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Abstracts

PROCEEDINGS OF THE 3RD INTERNATIONAL BEHAVIOURAL TRIALS NETWORK (IBTN) MEETING

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To optimize the uptake and impact of behavioural interventions in the context of non-communicable chronic diseases (NCD) prevention and treatment, we need more quantity and better quality of evidence. To accomplish this, we need to cultivate a culture among behavioural trialists that espouses the rigorous development and testing of carefully designed, well-defined behavioural interventions that are seen as relevant and implementable by healthcare systems and third party payers. To advance this agenda, a group of international investigators, led by Drs. Simon Bacon, Kim Lavoie, and Gregory Ninot, created the International Behavioural Trials Network (IBTN), which currently has 842 members from six continents. The mission of the IBTN (www.ibtnetwork.org) is to foster global improvement in the quality of behavioural trials and in trial implementation, and to share a repository for existing recommendations, tools, and methodology on behavioural trials and intervention development. The goal is to develop a more solid and widely accepted evidence base for the transferability of behavioural interventions into disease prevention, health promotion and intervention practice and policy. The members of the IBTN met for their 3rd international conference on May 28–29, 2020, based in Montreal, Canada but held virtually. The meeting had 743 registrants that included researchers, clinicians, public health and implementation specialists, trainees and other stakeholders from 43 countries, and featured 25 presentations with a total of 44 speakers. The 36 peer-reviewed abstracts that were presented via virtual poster sessions are presented below.

2020 IBTN Conference Abstracts

EFFICACY OF CLINIC- AND MOBILE PHONE-BASED WALK-TALK INTERVENTION ON BLOOD GLUCOSE LEVEL OF PREGNANT WOMEN IN IBADAN

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Background: Apathy for physical activity (PA) in pregnancy despite its potential to limit adverse maternal and fetal morbidities and its long-term benefits invites concerns for innovative approaches that may alter behavioral change and promote physical activity.

Objectives: To compare the efficacy of structured 12-week Clinic-Based Six-Minute Walk-Talk PA (CBSMWTPA) and Mobile Phone-Based Six-Minute Walk-Talk PA (MBPSMWTPA) interventions on the blood glucose levels of pregnant women.

Methods: A Randomized Controlled Trial with a 3x2x2 factorial matrix design was implemented among 95 consenting pregnant women in 22 - 24-week gestational period who were attending the antenatal clinic (ANC) of Adeoyo Maternity Teaching Hospital, Ibadan. The participants were assigned into CBSMWTPA plus ANC group (n=36), MBPSMWTPA plus ANC group (n=31) or a Control group of ANC only (n=28) using permutated block randomization. Both CBSMWTPA and MPBSMWTPA groups received six-minute Walk-Talk PA plus usual ANC via traditional clinic-based administration and smartphone application, respectively. Outcome was assessed in terms of metabolic demand (blood glucose) at 6th and 12th week. Data was summarized using descriptive statistics of means and standard deviations. Within-group and between-group effects were analyzed using one-way ANOVAs for the different groups. Alpha level was set at $p<0.05$.

Results: There were significant differences in blood sugar levels at both week 6 (CBSMWTPA=80.5±7.99, MBPSMWTPA=82.6±8.287 and Control=84.6±7.28; p=0.002) and week 12 (77.8±4.69, 79.9±5.53 and 84.8±5.91; p=0.001).

Conclusion: Both CBSMWTPA and MBPSMWTPA have considerable effects on both PA and health outcomes of pregnant women. However, CBSMWTPA has superior outcomes.

CORRESPONDING AUTHOR: Olabisi A. Akinwande

DISCREPANCIES BETWEEN CARDIOVASCULAR REHABILITATION USERS' INTERESTS AND THE AVAILABILITY OF GUIDANCE DOCUMENTS

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Background: Cardiovascular rehabilitation (CR) guidelines should help users implement the multicomponent interventions of CR into practice, but we do not know if the majority of the available guidance documents cover the topics that most interest users.

Objectives: To evaluate the discrepancies between CR components in available guidance documents and the interests of users.

Methods: A survey tool was used to obtain and rank users' interests in nine major CR intervention components. A systematic review process involving eight databases was also used to identify components contained in guidance documents.

Results: 64 users (35 clinicians, 12 program directors, 2 policymakers, 3 researchers and 12 others) completed the survey. Respondents represented all the provinces across Canada with the exception of the three territories and there was one international respondent. The systematic review identified 4,201 articles, leading to 542 full-text documents being reviewed, of which 65 met inclusion criteria. The weighted ranking order of preferences from the survey showed that exercise ranked #1 in terms of interest, which also corresponded to the component having the highest number of documents. Of note, interest in guidance documents on general behavior change interventions was ranked 3rd in the survey, but less than 30% of the documents provided guidance on this component.

Conclusion: Our results show a discrepancy between users' interest in general behavior change information and the availability of documents that guide practice. Future guideline developers should consider user interests and needs, for example, content in general behavior change interventions.

CORRESPONDING AUTHOR: Simon L Bacon, PhD

PATIENT OUTREACH TO PROMOTE GUIDELINE-RECOMMENDED SCREENING AMONG DIVERSE WOMEN WITH GESTATIONAL DIABETES: A FACTORIAL PILOT STUDY

Susan D. Brown, PhD[1,2,*], Jenna L. Ritchie, BA[1], Ai-Lin Tsai, MS[1], Mara Greenberg, MD[3], Charles P. Quesenberry, PhD[1], Assiamira Ferrara, MD, PhD[1]

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Background: Given that gestational diabetes mellitus (GDM) elevates women's type 2 diabetes risk, national guidelines urge diabetes screening at 4–12 weeks postpartum with an oral glucose tolerance test (OGTT). While screening is an Affordable Care Act covered benefit, uptake is low for racial/ethnic minorities.

Objective: We examined patient barriers and benefits of screening, and feasibility and acceptability of an online multi-component outreach message to promote it.

Methods: Participants were 162 pregnant (n=67) or postpartum (n=95) women with current/recent GDM in a large health system, who had not yet completed screening (72% racial/ethnic minorities; mean age [± SD] = 33±4.9 years). Using a Multiphase Optimization Strategy (MOST) 24 factorial design, women were randomized to receive up to four components of an online outreach message: tailored risk information (n=82); values affirmation (n=82); interactive motivational interviewing (MI; n=69); and interactive action planning to problem solve barriers (n=85).

Results: Barriers to screening included lack of time (52%), prioritizing baby's health (43%), lack of childcare (38%), and fear of abnormal results (31%). Benefits included self-care (85%) and detecting abnormal results (69%). Across 4 components, ≥91% of women read most of the message; mean acceptability scores were 3.9 of 5 and, as hypothesized, did not differ when components were "on" vs. "off" (Ps ≥.41). Over 87% engaged in the interactive MI and action planning components.

Conclusion: Ethnically diverse women with GDM endorsed both benefits and barriers to recommended screening. Delivering online outreach components was feasible and acceptable; their efficacy on screening uptake remains to be tested.

CORRESPONDING AUTHOR: Susan D. Brown, PhD

AN E-HEALTH THEORY-BASED INTERVENTION FOR WOMEN'S PHYSICAL ACTIVITY BEHAVIOR: A RANDOMIZED TRIAL

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Background: The rising number of women who are overweight or obese is alarming considering the high risk of chronic diseases in this population may be compounded by low physical activity (PA). Interventions leveraging technology that are complemented by behavioral support may be an effective way to promote PA participation among women who are overweight or obese and, in turn, help with weight management.

