



# Understanding Fatigue in Chronic Pelvic Pain patients: a Translational Research in Pelvic Pain (TRiPP) study



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## Introduction

Chronic pelvic pain (CPP) is a common condition affecting up to 26.6% of women, has a significant impact on the patient's quality of life and comes with associated costs. Fatigue is a frequent comorbid symptom of CPP but is not well understood<sup>1,2,3</sup>.

The Translational Research in Pelvic Pain (TRiPP) project takes a deep phenotyping approach to improve understanding of the mechanisms underlying pelvic pain with a focus on endometriosis associated pain and interstitial cystitis/bladder pain syndrome (IC/BPS). The present study focuses on fatigue as a multifactorial symptom of CPP and aims to examine its interactions with different types of physical pain and measures of psychological wellbeing.

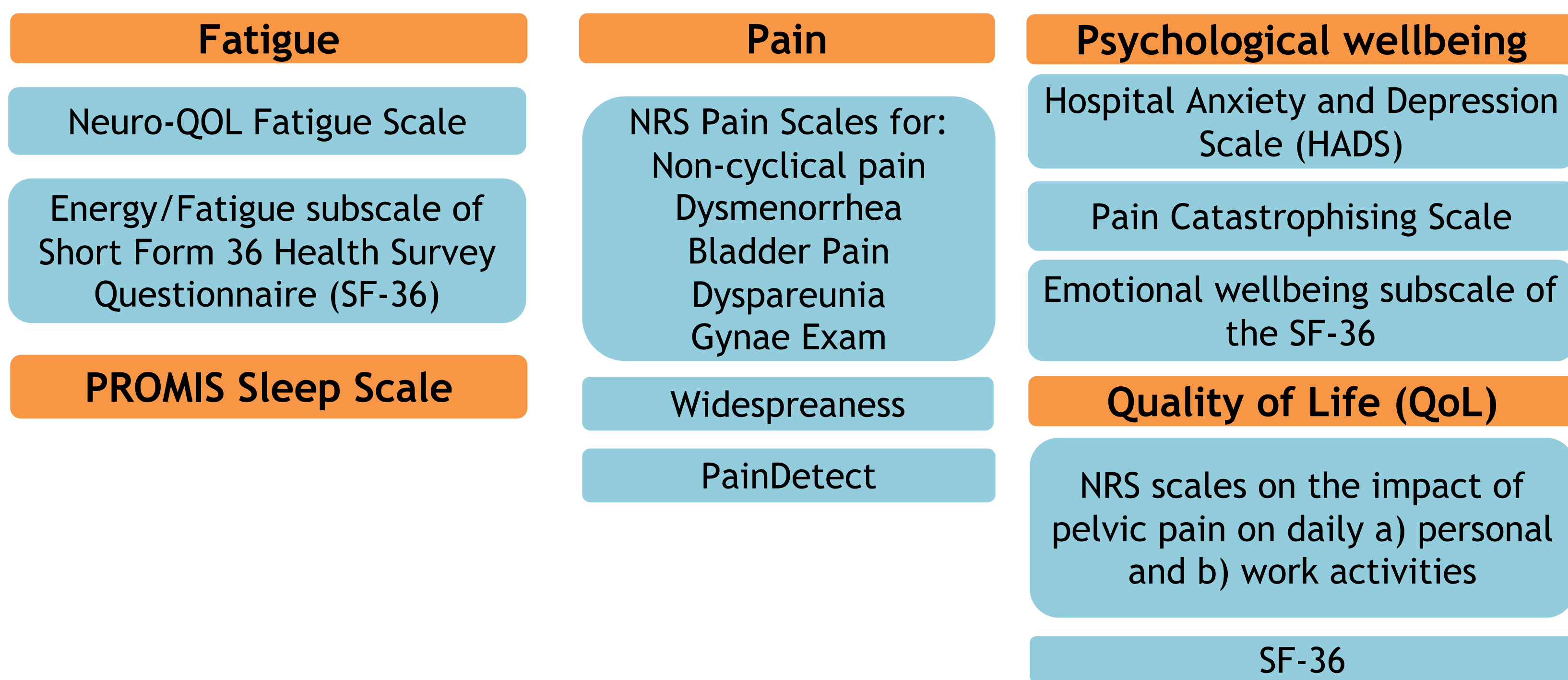
## Hypothesis:

❖ Fatigue measures will have significant associations with measures of pelvic pain and quality of life and that fatigue will be explained by pain and psychological wellbeing factors.

