

# The Safe Passage-Biomarkers of Neurodevelopmental Outcomes Study (SP-BONO): understanding neurodevelopmental and mental health outcomes in childhood and adolescence

Priscilla Springer

Stellenbosch University, South Africa

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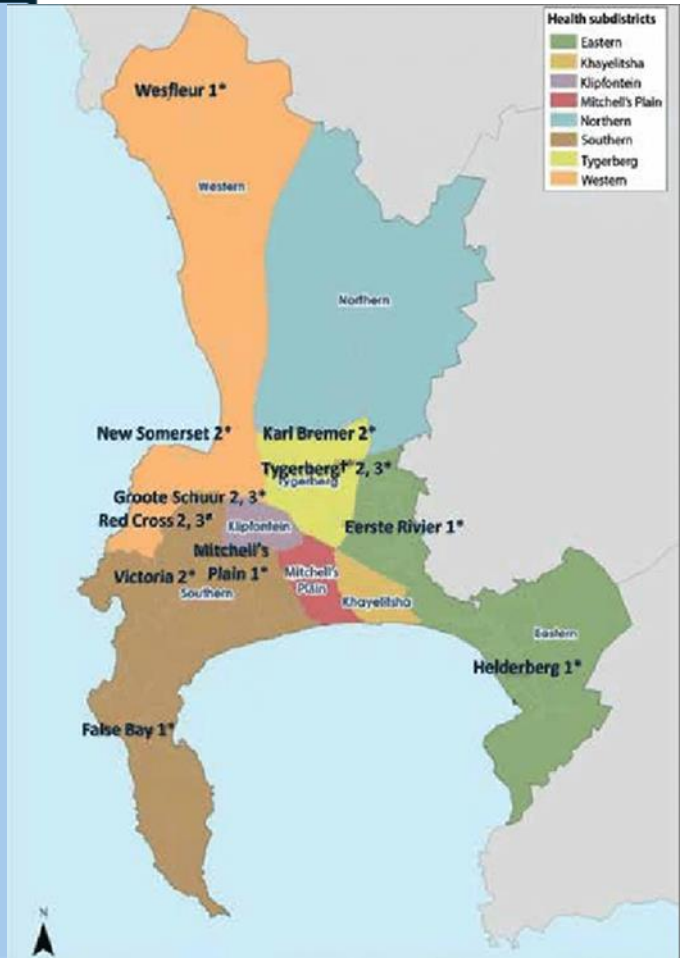
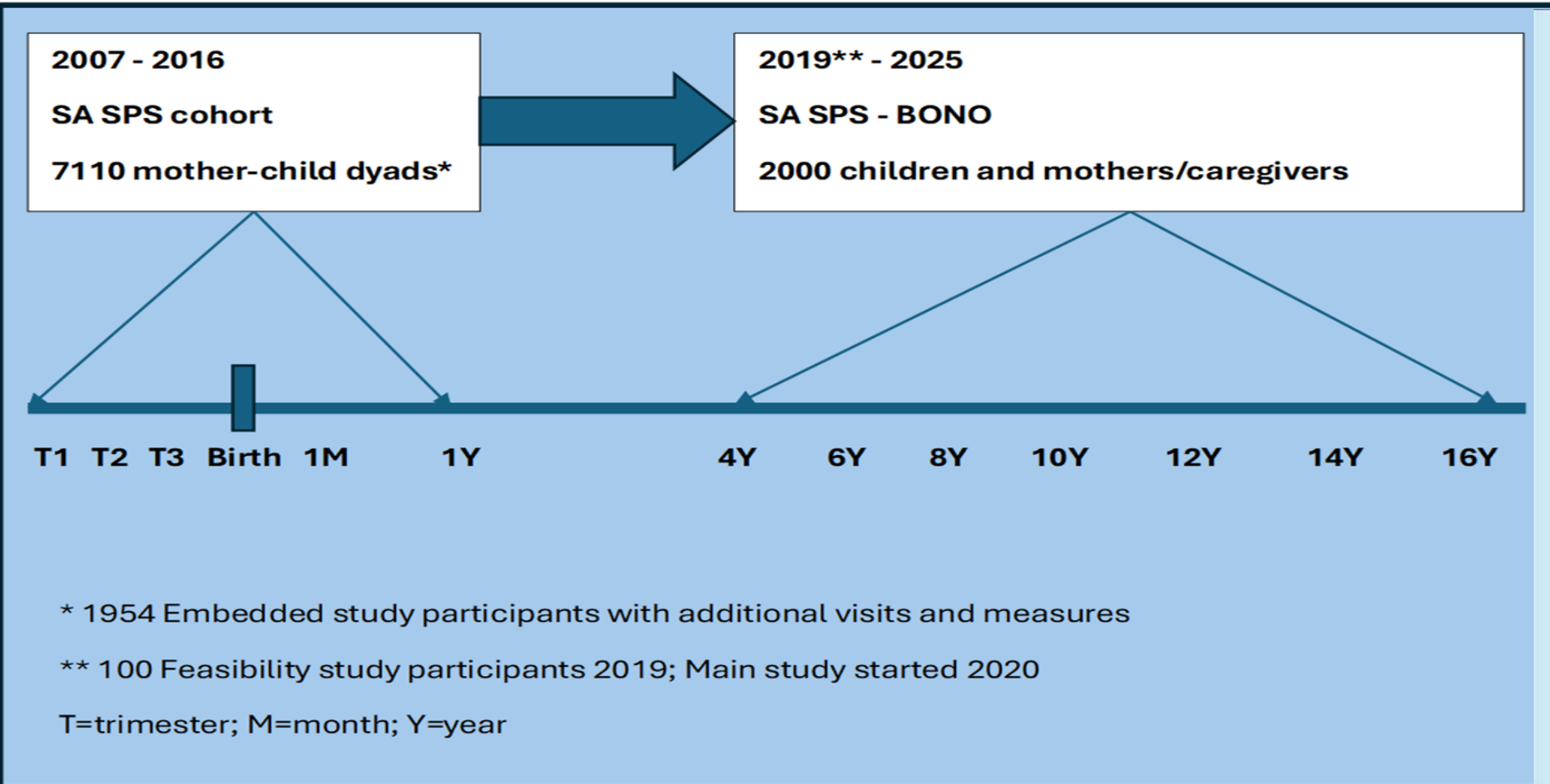
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# Introduction

