



ABSTRACTS: VOLUME 8, SPECIAL ISSUE {8th Undergraduate Conference}

ASSOCIATION BETWEEN FKBP5 SINGLE-NUCLEOTIDE POLYMORPHISMS AND GENETIC SUSCEPTIBILITY TO CONTINUOUS TRAUMATIC STRESS (CTS) IN PALESTINIANS LIVING UNDER SETTLER COLONIALISM

Christina Anastas¹, Abdelmajeed Nasereddin^{1,2*}

Supervisor: Dr. Abdelmajeed Nasereddin^{1,2}

¹ Al-Quds Bard College, Al-Quds University, Abu Dis, Palestine

² Faculty of Medicine, Al-Quds University, Abu Dis, Palestine

¹ Molecular Genetics Program, Al-Quds Bard College, Palestine

Abstract

Background: Continuous traumatic stress (CTS) caused by persistent structural violence has massive and long-term psychological and biological consequences, yet its genetic basis is not well understood in affected populations. Palestinians are subjected to constant stress as a result of settler colonial violence, systematic racism, and oppression, all of which not only shape everyday life but also affect the human genome.

Objectives: This study aimed to identify whether genetic variations in the FKBP5 gene, a key modulator of the hypothalamic-pituitary-adrenal (HPA) axis, are responsible for differences in susceptibility to CTS among Palestinians living under these conditions. Specifically, it aimed to determine the frequency of FKBP5 rs1360780 and rs3800373 polymorphisms in this population and assess their association with trauma symptoms using an adapted Clinical-Administered PTSD Scale for DSM-5 (CAPS-5) model.

Methods: Twenty-seven participants from the West Bank were recruited, focusing on high-risk groups including refugees and former political prisoners. Buccal swab samples were collected for DNA extraction, polymerase chain reaction (PCR) amplification, and amplicon-based Next-Generation Sequencing (NGS) for SNP genotyping. Participants were classified into PTSD (n = 11) and non-PTSD (n = 16) groups, with 74.1% (n = 20) identified as high risk for continuous traumatic stress (CTS) and over 40% meeting traumatic stress diagnostic criteria. For rs3800373, the AA genotype was most frequent (48.1%), followed by AC (18.5%) and CC (14.8%), with 18.5% missing data. For rs1360780, the CC genotype was also most frequent (48.1%), with CT and TT genotypes comprising 18.5% and 14.8% of participants, respectively. Statistical analysis indicated that rs1360780 (C/T) was significantly associated with trauma exposure type (p = 0.004), symptom severity (p = 0.024), and CTS risk level (p = 0.024), whereas rs3800373 (A/C) showed no significant associations (all p > 0.05).



PalStudent Journal
A Palestinian Scientific Journal for the Youth



Results: These findings indicate that while genetic factors may increase vulnerability to continuous traumatic stress among Palestinians, such risks are inseparable from the ongoing structural violence that sustains them. This perspective reframes trauma as a collective issue and affirms the necessity of addressing its structural roots.

Keywords: Post-Traumatic Stress Disorder, FKBP5, Genomics, HPA axis, Single-Nucleotide Polymorphism, Epigenetics, Continuous Traumatic Stress, Settler Colonialism, Systematic Violence, Palestine, Next-Generation Sequencing.