

# SILENT BATTLES:

## Reviewing the Impact of War on Endometriosis Patients

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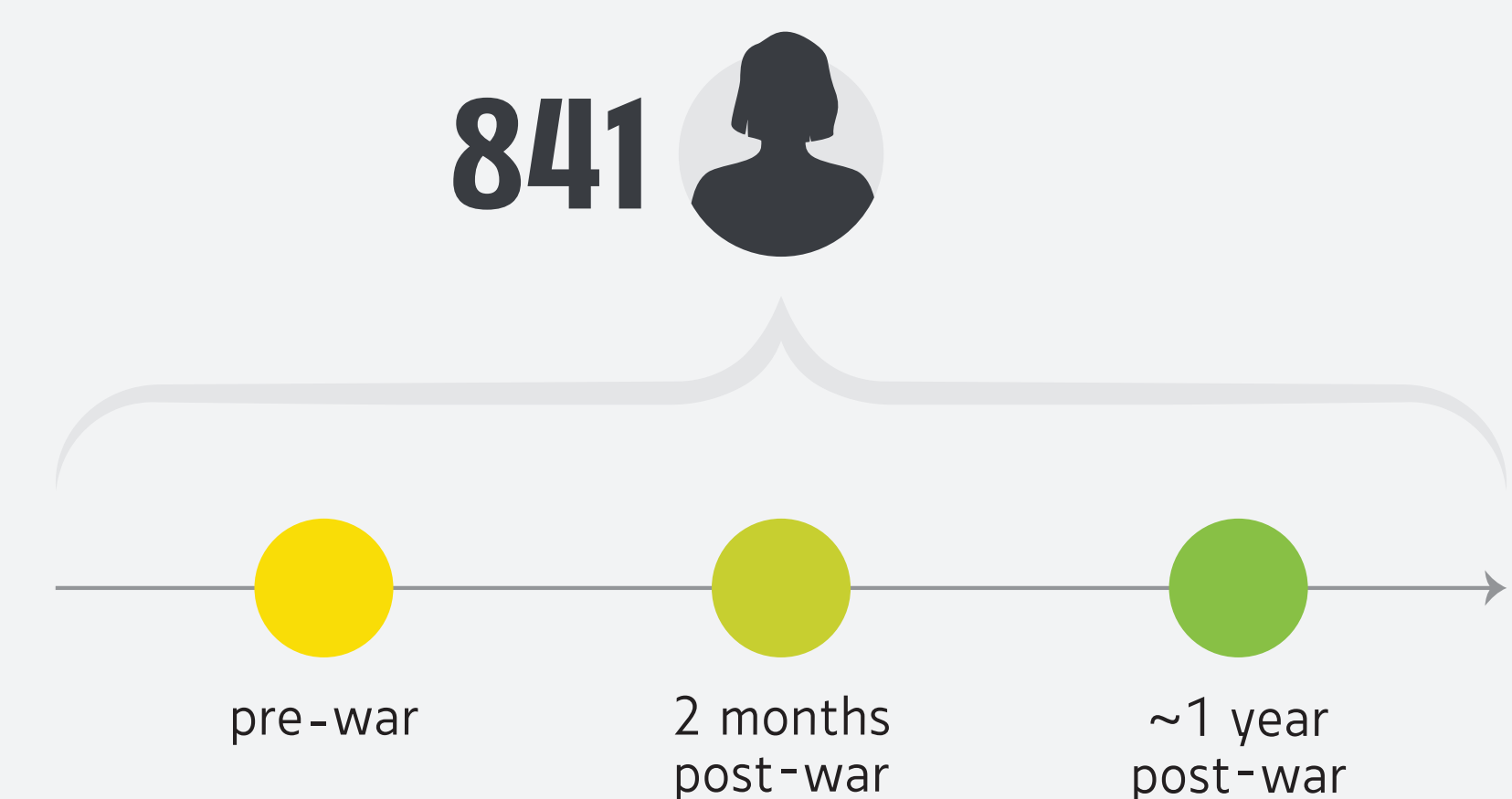
## BACKGROUND

Endometriosis affects 1 in 10 women of reproductive age worldwide, characterized by the growth of endometrial-like tissue outside the uterus, and causing debilitating symptoms such as persistent pelvic pain, irregular menstrual cycles, dysmenorrhea, dyspareunia, infertility, and chronic fatigue, that impair quality of life. While stress is a documented factor in exacerbating endometriosis symptoms, limited research exists on the impact of extreme stressors like war on disease progression. Following the October 7th 2023 attack, Israel has been involved in ongoing conflict on multiple fronts.

**Aim:** This study explores war's effects on women with endometriosis, focusing on symptom severity, physical/mental health, and illness perception.