- Adverse socioenvironmental factors before and after birth can influence children's emotional and cognitive development
- They may also affect brain maturational and functional processes linked to neurodevelopmental and/or mental health conditions
- There is limited research in low- and middle-income countries on how adversities influence the development of these conditions
- Birth cohorts could provide answers

# The South African Safe Passage Study (SA SPS) cohort and SP-BONO (a nested follow-up study)



# Safe Passage-**B**iomarkers of **N**eurodevelopmental **O**utcome (SP-**BONO**)

## Study Aims

1. To validate early stratification or prognostic markers for autism spectrum conditions previously identified in European Union cohorts, in the South African Safe Passage study (SA SPS) cohort
- 2. To understand mechanisms of risk and the role of protective factors in the development of a range of social, emotional-behavioural and cognitive problems over childhood**

# METHODS

## 1. Broad Phenotyping Visit (all participants)

- A. Autistic traits, emotional-behavioural symptoms, risk and protective factors questionnaire
- B. Assessment of brain function: IQ, tablet tasks, Eye-tracking, EEG, low-field neuroimaging

## 2. Deep Phenotyping Visit (30% participants)

In depth evaluation of neurodevelopmental and mental health conditions in children who meet specific criteria (and controls)

**The 2 visits are less than 6 months apart**

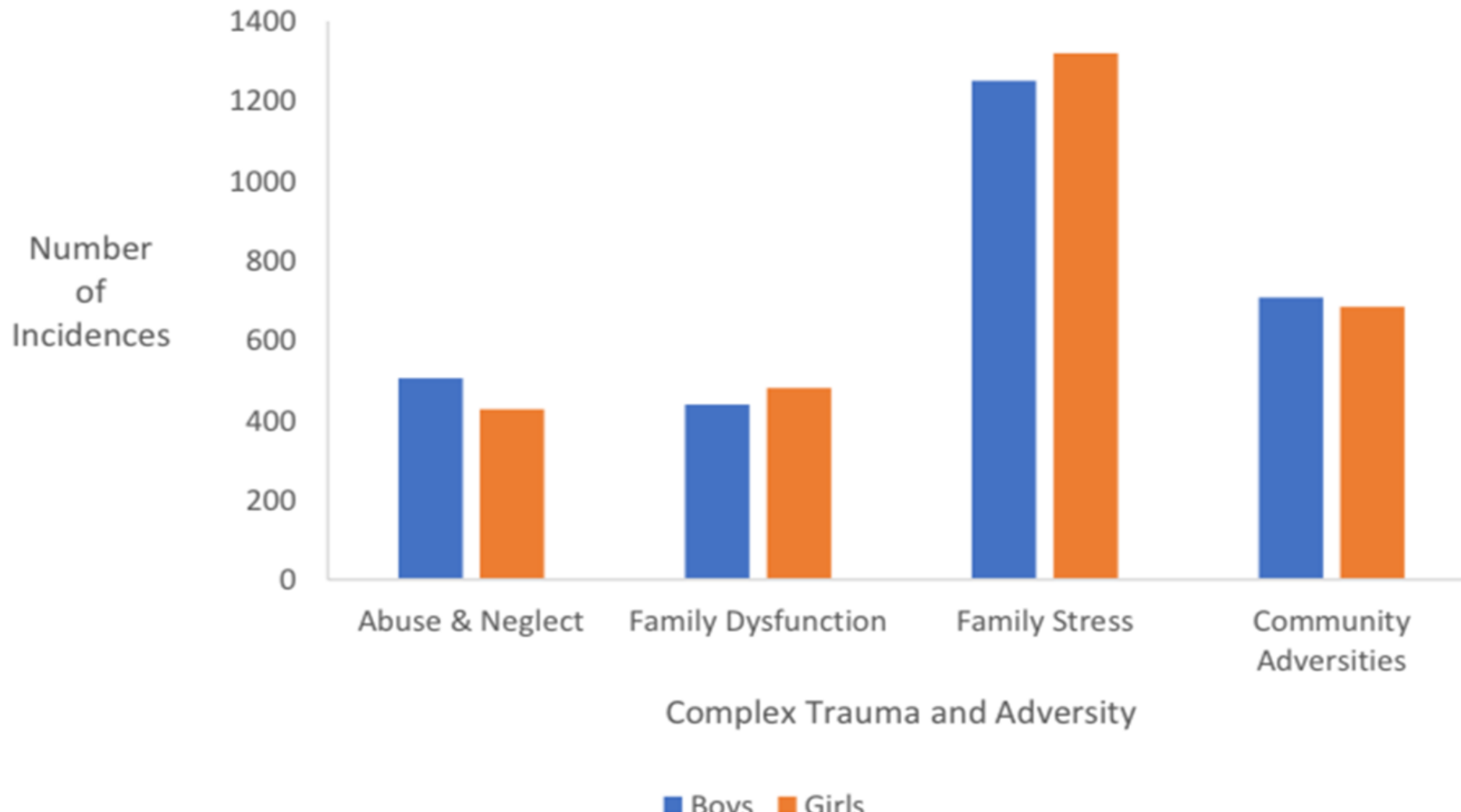
# The Risk and Protective Factors Questionnaire (Broad Phenotype visit)



