Self-Beliefs, Resources, and Self-Regulation in Adult ADHD

Psychotherapeutical Relevance and Implications

Inaugural Dissertation

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by

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Table of Contents

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Declaration of Authorship

The submitted articles in partial fulfillment of the requirements for the degree of Doctor of Philosophy were written in collaboration with the respective co-authors. Three original articles were produced. Neither the author, the co-authors, nor any other person published the articles elsewhere. All citations are indicated and only the mentioned sources were used. Graphics and figures by other authors which were adapted in this work are indicated as such.

For the purpose of the cumulative dissertation, the following papers have been accepted and published in refereed journals. Copies of the articles are attached in appendices A, B, and C.

Article 1

Newark, P., & Stieglitz, R.-D. (2010). Therapy-relevant factors in adult ADHD from a cognitive behavioural perspective. *Attention Deficit and Hyperactivity Disorders, 2,* 59-72.

Article 2

Newark, P.E., Elsässer, M. & Stieglitz, R.-D. (2012). Self-esteem, self-efficacy, and resources in adults with ADHD. *Journal of Attention Disorders*. Advance online publication. doi: 10.1177/1087054712459561.

Article 3

Elsässer, M., Newark, P.E., & Stieglitz, R.-D. (2014). Selbstregulation, Lageorientierung und Aufmerksamkeit bei erwachsenen ADHS-Patienten. *Zeitschrift für Klinische Psychologie und Psychotherapie*, *43,* 43-52.

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Patricia Elizabeth Newark

Abstract

This dissertation aims to contribute to the developing research on adult ADHD in focusing on the role of self-beliefs, resources, and self-regulatory abilities.

From childhood onwards, adults with ADHD have been afflicted with functional impairments in multiple domains of their life. Even though medication treatment addresses the core neurobiological symptoms of ADHD, many adults continue to suffer from residual symptoms and struggle with interpersonal, academic, and vocational difficulties. Living with this lifelong history of negative experiences and underachievement affects the formation of the individual's self-esteem, self-efficacy, and gives rise to maladaptive coping strategies.

In this work we aim to obtain a deeper understanding of those psychological factors in adults with ADHD that are closely linked to their self-beliefs, their ability to initiate and to pursue their goals (self-regulation), and their ability to apply effective coping strategies. Another focus lies on the specific resources people with ADHD possess, as they can be crucial to help improve the aforementioned self-beliefs and coping strategies.

The first article ***Therapy-relevant factors in adult ADHD from a cognitive behavioural perspective*** provides an overview of the current empirical findings and the theoretical state of knowledge with respect to *self-beliefs* and *resources* in adult ADHD*: Schemas, self-esteem, self-efficacy, coping strategies, and resources.*

Based on the theoretical framework in the first article we conducted an empirical study to investigate ***self-esteem, self-efficacy and resources in adults with ADHD*** (article 2) in comparison to a healthy control group. Relationships between elevated psychological distress and the aforementioned factors were also surveyed. Adults with ADHD showed lower levels of self-esteem and self-efficacy and higher levels of general distress than the control group. With respect to the resources, the ADHD group showed lower values compared with the control group in some but not all of the resources. The following resources were equally well-marked in both groups: Family, leisure time, housing, ability to love, courage, and faith. The results of this study have important implications for the treatment of adult ADHD, suggesting that therapy programs for adult ADHD should include modules for enhancing self-esteem, self-efficacy, and fostering the patient's resources.

The third article explores ***self-regulation in adult ADHD***. Self-regulatory abilities are of central importance for attaining personal goals. Yet the first article highlights that adults with ADHD often lack positive coping strategies and exhibit low self-efficacy, factors which interfere with the initiation and the pursuit of intentions. Why they have those difficulties in regulating their objectives and instead end up using maladaptive coping strategies such as procrastination is the question we tackle in the third article. In a first step, we compared self-regulatory abilities in adults with ADHD, such as

the inhibition of the volitional processes or the tendency for state orientation, with a healthy control group. We then scrutinized if adults with ADHD with increased attentional impairments displayed a larger tendency for state orientation compared to individuals with less pronounced attentional deficits. The results indicate that the ADHD group exhibited elevated values for volitional inhibition as well as for self-inhibition when compared to the control group. Regarding self-regulation, we found the variable self-motivation to be significantly reduced, which stands in contrast to the variables activation control or self-determination. Furthermore, in comparison to the controls the ADHD group showed higher values of prospective state orientation and state orientation subsequent to failure. Also, increased attentional impairment in adult ADHD is positively associated with processes of volitional inhibition and negatively associated with prospective action orientation. No significant relationship was found between higher levels of inattention and action orientation subsequent to failure.

The final part of the dissertation juxtaposes the strengths and limitations of our conclusions and discusses possible implications for the psychotherapeutic interventions in adult ADHD.

1 Introduction

From a very early age on individuals with Attention Deficit Hyperactivity Disorder (ADHD) experience adversely high levels of inattention, impulsivity, and hyperactivity. As a consequence they are often exposed to a multiplicity of adverse life outcomes and suffer from underachievement. Starting from childhood, and ongoing in adulthood, they are familiar with interpersonal, academic, and vocational difficulties (Barkley, 2010; Stieglitz, Nyberg, & Hofecker-Fallahpour, 2011). To make matters worse, 70-75% of adults with ADHD suffer from psychiatric comorbidity; most prevalently anxiety disorder, depression, or substance use disorder (Biederman, 2004; Shekim et al., 1990; Wilens et al., 2002).

Hence it comes as no surprise that numerous negative experiences affect the formation of the individual's **self-beliefs**, such as esteem, self-efficacy, and core beliefs/schemata (Philipsen et al., 2007; Ramsay & Rostain, 2008; Safren, 2006). Consequently individuals with ADHD often lack confidence in being able to handle a difficult situation and in turn develop maladaptive coping strategies (dysfunctional behavior), for instance avoidance or procrastination. These maladaptive coping strategies maintain and reinforce the individual's negative view of the self - a vicious cycle.

To get a clearer picture of these maladaptive coping strategies it is also important to look into the **self-regulatory abilities** of adults with ADHD. Deficient (emotional) self-regulation is considered as part of the core symptomatology (Barkley, 2010; Corbisiero et al., 2012) of this disorder and is said to bring about miscellaneous disadvantages. When it comes to translating the own intentions into action in order to attain goals, adults with ADHD often struggle. In challenging situations they tend to feel overwhelmed and helpless; essentially unable to act (Ramsay & Rostain, 2008; Barkley et al., 2008). Subsequently they cannot access their motives and needs, and tasks are frequently procrastinated or discontinued before completion (Ramsay & Rostain, 2005).

As opposed to these difficulties, adults with ADHD are said to possess various internal **resources**, such as enhanced creativity (Hallowell & Ratey, 1994; Weiss, 1997) or resilience, the capacity to hopefully try again after experiencing a disappointment (Young, 2005). Such strengths are therapy-relevant in that they can help establish positive beliefs about the self and one's own abilities. Accordingly, coping skills could break the vicious cycle of negative appraisal.

Although the importance of a resources-oriented view in the psychotherapy of adult ADHD seems evident, resources have only been playing a subordinate role. Few therapy manuals emphasize the strengths adults with ADHD possess (Hesslinger et al., 2002; Young & Bramham, 2007), and hardly any studies have been conducted in this field. Simply put, our knowledge about the specific resources of adult ADHD offers room for improvement.

With this work I aim to address this gap. I intend to focus on the patient's immanent inner psychic experiences with respect to the image of herself and her own capabilities. Self-esteem and self-

efficacy can create positive beliefs about the self and one's own abilities, and may therefore be of crucial importance for the psychotherapy of ADHD in adulthood. We also draw attention to the specific resources people with ADHD possess, as they can be essential to help improve self-beliefs and coping strategies. Further, we emphasize the importance of self-regulatory strategies to initiate and pursue personal goals, as well as to make use of effective coping strategies.

Some factors seem to be more expedient to round off the psychotherapeutic treatment of this disorder. Given that the treatment of adult ADHD focuses in general on the disorder and deficits, we were interested in finding the factors which can trigger a positive effect on the patients and enhance psychotherapeutic efficacy.

The first article gives an overview about the current empirical findings and the theoretical state of knowledge with respect to the following therapy-relevant factors (which are specified in section 2.1.): Schemas, self-esteem, self-efficacy, coping strategies, and resources. Based on the findings in article 1 we conducted a study to investigate self-esteem, self-efficacy and resources in a clinical sample of adults with ADHD and compared them with a healthy control group. This constitutes article 2. Digging deeper, self-regulation plays an important role in influencing coping mechanisms, self-esteem, and self-efficacy. On that account, our third article explores self-regulation in adult ADHD in comparison to healthy adults.

1.1 Aims, Questions, and Predictions

Adult ADHD is predominantly associated with a long-lasting history of negative life outcomes and underachievement. Negative self-beliefs and maladaptive coping strategies lead to an increase of ADHD symptomatology and a decrease of therapy motivation.

This dissertation contributes to the body of literature on adult ADHD with new findings and interrelations with respect to self-esteem, self-efficacy, resources, and self-regulation. I conclude with recommendations for **psychotherapeutical implications** based on these findings and the theoretical background.

The purpose of the first article is to provide a theoretical overview on therapy-relevant factors in adult ADHD (schemas, self-esteem, self-efficacy, coping strategies, and resources) and to summarize current psychotherapeutical interventions. This synopsis emphasizes the cognitive behavioral interventions tailored to those factors on the basis of latest research.

The centrepiece of this dissertation is article 2, a comparative study with the objective of detecting possible differences on self-esteem, self-efficacy, and resources between adults with ADHD and a healthy control group. Patients who met diagnostic criteria for ADHD in adulthood were matched with adults from a nonclinical sample in terms of gender and age. We explored if adults with ADHD differed significantly in matters of self-esteem and self-efficacy. Furthermore, we hypothesized a significant relationship between an elevated psychological distress level and self-esteem, self-efficacy, and resources, respectively. Above all, we were interested whether adults with ADHD show significant differences compared to a healthy control group with respect to their resources.

Article 3 is our second empirical study which scrutinized self-regulatory abilities in adults with ADHD. Again, adults with ADHD were matched with adults from a nonclinical sample. Based on the theoretical background, in particular the Personality Systems Interaction (PSI) Theory from Kuhl (1994) and the existing empirical evidence, we expected people with ADHD to show larger impairments in self-regulation as well as stronger inhibition of the volitional processes compared with a healthy control group. A tendency for state orientation in the ADHD group was predicted. By state orientation we mean an impairment of affect regulation. A patient is stuck in negative thoughts and cannot concentrate on action. In closing, we addressed the question whether increased attentional impairments in adult ADHD (versus less affected attentional impairment) is associated with stronger inhibition of the volitional processes and the tendency for state orientation.

2 Theoretical Background

2.1 A Cognitive-Behavioral Model of Adult ADHD

What are the inner psychic factors in an adult person with ADHD that shape the image of herself and her own capabilities? Successful psychotherapeutic treatment hinges upon their identification.

The existing literature, especially a cognitive-behavioral model of adult ADHD (Young & Bramham, 2007; Safren et al., 2005), indicates some promising factors.

In the literature review (article 1) we start with definitions of the core beliefs/schemas, self-esteem, self-efficacy, coping strategies, and resources in the context of adult ADHD. We highlight the relevance for adult ADHD, present empirical studies, and specific therapeutic interventions and their significance. We refer to these factors of interest as “therapy-relevant factors”.

Considering that many different factors can be significant for the psychotherapy of adult ADHD, we are above all interested in immanent factors such as the patient’s self-beliefs. Another focus of our attention is given to the resulting impact on coping strategies as well as resources.

These factors are crucial in adults with ADHD, inasmuch as these patients start psychotherapy with a pessimistic view of the self due to their lifelong history of underachievement in important life areas. It is this biased view of the self that may sabotage motivation and stamina for the psychotherapeutic work. I depict the theoretical framework and summarize the interplay of our factors of interest with the help of a cognitive-behavioral model of adult ADHD (see figure 1; Young & Bramham, 2007; Safren et al., 2005).

Individuals with ADHD not only suffer from the core symptomatology (attentional problems, impulsivity, hyperactivity) but also from resulting consequences. The long-lasting neuropsychological impairments, give rise to a history of deficiency and underachievement in various life areas (Faraone & Biederman, 2005). What is more, effective coping skills tend to be lacking or turn out to be insufficiently pronounced (Ramsay & Rostain, 2005; Bramham et al., 2009).

As a consequence, deeply enrooted core beliefs about the self and the own capabilities have been developing since childhood or early adolescence. Core beliefs/schemas that are said to be predominant in adults with ADHD are defectiveness (‘‘I’m basically inadequate’’), failure (‘‘I’ve not fulfilled my potential’’), and insufficient self-control (‘‘I cannot rely on myself to do what I need to’’) (Ramsay & Rostain, 2005). Self-esteem and self-efficacy often lag behind as well (Philipsen et al., 2007).

Adults with ADHD can be prone to negative appraisal, when confronted with a demanding situation: They are more likely to have negative thoughts, to be less hopeful about the future, and to be less accepting of themselves than healthy adults (Ramsay & Rostain, 2008). Dysfunctional cognitions (e.g., “I can’t do it”, “I’m going to fail again”) trigger negative emotions (e.g., anxiety, depression), which in turn affect the behavior and often lead to maladaptive coping strategies such as avoidance and procrastination (e.g., “I’m not in the mood now, I’ll do it later”).

In this downward spiral, the problems are lasting or deteriorating, confirming the negative cognitions and core beliefs/schemas. Self-esteem and self-efficacy remain low, and emotions are affected, often characterized by frustration, anger, anxiety, and depression.

Yet it is possible to break this vicious cycle and instead enter a positive cycle if we foster and consolidate internal (e.g. resilience, creativity) as well as external (e.g. family, friends) resources and implement cognitive behavioral strategies.

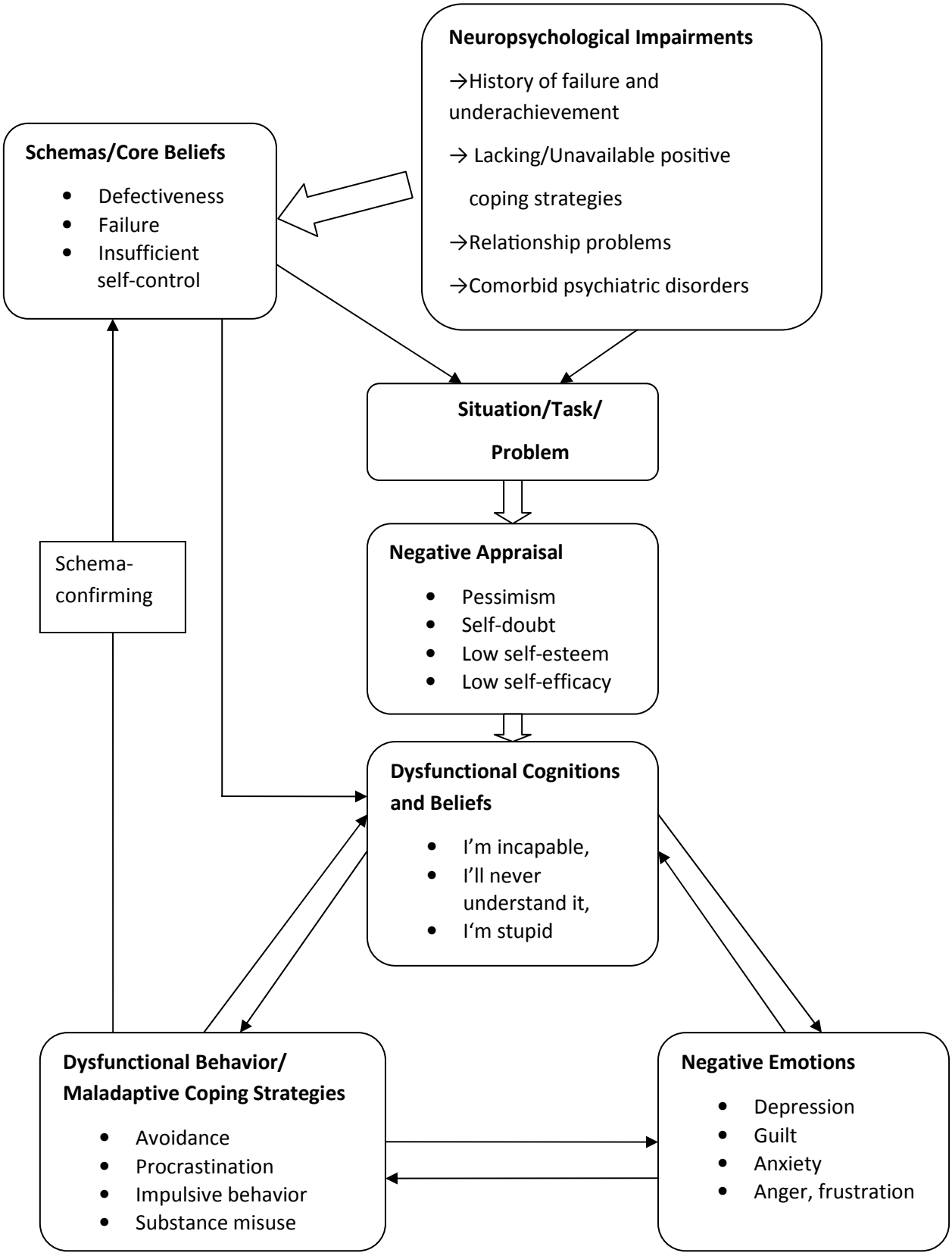

Fig. 1. A cognitive-behavioral model of adult ADHD (modified from Young & Bramham, 2007 and Safren et al., 2005)

To illustrate, take a person with the same neuropsychological impairments and a history of failure as shown in Fig. 1 but let her be equipped with positive coping strategies and resources (e.g. resilience, creativity, CBT-strategies). If she is confronted with a challenging situation, the awareness of her own resources and available coping strategies leads to positive appraisal (see Fig. 2). The person is confident of being capable to cope with the problem; self-esteem and self-efficacy are high. In this sense, cognitions and beliefs reflect an optimistic colouring ("I'm capable to do this"), which leads to positive emotions and the application of coping strategies (behavior). Avoidance and procrastination (Fig. 1) are no longer prevailing; instead the person makes use of available coping strategies or seeks help if needed (Fig. 2).

By making new and positive (schema-non confirming) experiences the person is able to re-evaluate existing schemas/core beliefs. In doing so, helpful schemas/core beliefs can be developed. The new schemas/ core beliefs encourage a favourable appraisal of the self and one's own capacities to cope with future obstacles. In short, the vicious cycle is remodeled into an upward spiral.

2.2 Research and Practice in CBT for Adult ADHD

2.2.1 Self-Esteem and Self-Efficacy

Cognitive behavioral therapy has proven to yield significant improvement of self-efficacy and self-esteem in adult ADHD (Bramham et al., 2009; Stevenson et al., 2002; 2003), an improvement which is considered to be highly important in ADHD treatment (Ramsay & Rostain, 2005; Stevenson et al., 2002; Virta et al., 2008).

In order to improve self-esteem, these studies employed CBT techniques, such as identifying automatic thoughts, challenging negative statements, and finding new, more helpful responses (Stevenson, 2002; Virta et al., 2008). Ramsey and Rostain (2005) point out that cognitive therapy and behavioral skills training can help ADHD patients develop effective coping strategies and may have an impact on dysfunctional thoughts, negative emotions, and hence, on self-esteem. Bramham (2009) and Young & Bramham (2007) posit that psychoeducation is crucial for individuals with ADHD to repair their self-esteem by creating a better understanding about this neurobiological disorder and the associated behavior (e.g. skills deficits or maladaptive coping strategies). By doing so, they can review past life events through a new perspective (Safren, 2004; Wender, 1995).

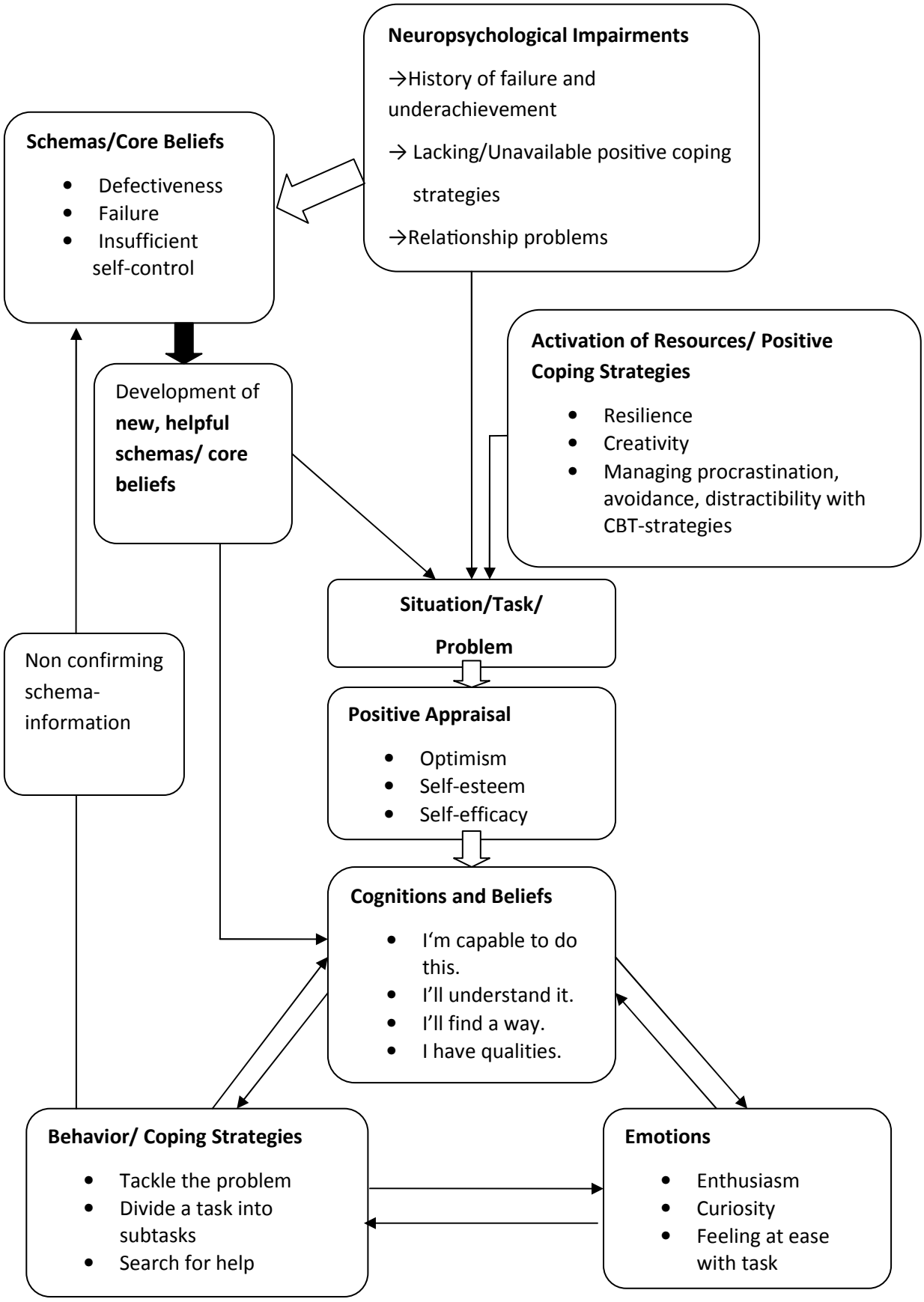

Fig. 2. A cognitive-behavioral model of coping strategies and resources in adult ADHD (modified from Young & Bramham, 2007 and Safren et al., 2005)

Goal-setting, as well as believing that one can achieve it, is regarded as fundamental to improve self-efficacy. For encouraging the patient to set goals Bramham et al. (2009) first elaborate the patient's strengths and lifetime achievements. In a second step, social resources (e.g. family, friends) are used to help setting objectives, anticipating potential pitfalls, and providing problem-solving competencies. Moreover, establishing immediate rewards for achievement is an important strategy in adults with ADHD (Bramham et al. 2009).

A major objective in CBT is that patients feel capable of tackling obstacles autonomously or are able to search for support when needed - as a consequence their self-efficacy can grow.

2.2.2 Schemas

Even though the importance of the belief system/schemas in adult ADHD is being repeatedly discussed lately, a literature research with the key words ''adult ADHD'', ''schemas'' or ''belief system'' yielded no studies. The author of this dissertation is currently conducting a study to scrutinize schemas in adult ADHD.

Ramsay and Rostain (2008) argue that in CBT for adult ADHD detecting the learning history, negative beliefs/schemas, and self-defeating behavior should be part of the case conceptualization. Self-defeating behavior (compensatory strategies), such as avoidance and procrastination, play a central role in nourishing maladaptive schemas and negative thinking. By focusing on the belief system, these compensatory strategies can be abandoned (McDermott 2000; Ramsay & Rostain, 2008). Apart from the cognitive work, it is crucial for the patients to make new and corrective experiences, enabling them to challenge negative beliefs. Behavioral experiments are valuable tools to adjust the belief system.

In line with this approach Bramham et al. (2009) emphasize that cognitive therapy for adults with ADHD should focus on belief change, as negative cognitions and beliefs can reinforce their symptomatology. To tackle the core beliefs, Beck's cognitive model (1976) on negative cognitions is applied. The cognitive techniques are comprised of the identification of automatic thoughts and thinking errors (or even the core beliefs). Subsequently, the patient works on challenging and replacing negative thoughts with more helpful ones. On this basis, work on compensatory strategies or low self-esteem can be facilitated. Moreover, existing resources can be nurtured in that the patient finds more positively colored ways to view the self, the world, and the future (cognitive triad; Beck, 1976).

2.2.3 Coping Strategies

Young (2005) investigates coping strategies commonly employed by adults with ADHD. The ADHD group was found to employ maladaptive coping strategies such as confrontative and escape-avoidance problem-solving strategies. Yet, individuals with ADHD seem to have the capacity to positively reappraise stressful situations, encouraging them to try again. This kind of resilience may represent a protective factor. Nevertheless, people with ADHD have specific deficits in coping and need to practice helpful coping skills in stressful situations. To this end, CBT offers effective tools.

CBT interventions to develop coping strategies can be differentiated into a behavioral and a cognitive part (Safren, 2006). The behavioral skills training includes training in organization, planning, and avoidance management. Working on dysfunctional thoughts and negative emotions is the heart of cognitive interventions.

Safren's study (2006) provides evidence that a skills-building approach (CBT) has significant beneficial effects in adults with ADHD. Another focus is made in the Young-Bramham programme (2007), where interventions centre upon emotional-focussed coping (uncontrollable situations) and problem-solving strategies (controllable situations). Mood-focussed strategies are applied to help the patient deal with strong emotions in situations that seem beyond their control. Here again, identifying and challenging negative thoughts, as well as behavioral changes are key elements. Another helpful tool is the technique of superimposing positive thoughts: Patients articulate positive and motivating self-statements. This technique may correspond to individuals with ADHD drawing on their own resilience.

2.2.4 Resources

Resources play a pivotal yet largely neglected role. Psychotherapists are acquainted with the favourable effects of working on and with the patient's strengths. It has been shown that patients who successfully activate their resources experience more flourishing therapeutic outcome (Gassmann & Grawe, 2006). But while therapy studies point out the advantageous effects of focusing on resources in general (Fiedler, 2007; Klemenz, 2009; Willutzki, 2003), they have as yet been playing a minor role in ADHD treatment. Only few therapy manuals emphasize the resources in adults with ADHD and the importance of fostering them (Hesslinger et al., 2002; Young & Bramham, 2007).

This seems unwarranted, as people with ADHD are said to have specific internal resources such as enhanced creativity (Hallowell & Ratey, 1994; Weiss, 1997) and divergent thinking (the ability to develop multiple ideas or solutions to a problem) (White and Shah, 2006). Other resources described

in the clinical practice are resilience (the capacity to try again and hope for a successful outcome after experiencing a disappointment; Young, 2005), curiosity, imaginativeness, and flexibility (Hesslinger et al., 2002). These specific strengths can be harnessed for psychotherapy. At present, empirical studies in this field are still rare, just as our knowledge about the specific resources of adult ADHD is scarce.

On this account we conducted a study to gain more insight about self-esteem, self-efficacy and resources (see section on methods; article 2).

2.3 Theory of Self-Regulation

2.3.1. Self-Regulation in Adults with ADHD

Self-regulatory processes are important for the adjustment of feelings and thoughts in a given situation. Whether a person is more likely to enter a positive or a negative affective state crucially depends on their self-regulatory abilities (Baumann et al., 2007). These processes become especially effective when it comes to the realization of goals and the satisfaction of needs or motives (Kuhl, 2006).

In adult ADHD deficient emotional self-regulation seems to be part of the syndrome. Even more, it is being discussed as part of the core symptomatology (Barkley, 2010; Corbisiero et al., 2012).This discussion is in line with Nigg (2005), who conceptualizes ADHD as a disorder of self-regulation of affect, as well as of attention, motivation, and arousal. On that note, Surman et al. (2013) conclude that deficient emotional self-regulation is overrepresented in adult ADHD in comparison to healthy controls.

In particular, individuals with ADHD struggle with the initiation, realisation, and monitoring of routine activities which seem tedious and unattractive to them. As a result, these unpleasant tasks are procrastinated or discontinued before completion (maladaptive coping strategies) (Ramsay & Rostain, 2005). This is aggravated by the fact that adults with ADHD have difficulties to prioritize, plan, and organize processes. Moreover, they struggle with having a realistic time management in their everyday activities (Bramham et al, 2009). By and large adults with ADHD experience helplessness, hopelessness, fear of failure, and emotional overreactivity (stress intolerance) when confronted with demanding tasks or situations (Ramsay & Rostain, 2008; Barkley, 2008).

This proneness to enter a negative affective state could be partly explained by a diminished reactivity to positive stimuli, which is characteristic of ADHD patients (Conzelmann et al., 2009). Another typical feature is a somewhat stronger response to unpleasant stimuli (Conzelmann et al., 2009; Hale

et al. 2006). Consequently, when facing challenging situations, individuals with ADHD have difficulties to stay on top of things, to develop alternative solutions (cognitive impulsivity), and to stop ruminating (cognitive compulsiveness) (Kordon & Kahl 2004). But what exact mechanisms lie behind the difficulties that adults with ADHD have in translating their intentions into action? Kuhl (1983) presents the theory of Personality Systems Interactions that lends itself well for application to the ADHD pathology.