## MATERIALS AND METHODS

A cross-sectional survey study was conducted in Israel in August 2024, recruiting 841 women with confirmed diagnosis of endometriosis and/or adenomyosis through social media platforms and endometriosis clinics. The survey assessed the impact of the war on participants' lives, physical, and mental health using validated questionnaires across three timepoints (pre-war, 2 months post-war, ~1 year post-war): *Participants' medical condition status* assessed by the general self-rated health (GSRH). *Endometriosis symptoms severity* was assessed using a self-reported rating scale of various symptoms. *Anxiety & depression* assessed by the Patient Health Questionnaire-4 (PHQ-4). *Illness personification* assessed by the Ben-Gurion University Illness Personification Scale (BGU-IPS), and *War-related stress* was measured using a 4-item scale focusing on subjective threat perception.



## RESULTS

### War exposure

- 82.8% of participants were directly affected by war-related stressors (N=841).
- 29% reported impaired healthcare accessibility such as cancelled appointments (N=648).

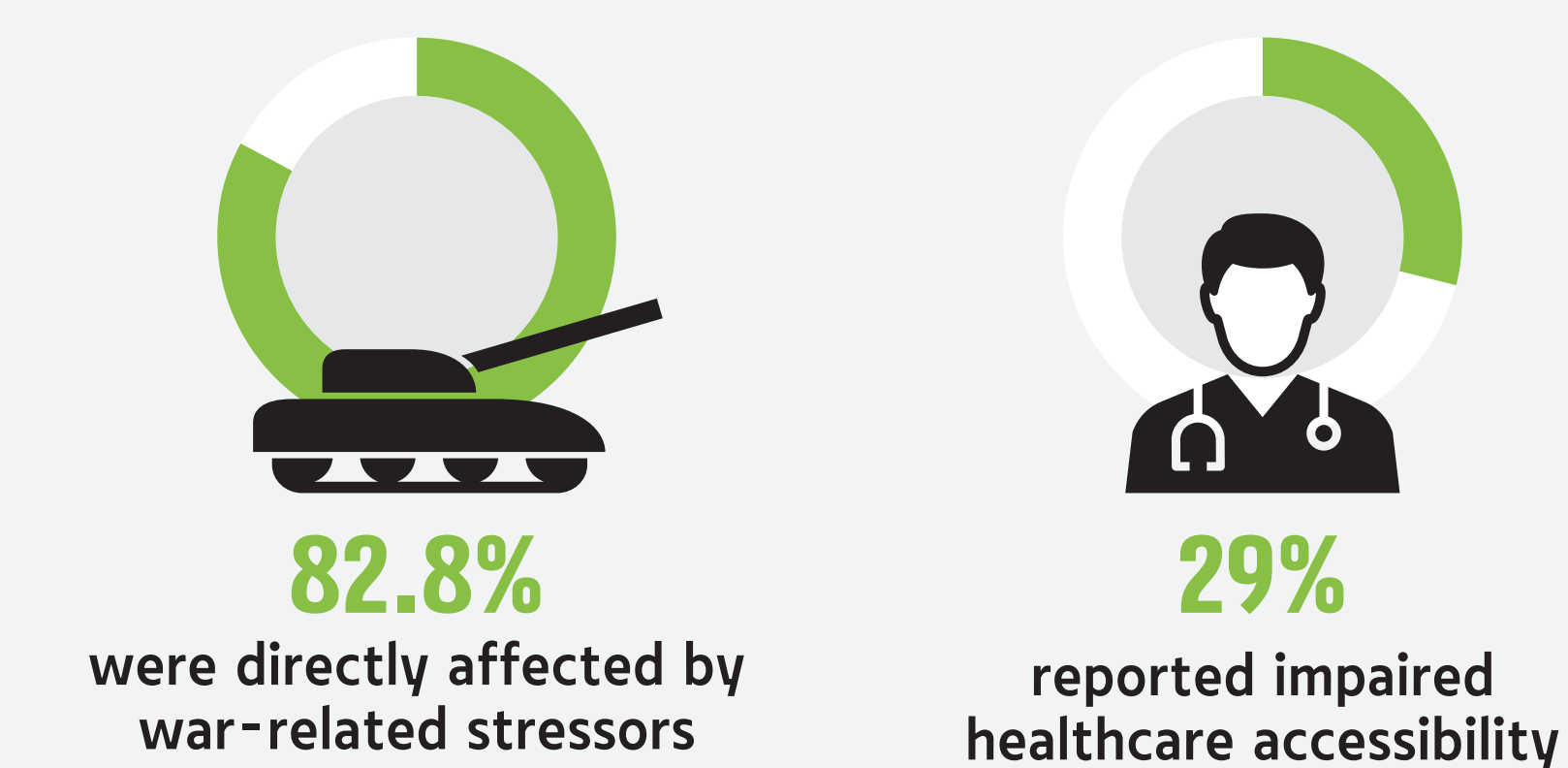
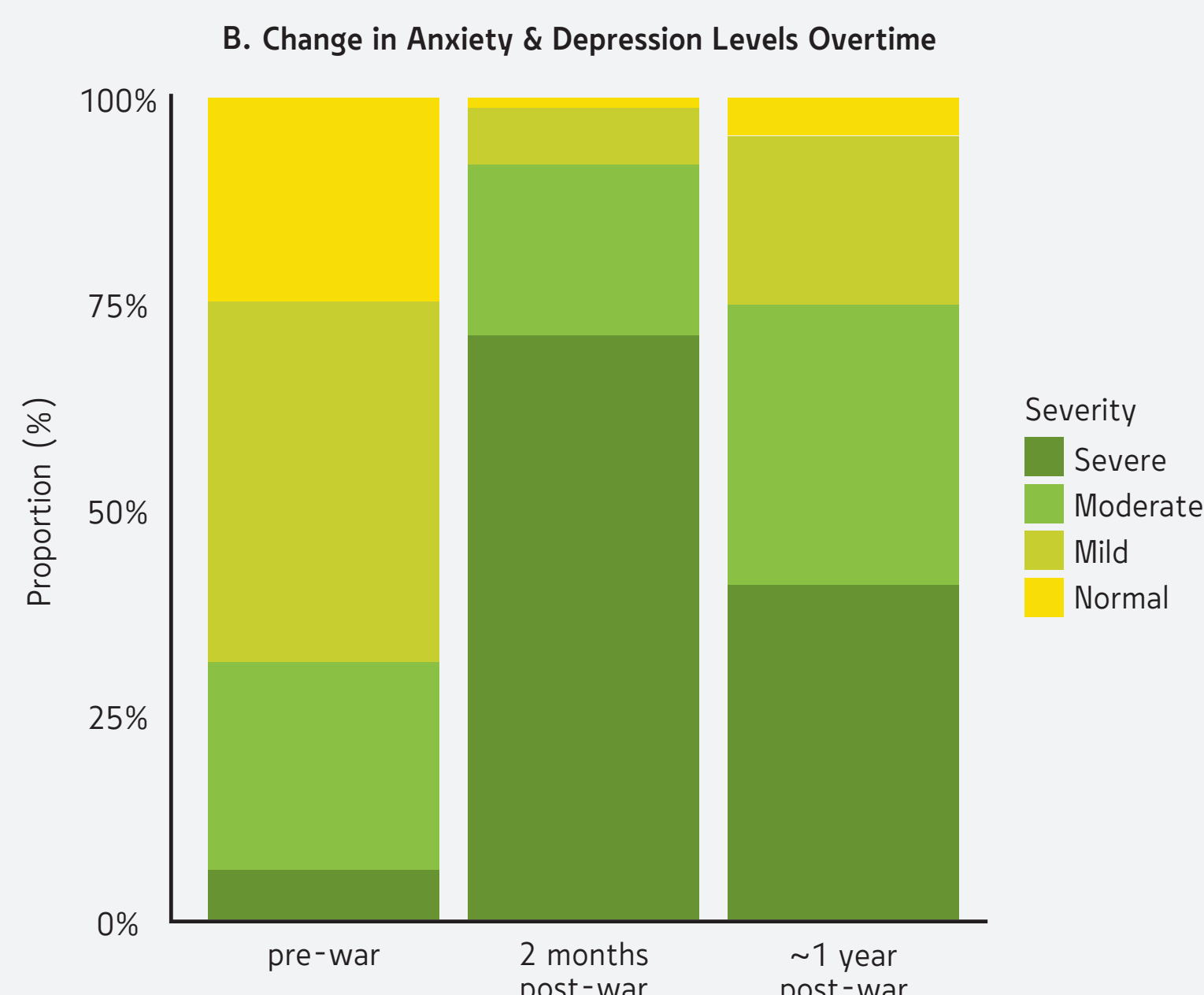
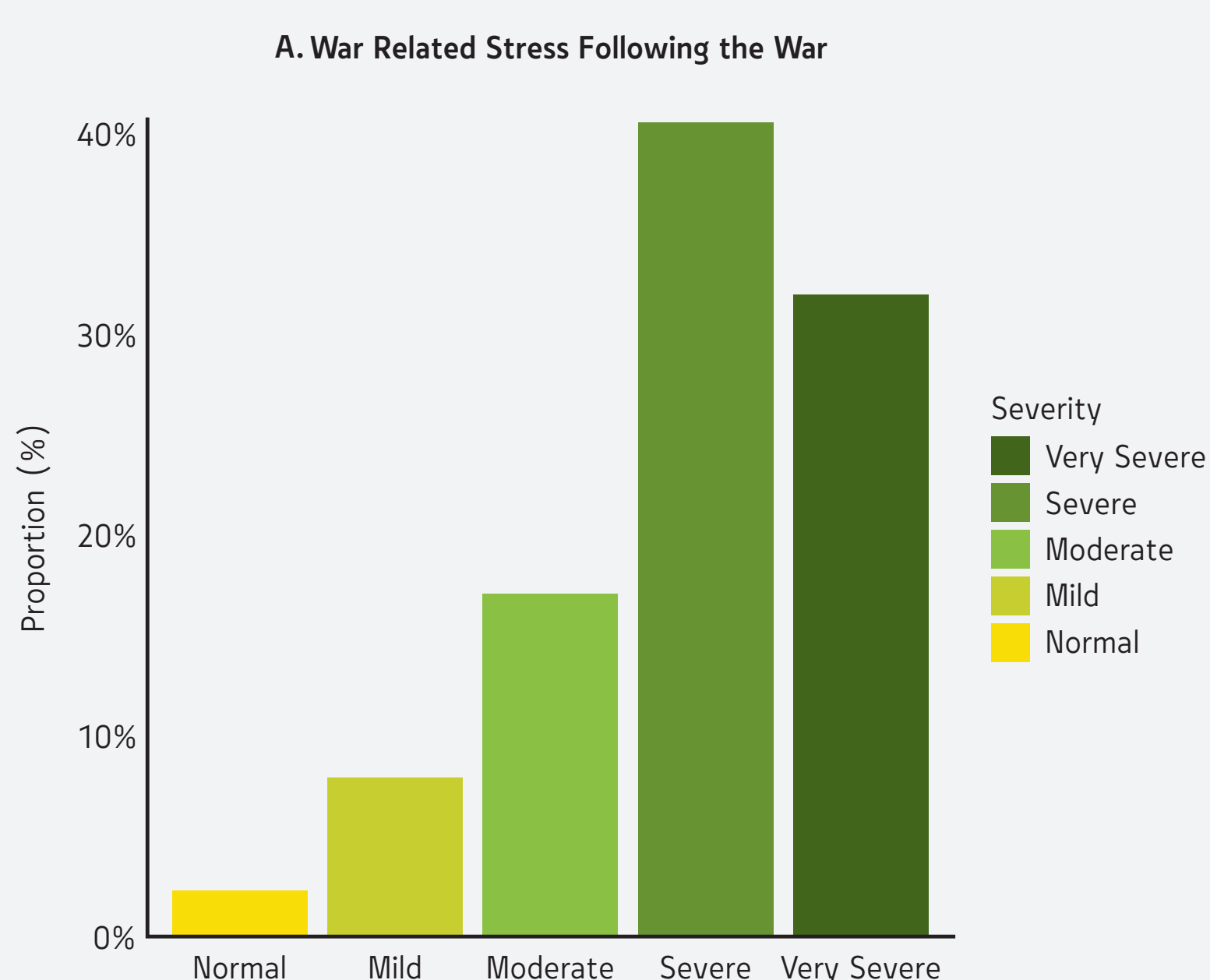