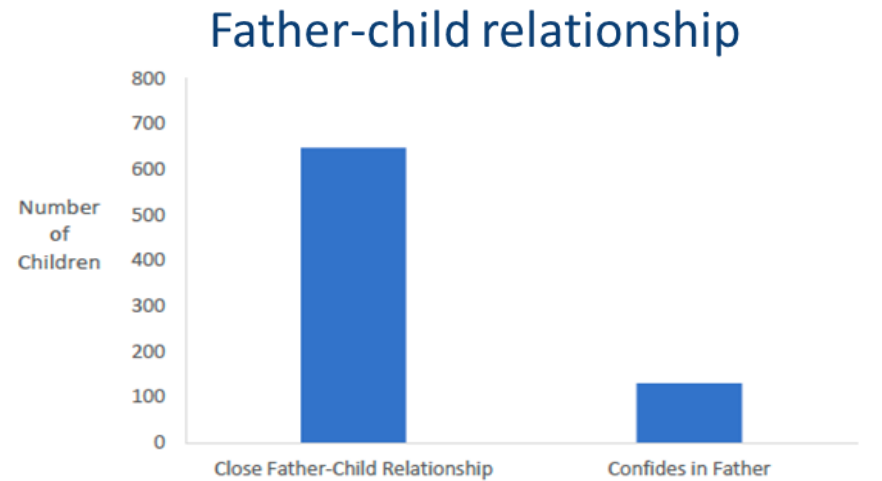
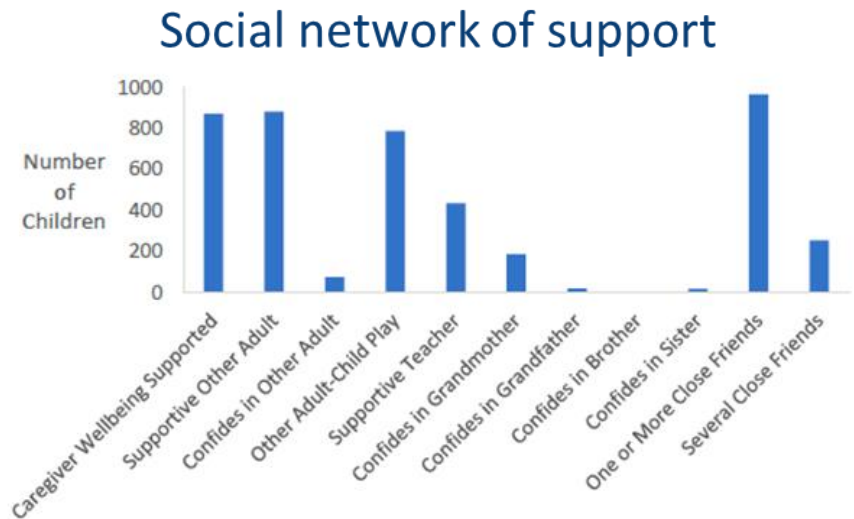
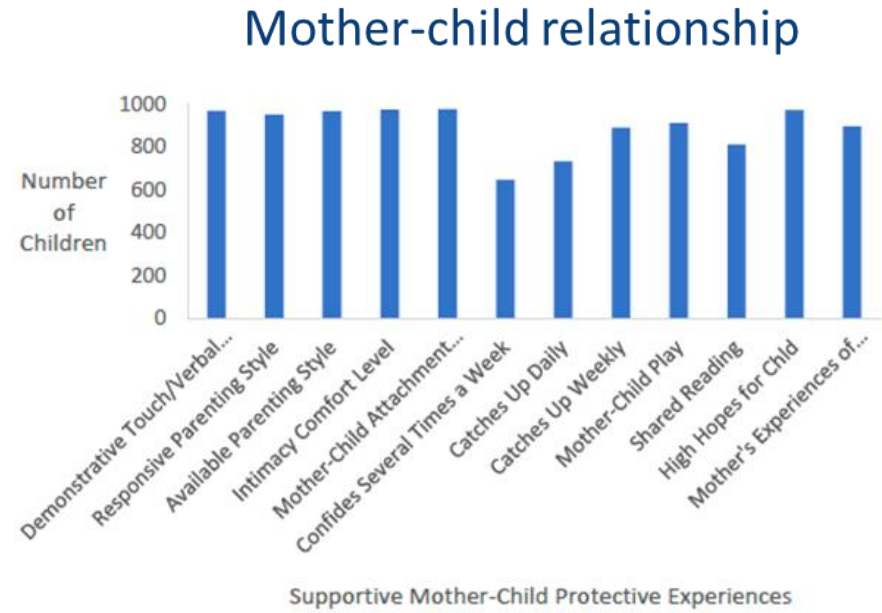
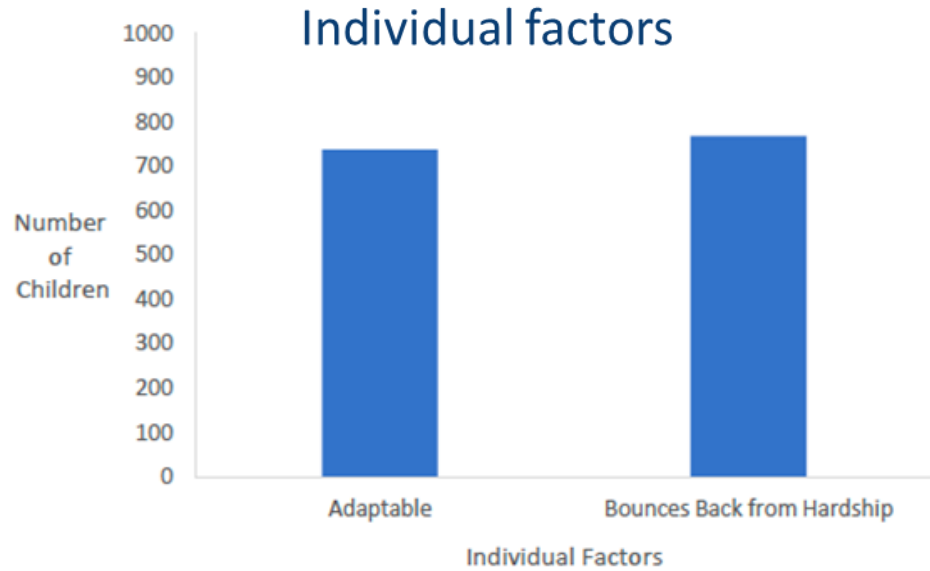
30-item parent-report questionnaire designed to gather information on the frequency and impact of adverse and protective childhood experiences

