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**The Relation Between Risk Factors for Adolescent Alcohol Use in  
the Context of Problem Behavior Theory**

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Risk factors for adolescent alcohol use are multifactorial and complex. In line with Problem Behavior Theory (PBT), this dissertation investigated the impact and interaction of the risk factors bullying, empathy, emotion regulation, interoception and the COVID-19 pandemic on adolescent alcohol use.

In Study 1, 2,165 adolescents in a longitudinal study completed self-report questionnaires about their involvement in bullying, their empathy and alcohol use at two time points. Active bullying, especially among male participants, showed a positive association with increased alcohol use at both time points. This effect was stronger in participants with higher cognitive empathy levels at time 1, and it was reduced for higher affective empathy levels at time 2. The results suggest that psychopathology may be an underlying factor associated not only with reduced affective empathy, but also with increased antisocial behavior and increased alcohol use.

Study 2 revisited the concept of empathy and examined it in relation to emotion regulation and interoception. For this purpose, 72 adolescents completed three different tasks in the laboratory: an emotion regulation task (measuring emotion regulation), the EmpaToM (measuring empathy) and the Heartbeat Counting Task (HCT, measuring interoception), and a questionnaire was used to assess interoception. Alcohol use was assessed using the Time Line Follow Back Interview. The results of the study replicated previous research showing that deficits in emotion regulation are associated with increased alcohol use. Emotion regulation was primarily associated with the amount of alcohol used and the frequency of binge drinking. A lack of affective empathy strengthened the relationship between emotion regulation and the amount of alcohol used. In addition, higher interoception, as measured by questionnaire, had a protective effect on the relationship between emotion regulation and alcohol use. These relations were particularly relevant for the 16-year-old participants. Increased interoception, measured by the HCT, was also positively associated with increased alcohol frequency. The results of Study 2 suggest that emotion regulation and interoception have different effects on different mechanisms of alcohol use, and that empathy is more indirectly related to alcohol use. In addition, self-report interoception seems to have a protective influence.

Study 3 focused on a recent macrosocial stressful experience, the COVID-19 pandemic, and its influence on negative thoughts and alcohol use among adolescents. For this purpose, 21 adolescents from Study 2 were surveyed online over a period of six weeks during the first wave of the COVID-19 pandemic in Germany. Among other questions, they were asked about the occurrence of negative thoughts and their alcohol use. The results of Study 3 show no direct effect of the COVID-19 pandemic on negative thoughts or alcohol use, but a general negative trend in negative thoughts was observed. Negative thoughts were positively correlated with alcohol use over the study period. Negative thoughts at the end of the first COVID-19 wave predicted alcohol use at the beginning of the second COVID-19 wave in Germany. In addition, mindfulness moderated this relation, with highly mindful adolescents using less alcohol as negative thoughts increased, whereas less mindful adolescents reported increased alcohol use as negative thoughts increased. Even if the COVID-19 pandemic did not have an immediate effect on alcohol use, the consequences may only become apparent in the long term, as the COVID-19 pandemic could affect risk factors of alcohol use, as was the case with other stressful societal experiences. Here, mindfulness seems to have a significant protective effect.

The results of the three studies were discussed in detail in relation to current research on each risk factor and their interaction and in accordance with the PBT framework. It is also suggested that the risk factors identified in the present dissertation should be considered more comprehensively in terms of their interaction with protective factors and examined in relation to other problem behaviors.