.76% of malnourished patients were above the median LOS, compared to 47.79% of non-malnourished patients who were above the median LOS (p<0.0001). Average readmission rate among malnourished patients is 17.24%, compared to non-malnourished patients with an average readmission rate of 9.24%, (p<.0001). **Conclusions:** Our analysis using a first of its kind aggregate real-world dataset of patients identified with malnutrition supports previously reported claims data demonstrating the excess costs associated with malnutrition in hospitalized adults. These findings support the need for a call to policymakers to adopt policies incentivizing providers to focus on these patients. Identifying and treating malnutrition may provide substantial savings to the U.S. healthcare system.



Patient Behavior Studies

PB1 PATIENT-REPORTED CONCERN, UNDERSTANDING AND LIFESTYLE MANAGEMENT OF NON ALCOHOLIC STEATOHEPATITIS PATIENTS: A 12-COUNTRY REAL WORLD STUDY

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Objectives: There is currently a lack of real-world evidence regarding non-alcoholic steatohepatitis (NASH) patient perceptions and experience of their condition. This study investigated differences between patients with advanced fibrosis (AF-NASH; fibrosis stage 3-4) and early fibrosis (EF-NASH; fibrosis stage 0-2) regarding concerns about NASH, degree of knowledge, associated impact and motivation to change lifestyle. **Methods:** Data derived from cross-sectional 2018/19 Adelphi NASH Disease Specific Programme (France, Germany, Italy, Portugal, Spain, UK, US, Canada, Australia, Japan, Saudi Arabia, UAE). Physicians completed questionnaires describing 2-8 NASH patients. Fibrosis severity categorized using peer-reviewed, retrospectively-applied fibrosis scores (AF-NASH >12.1kPa or EF-NASH < 6.5kPa) based on vibration-controlled transient elastography results. Voluntary patient assessments measured impact of NASH on concerns, knowledge and lifestyle changes. All differences stated were significant (p \leq 0.05). **Results:** 734 NASH patients were included (77% AF-NASH vs. 23% EF-NASH). Mean age 55.3 years; mean BMI 32.7. AF-NASH patients reported more concerns about living with NASH (44%/35%), difficulties with liver (36%/18%) vs. EF-NASH patients. AF-NASH patients more frequently reported NASH affected family/social life (7%/1%), appearance/confidence (15%/8%), motivation (14%/5%) and feelings about future (18%/5%). 71% of patients received lifestyle advice. Despite physicians having suggested lifestyle interventions to AF-NASH patients for longer than EF-NASH patients (32/20 [months]), the former self-reported not receiving enough information vs EF-NASH patients (15%/5%). Physicians reported AF-NASH patients found it difficult to implement exercise advice vs EF-NASH patients (70%/81%). Fewer AF-NASH patients vs EF-NASH patients reported making a greater effort to improve health (13%/22%) and increase daily exercise (3%/9%). **Conclusions:** Whilst AF-NASH patients appear more concerned/impacted by NASH overall vs. EF-NASH patients, they do not appear to be motivated into making