2.3.2. Theory of Personality Systems Interaction (PSI; Kuhl 2000, 2001)

Kuhl's PSI theory (1983) starts from the premise that four fundamental cognitive macrosystems must be considered to understand the link between intentions and action. These cognitive macrosystems can be activated or inhibited through positive or negative affective states. In a nutshell, we can say that self-regulatory abilities are dependent on how much we can regulate our affect.

As only a short summary is given at this juncture, I refer to Kuhl (2001) for a more detailed insight.

In what follows, the four macrosystems (depicted in Fig. 3) are described: The *intention memory (IM)* contains the representation of the intentions. Moreover, it is connected with the analytic thinking and elaborates difficult intentions (explicit, desired intentions). The main purpose of the *intuitive behavior system (IBS)* is to carry out automatic courses of action. It operates on an implicit-automatic level. The extension memory (EM) is engaged in processing self-relevant information, and is often addressed as the self-system (Koole & Kuhl, 2003). It comprises representations of personal needs, motives, experiences, expectancies, autobiographical memories, and other self-relevant information. Finally, the *Object recognition system (ORS*) operates on a conscious level. It identifies single experiences or specific features of an object. In addition, it produces input, which is implemented in the extension memory.

Transforming difficult intentions into actions is a process in which the IM colludes with the IBS. The connection between ORS and EM is the crucial link that processes personally significant information. According to the PSI theory, activation or inhibition of intentions depends on whether positive or negative emotional states are enabled.

Positive affect facilitates the information exchange between IM and IBS, and therefore the enactment of intentions takes place. By the same token, a decrease of positive affect or even an increase in negative affect causes a volitional inhibition, meaning that the representation of the intention continues to exist, while simultaneously the initiation of actions is impeded.

Negative affect, activated by failure, inhibits the communication between the EM and ORS. In this situation the self-representation in the EM is inaccessible (e.g. not being aware of the own preferences). A reduction of negative affect enables the access to the EM, increases a coherent self-

representation, and influences behavior and experiencing. This can be attained through self-relaxation or external reassurance.

The PSI theory differentiates the ability to reduce feelings of hopelessness or anxiety (self-relaxation) and to overcome feelings of sluggishness as well as to restore positive affect (self-motivation). These self-regulatory abilities are divided into state versus action orientiation (Kuhl, 1994). Both, state and action orientation can be further distinguished into a *prospective* and a *failure-related orientation* (Kuhl, 1983). Individuals with a *prospective state orientation* have difficulties in neutralizing the inhibition of positive affect in face of stressful situations. They have trouble initiating their intention due to hesitation or shiftlessness. *Failure-related state orientation* on the other hand describes the difficulty to reduce negative affect after failure, to stop ruminating, and the incapacity to maintain self-access. The prospective action orientation is conceived of as the ability to self-generate positive affect in face of obstacles, and consequently to facilitate actions (Kuhl & Kazén, 1999). Failure-related action orientation describes the ability to reduce negative affect after experiencing difficulties and the ability to maintain self-access.

2.3.3. Experimental Findings

During their decision process individuals with action orientation experience an increase of action alternatives (Beckmann & Kuhl, 1984). In test conditions they more frequently considered task-relevant information (Kuhl, 1981) and exhibited shorter response rates when the task was exacerbated by emotional distractors (e. g. the word „loser“ was shown) (Stiensmeier et al., 1989).
Individuals with state orientation have substantial difficulties to downregulate their negative affect on their own. Yet if external support is available they are well capable of having self-access and of using their creative skills (Kuhl, 1998). An experiment by Guevara (1994) showed that state oriented persons had the same capacity to access their preferences as action oriented subjects if and only if they were in a relaxed condition.

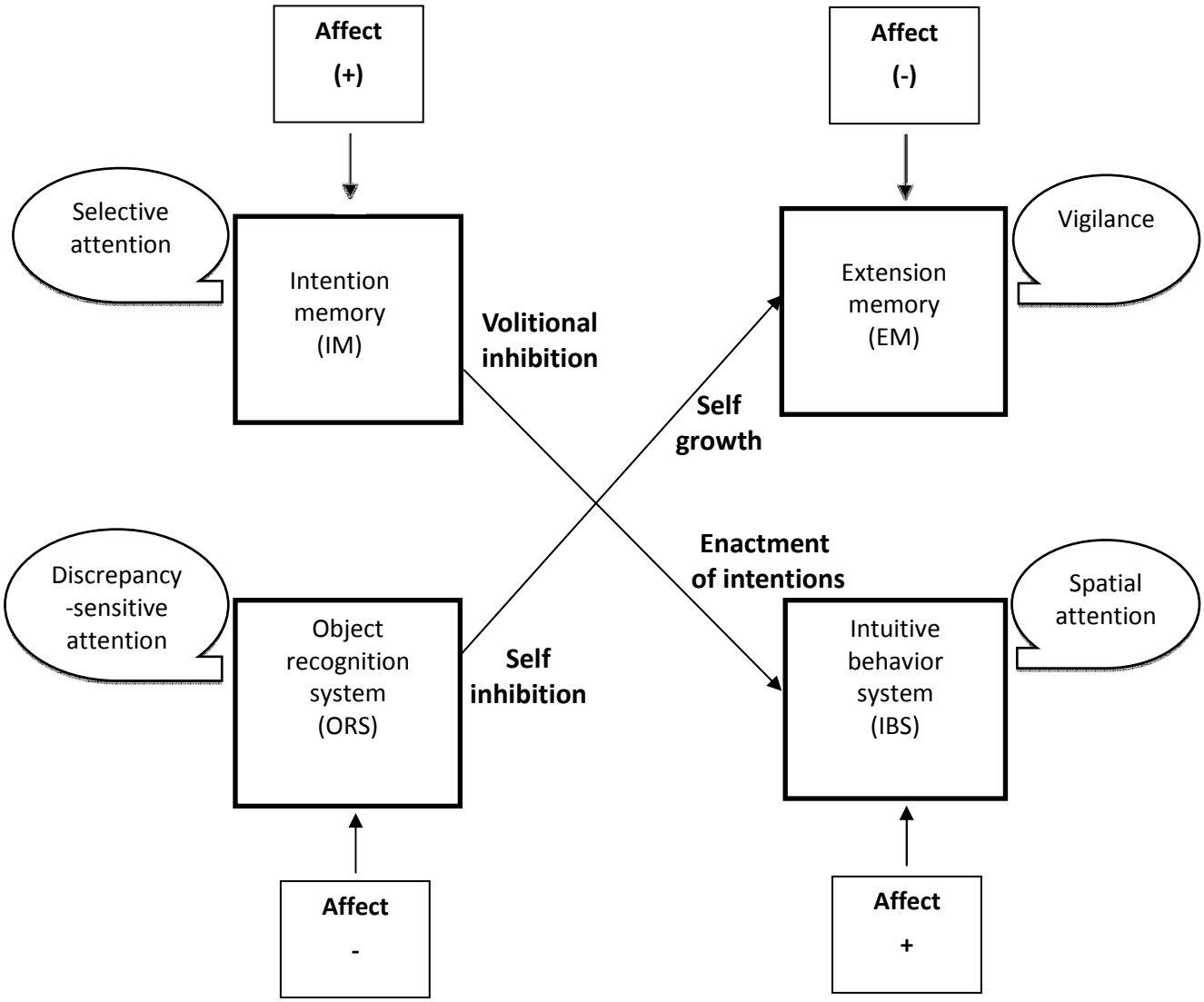

Fig. 3 Schematic depiction of the Personality Systems Interaction Theory (Kuhl, 2001)

Taken as a whole, action oriented people possess a highly pronounced capacity for affect regulation as opposed to state oriented people. Under stress, state oriented people have less self-access than action oriented people, meaning that recalling their motives, needs or personal experiences is impeded.

To acquire a better understanding of adults with ADHD self-regulatory processes, such as the tendency for state or action orientation, we conducted our second study (see section on Methods; Article 3).

3 Methods

3.1 Literature Review (Article 1-3)

Information on the current state of research and theoretical approaches were gathered through the databases MEDLINE, PsycINFO, PSYNDEXplus, and Pubmed for the years 1980 to 2013. The search was conducted using the following key words: adult attention deficit hyperactivity disorder (ADHD), cognitive-behavioral therapy, psychotherapy, self-esteem, self-efficacy, core beliefs, belief system, schemas, coping strategies, resources, creativity, and self-regulation.

3.2 Study Design: Article 2 and Article 3

3.2.1 Participants

Study participants were a total of 86 men and women between the ages of 19 and 60. The experimental group (henceforth EG) consisted of adults who met Diagnostic and Statistical Manual of Mental Disorders (4th ed., text rev.; DSMIV-TR; American Psychiatric Association, 2000) criteria for ADHD in adulthood at the ADHD consultation of the Psychiatric University Clinic of Basel.

The EG was matched with 43 adults from a nonclinical sample (control group, henceforth CG) in terms of gender and similarities of age. Participants in the CG were not previously diagnosed with ADHD.

The following inclusion criteria were determined: (a) men and women of 18 to 60 years of age, (b) no current severe comorbid psychiatric disorder or mental retardation, and (c) informed consent given.

3.2.2 Procedure and Measures

Diagnostics of ADHD in adulthood was carried out by experienced and specifically trained clinical psychologists, by means of structured clinical interviews and established rating scales (Stieglitz, 2010).

At the end of the examination patients were given a set of self-report questionnaires to be sent back upon completion. The set included the Symptom Checklist-90-Revised (SCL-90-R; Derogatis, 1992), the Rosenberg Scale (Collani & Herzberg, 2003), the General Perceived Self-Efficacy Scale (SWE; Schwarzer & Jerusalem, 1995), the Resources Checklist (RCL; Dick, 2003), the Self-Regulation Inventory (SSI-K, short version; Kuhl & Fuhrmann, 1998), and the Action Control Scale (HAKEMP 90; Kuhl, 1990). Additionally, the CG received the ADHD-Screener (World Health Organization [WHO], 2003).

In our second study, the ADHD group was divided into two groups characterized by “increased attentional impairments” and “less pronounced attentional deficits”. Group classification was based on a measure of inattention by self-report (ADHS-SB, Rösler, Retz, Retz-Junginger & Stieglitz, 2008) and assessment through others with Conners’ Adult ADHD Rating Scale (CAARS-R, Conners, Erhard & Sparrow, 1999). For more information concerning the applied questionnaires see the corresponding section measures in articles 2 and 3.

3.2.3 Data Analysis

Data analysis was performed using SPSS for Windows (Version 19.0). We applied Kolmogorov-Smirnov tests to check for the normality of the distribution of demographic and clinical characteristics of the sample. Unless stated otherwise, a *p*-value of .05 was chosen as the criterion of statistical significance.

We detected differences in demographic as well as in clinical characteristics between the groups via t-tests and chi-square tests. To assess group differences in self-esteem, self-efficacy, and resources (article 2), we conducted two-way between-groups ANOVA and one-way between-groups MANOVA. The relationship between the general psychological distress level on the one hand and self-esteem, self-efficacy, and resources on the other hand was analysed with Pearson’s product-moment correlation coefficient. The strength of the relationship was chosen after Cohen (1988), suggesting the following guidelines: small r = .10 to .29, medium r = .30 to .49, and large r = .50 to 1.0.

The EG and CG were compared with respect to self-regulatory competencies and the tendency for state orientation (article 3) using an analysis of covariance and a simple regression. Effect sizes for Eta-Square were as follows (Cohen, 1988): small r = .01, medium r = .06, and large r = .14.

To detect a possible influence of increased inattention (within the ADHD group) on self-regulatory competencies and the tendency for state orientation, an analysis of regression was computed separately for self-report and for report of significant others.

4 Summary of the Results

In the following section the author summarize the main results of the two studies (article 2 and 3). For an extensive and more detailled description of the findings, as well as for sociodemographic information and tables, see the results sections in article 2 and 3.

4.1 Article 2

4.1.1 Are there significant differences between adults with ADHD and a healthy control group in terms of self-esteem and self-efficacy?

Differences in self-esteem and self-efficacy between adults with ADHD and a healthy CG were explored by using two-way between-groups ANOVA. The groups revealed significant differences with large effect sizes: The ADHD group exhibited significantly reduced values of self-esteem ($F(3, 82) = 34.7$, $p < .001$) and self-efficacy ($F(3, 82) = 39.4$, $p < .001$) compared with the CG. There were no significant gender effects found for self-esteem ($F(3, 82) = 0.018$, $p = .894$) or for self-efficacy ($F(3, 82) = 3.35$, $p = .071$).

4.1.2 Are there significant differences between adults with ADHD and a healthy control group with respect to their resources?

To investigate group differences with respect to the resources they possess we conducted a one-way between-groups MANOVA.

More specifically, we analysed the two main categories, environmental/social resources and personality-related resources, as well as 14 subcategories (according to Dick, 2003; Article 2, pp. 6). The results showed significant group differences at $p < .01$ or less among the following variables: environmental/social resources, personality-related resources, partnership, vocation, health, self-esteem, confidence, creativity, sense of control, and composure. Taken together, the ADHD group exhibited a significantly lower level of these resources than the CG. Interestingly however, there are resources that did not seem to differ between the groups: family, leisure time, housing, ability to love, courage, and faith.

4.1.3 Is there a significant relationship between the general psychological distress level and factors such as self-esteem, self-efficacy, and resources?

We conducted correlations to assess relationships between two groups of variables: (a) The general psychological distress level (SCL-90-R: GSI) and self-esteem (Rosenberg Scale) or self-efficacy (SWE scale), respectively. (b) The general psychological distress level (SCL-90-R: GSI) and the resources (14

subcategories of the RCL). We employed Pearson's product-moment correlation coefficient to investigate relationships between the variables, calculating the value for each group separately.
In both groups, the correlations between GSI and self-esteem imply a significant negative relationship with moderate effect sizes (EG: r = −.44, n = 43, $p < .01$; CG: r = −.50, n = 43, $p < .001$). The correlation between GSI and self-efficacy indicates a significant relationship in the CG ($p < .01$). In the EG, the same correlation just missed to provide statistical significance (r = −.19, n = 43, p = .072).
For the CG, these results suggest that increasing levels of general psychological distress are accompanied by lower levels of both self-esteem and self-efficacy. In contrast, the ADHD group exhibits a negative relationship between self-esteem and high levels of general psychological distress. Self-efficacy is seemingly unrelated.

An elevated general psychological distress level is associated with a reduced disposability of several resources in both groups. Crucially, an elevated GSI in the ADHD group did not significantly correlate with a reduced disposability in a number of resources: partnership, housing, ability to love, courage, creativity, and sense of control. For the CG, an elevated GSI was not significantly associated with a reduced disposability of the resources partnership, housing, self-esteem, ability to love, and sense of control.

4.2 Article 3

4.2.1 Do adults with ADHD exhibit larger impairments in self-regulation as well as a distinct tendency for state orientation compared with a healthy control group?

To address this question we conducted a covariance analysis (ANCOVA), which revealed an elevated volitional inhibition (F (1,83)=101.63, $p< 0.001$, η^2=0.55) as well as elevated self-inhibition (F (1,83)=40.08, $p< .001$, η^2=0.33) in the ADHD group when compared to the CG.

As for *self-regulation*, we found the variable self-motivation to be significantly reduced (F (1,83)=14.1, $p< .001$, η^2=0.15), but not the variables activation control or self-determination.

In the category volitional inhibition, the ADHD group showed significantly higher values of prospective state orientation (F (1,83)=48.21, $p< .001$, η^2=0.37), a higher disposition for volitional passivity (F (1,83)=66.9, $p< .001$, η^2=0.45), and poorer concentration (F (1,83)=85.9, $p< .001$, η^2=0.51) than the control group.

Self-inhibition in adult ADHD revealed a significantly higher goal fixation (F (1,83)=19.6, $p< .001$, η^2=0.19), higher values of conformity (F (1,83)=24.1, $p< .001$, η^2=0.23), and higher values of state orientation subsequent to failure (F (1,83)=33.9, $p< .001$, η^2=0.29) than the controls.

When measured with the HAKEMP 90 we found a significantly reduced prospective action orientation (F (1,83)=48.21, $p< .001$, η^2=0.37) in the ADHD group, as well as a significantly reduced action orientation subsequent to failure (F (1,83)=22.2, $p< .001$, η^2=0.211). All significant findings showed large effect sizes.

4.2.2 Do adults with ADHD with increased attentional impairments display a larger tendency for state orientation compared to adults with ADHD with less pronounced attentional deficits?

Regression analysis showed a significant, positive relationship between increased attentional impairments and volitional inhibition in adults with ADHD. These results were independent of whether the assessment of inattention was conducted through self-reports (β=.62, p=.001, R^2 =.390) or through others (β=.62, p=.001, R^2=.390).

Furthermore, we found a significant, negative relationship between increased attentional impairments and prospective action orientation (self-report: β=-.52, p=.001, R^2=.271; assessment through others: β=-.44, p=.003, R^2=.197). Our results highlight that increased attentional impairment in adult ADHD is positively associated with processes of volitional inhibition and negatively associated with prospective action orientation. No significant relationship was found between higher levels of inattention and action orientation subsequent to failure (self-report: β=-.16, p=.310, R^2=.025; assessment through others: β=-.14, p=.357, R^2=.021).

5 Discussion and Outlook

5.1 Discussion

This dissertation contributes to the developing research in adults with ADHD and their self-beliefs, resources, and self-regulation. First, we survey differences in self-esteem, self-efficacy, and resources in untreated adults with ADHD in comparison with healthy adults. Furthermore, the relationships between elevated psychological distress level and the aforementioned factors are scrutinized, in addition to the relationships between self-esteem, self-efficacy, and resources. Second, we examine self-regulatory abilities in adults with ADHD, such as the inhibition of the volitional processes or the tendency for state orientation, in comparison to a healthy control group. In the following section, I briefly discuss the results of the both studies separately, eventually getting round to the strengths and limitations of our studies. On that basis, I suggest possible implications for the psychotherapeutic interventions in adult ADHD and show how to dovetail them into the theoretical framework from the first article.

The principal findings of the article s*elf-esteem, self-efficacy, and resources in adults with ADHD* (Newark, Elsässer & Stieglitz, 2012) reveal that adults with ADHD exhibit significantly lower levels of self-esteem and self-efficacy than comparable healthy adults. These results are in line with the current literature (Philipsen et al., 2007; Ramsay & Rostain, 2008; Safren, 2006).
With respect to the resources, the ADHD group showed significantly lower values compared with the CG in some but not all of the resources. The resources partnership, vocation, and health showed lower values, which is consistent with the prevailing research. Individuals with ADHD commonly struggle with interpersonal (Barkley, et al. 2008) and vocational difficulties (Barkley, 2010; Biederman & Faraone, 2006) as well as increased health problems (Barkley et al., 2008). Furthermore, an impaired feeling of control (sense of control = "sense of being able to influence one's life in important areas") was predominant in adult ADHD. This result is consistent with our findings that ADHD brings about reduced self-efficacy. This is a novel contribution, to the fact that resources have not yet been empirically surveyed in adults with ADHD.

Even so, some resources are equally well-marked among adults with ADHD as they are among the healthy controls: Family, leisure time, housing, ability to love, courage, and faith. The resource family (e.g. "feeling loved and accepted the way I am by the family members") was particularly prominent in the ADHD group and showed a positive relationship with self-efficacy as well as self-esteem. Barkley (2010) highlights the use of external resources (family or friends) to assist adults with ADHD to manage and optimize their tasks. Overall, it could be especially advantageous to include family members or close friends as coaches beyond psychotherapy (e.g. for doing homework and to train new behavior). Our findings suggest that the use of external resources can foster self-efficacy and self-esteem.

In addition, the resources *leisure time* (e.g. "satisfaction with leisure time activities") and *housing* ("satisfaction with domicile") were equally available in adults with ADHD yet seem to only play a subordinate role with respect to self-efficacy or self-esteem. Although adults with ADHD often experience relational problems, their *ability to love (e.g.* "having the capacity to give and accept love") did not seem to be affected. Further, a significant, positive relationship between *ability to love* and self-esteem was found. This suggests that the resource "ability to love" could be employed for nurturing interpersonal coping strategies to counteract frequent interpersonal difficulties (Barkley et al., 2008) as well as elevated marital divorce rates (Biederman & Faraone, 2006).

Courage is a resource which was visibly present in adults with ADHD and showed a significant and positive relationship with self-efficacy and self-esteem. "Courage to go into uncertain or dreaded

situations" or "endurance when committed to something to hang in until the goal is reached" are attributes of utmost importance when facing new experiences and challenges in a psychotherapeutic setting. For that reason, it seems worthwhile that the therapist takes into account the detection and fostering of these resources. Finally, the resource faith was comparable in both groups. This resource is characterized by statements such as "believing in the meaningfulness of life" or "believing in a superior power which protects me". Faith/spirituality might be a protective factor for psychological well-being in general (Klein & Albani, 2007; Lee, Stacey, & Fraser, 2003; Seybold & Hill, 2001). Our result suggests that this strength can be specifically employed for psychotherapy.

As can be seen in our findings and in previous studies (e.g., UMASS study; Barkley, 2010), individuals with ADHD were found to have a significantly higher distress level (SCL-90-R: GSI) than healthy adults. Both ADHD in itself as well as frequent psychiatric comorbidity account for an increased psychological distress level. It stands to reason that a greater amount of psychological distress is likely to have an impact on self-esteem and self-efficacy. While we found this predicted effect in the CG, the ADHD group only showed this relationship for self-esteem.
At first glance one might assume that one explanation for this discrepancy could be that the ADHD group already started this study with much lower values of self-esteem and self-efficacy. But self-esteem was affected by psychological distress. If low self-esteem is further reduced by psychological distress, this raises the question why self-efficacy is not reduced as well. In what follows, I discuss the presumption of protective factors in adult ADHD and their possible influence on self-efficacy.

Overall, both groups showed significant and negative relationships between the general psychological distress level and the 14 resources. Simply put, we found that higher levels of psychological distress are associated with less pronounced resources. This relationship seems to be largely independent of the psychopathology of ADHD, for the impact of psychological distress on their resources was comparable in both groups. Nevertheless, two noteworthy exceptions were detected: *Courage* and *ability to love* are not likely to be different in between groups and were not affected by elevated psychological distress in adults with ADHD. On that account, we presume that *courage* and *ability to love* may be protective resources in ADHD. In theory (Hannah, Sweeney, & Lester, 2007) as well as in empirical studies (Kowalski et al., 2006; Pury & Kowalski, 2007), courage correlates with efficacy-related states. In our study *courage* featured a positive significant relationship with self-esteem and self-efficacy, which presents itself as a potential explanation as to why a high GSI did not impinge on self-efficacy.
On the other hand, for the resource *ability to love* we could only find a positive significant relationship with self-esteem but not with self-efficacy. It is possible that *ability to love* behaves as a

general protective factor, as it is related to experiencing life satisfaction and psychological well-being (Dick, 2003; Seligman, 2002).

In our second study, *Self-Regulation, State Orientation and Attention in Adults with Attention Deficit Hyperactivity Disorder* (Elsässer et al., 2014), we obtained the following main findings: Compared with a healthy control group, adults with ADHD displayed a significantly impaired ability for self-regulation (specifically self-motivation) and a strong tendency for volitional inhibition as well as for self-inhibition. Self-regulation was further classified into subcategories. Among those, activation control and self-determination (consisting of self-congruency and optimism) showed no differences between the groups. We assume that adults with ADHD exhibit the ability for self-activation ("I'm only then at my best when difficulties arise"), for setting self-congruent goals ("In my actions I mostly sense that it's me that wants to act this way") and to remain optimistic ("Even in difficult situations I am confident that I'll be able to solve the problem somehow"), which are considerable resources. In addition, the prospective action orientation and the action orientation subsequent to failure were significantly reduced in the ADHD group. Put differently, adults with ADHD seem to exhibit a higher proclivity for state orientation.

Within the ADHD group we found different degrees of attentional impairments (high vs. low attentional impairment) that affect self-regulatory processes. Higher values of attentional impairment were associated with increased volitional inhibition and with reduced values of prospective action orientation. According to Kuhl (2001) the intention memory is closely related to an intention-focused attention (selective attention), which supports the maintenance of intentions in this system. The attentiveness for signals that match with the intentions and objects in the intention memory eventually leads to action. We suppose that impaired attention may influence the intention memory, giving rise to volitional inhibition.

In contrast, higher levels of inattention in adult ADHD revealed no significant relationship with self-regulation (self-motivation, activation control or self-determination), self-inhibition (goal fixation, conformity, state orientation subsequent to failure), or action orientation subsequent to failure. We hypothesize that the reason why we found no relationship between inattention and self-inhibition or self-regulation has to do with the construct of inattention in the applied measures. The ADHD-measures capture aspects of inattention which dovetail with Kuhl's (2001) construct of volitional inhibition (intention memory), but not with self-inhibition. In in the process of self-inhibition a high sensibility for discrepancies (object recognition system) and vigilance (extension memory) play a central role (compare figure 3; PSI theory).

Our findings with respect to the impaired ability for self-regulation in adult ADHD compared to healthy adults are in keeping with several empirical studies (Surman et al., 2013; Hervey et al., 2004; Bramham et al., 2009; Kordon & Kahl; 2004). Adults with ADHD are said to have difficulties with the regulation of positive and negative affect (Rapport et al., 2002; Conzelmann et al., 2009; Corbisiero et al., 2013). Once activated, they exhibit difficulties in reducing negative affect autonomously. The resulting elevated negative affect makes for the blockage of the access to one's very own values, needs, and experiences in the extension memory. Thus, a higher risk for psychic and physical disorders may arise (Kaschel & Kuhl, 2004).

Irrespective of their subtype, adults with ADHD show a reduced reaction to pleasant stimuli (Conzelmann et al., 2009) and struggle to activate positive affect to offset the volitional inhibition. It has been shown that pharmacotherapy with methylphenidates (Edel et al., 2009) significantly helped the patients channel the values of their state orientation in the direction of action orientation. Even so, the ADHD patients remained state oriented.

5.2 Strengths and Limitations

Our research provides a novel contribution to the current literature on self-beliefs, resources, and self-regulation in adult ADHD. To our knowledge, this study is the first to survey resources in adult ADHD. Even though research on self-regulation in adult ADHD is growing, we provide a novelty in exploring self-regulation and state vs. action orientation. In addition, our study is in keeping with the existing research; the findings for self-esteem and self-efficacy dovetail with the current literature, yielding complementary evidence on these important factors.

However, some limitations of our studies should be taken into account when interpreting the results. Even though we meticulously matched our samples in terms of age and gender, the ADHD and the control group are not fully comparable on behalf of their educational achievements and vocational situation. People suffering from ADHD tend to have educational and vocational difficulties. On these grounds, the educational and vocational situation in a nonclinical sample is expected to be superior. Future studies should also employ another clinical sample as a comparison group.

One might also criticize that the applied resources questionnaire was not being validated. To date, resources in adult ADHD have not been subject of empirical studies. For a first insight into that field, we kept the survey as short and concise as possible. In a next step, the resources questionnaire should be validated and applied in a bigger sample of adults with ADHD. It also seems worthwhile to shed light on the role of other resources that are specific to ADHD. Further research should be directed towards creativity - an often cited ADHD resource that harbors potential for optimizing educational and vocational choices.

A drawback in our second study is that self-regulation was only assessed through self-report questionnaires. Participants with ADHD might exhibit the tendency to underestimate their self-regulatory competencies, when trying to explain their difficulties. Future studies should therefore additionally employ assessments through significant others such as spouses or life partners.
There are statistical caveats as well. In the second part of study 2 we divided the ADHD group into a low inattention and a high inattention group. Reducing the sample size tends to lower the precision of the estimates, an issue that future studies can ameliorate by increasing the primary sample size.

5.3 Implications for Psychotherapy and Outlook

Treatment of choice for reducing the core symptoms of adult ADHD consists of pharmacotherapy with methylphenidates (Faraone et al., 2004; APA NICE, 2009). However, one should be concerned that up to 50% of the patients experience side effects or are non-responders (Sobanksi & Alm, 2004; Wilens et al., 1997). What is more, psychiatric comorbidity in up to three out of four patients (Rösler et al., 2010) requires adjunctive psychosocial interventions.

Disorder-specific cognitive behavioral interventions in combination with stimulants provide an efficient treatment if not the treatment of choice (Wiggins et al., 1999; Hesslinger et al., 2002; Safren et al., 2005; Rostain & Ramsay, 2006). The current guidelines recommend a multimodal approach (Seixas et al., 2011; APA NICE, 2009). On that note, cognitive-behavioral therapy (CBT) may be particularly useful for adult ADHD because of the structured nature of the sessions and the goal-oriented approach. Empirical evidence suggests that psychoeducation as well as training and maintenance of concrete strategies are important elements in CBT. Both individual and group-based therapies seem to be effective settings. For an overview on CBT strategies and psychosocial treatment of adult ADHD see Elsässer et al. (2010) or Knouse et al. (2008).

Yet more research is needed to explore the mediating variables in treatment of adult ADHD. Which psychotherapeutic components benefit adults with ADHD most effectively?

Based on a cognitive-behavioral model of adult ADHD (Fig. 1), this thesis suggests some implications for the psychotherapeutic treatment.

To break the negative cycle (compare with 2.1) it is essential in psychotherapy that:

- The patient is aware of her **belief system** and can work on it.
  This implies
  - understanding the reciprocal influence of cognition, emotion, and behavior
  - identification of negative thinking, maladaptive schemas, or maladaptive coping strategies
  - challenging negative thoughts

- implementing helpful thoughts and coping strategies
- implementing new experiences in the self-beliefs and building new, helpful schemas/core beliefs

- The patient develops **effective coping strategies** and practices them.
  - e.g. managing avoidance, procrastination with CBT strategies
  - organization and planning strategies
- The patient can make positive experiences with respect to **self-efficacy** and **self-esteem.**
  - to this end the therapist's attitude (sympathetic, supportive and encouraging) and the therapeutic relationship are essential
  - the patient makes positive experiences by practicing skills, becoming aware of the very own resources and by using cognitive techniques
- The therapist fosters the patient's **internal and external resources** and their implementation in everyday life.
  - working out the patient's individual resources (e.g. resilience, creativity)
  - having a "support person" as a coach is a valuable external resource

Cognitive behavioral therapy has already proven to yield a significant improvement of self-efficacy and self-esteem in adult ADHD (Bramham et al., 2009; Stevenson, Stevenson, & Whitmont, 2003), an improvement which is considered to be highly important (Ramsay & Rostain, 2005; Stevenson et al., 2002; Virta et al., 2008). However, similar studies that assess the role of schemas or core beliefs in adults with ADHD are pending. The author is currently conducting a study to survey if maladaptive schemas (Young et al., 2003) are predominant in adults with ADHD in comparison to healthy individuals. Deeply enrooted schemas/core beliefs can behave as moderating factors that hamper treatment efficacy. The study's outcome could thus add to the cognitive-behavioral model of adult ADHD by providing evidence to refine therapeutic components.

