The role of memory traces quality in directed forgetting: A comparison of young and elderly participants using the item procedure

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Objectives. The presence of a reduced directed-forgetting (DF) effect in normal aging has been frequently observed with the item method. These results were interpreted as age-related difficulties in inhibiting the processing of irrelevant information. The present study aimed at investigating the influence of memory traces quality on the magnitude of the DF effects in normal aging. We predicted that increasing the quality of memory traces (by increasing presentation times at encoding) would be associated with a deterioration of the directed forgetting performance of elderly participants (i.e., attenuated DF effects) due to the increased difficulty of inhibiting highly activated memory traces.

Method/Participants. A classical item-method DF paradigm was administrated to 48 young and 48 elderly participants under short and long encoding conditions. Memory performance for information to memorize (to-be-remembered items) and to suppress (to-be-forgotten items) was assessed with recall and recognition procedures.

Results. The results indicated that, when memory traces are equated between groups in the long encoding condition, DF effects observed with the recall and recognition procedures are of similar amplitude in both groups (all $ps > 0.05$).

Conclusion. We found that the older participants were as able as the younger ones to efficiently suppress the processing of to-be-forgotten items when the quality of the memory traces for to-be-remembered information is equated between groups. This suggests that the decreased DF effect previously observed in older adults might not actually depend on their inhibitory abilities.