Objective: To assess if women who are overweight or obese receiving a combined intervention consisting of (A) six weekly behavioral support emails grounded in self-determination theory, (B) a wearable PA tracker, and (C) a copy of the Canadian PA guidelines increase their PA levels from baseline to post-intervention, and assess if this combined intervention leads to greater change in PA than interventions including (B+C) or only (C).

Methods: Women who were overweight or obese and who engaged in minimal PA (n=46, Mage=37.72±11.87 years, MBMI=31.55±5.96 kg/m^2) were recruited into this trial and randomized into one of three intervention groups. Data for self-reported PA were collected at baseline (week 0) and post-intervention (week 7), and analyzed using two-way repeated measures analysis of variance.

Results: There were no differences in PA between groups (F=.51, p=.61, partial η^2=.02). PA increased from baseline to post-intervention in all three groups (F=17.95, p<.001, η^2=.30). There were no differences between groups for change in PA (F=0.96, p=.39, partial η^2=.04).

Conclusions: Providing weekly autonomy-supportive emails in addition to a wearable PA tracker may help increase PA; however, there is insufficient evidence to suggest that it is more effective than only providing a wearable PA tracker and/or a copy of the Canadian PA guidelines.

CORRESPONDING AUTHOR: Jennifer Brunet, PhD

ADHERENCE TO THE 24-HOUR MOVEMENT GUIDELINES AND ADIPOSITY IN A COHORT OF AT RISK YOUTH: A LONGITUDINAL ANALYSIS

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Background: The 24 hour (24hr) movement guidelines give recommendations for physical activity, screen time and sleep duration for children.

Objectives: To describe adherence to the guidelines and their cross-sectional and longitudinal associations with adiposity from childhood to adolescence.

Methods: Quebec children aged 8–10 years were followed at baseline (n=630), 10–12 years (n=564) and 15–17 years (n=377) in the QUALITY Cohort study. Physical activity, sleep duration and screen time were measured using accelerometry or questionnaires. Body mass index z-scores (zBMI), waist circumference, waist-to-height ratio and percent body fat were used to measure adiposity. Analyses consisted of descriptive statistics and multiple linear regressions.

Results: In childhood, early adolescence, and adolescence, 14%, 6%, and 0% of children met the 24hr guidelines, respectively. Cross-sectional analyses found that meeting fewer components of the guidelines was associated with higher adiposity at each visit. In longitudinal analyses, meeting fewer guideline components in childhood was associated with higher adiposity in early adolescence and adolescence. For example, compared to meeting all components at baseline, zBMI in early adolescence was 0.53 SD (95% CI:0.19, 0.87) higher among those meeting 2, 0.95 SD (95% CI:0.59,1.32) higher among those meeting 1, and 1.66 SD (95% CI:0.42, 2.89) higher among those meeting no components.

Conclusion: Few participants in this cohort meet the 24hr movement guidelines. Meeting fewer components of the guidelines in childhood is associated with higher adiposity 2 years and even 7 years later. These findings support the importance of early interventions to increase adherence to the 24hr movement guidelines.

CORRESPONDING AUTHOR: Andraea Van Hulst

IMPROVING ADHERENCE TO INHALED CORTICOSTEROIDS BY DEVELOPING A DECISION AID TO EMPOWER PATIENTS AND PRIMARY CARE PROVIDERS TO MAKE SHARED DECISIONS AROUND ASTHMA PHARMACOTHERAPY

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Background: Daily inhaled corticosteroids (ICSs) have long been cornerstones of asthma therapy but remain underused due to steroid aversion. New data supports as-needed ICS-formoterol as an alternative first line agent. Although exacerbation reduction is comparable to daily ICS and cumulative ICS exposure is lower, symptom control is inferior. Given these pros and cons, gaging patient preferences is critical to adherence.

Objective: To design a decision aid (DA) for mild asthma patients and primary care providers (PCPs) to weigh patient preferences in choosing treatment.

Methods: Based on international standards, we assembled clinical experts, PCPs and a patient representative to determine: the index decision and which options and outcomes to present in the DA. We formatted a paper-based prototype based on the Ottawa Personal Decision Guide and plan a rapid cycle design process with: (1) DA usability and content testing in sequential rounds of focus groups with 3–5 asthma patients and interviews with 1 PCP; (2) qualitative analysis after each round; (3) corresponding DA modifications; and (4) retesting in the next round, until no new critical issues emerge.

Results: We prototyped a DA for asthma patients having symptoms ≥2 times/month. Medication options included: as-needed ICS-formoterol only; daily ICS + as-needed rescue medication; and as-needed rescue medication only. Outcomes included: symptom control, exacerbations, treatment regimen complexity, ICS dose exposure, and medication costs. Rapid-cycle design is underway.

Conclusion: We designed a DA to help patients and PCPs to share asthma therapeutic decisions. Next steps are to embed it into the Electronic Asthma Management System and evaluate impact on adherence.

CORRESPONDING AUTHOR: Myriam Gagné, PhD

THE FIT-FOR-FERTILITY MULTICENTER RANDOMIZED-CONTROLLED TRIAL: IMPROVING REPRODUCTIVE, MATERNAL AND NEONATAL OUTCOMES IN WOMEN WITH OBESITY AND INFERTILITY

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ClinicalTrials.gov: NCT03908099, registered on April 3rd 2019.

Background: Moderate weight loss is recommended for women with obesity seeking medically assisted procreation (MAP) in order to improve their fertility and risks of complications during pregnancy. The general objective of this study is therefore to assess the clinical outcomes, cost effectiveness and transferability of an interdisciplinary lifestyle intervention (the Fit-for-Fertility program) targeting women with obesity and infertility in the Canadian context.

Methods/Design: This multicenter randomized-controlled trial will recruit 616 women with infertility and obesity in seven centers. Women will be randomized either to 1) the Fit-for-Fertility program (experimental arm) alone for 6 months, and then in combination with fertility treatments if not pregnant; or 2) usual standard of care for infertility (control arm). The Fit-for-Fertility program combines individual meetings with a nutritionist and a kinesiologist, based on motivational communication, and weekly group sessions. The program is provided for 18 months or, if pregnant, up to the end of pregnancy. The primary outcome is the live-birth rate at 24 months. Secondary outcomes include lifestyle and anthropometric measures; fertility, pregnancy and neonatal outcomes; cost effectiveness; and satisfaction of patients and professionals.

Discussion: We expect that the Fit-for-Fertility program will increase the chance of infertility couples affected by obesity to give birth to a healthy child, and at lower costs than usual care.

CORRESPONDING AUTHOR: Myriam Gélinas

RESPONSE PROFILES TO A MOTIVATIONAL COMMUNICATION-BASED INHALED CORTICOSTEROID ADHERENCE INTERVENTION IN ADULTS WITH ASTHMA

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Background: Daily adherence to inhaled corticosteroids (ICS) is critical for achieving optimal asthma control, yet adherence is generally low. Using one additional canister per year is clinically significant, relating to a 21% decrease in asthma-related mortality.