Activating the patient's resources gives rise to a more flourishing therapeutic outcome (Gassmann & Grawe, 2006). But while therapy studies point out the advantageous effects of focusing on resources in general (Fiedler, 2007; Klemenz, 2009; Willutzki, 2003), they have been playing a minor role in ADHD treatment to date. A resources-oriented approach should be incorporated in therapy manuals for adult ADHD.

Likewise enhancing **self-regulation** in adult ADHD requires particular therapeutic interventions. To develop **self-regulation** individuals with ADHD need to link the self-system with **affect-regulating experiences**. Having an encouraging and understanding significant other (e.g. family, friends) at her

side may allow for such an experience (Kaschel & Kuhl, 2004). Due to frequent relational problems (Barkley et al., 2008; Biederman & Faraone, 2006) some ADHD patients do not get support from their environment. In those cases it is crucial all the more that the therapeutic relationship provides this support.

A key element to come by **emotional autonomy** is **learning and practicing strategies for emotional regulation and self-motivation**. Furthermore, conveying strategies to develop action plans and eventually putting them in motion play an important part in ADHD therapy (Elsässer et al., 2010). In conclusion, experiencing congruency between planned and executed actions has a positive effect on self-esteem and self-efficacy.

Gawrilow et al. (2013) used a technique called **mental contrasting** to help facilitate the self-regulation of goal pursuit in school children. This intervention has shown to be applicable in adults (Oettingen et al., 2005) and consists of the following steps: 1. Name the most important concern in a specific area. It is important to choose a concern for which the chance of succeeding is considered high; 2. Imagine and elaborate on the attainment of the desired future; 3. Imagine and elaborate on those aspects of the present reality that stand in the way of a successful achievement.

The expectation of success leads to strong goal commitment and motivation (Oettingen & Gollwitzer, 2010). Conversely, when the expectancy of success is low, people form, if anything, only a weak goal commitment.

Starting from a **resources-oriented perspective**, Risch & Wilz (2013) postulate the use of a **resources diary** to enhance emotional regulation in individuals after an in-patient stay (non-ADHD sample). Mainly, the re-evaluation of situations took place. Re-evaluating is considered as a functional strategy for emotional regulation (Aldao et al., 2010). The interventions in the resources diary are supposed to activate positive emotions through memories, reflecting on the own emotions and becoming aware of the personal resources. Accordingly, the capacity for emotional regulation should be enhanced (Joorman & Gotlib, 2010).

Another approach to enhance self-regulation seems to be **mindfulness-based meditation** (Zylowska et al., 2008). Study participants showed improvements in attention and self-regulation as well as a decrease in depression and anxiety. For this reason, mindfulness-based meditation lends itself to be employed as a useful self-regulation practice (Hesslinger et al., 2004; Zylowska et al., 2008).

Over the past few years many different therapeutic approaches have been scrutinized to help people with ADHD to deal with their symptomatology and the associated problems, from CBT to even newer

methods such as mindfulness-based meditation. Still, many questions remain unanswered and future research is strongly needed. Such research should focus on the following points:

- The most effective factors of CBT for adult ADHD should be detected and implemented in therapy manuals.
- Specific resources adults with ADHD possess (e.g. creativity) should be identified. Resources-oriented modules for adult ADHD should be elaborated and evaluated.

  Another important field in which these strengths could be implemented is vocational guidance in adolescents and adults.
- In addition, factors that impact treatment effectiveness (e.g. schemas/core beliefs) should be detected and worked on.
- Long-term effects of CBT and other psychosocial treatments should be investigated with follow-up studies.

Living with ADHD implies a familiarity with lifelong impairment, setbacks, and often with being trapped in negative self-beliefs. Becoming aware that the lack of helpful coping strategies and frequently occurring unfavourable beliefs about oneself aggravates ADHD symptomatology is a crucial step to start improving. Current research in this field indicates that psychotherapy for adult ADHD should provide approaches that enable patients to work on their belief system and which incorporate their strengths and implement them in their everyday life. As a result, their motivation can grow (by becoming aware of their strengths) and successful experiences can be made. Effective coping strategies for problem-solving as well as self-regulatory strategies need to be elaborated and trained in everyday life. An improved self-regulation is crucial to adjust “negative” feelings and thoughts in demanding situations. Thus, instead of feeling overwhelmed and helpless, people with ADHD can access their personal motives and needs. In addition, they can rely on problem solving strategies. Taken together, they are more likely to realize goals, which in turn lead to an increase of self-esteem.

Future studies still have to identify which psychotherapeutic factors are the most effective ones in the treatment of adult ADHD. Having these tools at our disposal will allow us to help individuals with ADHD to help themselves by breaking the vicious cycle and instead creating an upward spiral.

References

Aldao, A., Noelen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review, 30*, 217-223.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders (4th ed., text rev.).* Washington, DC: Author.

Baumann, N., Kaschel, R., & Kuhl. J. (2007). Affect sensitivity and affect regulation in dealing with positive and negative affect. *Journal of Research in Personality, 41,* 239–248.

Barkley, R. A., Murphy, K. R., & Fischer, M. (2008). *ADHD in adults: What the science says*. New York, NY: Guilford.

Barkley, R.A. (2010). Deficient emotional self-regulation: A core component of attention-deficit/ hyperactivity disorders. *Journal of ADHD and Related Disorders, 1,* 5-37.

Beck, A. T. (1976). *Cognitive therapy and the emotional disorders.* New York, NY: Meridian.

Beckmann, J., & Kuhl, J. (1984). Altering information to gain action control: Functional aspects of human information processing in decision-making. *Journal of Research in Personality, 18,* 223-279.

Biederman, J. (2004). Impact of comorbidity in adults with attention-deficit/hyperactivity disorder. *Journal of Clinical Psychiatry, 65,* 3–7.

Biederman, J., & Faraone, S. V. (2006). The effects of attention-deficit/hyperactivity disorder on employment and household income. *Medscape General Medicine, 8,* 12.

Bramham J., Ambery F., Young S., Morris R., et al. (2009). Executive functioning differences between adults with attention deficit hyperactivity disorder and autistic spectrum disorder in initiation, planning and strategy formation. *Autism, 13,* 245-64.

Cohen, J. W. (1988). *Statistical power analysis for the behavioural sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Collani, G., & Herzberg, P. Y. (2003). Eine revidierte Fassung der deutschsprachigen Skala zum Selbstwertgefuhl von Rosenberg. *Zeitschrift für Differentielle und Diagnostische Psychologie, 24*, 3-7.

Conzelmann, A., Mucha, R. F., Jacob, C. P., Weyers, P., et al. (2009). Abnormal affective responsiveness in attention-deficit/hyperactivity disorder: Subtype differences. *Biological Psychiatry, 65,* 578–585.

Conners, C. K., Erhard, D., & Sparrow, D. (1999). *Conners' Adult ADHD Rating Scales (CAARS)*. New York: Multi-Health Systems.

Corbisiero, S., Stieglitz, R.-D., Retz, W. & Rösler, M. (2012). Is emotional dysregulation part of the psychopathology of ADHD in adults? *ADHD Attention Deficit and Hyperactivity Disorders, 5,* 83-92.

Derogatis, L. R. (1992). *SCL-90-R, administration, scoring and procedures manual-II for the revised version and other instruments of the psychopathology rating scale series.* Towson, MD: Clinical Psychometric Research.

Dick, A. (2003). *Psychotherapie und Glück: Quellen und Prozesse seelischer Gesundheit.* Bern: Hans Huber.

Edel M. A., Pfütze E. M., Lieder A., Assion H. J., et al. (2009). Self concept, action control and ADHD symptoms under methylphenidate treatment in adults with ADHD. *Pharmacopsychiatry, 42,* 109-113.

Elsässer, M., Nyberg, E., & Stieglitz, R.-D. (2010). Kognitiv-behaviorale Strategien in der Behandlung von Erwachsenen mit ADHS. *Zeitschrift für Psychiatrie, Psychologie und Psychotherapie, 58*, 35-44.

Faraone, S.V., Spencer, T.J., Aleardi, M., Pagano, C., et al. (2004). Meta-analysis of the efficacy of methylphenidates for treating adult attention-deficit/hyperactivity disorder. *Journal of Clinical Psychopharmacology, 23,* 24–29.

Faraone, S.V., & Biederman, J. (2005). Adolescent predictors of functional outcome in adult ADHD: a population survey. *Poster session presented at the 17th CHADD annual international conference*, Dallas, TX.

Fiedler, P. (2007). Ressourcenorientierte Psychotherapie. In R. Frank (Ed.), *Therapieziel Wohlbefinden. Ressourcenaktivierung in der Psychotherapie* (pp. 19-32). Heidelberg: Springer.

Gawrilow, C., Morgenroth, K., Schultz, R., Oettingen, G., et al. (2013). Mental contrasting with implementation intentions enhances self-regulation of goal pursuit in schoolchildren at risk for ADHD. *Motivation and Emotion, 37,* 134-145.

Gassmann, D., & Grawe, K. (2006). General change mechanisms: The relation between problem activation and resource activation in successful and unsuccessful therapeutic interactions. *Clinical Psychology & Psychotherapy, 13,* 1-11.

Guevara, M. L. (1994). *Alienation und Selbstkontrolle: Das Ignorieren eigener Gefühle*. Bern: Lang.

Hale, T. S., Smalley, S. L., Hanada, G., Macion, J., et al. (2009). Atypical alpha asymmetry in adults with ADHD. *Neuropsychologia, 47,* 2082-2088.

Hallowell, E. M., & Ratey, J. J. (1994). *Driven to distraction*. New York, NY: Pantheon.

Hannah, S., Sweeney, P., & Lester, P. (2007). Toward a courageous mindset: The subjective act and experience of courage*. Journal of Positive Psychology, 2,* 129-135.

Hervey, A. S., Epstein, J. N., & Curry J. F. (2004). Neuropsychology of adults with attention-deficit/hyperactivity disorder: A meta-analytic review. *Neuropsychology, 18,* 485–503.

Hesslinger, B., van Elst, L. T., Nyberg, E., Dykierek, P., et al. (2002). Psychotherapy of attention deficit hyperactivity disorder in adults: A pilot study using a structured skills training program. *European Archives of Psychiatry and Clinical Neurosciences, 252,* 177-184.

Hesslinger, B., Philipsen, A., & Richter, H. (2004). *Psychotherapy in adult ADHD. A Workbook.* Göttingen: Hogrefe.

Joormann, J., & Gotlib, I. H. (2010). Emotion regulation in depression: Relation to cognitive inhibition. *Cognition and Emotion, 47,* 1206-1217.

Kaschel, R., & Kuhl, J. (2004). Motivational counselling in an extended functional context: Personality systems theory and assessment. In W. M. Cox & E. Klinger (Eds.), *Handbook of motivational counseling* (pp. 99-119). Sussex: Wiley.

Klemenz, B. (2009). *Ressourcenorientierte Psychologie. Ermutigende Beiträge einer menschen-freundlichen Wissenschaft* (Band 1). Tübingen: DGVT-Verlag.

Klein, C., & Albani, C. (2007). Religiosität und psychische Gesundheit. Eine Übersicht über Befunde, Erklärungsansätze und Konsequenzen für die klinische Praxis. *Psychiatrische Praxis, 34,* 58-65.

Knouse, L. E., Cooper-Vince, C., Sprich, S., & Safren, S. (2008). Recent developments in the psychosocial treatment of adult ADHD. *Expert Review of Neurotherapeutics, 8,* 1537-1548.

Koole, S. L., & Kuhl, J. (2003). In search of the real self: A functional perspective on optimal self esteem and authenticity. *Psychological Inquiry, 14,* 43-49

Kordon A., & Kahl, K. G. (2004). Aufmerksamkeitsdefizit-/Hyperaktivitätsstörung (ADHS) im Erwachsenenalter. *Psychotherapie, Psychosomatik, Medizinische Psychologie, 54,* 124-136.

Kowalski, R. M., Pury, C. L. S., Sporrer, L., Hunter, E., et al. (2006). Courage and hope: Pathways to action. *Paper presented at the annual meeting of the Society of Southeastern Social Psychologists,* Knoxville, TN.

Kuhl, J. (1981). Motivational and functional helplessness: The moderating effect of action vs. state orientation. *Journal of Personality and Social Psychology, 40,* 155-170.

Kuhl, J. (1983). *Motivation, Konflikt und Handlungskontrolle*. Berlin: Springer.

Kuhl, J. (1990). *Der Fragebogen zur Erfassung von Handlungs-versus Lageorientierung (HAKEMP 90).* Unveröffentlichter Fragebogen, Universität Osnabrück.

Kuhl, J. (1994). A theory of action and state orientation. In J. Kuhl & J. Beckmann (Eds.) *Volition and personality: Action versus state orientation* (pp. 9-46). Göttingen: Hogrefe.

Kuhl, J. (1998). Wille und Persönlichkeit: Funktionsanalyse der Selbststeuerung. *Psychologische Rundschau, 49*, 61-77.

Kuhl J., & Fuhrmann, A. (1998). *Das Selbststeuerungsinventar (SSI): Manual*. Universität Osnabrück.

Kuhl, J., & Kazén, M. (1999). Volitional facilitation of difficult intentions: Joint activation of intention memory and positive affect removes Stroop interference. *Journal of Experimental Psychology: General, 128,* 382-399.

Risch, A. K., & Wilz, G. (2013). Ressourcentagebuch: Verbesserung der Emotionsregulation und der Ressourcenrealisierung durch therapeutisches Schreiben im Anschluss an eine Psychotherapie. *Zeitschrift für Klinische Psychologie und Psychotherapie, 42*, 1-13.

Kuhl, J. (2001). *Motivation und Persönlichkeit. Interaktionen psychischer Systeme*. Göttingen: Hogrefe.

Kuhl, J. (2006). Individuelle Unterschiede in der Selbststeuerung. In J. Heckhausen & H. Heckhausen (Hrsg.), *Motivation und Handeln* (3. Aufl.; S. 303-324). Berlin: Springer.

Lee, J. W., Stacey, G. E., & Fraser, G. E. (2003). Social support, religiosity, other psychological factors, and health. In G. E. Fraser (Ed.), *Diet, life expectancy, and chronic disease: Studies of seventh-day adventists and other vegetarians* (pp. 149-176). New York, NY: Oxford University Press.

McDermott, S. P. (2000). Cognitive therapy for adults with attention deficit/hyperactivity disorder. In: Brown, T. E. (Ed.), *Attention deficit disorders and comorbidities in children, adolescents, and adults* (pp. 569–606). Washington, DC: American Psychiatric Press.

National Collaborating Centre for Mental Health. (2009). *Attention deficit hyperactivity disorder. Diagnosis and management for ADHD in children, young people and adults. Full Guideline.* Clinical Guideline 72. NICE. http://guidance.nice.org.uk

Newark, P.E., Elsässer, M., & Stieglitz R.-D. (2012). Self-esteem, self-efficacy, and resources in adults with ADHD. *Journal of Attention Disorder*. Advance online publication. doi: 10.1177/1087054712459561.

Nigg, J. T. (2005). Neuropsychologic theory and findings in attention-deficit/hyperactivity disorder: the state of the field and salient challenges for the coming decade. *Biological Psychiatry, 57*, 1424-1435.

Oettingen, G., Mayer, D., Thorpe, J., Janetzke, H., et al. (2005). Turning fantasies about positive and negative futures into self-improvement goals. *Motivation and Emotion, 29,* 236-266.

Oettingen, G., & Gollwitzer, P. M. (2010). Strategies of setting and implementing goals: Mental contrasting and implementation intentions. In J. E. Maddux & J. P. Tangney (Eds.),
Social psychological foundations of clinical psychology (pp.114–135). New York: Guilford Press.

Philipsen, A., Richter, H., Peters, J., Alm, B., et al. (2007). Structured group psychotherapy in adults with attention deficit hyperactivity disorder. Results of an open multicentre study. *Journal of Nervous and Mental Disease, 195,* 1013-1019.

Pury, C. L., & Kowalski, R. (2007). Human strengths, courageous actions, and general and personal courage. *Journal of Positive Psychology, 2,* 120-128.

Rapport, L. J., Friedman, S. L., Tzelepis, A., & Van Voorhis, A. (2002). Experienced emotion and affect recognition in adult attention-deficit hyperactivity disorder. *Neuropsychology, 16*, 102–110.

Ramsay, J. R., & Rostain, A. L. (2005). Adapting psychotherapy to meet the needs of adults with attention-deficit disorder. *Psychotherapy: Theory, Research, Practice, Training, 42,* 72-84.

Ramsay, J.R., & Rostain, A.L. (2006). Cognitive behaviour therapy for college students with attention-deficit/hyperactivity disorder. *Journal of College Student Psychotherapy, 21*, 3–20.

Ramsay, J. R., & Rostain, A. L. (2008). *Adult ADHD.* New York, NY: Routledge.

Rösler, M., Retz, W., Retz-Junginger P., & Stieglitz, R.-D. (2008). *HASE. Homburger ADHS-Skalen für Erwachsene.* Göttingen: Hogrefe.

Rösler, M., Retz, W., Fischer, R., Ose, C., et al. (2010). Twenty-four-week treatment with extended release methylphenidate improves emotional symptoms in adult ADHD. *The World Journal of Biological Psychiatry, 11,* 709-718.

Safren, S. A., Sprich, S., Chulvick, S., & Otto, W. L. (2004). Psychosocial treatments for adults with attention-deficit/hyperactivity disorder. *Psychiatric Clinics of North America, 27,* 349–360.

Safren, S.A., Otto, M.W., Sprich, S., Winett, C. L., et al. (2005). Cognitive-behaviour therapy for ADHD in medication-treated adults with continued symptoms. *Behaviour Research and Therapy, 43,* 831–842.

Safren, S. A. (2006). Cognitive-behavioral approaches to ADHD treatment in adulthood. *Journal of Clinical Psychiatry, 67*, 46-50.

Schwarzer, R., & Jerusalem, M. (1995). Generalized self-efficacy scale. In J. Weinman, S. Wright, & M. Johnston (Eds.), *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). Windsor, UK: NFER-Nelson.

Seixas, M., Weiss, M., & Müller, U. (2011). Systematic review of national and international guidelines on attention-deficit hyperactivity disorder. *Journal of Psychopharmacology, 26,* 753-765.

Seligman, M. E. P. (2002). *Authentic happiness: Using the new positive psychology to realize your potential for lasting fulfillment.* New York, NY: Free Press.

Seybold, K. S., & Hill, P. C. (2001). The role of religion and spirituality in mental and physical health. *Current Directions in Psychological Science, 10,* 21-24.

Shekim, W., Asarnow, R.F., Hess, E., Zaucha, K., et al. (1990). An evaluation of attention deficit disorder-residual type. *Comprehensive Psychiatry, 31*, 416–425.

Sobanski, E., & Alm, B. (2004). Aufmerksamkeitsdefizit/Hyperaktivitätsstörung bei Erwachsenen. *Nervenarzt, 75,* 697–716.

Stevenson, C. S., Stevenson, R. J., & Whitmont, S. (2003). A selfdirected psychosocial intervention with minimal therapist contact for adults with attention deficit hyperactivity disorder. *Clinical Psychology & Psychotherapy, 10,* 93-101.

Stevenson, C. S., Whitmont, S., Bornholt, L., Livesey, D., et al. (2002). A cognitive remediation programme for adults with attention deficit hyperactivity disorder*. Australian and New Zealand Journal for Psychiatry, 36,* 610-616.

Stieglitz, R.-D. (2010). Diagnostische ADHS-Skalen bei Erwachsenen. In M. Rösler, W. Retz, & C. M. Freitag (Eds.), *Diagnose und Therapie der ADHS. Kinder - Jugendliche – Erwachsene* (pp. 71-76). Stuttgart: Kohlhammer.

Stieglitz, R.-D., Nyberg, E., & Hofecker-Fallahpour, M. (2011). *ADHS im Erwachsenenalter*. Göttingen: Hogrefe.

Stiensmeier-Pelster J., John M., Stulik A., & Schürmann M. (1989). Die Wahl von Entscheidungsstrategien: *Der Einfluss von Handlungs- und Lageorientierung und die Bedeutung psychologischer Kosten. Zeitschrift für experimentelle und angewandte Psychologie, 2,* 292-310.

Surmann C. B., Biedermann, J., Spencer, T., Miller C. A., et al. (2013). Understanding deficient emotional self-regulation in adults with attention deficit hyperactivity disorder: A controlled study. *ADHD Attention Deficit and Hyperactivity Disorders*. Advance online publication. doi:10.1007/s12402-012-0100-8.

Virta, M., Vedenpaa, A., Gronroos, N., Chydenius, E., et al. (2008). Adults with ADHD benefit from cognitive-behaviorally oriented group rehabilitation: A study of 29 participants. *Journal of Attention Disorders, 12,* 218-226.

Weiss, L. (1997). *ADD and creativity: Tapping your inner muse.* New York, NY: Taylor Trade Publishing.

Wender, E. H. (1995). Attention-deficit hyperactivity disorders in adolescence. *Journal of Developmental and Behavioral Pediatrics, 16,* 192–195.

White, H. A., & Shah, P. (2006). Uninhibited imaginations: creativity in adults with attention-deficit/hyperactivity disorder. *Personality Individual Differences, 40,* 1121–1131.

Wiggins, D., Singh, K., Getz, H.G., & Hutchins, D. E. (1999). Effects of brief group intervention for adults with attention deficit/hyperactivity disorder. *Journal of Mental Health Counseling, 21,* 82–92.

Wilens, T.E., Biederman, J., Mick, E., Faraone, S. V., et al. (1997). Attention deficit hyperactivity disorder (ADHD) is associated with early onset substance use disorders. *Journal of Nervous Mental Disease, 183,* 48–50.

Wilens, T.E., Biederman, J., & Spencer, T.J. (2002). Attention deficit/hyperactivity disorder across the lifespan. *Annual Review of Medicine, 53,* 113–131.

Willutzki, U. (2003). Ressourcen: Einige Bemerkungen zur Begriffsklarung. In H. Schemmel & J. Schaller (Eds.). *Ressourcen. Ein Hand- und Lesebuch zur therapeutischen Arbeit* (pp. 91-110). Tübingen: DGVT-Verlag.

World Health Organization. (2003). *Adult ADHD Self-Report Scale ("ADHD-Screener")—Version 1.1 (Adult ASRS-V1.1)*. Geneva, Switzerland: Author.

Young, S. (2005). Coping strategies used by adults with ADHD. *Personality and Individual Differences, 38,* 809–816.

Young, S., & Bramham, J. (2007). *ADHD in adults. A psychological guide to practice*. Chichester: Wiley.

Young, J.E., Klosko, J.S., & Weishaar, M.E. (2003). *Schema therapy. A practitioner's guide*. New York: Guilford.

Zylowska, L., Ackerman, D. L., Yang, M. H., Futrell, J. L., et al. (2008). Mindfulness meditation training in adults and adolescents with ADHD: A feasibility study. *Journal of Attention Disorders, 11,* 737-746.

Appendix A

Article 1:

Newark, P., & Stieglitz, R.-D. (2010). Therapy-relevant factors in adult ADHD from a cognitive behavioural perspective. *Attention Deficit and Hyperactivity Disorders, 2,* 59-72.

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REVIEW ARTICLE

Therapy-relevant factors in adult ADHD from a cognitive behavioural perspective

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Abstract Adult individuals with attention-deficit hyperactivity disorder (ADHD) have been suffering from this neurobiological and highly heritable disorder chronically since childhood. Resulting from their longstanding neuropsychological impairments, such as attentional problems, emotional instability, and disinhibition, they are familiar to a multiplicity of negative life outcomes and underachievement. Furthermore, a large part of this population suffers from psychiatric comorbidity. This accumulation of negative experiences has an impact on therapy-relevant factors such as the individual's self-esteem, self-efficacy, development of core beliefs/schemas, and coping strategies. Based on negative beliefs about the self, individuals confronted with difficult situations develop maladaptive coping strategies, for instance avoidance and procrastination. These strategies lead to maintenance and reinforcement of maladaptive beliefs, and as such they acquit themselves as schema-confirming. Captured in this vicious cycle, the individual sees her negative view of the self confirmed. The purpose of this paper is to illuminate these interactive factors that influence the aforementioned cycle in order to emphasize the cognitive behavioural interventions tailored to those factors on the basis of latest research. Furthermore, the authors want to attract notice to the resources people with ADHD are said to have, namely creativity and resilience. These postulated resources could be therapy-relevant by creating positive beliefs about the self, hence improving coping skills and breaking the vicious circle of negative appraisal. Taking into account personal resources and their fostering may be an important fundament for the treatment plan of adult ADHD. Information on the current state of research and theoretical approaches concerning the below-mentioned key words was gathered through MEDLINE, PsycINFO, PSYNDEXplus, and PubMed databases.

Keywords Adult attention deficit hyperactivity disorder (ADHD) · Cognitive behavioural psychotherapy · Self-esteem · Self-efficacy · Core beliefs · Schemas · Coping strategies · Resources

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Introduction

ADHD in adulthood implies suffering from this neurobiological and highly heritable disorder chronically since childhood (Murphy 1998; Ramsay and Rostain 2008). As a result of their longstanding neuropsychological impairments, such as attentional problems, emotional instability, disorganized behaviour, insufficient self-regulation, and disinhibition, they are supposed to be familiar to a multiplicity of negative life outcomes and underachievement. Comorbidity must be named as possible aggravating circumstance given that 70–75% of adults with ADHD enter treatment with at least one additional psychiatric disorder (most prevalently anxiety disorder, depression, or substance use disorder) (Biederman 2004; Shekim et al. 1990; Wilens et al. 2002).

Various areas of an individual's life with ADHD are affected, which manifests itself in interpersonal, academic, and vocational difficulties. This accumulation of negative experiences affects the formation of the individual's self-esteem and self-efficacy (Ramsay and Rostain 2008). Moreover, they have an impact on the development of core beliefs/schemas (e.g. defectiveness, failure). Based on

negative beliefs about the self and the own competences, individuals confronted with stressful events develop maladaptive coping strategies (dysfunctional behaviour) such as avoidance and procrastination. Insidiously as they are, these strategies lead to maintenance and reinforcement of maladaptive beliefs, and as such they acquit themselves as schema-confirming. Captured in this vicious cycle, the individual experiences disappointments over and over again, confirming her negative view of the self.

On the other hand, adults with ADHD are said to be especially creative and resilient (Young 2005; Hallowell and Ratey 1994) and to possess strengths and resources. If the resources postulated are identified and acknowledged, they could be therapy-relevant by creating positive beliefs about the self and the own abilities. This in turn would improve coping skills and break the vicious cycle of negative appraisal.

The aim of this paper is to illuminate these cohesive and interactive factors that influence the aforementioned cycle in order to emphasize the cognitive behavioural interventions tailored to those factors on the basis of latest research.

Taking into consideration that a lot of different factors can be significant for the psychotherapy of ADHD in adulthood, we want to focus only on those immanent factors that already existed before treatment, such as the patient's inner psychic experiences with respect to the image of herself and her own capabilities. Of further interest is the resulting impact on coping strategies as well as resources that can help improve coping strategies.

These factors have a specific importance in adults with ADHD, as troubled with their disorder and associated negative life outcomes, these patients enter psychotherapy with a negatively colored perspective of the self. If identified by the therapist, these factors are potentially of paramount importance for psychotherapy.

Methods

Information on the current state of research and theoretical approaches concerning the below-mentioned key words was gathered through MEDLINE, PsycINFO, PSYNDEXplus, and Pubmed databases. The time span ranged from 1980 to November 2009. The search was conducted using the following key words: adult attention deficit hyperactivity disorder (ADHD), cognitive behavioural therapy, psychotherapy, self-esteem, self-efficacy, core beliefs, belief system, schemas, coping strategies, resources, creativity, and convergent/divergent thinking.

We also scrutinized reference lists of articles and used citation searching for all articles that referred to our key words. Articles were included if they addressed topics such as cognitive behavioural approaches for adult ADHD, cognitive behavioural therapeutic concepts (concerning ADHD and self-esteem, self-efficacy, core beliefs, coping strategies, resources), schema therapeutic approaches, or basic principles of theory relating to either self-esteem, self-efficacy, core beliefs, schemas, coping strategies, or resources.

The subsequent text consists of the following sections: Core beliefs/schemas, self-esteem, self-efficacy, coping strategies, and resources. Each section is further divided into four subsections, composed of definition, relevance for adult ADHD, empirical studies, and specific therapeutic interventions and their significance.

Core beliefs/schemas

Definition

The origins of the word schema trace back to Piaget (1948), who defined schema as a mental representation of an associated set of perceptions, ideas, and/or actions. Piaget considered schemata to be the basic building blocks of thinking. Schemata help us adapt to new situations, as the individual assimilates contextual information and accommodates existing structures. In turn, the existing structures affect the individual's ensuing assimilation.

Beck's (1967) notion of schema was "a structure for screening, coding and evaluation of the stimuli that impinge on the organism. On the basis of schemas, the individual is able to […] categorize and interpret his experiences in a meaningful way" (p. 283). In his cognitive therapy, Beck (1976, 1995) applied the term "core belief" to describe schemas. He assumed that beginning in childhood, every human being develops certain beliefs about the self, the environment, and the future (also known as cognitive triad, Beck 1967). The deepest beliefs, the core beliefs, are fundamental and deeply enrooted, often not even pronounced to oneself. These core beliefs are considered by the person as absolutely true and unchangeable. Core beliefs can be active most of the time or can be activated when the person feels depressed. Once activated, all situations suffer the bias of this belief, despite actual evidence against it. Moreover, the person tends to focus selectively on information that supports her beliefs, while ignoring or devaluating conflicting information.

