

# Depersonalization and post-event-processing during and after embarrassing social interactions: Estimating their transdiagnostic relevance using Ecological Momentary Assessment

**Background.** Depersonalization (DP) and derealization (DR) are brief disruptions of usually integrated mental functions, like consciousness, memory, identity or perception, accompanied by aversive physiological symptoms (e.g., tingling, numbness). Post-event processing (PEP) describes the negatively toned cognitive re-evaluation of previous social interactions (SIs). Both DP/DR and PEP have been considered to contribute to the persistence of social phobia (SP; or social anxiety disorder). However, little is known how frequently they occur in the daily lives of socially anxious individuals and what factors precipitate their emergence. Also, there is little research about their occurrence in people suffering from other clinical disorders, such as major depression, and in healthy individuals. Knowing more about this could improve the identification and treatment of these symptoms, irrespective of the diagnosis of the individual.

**Aims.** The three present studies investigated whether DP/DR (*Study 1*) and PEP (*Study 2*) are transdiagnostic processes that occur not just in SP, but also in major depressive disorder (MDD) and healthy controls. We furthermore tested to what extent embarrassment, a prominent mediator of these phenomena, was explained by facets of social anxiety (SA) or depression (*Study 3*).

**Methods.** For seven days, a total of  $n = 165$  patients ( $n = 47$  SP,  $n = 118$  MDD) and  $n = 119$  controls completed, via time-based experience sampling, five surveys per day on their smartphones. DP/DR and PEP were assessed whenever an SI has been indicated as embarrassing. Additionally, cognitive facets of social anxiety: Worries about what other people think of oneself, fears that others would notice flaws in oneself, fears of not being accepted by the group, worries of saying or doing something wrong, as well as cognitive facets of depression: feelings of guilt, not liking oneself, listlessness and troubles concentrating, were assessed and used as predictors for embarrassment. Data was analyzed via multilevel regression analyses.

**Results.** Individuals with SP and MDD experienced more embarrassing social interactions than controls and, accordingly, more DP/DR. The frequency of DP in *embarrassing* social interactions was, compared to controls, only significantly higher in

MDD (no difference SP/MDD). Regarding DR, there were no between-group differences. The groups also did not differ regarding duration of DP/DR (*Study 1*).

The *relative* frequency of PEP after embarrassing SIs was equally high in all groups (86-96%). The groups did not differ regarding the amount of time PEP was experienced (*Study 2*).

Among facets of depression, feelings of guilt and low self-worth significantly predicted embarrassment in contemporaneous, but not in time-lagged models. Among facets of social anxiety, worries about other people's opinion and worries of saying or doing something wrong during a social interaction significantly predicted embarrassment (contemporaneous and time-lagged; all  $p < .05$ ; *Study 3*).

**Discussion.** DP/DR and PEP regularly occur in relation to experiences of embarrassment, in both SP and MDD, and in healthy controls. Thus, they could be interpreted as a common cognitive-emotional coping strategy to embarrassment among all individuals, while the higher emergence of embarrassment itself might be specific for clinical groups. Embarrassment was driven by specific cognitive facets of SA and depression. Their alleviation could lead to the reduction of embarrassment and, moreover, of DP/DR and PEP. We argue that the pattern of results favors a transdiagnostic perspective to the interpretation and treatment of DP/DR and PEP experienced in everyday life.