# IWCH ABSTRACTS

## Impact of Cannabis on Female Reproduction & Preimplantation Embryonic Development: A Review of the Literature

**DANIELLE CAMPAGNOLO, MBS[1]; LAURA A. FAVETTA, PHD[1]**
[1]Department of Biomedical Sciences, Ontario Veterinary College, University of Guelph

Endocannabinoids are natural ligands of cannabinoid, vanilloid, and peroxisome proliferator-activated receptors. These ligands, alongside their receptors, enzymes, and signaling targets, form the endocannabinoid system (ECS). The ECS has been implicated in the functioning of the hypothalamic-pituitary-ovarian (HPO) axis and components of the ECS have been localized to the reproductive tissues. Further, it is involved in mammalian folliculogenesis, oocyte maturation and transport, and preimplantation embryo development. Exogenous cannabinoids such as delta-9-tetrahydrocannabinol ($\Delta$9-THC — the main bioactive component in cannabis) have been known to cause dysregulation of the ECS as they bind to the same cannabinoid receptors as ECS ligands. Unfortunately, effects of cannabis use on human female reproduction and early stages of embryonic development remain largely uncertain due to ethical restrictions and study design heterogeneity. However, results from animal and in vitro studies have been useful in understanding cannabinoids' impact on human reproduction and preimplantation embryonic development. Hence, in this review, data from various study types were analyzed to understand the effects of cannabis on maternal and fetal outcomes. Use of cannabis is likely to offset the balance of endocannabinoid signaling necessary for proper HPO axis function. Cannabis has also been shown to exhibit direct and irreversible reprotoxic effects on ovarian tissues and developing follicles. Studies on endocannabinoid tone in the reproductive tract also suggest that $\Delta$9-THC is disruptive to oocyte tubal transport, sperm capacitation in the female reproductive tract, fertilization, and appropriate embryonic development. Given the recent legalization in Canada and the significant increase in $\Delta$9-THC concentrations in cannabis over the past decade, understanding the consequences of its consumption on reproduction is of

## The Use of eHealth and mHealth Technologies for Menopausal Transition - Achievements and Knowledge Gap

**DANIEL D'SOUZA[1], DR. PING ZOU, PHD[2]**
[1]Faculty of Engineering and Health Sciences, McMaster University
[2]School of Nursing, Nipissing University

Menopause is the permanent cessation of menstrual cycles, marking the end of a female's reproductive age. Menopause, perimenopause, and postmenopause may involve intense physical and psychological symptoms. eHealth has emerged as an alternative in delivering treatment and education to patients. Subsequently, the recent addition of mobile health (mHealth) as a subdivision of eHealth via personal mobile devices poses benefits for menopausal women. This project aims to review the literature for eHealth and mHealth design, and its efficacy among this demographic. To achieve this, several databases were reviewed for original quantitative studies about eHealth, mHealth, and menopause, yielding 15 results. The main findings were that both interventions were feasible in terms of usability, cost, and acceptance. Moreover, these interventions appeared to be more effective than conventional methods in addressing physical and psychosocial health outcomes. It is important to acknowledge that issues did arise in experimental design, such as inadequate patient and provider involvement. Therefore, while eHealth and mHealth represent viable platforms for healthcare delivery among menopausal women, further research and improvements to experimental design are required before they can be operationalized on larger scales. Future studies should aim to diversify sample populations in socioeconomic status and ethnicity, as well as lengthen follow-up periods to discern the true effect of these interventions.
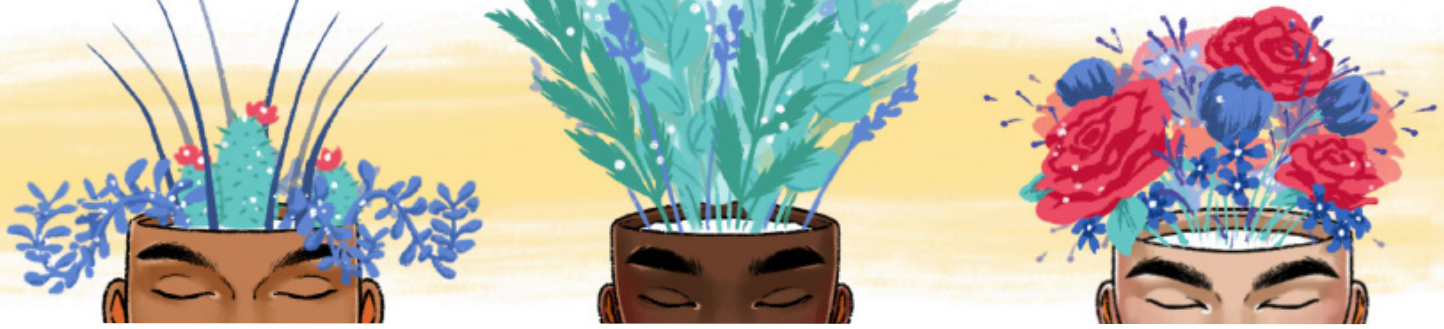
# Effects of mHealth Interventions on the Depression, Anxiety, and Quality of Life of Breast Cancer Patients