In recent years, schema therapy (Young et al. 2003) has been developed, which emanates from recurring negative experiences and negative feedback from the environment that lead to specific, negative thoughts about oneself and the world. Those thoughts are anchored in so-called schemas or maladaptive schemas (Young et al. 2003). Young defines schemas as "broad, pervasive themes regarding oneself and one's relationship with others, developed

during childhood and elaborated throughout one's lifetime, and dysfunctional to a significant degree" (p. 38–39). Schemas emerge from central emotional needs that were left unmet in childhood. Based on the idea of the existence of five basic and universal emotional needs, schema therapy tries to help patients meet their emotional needs in an adaptive way.

Relevance for adult ADHD

From a very early age onwards, individuals with ADHD experience multiple difficulties in several domains of life, which affect their performance (e.g. school, work) as well as their interactions with significant others.

A "difficult child" will be confronted with more negative feedback than an inconspicuous child and therefore may develop a cognitive schema such as defectiveness. Based on this schema and the associated negative beliefs, the child will make choices and gain schema-confirming experiences on cognitive, emotional, and behavioural levels.

Typical maladaptive schemas (see Ramsay and Rostain 2003) in adults with ADHD are above all defectiveness ("I'm basically inadequate"), failure ("I've not fulfilled my potential"), and insufficient self-control ("I cannot rely on myself to do what I need to") (Ramsay and Rostain 2003). Moreover, the affected individuals are prone to cognitive distortion (Beck 1963) such as overgeneralization or comparative thinking. Self-defeating behaviour patterns ("compensatory strategies"), namely avoidance and procrastination, are of utmost importance to keep alive the maladaptive schemas and cognitive distortions. In order to break these compensatory strategies, the focus of treatment must be directed towards the belief system (McDermott 2000; Ramsay and Rostain 2008). Ramsay and Rostain (2008) highlight the importance of working on the avoidance behaviour, which is highly resistant to extinction.

Even though negative thinking is not the cause of ADHD, it can lead to maintenance and reinforcement of compensatory strategies, which can perturb the handling of ADHD-related symptoms and problems.

Studies

The conducted Web search (see section on methods) using the key words "adult ADHD", "schemas", "schema therapy", and "belief system" found no studies that specifically focus on the therapy of schemas and/or the belief system in adults with ADHD.

Specific therapeutic interventions and their significance

According to Ramsay and Rostain (2008), Cognitive Behavioural Therapy (henceforth "CBT") for adult ADHD implies a case conceptualization in which learning history, negative beliefs, resulting schemas, and self-defeating behaviour are being detected. To capture the automatic thoughts, the Daily Thought Record (DTR) (Beck et al. 1979) is completed. Aim of this record is to help the patient detect difficult situations and understand the cohesion between cognitions, emotions, and behaviour. With the help of a list that specifies cognitive distortions, automatic thoughts can be classified in a systematic way. By identifying these distortions, the patients can recognize that reflexive thinking can be misrepresented by ignoring or exaggerating information. In the end positive, alternative thoughts are being developed.

The deeply enrooted schemas and beliefs are not as easily identified and modified as automatic thoughts. One strategy is the downward arrow technique (Burns 1980), where the patient is instigated to consider the relations of automatic thoughts and the underlying beliefs.

On the other hand, it is crucial for the patients to make new experiences and therefore to challenge negative beliefs. Hence, behavioural experiments are not only important to practice coping skills, but also to modify their belief system. It must be considered that for patients with moderate to severe ADHD, the work on maladaptive schemas might require a longer term CBT (Ramsay and Rostain 2008).

Mc Dermott (1999) adopted cognitive strategies to change long existing dysfunctional beliefs and named it the SPEAR (Stop, Pullback, Evaluate, Act, and Revaluate) technique. The technique consists of the following steps: 1. Stop: When it comes to the activation of emotional stressful beliefs, the patient might say aloud, "Stop" or temporary leave the situation. 2. Pullback: Continuing to deactivate the predominant belief and try to acquire an emotionally more neutral condition. Helpful strategies therefore might be distraction, relaxation, or imagery techniques. 3. Evaluate: Once in a calmer state, patients can start evaluating the situation with problem-solving skills (CBT) such as rational responding, generating alternative hypotheses, and developing multiple options for solutions. 4. Act: Patients start to resolve the problem by relying on their evaluation. 5. Revaluate: After a small action, patients are due to reassess their emotional state before acting further in order to have more control over their mood.

According to McDermott (2000), cognitive therapy for adults with ADHD should put a strong emphasis on belief change, as negative cognitions, emotions, and beliefs can enhance typical ADHD features, such as distractibility and impulsivity. Focusing and working on the belief system may help manage, affect, and increase the effectiveness of psychotherapy in adult ADHD.

Bramham et al. (2009) applied Beck's cognitive model (1976) on negative cognitions, thus indirectly on core

beliefs in adults with ADHD. The main techniques consist of identification of negative thoughts, automatic thoughts, and thinking errors by keeping a thought diary. Subsequently, the patient works on challenging and replacing negative cognitions with alternative, more helpful ones.

Identifying and modifying negative cognitions, or even the core beliefs, is a crucial part of Cognitive Behavioural Therapy (henceforth "CBT") in adult ADHD when it comes to facilitating the work on compensatory strategies (e.g. procrastination, see subsection on coping strategies) or low self-esteem (see subsection on self-esteem). Moreover, it can help foster existing resources and resilience by showing the patient alternative ways to appraise the self, the environment, and the future (cognitive trias, Beck (1976).

Self-esteem

Definition

Self-esteem reflects a subjective appraisal concerning the personal worth and ability that is fundamental to an individual's identity (Asendorpf 1996). Rosenberg (1965) defined self-esteem as a favourable or unfavourable attitude towards the self (p. 15). The very popular use of the term self-esteem, both in popular language and in psychology, makes it difficult to distinguish between the multitudes of expressions. At this point, three of the most relevant terms are presented.

Global self-esteem (Trait Self-Esteem) refers to a personality variable that represents the way people generally feel about themselves. It has been shown to be a stable variable throughout adulthood, with a probable genetic component related to temperament and neuroticism (Neiss et al. 2002).

Feelings of Self-Worth (State Self-Esteem) differ from global self-esteem by being temporary. They stand for the self-evaluative reactions to significant events.

Self-Evaluations or self-appraisal (Domain Specific Self-Esteem) stands for the way individuals evaluate their abilities and attributes. This kind of self-esteem is specific to a domain.

In this paper, the focus lies on global/general self-esteem, unless mentioned otherwise, as the authors want to follow the impact of a stable/trait variable on an individual's life.

So what does self-esteem consist of? At the core of self-esteem lie the central beliefs about oneself (see subsection on core beliefs/schemas), which have developed from life experiences. If these beliefs consist of negative validation, low self-esteem emerges. Positively colored self-esteem may contain statements about oneself such as "I'm good" or "I'm worthwhile", while people with low self-esteem tend to make statements such as "I'm stupid" or "I'm incapable." Low self-esteem, according to Rosenberg (1979), "means that the individual lacks respect for himself, considers himself unworthy, inadequate, or otherwise seriously deficient as a person" (p. 54).

Relevance for adult ADHD

Individuals diagnosed with ADHD often start therapy with low self-esteem that has been prevalent for a long time. As a result of their longstanding neuropsychological impairments, such as distractibility, disorganization, emotional instability, or disinhibition, they have not adopted effective coping skills (see Fig. 1) (Ramsay and Rostain 2003; Bramham et al. 2009). Thus, patients with ADHD typically are familiar with many negative life outcomes and underachievement. Interpersonal relations are affected at home and at work, commonly resulting in criticism and rejection. This often leads to reduced self-esteem (Philipsen et al. 2007).

A history of having difficulties in several domains of life, such as problems with education, vocation, relationships, and an increased risk of comorbid psychiatric problems, overshadows the concerned people's life. Due to the aforementioned difficulties, people with ADHD can be vulnerable to negatively appraise certain situations with a pessimistic bias (see Fig. 1). Ramsay and Rostain (2008) found that adults with ADHD are likely to have significantly more negative thoughts, to be less hopeful about the future, and less accepting of themselves then those without ADHD. They also recall having more difficulties and negative experiences in childhood than individuals who are not affected (Faraone and Biederman 2005).

The recurring feeling of failure and underachievement strongly impacts their self-esteem and makes them doubt their own abilities (e.g., "I can't do it"). In line with the self-fulfilling, prophecy failure is expected to happen in the future (e.g., "I'm going to fail again"). Negative cognitions and beliefs may enhance negative emotional reactions to external demands, hence, encourage maladaptive coping strategies such as avoidance and procrastination (e.g., "I'm not in the mood now, I'll do it later"). The consequences are lasting or deteriorating problems, low self-esteem brought on by feeling unable to cope in an effective way, and impact on the emotions (e.g., frustration, anger, anxiety, depression). Once in a negative emotional state, individuals are more likely to evaluate situations negatively, leading to a vicious cycle (see Fig. 1).

Studies

The subsequent literature describes recent study outcomes, pointing out the impact of cognitive behavioural interventions on symptoms of ADHD and on self-esteem in patients with ADHD.

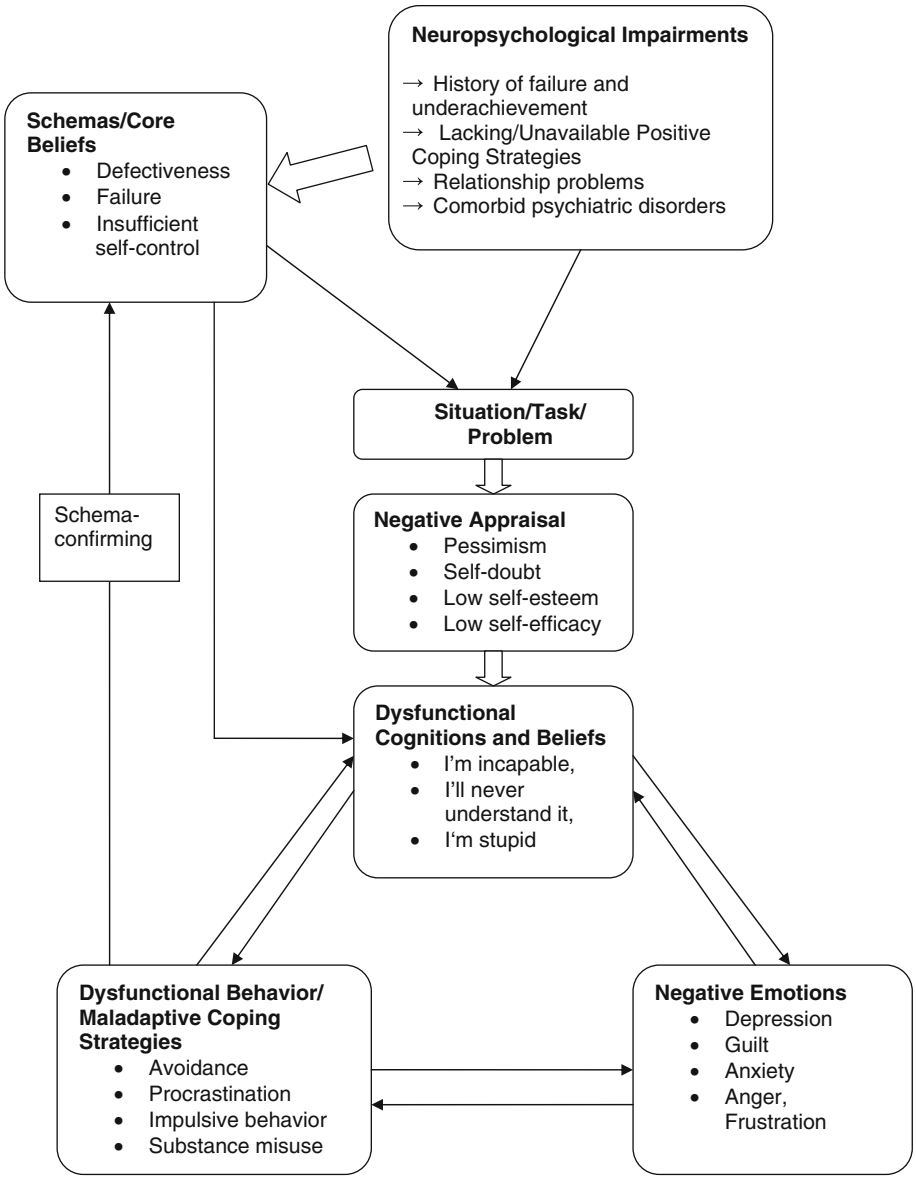

Fig. 1 A cognitive behavioural model of adult ADHD (modified from Young and Bramham 2006 and Safren et al. 2005)

Stevenson et al. (2002) evaluated the efficacy of their Cognitive Remediation Programme (CRP), focussing on ADHD-related problems and low self-esteem. Participants in the CRP and in the control group were either unmedicated or on a stable dose. After treatment, participants of the CRP group reported significant improvements on the ADHD symptom checklist and in self-esteem. At the two-month follow-up, all treatment effects were maintained or continued to improve.

Stevenson et al. (2003) conducted another study examining a self-directed version of their CRP. The treatment group (CRP) received minimal therapist contact, a self-help book, and weekly telephone contact with coaches. At the end of treatment, self-esteem measures of the CRP group showed significant improvements compared to the self-esteem measures of the wait-listed control group. Treatment gains at the two-month follow-up were only maintained for ADHD symptoms, organizational skills, and trait anger.

Bramham et al. (2009) evaluated a brief CBT group intervention intended to treat comorbid anxiety, depression, low self-esteem, and self-efficacy in adults with ADHD. The CBT/medication group was compared with a medication-only group, which was on the waiting list for the CBT group intervention. Three one-day workshops were held monthly including material from the Young-Bramham Programme (Young and Bramham 2006).

At the end of the therapy programme, the CBT group showed significantly greater improvement on measures of knowledge about ADHD, self-efficacy, and self-esteem than the control group. Both groups showed improvement

in symptoms of anxiety and depression. According to the participants, sharing personal experiences with other adults with ADHD was an important aspect of the intervention. However, there was no follow-up period, and the maintenance of the gains was not investigated.

Wiggins et al. (1999) compared an experimental group attending four 90-min psychoeducational sessions with a control group who did not receive group treatment. The standard CBT approach served as theoretical background for the experimental group.

The research showed that after treatment adults with ADHD experienced improvements in attention and organization but decreases in measures of self-esteem. After long-standing functional difficulties, they might experience lowered self-esteem when faced with the magnitude of their symptoms in treatment. This descent in self-esteem was hypothesized to be temporary, yet follow-up measures were not collected.

Specific therapeutic interventions and their significance

In her cognitive remediation programme, Stevenson (2002) applies cognitive strategies for improving self-esteem. Participants learn to identify automatic thoughts, challenge negative statements, and evaluate judgements. By praising themselves for achievements, the focus is set on the strengths of the person.

Wiggins et al. (1999) base their intervention on the TFA model (Hutchins and Vaught 1997), which offers a schema of thoughts (T), feelings (F), and actions (A). The TFA model was used to enable the patient and the therapist to organize information about behaviour, to evaluate probable outcomes, and finally to change the behaviour.

Young and Bramham (2006) emphasize the importance of the CBT model in adults with ADHD. As for coping with negative thoughts, patients first become acquainted with the connections between mood, thoughts, and behaviour.

Typical thinking errors of people with ADHD (adapted from Beck 1963) are introduced to the patients, and then they start identifying their own negative thoughts, automatic thoughts, and thinking errors by maintaining a thought diary (to record situations, feelings, thoughts, cognitive challenges, and to identify thinking errors). Patients familiarize themselves with negative thinking, and in a second step, they work on challenging and replacing negative thoughts with alternative, more helpful ones.

Non-helpful behaviour, such as avoidance, leads to reduced confidence/self-esteem. Hence, the programme includes strategies to develop confidence and to restart activities they have avoided.

According to the evaluation of the participants, sharing personal experiences with other adults with ADHD was also an important aspect of the intervention.

The cognitive behaviourally oriented group rehabilitation programme of Virta et al. (2008) includes one session about self-esteem that focused on negative beliefs, techniques for improving self-esteem, and reformulating negative beliefs. The therapists followed a detailed written manual, published in Finnish (Leskelä et al. 2007).

Likewise, Ramsey and Rostain (2005) highlight that cognitive behavioural interventions and behavioural skills training can help patients develop effective coping strategies for managing symptoms of ADHD and help deal with the demands of life. These interventions may have an impact on dysfunctional thoughts, negative emotions, and therefore on self-esteem.

Although psychoeducation is a general method in psychotherapy, its importance as a possible specific intervention for adult ADHD to start working on self-esteem warrants an elaboration.

Safren (2004) and Wender (1995) consider a clarification of the nature of the syndrome and the associated impairments as an essential first step on the outset of every ADHD treatment. Through a better understanding of these neurocognitive impairments and their effects on executive functioning of daily life, the individual can review important life events in her past through a new perspective. The patient can finally give up feelings of guilt and of self-inflicted underachievement, enabling her to see problems in a more realistic way—as a neurobiological disorder. This constitutes an important onset for building self-esteem.

Bramham (2009) posits that psychoeducation can help people with ADHD repair their self-esteem by creating an understanding about this neurobiological disorder and the associated behaviour. For an outright psychoeducation, Young and Bramham (2006) suggest including information on the aetiology of ADHD, its prognosis, comorbid problems, cognitive deficits, and their manifestations in daily living. Additionally, ADHD-associated factors such as skills deficits and the likelihood of maladaptive coping strategies should be explained.

Increased knowledge and understanding of ADHD may cause a change in attribution of aetiology for the afflicted person's impairments and give her a feeling of control, producing a rise of self-esteem. By acknowledging her limitations, she can develop realistic expectations of performance, which is an achievement of special importance for psychotherapy.

Self-efficacy

Definition

While self-esteem denotes a personality trait that represents the way one feels about oneself, perceived self-efficacy

(SE) stands for an individual's beliefs in her capabilities to perform a specific action required to attain a desired outcome. It is the main reason for influencing behaviour (Bandura 1997). In addition, self-efficacy beliefs influence cognitions, emotions, and behaviour and accordingly seem helpful in dealing with stressful conditions.

Schwarzer and Jerusalem (1995) and Sherer el al. (1982) postulated a generalized self-efficacy (GSE) that is characterized by a broad and stable sense of personal competence about coping effectively with diverse stressful situations. While the term perceived self-efficacy is used in a situation-specific manner (Bandura 1997), GSE finds its application in a broader diversity of behaviour and coping outcomes (Luszczynska et al. 2004). GSE appears to be a universal and transcultural construct (Luszczynska et al. 2005; Bandura 2002), which means that it characterizes a basic belief that is innate in all individuals.

Relevance for adult ADHD

What challenges people meet and how high they set their goals depend on the expectations they have of positive outcome of future actions. Strong SE is related to a positive outcome expectancy of future actions, and, respectively, to less negative outcome expectancy (Bandura 1997). On the other hand, low SE is associated with negative outcome expectancy, which implies an anticipation of obstacles after a behaviour change takes place (forecast of unpleasantness or the necessity to pass on other favourite activities). Thus, strong SE leads to changes in behaviour and is expected to be highly self-regulatory (Luszczynska et al. 2004). De Vellis and de Vellis (2000) found that people with strong self-efficacy seem to select more challenging goals and focus more on opportunities than on obstacles.

Jerusalem and Schwarzer (1992) depicted the role of general self-efficacy as a resource/vulnerability factor. In their study, individuals with high self-efficacy were resistant to stressful situations and feedback about failure, and this characteristic remained stable over time. Appraisals of the situation remained predominantly positive and were treated as challenge.

In contrast to this resistance to stress, subjects with low self-efficacy were especially vulnerable to stressful situational conditions and experiences of failure. They appraised the situation and themselves negatively, felt less challenged, but higher levels of threat and loss. If adults with ADHD experience the feeling of high SE, this would be a great resource for psychotherapy, as they aim for behavioural change, feelings of competency, and the ability to cope with stressful events in an effective way. Unfortunately, a multiplicity of individuals suffering from ADHD hardly experience the feeling of controlling and influencing their life through their actions. They are rather familiar with feelings of demoralization, anxiety, and uncertainty about their future. Frequently, they experience multiple failures in life and underachievement (Safren 2006), which leads to low SE.

Nonetheless, there is evidence to suggest that adults with ADHD have the capability to revaluate or cognitively reframe stressful events (Young 2005). It is peculiar how people with ADHD positively reframe an experienced negative outcome and try to succeed again. This resilience is generally found in individuals with ADHD, a fact that could be traced back to their belief in self-efficacy.

Studies

Only a few studies explore the relationship of self-efficacy in adults with ADHD. A study by Bramham et al. (2009) showed that the CBT and medication group (group therapy) had significantly greater improvements on measures of self-efficacy in the General Self-efficacy Scale (Schwarzer and Jerusalem 1995) than the control group (medication-only).

The multicultural validation studies of Luszczynska et al. (2005) showed that among patients with gastrointestinal disease, GSE was related to less frequent use of passive coping and more frequent use of active coping with pain. Cancer patients with high GSE frequently applied active coping, planning, positive reframing, humour, fighting spirit, and information seeking. Those patients with low GSE more frequently used coping strategies such as self-blame or behavioural disengagement.

Although the study investigates GSE in patients with physical disorders and not ADHD itself, it is noteworthy that GSE appears to have an impact on coping strategies independently of a specific, physical, or psychiatric disorder. The generality of the GSE construct after Luszczynska et al. (2005) implies its applicability to a variety of domains of human functioning (e.g. adherence to medical recommendations, positive and negative affect, coping with stress). Their research suggests that engagement and maintenance in healthy behaviour as well as recovering after setbacks is more likely in people equipped with a higher GSE. Such a comprehensive view puts a connection of GSE and ADHD in a positive light. Still future research is needed to specifically investigate GSE in adults with ADHD.

In therapy for adult ADHD, a combined treatment (CBT and medication) seems to be superior in enhancing self-efficacy than pharmacotherapy alone. Cognitive behavioural interventions may be of central importance for that purpose. Through CBT, the patients may enhance their confidence in their capabilities of coping and developing strategies to deal with challenges in an active and effective way.

Specific therapeutic interventions and their significance

Improving self-efficacy starts with people's belief that they can achieve. To encourage the patient to set goals for the future, it is important to first look at the patient's strengths and lifetime achievements (Bramham et al. 2009). For that purpose, a "top ten achievements" list can be used. Further strategies involve the use of social support structures (e.g. family, friends) to help set goals, anticipate potential pitfalls, and have problem-solving strategies readily available (Bramham et al. 2009). Self-reinforcement techniques such as posters or flash cards can be used as reminders of goals and as means to assist with coping strategies. Additionally, the use of an advantages/disadvantages table can be a helpful technique. A very important building block of therapy in adults with ADHD is to establish immediate rewards for success (Bramham et al. 2009). By informing others about her progress, she can get support and encouragement, which invigorates her confidence.

Through the use of CBT, patients should be encouraged to change things and achieve goals on their own instead of avoiding the quarrel with their daily hassle Therapy provides coping techniques that can help the individual reach their goals. With respect to raising self-efficacy, it is of paramount importance that patients feel capable of coping autonomously with obstacles and are able to succeed. Those who are said to "reframe negative outcomes positively and try again" (Young 2005) may have higher SE, which can facilitate the access to therapy. Nevertheless, they may benefit from the structured approach of cognitive behavioural strategies to enhance their problem-solving strategies and sense of achievement.

Coping strategies

Definition

Coping strategies refer to the specific efforts, both behavioural and psychological, that people employ to master, tolerate, or minimize stressful events. Two general coping strategies are being distinguished: problem-solving strategies, which are efforts to actively alleviate stressful circumstances, and emotion-focused coping strategies that involve efforts to regulate the emotional consequences of stressful or potentially stressful events (Schwarzer and Jerusalem 1989). Research indicates that individuals use both types of strategies to combat stressful events (Folkman and Lazarus 1980). An additional distinction that is often made in the coping literature is between active and avoidant coping strategies. Active coping strategies are either behavioural or psychological responses designed to change the nature of the stressor itself or how one thinks about it, whereas avoidant coping strategies lead people into activities (such as consuming alcohol) or mental states (such as procrastination) that keep them from directly addressing stressful events. Generally active coping strategies are thought to be better ways to deal with stressful events, whereas avoidant coping strategies appear to be a psychological risk factor for adverse responses to stressful life events (Holahan and Moos 1987).

Relevance for adult ADHD

Ramsay and Rostain (2008) differentiate between compensations, which are positive coping strategies, and compensatory strategies, which are maladaptive coping strategies.

Adults with ADHD who cope well with the challenges caused by the core symptoms of their impairment (Murphy 1998) employ compensation. For example, a person who often forgets her appointments could ask her friends to call her 1 h before the appointment as a reminder.

The notion of compensatory strategies refers to compensatory behaviour that maintains and reinforces maladaptive core beliefs and schemas (see 2.1). Avoidance is one of the most common and frequently used compensatory strategies in adults with ADHD (Murphy 1998; Ramsay and Rostain 2003, 2008).

For example, a student faced with an imminent exam experiences negative emotions (anxiety, low mood) and predictions ("I'm going to fail anyway"), so the "failure" schema is reactivated ("I'm stupid"). By procrastinating to read and study, the student protects herself against viewing herself as inadequate and can undergo relief from emotional discomfort (negative reinforcement). She turns towards more pleasurable activities and might cognitively avoid considering the consequences of her evasion and/or procrastination. In the end, the student turns out to be unprepared for the exam and receives low grades, which reinforces her sense of inadequacy ("Now I have proof that I'm stupid and I can't handle college."). Objectively, the student's conclusion is unjustified, given that she never prepared herself sufficiently for the exam. However, because her experience was consistent with her belief system, she considered it a valid confirmation without exploring alternative explanations.

Identifying compensatory strategies and using them to elicit the specific schema/core beliefs are crucial steps in developing a case conceptualization (Ramsay and Rostain 2008).

Compensatory strategies used by adults with ADHD (Ramsay and Rostain 2003) are:

- Anticipatory avoidance/procrastination: Putting off a challenging task because the person anticipates that it

will be unpleasant and is doubting her own ability to complete it. Rationalization to justify procrastination behaviour.

- Brinkmanship: Waiting to start work until one is up against a deadline. Adrenaline rush associated with the pressure of facing a deadline may serve as a form of self-medication in that the person describes being able to focus better. Disruptive working style.
- Pseudo-efficiency: The person completes many things on the "to-do" list that are low-priority or more attractive. Avoidance of the highest priority tasks.
- Juggling: Taking on new, interesting projects without completing projects already started. Tendency to say "yes" to requests to avoid missing out on something exciting.

Studies

Coping strategies commonly employed by adults with ADHD were investigated (Young 2005) to evaluate them and gain information about their relationship with cognitive deficits and antisocial personality problems. The ADHD group was compared with a healthy control group regarding coping strategies, impulsivity, attention, and prosocial behaviour. The ADHD group was found to use maladaptive coping strategies such as confrontative, escape-avoidance, and less painful problem-solving strategies. In contrast seems that people with ADHD have the capacity to positively reappraise stressful situations, encouraging them to try again. This kind of resilience may constitute a protective factor.

Young's research suggests that individuals with ADHD have specific deficits in coping and need to learn the application of positive coping skills in stressful situations.

Specific therapeutic interventions and their significance

CBT can assist with developing and practicing effective coping strategies in adults with ADHD. Safren (2006) divides the interventions to develop coping strategies into two types:

- behavioural skills training which implies training in organization and planning as well as managing avoidance.
- cognitive interventions. These include working on dysfunctional cognitions and negative emotions that may emerge from failures and underachievement, which can further reinforce avoidance, procrastination, and distractibility.

Although ADHD is primarily a neurobiological disorder, emerging evidence suggests that a skills-building approach (CBT) has statistically and clinically significant effects for adults with ADHD (Safren 2006).

In the Young-Bramham programme (2006), a distinction is drawn between interventions for emotional-focussed coping (situations that are beyond the patient's control) and instrumental problem-solving (controllable situations).

For last named situations, the five stages of problem-solving are employed to improve problem-solving strategies: (1) identifying and defining the specific problem (2) generating various solutions to the problem (3) evaluating each solution (4) implementing the chosen solution, and finally (5) evaluating success. For situations in which the patients feel beyond their control, emotion-focussed strategies are applied to help the patient manage their feelings. Mood-focussed strategies consist of identifying and challenging negative thoughts, superimposing positive thoughts, and changing behaviour. The technique of superimposing positive thoughts (such as making positive and motivating self-statements) may be very helpful because of the resilience individuals with ADHD are said to have. This may be a "natural" way for them to cope with negative thoughts.

In McDermott's (1999) cognitive therapy treatment guidelines, patients learn basic strategies and techniques for dealing with their dysfunctional thoughts, emotions, and behaviours (compare SPEAR-technique on p. 6). They also learn to develop skills for dealing with comorbid disorders. For that purpose, Becks's cognitive therapy (1995) is applied.

A person who is aware of her available coping competence will appraise stress-relevant situations in a challenging way and become active. The self-perception remains positive, and the person expects to be able to meet situational demands.

Adults with ADHD either adopt helpful coping skills or compensatory strategies. To identify which one is applied, and how self-efficacious they experience themselves, is of great importance for therapy.

Helpful coping skills must be fostered, while compensatory strategies must be abolished. Therapy should allow the patient to make new experiences, to acquire new coping skills, and to achieve realistic goals, so her sense of self-esteem and self-efficacy can thrive. This may involve enhanced coping strategies.

Resources

Definition

"Strengths" or "potentials" of a person or of the environment are the frequently used synonyms in the literature of resources. Nestmann (1996) defines resources as "finally

everything what is appreciated by a certain person in a certain situation or is experienced as helpful." The perception of resources can be either subjective (perception of the own person) or objective (perception of the own resources by an observer) (Grawe 1997).

For coping with the daily stressors as well as with special challenges, the perceived subjective resources seem to be crucial (Jerusalem 1990; Frank 2007). In general, all people are said to have resources, and therefore the possibility for personal development and to organize their environment in an advantageous way (Grawe 1998).

The quality of a resource is dependent on its validation and disposability. With regard to content, the following types of resources are distinguished: External, interpersonal, and intrapersonal resources. External resources comprise the social, cultural, and physical environment and are crucial to sustaining health (Cohen et al. 2000; Lopez and Snyder 2004). Interpersonal resources (Karpel and Bauers 1986) refer to relational patterns or characteristics in dyads or bigger systems that limit pathology in relations, respectively, facilitate and enrich living together. The term of intrapersonal resources includes a person's behavioural patterns as well as belief systems that support and help recover health. All aforementioned resources can be stable or variable over time.