Objective: To determine the characteristics of patients who achieved the target increase in adherence level (succeeded) following a brief Motivational Communication-based intervention.

Methods: The sample was 14 poorly controlled (Mean ACQ≥0.8), non-adherent (%ICS≤50) adults with asthma (M(SD)age= 51.4 (4.9) yrs, 50% women). Nonparametric tests were used to determine the response profile of those who attained, vs. didn't, the targeted increase in adherence at 1 year.

Results: Less than half the sample (43%) reached the target. On average, this group had higher BMIs and had asthma for a longer period of time (M(SD) BMI= 29.1 (3.9) vs 27.1 (5.6); M(SD) duration=27.2 (25.6) yrs vs 13.5 (9.2)), 100% (vs. 25%) reported being non-smokers and 80% (vs. 43%) had a partner. Those who succeeded also reported more physical illnesses other than asthma (100% vs 50%) and mental health issues (67% vs 38%). Those who succeeded had higher mean baseline scores of perceived competence (SMD PCS=0.6), autonomy support (SMD HCCQ= 1.1), worse initial asthma control (SMD ACQ=0.7) and lower quality of life (SMD AQLQ=-0.6).

Conclusion: Findings suggest that having higher levels of self-efficacy, perceived autonomy support, social support and a healthy lifestyle but more health issues may be linked to increased ICS adherence in response to motivational counseling. This may be due to the benefits of changing being more obvious and being better equipped to face the challenge.

CORRESPONDING AUTHOR: Claudia Gemme

PROTOCOL FOR A PRAGMATIC CLUSTER RANDOMIZED TRIAL OF THE CARDIOVASCULAR HEALTH AWARENESS PROGRAM (CHAP) IN SOCIAL HOUSING

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ClinicalTrials.gov, NCT03549845. Registered on 15 May 2018. Updated on 21 May 2019. https://trialsjournal.biomedcentral.com/articles/10.1186/s13063-019-3806-5

Background: The Cardiovascular Health Awareness Program (CHAP) uses volunteers to provide CVD and diabetes screening in a community setting, referrals to primary care providers, and locally available programs targeting lifestyle modification. CHAP has been adapted to target older adults residing in social housing, a vulnerable segment of the population. Older adults living in social housing report poorer health status and have a higher burden of multitude chronic illnesses, such as cardiovascular disease (CVD) and diabetes.

Objective: To evaluate whether there is a reduction in unplanned CVD-related ED visits and hospital admissions among residents of social seniors' housing buildings receiving the CHAP program for one year compared to residents in matched buildings not receiving the program.

Methods: This is a pragmatic, cluster-randomized controlled trial, held in community-based social (subsidized) housing buildings in Ontario and Quebec. The target population includes all residents of 14 matched pairs (intervention/control) of apartment buildings. Buildings with 50–200 apartment units with majority of residents aged 55+ and a unique postal code are included. All individuals residing within the buildings at the start of the intervention period are included (intention to treat, open cohort). CHAP screens for high blood pressure using automated blood pressure monitors and for diabetes risk using the Canadian Diabetes Risk (CANRISK) questionnaire. Monthly drop-in sessions for screening/monitoring are held within a common area of the building. Group health education sessions are also held monthly. Reports are sent to family doctors and attendees are encouraged to visit their family doctor. The primary outcome is CVD-related ED visits and hospitalizations, and the secondary outcomes are all ED visits, hospitalizations, quality of life, cost effectiveness, and participant experience.

Results: It is anticipated that CVD-related ED visits and hospitalizations will decrease in the intervention buildings.

Expected Outcome: Using the volunteer-led CHAP program, there is significant opportunity to improve the health of older adults in social housing.

CORRESPONDING AUTHOR: Melissa Pirrie, PhD(c)

FIDELITY OF INTERVENTIONS TO REDUCE OR PREVENT STRESS AND/OR ANXIETY FROM PREGNANCY UP TO TWO YEARS POST-PARTUM: A SYSTEMATIC REVIEW

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Background. Intervention fidelity refers to whether an intervention is delivered as intended and can enhance interpretation of trial outcomes. Fidelity of interventions to reduce or prevent stress and anxiety during pregnancy and postpartum has yet to be examined despite inconsistent findings for intervention effects.

Objective. This study systematically reviews use and/or reporting of intervention fidelity strategies in trials of interventions, delivered to (expectant) parents during pregnancy and postpartum, to reduce or prevent stress and/or anxiety.

Methods. MEDLINE, Embase, CINAHL, PsychINFO, and Maternity and Infant Care were searched from inception to March 2019. Studies were included if they were randomized controlled trials including expectant parents and/ or parents within the first two years postpartum. The National Institutes of Health Behavior Change Consortium checklist was used to assess fidelity across five domains (study design, provider training, delivery, receipt, enactment).

Results. Sixteen papers (14 interventions) were identified. Average reported use of fidelity strategies was 'low' (45%), ranging from 17.5% to 76%. Fidelity ratings ranged from 22% for provider training to 54% for study design.

Conclusion. Low levels of intervention fidelity may explain previous inconsistent effects of stress and anxiety reduction interventions. Important methodological areas for improvement include intervention provider training, fidelity of comparator conditions, and consideration of non-specific treatment effects. Increased methodological rigor in fidelity enhancement and assessment will improve intervention implementation and enhance examination of stress and anxiety reduction and prevention interventions.

CORRESPONDING AUTHOR: Karen Matvienko-Sikar

RELIABILITY OF A SCORING ALGORITHM FOR THE MOTIVATIONAL COMMUNICATION COMPETENCY ASSESSMENT TEST (MC-CAT)

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Background: The importance of physician training to support lasting health behavior changes in patients suffering from chronic diseases is an emergent research topic. However, existing evaluation tools are complex, invasive, time consuming, and impractical for use within the medical context.

Objective: This study sought to validate the scoring algorithm and the classification scheme of the Motivational Communication (MC) competency assessment tool with an international panel of behavior change experts.

Methods: In a 2-stage process, fourteen international experts were presented with dialogue exchanges (6–7 per case) between a physician and 3 separate "patients." They were asked to rank order the physician statements from most to least consistent with MC competency and to identify which of the 11 components were presented in each statement. After a preliminary analysis of the results and modification of the statements, experts were asked to redo the task.

Results: Initial percentage of agreement between our classification and the experts for rank order of responses across all 3 cases was 60.9±14.0% (range 37.1 to 84.3%). The component identification agreement across all 3 cases was 44.9±8.4% (range 30.5 to 60.2%). After making 22 changes in the dialogue exchange, the agreement for the rank order (87.6±16.8%, range 16.7 to 100%) and the component identification (78.1±14.3%, range 48.6 to 100%) increased significantly from stage 1.

Conclusion: These results demonstrate good response agreement across the 3 cases and 11 competencies. The next step will be to expand the case bank, with "new" cases retaining the same initial base structure but varying the patient's sociodemographics, chronic disease, behavioral target, and personal information.

Keywords: Assessment, Motivational Communication, Tool development, Physicians

CORRESPONDING AUTHOR: Vincent Gosselin Boucher

SUPPORTING INDIGENOUS SMOKERS TO ASSIST QUITTING (SISTAQUIT®): A CLUSTER RANDOMIZED CONTROLLED TRIAL TO CHANGE HEALTH PROVIDER BEHAVIOR AND SUPPORT INDIGENOUS AUSTRALIAN PREGNANT WOMEN TO STOP SMOKING: PROTOCOL AND RECRUITMENT TO DATE

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Background: Of Indigenous Australian women, 43% smoke in pregnancy. The SISTAQUIT intervention, co-developed with Indigenous communities, aims to improve health provider (HP) delivery of smoking cessation care (SCC) to pregnant Indigenous women who smoke.

