

MAINZ RESILIENCE SCORE IN CHILDHOOD CANCER (MRSCC) –
DESIGN OF A NEW QUESTIONNAIRE TO MEASURE
RESILIENCE IN CHILDHOOD CANCER PATIENTS



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BACKGROUND AND AIMS

During cancer treatment, patients are exposed to various toxicities and stressors leading to psychosocial distress. The maintenance or rapid recovery of mental health during and after exposure to significant stressors has been defined as resilience. To date, resilience research has focused primarily on long-term survivors of childhood cancer. Little is known about resilience and mental health resources in childhood cancer patients undergoing chemotherapy and specific instruments for age-appropriate assessment of resilience are lacking. To measure resilience longitudinally, the aim was to develop a self-report questionnaire that takes into account the specific circumstances and the situation of children and adolescents with cancer.

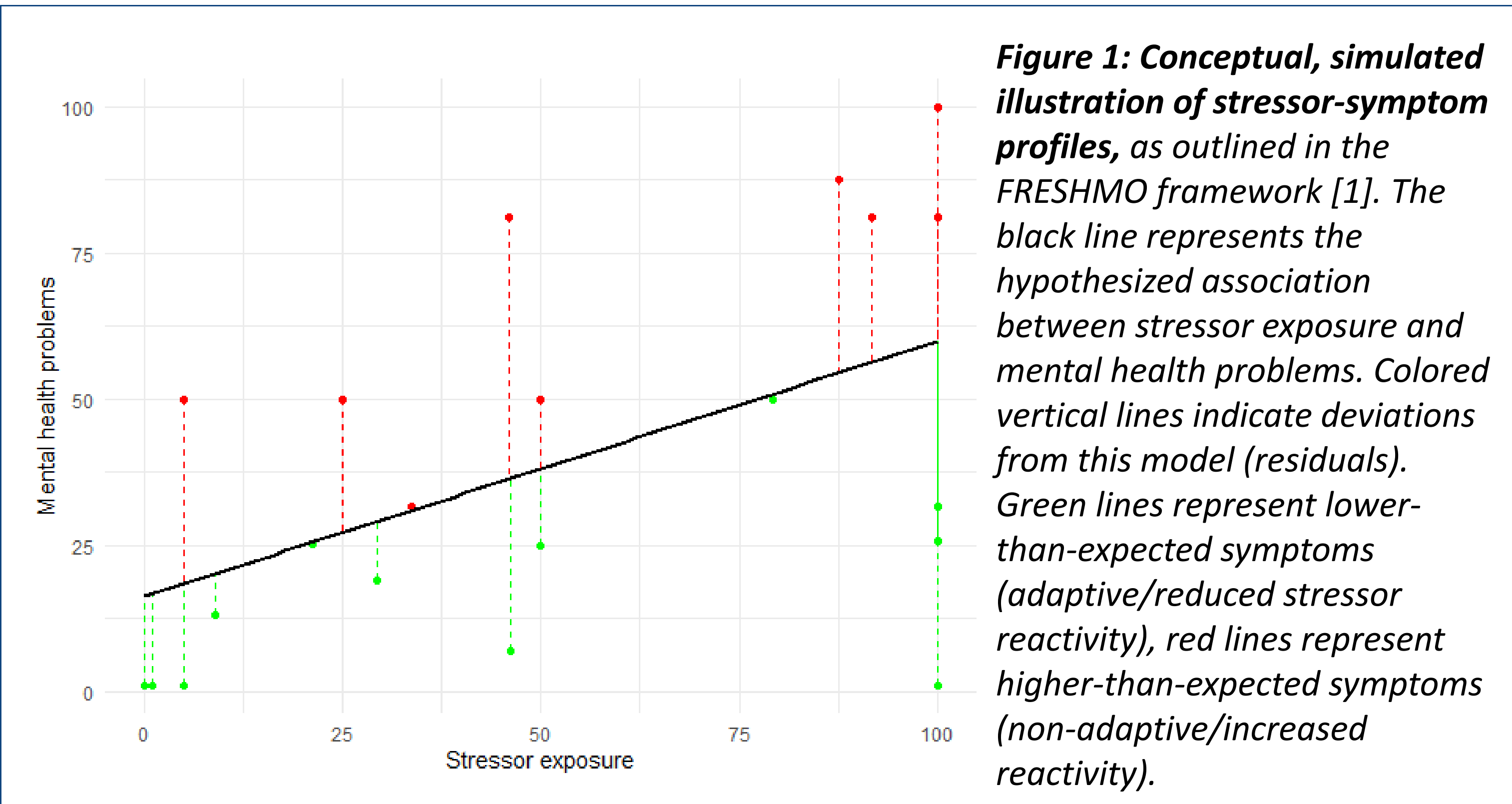


METHODS

Based on the previous work of Kalisch et al. (2021) resilience can be measured by a stressor reactivity score defined as the ratio of changes in mental health problems and stressor exposure.