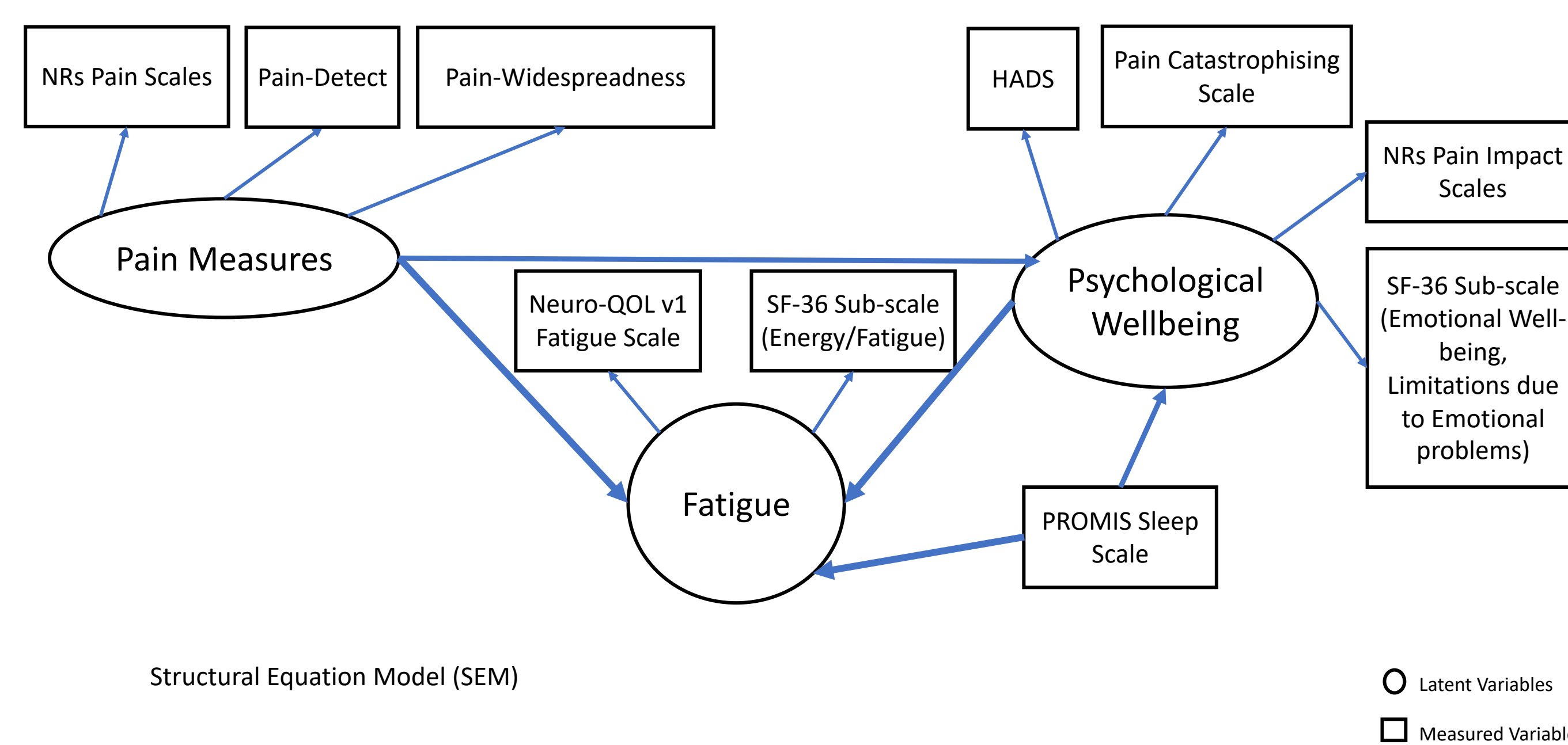
## Methods

The participants were women of reproductive age (18-50 years) recruited from the TRiPP cohort, which comprises 785 women from one of the three study sites: Oxford, Boston and Porto (Ethics reference 19/YH/0030). Only women with CPP were included in this analysis and all participants scored >4/10 on at least one pelvic pain numerical rating scale (NRS).

Participants completed a set of validated questionnaires including detailed assessments of fatigue, sleep, pain, psychological wellbeing and quality of life QoL.