Relevance for adult ADHD

Different internal resources, such as enhanced creativity (Hallowell and Ratey 1994; Weiss 1997) or resilience (Young 2005), are supposed to be characteristic of adults with ADHD. Furthermore, making use of external resources (such as friends, family, coaches, etc.) can be a helpful strategy in building a support system (Young and Bramham 2006; Ramsay and Rostain 2008; Murphy and Gordon 2006). If individuals with ADHD are aware of their resources, they can apply them to deal with impairments and to achieve goals. Moreover, self-efficacy may be invigorated by the belief that one is capable of performing a specific action required to positively influence one's life (see section on self-efficacy). On the other hand, the perception of particular resources may allow adults with ADHD to deal with requirements in different domains of life in a way that is more natural for them (Weiss 1997).

Evidence suggests that adults with ADHD have the capability to revaluate or cognitively reframe stressful events and "try again" (Young 2005). As such, they are said to have the ability to constantly compensate and adapt. Young (2005) points out the adaptive aspect of the syndrome that may be expressed as creative and entrepreneurial personality traits.

These specific attributes may be very important for therapy as people with ADHD are expected to not give up as easily when faced with difficulties and to display high levels of motivation to work on their problems.

Assuming that the vicious circle described in Fig. 1 can be turned to an opposite, positive direction, the following model emerges (see Fig. 2).

Given the same initial conditions (neuropsychological impairments and a history of failure, underachievement, etc.) as shown in Fig. 1, but endowed with positive coping strategies and resources (e.g. resilience, creativity, CBT-strategies, etc.), the adult person with ADHD is confronted with a challenging situation. By being aware of her own resources and available coping strategies, a positive appraisal takes place. The person's self-esteem and self-efficacy are high, and she is confident of being capable to cope with the problem. Thus, the cognitions and beliefs have a positive connotation, which leads to positive emotions. These in turn influence the behaviour and applied coping strategies. Instead of avoidance and procrastination (Fig. 1), the person approaches the problem with the available coping strategies or searches for help if needed. This approach acquits itself as schema-non-confirming, as the person no longer avoids her quarrel with the problem. Accordingly, she may experience positive outcomes and the feeling of control.

Existing schemas/core beliefs (e.g. defectiveness, failure) can be macerated and re-evaluated through new experiences, and therefore more helpful schemas/core beliefs can be developed. Finally, the new schemas/core beliefs impact the exposure to the problem by fostering a positive appraisal of the self and one's own capacities to deal with challenging situations. This cycle can be described in terms of an upward spiral.

Studies

White and Shah (2006) carried out a study to understand creativity of ADHD individuals. Specifically, they were interested in inhibitory control and its significance in two aspects of creativity: convergent and divergent thinking. Convergent thinking describes the ability to constitute associations between dissimilar concepts (Mednick 1962). Guilford (1957) defined the ability to develop multiple ideas or solutions to a problem as divergent thinking. The results of this study suggested that adults with ADHD have higher divergent but lower convergent thinking ability compared to a non-ADHD group.

Reduced performance in convergent thinking may be attributed to ADHD-related deficits in inhibitory control. Highly creative people seem to have lower levels of executive inhibitory control and perform better on divergent thinking assignments than less creative individuals (Carson et al. 2003). Likewise, this finding seems to be applicable to adults with ADHD in real-life context (Weiss

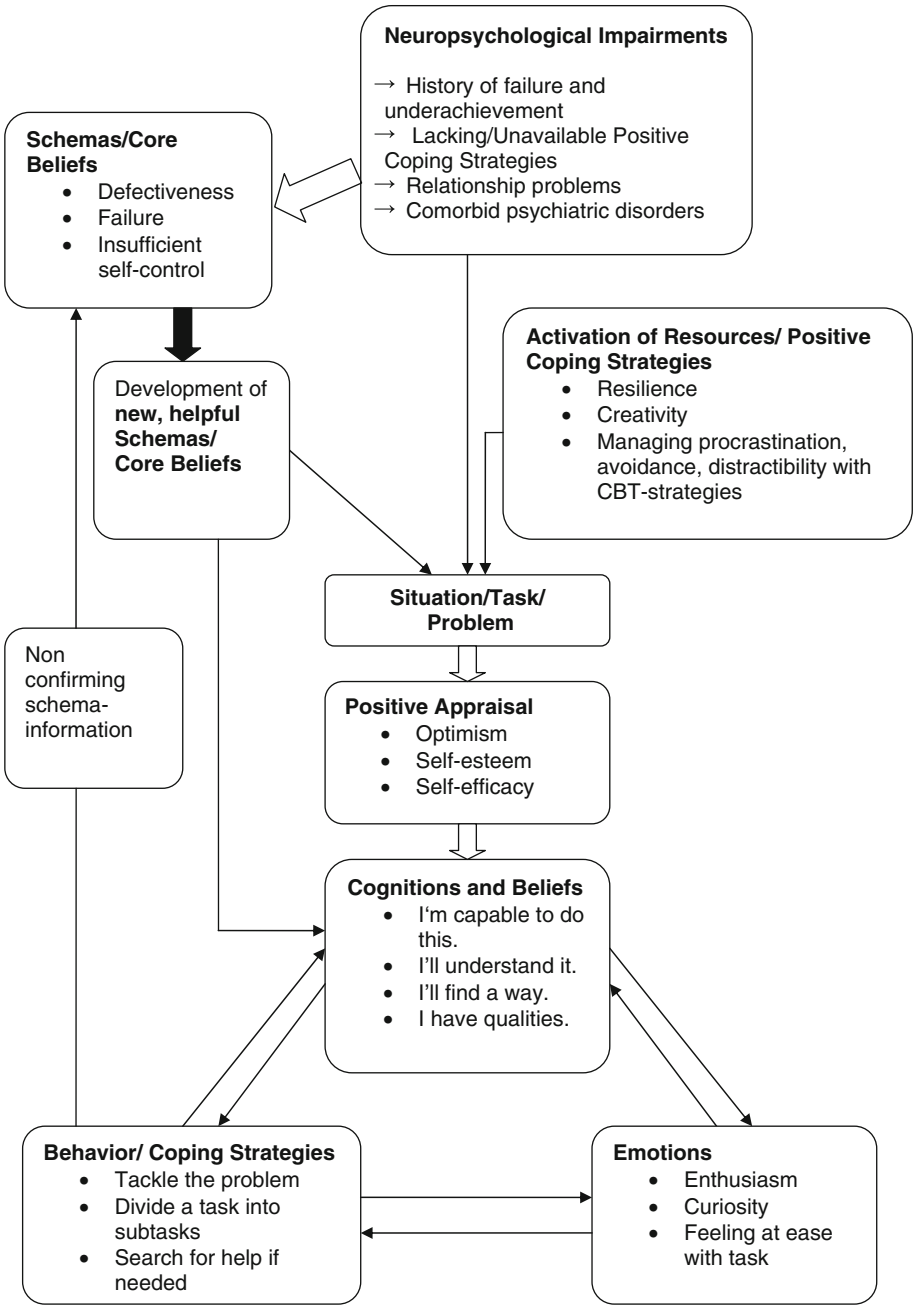

Fig. 2 A cognitive behavioural model of coping strategies and resources in adult ADHD (modified from Young and Bramham 2006 and Safren et al. 2005)

1997). However, some models of creativity suggest that both the ability of convergent and divergent thinking may be important for creative performance (Finke et al. 1992). Moreover, different subtypes of ADHD must be considered, as their creative magnitude may differ. Nigg et al. (2002) showed differences in inhibitory control as a function of ADHD subtypes. The limitation of these findings must be taken into account as there are currently no further studies (for Web search see methods section) investigating convergent/divergent thinking in adults with ADHD. Future research is needed to shed more light on the nature of creativity in adults with ADHD.

Another resource adults with ADHD typically possess is the ability to positively reappraise stressful situations (compare subsection on coping strategies: Relevance for adult ADHD). A positive association was found between this resilience and impulsivity. This may imply that impulsive individuals are less likely to cling to their problems and rather try to go ahead. Therefore, this trait may be highly beneficial for future problem-solving and helpful for therapy, as it is expected that their motivation to work on their difficulties does not decrease as easily after a setback. Even though the construct of resilience seems crucial in the treatment of adult ADHD, no specific studies

were found with respect to resiliency in adult ADHD (for Web search see section on methods). The authors plan to conduct a study evaluating which resources are specific to adults with ADHD. However, further research on resources in adult ADHD is needed to improve psychotherapeutic methods for this disorder.

Specific therapeutic interventions and their significance

To foster resilience Ramsay and Rostain (2003), consider it to be important to keep the focus on relevant goals in one's life, without capitulating when confronted with setbacks. Likewise, in relapse prevention, it is useful to anticipate the interference or ambivalence the patient could encounter and to develop anticipatory responses. Patients are being prepared that they will continue to experience difficult situations after therapy, but they are also being advised that they have adopted skills to identify and develop helpful strategies.

In the final therapy sessions, Bramham and Young (2006) highlight the positive sides of having ADHD, namely creativity and resilience, and discuss how the patient can benefit from these internal resources in her life to achieve success (in short, medium, and long terms). Particularly important are the expectations of the self, which may influence future outcomes in terms of a self-fulfilling prophecy.

For the purpose of developing a greater sense of self-efficacy in the patient, special attention is drawn to her past successes and achievements (compare interventions described in section on self-esteem), so that she can reappraise her capabilities. Future goals are then determined and put down on paper, considering that each goal needs to be broken down into small, achievable steps. The aim of this approach is to improve confidence in future successful performance. In the end, patients are prompted to assess external resources (social support system) outside of the therapeutic environment.

Barkley et al. (2009) also focus on external resources and recommend enlisting the assistance of personal coaches or mentors to help adults with ADHD manage their work and to enhance their performance on the job.

Regardless of whether the available resources of adults with ADHD are internal or external, in therapy, it is important to turn one's attention to the positive potential of the patient. The positive outcomes may be enhanced if these resources are additionally employed and fostered. In their study, Gassmann and Grawe (2006) showed that success in therapy depends on how strongly resources have been activated. Optimizing, invigorating, and maintaining internal and external resources is an important building block used in therapy (Flückinger and Wüsten 2008).

Conclusions

When looking at the various affected areas of life in individuals with ADHD, the need for an adequate treatment becomes obvious. Despite the fact that pharmacotherapy with methylphenidates is considered to be a highly effective intervention for reducing the core symptoms of adult ADHD (Faraone et al. 2004), not every individual tolerates this therapy, and the response rates are subject to strong variations (Sobanski and Alm 2004). Due to the severity and pervasiveness of this disorder, for up to 50% of the adults with ADHD pharmacotherapy may not fully address the multiple domains in which impairment is experienced (Wilens et al. 1997; Wilens et al. 2001). Significant functional problems in their lives as well as frequent comorbidity require adjunctive psychosocial interventions. Based on the recently growing empirical investigations, there is evidence that CBT-oriented psychosocial interventions in combination with medication may be an effective treatment or even the treatment of choice for adults with ADHD (Wiggins et al. 1999; Hesslinger et al. 2002; Safren et al. 2005; Ramsay and Rostain 2006.

The neuropsychological impairments caused by ADHD and the ongoing history of failure and underachievement have likely affected the belief system of the afflicted person. Emerging core beliefs/schemas can lead to maladaptive coping strategies that further deteriorate an individual's ability to handle adult ADHD and the related problems. Confronted with a difficult situation, the person enters the vicious cycle of negative appraisal. Numerous previous disappointments impact her self-esteem and self-efficacy. Negative cognitions may enhance negative emotions and lead to dysfunctional behaviour. Problems are being kept up, and the feeling of being unable to cope in an effective way acquits itself as schema-confirming. Breaking this cycle is crucial for the afflicted person as well as for the psychotherapeutic work. CBT may be the psychosocial treatment of choice for adults with ADHD, as it outlines the work on the belief system and the reciprocal influence of cognition, emotion, and behaviour.

Apart from the problem-orientated focus, the perception and acknowledgment of resources in adults with ADHD can be a relevant building block in therapy. Positive potential of the patient (e.g. resilience, creativity), once activated, is said to enhance the positive outcomes of psychotherapy. Fostering resources and positive coping strategies may help the patient deal with problems in a different, more optimistic, and helpful way.

The more the patient makes positive experiences, the more non-confirming schema information is generated (thus, positive beliefs about the self and the own abilities can be developed), and a positive feedback loop can be initiated.

An important foundation for the treatment plan of adult ADHD may therefore implement work on the belief system and the reciprocal influence of cognition-emotion-behaviour in order to develop and practice effective coping strategies and to employ and foster personal resources. Further research needs to be done to define which CBT interventions are effective in treating the core and associated symptoms of adult ADHD and thus enhance the "positive cycle".

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References

Asendorpf JB (1996) Psychologie der Persönlichkeit. Grundlagen. Springer, Berlin

Bandura A (1997) The exercise of control. Freeman, New York

Bandura A (2002) Social cognitive theory in cultural context. J Appl Psychol 51:269–290

Barkley RA (2009) Attention deficit disorder in adults: the latest assessment and treatment strategies. Jones and Bartlett, Sudbury, MA

Beck AT (1963) Thinking and depression. Idiosyncratic content and cognitive distortions. Arch Gen Psychiatr 9:324–333

Beck AT (1967) Depression: clinical experimental and theoretical aspects. Harper & Row, New York

Beck AT (1976) Cognitive therapy and the emotional disorders. Meridian, New York

Beck AT (1995) Cognitive therapy: basics and beyond. Guilford, New York

Beck AT, Rush AJ, Shaw BF, Emery G (1979) Cognitive therapy of depression. Guilford, New York

Biederman J (2004) Impact of comorbidity in adults with attention-deficit/hyperactivity disorder. J Clin Psychiatr 65:3–7

Bramham J, Young S, Bickerdike A, Spain D, McCartan D, Xenitidis K (2009) Evaluation of group cognitive behavioral therapy for adults with ADHD. J Atten Disord 12:434–441

Burns DD (1980) Feeling good. Signet, New York

Carson SH, Peterson JB, Higgins DM (2003) Decreased latent inhibition is associated with increased creative achievement in high-functioning individuals. J Pers Soc Psych 85:499–506

Cohen S, Underwood LG, Gottlieb BH (2000) Social support measurement and intervention. Oxford University, New York

DeVellis BM, DeVellis RF (2000) Self-efficacy and health. In: Baum A, Revenson TA, Singer JE (eds) Handbook of health psychology. Erlbaum, Mahwah, NJ, pp 235–247

Faraone SV, Biederman J (2005) Adolescent predictors of functional outcome in adult ADHD: a population survey. Poster session presented at the 17th CHADD annual international conference, Dallas, TX

Faraone SV, Spencer TJ, Aleardi M, Pagano C, Biederman J (2004) Meta-analysis of the efficacy of methylphenidates for treating adult attention-deficit/hyperactivity disorder. J Clin Psychopharmacol 23:24–29

Finke FA, Ward TB, Smith SM (1992) Creative cognition: theory research and applications. MIT, Cambridge, MA

Flückinger C, Wüsten G (2008) Ressourcenaktivierung. Huber, Bern

Folkman S, Lazarus R (1980) An analysis of coping in a middle-aged community sample. J Health Soc Behav 21:219–239

Frank R (2007) Therapieziel Wohlbefinden. Springer, Berlin

Gassmann D, Grawe K (2006) General change mechanisms: the relation between problem activation and resource activation in successful and unsuccessful therapeutic interactions. Clin Psychol Psychother 13:1–11

Grawe K (1997) Research-informed psychotherapy. Psychother Res 7:1–20

Grawe K (1998) Psychologische therapie. Hogrefe, Göttingen

Guilford JP (1957) Creativity abilities in the arts. Psychol Rev 64:110–118

Hallowell EM, Ratey JJ (1994) Driven to distraction. Pantheon, New York

Hesslinger B, van Elst LT, Nyberg E et al (2002) Psychotherapy of attention deficit hyperactivity disorder in adults: a pilot study using a structured skills training program. Eur Arch Psychiatr Clin Neurosci 252:177–184

Holahan CJ, Moos RH (1987) Risk, resistance, and psychological distress: a longitudinal analysis with adults and children. J Abnorm Psychol 96:3–13

Hutchins DE, Vaught CC (1997) Helping relationships & strategies, 3rd edn. Brooks/Cole, Pacific Grove, CA

Jerusalem M (1990) Persönliche ressourcen. Vulnerabilität und Stresserleben, Hogrefe, Göttingen

Jerusalem M, Schwarzer R (1992) Self-efficacy as a resource factor in stress appraisal processes. Hemisphere, Washington, DC

Karpel MA, Bauers WR (1986) Family resources. The hidden partner in family therapy, Guilford

Leskelä M, Vataja R, Grönroos N et al (2007) AD/HD-aikuisten psykologinen ryhmäkuntoutus—Vetäjän käsikirja. Rinnekoti Foundation, Espoo

Lopez SJ, Snyder CR (2004) Positive psychological assessment. APA, Washington

Luszczynska A, Diehl M, Gutiérrez-Doña B et al (2004) Measuring one component of dispositional self-regulation: attention control in goal pursuit. Person Ind Diff 37:555–566

Luszczynska A, Scholz U, Schwarzer R (2005) The general self-efficacy scale: multicultural validation studies. J Psychol 139:439–457

McDermott SP (1999) Cognitive therapy of attention deficit hyperactivity disorder in adults. J Cognit Psychother 13:215–226

McDermott SP (2000) Cognitive therapy for adults with attention-deficit/hyperactivity disorder. In: Brown TE (ed) Attention deficit disorders and comorbidities in children, adolescents, and adults. American Psychiatric Press, Washington, DC, pp 569–606

Mednick SA (1962) The associative basis of the creative process. Psych Rev 69:220–232

Murphy KR (1998) Psychological counseling in adults with ADHD. In: Barkley RA (ed) Attention-deficit hyperactivity disorder: a handbook for diagnosis and treatment, 3rd edn. Guilford, New York, pp 582–591

Murphy KR, Gordon M (2006) Assessment of adults with ADHD. In: Barkley RA (ed) Attention-deficit hyperactivity disorder: a handbook for diagnosis and treatment, 3rd edn. Guilford, New York, pp 425–450

Neiss MB, Sedikides C, Stevenson J (2002) Self-esteem: a behavioural genetic perspective. Eur J Pers 16:1–17

Nestmann F (1996) Psychosoziale Beratung—ein ressourcentheoretischer Entwurf. Verhaltensther Psychosoz Praxis 28:359–376

Nigg JT, Blaskey LG, Huang-Pollack CL et al (2002) Neurological executive functions and DSM-IV ADHD subtypes. J Am Acad Child Adolesc Psychiatr 41:59–66

Philipsen A, Richter H, Peters J et al (2007) Structured group psychotherapy in adults with attention deficit hyperactivity disorder. Results of an open multicentre study. J Nerv Ment Dis 195:1013–1019

Piaget J (1948) The moral judgement of the child. Free, Glencoe, IL

Ramsay JR, Rostain AL (2003) A cognitive therapy approach for adult attention-deficit/hyperactivity disorder. J Cognit Psychother Int Q 17:319–334

Ramsay JR, Rostain AL (2005) Adapting psychotherapy to meet the needs of adults with attention-deficit disorder. Psychother Theory Res Pract Train 42:72–84

Ramsay JR, Rostain AL (2006) Cognitive behaviour therapy for college students with attention-deficit/hyperactivity disorder. J Coll Stud Psychother 21:3–20

Ramsay JR, Rostain AL (2008) Adult ADHD. Routledge, Taylor & Francis Group, New York

Rosenberg M (1965) Society and the adolescent self-image. Princeton University, Princeton, NJ

Rosenberg M (1979) Conceiving the self. Basic Books, New York

Safren SA (2006) Cognitive-behavioral approaches to ADHD treatment in adulthood. J Clin Psychiatr 67:46–50

Safren SA, Sprich S, Chulvick S et al (2004) Psychosocial treatments for adults with attention-deficit/hyperactivity disorder. Psychiatr Clin North Am 27:349–360

Safren SA, Otto MW, Sprich S et al (2005) Cognitive-behaviour therapy for ADHD in medication-treated adults with continued symptoms. Behav Res Ther 43:831–842

Schwarzer R, Jerusalem M (1989) Erfassung leistungsbezogener und allgemeiner Kontroll- und Kompetenzerwartungen. In: Krampen G (ed) Diagnostik von Attributionen und Kontrollüberzeugungen. Hogrefe, Göttingen, pp 127–133

Schwarzer R, Jerusalem M (1995) Generalized Self-Efficacy scale. In: Weinman J, Wright S, Johnston M (eds) Measures in health psychology. A user's portfolio. Casual and control beliefs. NFER-Nelson, Windsor

Shekim W, Asarnow RF, Hess E et al (1990) An evaluation of attention deficit disorder-residual type. Compr Psychiatr 31:416–425

Sherer M, Maddux JE, Mercadante B et al (1982) The self-efficacy scale: constructions and validation. Psychol Rep 51:663–671

Sobanski E, Alm B (2004) Aufmerksamkeitsdefizit/Hyperaktivitätsstörung bei Erwachsenen. Nervenarzt 75:697–716

Stevenson CS, Withmont S, Bornholt L et al (2002) A cognitive remediation programme for adults with attention deficit hyperactivity disorder. Aust New Zeal J Psychiatr 36:610–616

Stevenson CS, Stevenson RJ, Withmore S (2003) A self-directed psychosocial intervention with minimal therapist contact for adults with attention deficit hyperactivity disorder. Clin Psychol Psychother 10:93–101

Virta M, Vedenpaa A, Gronroos N et al (2008) Adults with ADHD benefit from cognitive-behaviourally oriented group rehabilitation: a study of 29 participants. J Attention Disorders 12:218–226

Weiss L (1997) ADD and creativity: tapping your inner muse. Taylor Trade Publishing, Lanham

Wender EH (1995) Attention-deficit hyperactivity disorders in adolescence. J Dev Behav Pediatr 16:192–195

White HA, Shah P (2006) Uninhibited imaginations: creativity in adults with attention-deficit/hyperactivity disorder. Pers Indiv Differ 40:1121–1131

Wiggins D, Singh K, Getz HG et al (1999) Effects of brief group intervention for adults with attention deficit/hyperactivity disorder. J Ment Health Counsel 21:82–92

Wilens TE, Biederman J, Mick E et al (1997) Attention deficit hyperactivity disorder (ADHD) is associated with early onset substance use disorders. J Nerv Ment Dis 183:48–50

Wilens TE, Spencer TJ, Biederman J (2001) A controlled clinical trial of bupriopion for attention-deficit/hyperactivity disorder in adults. Am J Psychiatr 158:282–288

Wilens TE, Biederman J, Spencer TJ (2002) Attention deficit/hyperactivity disorder across the lifespan. Annu Rev Med 53:113–131

Young S (2005) Coping strategies used by adults with ADHD. Pers Indiv Differ 38:809–816

Young S, Bramham J (2006) ADHD in adults. A psychological guide to practice. Wiley, Ltd, The Atrium

Young JE, Klosko JS, Weishaar ME (2003) Schema therapy. A practitioner's guide, Guilford

Appendix B

Article 2:

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Self-Esteem, Self-Efficacy, and Resources in Adults With ADHD

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Abstract

Objective: The purpose of this study is to shed light on therapy-relevant factors, such as self-esteem, self-efficacy, and resources in adults with ADHD in comparison with a healthy control group. **Method:** A total of 43 adults who met *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM-IV-TR*) criteria for ADHD in adulthood were matched with a nonclinical sample in terms of age and gender. All participants (N = 86) were assessed with self-ratings: Symptom Checklist-90–Revised (SCL-90-R), Rosenberg Self-Esteem Scale, General Perceived Self-Efficacy Scale, and Dick's Resources Checklist. **Results:** Adults with ADHD showed lower levels of self-esteem and self-efficacy when compared with the control group. The authors found some, but not all, of the resources of adults with ADHD to be reduced. In other words, people with ADHD seem to possess specific resources. **Conclusion:** Our results have important implications for the treatment of adult ADHD and suggest that specific therapy programs should include resources-oriented modules for enhancing self-esteem, self-efficacy, and fostering strengths. *(J. of Att. Dis. 2012; XX(X) 1-XX)*

Keywords

ADHD, self-esteem, self-efficacy, resources, strengths

Introduction

Adults suffering from ADHD are often exposed to a multiplicity of negative life outcomes and underachievement due to their neuropsychological impairments. In particular interpersonal, academic, and vocational difficulties are common in individuals with ADHD (Barkley, 2010; Ramsay & Rostain, 2008; Stieglitz, Nyberg, & Hofecker-Fallahpour, 2011). Furthermore, approximately 70% to 75% of adults with ADHD suffer from psychiatric comorbidity, most prevalently anxiety disorder, depression, or substance use disorder (Biederman, 2004; Shekim, Asarnow, Hess, Zaucha, & Wheeler, 1990; Wilens, Biederman, & Spencer, 2002).

Consequently, numerous negative experiences affect the formation of the individual's *self-esteem* and *self-efficacy* (Philipsen et al., 2007; Ramsay & Rostain, 2008). Negative beliefs about the self and their own competences emerge, and the individuals struggle to deal with stressful events. By developing maladaptive coping strategies (dysfunctional behavior), such as avoidance and procrastination (Young & Bramham, 2007), adults with ADHD maintain and reinforce their negative view of the self but remain incapable of coping with the problem. Captured in this vicious cycle, the individual experiences an ongoing loop of disappointments (Newark & Stieglitz, 2010). Thus, it comes as no surprise that adults with ADHD are often found to have reduced self-esteem (Philipsen et al., 2007; Ramsay & Rostain, 2008) and low self-efficacy (Safren, 2006).

Over the past years, several studies showed predominantly significant improvements on self-efficacy and self-esteem in adults with ADHD through cognitive behavioral therapy (CBT; Bramham et al., 2009; Stevenson, Stevenson, & Whitmont, 2003; Stevenson, Whitmont, Bornholt, Livesey, & Stevenson, 2002). The importance of using strategies to improve self-esteem is highlighted in various cognitive behavioral programs for adult ADHD (Ramsay & Rostain, 2005; Stevenson et al., 2002; Virta et al., 2008).

Despite all the problems people with ADHD have to cope with, they tend to possess various internal *resources*, such as enhanced creativity (Hallowell & Ratey, 1994; Weiss, 1997) or resilience (e.g., the capacity to try again and hope for a successful outcome after experiencing a disappointment; Young, 2005). Hesslinger et al. (2002) emphasized that adults with ADHD possess curiosity, imaginativeness or flexibility, and resources, which can be used for psychotherapy in a

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favorable way. At this time, very few studies have been conducted in this field, and our knowledge about the specific resources of adult ADHD still leaves us in the dark.

However, we do know that pointing out resources and making use of them has a highly positive effect on patients in general. Gassmann and Grawe (2006) showed that a successful therapeutic outcome depended considerably on how much the patient was able to activate her resources. But even though therapy studies indicate beneficial effects of focusing on resources (Fiedler, 2007; Klemenz, 2009; Willutzki, 2003), and ambassadors of positive psychology such as Seligman and Csikszentmihalyi (2000) or Snyder and Lopez (2007) stress the importance of a resources-oriented view in psychotherapy, resources have been playing a subordinate role in the treatment of adults with ADHD. Few therapy manuals or guidebooks emphasize the strengths adults with ADHD do possess (Hesslinger et al., 2002; Young & Bramham, 2007).

If adults with ADHD become aware of their resources, it can help them deal with impairments and achieve their goals. Hence, self-esteem and self-efficacy can develop by experiencing strengths and the capability of dealing with difficult situations and to positively influence one's life. The vicious cycle of negative appraisal could be broken by acknowledging individual resources, believing in oneself and in the capability to influence one's own life.

The purpose of this study is to shed light on therapy-relevant factors, such as self-esteem, self-efficacy, and resources in adults with ADHD. To this end, the authors want to investigate whether untreated patients suffering from ADHD differ from adults in a healthy control group on these factors.

Self-esteem, self-efficacy, and resources are therapy-relevant factors as they can create positive beliefs about the self and one's own abilities. Although there are multitudinous significant factors for the psychotherapy of ADHD in adulthood, we only want to point out at those immanent factors that already existed before treatment (for instance, the patients' inner psychic experiences concerning the image of themselves and their own capabilities). The authors assume that accounting for these therapy-relevant factors is of great importance for the treatment of adults with ADHD. Before specifying this study, we want to give a short theoretical overview of the three therapy-relevant factors that were surveyed.

Self-Esteem

Self-esteem reflects the overall opinion we have of ourselves, how we evaluate ourselves, and the value we attach to ourselves as a person (Fennell, 1999). Considered a personality trait, it is referred to as general self-esteem and has been shown to be a stable variable throughout adulthood (Neiss, Sedikides, & Stevenson, 2002). In Rosenberg's (1965) definition, self-esteem is specified as a favorable or unfavorable attitude toward the self. Looking for the essence of self-esteem, we come up against the *core beliefs* about oneself (Beck, 1976, 1995), beliefs that developed out of our life experiences and are fundamental and deeply enrooted. We consider core beliefs to be utterly true and unchangeable, and tend to ignore or devaluate conflicting information, even if evidence therefor is given. Depending on whether our experiences, starting from early childhood, have been generally positive or negative, the view of the self is consolidated. Low self-esteem implies that people have many negative beliefs about themselves.

Self-Efficacy

Perceived self-efficacy is characterized by the individual's belief in their abilities to perform a specific action needed to attain a desired outcome. Self-efficacy beliefs seem also helpful in dealing with stressful conditions as they influence cognitions, emotions, and behavior (Bandura, 1997). These beliefs appear to be a major factor in influencing behavioral changes (Luszczynska, Scholz, & Schwarzer, 2005). In this article, the term *self-efficacy* stands for generalized self-efficacy (GSE) that is characterized by a broad and stable sense of personal competence about coping effectively with diverse stressful situations (Luszczynska, Diehl, Gutiérrez-Doña, Kuusinen, & Schwarzer, 2004; Sherer, Maddux, Mercadante, & Prentice-Dunn, 1982). Luszczynska et al. (2005) and Bandura (2002) found GSE to be a universal and transcultural construct, which is characterized by a basic belief that is immanent in all humans.