Objective: Describe protocol and recruitment for the SISTAQUIT cluster randomized controlled trial (cRCT).

Methods: Pragmatic Hybrid Type-1 effectiveness multi-site cRCT with outcome and process measures. N=22 Aboriginal Medical Services (AMS) and other health services were randomized to intervention or usual care (intervention later). Services recruit ~15 pregnant Indigenous women who smoke, ≥16 yrs old, ≤32 wks gestation. Intervention includes: an interactive webinar for HPs; printed educational resources (treatment manual, flip charts for HPs) and a booklet with embedded videos for women; oral NRT and Smokerlyzer for breath carbon monoxide (CO). On-site research facilitators collect data via REDCap. Primary outcome is CO-validated smoking abstinence at 4-wks. Secondary measures include: abstinence to 6-mths postpartum; birth outcomes; baby respiratory symptoms; HP attitudes/behaviors; recruitment/retention rates; NRT provision.

Results: Recruitment to January 2020 includes 22 services (19 AMS and 3 others) in 5 states - majority are in rural and remote areas, 83 HPs, 52 women and 10 babies. Recruitment challenges include lengthily community consultations, service staff changes and lower than expected pregnancies mainly in remote areas.

Conclusion: To our knowledge, this is the first national behavioral trial providing SCC within the pregnant Indigenous setting and to follow mothers' and babies' health. Results will inform practice and policy for SCC during Indigenous pregnancies.

CORRESPONDING AUTHOR: Gillian S Gould, PhD, MA, MBChB

ITERATIVE OPTIMIZATION AND DECISION-MAKING USING THE MULTIPHASE OPTIMIZATION STRATEGY (MOST) TO OPTIMIZE AN ONLINE BEHAVIORAL INTERVENTION

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Background: MOST is an engineering-inspired framework for the development, optimization, and evaluation of multicomponent behavioral interventions. Optimization trials are randomized experiments designed to assess the effect of individual components, alone or in combination, on the desired outcome. When conducted in succession, optimization trials offer opportunities for data-driven decision-making to refine content.

Objective: To demonstrate an iterative approach to optimization and decision-making using an applied example of an online intervention to address the intersection of alcohol and sexual risk behaviors among first-year college students.

Methods: Two sequential optimization trials using a 25-factorial experimental design were conducted to identify candidate intervention components (i.e., descriptive norms, injunctive norms, expectancies, perceived benefits of protective behavioral strategies, and self-efficacy to use strategies) most effective at changing sexual behaviors within the context of alcohol use. Decisions informing content revision were driven by quantitative findings and feedback from participants. Findings of both optimization trials were used to identify the optimized intervention.

Results: Both optimization trials indicated only two components produced the desired outcome ($p < .05$), even after revisions. The optimized intervention evaluated in the RCT is therefore not only effective, but also efficient, economical, and scalable.

Conclusion: Without optimization interventions may include inactive components. When possible, an iterative approach to optimization and data-driven decision-making in the MOST framework maximizes the potential public health impact of an optimized intervention.

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ASSESSING THE PSYCHOLOGICAL PROCESSES IMPACTED BY A TECHNOLOGY-ASSISTED WEIGHT LOSS MAINTENANCE PROGRAM (NULEVEL TRIAL)

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Background: NULevel was a registered randomized control trial to evaluate a technology-assisted weight loss maintenance (WLM) program in the UK (Evans et al., 2015). The program included: (1) a face-to-face goal-setting session; (2) an internet platform, a pedometer, and a wirelessly connected scale to monitor and report diet, physical activity, and weight, and; (3) regular automated feedback delivered by mobile phone, tailored to participants' goal progress. Components were designed to target psychological processes linked to weight-related behaviors; however, Sniehotta et al. (2019) found no difference in weight gain between the intervention and control groups after 12 months. It is unclear whether the program failed to alter the targeted psychological processes, or whether changes in these processes failed to influence WLM outcomes.

Objective: We evaluate whether the program influenced 16 key psychological processes (e.g., self-efficacy and automaticity towards dietary & physical activity behaviors), and whether these processes (at 6 months) were associated to successful

WLM (at 12 months).

Methods: 288 adults were randomized to the intervention or control groups. The control group only received a wireless scale and standard advice via quarterly newsletters. Assessments were at 0, 6, and 12 months.

Results: The intervention significantly altered 10 of the 16 psychological processes, compared to the control group. However, few processes were associated with WLM (i.e., weight regain), leading to a lack of indirect effects of the intervention via the processes on WLM.

Conclusion: The targeted psychological processes were insufficient to elicit changes in WLM. Future efforts should consider alternate processes to target.

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BEHAVIORAL WEIGHT MANAGEMENT INTERVENTIONS IN BARIATRIC SURGERY: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background: Evidence-based data are lacking to inform the development and testing of adjunct behavioral weight management (BWM) interventions in bariatric populations. This review and meta-analysis evaluated the efficacy of pre- and/or post-operative BWM interventions in patients undergoing bariatric surgery and provided further evidence regarding the timing of the most efficacious interventions.

Methods: BWM interventions designed to promote weight loss/management among adult patients who reported anthropometric data were included. Searches were conducted in PubMed, PsychInfo, Scopus, Embase and Cochrane up to February 2020. Random effect meta-analyses were performed on weight and body mass index (BMI) to examine pre- to post-behavioral intervention effects.

Results: Thirty-three studies (2,919 participants) comprising 41 experimental and 36 comparison conditions were included. BWM led to greater WL, expressed as absolute weight (SDM = -0.41; 95% CI: -0.766 to -0.049, $p<0.05$) and BMI (SDM = -0.60; 95% CI: -0.913 to -0.289, $p<0.001$), relative to comparison but only when delivered postoperatively.

Conclusion: Postoperative BWM interventions may have the potential to optimize weight outcomes in patients undergoing bariatric surgery. However, the current evidence has a high risk of bias and high variability across trials. Future interventions should be developed using an established framework (e.g., ORBIT) in conjunction with an integrated knowledge translation strategy to improve effectiveness and uptake.

CORRESPONDING AUTHOR: Cassandre A Julien

INTERNET-BASED STRESS MANAGEMENT PROGRAM FOR PATIENTS WITH CARDIOVASCULAR DISEASE: PILOTING A SEQUENTIAL MULTIPLE ASSIGNMENT RANDOMIZED TRIAL (SMART)

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Background: Online stress management interventions for individuals with cardiovascular diseases (CVDs) show promise, yet up to 60% of individuals do not respond. We used an innovative trial design, the Sequential multiple assignment randomized trial (SMART), to develop an adaptive online stress management intervention.

Objective: Evaluate the feasibility, acceptability, and clinical significance of an adaptive online stress management intervention.

Methods: 60 patients with CVDs were randomized to a 6-week self-directed, online stress management program or the same intervention plus weekly lay telephone coaching. At 6 weeks, intervention response was assessed, and those who did not improve were re-randomized to either continue their initial program or motivational interviewing (MI) for 6 weeks. Changes in stress were calculated to examine clinical significance. Feasibility (e.g., consent and refusal rates) and acceptability (e.g., attrition and adherence rates) were also collected.