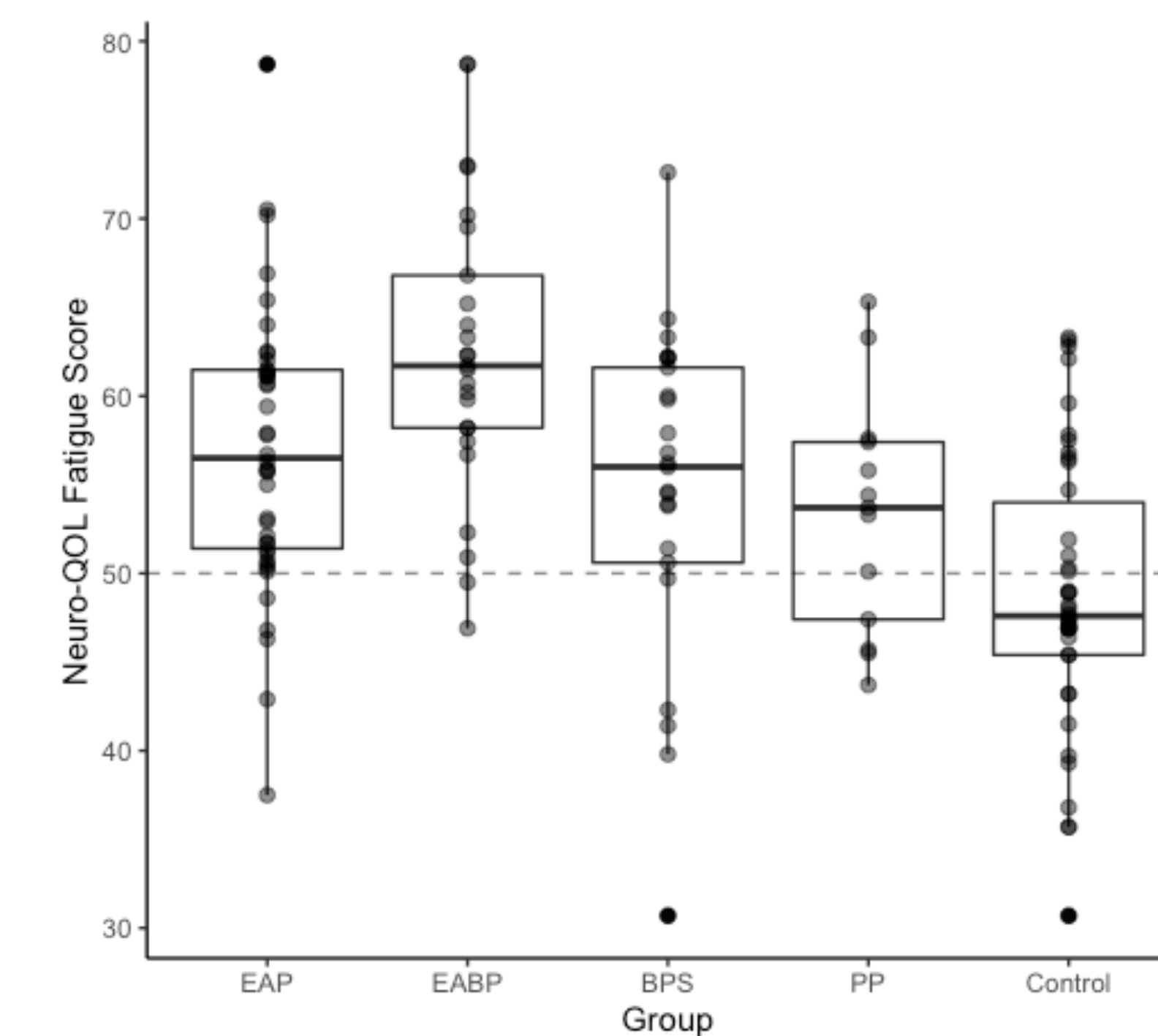
Structural equation modelling (SEM) was employed to model fatigue, pain and psychological wellbeing as latent variables and explore the interactions between them. The SEM analysis was run on EQS SEM software using robust maximum likelihood estimation methods. A correlation analysis explored the relationships between these measured variables.