Resources

By resources we mean "strengths" or "potentials" of either a person (internal resources) or the environment (external resources; Willutzki, 2008). Resources can be perceived either subjectively (perception of the own person) or objectively (perception of one's resources by an observer), and they can be stable or variable over time (Grawe, 1997). Depending on its validation and disposability, the quality of a resource varies. The perceived subjective resources seem to be decisive for coping with daily hassles as well as with bigger challenges (Frank, 2007; Jerusalem, 1990). At large, all humans are said to have resources and hence the feasibility for personal growth and to favorably influence their environment (Grawe, 1998).

In our study, we compared an untreated clinical sample of adults diagnosed with ADHD with individuals in a healthy control sample to examine the magnitude of self-esteem, self-efficacy, and resources both groups possess. Furthermore, we wanted to examine their general psychological distress level and its potential influence on self-esteem, self-efficacy, and resources.

The following questions were being explored:

Research Question 1: Are there significant differences between adults with ADHD and a healthy control group in matters of self-esteem and self-efficacy?
Research Question 2: Are there significant differences between adults with ADHD and a healthy control group with respect to their resources?
Research Question 3: Is there a significant relationship between the general psychological distress level and factors, such as self-esteem, self-efficacy, and resources?
Research Question 4: Is there a significant relationship between self-esteem, self-efficacy, and resources?

Method

Study Design

Participant characteristics. The study included 36 females and 50 males between the ages of 19 and 60 (ADHD: M = 34.3, SD = 9.47; control group: M = 34.58, SD = 9.88). In total, 43 men and women who met *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM-IV-TR*; American Psychiatric Association, 2000) criteria for ADHD in adulthood (experimental group, henceforth EG) were matched with 43 adults from a nonclinical sample (control group, henceforth CG). The EG consisted of patients who came for a clarification of the diagnosis of ADHD in adulthood to the ADHD consultation of the Psychiatric Outpatient Department/Psychiatric University Clinic Basel. For every participant in the EG, a "matching part" was searched, which was to have the same gender and substantial similarities in age. Recruitment of the CG was conducted by searching for an adequate match in the author's circle of acquaintances.

Sociodemographic information for the sample is depicted in Table 1. There were no significant differences between the groups for age (p = .894) and gender (p = 1.0). The relational status of our sample showed no significant differences between the groups (p = .891). Participants were mostly married or in a relationship (EG = 55.8%, CG = 55.9%), or single (EG = 37.2%, CG = 39.5%), few were divorced/separated (EG = 7%, CG = 4.6%).

Individuals with ADHD featured fewer years of education than individuals in the CG (p < .001; ADHD: M = 10.4 years vs. CG: M = 12.2 years).[1] The highest achieved graduation level among our ADHD sample was 46.5% at the lower secondary level, 30.2% at the upper secondary level, followed by 18.6% with a vocational education, and 4.7% who finished university. In the CG, the majority of the participants completed a vocational education (41.9%) as highest graduation level, followed by 34.9% who finished the upper secondary level. In all, 14% completed the lower secondary level and 9.2% finished university.

Adults with ADHD were more likely to be unemployed (EG = 16.3% vs. CG = 2.3%) or to live from a disability pension (EG = 13.9% vs. CG = 0%). Individuals in the CG were more likely to work full-time or to be a housewife/husband (CG = 48.9%, EG = 37.2%) and to study or to be in a vocational education (CG = 20.9%, EG = 9.3%).

Consistent with the literature, psychiatric lifetime comorbidity was clearly present in our adult ADHD group. Comorbidity in the 43 adults with ADHD was assessed by a certified psychologist or psychiatrist according to *DSM-IV-TR* criteria. A total of 36 individuals in the ADHD group suffered from at least one additional psychiatric diagnosis. Predominantly, individuals suffered from mood disorders (34.9%), substance abuse/dependence (20.95%), or anxiety disorders (18.7%). A small part of the group suffered from eating disorders (2.3%) or other not specified psychiatric conditions (2.3%). Our CG was not screened for psychiatric disorders but was to self-report any psychiatric diagnosis received at any time in their lives. Only two individuals in the CG indicated having been diagnosed with a psychiatric diagnosis (in both cases "mood disorder").

Inclusion criteria for participating in this study were as follows: (a) men and women of 18 to 60 years of age, (b) no current severe comorbid psychiatric disorder or mental retardation, and (c) informed consent given.

To be included, participants in the EG must have had a principal diagnosis of ADHD. The study was approved by the ethics committee of Basel (EKBB).

Adults who came for a clarification of the diagnosis of ADHD to the Psychiatric Outpatient Department were examined by experienced clinical psychologists, through structured clinical interviews and rating scales (see Stieglitz, 2010). All clinical psychologists had been specially trained in the field of adult ADHD. The patients were given a set of questionnaires, which they sent back when completed. The set included the Symptom Checklist-90–Revised (SCL-90-R; Derogatis, 1992), the Rosenberg Scale (Collani & Herzberg, 2003), the General Perceived Self-Efficacy Scale (SWE; Schwarzer & Jerusalem, 1995), and the Resources Checklist (Dick, 2003).

Participants in the CG consisted of a nonclinical sample and were not previously diagnosed with ADHD. Every participant was given the same set of questionnaires as for the ADHD group as well as the ADHD-Screener (World Health Organization [WHO], 2003).

Measures

Because the focus of this article is on self-esteem, self-efficacy, and resources, only associated measures are depicted in more detail. For an extensive overview in

Table 1. Sociodemographic Variables

	ADHD (n = 43)	CG (n = 43)	t test/χ^2	p	df
Age					
Age in years: M (SD)	34.3 (9.46)	34.58 (9.88)	t = −0.134	.894	84
Age in years: range	19-60	19-59			
Sex			χ^2 = 0.000	1.0	1
Male	25 (55.8%)	25 (55.8%)			
Female	18 (44.2%)	18 (44.2%)			
Relational status			χ^2 = 0.23	.891 .989[a]	2
Single	16 (37.2%)	17 (39.5%)			
Married/in a relationship	24 (55.8%)	24 (55.9%)			
Divorced/separated	3 (7%)	2 (4.6%)			
Education					
Total education in years: M (SD)	10.40 (1.71)	12.22 (2.17)	t = −4.294	.000**	84
Total education in years: range	8-14	9-18			
Highest completed graduation			χ^2 = 12.1	.007** .021*[a]	3
Lower secondary level (Grades 6-9)	20 (46.5%)	6 (14%)			
Upper secondary level (Grades 10-13)	13 (30.2%)	14 (34.9%)			
Vocational education (final apprentice examination)	8 (18.6%)	18 (41.9%)			
University/university of applied sciences	2 (4.7%)	4 (9.2%)			
Actual employment situation			χ^2 = 13.28	.010* .061[a]	4
Full-time work/housewife/house husband	16 (37.2%)	21 (48.9%)			
Part-time work	10 (23.3%)	12 (27.9%)			
Unemployed	7 (16.3%)	1 (2.3%)			
Student/vocational education	4 (9.3%)	9 (20.9%)			
Disability pension/other pension/ socioprofessional reintegration	6 (13.9%)	0			

[a]p values with Yates' correction.
*p < .05. **p < .01.

screening methods and diagnostics of adult ADHD, see Barkley (2010).

SWE. This scale (Schwarzer & Jerusalem, 1995) is one of the most frequently used self-report measures to determine general perceived self-efficacy. The SWE is a unidimensional scale containing 10 items, which are answered on a 4-point scale (1 = *not at all true*, 2 = *hardly true*, 3 = *moderately true*, 4 = *exactly true*). Reliability analysis of samples from 23 countries indicated a high internal consistency: Cronbach's alpha ranged from .76 to .90. The test–retest reliability scores ranged from r = .74 to r = .78. The means for most samples were 29 points with a standard deviation of ±4. For our study, we used raw scores.

Rosenberg Self-Esteem Scale (RSES). This scale (Rosenberg, 1965) has been revised by Collani and Herzberg in 2003 (German version). Most frequently, this scale is being adopted to measure global self-esteem.

The RSES is a unidimensional scale containing 10 items, which measure "global self-esteem." Five items (2, 5, 6, 8, and 9) are phrased in a negative way, and 5 items (1, 3, 4, 7, and 10) are positively framed. Each of the 10 items is answered on a 4-point scale (1 = *not at all true*, 2 = *hardly true*, 3 = *moderately true*, 4 = *exactly true*). Reliability analysis indicated a high internal consistency (Cronbach's α = .84). The test–retest reliability ranged from r = .85 to r = .82. Although some studies have demonstrated a unidimensional structure to the scale, others found a two-factor structure consisting of self-confidence and self-deprecation (for an overview, see Corwyn, 2000). We used raw scores, and the scale was applied unidimensionally. The mean range was between 25 and 35 points.

Resources Checklist. The Resources Checklist (henceforth RCL; Dick, 2003) comprises an assembly of the most important resources a person features, such as social/environmental resources and personality-related strengths. In this checklist, people are to describe on a scale from 0 = *not at all* to 4 = *very important* whether they actually possess this resource (realization) and how important this resource

is to them (importance). For the evaluation, the mean values of the importance of each resource are subtracted from the mean values of the actual disposability of the resource. If after subtraction the result is close to 0, we conclude that this specific resource is in balance between importance and disposability. For example, Person A considers the resource relationship as important and is in a satisfying relationship at this time.

A deficient disposability of a resource is given by negative differences. It indicates that this resource needs to be fostered as its importance is higher than the current disposability. For example, Person B considers vocation as very important but is unhappy with his job.

The two main categories *environmental/social resources* and *personality-related resources* consist of 14 subcategories: partnership, family, vocation, leisure time, housing, health, self-esteem, confidence, ability to love, courage, creativity, sense of control, composure, and faith.

At this point in time, there is no scientific evaluation of this checklist. Overall, the use of this list has been intended to be a mnemonic for resources-oriented interviews or therapies. Despite these disadvantages, we chose this questionnaire for its clear classification of the resources and due to its relative shortness.

SCL-90-R. This checklist (Derogatis, 1992) is a self-report questionnaire indicating psychological symptoms. In total, 90 items are scored on a 5-point Likert-type scale (from 0 = *not at all* to 4 = *extremely*). The questionnaire is designed to measure symptom intensity on nine subscales and on three global indices. The nine subscales are Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Anger-Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism. The three global indices consist of the following: (a) Global Severity Index (GSI)—Designed to measure the overall psychological distress. The index is the mean value of all 90 items. High scores reflect high symptomatic distress. (b) Positive Symptom Distress Index (PSDI)—Measures the intensity of symptoms. (c) Positive Symptom Total (PST)—Reports number of self-reported symptoms.

This study only considered the GSI using raw scores. Reliability analysis of the nine scales indicated a high internal consistency: Cronbach's alpha ranged from .75 to .87. The test–retest reliability ranged from $r = .78$ to $r = .90$. For the global indices (GSI, PSDI, and PST), reliability analysis displayed an even higher internal consistency (Cronbach's $\alpha = .96$-$.98$). The *t*-values for clinical nonrelevant findings were between 40 and 60 points.

Statistical Analyses

Statistical analyses were conducted using SPSS for Windows (Version 19.0). In order to check for the normality of the distribution of demographic and clinical characteristics of the sample we applied Kolmogorov-Smirnov tests. Unless otherwise specified, a p value of .05 was chosen as the criterion of significance.

Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance–covariance matrices, and multicollinearity. No serious violations were noted. We detected possible differences between the groups with respect to sex, age, education, employment situation, and comorbidity via *t* test or chi-square test, where appropriate. To explore group differences in self-esteem, self-efficacy, and resource, we conducted two-way between-groups ANOVA and one-way between-groups MANOVA. The relationship between the general psychological distress level and self-esteem, self-efficacy, or resource was analyzed with Pearson product–moment correlation coefficient. The strength of the relationship was chosen after Cohen (1988), suggesting the following guidelines: small $r = .10$ to .29, medium $r = .30$ to .49, and large $r = .50$ to 1.0.

Results

To explore significant differences in self-esteem and self-efficacy between adults with ADHD and a healthy CG, we used two-way between-groups ANOVA. We analyzed *group* and *sex* differences on levels of self-esteem (as measured by the Rosenberg Scale) and self-efficacy (as measured by the SWE scale). The independent variables were group and sex. We conducted separate analysis for the dependent variables, self-esteem and self-efficacy. Table 2 shows that groups differed significantly in self-esteem, $F(3, 82) = 34.7$, $p < .001$, as well as in self-efficacy, $F(3, 82) = 39.4$, $p < .001$. Beyond that the results also showed large effect sizes for self-esteem and self-efficacy. No significant gender effects were found for self-esteem, $F(3, 82) = 0.018$, $p = .894$, or for self-efficacy, $F(3, 82) = 3.35$, $p = .071$. The interaction effect between group and sex was not statistically significant, neither for self-esteem, $F(3, 82) = 1.12$, $p = .291$, nor for self-efficacy, $F(3, 82) = 0.332$, $p = .566$.

Group differences on the level of *general psychological distress* (SCL-90-R: GSI) were analyzed with a two-way between-groups ANOVA (see Table 2). We found a statistical significant difference between the groups in terms of general psychological distress, $F(3, 82) = 48.7$, $p < .001$. Participants in the ADHD group showed a significant higher level of symptom distress ($M = 1.26$, $SD = 0.67$) than those in the CG ($M = 0.44$, $SD = 0.33$). There were no significant differences found in the symptom distress level of males compared with females, $F(3, 82) = 0.198$, $p = .657$. The interaction effect between group and sex was statistically not significant, $F(3, 82) = 0.008$, $p = .930$.

We performed a one-way between-groups MANOVA to investigate group differences with respect to the resources they possess (RCL).

Table 2. ANOVA: Group Differences on Self-Esteem, Self-Efficacy, and the General Psychological Distress Level (SCL-90-R: GSI)

	ADHD (n = 43)	CG (n = 43)			
Variables	M (SD)	M (SD)	$F(3, 82)$	Significance	η^2
Self-esteem (Rosenberg Scale)	15.0 (6.5)	23.2 (6.5)	34.7	.000**	.298
Self-efficacy (SWE scale)	14.7 (4.7)	20.3 (3.5)	39.4	.000**	.325
General psychological distress level (SCL-90-R: GSI)	1.26 (0.67)	0.44 (0.33)	48.7	.000**	.376

Note: SCL-90-R = Symptom Checklist-90–Revised; GSI = Global Severity Index; SWE = General Perceived Self-Efficacy Scale.
*p < .05. **p < .01.

Table 3. MANOVA: Group Differences on 14 Resources (Resources Checklist)

	ADHD	CG			
Variables	M (SD)	M (SD)	$F(1, 82)$	Significance	η^2
Resources main categories					
Environmental/social resources	−1.12 (0.77)	−0.45 (0.52)	21.1	.000**	.205
Personality-related resources	−1.06 (0.66)	−0.44 (0.45)	25.0	.000**	.234
Resources subcategories					
Partnership[a]	−1.50 (1.54)	−0.45 (1.00)	13.3	.000**	.140
Family[a]	−0.70 (1.00)	−0.24 (0.55)	6.6	.011	.076
Vocation[a]	−1.42 (1.23)	−0.60 (0.78)	13.2	.000**	.139
Leisure time[a]	−1.10 (0.90)	−0.78 (0.81)	3.02	.086	.036
Housing[a]	−0.53 (0.81)	−0.17 (0.57)	5.5	.021	.064
Health[a]	−1.52 (0.87)	−0.63 (0.65)	27.9	.000**	.255
Self-esteem[b]	−1.97 (1.50)	−0.60 (0.91)	24.9	.000**	.234
Confidence[b]	−1.10 (0.88)	−0.50 (0.78)	10.7	.002*	.116
Ability to love[b]	−0.52 (0.77)	−0.32 (0.73)	1.39	.241	.017
Courage[b]	−0.97 (0.94)	−0.50 (0.72)	6.56	.012	.074
Creativity[b]	−1.36 (1.14)	−0.60 (0.81)	11.9	.001**	.127
Sense of control[b]	−1.34 (1.06)	−0.41 (0.70)	22.1	.000**	.213
Composure[b]	−1.89 (1.01)	−0.56 (1.68)	19.4	.000**	.192
Faith[b]	−0.64 (0.97)	−0.32 (0.52)	3.39	.069	.040

[a]Environmental/social resources.
[b]Personality-related resources.
*p < .05 (Bonferroni adjustment alpha level of .0031). **p < .025 (Bonferroni adjustment alpha level of .0015).

According to Dick's (2003) classification, we analyzed the two main categories, *environmental/social resources* and *personality-related resources*, as well as the 14 subcategories. The MANOVA results in Table 3 revealed significant group differences at $p < .01$ or less with respect to the following variables: environmental/social resources, personality-related resources, partnership, vocation, health, self-esteem, confidence, creativity, sense of control, and composure. Taken as a whole, the ADHD group exhibited a significantly lower level of these resources than the CG. However, there are resources that did not significantly differ between the groups: family, leisure time, housing, ability to love, courage, and faith.

Correlations were analyzed to provide more detailed insight into specific relationships among the variables. Particularly, two groups of variables were explored: (a) The general psychological distress level (SCL-90-R: GSI) and self-esteem (Rosenberg Scale) or self-efficacy (SWE scale), respectively. (b) The general psychological distress level (SCL-90-R: GSI) and the resources (14 subcategories of the RCL). Relationships between the variables were investigated using Pearson product–moment correlation coefficient and were calculated for each group separately.

1. There was a significant and negative correlation between the variables GSI and self-esteem for the

Table 4. Pearson's Correlations Between the General Psychological Distress Level (SCL-90-R: GSI), Self-Efficacy, and Self-Esteem

	GSI	Self-efficacy	Self-esteem
Variables	ADHD/CG	ADHD/CG	ADHD/CG
GSI	—	−.19/−.57**	−.44**/−.50**
Self-efficacy	—	—	.42**/.53**
Self-esteem	—	—	—

Note: SCL-90-R = Symptom Checklist-90–Revised; GSI = Global Severity Index.
*$p < .05$ (two-tailed). **$p < .01$ (two-tailed).

ADHD ($r = -.44$, $n = 43$, $p < .01$) as well as for the CG ($r = -.50$, $n = 43$, $p < .001$). The strength of the relationship was moderate in both groups (see Table 4). As for the correlations between the variables GSI and self-efficacy, only the CG revealed a significant relationship at $p < .01$ suggesting a strong relationship. The ADHD group showed a negative relationship, which was barely not significant at a 5% level ($r = -.19$, $n = 43$, $p = .072$).

Results imply that high levels of general psychological distress are associated with lower levels of self-esteem and self-efficacy in the CG. In the ADHD group, only self-esteem was significantly negatively correlated with high levels of general psychological distress but not self-efficacy. The strength of the relationship for self-esteem was moderate in the ADHD group and strong in the CG.

Higher levels of self-esteem were significantly and positively associated with higher levels of self-efficacy in both groups at $p < .01$.

2. The correlations in Table 5 showed significant and negative relationships between the general psychological distress level and following resources: family, vocation, leisure time, health, self-esteem (only ADHD), confidence, courage (only CG), creativity (only CG), composure, and faith. These significant correlations imply that an elevated general psychological distress level is accompanied by a reduced disposability of the aforementioned resources in both groups. The strength of the relationship was large for health and confidence in ADHD, and for leisure time in the CG. All other significant correlations showed a moderate relationship. Conversely, an elevated GSI in the ADHD group did not significantly correlate with a reduced disposability of the resources partnership, housing, ability to love, courage, creativity, and sense of control. For the CG, an elevated GSI did not significantly correlate with a reduced disposability of the resources partnership, housing, self-esteem, ability to love, and sense of control.

Table 5. Pearson's Correlations Between the General Psychological Distress Level (SCL-90-R: GSI) and 14 Resources (Resources Checklist)

	GSI	
Resources Checklist	ADHD ($n = 43$)	CG ($n = 43$)
1. Partnership	−.22	−.14
2. Family	−.33*	−.40**
3. Vocation	−.42**	−.40**
4. Leisure time	−.31*	−.61**
5. Housing	−.22	−.17
6. Health	−.56**	−.49**
7. Self-esteem	−.49**	−.25
8. Confidence	−.52**	−.41**
9. Ability to love	−.08	−.16
10. Courage	−.24	−.32*
11. Creativity	−.15	−.31*
12. Sense of control	−.26	−.17
13. Composure	−.35*	−.43**
14. Faith	−.37*	−.36*

Note: SCL-90-R = Symptom Checklist-90–Revised; GSI = Global Severity Index.
*$p < .05$ (two-tailed).**$p < .01$ (two-tailed).

Finally, we measured the relationships between self-efficacy, self-esteem, and the 14 resources using the Pearson product–moment correlation coefficient. For each group, we calculated the relationships separately (see Table 6). The ADHD group revealed a highly significant correlation ($p < .01$) between self-efficacy and confidence. For self-efficacy and family, or self-efficacy and courage, correlations showed significance at $p < .05$.

Table 6 depicts highly significant relationships ($p < .01$) between self-esteem and self-esteem, confidence, courage, creativity, sense of control, composure, and faith, as well as significant relationships ($p < .05$) between self-esteem and family, health, and ability to love.

In the CG, we found highly significant correlations ($p < .01$) between self-efficacy and family, leisure time, health, confidence, courage, creativity, and sense of control, as well as a significant relationship ($p < .05$) between self-efficacy and self-esteem. The correlations between self-esteem and confidence, or faith showed a significant relationship at $p < .05$.

Discussion

The primary objective of this study was to explore differences in self-esteem, self-efficacy, and resources in untreated adults with ADHD in comparison with healthy

Table 6. Pearson's Correlations Between Self-Efficacy (SWE Scale), Self-Esteem (Rosenberg Scale), and 14 Resources (Resources Checklist)

	Self-efficacy (SWE)/self-esteem (RSES)	
	ADHD (n = 43)	CG (n = 43)
Resources Checklist	SWE/RSES	SWE/RSES
1. Partnership	.05/.24	.21/.−29
2. Family	.32*/.34*	.54**/.11
3. Vocation	.04/.26	.17/.00
4. Leisure time	.06/.32	.43**/.24
5. Housing	.05/−.023	.17/−.03
6. Health	.20/.37*	.56**/.26
7. Self-esteem	.26/.56**	.36*/.28
8. Confidence	.42**/.65**	.53**/.30*
9. Ability to love	.19/.36*	.24/.14
10. Courage	.35*/.52**	.40**/.18
11. Creativity	.14/.39**	.48**/.23
12. Sense of control	.15/.66**	.39**/.07
13. Composure	.20/.54**	.23/.29
14. Faith	.08/.41**	.27/.33*

Note: SWE = General Perceived Self-Efficacy Scale; RSES = Rosenberg Self-Esteem Scale.
*p < .05 (two-tailed).**p < .01 (two-tailed).

adults in a CG. Relationships between self-esteem, self-efficacy, and resources were surveyed. In addition, the general psychological distress level in both groups was compared, and a possible relationship between the general psychological distress level and self-esteem, self-efficacy, or resources was analyzed. To our knowledge, this is the first study that surveyed resources in adults with ADHD.

Our findings show that adults with ADHD exhibit significantly lower levels of self-esteem and self-efficacy than comparable healthy adults in a CG. These results are consistent with the current literature (Philipsen et al., 2007; Ramsay & Rostain, 2008; Safren, 2006).

As for the resources, we found the ADHD group to have significantly lower values compared with the CG in some but not all of the resources. In particular, the resources partnership, vocation, and health exhibited lower levels. These findings are in line with present studies, which commonly found individuals with ADHD to have interpersonal (Barkley, Murphy, & Fischer, 2008) and vocational difficulties (Barkley, 2010; Biederman & Faraone, 2006) as well as increased health problems (Barkley et al., 2008). Self-esteem and confidence were lower in the ADHD group as measured with both the RCL and the Rosenberg Scale.

Although in our study the ADHD group exhibited a lower level of self-reported creativity compared with a healthy CG, further research is needed as studies on this subject are rare (Hallowell & Ratey, 1994). More knowledge about creativity in ADHD is potentially beneficial for their educational and vocational choices and development.

The ADHD group also seemed to possess an impaired feeling of control (sense of control = "sense of being able to influence one's life in important areas"). This result is consistent with our findings that ADHD entails lower levels of self-efficacy.

The resource *composure* was lower in the ADHD group ("having a carefree mind," "to look into the future in an optimistic way with respect to my dreams and wishes," "to let go of things I cannot influence"). This could be explained by the multitude of impairments and their long-standing history of negative experiences starting from childhood.

However, the resources that did *not* significantly differ between the groups are just as telling: family, leisure time, housing, ability to love, courage, and faith. We discuss each point in turn.

The ADHD group was shown to hold the resource family ("feeling loved and accepted the way I am by the family members," "experiencing an atmosphere of mutual trust"). Furthermore, we found a significant relationship between the resource family and self-efficacy as well as self-esteem. Barkley (2010) pointed out that external resources, such as family or friends, can assist adults with ADHD to manage and improve their work. For psychotherapy, particularly for doing homework and to train new behavior, it could therefore be especially helpful and promising to include family members or close friends as coaches. According to our findings, in using this resource, self-efficacy and self-esteem can be fostered.

Likewise, satisfaction with *leisure time* ("satisfaction with leisure time activities," "balance between work and leisure time," "working in a honorary capacity") and *housing* ("satisfaction with domicile") in adults with ADHD could be a source of energy, helping them to maintain the balance between work, everyday business, and recreation. There seems to be no relationship between *leisure time* and self-efficacy or self-esteem on one hand, or *housing* and self-efficacy or self-esteem on the other hand. This suggests that *leisure time* and *housing* are less relevant resources with respect to self-efficacy or self-esteem.

Despite the difficulties adults with ADHD have in relationships, their *ability to love* did not seem to be affected. There is, however, a significant relationship between *ability to love* and self-esteem. This resource includes aspects, such as "having the capacity to give and accept love," "being sensitive toward other people's emotions," and "being tolerant and open." Considering the frequent interpersonal difficulties (Barkley et al., 2008) and elevated marital divorce rates (Biederman & Faraone, 2006) in adults with ADHD, the

resource "ability to love" could be made use of to foster interpersonal coping strategies and self-esteem, as well as to improve their relationship.

No differences were found between the groups with respect to courage. Courage is characterized by following descriptions: "courage to go into uncertain or dreaded situations," "endurance when committed to something to hang in until the goal is reached," and "courage to develop oneself, and to do things that seem right and important." In a psychotherapeutic setting, courage can have a beneficial effect on patients when making new or uncertain experiences, and it can literally encourage them not to give up easily. Beyond that, courage showed a significant and positive relationship with self-efficacy and self-esteem in our study.

The resource faith was also comparable in both groups. Faith is characterized by statements, such as "believing in the meaningfulness of life," "believing in a superior power which protects me," and "believing in being loved and accepted as I am by this power." To the authors' knowledge, there are no studies that have analyzed faith in adult ADHD. Yet, in recent years an increasing literature suggests that faith/spirituality might be a protective factor for psychological health in general (Klein & Albani, 2007; Lee, Stacey, & Fraser, 2003; Seybold & Hill, 2001). This opens up yet another resource channel for psychotherapy by virtue of the positive significant relationship between faith and self-esteem.

In comparing the psychological distress level (SCL-90-R: GSI), we found individuals with ADHD to have a significantly higher distress level than individuals in the CG. This result is not surprising as several previous studies (e.g., UMASS study; Barkley, 2010) found individuals with ADHD to have higher elevations on all scales of the SCL-90-R than a clinical group or a CG. An elevated psychological distress level could be explained first and foremost by the ADHD itself, second by the psychiatric comorbidity that is predominant in the ADHD group.

It stands to reason that a greater amount of psychological distress could have impact on self-esteem and self-efficacy. Although the CG exhibited highly significant negative correlations between GSI and both self-efficacy and self-esteem, the ADHD group only showed this relation for self-esteem. This difference could be explained by the fact that the ADHD group exhibited already from the beginning of this study much lower values of self-esteem and self-efficacy. Their values might have hit a lower plateau. What speaks against this hypothesis is that self-esteem showed a negative correlation with psychological distress. If low self-esteem can be reduced further by psychological distress, then self-efficacy should be reduced as well, unless there are protective factors for self-efficacy in ADHD. These potentially protective factors will be discussed in the next intercept.

For the greater part, correlations between the general psychological distress level and the 14 resources showed significant and negative relationships. This relationship was prevalent in both groups. In the first instance, our results indicate that higher levels of psychological distress have a negative relationship with most of the resources. Second, our findings suggest that this relationship is by and large independent of the psychopathology of ADHD, as both groups rated the impact of general psychological distress on their resources in a similar way. There are two noteworthy exceptions: The resources courage and ability to love did not significantly differ between the groups and showed no significant relationship with elevated psychological distress in the ADHD group. Thus, we assume courage and ability to love may be protective resources in ADHD. Theoretically (Hannah, Sweeney, & Lester, 2007) as well as empirically (Kowalski et al., 2006; Pury & Kowalski, 2007), courage has been correlated with efficacy-related states. We found *courage* to have a positive significant relationship with self-esteem and self-efficacy in our study. This provides us with a potential explanation as to why self-efficacy was not affected by a high GSI.

However, the reason why *ability to love* impacts on self-efficacy in a protective way seems more cloudy. We could only find a positive significant relationship with self-esteem. The *ability to love* may be related to experiencing life satisfaction and psychological well-being (Dick, 2003; Seligman, 2002) and as such it may have a general protective effect.

Limitations

One potential weakness of this study is that our groups were not entirely comparable on behalf of years of education, highest achieved graduation, and vocational situation. Nevertheless, it seems to be an inherent problem of ADHD that people suffering from this neurobiological disorder tend to have educational and vocational difficulties. In a nonclinical sample such as ours, the educational and vocational situation is expected to be superior. On account of this, future studies should compare ADHD not only with a healthy control but also with another clinical sample. Nevertheless, our sample was equal with respect to sex and age. Although our groups were not equal with regard to education and profession, they were both highly heterogenic.

One might also argue that the applied resources questionnaire was not being validated. As yet, resources in adult ADHD have not been subject of empirical studies, and we wanted to obtain a first insight and tried to keep the survey as short as possible. In a next step, the resources questionnaire should be validated and applied in a bigger sample of adults with ADHD.

To close with, the relatively small samples size calls for replication with a larger sample to generalize our results.

Despite these potential limitations, our study provides a novel contribution to the current literature on adult ADHD,

self-efficacy, self-esteem, and resources. To our knowledge, this is the first study that has surveyed resources in adults with ADHD.