Results: We enrolled about 1 patient per week, with 16% refusal; enrollment ratio 44 men: 56 women. Missing data: < 3% at baseline; none at follow-up for primary outcomes. Attrition rates: higher among non-responders (39%) vs responders (4%). Intervention adherence rates and satisfaction were higher in the groups receiving lay coach support vs self-directed. Magnitude and direction of effect sizes, comparing all combinations of supports were generally in the expected direction, exceeding our clinical significance threshold of effect size = 0.20.

Conclusion: A larger trial would be both feasible and acceptable to patients. Attention to retention of non-responder groups, and characteristics of interventionists need to be considered.

CORRESPONDING AUTHOR: Sylvie Lambert

ASSOCIATIONS OF THE ACTIVE LIVING ENVIRONMENT, WALKING AND PREMATURE MORTALITY IN CANADA

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Background: Neighborhoods have the potential to influence population-wide modifiable risk factors such as physical inactivity and obesity. Built environments that encourage active living hold promise as a policy lever for the prevention of premature cardiometabolic mortality.

Objective: To examine sex and age-specific relationships between active living environments, walking and cardiometabolic mortality.

Methods: Neighborhood built environment measures for active living were derived using a geographic information system for 249,420 respondents of the Canadian Community Health Survey linked with the Canadian Mortality Database. We assessed for relationships of active living environments with walking, walking with premature cardiometabolic mortality, and active living environments and mortality in older women, older men, middle-age women and middle-age men. Cox proportional hazards regression models were adjusted for age, educational attainment, income, smoking status, obesity, the presence of chronic conditions, season of survey response, and survey cycle.

Results: Walking was incrementally higher for respondents who lived in more favorable active living environments, regardless of age and sex, and was associated with lower cardiometabolic death for all groups except for middle-age men. Favorable active living environments conferred a 19% reduction in death from cardiometabolic causes (hazard ratio 0.81, 95% CI 0.66–0.98) for older women.

Conclusions: People who lived in favorable active living environments reported walking more, regardless of sex and age. With the exception of middle-age men, walking was associated with lower premature cardiometabolic death. Active living environments could translate into cardiometabolic-related survival gains for older women.

CORRESPONDING AUTHOR: Sarah Mah

A SYSTEMATIC REVIEW OF CARDIOVASCULAR REHABILITATION GUIDANCE DOCUMENTS: ASSESSING COMPONENTS AND METHODOLOGIES.

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Background: Cardiovascular rehabilitation (CR) is a multicomponent intervention delivered to individuals with cardiovascular disease to improve clinical outcomes and quality of life. Guidance documents have been developed to lead health care professionals in the proper delivery and implementation of CR. Currently, no comprehensive mapping of these guidelines, the topics that they cover and their quality, exists.

Objectives: To map out existing guidance documents on CR, the topic areas that are been covered and to assess if those were developed based on a systematic review (SR).

Methods: A SR was conducted by searching eight electronic databases. We included guidelines, position statements and expert or clinical consensus for outpatient CR individuals. Studies were screened for inclusion based on titles/abstracts, and then full text, by three independent authors. Disagreements were solved by a fourth reviewer.

Results: We identified 3927 articles after duplicate removal and assessed 542 full texts after screening. Sixty-five studies were included (18 guidelines, 47 other documents). A total of 15 documents reported a systematic approach in reviewing the evidence, while 50 were unclear or not based on a SR. The CR

components varied greatly, with the majority of documents containing recommendations on exercise training (72%).

Conclusion: In the present study, CR guidance documents were shown to be heterogeneous, both in their methodology and topics covered. The majority of the documents were not supported by systematic evidence summaries. There is room for improvement in these processes, as future guidance documents should employ a rigorous evidence-based and systematic process.

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IDENTIFYING THE NEEDS OF KIDNEY TRANSPLANT RECIPIENTS THAT CAN BE ADDRESSED BY A WEB-BASED SELF-MANAGEMENT PROGRAM

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Background: Kidney transplantation improves the quality of life (QOL) of patients with end-stage renal disease, however, post-transplant recovery of physical health and other aspects of QOL remain well below age- and sex-matched norms. While members of the health care team are focused on optimizing the biological responses to transplant, patients may have few or no tools at their disposal to engage in behaviors that optimize QOL.

Objective: We aimed to identify the needs of kidney transplant (KTx) recipients that are appropriate to address through self-management.

Methods: We used four strategies to identify areas of concern post-kidney transplantation: 1) a pilot study that used the patient-generated index to identify areas of QOL that are affected post-transplant, 2) review of the outcome domains suggested by the Standardized Outcomes in Nephrology-Transplantation (SONG-Tx) international initiative, 3) review of the domains included in QoL questionnaires for KTx recipients and patients with chronic kidney disease and 4) focus groups and key informant interviews with patients, clinicians, and researchers. We linked the identified themes to the International Classification of Functioning's code list and created a saturation table to visualize the most common areas of concern.

Results: The most prevalent identified topics (identified in ≥3 strategies) were physical activity; fatigue; pain; sleep; mental health; nutrition; sexual function; medication adherence; heart and kidney health.

Conclusion: KTx recipients have many areas of concern post-transplant. The next steps will include the development of a comprehensive, evidence- and experience-based self-management program tailored to this patient population to improve their QOL.

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PERSONALITY, CHRONIC DEFENSIVE COPING AND S100B – NEW INSIGHTS INTO THE BRAIN-HEART LINK: THE SABPA PROSPECTIVE COHORT STUDY.

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Background: Defensive coping (DefS) disability has been associated with poorer cardiac health. Personality traits such as neuroticism (characterized by affective instability, depression and anxiety) and low conscientiousness might explain DefS disability and cardiac ischemia, reflected through S100 calcium-binding protein B (S100B) and cardiac troponin T (cTnT) release.

Objective: To investigate associations of personality traits with 3-year changes in S100B and cTnT in a bi-ethnic sex cohort habitually utilizing DefS.

Methods: A South African black and white sex cohort of teachers (n=378) participating at both phases of the Sympathetic activity and Ambulatory Blood Pressure in Africans (SABPA) study, was followed for 3-years. Beta-blocker users and cases with a history of myocardial infarction, stroke and left ventricular hypertrophy were excluded. Coping (Coping Strategy Indicator) and personality (Basic Traits Inventory) scores were determined. Fasting serum samples for S100B and cTnT were obtained.

Results: Interaction effects ($p<0.05$) for personality traits determined stratification of participants into bi-ethnic sex groups who had DefS scores ≥26. Higher neuroticism scores with consistent raised S100B and cTnT were apparent in blacks but not in whites over 3-years. Consistent raised cTnT levels were positively associated with neuroticism (Adjusted $R2=0.29$, $\beta=0.26$), but inversely with consistent S100B levels ($\beta=-0.30$) in DefS black men only. Again, in black men, conscientiousness predicted a previously defined cTnT cut point of ≥ 4.2 ng/L (Odds ratio 1.13, $p=0.040$). These associations were not evident in their female or white counterparts.