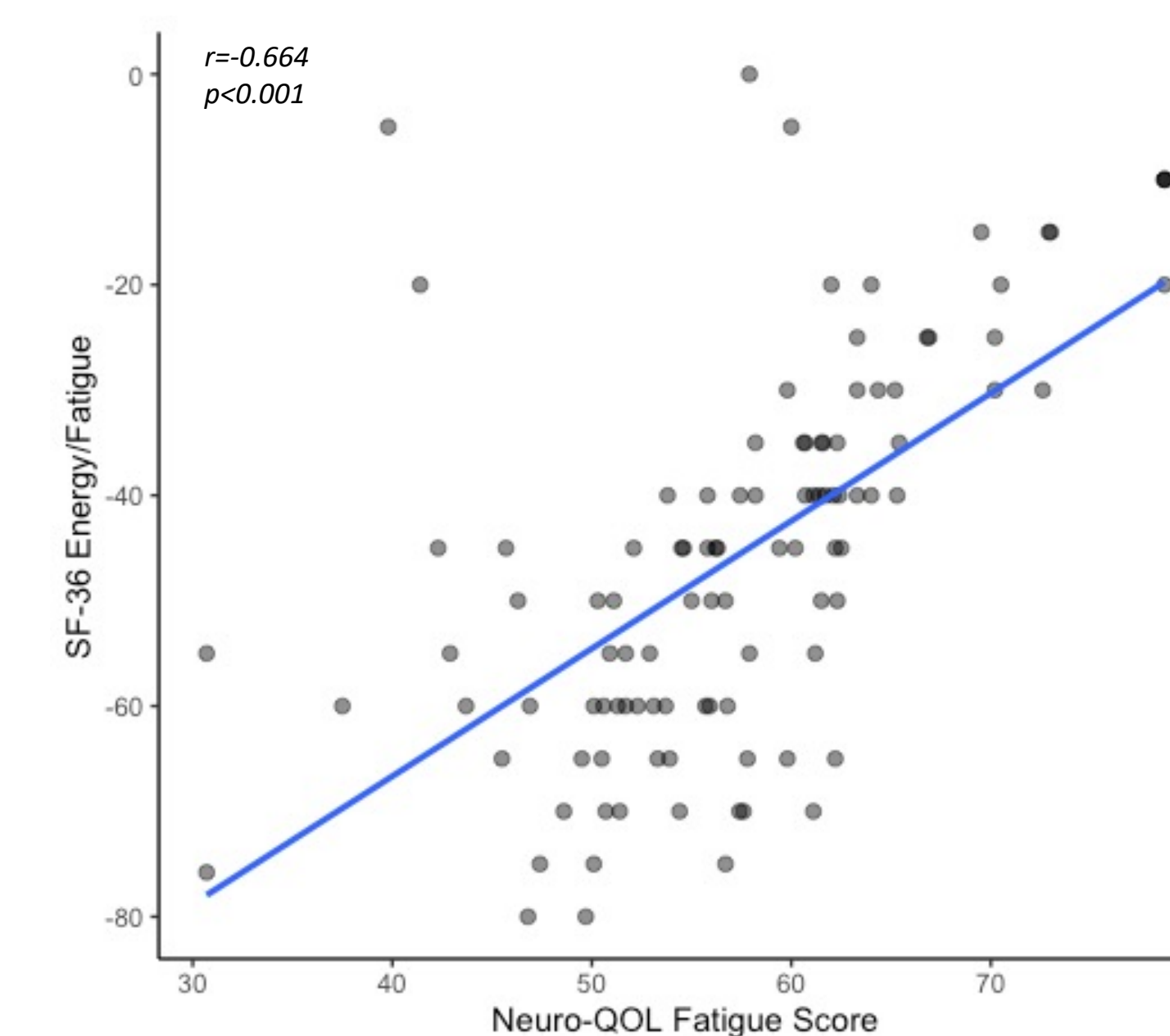
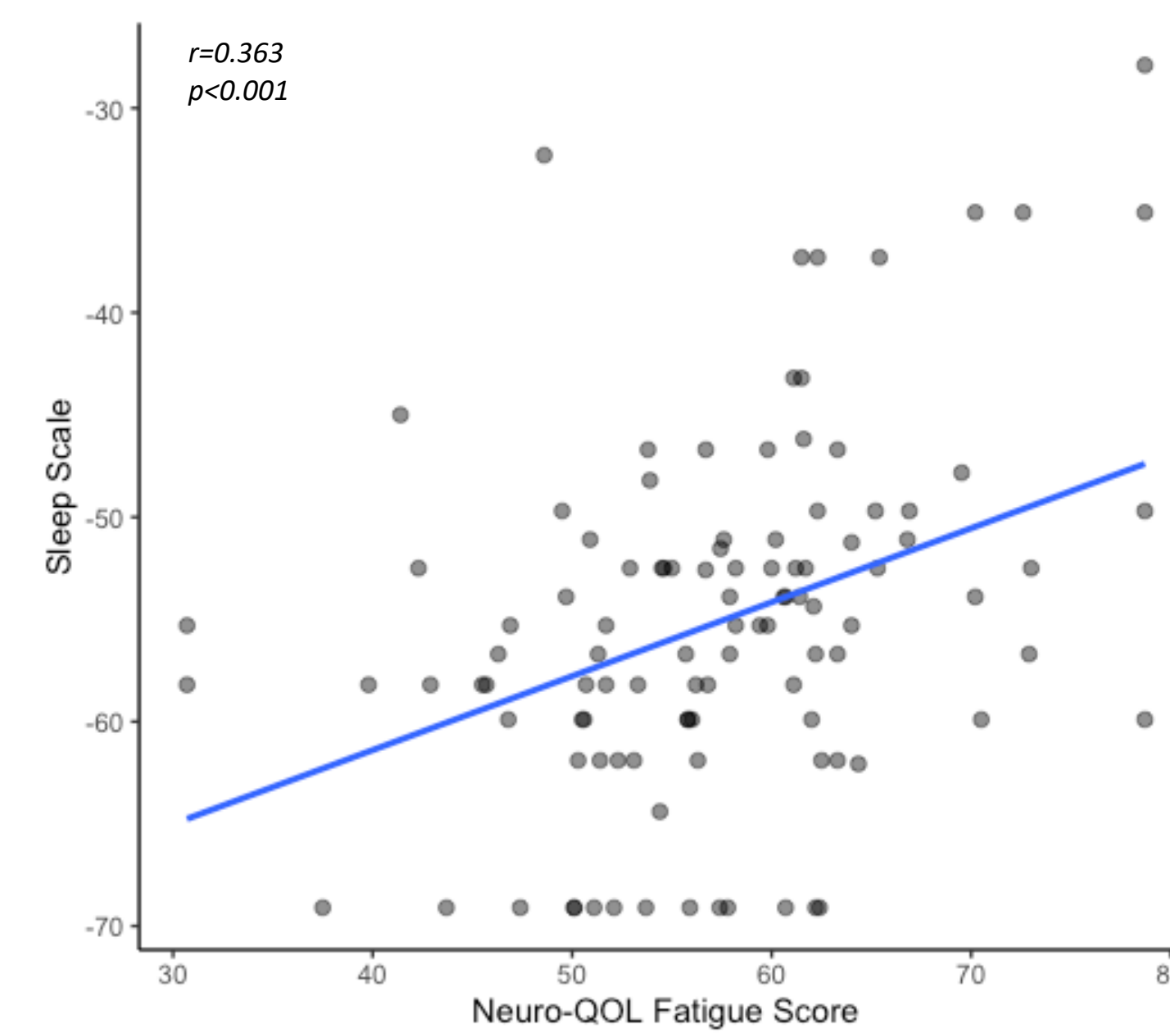
## Results

