

behavior, such as stopping or limiting drinking (e.g., not exceeding a predetermined number of drinks).

Participants and Methods: Using ecological momentary assessment, the current study explored the extent to which an intention-behavior gap in harm reduction strategy use exists among college student drinkers (n=77), and investigated how potential individual differences in EF (i.e., working memory, set-shifting, and inhibition) were associated with translating intentions of drinking safely into action. Daily monitoring assessments contained brief measures of intention to use harm reduction strategies, actual strategy use, and alcohol-related behaviors, and were assessed daily for twenty-one days.

Results: Multilevel model analyses revealed that although intention to use strategies predicted actual strategy use, measures of EF did not significantly moderate the relationship. Exploratory analyses indicated that set-shifting significantly moderated the intention-behavior gap for a subset of harm reduction strategies that relies more heavily on modifying behavior during a drinking event. Set-shifting did not significantly moderate the intention-behavior gap for a subset of strategies that relies more heavily on pre-planning before the drinking event.

Conclusions: Findings from the current study suggests that those who plan to use strategies typically follow through regardless of individual differences in EF. Efforts to increase intention to drink safely can be incorporated into existing alcohol prevention and intervention programs, which would likely lead to increased use of harm reduction strategies and decreased alcohol-related consequences.

Categories: Executive Functions/Frontal Lobes

Keyword 1: alcohol

Keyword 2: executive functions

Keyword 3: substance abuse

Correspondence: Becky Gius, University of South Florida, Tampa, FL; South Texas Veterans Health Care System, San Antonio, TX, bkgius@usf.edu

76 Follow-up of the Therapeutic Effects of Integrative Neuropsychological Training Model for Executive Functions Deficits in School-age Children Born

Very Low Birth Weight with Normal Early Development-A Preliminary Report

Ching Hua Shen^{1,2}, Chao Ching Huang³, Chii Jeng Lin⁴, Nai Wen Guo^{5,6}

¹Institute of Allied Health Sciences, National Cheng Kung University, Tainan, Taiwan.

²Department of Physical Medicine & Rehabilitation, National Cheng Kung University Hospital, Tainan, Taiwan. ³Department of Pediatrics, College of Medicine, National Cheng Kung University, Tainan, Taiwan. ⁴Department of Pediatric Orthopedics, College of Medicine, National Cheng Kung University, Tainan, Taiwan. ⁵Institute of Allied Health Sciences, National Cheng Kung University, Tainan, Tajikistan. ⁶Institute of Behavior Medicine, National Cheng Kung University, Tainan, Taiwan

Objective: The preschool children born very low birth weight (VLBW) still have executive functions (EFs) deficits even with normal early development (Ni, Huang, & Guo, 2011). Consequently, early intervention might be more important than expected. This study aims to investigate the follow-up outcome of the therapeutic effects of integrative neuropsychological training model (INTM) focused on EFs for school-age VLBW children with EFs deficits.

Participants and Methods: The VLBW children, recruited from the Regional Cohort Network for premature infants who were admitted to neonatal intensive care units, had normal scores in Bayley and Wechsler Intelligence systems before 6 years old. They also received follow-up neuropsychological assessment for EFs at 6 or 8-year-old. The deficits of EFs were defined from the result of Digit Span Subtest of WISC-IV, Knox's Cube Test (KCT), Tower of London (ToL), Wisconsin Card Sorting Test (WCST), and Comprehensive Nonverbal Attention Test Battery (CNAT). A total of 8 VLBW children with EFs deficits were recruited and received EFs training at 6 or 8-year-old. The INTM combined with Comprehensive Memory Training System (CMTS), Executive Function Training (EFT), and multi-ecological materials focused on enhancing the four aspects of EFs, including working memory, planning, cognitive flexibility, and inhibition ability. Then, they received follow-up neuropsychological assessment for EFs at 8 or 10-year-old.

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Results: The results showed that all children got benefits from 20 hours of INTM and most of the EF aspects remained improved at follow-up. A total of 8 VLBW children with an average of 3.4 aspects EFs deficits had an average of 1.4 aspects of EFs deficits left at the follow-up. More precisely, 5 of them had 1 aspects of EFs deficits and 3 of them had 2 aspects of EFs deficits.

Conclusions: This study revealed that such a short-term INTM had long-term effects in enhancing the EFs of those VLBW children who had normal early development but later grew into EFs deficits at school-age. Besides, their EFs are still improving even after two years of intervention. Further study on more subjects with longer follow-up might help VLBW children to achieve better neuropsychological function.

Categories: Executive Functions/Frontal Lobes

Keyword 1: executive functions

Correspondence: Nai-Wen Guo Institute of Allied Health Sciences, National Cheng Kung University, Tainan, Taiwan Institute of Behavior Medicine, National Cheng Kung University, Tainan, Taiwan austing@mail.ncku.edu.tw

77 Performance on Tests of Attention and Mental Flexibility Predicts Metacognitive Accuracy

Christopher S. Waller, Michael J. Walsh, Trevor Scarlett, Kathy S. Chiou
University of Nebraska - Lincoln, Lincoln, NE, USA

Objective: The process of metacognitive monitoring refers to one's ability to incorporate rapid in-the-moment self-assessments of their cognitive performance. An area of interest within this literature concerns metacognitive accuracy (MA), or the extent to which an individual can discern when their own judgments are incorrect/correct. Much of the work in this area has either focused on school-aged samples or clinical samples, with findings of impairment in metacognitive processes associated with traumatic brain injury, Schizophrenia, cerebrovascular accidents, and Alzheimer's disease. Notably, decreased working memory and executive functioning are frequently reported in samples with low MA, suggesting a possible reliance on basic cognitive resources in

the facilitation of metacognitive processes. Thus, the goal of this investigation was to elucidate potential relationships between individual domains of cognition and higher-order MA. We hypothesized that performance on measures of working memory and executive function would be positively associated with measures of MA.

Participants and Methods: Data from 87 undergraduate students who volunteered in research for class credit were used. All participants completed a computerized metamemory task where six lists of 12 words each paired with varying point values were first presented to the participants. After each list, participants were instructed to score as many points as possible by recalling words they could remember. After a brief delay, participants completed a recognition task using the words presented earlier and provided a retrospective confidence judgement (RCJ) following each item. A metric for MA, *meta d'*, was calculated using signal-detection theory analysis from the reported RCJs and recognition task performance. Participants also completed neuropsychological tests of attention (Trails A), working memory (WM; Backward Digits), executive function (EF; Trails B), mental flexibility (MF; Trails B/A Ratio), and processing speed (Symbol Digit Modalities). A sequential multiple regression was performed with *meta d'* serving as the criterion, with education, age, and performance on neuropsychological measures entered as predictors.

Results: The model indicated that a moderate percentage of the variability ($R^2 = .201$) in metacognitive accuracy could be attributed to the combination of predictors in the model ($F(7,79) = 2.843, p = .011$). Examination of the regression coefficients indicated that only measures of attention ($\beta = .638, p = .01$), MF ($\beta = .473, p = .041$), and WM ($\beta = .244, p = .024$) were significantly related to MA after controlling for all other variables in the model.

Conclusions: The model suggests that working memory, attention, and mental flexibility increased in a linear fashion as MA increased. Our hypotheses were partially supported, while working memory predicted MA, its contribution to the overall model was the smallest among the significant predictors. While executive function was not a significant contributor to the model, MF (a component of EF) was. The largest contributor to the model was attention, which supports prior findings in the literature. This outcome would suggest that while separate from EF, metacognitive processes in neurotypical