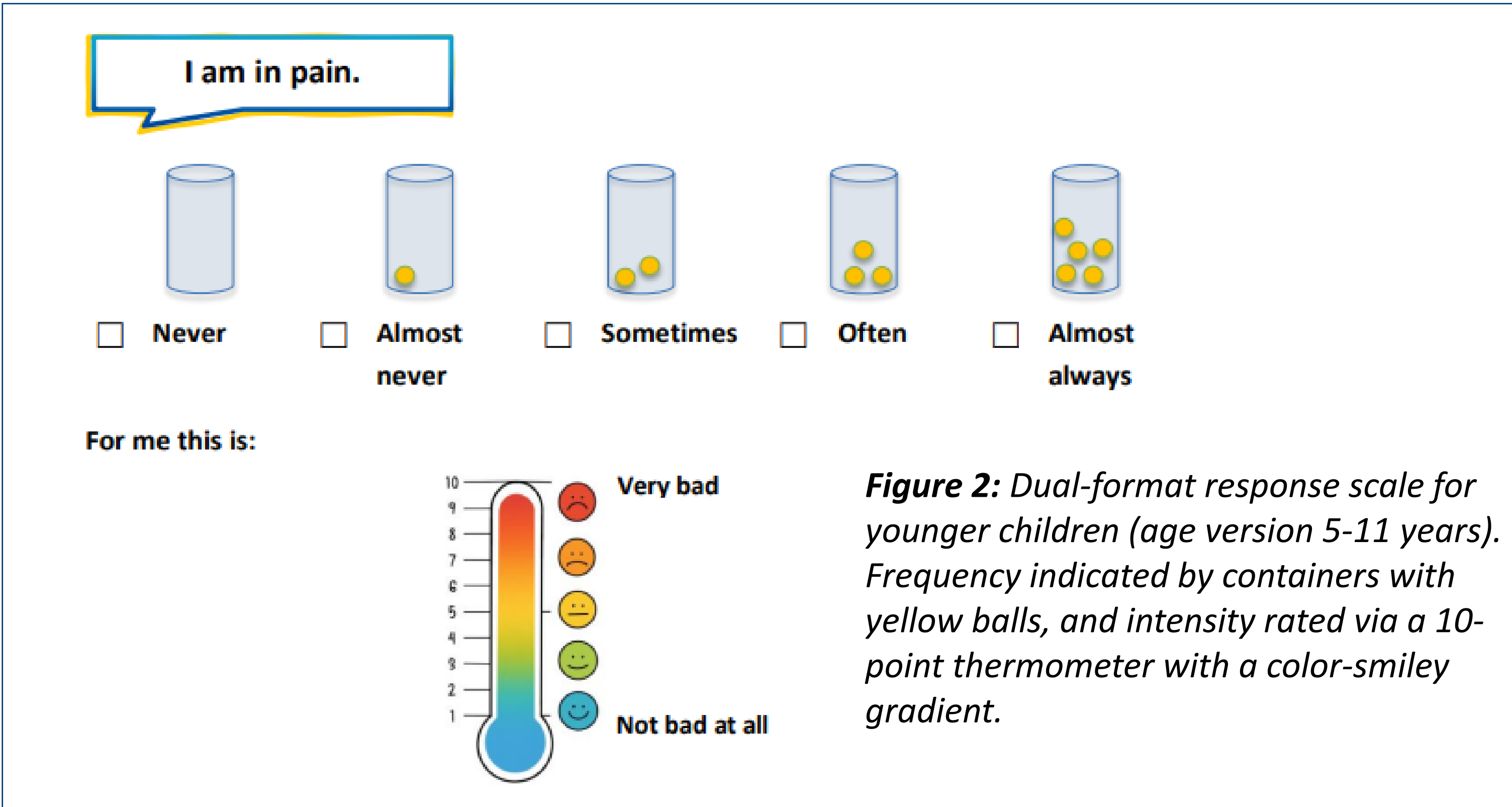
$$MRSc ratio = \frac{Mental\ Health\ Problems\ sub - score}{Stressor\ Exposure\ sub - score}$$

To form a stressor reactivity score, questions were created covering two domains of 'mental health problems' and 'stressor exposure': The mental health questions cover anxiety, depression, distress and fatigue, the stressor assessment includes daily hassles and cancer-related stressors. In addition, the intensity and frequency of each stressor is measured.



RESULTS

The Mainz Resilience Score in childhood cancer (MRSc) was developed in German and English by an interdisciplinary group of psychologists, psychiatrists and paediatric oncologists and is available in three versions: children aged 5-11 years, adolescents aged 12-17 years and young adults aged 18-21 years. Each questionnaire consists of the three parts 'emotions & distress', 'fatigue' and 'situations & experienced stress' using either a thermometer or 5-point Likert scales.



CONCLUSION

The MRSc is a new questionnaire aiming to provide age-adapted means to assess resilience in children, adolescents and young adults with cancer, taking into account the specific problems and stressors of this population. Further studies are needed to validate the MRSc and to prospectively investigate resilience in childhood cancer patients.



LITERATURE

1) Kalisch, R., Köber, G., Binder, et al. (2021). The Frequent Stressor and Mental Health Monitoring-Paradigm: A Proposal for the Operationalization and Measurement of Resilience and the Identification of Resilience Processes in Longitudinal Observational Studies. *Frontiers in psychology*, 12, 710493.
2) Neu, M. A., Dreismickenbecker, E., Lanfranconi, et al. (2025). Get strong to fight childhood cancer - an exercise intervention for children and adolescents undergoing anti-cancer treatment (FORTEe): Rationale and design of a randomized controlled exercise trial. *BMC cancer*, 25(1), 1275.



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