Conclusion and Implications

The present study shows that adults with ADHD have lower levels of self-esteem and self-efficacy when compared with a healthy CG. On closer examination, however, some of the underlying resources do not seem to differ between the groups. In other words, people with ADHD seem to possess the resources family, leisure time, housing, ability to love, courage, and faith, which lend themselves for making use of and being fostered in psychotherapy. Our findings suggest that the resources, family, ability to love, courage, and faith, have a positive relationship with self-esteem. In addition, family and courage show a positive relationship with self-efficacy.

Our results bear important implications for the treatment of adult ADHD and suggest that corresponding therapy programs should include modules for enhancing self-esteem, self-efficacy, and activating/fostering patient's resources.

A crucial element in psychotherapy for adult ADHD is to break the vicious cycle of negative appraisal and to adopt positive strategies (Bramham et al., 2009; Safren, 2006) when difficulties arise. To make new, positive experiences, adults with ADHD need to become aware of their resources and learn to apply them in everyday life. Once they are able to influence their lives in a favorable way, self-esteem and self-efficacy can grow.

In addition to an inalienable problem-oriented focus, a complementary resources-oriented approach provides the following benefits for adults with ADHD:

1. experiencing competence, self-esteem (Grawe & Grawe-Gerber, 1999), and hope (Hayes et al., 2007);
2. motivation for psychotherapy is likely to increase;
3. fostering coping strategies, through awareness of the own strengths;
4. protective function of resources assists in coping with recurrent difficulties or stress (Hobfoll, 1988; Rutter, 1990); and
5. improved problem actuation through the combination with resources activation (Flückiger, Caspar, Grosse Holtforth, & Willutzki, 2009; Gassmann & Grawe, 2006).

Living with a lifelong impairment makes it particularly relevant to shift one's perspective from deficits to strengths. As little is known about the strengths of people with ADHD, further research is indicated to reveal more knowledge about their specific resources. For instance, empirical studies investigating creativity in adult ADHD are still owing.

From a psychotherapeutical point of view, there is a necessity and eligibility to elaborate resources-oriented modules for adult ADHD. Evaluating their clinical benefit will be the challenge of future research.

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Note

1. In Switzerland, the school system is characterized by its heterogeneity. Each of the 26 cantons is individually responsible for the organization of its school system. "Primary school" (Grades 1-5) and the "lower secondary level" (Grades 6-9) are mandatory. The qualifications on the "upper secondary level" (Grades 10-13) branch out to "upper secondary level" (specialized middle schools) and a general qualification for university entrance (comparable with grammar school in Great Britain). After the "lower secondary level," individuals who do not continue further schools can complete a vocational education (apprenticeship), which is inalienable to break into the professional market. Universities or universities of applied sciences are counted among the "tertiary level."

References

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.

Bandura, A. (1997). *The exercise of control*. New York, NY: Freeman.

Bandura, A. (2002). Social cognitive theory in cultural context. *Journal of Applied Psychology: An International Review*, *51*, 269-290.

Barkley, R. A. (2010). *Attention deficit disorder in adults: the latest assessment and treatment strategies*. Sudbury, MA: Jones and Bartlett Publishers.

Barkley, R. A., Murphy, K. R., & Fischer, M. (2008). *ADHD in adults: What the science says*. New York, NY: Guilford.

Beck, A. T. (1976). *Cognitive therapy and the emotional disorders*. New York, NY: Meridian.

Beck, A. T. (1995). *Cognitive therapy: Basics and beyond*. New York, NY: Guilford.

Biederman, J. (2004). Impact of comorbidity in adults with attention-deficit/hyperactivity disorder. *Journal of Clinical Psychiatry*, *65*, 3-7.

Biederman, J., & Faraone, S. V. (2006). The effects of attention-deficit/hyperactivity disorder on employment and household income. *Medscape General Medicine*, *8*, 12.

Bramham, J., Young, S., Bickerdike, A., Spain, D., McCartan, D., & Xenitidis, K. (2009). Evaluation of group cognitive behavioral therapy for adults with ADHD. *Journal of Attention Disorders*, *12*, 434-441.

Cohen, J. W. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Collani, G., & Herzberg, P. Y. (2003). Eine revidierte Fassung der deutschsprachigen Skala zum Selbstwertgefühl von Rosenberg. *Zeitschrift für Differentielle und Diagnostische Psychologie*, *24*, 3-7.

Corwyn, R. F. (2000). The factor structure of global self-esteem among adolescents and adults. *Journal of Research in Personality*, *34*, 357-379.

Derogatis, L. R. (1992). *SCL-90-R, administration, scoring and procedures manual-II for the revised version and other instruments of the psychopathology rating scale series*. Towson, MD: Clinical Psychometric Research.

Dick, A. (2003). *Psychotherapie und Glück: Quellen und Prozesse seelischer Gesundheit*. Bern, Switzerland: Hans Huber.

Fennell, M. (1999). *Overcoming low self-esteem: A self-help guide using cognitive behavioural techniques*. London, England: Robinson.

Fiedler, P. (2007). Ressourcenorientierte Psychotherapie. In R. Frank (Ed.), *Therapieziel Wohlbefinden. Ressourcenaktivierung in der Psychotherapie* (pp. 19-32). Heidelberg, Germany: Springer.

Flückiger, C., Caspar, F., Grosse Holtforth, M., & Willutzki, U. (2009). Working with patients' strengths: A microprocess approach. *Psychotherapy Research*, *19*, 213-233.

Frank, R. (2007). *Therapieziel Wohlbefinden*. Berlin, Germany: Springer.

Gassmann, D., & Grawe, K. (2006). General change mechanisms: The relation between problem activation and resource activation in successful and unsuccessful therapeutic interactions. *Clinical Psychology & Psychotherapy*, *13*, 1-11.

Grawe, K. (1997). Research-informed psychotherapy. *Psychotherapy Research*, *7*, 1-20.

Grawe, K. (1998). *Psychologische therapie*. Göttingen, Germany: Hogrefe.

Grawe, K., & Grawe-Gerber, M. (1999). Ressourcenaktivierung: Ein primäres Wirkprinzip der Psychotherapie. *Psychotherapeut*, *44*, 63-73.

Hallowell, E. M., & Ratey, J. J. (1994). *Driven to distraction*. New York, NY: Pantheon.

Hannah, S., Sweeney, P., & Lester, P. (2007). Toward a courageous mindset: The subjective act and experience of courage. *Journal of Positive Psychology*, *2*, 129-135.

Hayes, A. M., Feldmann, G. C., Beevers, C. G., Laurenceau, J. P., Cardaciotto, L. A., & Lewis-Smith, J. (2007). Discontinuities and cognitive changes in an exposure-based cognitive therapy for depression. *Journal of Consulting and Clinical Psychology*, *75*, 409-421.

Hesslinger, B., van Elst, L. T., Nyberg, E., Dykierek, P., Richter, H., Berner, M., & Ebert, D. (2002). Psychotherapy of attention deficit hyperactivity disorder in adults: A pilot study using a structured skills training program. *European Archives of Psychiatry and Clinical Neurosciences*, *252*, 177-184.

Hobfoll, S. E. (1988). *The ecology of stress* (1st ed.). New York, NY: Hemisphere.

Jerusalem, M. (1990). *Persönliche ressourcen, vulnerabilität und stresserleben*. Göttingen, Germany: Hogrefe.

Klein, C., & Albani, C. (2007). Religiosität und psychische Gesundheit. Eine Übersicht über Befunde, Erklärungsansätze und Konsequenzen für die klinische Praxis. *Psychiatrische Praxis*, *34*, 58-65.

Klemenz, B. (2009). *Ressourcenorientierte Psychologie. Ermutigende Beiträge einer menschenfreundlichen Wissenschaft (Band 1)*. Tübingen, Germany: dgvt-Verlag.

Kowalski, R. M., Pury, C. L. S., Sporrer, L., Hunter, E., Gorney, A., Baker, M., & Mitchell, T. (2006, November). *Courage and hope: Pathways to action*. Paper presented at the annual meeting of the Society of Southeastern Social Psychologists, Knoxville, TN.

Lee, J. W., Stacey, G. E., & Fraser, G. E. (2003). Social support, religiosity, other psychological factors, and health. In G. E. Fraser (Ed.), *Diet, life expectancy, and chronic disease: Studies of seventh-day adventists and other vegetarians* (pp. 149-176). New York, NY: Oxford University Press.

Luszczynska, A., Diehl, M., Gutiérrez-Doña, B., Kuusinen, P., & Schwarzer, R. (2004). Measuring one component of dispositional self-regulation: Attention control in goal pursuit. *Personality and Individual Differences*, *37*, 555-566.

Luszczynska, A., Scholz, U., & Schwarzer, R. (2005). The general self-efficacy scale: Multicultural validation studies. *Journal of Psychology*, *139*, 439-457.

Neiss, M. B., Sedikides, C., & Stevenson, J. (2002). Self-esteem: A behavioural genetic perspective. *European Journal of Personality*, *16*, 1-17.

Newark, P., & Stieglitz, R.-D. (2010). Therapy-relevant factors in adult ADHD from a cognitive behavioural perspective. *Attention Deficit and Hyperactivity Disorders*, *2*, 59-72.

Philipsen, A., Richter, H., Peters, J., Alm, B., Sobanski, E., Colla, M., & Hesslinger, B. (2007). Structured group psychotherapy in adults with attention deficit hyperactivity disorder. Results of an open multicentre study. *Journal of Nervous and Mental Disease*, *195*, 1013-1019.

Pury, C. L., & Kowalski, R. (2007). Human strengths, courageous actions, and general and personal courage. *Journal of Positive Psychology*, *2*, 120-128.

Ramsay, J. R., & Rostain, A. L. (2005). Adapting psychotherapy to meet the needs of adults with attention-deficit disorder. *Psychotherapy: Theory, Research, Practice, Training*, *42*, 72-84.

Ramsay, J. R., & Rostain, A. L. (2008). *Adult ADHD*. New York, NY: Routledge.

Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.

Rutter, M. (1990). Psychosocial resilience and protective mechanisms. In J. Rolf, A. S. Masten, & D. Cicchetti (Eds.), *Risk*

and protective factors in the development of psychopathology (1st ed., pp. 181-214). Cambridge, UK: Cambridge University Press.

Safren, S. A. (2006). Cognitive-behavioral approaches to ADHD treatment in adulthood. *Journal of Clinical Psychiatry*, *67*, 46-50.

Schwarzer, R., & Jerusalem, M. (1995). Generalized self-efficacy scale. In J. Weinman, S. Wright, & M. Johnston (Eds.), *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). Windsor, UK: NFER-Nelson.

Seligman, M. E. P. (2002). *Authentic happiness: Using the new positive psychology to realize your potential for lasting fulfillment*. New York, NY: Free Press.

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, *55*, 5-14.

Seybold, K. S., & Hill, P. C. (2001). The role of religion and spirituality in mental and physical health. *Current Directions in Psychological Science*, *10*, 21-24.

Shekim, W., Asarnow, R. F., Hess, E., Zaucha, K., & Wheeler, N. (1990). An evaluation of attention deficit disorder-residual type. *Comprehensive Psychiatry*, *31*, 416-425.

Sherer, M., Maddux, J. E., Mercadante, B., & Prentice-Dunn, S. (1982). The self-efficacy scale: Constructions and validation. *Psychological Reports*, *51*, 663-671.

Snyder, C. R., & Lopez, S. J. (2007). *Positive psychology. The science and practical explorations of human strengths*. Thousand Oaks, CA: SAGE.

Stevenson, C. S., Stevenson, R. J., & Whitmont, S. (2003). A self-directed psychosocial intervention with minimal therapist contact for adults with attention deficit hyperactivity disorder. *Clinical Psychology & Psychotherapy*, *10*, 93-101.

Stevenson, C. S., Whitmont, S., Bornholt, L., Livesey, D., & Stevenson, R. J. (2002). A cognitive remediation programme for adults with attention deficit hyperactivity disorder. *Australian and New Zealand Journal for Psychiatry*, *36*, 610-616.

Stieglitz, R.-D. (2010). Diagnostische ADHS-Skalen bei Erwachsenen. In M. Rösler, W. Retz, & C. M. Freitag (Eds.), *Diagnose und Therapie der ADHS. Kinder - Jugendliche - Erwachsene* (pp. 71-76). Stuttgart, Germany: Kohlhammer.

Stieglitz, R.-D., Nyberg, E., & Hofecker-Fallahpour, M. (2011). *ADHS im Erwachsenenalter*. Göttingen, Germany: Hogrefe.

Virta, M., Vedenpää, A., Grönroos, N., Chydenius, E., Partinen, M., Vataja, R., & Livanainen, M. (2008). Adults with ADHD benefit from cognitive-behaviorally oriented group rehabilitation: A study of 29 participants. *Journal of Attention Disorders*, *12*, 218-226.

Weiss, L. (1997). *ADD and creativity: Tapping your inner muse*. New York, NY: Taylor Trade Publishing.

Wilens, T. E., Biederman, J., & Spencer, T. J. (2002). Attention deficit/hyperactivity disorder across the lifespan. *Annual Review of Medicine*, *53*, 113-131.

Willutzki, U. (2003). Ressourcen: Einige Bemerkungen zur Begriffsklärung. In H. Schemmel & J. Schaller (Eds.), *Ressourcen. Ein Hand- und Lesebuch zur therapeutischen Arbeit* (pp. 91-110). Tübingen, Germany: dgvt-Verlag.

Willutzki, U. (2008). Ressourcendiagnostik in der Klinischen Psychologie und Psychotherapie. *Klinische Diagnostik und Evaluation*, *1*, 126-145.

World Health Organization. (2003). *Adult ADHD Self-Report Scale ("ADHD-Screener")—Version 1.1 (Adult ASRS-V1.1)*. Geneva, Switzerland: Author.

Young, S. (2005). Coping strategies used by adults with ADHD. *Personality and Individual Differences*, *38*, 809-816.

Young, S., & Bramham, J. (2007). *ADHD in adults. A psychological guide to practice*. Chichester, UK: Wiley.

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Appendix C

Article 3:

Elsässer, M., Newark, P.E., & Stieglitz, R.-D. (2014). Selbstregulation, Lageorientierung und Aufmerksamkeit bei erwachsenen ADHS-Patienten. *Zeitschrift für Klinische Psychologie und Psychotherapie*, *43,* 43-52.

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Selbstregulation, Lageorientierung und Aufmerksamkeit bei erwachsenen ADHS-Patienten

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Zusammenfassung. Einleitung: Es wurden Selbststeuerungskompetenzen und der Einfluss der Unaufmerksamkeit auf die Selbststeuerung bei Erwachsenen mit einer Aufmerksamkeits-Defizit/Hyperaktivitätsstörung (ADHS) untersucht. **Methode:** Erwachsene mit ADHS und gesunde Kontrollen füllten die Kurzversion des Selbststeuerungs-Inventars (SSI-K) und den Fragebogen zur Messung der Handlungskontrolle (HAKEMP 90) aus. Die Beeinträchtigungen der Aufmerksamkeit wurden bei den ADHS-Patienten mittels entsprechenden Subskalen aus dem ADHS-Selbstbeurteilungsbogen (ADHS-SB) und den Conners Adult ADHD Rating Scales (CAARS-R) erfasst. Mittels Kovarianzanalyse wurden Gruppenunterschiede in der Selbststeuerung zwischen ADHS-Patienten und Kontrollpersonen untersucht. Als nächster Schritt wurde der Zusammenhang zwischen Selbststeuerung und Unaufmerksamkeit bei ADHS-Patienten anhand einer einfachen linearen Regression überprüft. **Ergebnisse und Schlussfolgerung:** Erwachsene mit ADHS zeichnen sich durch eine geringe Selbstmotivation, eine stärkere Hemmung der willentlichen Prozesse in Form von Willenshemmung und Selbsthemmung, sowie einer Disposition zur Lageorientierung aus. Die Beeinträchtigung der Aufmerksamkeit bei der ADHS-Gruppe scheint die Willenshemmung zu begünstigen.
Schlüsselwörter: ADHS, Selbststeuerung, Lageorientierung, Aufmerksamkeit

Self-regulation and state orientation in adults with Attention-Deficit/Hyperactivity disorder

Abstract. Background: We investigated the capacity for self-regulation and the influence of attention on the self-regulation abilities in adults with attention-deficit/hyperactivity disorder (ADHD). **Method:** Adults with ADHD and healthy control subjects filled in a short version of a self-regulation inventory (Selbststeuerungs-Inventar, SSI-K) and a questionnaire for the evaluation of activity control (Handlungskontrolle nach Erfolg, Misserfolg und Prospektiv, HAKEMP 90). Adverse effects on attention in ADHD patients were investigated by employing the corresponding self-judgment subscales of the ADHD-SB and the Conners' Adult ADHD Rating Scales (CAARS-R). To analyse the data, analyses of covariance and a simple regression were also conducted. **Results and conclusion:** Our results reveal that adults with ADHD exhibit an impaired capacity for self-motivation and show stronger inhibition of the volitional processes as well as a tendency for state orientation. The impairment of attention in the ADHD group seems mainly related to the inhibition of will.
Key words: ADHD, self-regulation, state orientation, attention

ADHS beginnt in der Kindheit und persistiert ins Erwachsenenalter, wobei vor allem im Bereich der Unaufmerksamkeit relativ geringe Verbesserungen über die Jahre zu finden sind (Biedermann, Mick & Faraone, 2000). Neben der Kernsymptomatik (Aufmerksamkeitsdefizit, Hyperaktivität, Impulsivität) geht das klinische Bild einer ADHS im Erwachsenenalter häufig mit Störungen im Bereich der exekutiven Funktionen (EF) einher (Krause & Krause, 2009). ADHS-Patienten unterscheiden sich von unauffälligen Personen sowohl bezüglich der Ausbildung der exekutiven Funktionen in den Bereichen Aufmerksamkeitskontrolle, Verhaltensinhibition und Arbeitsgedächtnis (Hervey, Epstein & Curry, 2004), als auch bezüglich emotional-motivationaler EF wie niedriger Frustrationstoleranz, Wutausbrüchen, emotionaler Impulsivität, Stimmungslabilität (Surman, Biedermann, Spencer & Miller, 2013 und mangelnder Kompetenzen in Motivation (Sonuga-Barke, 2002). Bramham und Kollegen (2009) untersuchten EF bei ADHS-Patienten und Patienten mit autistischen Störungen im Vergleich zu gesunden Probanden und bemerkten, dass ADHS-Patienten ausgeprägte Schwierigkeiten bei der Antwortinhibition sowie einen spezifischen Planungsstil haben. Die ADHS-Patienten planen kürzer vor der Ausführung, aber verstärkt fortlaufend während der Ausführung einer Aufgabe im Vergleich zu gesunden Probanden. Aufgrund aversiv erlebtem Aufschub von Belohnungen ziehen ADHS-Patienten unter Umständen bei der Wahl zwischen unmittelbaren kleinen Belohnungen und verzögerten grösseren Belohnungen bzw. Handlungsschritten die zeitlich näher liegende vor (Sonuga-Barke, 2002). Als hinderlich beim Problemlösen

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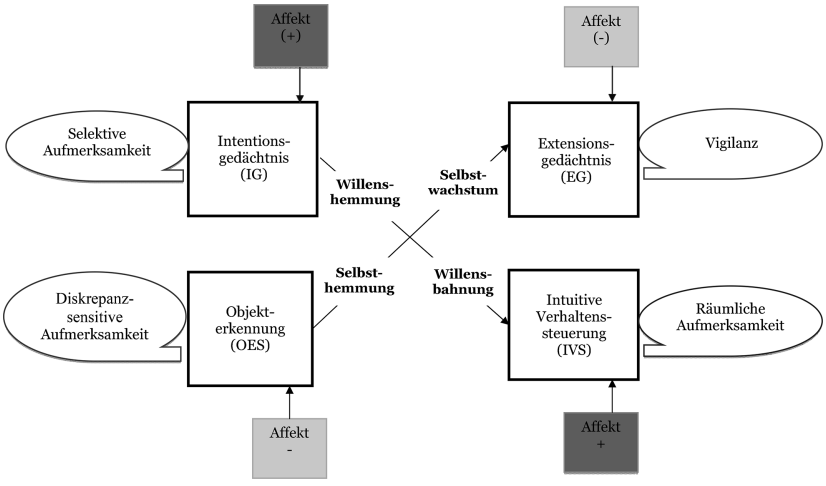

Abbildung 1. Schematische Darstellung der Theorie der Persönlichkeits-System-Interaktionen (Kuhl, 2001).

werden von Kordon und Kahl (2004) vor allem Schwierigkeiten von ADHS-Patienten gesehen, in schwierigen Situationen einen Überblick zu gewinnen, alternative Lösungen zu entwickeln (kognitive Impulsivität) und die Unfähigkeit Gedankenspiralen zu entkommen (kognitive Zwanghaftigkeit).

Gerade in schwierigen Situationen ist es wichtig, handlungsfähig zu bleiben und vorgenommene Handlungen trotz Widerständen auszuführen. Im Konstrukt der Handlungs- vs. Lageorientierung von Kuhl (1983) werden drei Prozesse angenommen, die für die Ausführung einer geplanten Handlung wesentlich sind: Aufmerksamkeit selektiv auf handlungsrelevante Inhalte zu richten, irrelevante Informationen zu ignorieren und handlungsfördernde Affekte zu aktivieren. Während es handlungsorientierten Personen gelingt, auch in Stresssituationen auf ihrem Kurs zu bleiben, kommt es bei den Lageorientierten zu einer Lähmung des gewollten Handelns. *Zwei Formen der Lageorientierung* werden in der Literatur beschrieben (Kuhl, 1983): Die Lageorientierung nach Misserfolg und die prospektive Lageorientierung. *Lageorientierte nach Misserfolg* haben Schwierigkeiten, die durch den Misserfolg ausgelösten negativen Emotionen zu regulieren. *Prospektiv Lageorientierte* haben Mühe, die in Belastungssituationen entstandene Hemmung von positiven Affekten aufzuheben und weisen Defizite in der Selbstmotivierung auf. Es wird vermutet, dass ADHS-Patienten deshalb Mühe mit der Ausführung von eigentlich gewollten Handlungen haben. Ebenfalls wird vermutet, dass Unaufmerksamkeit einen Einstieg in lageorientierte Zustände begünstigt. Als theoretische Grundlage wurde hier die Theorie der Persönlichkeits-System-Interaktionen nach Kuhl (2000, 2001) gewählt.

Theorie der Persönlichkeits-System-Interaktionen (PSI-Theorie, Kuhl, 2000, 2001)

Die Theorie beschreibt Interaktionen zwischen vier psychischen Systemen, die für die Umsetzung von komplexen Handlungsabsichten von Bedeutung sind (Abb. 1):

Dem *Intentionsgedächtnis (IG),* welches für die Repräsentation und Aufrechterhaltung von Absichten zuständig ist; 2. Dem *intuitiven Verhaltenssteuerungssystem (IVS),* welches für die Ausführung automatisierter Handlungsabläufe zuständig ist; 3. Dem *Extensionsgedächtnis (EG),* in dem alle Lebenserfahrungen, Werte sowie Selbstrepräsentationen archiviert sind; 4. dem *Objekterkennungssystem (OES*), welches das bewusste Registrieren einzelner Sinneseindrücke ermöglicht. Jedes dieser vier psychischen Systeme ist mit einem eigenen Aufmerksamkeitssystem verbunden, welches für Signalverstärkung in der Innen- und Aussenwelt zuständig ist (Kuhl, 2001).

Diese vier psychischen Systeme kommunizieren mittels Basisaffekten miteinander (Kuhl, 2001). Für die Umsetzung von gewollten Absichten spielt die Verbindung zwischen dem Intentionsgedächtnis und dem intuitiven Verhaltenssteuerungssystem eine wichtige Rolle. Die Konfrontation mit schwierigen Aufgaben führt zur Hemmung von positiven Affekten und hemmt die Kommunikation zwischen dem Intentionsgedächtnis und dem intuitiven Verhaltenssteuerungssystem (*Willenshemmung*). Die Aufhebung der entstandenen Willenshemmung benötigt einen positiven Affekt, der durch das Lösen des Problems mittels Selbst- oder Fremdermutigung zustande kommen kann. Wenn externe Reize oder Instruktionen abgespeicherte Verhaltensroutinen in Verhaltenssteuerungssystem ansprechen, dann kann dies zu Impulsivität und einer Fremdsteuerbarkeit des Verhaltens führen.

Ein Misserfolg löst einen negativen Affekt aus und führt damit zur Hemmung der Verbindung zwischen Ex-

tensionsgedächtnis und dem Objekterkennungssystem (*Selbsthemmung*). Die Herabregulierung des negativen Affekts durch z. B. Selbst- oder Fremdberuhigung, stellt den Zugang zum Extensionsgedächtnis wieder her.

Die Kommunikation zwischen den vier psychischen Systemen kann vorübergehend beeinträchtigt werden, wenn affektregulatorische Kompetenzen einer Person den situativen Anforderungen nicht genügen (Kuhl, 2006).

Ziel dieser Untersuchung ist es, Selbststeuerungsprozesse und Einflüsse von Unaufmerksamkeit auf Selbststeuerungsprozesse bei erwachsenen ADHS-Patienten mit gesunden Kontrollen zu vergleichen. Aus den theoretischen Hintergründen und bisherigen empirischen Befunden wurden folgende Hypothesen abgeleitet, die in der vorliegenden Studie überprüft werden sollen:

1. Im Vergleich zu gesunden Kontrollen zeigen erwachsene ADHS-Patienten:
   a.) stärkere Beeinträchtigungen in Selbststeuerungskompetenzen wie Selbstregulation, Willenshemmung und Selbsthemmung.
   b.) eine höhere Disposition zur Lageorientierung.
2. Im Vergleich zu erwachsenen ADHS-Patienten mit niedriger Unaufmerksamkeit zeigen erwachsene ADHS-Patienten mit hoher Unaufmerksamkeit:
   a.) mehr Volitionshemmung in Form von Willenshemmung und Selbsthemmung.
   b.) eine höhere Disposition zur Lageorientierung.

Methode

Stichprobe

In die Studie wurden 43 erwachsene ADHS-Patienten (25 Männer; 18 Frauen) und 43 gesunde Erwachsene (25 Männer; 18 Frauen) im Alter zwischen 19 und 60 Jahren eingeschlossen. Die Testgruppe bestand aus ADHS-Patienten, welche die ADHS-Sprechstunde der Universitären Psychiatrischen Kliniken Basel aufsuchten. Die Diagnose einer adulten ADHS nach DSM-IV Kriterien (American Psychiatric Association, 2000) wurde anhand von Fremd- und Selbstbeurteilungsinstrumenten einschliesslich anamnestischer Angaben durch einen erfahrenen Kliniker gestellt (eine genaue Beschreibung der verwendeten diagnostischen Verfahren in der ADHS- Sprechstunde in Basel findet sich bei Buchli-Kammermann, Corbisiero & Stieglitz, 2011). Alle ADHS- Patienten erfüllten die Kriterien für eine ADHS des kombinierten Typus. Als nächster Schritt wurde eine Kontrollgruppe aus 43 gesunden Erwachsenen gebildet.

Die Rekrutierung der gesunden Kontrollen erfolgte im beruflichen und privaten Umfeld. Die Fragebögen der gesunden Kontrollen wurden vollständig zu Hause ausgefüllt. Die ADHS-Kriterien der Kontrollgruppe wurden mittels Screeningverfahren der World Health Organisation (WHO) – die Adult ADHD Self-Report Scale (ASRS-v1.1) (Adler, Spencer & Faraone, 2006) – überprüft. Das Screening mit 18 Items dient zur Erfassung der aktuellen Kernsymptomatik der ADHS nach DSM-IV. Es gab keine Hinweise auf mögliche ADHS im Erwachsenenalter. Durch Parallelisierung hinsichtlich der Variablen Alter und Geschlecht wurde eine Homogenität zur Testgruppe erzielt: ADHS-Patienten und gesunde Kontrollen wiesen dasselbe Geschlecht und Alter auf.

Tabelle 1 fasst die soziodemographischen Merkmale der untersuchten Patienten und gesunden Kontrollen zusammen.

Es gab keine signifikanten Gruppenunterschiede in Bezug auf Alter ($p = .894$), Geschlecht ($p = 1.000$) oder Familienstand ($p = .891$). Es zeigten sich jedoch statistisch signifikante Gruppenunterschiede bezüglich Bildungsdauer ($p < .001$), höchstem Bildungsabschluss ($p = .007$) und beruflichem Status ($p = .01$).

Die auf die Lebenszeit bezogene Komorbidität mit anderen Störungen wurde durch einen erfahrenen Kliniker nach DSM-IV Kriterien beurteilt und liess sich wie folgt beschreiben: 34.9% der untersuchten ADHS-Patienten litten in ihrem Leben an Major Depression, 20.95% an Substanzmissbrauch/-abhängigkeit, 18.7% an einer Angststörung und 2.3% an Essstörungen. In der Kontrollgruppe gaben 9.3% an, in der Vergangenheit an einer diagnostizierten psychiatrischen Störung gelitten zu haben. Aktuell lagen keine weiteren psychiatrischen Störungen vor.

Folgende Einschlusskriterien mussten erfüllt sein: a) männliche und weibliche Teilnehmer im Alter von 18 bis 60, b) eine positive ADHS Diagnose im Erwachsenenalter in der Testgruppe ohne Behandlung.

Messinstrumente

Selbststeuerungskompetenzen: Die Kurzversion des „Selbststeuerungs-Inventars“ (SSI-K, Kurzversion; Kuhl & Fuhrmann, 1998) wird zur Messung der volitionalen Kompetenz verwendet. Das SSI-K mit 56 Items ermittelt zudem, ob eine Person dazu neigt, in einem affektiven Zustand zu verweilen. Der Fragebogen besteht aus drei Hauptskalen: Selbstregulation, Selbstbeherrschung/Willenshemmung und Selbstdisziplin/Selbsthemmung. Jede Hauptskala enthält wiederum drei Unterskalen mit jeweils vier Items. Auf einer vierstufigen Likert-Skala (von „trifft gar nicht zu“ bis „trifft ausgesprochen zu“) wird der Grad der Zustimmung mit der Aussage über Strategien zu Handlungsweisen (z. B. „Ich schiebe viele Dinge vor mir her“) angegeben.