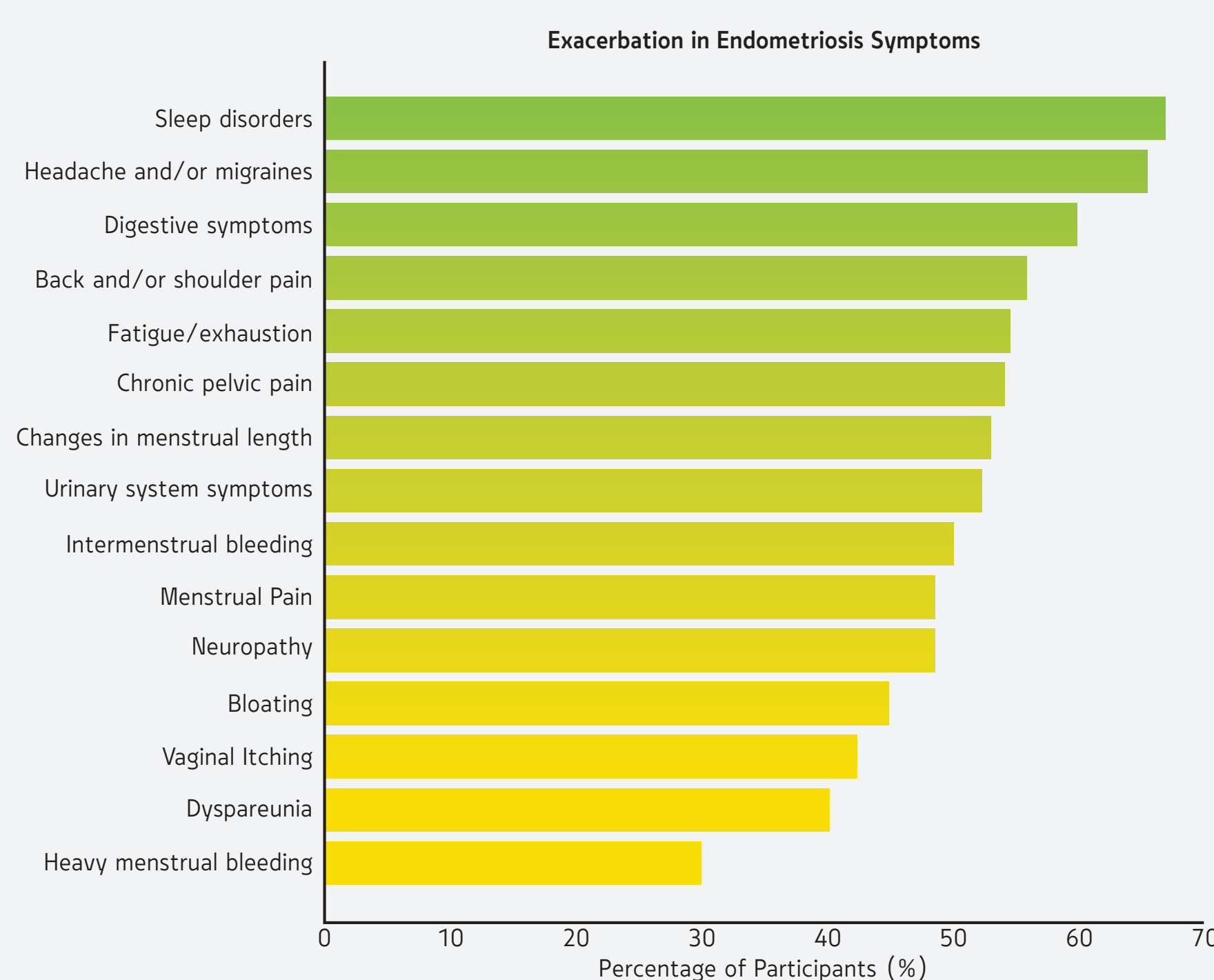
Figure 1: Mental health impacts



(A.) Severity of war related stress following the war and (B.) Severity of anxiety & depression following the war. P= p-value of Friedman test for paired repeated measures.

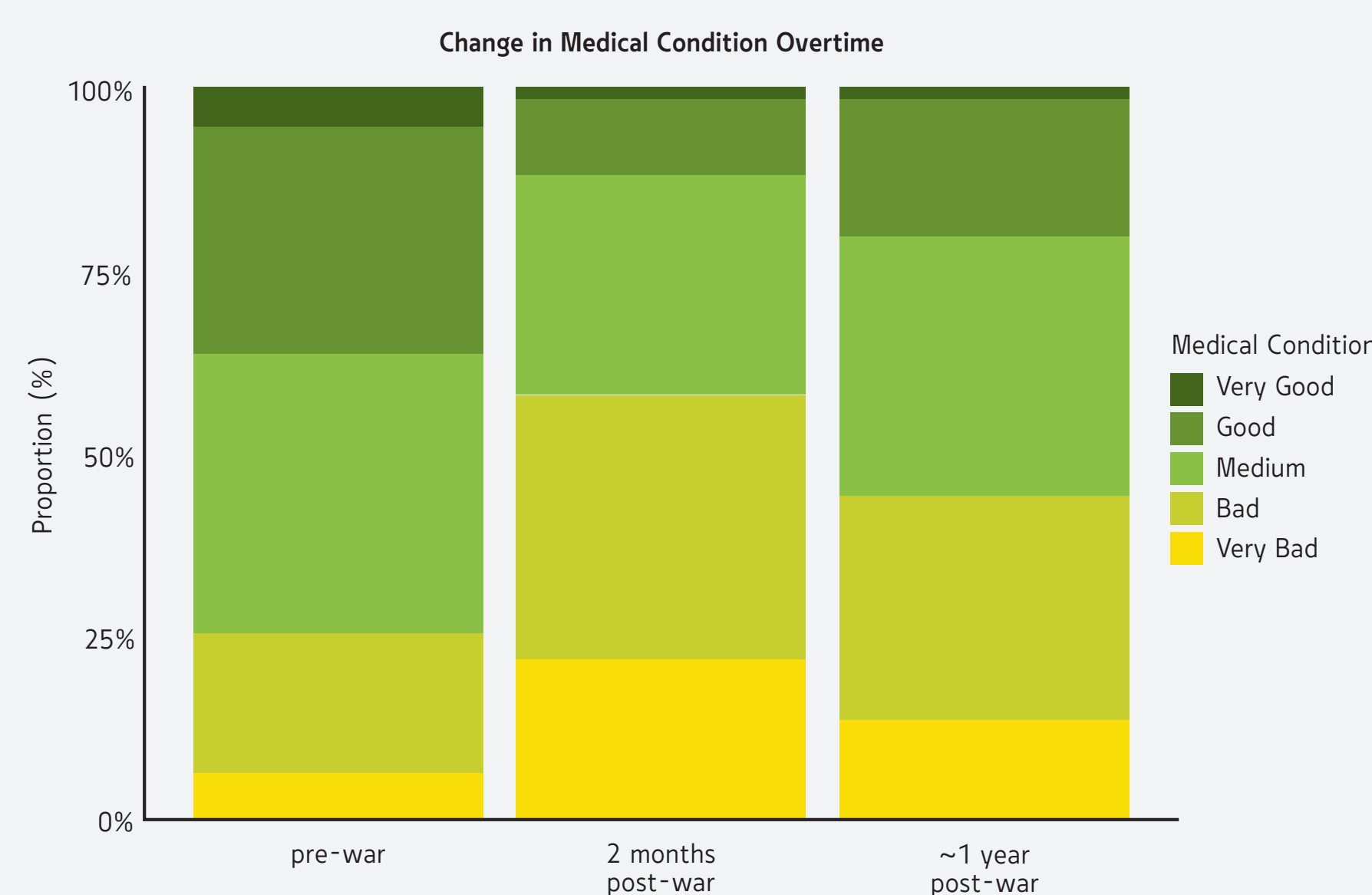
- Anxiety rates increased from 34.7% pre-war to 94.1% post-war.
- Depression rates increased from 39.6% to 89.3%.
- 72.6% experienced severe or very severe war-related stress.
- Mental health deterioration showed dose-dependent correlation with exposure to war-related stress levels ( $r=0.36$ ,  $p<0.001$ ).