105 women with CPP completed the questionnaires (age range: 20-50 years, mean=34.3, SD=8.6).

Fatigue as measured by the Neuro-QOL scale showed that 82.9% of the patients scored above the cut-off for moderate to severe fatigue problems.

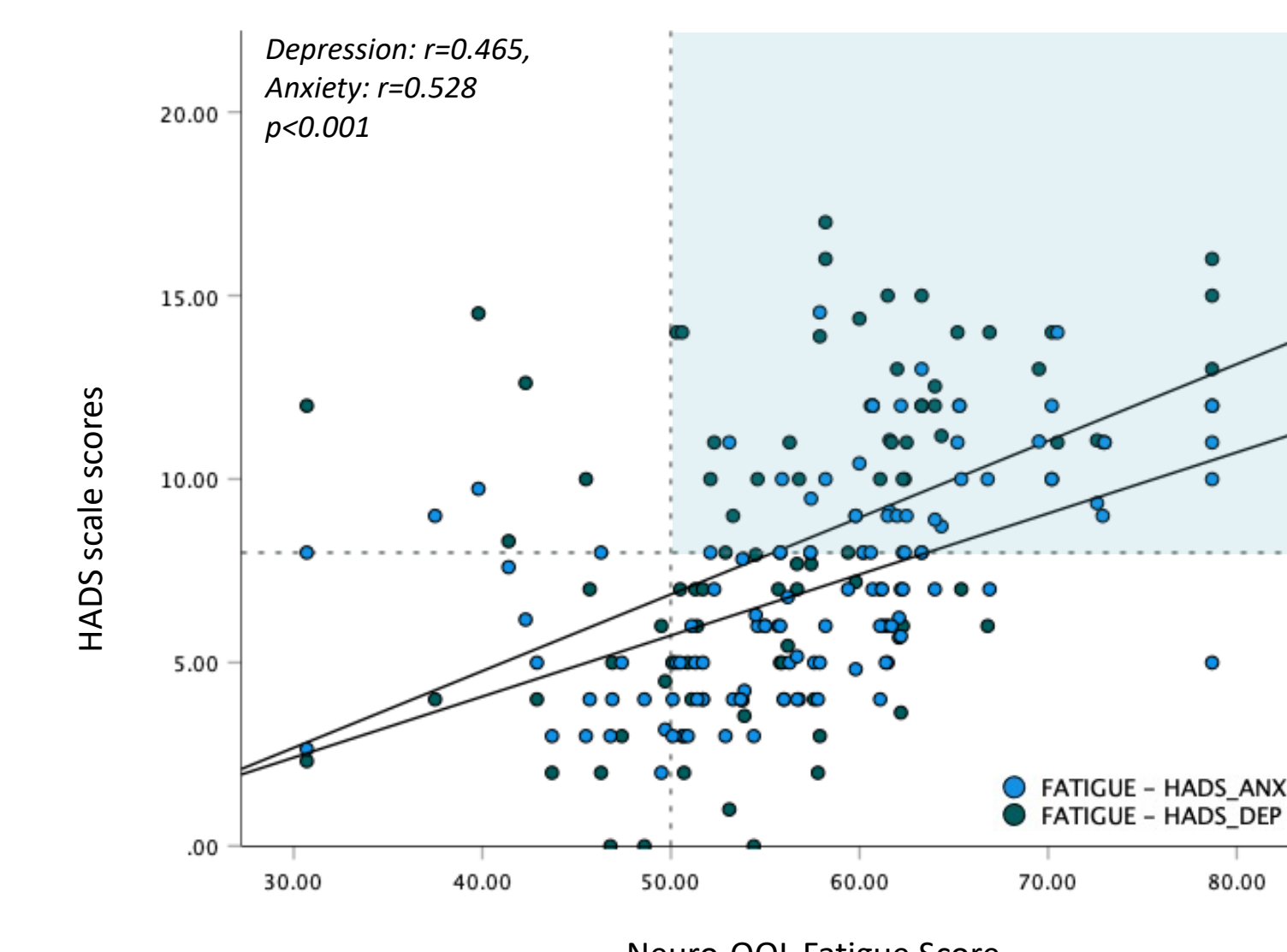
