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**Adverse Childhood Experiences, Borderline Personality Disorder
and Loneliness - Examining Potential Vulnerability Factors**

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The experience of loneliness, the painful feeling that the quantity or especially the quality of interpersonal relationships does not meet one's own needs, is markedly increased in people diagnosed with borderline personality disorder (BPD). The development of loneliness is multifactorial, involving biological, intra-, and interpersonal as well as environmental factors such as adverse childhood experiences (ACE). Since chronic loneliness is not only one of the more stable symptoms of BPD but is also associated with a variety of negative physical and psychological symptoms, the aim of this thesis was to contribute to the understanding of vulnerability factors for loneliness in BPD.

The interplay of potential vulnerability factors for loneliness was investigated on the three domains of the bio-psycho-social model in four studies. Study 1 investigated the polygenic score for loneliness in BPD as a biological vulnerability factor and its influence on the association of ACE with loneliness. Study 2 examined alterations in the evaluation of an interaction partner's benevolence following the induction of social rejection and acceptance with and without a provided external explanation as a potential psychological vulnerability factor for loneliness in BPD. Study 3 investigated the interplay of different types of ACE, borderline personality features together with dimensions of attachment and perceived social support as psychological vulnerability factors for loneliness. Study 4 examined the influence of social network size and contact frequency as social vulnerability factors and alterations in the appraisal of social touch in BPD as a psychological vulnerability factor for loneliness during the COVID-19 pandemic.

Regarding biological vulnerability, a shared genetic contribution to BPD and loneliness as well as a higher polygenic score for loneliness in the investigated BPD groups were found. Nevertheless, the genetic vulnerability for loneliness did not significantly moderate the association between ACE and loneliness in BPD. Regarding psychological vulnerability factors, alterations in outcomes of complex social cognitive evaluation processes were identified in BPD. More specifically, lower benevolence appraisals of a social partner in the BPD group that were less positively influenced by acceptance and external explanations than in the HC group were found. Furthermore, the data indicated that insecure attachment and lower perceived social support as two potential vulnerability factors for loneliness partly explain the association of ACE severity and BPD features. In addition, insecure attachment was associated with a less positive appraisal of social touch in BPD, which in turn was associated with more loneliness during the COVID-19 pandemic. With regard to social vulnerability factors, a higher severity of ACE and smaller social networks were associated with higher loneliness.

Overall, the findings indicate that the elevated levels of loneliness in BPD are influenced by alterations in all three domains of the bio-psycho-social model, which were associated with each other and are partly ascribable to ACE. Therefore, in the treatment of loneliness in BPD, this complex interplay has to be addressed. Therapeutic interventions for loneliness in BPD should aim to improve psychological dispositions (e.g. personality features, insecure attachment), alterations in social information processing (e.g. perception of the benevolence of social partners and social touch) and current social factors (e.g. social network size, contact frequency). The investigation of interaction effects between biological, psychological, and social factors in relation to loneliness did not yield significant results in the studies of this thesis and thus represents a topic that would benefit from further investigation in future research.