- Adverse Childhood Experiences Questionnaire (Felitti et al., 1998)
- Stressful Life Events Questionnaire (Roohafza et al., 2011)
- Childhood Trauma Questionnaire (Bernstein & Fink, 1998)
- Connor-Davidson Resilience Scale-2 Item Version (Vaishnavi, Connor & Davidson, 2007)
- **Sensitive to specific South African context**

# RESULTS: Number of Incidences of Adverse Childhood Experiences i.e. complex trauma and adversity (n=981)

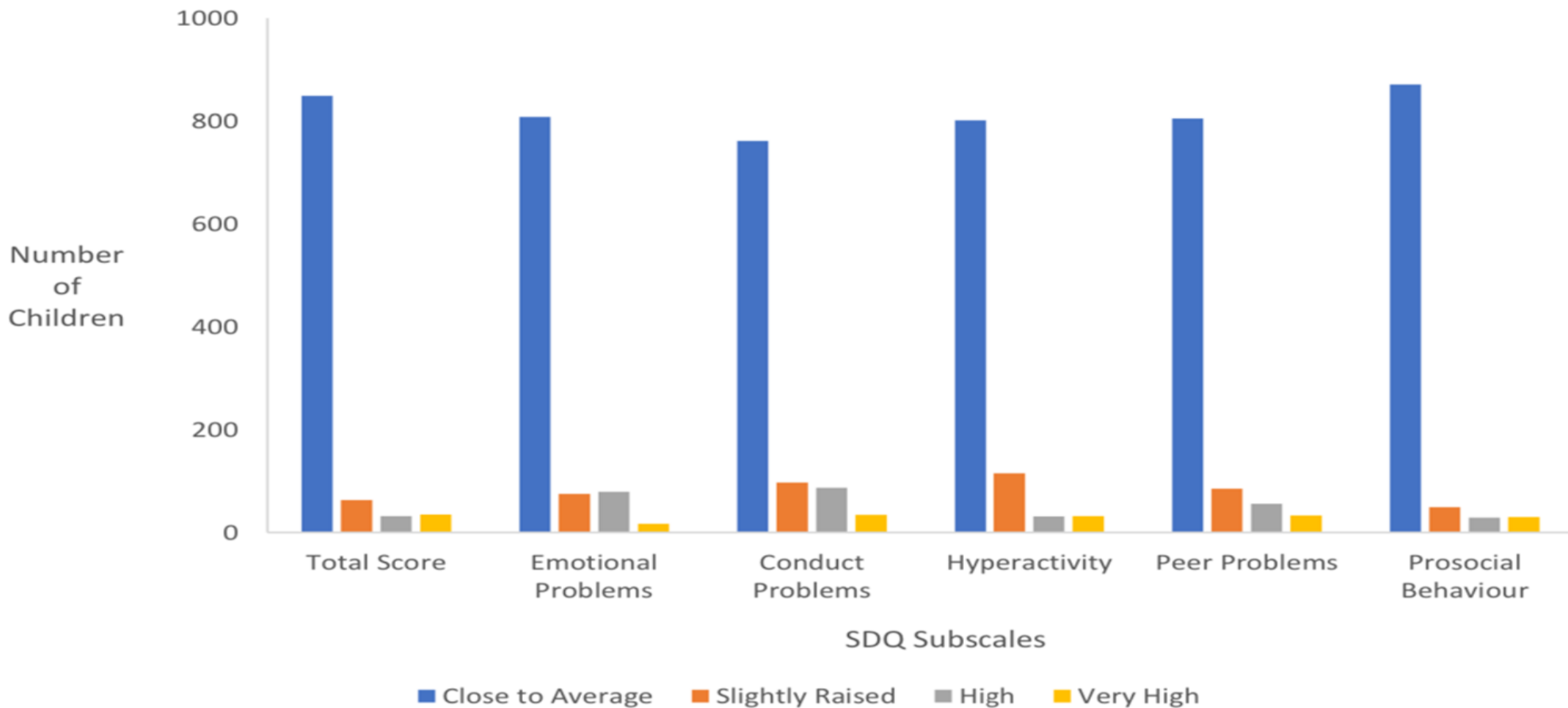


# RESULTS: Protective Factors (n=981)





# RESULTS: Strengths and Difficulties Questionnaire (SDQ) (n=981)

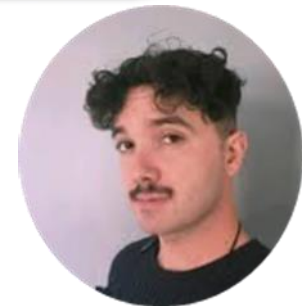


# Summary

- Caregivers reported extremely high rates of complex trauma/adversities experienced by their children
- They also reported high rates of protective factors
- Children who experienced abuse/neglect were rated as having similar number of protective factors compared to those who did not
- Most children (87%) had total difficulties SDQ scores which were average to very high (higher than UK norms)

# Discussion/Conclusion

- Social and emotional-behavioural outcomes may potentially be attempts to cope with environmental adversities
- Important to include child/ adolescent self-report questionnaire
- SP-BONO study will increase understanding of socio-psychological-biological mechanisms by which environmental factors may impact neurodevelopmental and mental health



**A special thank you to all our participants**