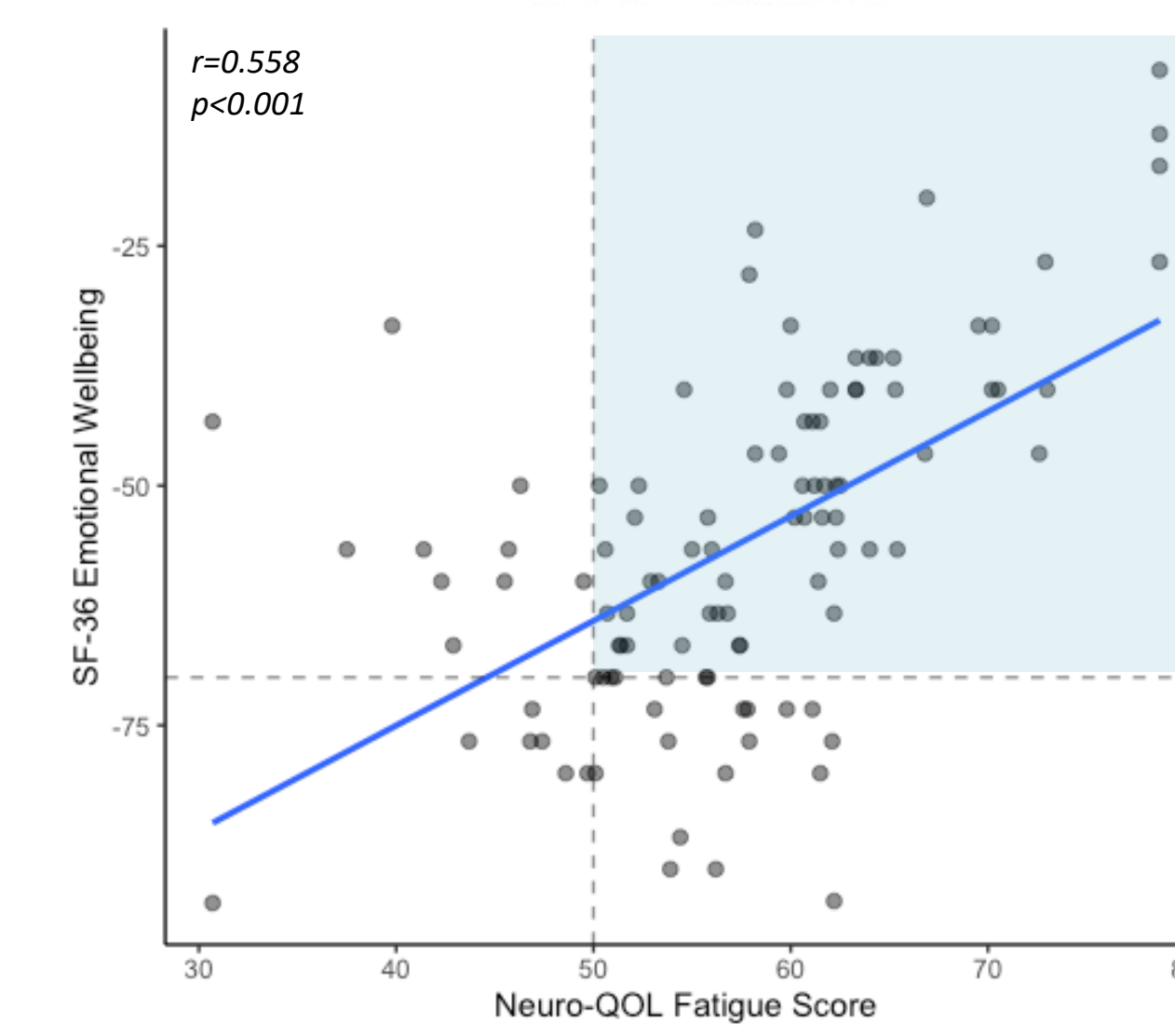
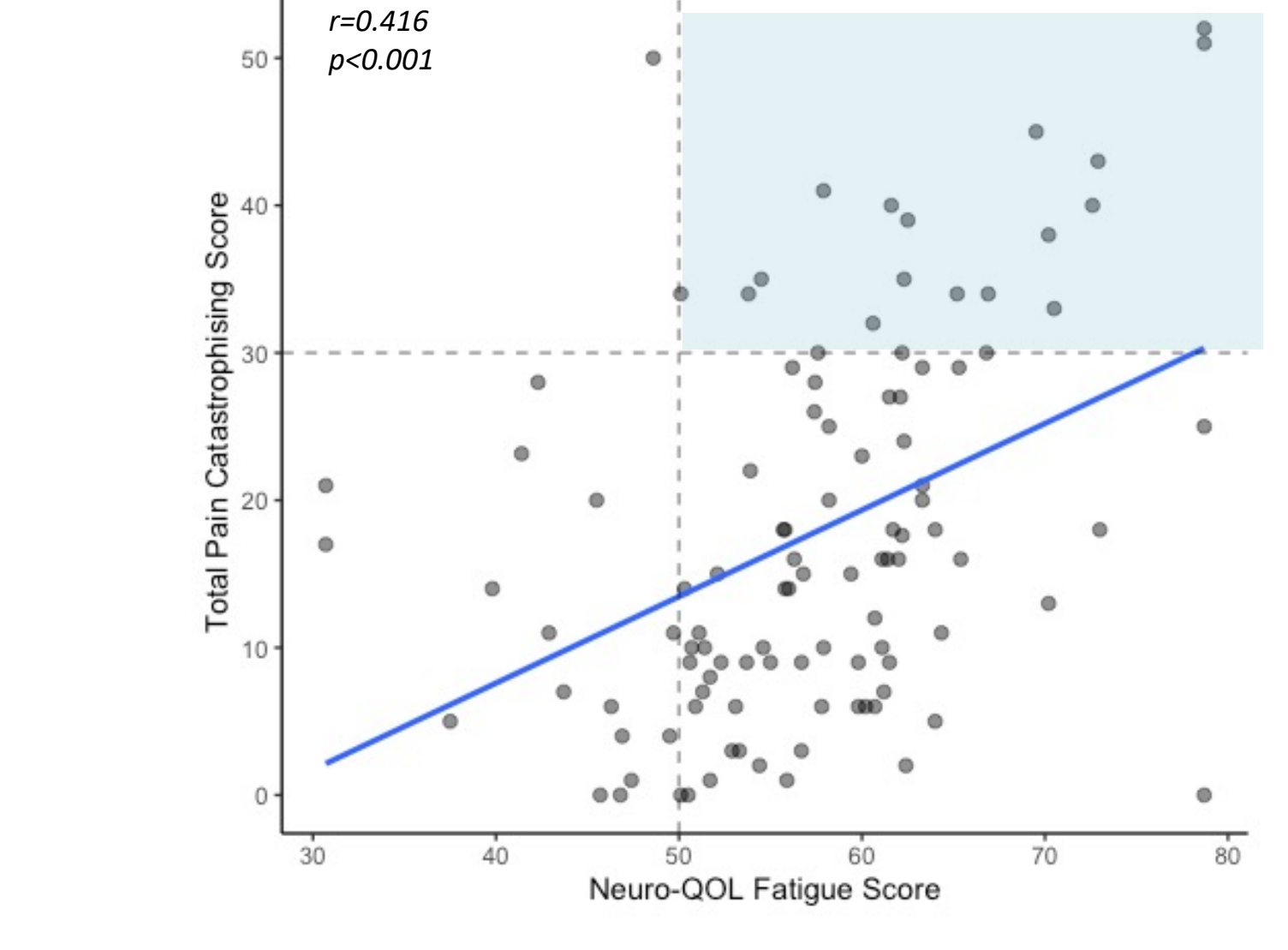
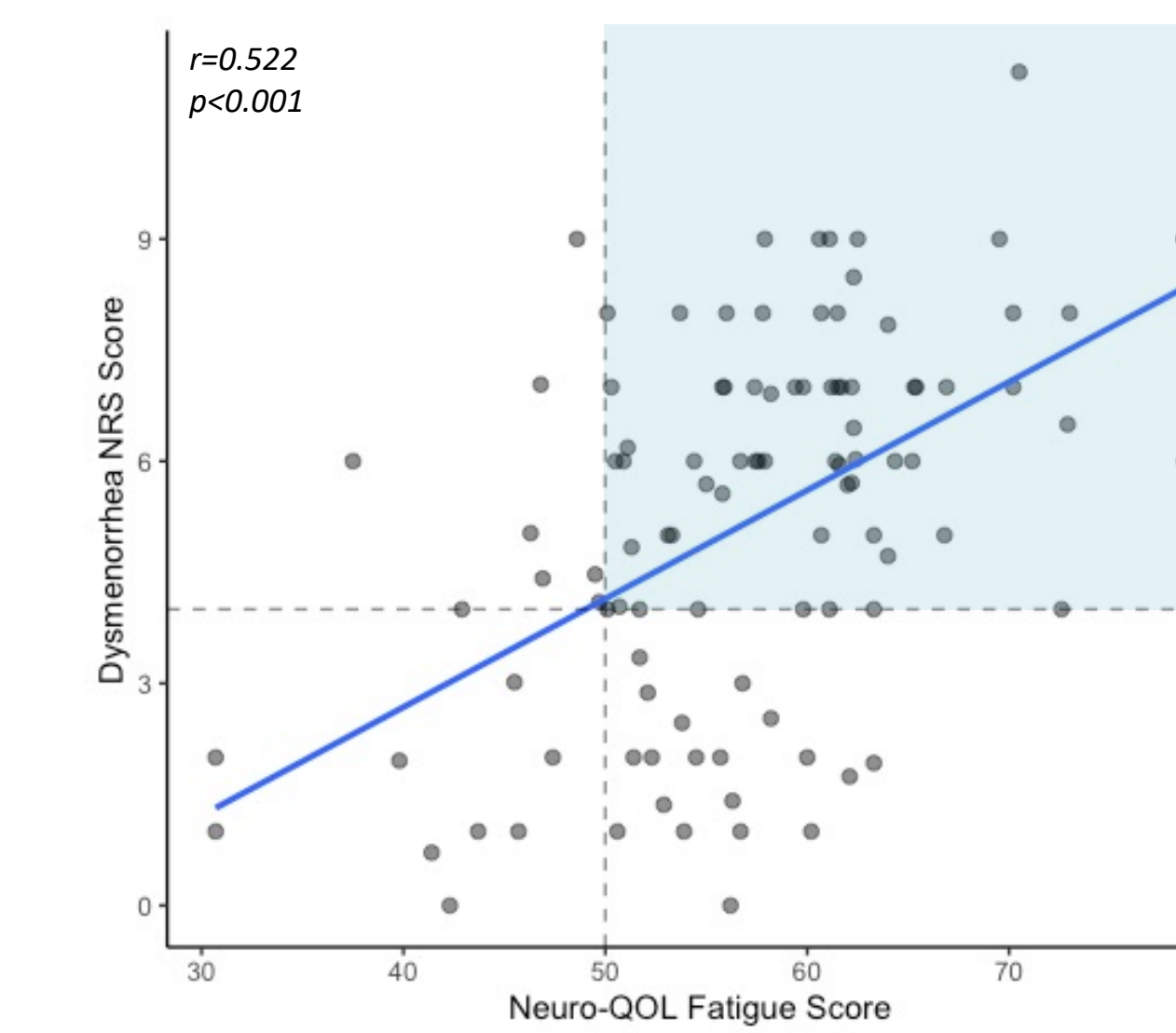