Figure 2: Exacerbation in endometriosis symptoms 2 months post-war



- 77.4% reported worsening endometriosis symptoms.
- All specific symptoms, including pelvic pain, digestive and urinary symptoms, dyspareunia, fatigue and more, showed significant deterioration ( $p<0.001$ ).

Figure 3: Medical condition severing



Change in medical condition overtime. P= p-value of Friedman test for paired repeated measures.

- There was aggravation of participants' medical condition over time, with initial escalation at two months post-war and a sustained but slightly reduced level a year later ( $p<0.001$ ).
- 62.5% indicated overall medical decline.
- Worsening in participants' medical condition was significantly correlated with the number of war-related stressors ( $r=0.16$ ,  $p<0.001$ ), their war-related stress levels ( $r=0.24$ ,  $p<0.001$ ), and their anxiety & depression levels ( $r=0.21$ ,  $p<0.001$ ).

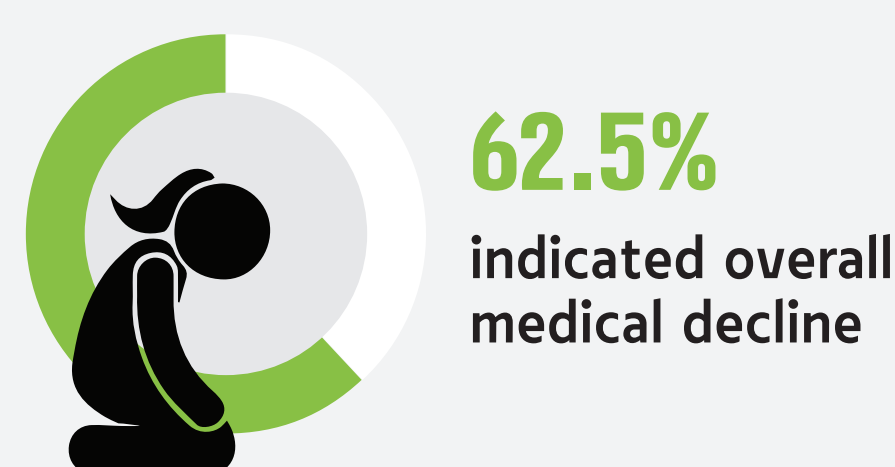


Figure 4: Worsening in daily activities since the beginning of the war



38.9% and 14.4% of participants reported increased usage of pain and hormonal medications, respectively, indicating higher symptom-management needs (N=651).