**SABRINA L. BALKARAN[1], DR. PING ZOU, PHD[1]**
[1]Department of Nursing, Nipissing University,

Introduction: Insufficient initiatives exist to support the psychological health of women upon receiving a breast cancer diagnosis. This systematic review explored the facilitators, barriers, and effects of mobile health (mHealth) interventions on the depression, anxiety, and quality of life of breast cancer patients.

Methods: A total of 11 databases were searched for quantitative studies assessing the effectiveness of mHealth interventions on depression levels, anxiety levels, and the quality of life of breast cancer patients. Search terms included patient characteristics (i.e. breast cancer), intervention elements (i.e. mHealth), and outcome measures (i.e. depression).

Results: Among 1232 articles, 29 studies met the selection criteria and were reviewed. Significant increases in the quality of life of patients were reported in 67% of studies that listed it as an outcome. In studies that listed depression and anxiety as an outcome, 62% reported significant decreases in anxiety, while 38% reported no changes. Additionally, 62% of included studies reported significant decreases in depression levels, while 38% reported no changes. Barriers to mHealth use included difficulty with navigating apps, as well as the patient desire for more content-specific catering of mHealth apps to their needs.

Conclusions: mHealth interventions may be beneficial in improving the quality of life of breast cancer patients. Current information is insufficient to draw strong conclusions on whether mHealth interventions affect depression and anxiety in this demographic. Larger, multicenter studies should be conducted to strengthen the findings on quality of life and to inform on the effects of mHealth. Further studies should be conducted to address the barriers to mHealth application use.

# Incident depression in midlife women attending a menopause clinic is associated with a history of childhood maltreatment

**ALISON K. SHEA, MD, PHD, FRCSC[1,2,3], BENICIO N. FREY, MD, PHD[3,4], NICOLE GERVAIS[1], ANA LOPEZ[5], LUCIANO MINUZZI, MD, PHD[3,4]**
[1]Department of Obstetrics and Gynecology, Faculty of Health Sciences, McMaster University
[2]The Research Institute, St. Joeseph's Healthcare
[3]Department of Psychiatry and Behavioural Neurosciences, Faculty of Health Sciences, McMcaster University
[4]Women's Health Concerns Clinic, St. Joeseph's Healthcare
[5]Faculty of Health Sciences, McMaster University

A growing body of literature has suggested that, for some women, the perimenopausal and early post-menopausal years are associated with an increased risk of depression symptoms and the development of first-onset and recurrent episodes of major depressive disorder. Although multiple risk factors have been identified, including stressful life events and lower socioeconomic status (SES), early life adversity may also have enduring effects on mental well-being later in life. The objective of this study was to characterize the influence of childhood maltreatment and incident depression among women experiencing bothersome menopausal symptoms. Findings from this cross-sectional cohort indicate that adverse childhood experiences, as measured by the Childhood Trauma Questionnaire (CTQ), were highly prevalent among women seeking care for bothersome menopausal symptoms (66%). Furthermore, a greater score on the CTQ was significantly associated with both major depressive episodes, as estimated using the Center for Epidemiologic Studies Depression Scale, and a greater burden of menopausal symptoms. This association persisted after adjusting for confounding. Our findings lend support to the growing body of literature suggesting that early life stress affects health well into adulthood.