The scale significantly correlated with the other related measured variable of Fatigue as a latent variable: the Energy/Fatigue SF-36 scale ( $r=0.664$ ,  $p<0.001$ ) and the Sleep scale ( $r=0.363$ ,  $p<0.001$ ).



Higher fatigue was associated with greater pain and worse psychological wellbeing.

Dysmenorrhoea did correlate with the Neuro-QOL Fatigue scores ( $p<0.001$ ) but not with the PROMIS Sleep or SF-36 Energy/Fatigue subscale.



All three related measures of fatigue were significantly correlated with all measures of psychological wellbeing ( $p<0.001$ ) and all measures of pain ( $p<0.001$ ) except for the dysmenorrhea NRS scores.

The SEM results revealed a good fit of the model to the data ( $\chi^2(90) = 3435.7$ ,  $p<0.001$ , CFI = 1, RMSEA<0.001, AIC = 3255.7) and suggested that pain explains almost completely the variance in fatigue (>90%) with the rest being explained by psychological wellbeing.

## Conclusions

- ❖ Our data demonstrate how common fatigue is in women with CPP and the association with poorer quality of life highlighting that this is an area which needs more focus in both clinical practice and research.
- ❖ Our analyses support the hypothesis that fatigue in CPP is strongly associated with both measures of pain and psychological wellbeing, and that any of these three variables can be a predictor of the others.
- ❖ Further work is needed to understand the natural history of fatigue in women with CPP and to explore whether interventions that successfully treat either pain or psychological wellbeing can improve fatigue.

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