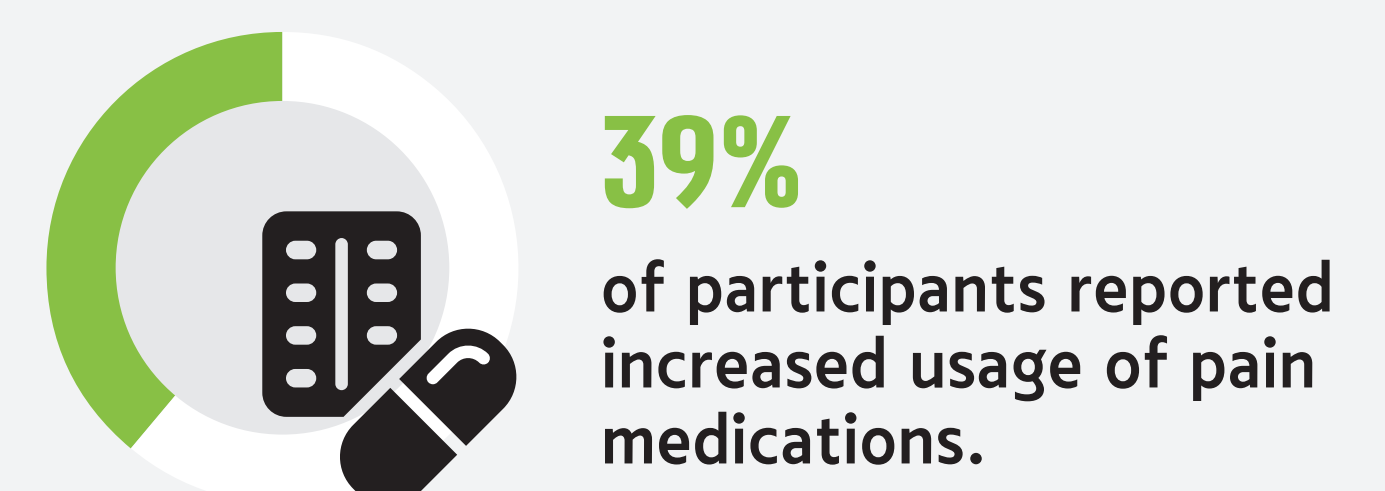
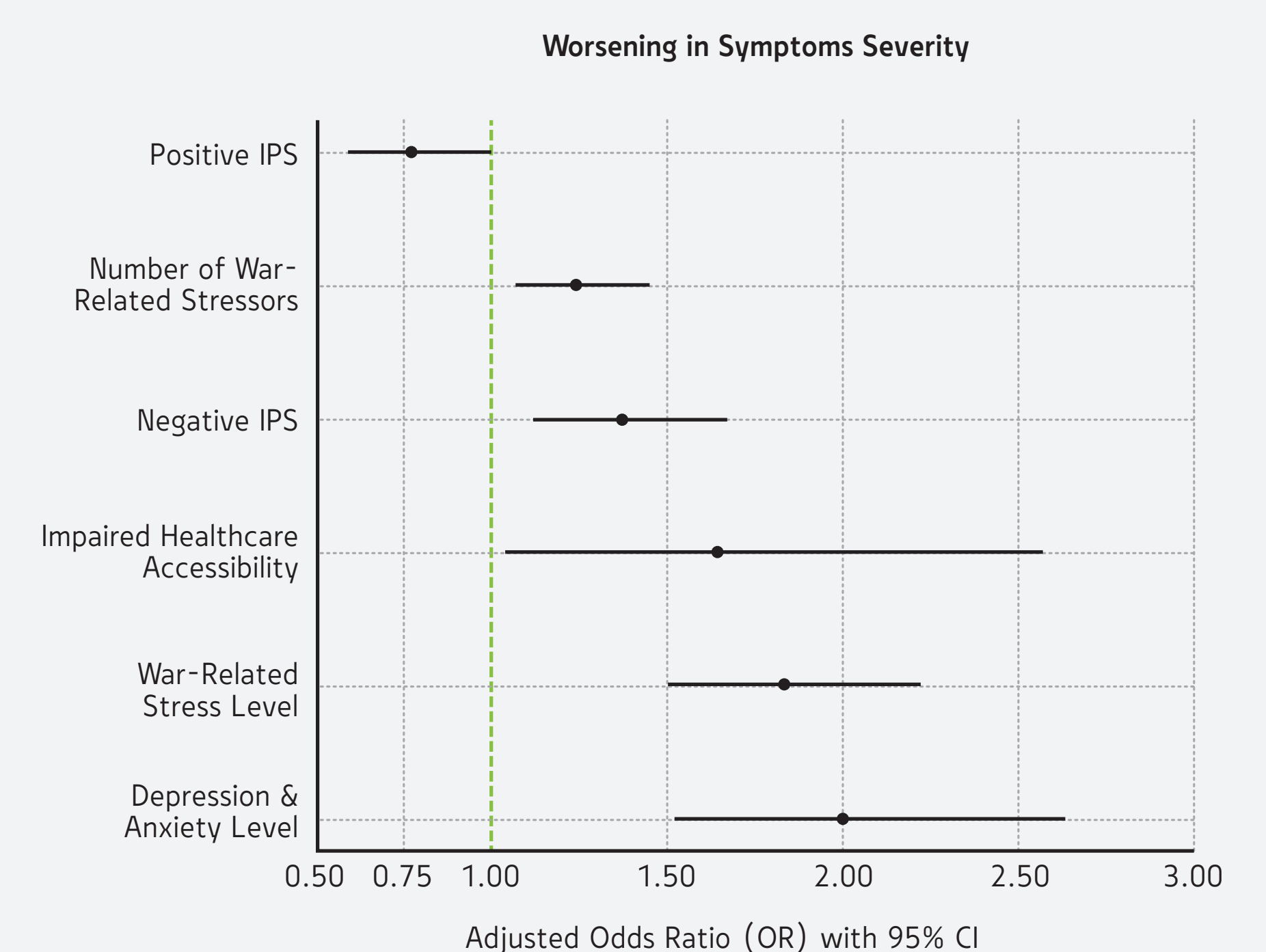
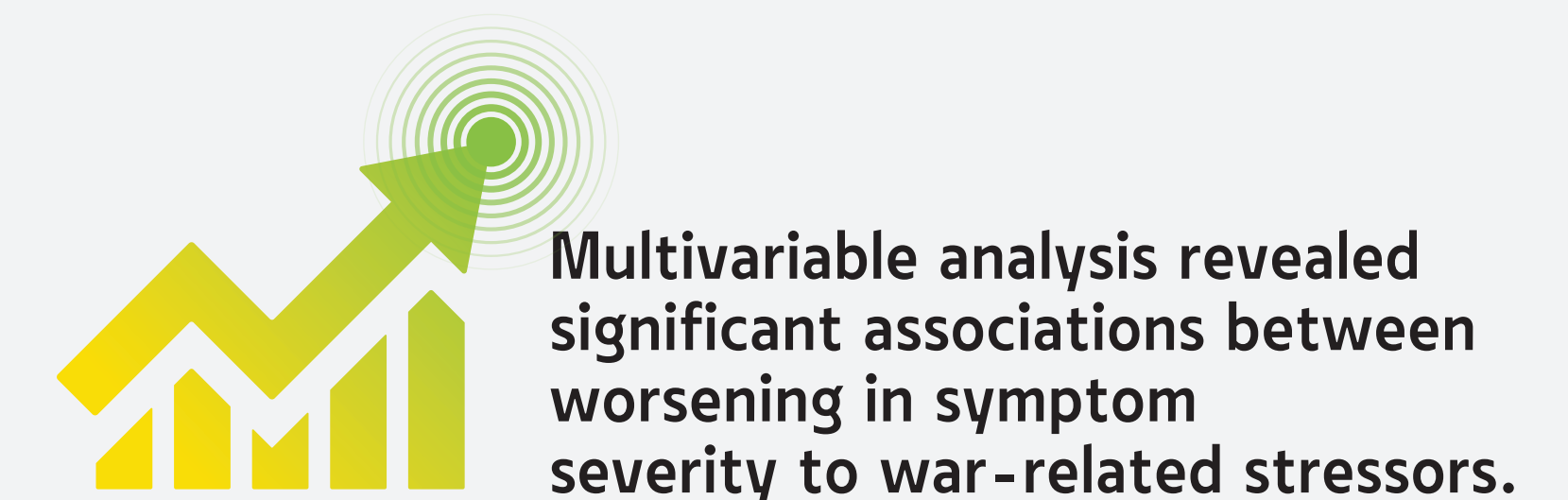


Figure 5: The impact of war on worsening endometriosis symptoms severity.



Multivariable logistic regression adjusted to potential confounders. The dots represent the adjusted odds ratio (OR) and the whiskers represent the 95% confidence interval (CI).

- Multivariable analysis revealed significant associations between worsening in symptom severity and medical condition severing to war-related stressors, war-related stress levels, depression and anxiety levels, impaired healthcare accessibility, and negative illness personification (IPS) levels, even after adjusting for healthcare accessibility and other potential confounders.



## CONCLUSIONS & RECOMMENDATIONS

War had profound impact on both the mental and physical health of endometriosis patients. Findings suggest that external stressors and psychological distress directly affect and exacerbate symptoms of chronic conditions like endometriosis.

The research findings highlight the need for implement targeted healthcare interventions and psychological support for endometriosis patients during times of conflict or extreme stress, and to maintain healthcare accessibility for vulnerable populations during national crises. Furthermore, the findings indicate a need to create comprehensive support strategies addressing both symptom management and psychological wellbeing.

Further longitudinal research is needed to establish causality between war-related stress and symptom exacerbation.