Is cognitive intervention or forgiveness intervention more effective for the reduction of driving anger in Chinese bus drivers?

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**Abstract**

This research aimed to explore the effectiveness of a cognitive intervention and a forgiveness intervention for reducing anger and aggressive expression while driving and to compare the differences between the two interventions. The sample included 54 male bus drivers who were randomly divided into three groups, with 18 drivers in each group. The participants in the first group received the cognitive intervention, the second group received the forgiveness intervention, and the third group served as the no-treatment control group. All participants in the three groups completed questionnaires related to driving anger at the post-treatment assessment. The two intervention groups were retested after two months. At post-treatment, the results showed that both the cognitive and forgiveness interventions led to significant reductions in some measures of driving anger and physically aggressive expression and to significant increases in adaptive/constructive expressions of driving anger and the ability to control anger. Furthermore, the interventions promoted drivers’ use of positive cognitive strategies to improve negative emotions. However, the three groups did not differ significantly from one another with regard to the slow driving factor of driving anger, vehicular and verbally aggressive expressions and the level of trait anger. Additionally, participants in the cognitive intervention group experienced significantly greater improvement in driving anger, especially in the discourtesy and traffic obstruction factors and negative cognitive strategies, than participants in the forgiveness intervention group. Limitations and implications for interventions and research are discussed.

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**1. Introduction**

Research on driving anger and aggressive driving behaviors began in the US during the early 1990s. Deffenbacher and his colleagues developed the Driving Anger Scale (DAS) and the Driving Anger Expression Inventory (DAX), which promoted the development of research on driving anger and aggression (Deffenbacher, Lynch, Deffenbacher, & Getting, 2001;
Deffenbacher, Lynch, Oetting, & Swaim, 2002; Deffenbacher, Oetting, & Lynch, 1994). Many researchers have explored and verified the relationships among driving anger and aggressive and risky driving behaviors in different countries and with different samples (Lajunen & Parker, 2001; Sullman, Gras, Cunill, Planes, & Font-Mayolas, 2007; Sullman, Stephens, & Yong, 2014). Scholars of Chinese research institutions such as the Chinese Academy of Sciences revised the DAS and DAX to reflect Chinese driving behaviors (Feng et al., 2016; Ge, Qu, Zhang, Zhao, & Zhang, 2015). However, little research has been conducted in China or abroad on interventions to reduce driving anger.

Deffenbacher summarized four interventions for the reduction of driving anger. The main interventions included cognitive, relaxation and behavioral interventions and their combinations (Deffenbacher, 2016). There is direct and indirect evidence in the literature to suggest that these interventions could effectively reduce some measures of driving anger and some factors of aggression. For example, research on Iranian taxi drivers showed that mindfulness-based cognitive group therapy led to reductions in driving anger and aggression and improved the adaptive/constructive expression of driving anger (Kazemeini, Ghanbari-e-Hashem-Abadi, & Safarzadeh, 2013). Other research (Kogan, Richards, & Deffenbacher, 2001) has shown that both relaxation and cognitive-behavioral interventions decreased driving anger, hostile thinking and aggressive expressions of driving anger and increased adaptive/constructive expressions of driving anger compared to a no-treatment control group. The Chinese scholar Shen (2013) used psychological interventions to treat plateau military truck drivers. The findings revealed that both cognitive-behavioral and relaxation group interventions could relieve anxiety and depression. Cognitive-behavioral interventions reduced driving aggression and increased adaptive expressions of driving anger. However, the relaxation intervention had no effect on driving behaviors (Shen, 2013).

1.1. Cognitive therapy

Cognitive therapy is a traditional method in psychotherapy. Beck’s cognitive therapy suggests that a disturbance in cognition causes a disturbance in feeling and behavior and that cognitive and behavioral interventions can change individuals’ negative cognition (Beck, Emery, & Greenberg, 1986). Thus, cognitive (Deffenbacher, 2016), cognitive-behavioral (Kogan et al., 2001) and cognitive-relaxation interventions (Richards, Deffenbacher, Filetti, Lynch, & Kogan, 2001) have been effectively applied to reduce driving anger. Rational-Emotive Therapy (RET) is one of the most representative methods in cognitive therapy (Ellis, 1991). According to the formulation of Albert Ellis (1991), the ABC theory of RET holds that Activating Events (As) in people’s lives contribute to their emotional and behavioral disturbances or Consequences (Cs) largely because they are mingled with or acted upon by people’s Beliefs (Bs) about these Activating Events (As). Thus, ABC theory implies that irrational beliefs cause negative emotions and behaviors.

Cognitive reappraisal of cognitive therapy aims to rectify irrational beliefs. Specifically, cognitive reappraisal encourages the individual to understand or rationalize negative events or situations by developing alternative positive cognition to change adverse emotions and behaviors. Previous studies have shown that cognitive-behavioral therapy that included cognitive reappraisal treated driving anger effectively (Deffenbacher, Dahlen, Lynch, Morris, & Gowensmith, 2000; Deffenbacher, Filetti, Lynch, Dahlen, & Oetting, 2002). Anderson and Bushman (2002) suggested that cognitive reappraisal could reduce aggressive behaviors when the individual had sufficient cognitive resources. Novaco (1997) found that cognitive reappraisal was an important measure to reduce general anger. Ray, Wilhelm, and Gross (2008) induced college students to recall rage incidents in a laboratory and guided students to use different cognitive strategies to regulate anger. The findings indicated that college students who accepted cognitive reappraisal had less anger.

1.2. Forgiveness therapy

Researchers have found that forgiveness may help individuals to reduce anger, relieve pain and maintain physical and mental health (Bono & Mccullough, 2006). Forgiveness is a response to unfairness that includes the reduction of resentment or anger toward an offender and the institution of more positive feelings, thoughts, and behaviors toward that person (Enright, 2001; Knutson, Enright, & Garbers, 2008). Therefore, forgiveness involves the affective, cognitive and behavioral systems. Crucially, forgiveness is different from reconciliation. Reconciliation involves two people coming together again in mutual trust, whereas forgiveness is one person’s choice to abandon resentment and offer beneficence in the face of unfairness. In other words, one can forgive without reconciling (Baskin & Enright, 2004).

1.2.1. Forgiveness models

Two main research groups have developed the foundation of empirical research on forgiveness intervention (Wade & Worthington, 2005). The first model of forgiveness was developed by Enright and the Human Development Study Group (1991). The model is described as an unfolding process of 20 units that can be generalized into four phases: Uncovering, Decision, Work and Deepening (Baskin & Enright, 2004). The model begins with the victim uncovering anger and resentment caused by the offender’s injustice. The insights from uncovering the pain lead to the Decision Phase, in which the person rethinks past attempts to regulate emotions and solve the problem, explores the meaning of forgiveness and the options for forgiveness in dealing with the problem, and commits to forgiveness. The Work Phase includes a set of thinking exercises to see the offender in a new light and stepping into the offender’s shoes to emotionally experience his or her confusion, vulnerability, or stress, which can increase a sense of compassion for the offender. Here, the forgiver gives a moral gift to the offender by not seeking revenge. Finally, the Deepening Phase includes finding meaning in what was suffered, realizing that
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