Conclusions: Neuroticism and less conscientiousness may explain an ineffective defense response or DefS failure in a black male teachers' cohort. DefS failure and consistently raised cardiac ischemia may accelerate ischemic heart disease progression.

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COGNITIVE AND BEHAVIORAL CORRELATES OF ADJUSTMENT TO DISEASE IN RHEUMATOID ARTHRITIS

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Background: Rheumatoid Arthritis (RA) is a chronic autoimmune disease which poses significant psychological adjustment challenges. Illness stressors; emotional, cognitive and behavioral responses; and social and environmental background are major categories in the adjustment process.

Objective: To identify modifiable cognitive and behavioral factors related to adjustment outcomes above and beyond measures of RA severity.

Methods: A sample of 297 patients with RA (81% women, mean age of 56.0 years) completed self-reports and underwent a medical examination. Disease activity, pain, fatigue, and demographics were recorded and statistically controlled for. Hierarchical multiple regressions were used to analyze data.

Results: Illness-related functional impairment (HAQ) was associated with disease activity, pain, fatigue, social support, and coping self-efficacy. Clinical variables accounted for 40.4% ($p<.001$) of the HAQ total variance. Cognitive and behavioral variables, in particular perceived social support ($\beta=-.12$, $p<.05$) and coping self-efficacy ($\beta=-.20$, $p<.05$), explained a further 4.0% ($p<.01$). The correlates of psychological well-being (GHQ-28) were disease duration, disease activity, pain, self-esteem, and coping self-efficacy. Clinical variables explained 26.3% of total

variance (p<.001), while cognitive and behavioral factors accounted for additional 23.3% (p<.001); with self-esteem (β=.19, p<.01) and coping self-efficacy (β=35.7, p<.001) yielding strongest associations with GHQ-28.

Conclusion: This study underscores the importance of considering complementary pathways of disease management including cognitive and behavioral factors beyond the traditional medical components. [Grant support: APVV-15–0719].

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CESSATION OF ARECA NUT CHEWING AND RISK REVERSAL OF CANCER: A META-ANALYSIS

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Background: Areca nut (AN) is the 4th common psychoactive substance with 600 million consumers worldwide. It is a human carcinogen associated with oral, pharyngeal, and esophageal cancers. The risk reversal of various adverse health effects including cancer has been studied extensively for smoking cessation leading to strong advocacy. However, the same has not been explored for AN cessation.

Objective: To determine a possible cancer risk reversal on quitting AN use.

Methods: A systematic literature search was conducted for articles evaluating risk of cancers in plain (without tobacco) AN users. Studies with data for current and former users were selected for meta-analytical estimation of the summary risk using random-effect models.

Results: Four studies on oral cancer, and 2 each on pharyngeal, and esophageal cancers, among plain betel quid (BQ) (AN, slaked lime, flavoring agents wrapped in betel leaf, without tobacco), worldwide, were included. For oral cancer, a risk reduction was seen among former users (6.53, 95% CI 0.52–12.54) compared to current users (8.02, 95% CI 1.72–14.31), and for pharyngeal cancer - former users (3.14, 95% CI 1.80–4.47), current users (6.87, 95% CI 2.48–11.27). For esophageal cancer no appreciable difference in risk was observed between current and former users.

Conclusion: The present analysis, based on limited available data, highlights the potential of risk reduction for oral and pharyngeal cancers following BQ cessation. Further well-designed, robust and focused studies are required to corroborate these results for oral, pharyngeal and other cancers. Primary care approaches to introduce culturally sensitive interventions on AN use could reduce the burden of oral and pharyngeal cancers.

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CONQUERING COMPULSIONS - THE FEASIBILITY AND NEUROMODULATORY IMPACT OF PHYSICAL EXERCISE AND MINDFULNESS MEDITATION FOR COMPULSIVE BEHAVIORS

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Background: From excessive gambling to alcohol, eating, checking... etc., addiction and obsessive-compulsive disorder-like behaviors are diverse and highly prevalent. Neuroscience evidence indicates that common cognitive and neurobiological processes, such as reward sensitivity, can drive disparate compulsive behaviors. Accessible and acceptable strategies to modify these processes and restore behavioral control are lacking. Physical exercise can have potent neuromodulatory and cognitive effects and is a promising approach. It can also enhance aspects of neuroplasticty and may augment concurrent mental training approaches, such as mindfulness meditation.

Objective: Investigate the feasibility and neuromodulatory impacts of physical exercise and meditation-based interventions for compulsivity.

Methods: 90 adults with mild – moderate compulsivity (across: alcohol, eating, gambling, ordering, checking, washing) are being randomized into a 3-arm sham-controlled feasibility trial. Comparator arms are 8-weeks of: physical exercise + mindfulness meditation, physical exercise + sham meditation, or 'lifestyle as usual.' Exercise intensity is personalized via VO2 max and prescribed using wearables. Meditations are delivered via app in partnership with Headspace. Outcomes are measured before, after and 3-months post and include MRI neuroimaging at rest and during reward processing (MIDT), compulsivity (YBOCS), and risky decision-making (BART).

Results: 55 participants (53% female, 24.8 + 5.8 years, 8.5 + 3 YBOCS compulsivity sub-scale) have completed or are active in the protocol. By IBTN2020, 60 will have completed and behavioral and cognitive results of an interim analysis presented.

Conclusions: This transdiagnostic study draws on biological psychiatry, cognitive neuroscience, exercise physiology, behavior change and digital intervention techniques. In addition to sharing preliminary feasibility and outcome data, it provides an opportunity for discussion of novel trial designs.

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USER EXPERIENCES WITH A PILOT TEXT MESSAGING INTERVENTION AIMED TO SUPPORT PATIENTS WITH ACUTE CORONARY SYNDROME AFTER DISCHARGE

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Background: Acute coronary syndrome (ACS) is a leading cause of hospital admission. Many patients with ACS experience challenges after discharge. Text messaging (SMS) has the potential to reach these patients; however, there is limited knowledge about the effectiveness and acceptability of SMS programs during this period.

Objectives: To assess the acceptability of and users' experiences with a pilot SMS intervention that aims to support patients with ACS after discharge.

Methods: Seventy-six participants were recruited as inpatients and were randomized at discharge to receive usual care or a 60-day SMS program that included automated one-way messages with information on follow-up care, self-management and healthy living. We conducted semi-structured interviews with 18 participants who received the messages. Using thematic analysis, we identified themes regarding the program's design, user engagement, and the program's impact.

Results: Overall, participants liked the design and 90% indicated they were satisfied or very satisfied with the program. Many stated they looked forward to the messages and 95% read all the messages indicating high engagement. Perceived impacts of the program included making participants feel their recovery process was normal, feeling as if they were receiving social support, and reinforcing that they were on the right track. However, some participants did not feel they benefited much and as such did not change their behaviors.

Conclusion: The SMS program was well received and acceptable to most participants; however, not all felt that it impacted their recovery.

CORRESPONDING AUTHOR: Emily S Ross, BASc

ACUTE PHYSIOLOGICAL EFFECTS OF E-CIGARETTE IN HUMAN: A SYSTEMATIC REVIEW & META-ANALYSES

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Background: Electronic cigarettes (e-cig) were introduced to the market in 2004 as a smoking cessation device and since then millions of people have become e-cig users. At present, teenagers and young adults have been reported as the largest groups among those users. However, several cases of recent deaths & clinical incidents related to e-cig have raised question about their safety.

