



## Letter to the Editor

### How cognitive remediation can be utilized strategically to enhance social and independent living self-efficacy



To the editor,

Self-efficacy beliefs are context-specific judgments about an individual's confidence in their ability to successfully perform goal-directed behaviors (Bandura, 1977). These beliefs are known to impact community participation and engagement in healthy controls. Specifically, people with high self-efficacy for a given task (i.e. a strong belief that a task can successfully be performed) are more likely to 1) engage; 2) expend greater effort; 3) persist longer even under challenging circumstances; and 4) perform better on the task (Bandura, 1977).

The literature supporting the impact of self-efficacy on psychosocial disability in schizophrenia is growing. Against a background of typically low functional attainment, confidence in one's ability to adequately perform community tasks and manage symptoms is often reduced in psychosis relative to healthy controls (Ventura et al., 2014). These domain-specific cognitions have been associated with functional and social capacity as well as neurocognition and negative symptoms (Ventura et al., 2014). In addition, everyday living self-efficacy has been found to moderate the relationship between functional capacity and real-world achievement, with higher capacity only associated with higher achievement in patients with higher self-efficacy (Cardenas et al., 2013). This suggests that, despite possessing adequate cognitive and capacity-based skills, patients with poor self-efficacy may still have poor real-world achievement. Consequently, promoting everyday living and social self-efficacy may be critical for improving community functioning in individuals with schizophrenia (Cardenas et al., 2013; Hill and Startup, 2013).

Despite observed relationships between self-efficacy and achievement, methods for enhancing self-efficacy in schizophrenia are ill-defined. Applying Social-Cognitive Theory (SCT; Bandura, 1977) in healthy controls, self-efficacy may be enhanced when people: have opportunities to achieve task success and subsequent mastery; observe learning achievements among similar peers (e.g. vicarious learning); receive verbal feedback recognizing effort and relevant successes; and experience positive affect during task performance (Bandura, 1977). Meta-analysis has found that vicarious learning as well as feedback about the participant's earlier performances, or their performances relative to their peers, produces the greatest self-efficacy improvements in healthy populations participating in physical activity interventions (Ashford et al., 2010). Seeing peers succeed as well as receiving feedback about own performance success to enhance awareness and reflection on mastery experiences may therefore be particularly important for enhancing self-efficacy beliefs, which in turn, may promote performance of related behaviors.

Cognitive remediation (CR) is a behavioral learning-based intervention that aims to ameliorate cognitive impairments in schizophrenia, with the overarching goal of improving functioning. There is consistent evidence that CR improves neurocognitive task performance in schizophrenia. Generalization to functional domains is more mixed, however it may be more likely when personalized and contextualized strategy-based training and/or adjunctive treatment (s) are offered. We recently demonstrated that CR may improve everyday living and social self-efficacy (Bryce et al., 2018b), which may support translation of learned skills into psychosocial functioning (Hill and Startup, 2013). We were also told by CR participants that being given the opportunity to be challenged and succeed when performing CR tasks, potentially drawing on the expertise of peers to overcome difficult tasks, strengthened general or task-specific self-efficacy beliefs (Bryce et al., 2018a). The opportunity to connect with and offer support to peers was a positive experience, and for many, enabled them to challenge beliefs about their own social or functional capability. Consequently, key features of the CR experience may be particularly relevant for enhanced everyday living and social self-efficacy (e.g. graded task difficulty to maximize success with associated performance-related feedback, offered in a group to promote opportunities for vicarious learning and enhance social connection).

Unlike other constructs such as intrinsic motivation, there are few documented suggestions for how CR can promote everyday living or social self-efficacy in schizophrenia. Informed by research in schizophrenia, anxiety, chronic disease and healthy populations (Bandura, 1977; Brown et al., 2014; Marks et al., 2005; Medalia and Choi, 2010), Table 1 describes practical considerations that could be considered during CR delivery to enhance everyday living and social self-efficacy beliefs. These include opportunities to: practice (and reflect on) newly acquired skills developed within supportive learning environments; obtain attribution-based feedback (i.e. recognizing effort and associating this with outcome) and performance-based feedback; and encounter and overcome cognitive and functional challenge. Some strategies overlap with methods for enhancing intrinsic motivation (Medalia and Choi, 2010). Although practical, these suggestions require further empirical support.

In conclusion, self-efficacy beliefs are reduced in schizophrenia and are intimately related to impaired functioning. We encourage CR researchers to consider the impact of therapy on self-efficacy, and incorporate therapeutic factors that may enhance functional translation by improving beliefs that behaviors required for independent living or socialization can successfully be performed.

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**Table 1**  
Practical considerations for improving everyday self-efficacy in CR design.

- 1 Utilize a variety of learning techniques focused on skill building (e.g. internal and external strategies), offer bridging sessions to contextualize, personalize and generalize learning, conduct role-plays to practice using and refining new skills in tailored real-world translation scenarios, and reflect on successes of applying these skills in everyday life.
- 2 Create a collaborative working environment where participants can directly or indirectly share learning experiences with their peers, observe peers succeed, and provide mutual support.
- 3 Support confrontation of graded cognitive or functional challenges (including tasks that may have been previously avoided) and maximize opportunities for successful task completion.
- 4 Provide multiple opportunities for task practice as well as positive attributional- and performance-based feedback that correspond with training outcomes to promote reflection on actual performance and how effort and approach contributed to outcome. Reducing assistance over time may promote independence.
- 5 Monitor participant progress, praising small triumphs while reframing identified failures as opportunities for further learning. Promote courage, openness and realistic expectations of success, and minimize consistently high error rates.

#### Contributors

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#### Conflicts of interest

The authors declare no conflicts of interest.

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