Objective: To summarize the current literature observing the acute cardio-respiratory and inflammatory responses to smoking an e-cig in humans.

Method: Studies were searched in PubMed, SCOPUS, Web of Science and Cochrane Library till September 19th, 2019. Included articles were English or French language peer-reviewed articles that observed the pre-and post-physiological responses after acute smoking of an e-cig.

Result: Initially 14,039 relevant articles were found and after reviewing 63 full text articles, 32 studies were included. The preliminary meta-analysis results showed that e-cig use: increased in heart rate (Standardized mean difference [SMD]=

0.442; 95% CI 0.302 - 0.582), systolic (SMD= 0.241; 95%CI 0.143 - 0.340) & diastolic blood pressure (SMD= 0.581; 95%CI 0.368 - 0.794); and decreased exhaled nitric oxide (SMD= -0.270; 95%CI -0.466 - -0.075).

Conclusion: Initial results of our study suggest that acute smoking of e-cigs could have potential negative impacts on human health. These results should add to the larger discussion about the regulation of e-cigs.

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CONCEPTUALIZATION AND OPERATIONALIZATION OF PERSONALIZATION AND TAILORING OF BEHAVIOR CHANGE INTERVENTIONS: A SCOPING REVIEW

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Background: Recent advances in behavior science and artificial intelligence-based systems support moving from a "one size fits all" to a "precise behavior change" approach in health behavior change interventions, especially in digital health. However, attempts to use personalized and tailored approaches in behavior change interventions have been undermined by the lack of agreed definitions and classifications of these constructs.

Objective: To examine how personalization, tailoring and related constructs (e.g., adaptation) have been conceptualized and operationalized in health behavior change literature.

Methods: A scoping review is currently under work. Labels, definitions, measurement and techniques used for tailoring and personalization are being extracted from the literature and analyzed in a conceptual mapping.

Results: Data has been extracted from i. 70 conceptual papers/reviews and 50 behavior change intervention reports identified through a rapid review methodology, and from ii. 100 behavior change intervention reports that are part of a large dataset of papers used in the Human Behaviour Change Project. So far, few studies provide definitions and descriptions of personalization, tailoring, adaptation and related constructs. When available, definitions for these constructs are not clear or standardized, and presented considerable overlap.

Conclusion: Disentangling constructs and describing their features is a core step in shaping current knowledge about the characteristics of personalized and tailored behavior change. The findings from this review will contribute to an ontological framework of personalization and inform future interventions.

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A CROSS-SECTIONAL STUDY OF HEALTH TECHNOLOGY ASSESSMENTS IN THE AREA OF PUBLIC HEALTH

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Background: Public health (PH) interventions are the main pillars of sustainable health care systems. Health technology assessment (HTA) provides guidance in health policy decision-making, but is traditionally focused on clinical area. PH interventions are underrepresented in the HTA field, mainly due to their complex design and multidisciplinary nature.

Objectives: To provide a global mapping of HTA initiatives related to the assessment of PH technologies.

Methods: We conducted a survey across 85 European and international institutions from September 2018 to January 2019. The questionnaire covered questions regarding activities related to the evaluation of PH technologies, including existing evaluations of PH technologies and barriers to reaching a decision and implementation.

Results: We received 52 responses (35% from Europe; 27% and 19% from North and South America, respectively), mainly covering HTA agencies, public administrations and research institutes. Seventy-one percent of institutions engaged in HTA in the area of PH, and 80% of them evaluated fewer than five PH technologies in the period 2013 - 2018. Respondents reported 76 PH evaluations, including chronic disease screening, prevention of infectious diseases, maternal, pre-and neonatal screening. The most commonly reported barriers in HTA processes were: lack of data; conflicting stakeholder priorities; and methodological issues.

Conclusion: The present survey reports modest engagement of HTA institutions in the realm of PH technologies. Evaluation of behavioral interventions remains extremely rare. Reshaping and bridging current PH and HTA practices will be crucial for tackling the burden of both noncommunicable and communicable diseases.

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INTEGRATING CBT IN THE UROGYNECOLOGY CLINIC FOR WOMEN WITH ANXIETY AND URINARY SYMPTOMS: A PILOT RCT

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Background: Lower urinary tract symptoms (LUTS) greatly influence women's quality of life, including anxiety symptoms. Current methods to treat LUTS (e.g., physical therapy) do not address their emotional impact.

Objectives: 1) Test the feasibility of integrating psychotherapy within urogynecology. 2) Demonstrate that the Unified Protocol (Barlow et al., 2010), a manualized cognitive-behavior therapy (CBT), is an effective treatment for reducing anxiety and LUTS.

Methods: Women with LUTS and anxiety are recruited from Northwestern Medicine Integrated Pelvic Health Program (IPHP). Participants (current N=30, projected N=40) are randomized to intervention: CBT or supportive therapy (control). Participants attend 12 therapy sessions. LUTS, anxiety, and other indicators of psychological and physical functioning are assessed at baseline, mid-treatment, post-treatment, and at 3- and 6-month follow-ups. As the study is ongoing, this presentation focuses on preliminary analyses of baseline characteristics. This study is pre-registered (NCT03623880).

Results: At baseline, women endorsed bothersome LUTS: Pelvic Floor Distress Inventory (PFDI-20) M±SD=77.08± 62.77; urinary distress subscale score M±SD=40.12±27.10. Women also reported anxiety on the Patient Reported Outcomes Measurement Information System (PROMIS-29) M±SD=60.88±6.89. Anxiety was positively associated with pelvic floor distress, r=.20.

Conclusion: Women with LUTS experience anxiety greater than the population average. Moreover, LUTS are related to increased anxiety in this patient population. We expect that these women will benefit from CBT. Going forward, we will examine the effect of behavioral treatment on both emotional distress and urinary symptoms.

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PHYSICIAN PERCEPTIONS OF BEHAVIOR CHANGE COUNSELING SKILLS AND TRAINING

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Background: Non-communicable chronic diseases (NCDs) linked to poor health behaviors represent a major worldwide issue. While behavior change counseling (BCC) has shown efficacy in improving patient health outcomes, there are a number of barriers to physician training in this approach.

Objective: To inform the development of a BCC training program based on the needs of health-care professionals, this study aimed to gather physician insights on the matter.

Methods: An integrated knowledge translation (iKT) approach was used to gather input from medical specialists who routinely treat NCDs. Physicians were invited to complete an online questionnaire (LimeSurvey) on the importance of addressing health behaviors, confidence in their own BCC skills and necessity of training.

Results: A total of 80 physicians (22 cardiologists, 22 respirologists, 15 internists, 21 general practitioners) from 6 provinces completed the survey. Addressing health risk behaviors was ranked as very important (9.1/10). However, respondents were only moderately confident (5.3/10) in their BCC skills and moderately

interested (6.3/10) in BCC training programs. Interestingly, years of experience only affected one of these components, contradicting previous literature. The level of confidence was higher for physicians with 0–5 years (M=6.9, SD=1.4) of experience compared to those with 11–15 years (M=5.1, SD=1.4), suggesting a drop in confidence with time (t=4.116, p<0.05).

Discussion: Results highlight physicians' perceived importance and willingness to acquire BCC skills, which may be more relevant for more experienced physicians whose confidence seems to drop over time. Data will inform the design of a BCC training program and assessment tool.

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CARDIAC REHABILITATION SIGNIFICANTLY IMPROVES SURVIVAL AND CARDIORESPIRATORY FITNESS IN ELDERLY PATIENTS WITH MULTIMORBIDITY

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Background: Cardiac rehabilitation (CR) improves prognosis and exercise capacity among patients with cardiovascular diseases (CVD). These phenomena have historically been reported in the context of a CVD diagnosis exclusively, without consideration of co-existing diagnoses (i.e., multimorbidity) and typically in younger cohorts.

Objective: Characterize the impact of CR on survival and exercise capacity in elderly patients with multimorbidity.

Methods: 3,115 patients ≥65 years old with CVD and ≥1 other chronic condition (i.e., diabetes, chronic obstructive pulmonary disease, liver disease, renal disease and malignancy) were referred to a 12-week exercise-based CR program. Patients who completed CR completed a symptom-limited treadmill test pre- and post-CR to determine peak metabolic equivalents (METs).

Results: 1,718 patients (74 ±6 years, 71% male) did not attend CR while 1,397 (72 ±5 years, 81% male) completed CR. Those who completed were significantly younger and a higher percentage were male (p<0.001). Of 470 all-cause deaths during a tracking period of up to five years (48 ±17 months) post-CR referral, there were 364 deaths in patients not attending CR, and 106 in CR-completers. Kaplan-Meier analysis revealed survival was greater among patients completing CR (92.4% vs. 78.8%, log-rank chi square = 115.1, p<0.001). By Cox regression analysis (forward stepwise method), CR completion was the strongest predictor of survival (chi-square: 115.0, p<0.001). Age added significant predictive value (residual chi-square: 29.3, p<0.001) while sex did not (residual chi-square: .24, p=0.62). Peak METs increased (p<0.001) from baseline (6.0 ±1.8 METs) to post-CR (6.8 ±1.9 METs) in patients completing CR.

Conclusion: Elderly patients with CVD and multimorbidity significantly benefit from CR, from both a prognostic and functional perspective. Efforts should be made to ensure the advanced age-multimorbidity phenotype is not a barrier to CR participation.

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PRE-SURGICAL SELF-ESTEEM IS LINKED TO GREATER REDUCTIONS IN DEPRESSION FOLLOWING BARIATRIC SURGERY: THE MODERATING ROLE OF SEX

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Background: Bariatric surgery (BS) candidates report more somatic depressive symptoms; after surgery, cognitive symptoms show the steepest decline. Yet, reporting of somatic and cognitive symptoms vary by sex. Emotional processes, i.e., self-esteem, appear linked to lower somatic and cognitive depressive symptoms.

Objective: How pre-surgical self-esteem is linked to post-surgical depression and if this differs by sex.

Methods: 42 patients undergoing BS at the CIUSSS-NIM participated in this REBORN (REsearch on Bariatric care for Obesity tReatmeNt) sub-study (71% female; Mage=49.0, SD=11.5). Patients completed psychosocial questionnaires (Rosenburg Self-Esteem Questionnaire, Beck Depression Inventory[BDI]-II) 3-months pre- and 6-months post-surgery.

Results: Adjusting for age, antidepressants, BMI-change and baseline BDI, there was a baseline self-esteem by sex interaction with 6-month post-surgical BDI, F=8.69,p=.005. Higher self-esteem was linked to lower BDI in men (b=-0.92,p=.001), but not in women (b=-0.07,p=.641). Baseline self-esteem interacted with sex in the association with 6-months post-surgical BDI-somatic scores when adjusting for BDI-cognitive scores, ΔR2=.08, F(1,33)=5.57,p=.024. Baseline self-esteem was linked to lower BDI-somatic scores for men (b=0.76,p=.004), but not women (b=-0.14,p=.304). Self-esteem nor sex were linked to changes in BDI-cognitive at 6-month follow-up.

Conclusion: Higher pre-surgical self-esteem in men, but not women, is associated with larger reductions in depressive symptoms, particularly somatic. Behavioral interventions following BS ought to focus on somatic symptoms of depression, particularly among men with higher self-esteem and women, as these tend to persist following surgery.

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RESEARCH PROTOCOL: ONLINE TRAINING PLATFORM FOR TYPE 1 DIABETES SELF-MANAGEMENT EDUCATION AND SUPPORT (SUPPORT)

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ClinicalTrials.gov Identifier: NCT04233138.

Background: Hypoglycemia and its related fear are barriers for optimal glycemic control for people with type 1 diabetes (PWT1D). New therapies (new insulins, nasal glucagon) and technologies (continuous glucose monitoring, insulin pumps) have the potential to improve glycemia management and decrease hypoglycemia. However, training on how to optimally use these is lacking.

Objective: To evaluate if the SUPPORT online training platform will decrease the frequency or fear of hypoglycemia after 6 months.

Methods: The content of the SUPPORT online platform is based on the Behavior Change Wheel. It is divided in 6 categories: medication, glucose monitoring, hypo- and hyperglycemia, nutrition, physical activity, health and other considerations. Each participant will have a different training path based on their treatment (multiple daily injection or insulin pump) and glucose monitoring method. Adults participants (n=568) will be recruited from the BETTER registry, and will be randomized in the intervention (immediate access to SUPPORT) or control group (6-month deferral) following a 2:1 ratio. Outcomes will be measures through online questionnaires at baseline and after 6 months of using the platform. Comparison will be done among the two groups.

Results: Impact on the frequency of hypoglycemia (number of blood glucose under 4 mmol/L in the last 3 days) and the fear of hypoglycemia measured with the Hypoglycemia fear survey-II will be assessed.

Outcome: Once validated, the SUPPORT online training platform should allow PWT1D to understand the use of the technologies and therapies and optimize their self-management abilities to decrease the frequency or the fear of hypoglycemia.

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THE ASSOCIATION BETWEEN FOOD ADDICTION, BODY MASS INDEX, AND BODY WEIGHT: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background: Aspects of obesity are associated with a wide range of health behaviors including unhealthy eating. Food addiction (FA) is an addictive behavior, which causes responses to food rewards similar to conditions like alcohol abuse or smoking.

Objective: To determine the relationship between body mass index, body weight and FA.

Methods: A systematic review was conducted in PubMed and SCOPUS, from database onset up to May 2019, to identify observational studies investigating the relationship of body mass index and body weight with FA, as measured by the Yale Food Addiction Scale (YFAS). A random effects model was used to calculate the pooled effect size.

Result: Overall, 557 articles were screened, of which 7 full-text articles were included. The random effects meta-analysis revealed that participants with FA had higher BMI (4.6 kg/m2, 95% CI: 2.5, 6.8; P <0.001) and higher body weight (15.2 kg, 95% CI: 6.8, 23.5; P <0.001) compared with their non-FA counterparts. According to subgroup analysis, age and sex were reported as the sources of heterogeneity. A meta-regression found a positive correlation coefficient between YFAS and BMI (r=0.305; 95%CI: 0.178, 0.432, P<0.001).

Conclusion: This study suggests that FA may be associated with increased risk of higher BMI or body weight. These findings provide a platform for the development of appropriate interventions to prevent or treat certain aspects of obesity, where targeting FA may be an important component of a behavioral weight management program.

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