Tabelle 1. Soziodemographische Angaben

	ADHS ($N = 43$)	**Kontrollen ($N = 43$)**	***t*-test/ χ^2**	***df***	***p***
Alter					
Alter in Jahren: Mittelwert (SD)	34.3 (9.5)	34.6 (9.9)	$t = -.13$	84	.894
Alter in Jahren: Range	19-60	19-59			
Geschlecht			$\chi^2 = .00$	1	1
Männer	25 (55.8%)	25 (55.8%)			
Frauen	18 (44.2%)	18 (44.2%)			
			$\chi^2 = .23$	2	.891
Familienstand					.989[a]
ledig	16 (37.2%)	17 (39.5%)			
verheiratet/in einer Partnerschaft lebend	24 (55.8%)	24 (55.9%)			
geschieden/getrennt	3 (7.0%)	2 (4.6%)			
Bildungsdauer					
Bildung in Jahren: Mittelwert (SD)	10.4 (1.7)	12.2 (2.2)	$t = -4.29$	84	.000**
Bildung in Jahren: Range	8-14	9-18			
			$\chi^2 = 12.10$		.007**
Höchster Bildungsabschluss:				3	.021*[a]
Realabschluss (untere Stufe)	7 (16.3%)	-			
Sekundarabschluss (mittlere Stufe)	13 (30.2%)	6 (14.0%)			
Lehrabschluss	8 (18.6%)	18 (41.9%)			
Matur	7 (16.3%)	8 (18.6%)			
Fachmittelschulabschluss	6 (14.0%)	7 (16.3%)			
Universitätsabschluss/Fachhochschulabschluss	2 (4.7%)	4 (9.2%)			
			$\chi^2 = 13.28$	4	.010*
Aktueller beruflicher Status					.061[a]
Vollzeit	16 (37.2%)	21 (48.9%)			
Teilzeit	10 (23.3%)	12 (27.9%)			
arbeitslos	7 (16.3%)	1 (2.3%)			
in Ausbildung	4 (9.3%)	9 (20.9%)			
Rehabilitationsprogramm/Verrentung	6 (13.9%)	-			

Anmerkungen: * $p < .05$, ** $p < .001$, [a]*p*-Werte mit Yates' Korrektur.

Handlungsorientierung: Der Fragebogen „Handlungskontrolle nach Erfolg, Misserfolg und prospektiv" (Kuhl, 1990, 1994) wird zur Messung der Handlungskontrolle nach Misserfolgserlebnissen, bei der Tätigkeitsausführung sowie in Entscheidungs- und Handlungsplanungsprozessen eingesetzt. Der HAKEMP 90 erfasst mittels 36 Items, ob die Person über die Fähigkeit verfügt, aus einem affektiven Zustand „auszusteigen", wobei ein Ausstiegswunsch vorausgesetzt wird. Da die vorliegende Arbeit darauf fokussiert, den Grad der Handlungskontrolle nach Misserfolgserlebnissen sowie in Entscheidungs- und Handlungsplanungsprozessen zu erfassen, werden hier nur zwei der drei Skalen „Handlungsorientierung nach Misserfolg (HOM)" und „Handlungsorientierung bei Handlungsplanung (HOP)" berücksichtigt. Jede Skala umfasst 12 Situationsbeschreibungen mit jeweils einer lage- und einer handlungsorientierten Antwortalternative (z. B. „Wenn ich ein schwieriges Problem angehen will: a) kommt mir die Sache vorher wie ein Berg vor; b) überlege ich wie ich die Sache auf eine einigermassen angenehme Weise hinter mich bringen kann"). Alle handlungsorientierten Items werden pro Versuchsperson aufsummiert. Die Werte für jede Skala reichen von 0 bis 12. Hohe Werte deuten auf Handlungsorientierung, niedrige Werte auf Lageorientierung hin.

Unaufmerksamkeit aus der Sicht der Fremdbeurteilung: Mittels der „Conners Adult ADHD Rating Scale" (CAARS-R, Conners, Erhard & Sparrow, 1999) wird durch einen Experten die aktuelle ADHS-Symptomatik erfasst. Das Instrument besteht aus den beiden Subskalen Unaufmerksamkeit und Hyperaktivität/Impulsivität, mit jeweils neun Items. Der Kliniker beurteilt auf einer dreistufigen Skala, inwieweit die ADHS-Symptomatik beim Patienten ausgeprägt ist. Die Skalenrohwerte ergeben sich als Summe der Itemwerte. Als Normen liegen T-Werte getrennt nach Geschlecht und Alter vor. Für die vorliegende Studie wird lediglich die Subskala „Unaufmerksamkeit" verwendet.

Unaufmerksamkeit aus der Sicht der Selbstbeurteilung: Der ADHS-Selbstbeurteilungsbogen (ADHS-SB, Rösler, Retz, Retz-Junginger & Stieglitz, 2008) enthält ebenfalls insgesamt drei Subskalen (Unaufmerksamkeit, Hyperaktivität und Impulsivität) und vier zusätzliche Items, die das Alter bei Störungsbeginn und Beeinträchtigungen in Lebensbereichen erfragen. Die Subskala „Unaufmerksamkeit" wird mittels neun Items erfasst. Jedes Kriterium kann nach seiner Ausprägung (0 = „trifft nicht zu" bis 3 = „schwer ausgeprägt") skaliert werden. Nur die Subskala „Unaufmerksamkeit" findet in der vorliegenden Studie Gebrauch.

Datenanalyse

Die statistischen Analysen wurden mit SPSS 19 für Windows durchgeführt. Häufigkeitsunterschiede in soziodemographischen Merkmalen wurden mit dem X^2 –Test mit Yates Korrektur überprüft. Signifikante Gruppenunterschiede ergaben sich für die drei Variablen „Bildungsdauer" (gemessen in Anzahl der Schuljahre), „höchster Bildungsabschluss" und „beruflicher Status". Zwei im Anschluss durchgeführte Varianzanalysen bestätigten die Vermutung, dass sich Personen mit unterschiedlichem Bildungsabschluss bzw. beruflichen Status hinsichtlich der Variable „Bildungsdauer" signifikant unterscheiden. Aufgrund des so nachgewiesenen Zusammenhangs zwischen den möglichen Kovariaten wurde für die Überprüfung der Gruppenunterschiede in Selbststeuerungskompetenzen nur die „Bildungsdauer" als Kovariate eingeschlossen.

Das Signifikanzniveau (*alpha* = .05) der insgesamt 14 Parameter wurde nach der Bonferroni-Methode korrigiert und betrug *alpha*/14=.004. Als Mass für die Effektstärke wurde das partielle Eta-Quadrat (η_p^2) berechnet. Effektstärken ab 0.01 sind als klein, ab 0.06 als mittel und ab 0.14 als gross einzuschätzen (Cohen, 1988).

Um den Einfluss der Unaufmerksamkeit auf die Selbststeuerungskompetenzen und die Disposition zur Lageorientierung zu überprüfen, wurden einfache lineare Regressionsanalysen getrennt für Selbst- und Fremdbeurteilung ebenfalls mit Bonferroni- Korrektur gerechnet.

Ergebnisse

Selbststeuerungskompetenzen und Lageorientierung/Handlungsorientierung

Mittels der Kovarianzanalyse wurden Gruppenvergleiche zwischen ADHS-Patienten und Kontrollpersonen bezüglich der Ausprägung Selbststeuerungskompetenzen auf fünf Skalen und neun Subskalen vorgenommen. Wie oben bereits angeführt, wurde dabei für den Einfluss von Bildungsdauereffekten kontrolliert. Weder für Skalen noch für Unterskalen zeigten sich signifikante Unterschiede zwischen Bildungsdauer und Selbststeuerung oder Handlungsorientierung : Selbstregulation (F (1,83) = 1.19, p < 0.279, $\eta_p^2 = 0.01$), Willenshemmung (F (1,83) = 3.32, p < 0.072, $\eta_p^2 = 0.04$), Selbsthemmung (F (1,83) = 1.69, p < 0.196, $\eta_p^2 = 0.02$), prospektive Handlungsorientierung (F (1,83) = 0.5869, p < 0.448, $\eta_p^2 = 0.01$), Handlungsorientierung nach Misserfolg (F (1,83) = 0.36, p < 0.549, $\eta^2 = 0.01$), Selbstmotivierung (F (1,83) = 1.78, p < 0.186, $\eta^2 = 0.02$), Aktivierungskontrolle (F (1,83) = 0.54, p < 0.466, $\eta^2 = 0.01$, Selbstbestimmung F (1,83) = 0.32, p < 0.576, $\eta^2 = 0.01$), prospektive Lageorientierung (F (1,83) = 0.68, p < 0.411, $\eta^2 = 0.01$), volitionale Passivität, (F (1,83) = 2.57, p < 0.113, $\eta^2 = 0.03$), Konzentrationsschwäche (F (1,83) = 3.27, p < 0.074, $\eta^2 = 0.04$), Zielfixierung (F (1,83) = 1.19, p < 0.279, $\eta^2 = 0.01$), Konformität (F (1,83) = 1.96, p < 0.166, $\eta^2 = 0.02$), Lageorientierung nach Misserfolg (F (1,83) = 0.36, p < 0.550, $\eta^2 = 0.01$).

Die Ergebnisse der Gruppenvergleiche fasst die Tabelle 2 zusammen.

Es wurden signifikante Gruppeneffekte mit hohen Effektstärken auf den Skalen Willenshemmung (F (1,83) = 101.63, p < 0.001, $\eta^2 = 0.55$) und Selbsthemmung (F (1,83) = 40.08, p < 0.001, $\eta^2 = 0.33$) festgestellt. Patienten mit ADHS erzielten auf sieben von neun erfassten Subskalen zur Selbststeuerung (Selbstmotivierung, Prospektive Lageorientierung, Abwägen/Volitionale Passivität, Selbstkritik/Konzentrationsschwäche, Zielvergegenwärtigung/Zielfixierung, Anpassungsfähigkeit/Konformität, Lageorientierung nach Misserfolg) signifikant höhere Werte (s. Tab. 2). Alle Effektstärken liegen im hohen Bereich. Es bestehen hingegen keine signifikanten Gruppenunterschiede auf der Skala Selbstregulation und auf deren Subskalen Aktivierungskontrolle und Selbstbestimmung.

Es ergaben sich deutliche Hinweise, dass die adulten ADHS-Patienten eine niedrige Handlungsorientierung und demnach eine höhere Lageorientierung als gesunde Kontrollen aufweisen. Signifikante Gruppeneffekte mit

Tabelle 2. Gruppenunterschiede zwischen ADHS-Patienten und gesunden Kontrollen in Bezug auf Selbststeuerungsfunktionen nach statistischer Kontrolle des Bildungsstandes

	ADHS ($N = 43$)		**Kontrollen ($N = 43$)**				
	MW	**(*SD*)**	***MW***	**(*SD*)**	***F*** **($df = 84$)**	***p***	η^2
Selbststeuerungskompetenz (SSI-K)							
Selbstregulation	15.0	(4.7)	18.8	(6.1)	6.2	.015	.07
Selbstmotivierung	3.5	(2.2)	5.8	(2.4)	14.1	**.001***	.145
Aktivierungskontrolle	4.3	(2.0)	5.0	(2.2)	1.3	.262	.015
Selbstbestimmung	7.3	(1.9)	8.0	(2.8)	1.2	.276	.014
Willenshemmung	26.6	(5.8)	14.5	(5.3)	101.6	**.001***	.550
Prospektive Lageorientierung	9.9	(2.3)	6.9	(2.1)	36.9	**.001***	.308
Abwägen/Volitionale Passivität	8.7	(3.0)	4.0	(2.3)	66.9	**.001***	.446
Selbstkritik/Konzentrationsschwäche	7.9	(2.2)	3.6	(2.2)	85.9	**.001***	.509
Selbsthemmung	21.8	(6.3)	13.5	(5.9)	40.1	**.001***	.326
Zielvergegenwärtigung/Zielfixierung	7.7	(2.5)	5.5	(2.2)	19.6	**.001***	.191
Anpassungsfähigkeit/Konformität	6.5	(3.0)	3.7	(2.5)	24.1	**.001***	.225
Lageorientierung nach Misserfolg	7.6	(2.6)	4.3	(2.4)	33.9	**.001***	.290
Handlungsorientierung (HAKEMP 90)							
Prospektive Handlungsorientierung	2.6	(1.7)	6.1	(2.6)	48.2	**.001***	.367
Handlungsorientierung nach Misserfolg	2.6	(2.6)	5.6	(3.1)	22.2	**.001***	.211

Anmerkungen: Kovarianzanalyse mit Bonferroni-Korrektur, * $p < .004$; Einteilung Effektstärken nach Cohen (1988): $\eta^2 > .01$= klein, $\eta^2 > .06$ = mittel, $\eta^2 > .14$= gross.

grossen Effektstärken wurden in den Variablen der prospektiven Handlungsorientierung (F (1,83) = 48.21, $p < 0.001$, $\eta^2 = 0.37$) und der Handlungsorientierung nach Misserfolg (F (1,83) = 22.23, $p < 0.001$, $\eta^2 = 0.21$) festgestellt (s. Tab. 2).

Einfluss der Unaufmerksamkeit auf Selbststeuerungskompetenzen bei Patienten mit ADHS

Die Ergebnisse einer einfachen Regressionsanalyse verweisen darauf, dass Unaufmerksamkeit einen signifikanten Einfluss auf die Willenshemmung hat, unabhängig davon, ob die Unaufmerksamkeit mittels Selbst- ($\beta = .62$, $p = .001$, $R^2 = .390$) oder Fremdeinschätzung ($\beta = .62$, $p = .001$, $R^2 = .390$) erhoben wurde (s. Tab. 3). Von drei Unterskalen der Willenshemmung zeigt sich der stärkste positive Zusammenhang zwischen Unaufmerksamkeit und volitionaler Passivität, sowohl wenn die Unaufmerksamkeit mittels Selbst- ($\beta = .52$, $p = .001$, $R^2 = .271$) als auch mittels Fremdeinschätzung ($\beta = .54$, $p = .001$, $R^2 = .294$) erfasst wurde. Weiterhin wurde ein positiver Zusammenhang zwischen Unaufmerksamkeit und den Unterskalen prospektive Lageorientierung ($\beta = .57$, $p = 001$, $R^2 = .326$) und Konzentrationsschwäche ($\beta = .46$, $p = .002$, $R^2 = .208$) belegt, jedoch nur dann, wenn die Unaufmerksamkeit mittels Selbsteinschätzung erhoben wurde.

In Analysen, in denen Fremdeinschätzung verwendet wurde, konnten nach Bonferroni-Korrektur keine signifikanten Zusammenhänge auf diesen beiden Skalen festgestellt werden. Unabhängig davon, ob die Unaufmerksamkeit mittels Selbst- oder Fremdbeurteilungsverfahren erhoben wurde, konnten keine signifikanten Zusammenhänge sowohl zwischen Unaufmerksamkeit und Selbsthemmung als auch zwischen Unaufmerksamkeit und Selbstregulation belegt werden (s. Tab. 3). Knapp signifikante Effekte wurden für den Einfluss der Unaufmerksamkeit auf der Skala Selbsthemmung und deren Unterskalen Konformität und Misserfolg gefunden, wenn die Unaufmerksamkeit mittels Selbsteinschätzungsbogen erhoben wurde. Nach Bonferroni-Korrektur blieben diese Effekte jedoch nicht signifikant.

Einfluss der Unaufmerksamkeit auf die Lageorientierung/Handlungsorientierung bei ADHS-Patienten

Es wurde ein signifikanter negativer Zusammenhang zwischen Unaufmerksamkeit und prospektiver Hand-

Tabelle 3. Überprüfung des Einflusses der Unaufmerksamkeit auf Selbststeuerungsfunktionen innerhalb der ADHS – Stichprobe

	Unaufmerksamkeit (ADHS-SB)						Unaufmerksamkeit (CAARS-R)					
	b	***(SE)***	***β***	***T***	***P***	***R^2***	***b***	***(SE)***	***β***	***T***	***P***	***R^2***
Selbststeuerungskompetenz (SSI-K)												
Selbstregulation	-.07	(.14)	-.08	-.53	.600	.007	-.02	(.16)	-.02	-.14	.887	.001
Selbstmotivierung	.12	(.06)	.03	.19	.851	.001	.02	(.08)	.04	.27	.790	.002
Aktivierungskontrolle	.03	(.06)	.08	.52	.604	.007	.03	(.07)	.07	.48	.637	.005
Selbstbestimmung	-.11	(.05)	-.32	-2.17	.04	.103	-.08	(.06)	-.18	-1.17	.248	.032
Willenshemmung	.68	(.13)	.62	5.12	**.001***	.390	.73	(.16)	.57	4.45	**.001***	.326
Prospektive Lageorientierung	.20	(.06)	.46	3.35	**.002***	.215	.19	(.07)	.38	2.63	.012	.144
Abwägen/Volitionale Passivität	.29	(.07)	.52	.39	**.001***	.271	.35	(.09)	.54	4.13	**.001***	.294
Selbstkritik/Konzentrationsschwäche	.19	(.06)	.46	.3.29	**.002***	.208	.19	(.07)	.38	2.60	.013	.141
Selbsthemmung	.41	(.17)	.35	2.36	.023	.120	.36	(.21)	.26	1.72	.092	.068
Zielvergegenwärtigung/Zielfixierung	.05	(.07)	.10	.63	.53	.010	.09	(.09)	.16	1.06	.294	.027
Anpassungsfähigkeit/Konformität	.18	(.08)	.33	2.23	.031	.108	.13	(.10)	.20	1.29	.203	.039
Lageorientierung nach Misserfolg	.17	(.07)	.37	2.51	.016	.133	.14	(.09)	.24	1.59	.120	.058
Handlungsorientierung (HAKEMP 90)												
Prospektive Handlungsorientierung	-.17	(.04)	-.52	-3.90	**.001***	.271	-1.17	(.05)	-.44	-3.18	**.003***	.197
Handlungsorientierung nach Misserfolg	-.08	(.08)	-.16	-1.03	.310	.025	-.08	(.09)	-.14	-.93	.357	.021

Anmerkungen: Einfache lineare Regressionsanalyse mit Bonferroni-Korrektur, * $p < .004$; signifikante Ergebnisse ($p < .004$) sind fett markiert.

lungsorientierung ($\beta = -.52$, $p = .001$, $R^2 = .271$) festgestellt, d. h. höhere Werte in Unaufmerksamkeit gehen mit niedrigeren Werten in Handlungsorientierung einher. Es konnte kein signifikanter Zusammenhang zwischen Unaufmerksamkeit und Handlungsorientierung nach Misserfolg festgestellt werden (s. Tab. 3).

Diskussion

Im Rahmen der vorliegenden Untersuchung wurde der Fragestellung nachgegangen, ob erwachsene ADHS-Patienten im Vergleich zu gesunden Kontrollen Beeinträchtigungen in der Selbststeuerung aufweisen. In der zweiten Fragestellung wurde untersucht, ob die Ausprägung der Unaufmerksamkeit bei ADHS-Patienten einen Einfluss auf deren Selbststeuerungsfunktionen hat.

Hypothesenkonform zeigten die ADHS-Patienten im Gegensatz zu Gesunden eine stärkere Willenshemmung. Unabhängig vom vorliegenden Subtyp scheinen ADHS-Patienten nicht nur eine verminderte Reaktion auf angenehme Stimuli zu besitzen (Conzelmann et al., 2009), sondern auch Probleme damit zu haben, einen für die Aufhebung der Willenshemmung notwendigen positiven Affekt zu aktivieren. Der Einsatz von kontinuierlichen Verstärkungsplänen bei erwachsenen ADHS-Patienten könnte möglicherweise dieses Defizit ausgleichen (Lee & Zentall, 2006). In einer früheren Untersuchung von Beckmann und Kuhl (1984) konnte gezeigt werden, dass prospektiv Lageorientierte im Gegensatz zu prospektiv Handlungsorientierten über schlechtere Selbstmotivierungsstrategien verfügen. Das führt dazu, dass keine emotionale Aufwertung eines neutralen Reizes stattfindet, die für die Herbeiführung oder Umsetzung einer Entscheidung notwendig ist. Ein positiver Zusammenhang zwischen Lageorientierung, Entscheidungsaufschub und Neigung zur Langweile wurde auch in einer studentischen Stichprobe gezeigt (Blunt & Pychyl, 1998).

ADHS-Patienten geben an, eine stärkere Selbsthemmung im Vergleich zu gesunden Kontrollen zu haben. Dies bedeutet, dass ADHS-Patienten neben der in der Literatur berichteten Sensibilität für negativen Affekt (Conzelmann et al., 2009) auch Schwierigkeiten aufweisen, negative Affekte im Verlauf selbständig zu verringern. Die berichteten Ergebnisse stimmen mit Befunden zur emotionalen Dysregulation bei erwachsenen ADHS-Patienten überein (Corbisiero, Stieglitz, Retz & Rösler, 2013). Unter einem hohen negativen Affekt bleibt der Zugang zu den eigenen Werten und Erfahrungen im Extensionsgedächtnis dauerhaft blockiert, wodurch ein erhöhtes Risiko für psychische und körperliche Krankheit entstehen kann (Kuhl & Kaschel, 2004).

Es konnten in Bezug auf Selbstregulation, Selbstbestimmung und Aktivierungskontrolle keine Unterschiede zwischen ADHS-Patienten und gesunde Kontrollen belegt werden. Dabei bestanden zunächst signifikante Unterschiede in der Selbstregulation. Diese haben unter Kontrolle von Einflüssen der Bildung ihre Signifikanz verloren. Erwachsene ADHS-Patienten berichten, dass sie selbstkongruente Ziele bilden und ihre Aktivierungslevel situationsangemessen herauf- bzw. herabregulieren können und somit über wichtige Ressourcen verfügen (Newark, Elsässer & Stieglitz, in Druck).

In der vorliegenden Studie berichteten Erwachsene mit ADHS im Vergleich zu gesunden Kontrollen eine erhöhte Disposition zu beiden Arten von Lageorientierung (prospektive Lageorientierung und Lageorientierung nach Misserfolg). Eine Sensibilität für lageorientierte Emotionen kann möglicherweise dadurch zustande kommen, dass Lageorientierte in einer „vorbewussten Phase“ zunächst auf alle neuen Reize überrascht reagieren und erst im zweiten Schritt aufgabenirrelevante, emotional kritische Informationen erkennen (Rosahl, Tennigkeit, Kuhl & Haschke, 1993). Das macht jedoch das frühzeitige „Verdrängen“ dieser Informationen nicht mehr möglich (Kuhl, 2006) und führt zu lageorientierten Reaktionen. Edel et al. (2009) versuchten, die Handlungsorientierung bei ADHS-Patienten mittels einer fünfmonatigen Behandlung mit Methylphenidat zu verbessern. Obwohl sich die Werte unter Medikation signifikant in Richtung Handlungsorientierung besserten, blieben die ADHS-Patienten lageorientiert.

In einem zweiten Schritt gingen wir der Frage nach, ob innerhalb der ADHS-Gruppe ein Zusammenhang zwischen Unaufmerksamkeit und Willenshemmung und Selbsthemmung besteht. Ein positiver Zusammenhang zwischen Unaufmerksamkeit und Willenshemmung (inklusive prospektiver Lageorientierung) konnte belegt werden. Theoriekonform ist das Intentionsgedächtnis mit einer absichtsorientierten Aufmerksamkeit (selektive Aufmerksamkeit) verknüpft, welche die Aufrechterhaltung von Absichten im Intentionsgedächtnis unterstützt. Die Aufmerksamkeit verstärkt Signale, die zu den im Intentionsgedächtnis aktivierten Absichten und Objekten passen, welche wiederum für die Ausführung einer beabsichtigten Handlung oder das Erkennen einer Ausführungsgelegenheit relevant sind (Kuhl, 2001). Es ist jedoch in Erwägung zu ziehen, dass eine Konstruktähnlichkeit von Unaufmerksamkeit, Willenshemmung und prospektiver Lageorientierung bei dem belegten Zusammenhang eine Rolle spielen kann, was in weiteren Untersuchungen überprüft werden sollte.

Ein Einfluss von Unaufmerksamkeit auf selbstberichtete Selbsthemmung (inklusive Lageorientierung nach Misserfolg) konnte dagegen nicht belegt werden. Wenn die ADHS-Patienten ihre Unaufmerksamkeit selbst beurteilt hatten, zeigte sich zunächst ein Zusammenhang, der jedoch nach Korrektur des Alpha-Niveaus nicht signifikant blieb. Wir vermuten, dass bereits beim Ausfüllen der Selbsteinschätzungsbögen lageorientierte Emotionen und Kognitio-

nen bei ADHS-Patienten aktiviert werden (Stiensmeier-Pelster, John, Stulik & Schürmann, 1989). Dies führt zum Anstieg der Werte in der Unaufmerksamkeit, da sich die Personen im Zustand einer Lageorientierung nach Misserfolg als unkonzentriert erleben, sogar wenn sie objektiv eine gute Leistung erbringen (Beckmann, 1989). Laut Kuhl (2001) spielen bei den Prozessen der Selbsthemmung Vigilanz und eine Form der Aufmerksamkeit (diskrepanzsensitive Aufmerksamkeit) eine Rolle, solche Objekte hervorzuheben, die nicht zu den aktuellen Erwartungen oder Zielen passen. Möglicherweise werden diese Formen der Aufmerksamkeit (vor allem die diskrepanzsensitive Aufmerksamkeit) bei den verwendeten Messinstrumenten zur Erfassung der Unaufmerksamkeit unzureichend erfasst.

Einschränkungen der Studie

In der Studie wurde Selbststeuerung ausschliesslich mittels Selbsteinschätzung erhoben. Es ist denkbar, dass ADHS-Patienten ihre schwierige Situation begründen wollten und aufgrund dessen ihre Selbststeuerungskompetenzen gering einschätzen. Vor diesem Hintergrund wäre es wichtig, in zukünftigen Untersuchungen zusätzlich Fremdeinschätzungsverfahren zu verwenden. In der vorliegenden Untersuchung wurde die Kontrollgruppe aus dem privaten und beruflichen Umfeld rekrutiert, was möglicherweise zur höheren Bildung bzw. dem beruflichen Status der Kontrollgruppe führte. Als Konsequenz wäre dann die Generalisierung ihrer Ergebnisse auf die Gesamtpopulation erschwert. Eine weitere Empfehlung wäre die Rekrutierung einer Stichprobe, die sich aktuell zwar in einer schwierigen Lebenssituation (z. B. Operation, Prüfungen) befindet, jedoch keine psychischen Auffälligkeiten aufweist.

Schlussfolgerungen für die klinische Praxis

Zusammenfassend kann festgehalten werden, dass erwachsene ADHS-Patienten mangelnde Selbststeuerungskompetenzen und eine erhöhte Disposition zur Lageorientierung aufweisen. Somit sind ADHS-Patienten auf Ermutigung und Trost aus der Umgebung angewiesen, wenn sie vor komplexen Aufgaben stehen. Da jedoch gerade ADHS-Patienten aufgrund ihrer Symptomatik häufig Schwierigkeiten in zwischenmenschlichen Beziehungen erleben, können sie nur selten Unterstützung von der Umgebung in Anspruch nehmen. Eine Entwicklung in Richtung emotionaler Autonomie (z. B. durch Vermittlung von Strategien zur Emotionsregulation und Selbstmotivierung) spielt daher bei diesen Patienten möglicherweise eine wichtige Rolle.

Darüber hinaus ist die Vermittlung von Strategien zur Handlungsplanung und -ausführung ein wichtiger Bestandteil der Therapie bei ADHS-Erwachsenen (Elsässer, Nyberg & Stieglitz, 2010). Erlebte Kongruenz zwischen geplanten und umgesetzten Handlungen wirkt sich positiv auf Selbstwert und Selbstwirksamkeit von Patienten aus und führt zur Verbesserung der Lebensqualität.

Literatur

Adler, L. A., Spencer, T. & Faraone, S. V. (2006). Validity of Pilot Adult ADHD Self Report Scale (ASRS) to Rate Adult ADHD Symptoms. *Annals of Clinical Psychiatry, 18,* 145-148.

American Psychiatric Association (APA). (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.

Beckmann, J. (1989). Erhöhte Leistung bei unzureichender Motivationskontrolle. *Zeitschrift für Experimentelle und Angewandte Psychologie, 36,* 1-15.

Beckmann, J. & Kuhl, J. (1984). Altering information to gain action control: Functional aspects of human information processing in decision-making. *Journal of Research in Personality, 18,* 223-279.

Biederman J., Mick E. & Faraone S. V. (2000). Age dependent decline of ADHD symptoms revisited: Impact of remission definition and symptom subtype. *American Journal of Psychiatry 157*, 816-818.

Blunt, A. & Pychyl, T. A. (1998). Volitional action and inaction in the lives of undergraduate students: State orientation, procrastination and proneness to Boredom. *Personality and Individual Differences, 24*, 837-846.

Bramham, J., Ambery, F., Young, S., Morris, R., Russell, A., Xenitidis, K. et al. (2009). Executive functioning differences between adults with attention deficit hyperactivity disorder and autistic spectrum disorder in initiation, planning and strategy formation. *Autism, 13,* 245-64.

Buchli-Kammermann, J., Corbisiero, S. & Stieglitz, R.-D. (2011). Screening der Aufmerksamkeitsdefizit-/Hyperaktivitätsstörung (ADHS) im Erwachsenenalter: Validierung der deutschen Version der ASRS-v1.1. *Klinische Diagnostik und Evaluation, 4,* 219-235.

Corbisiero, S., Stieglitz, R.-D., Retz, W. & Rösler, M. (2013). Is emotional dysregulation part of the psychopathology of ADHD in adults? *ADHD Attention Deficit and Hyperactivity Disorders 5, 83-92*.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). New Jersey: Lawrence Erlbaum.

Conners, C. K., Erhard, D. & Sparrow, D. (1999). *Conners' Adult ADHD Rating Scales (CAARS).* New York: Multi-Health Systems.

Conzelmann, A., Mucha, R. F., Jacob, C. P., Weyers, P., Romanos, J., Gerdes, A. B. et al. (2009). Abnormal affective responsiveness in Attention-Deficit/Hyperactivity Disorder: Subtype differences. *Biological Psychiatry, 65,* 578–585.

Edel, M. A., Pfütze, E. M., Lieder, A., Assion, H. J., Ribbert, H., Juckel, G. & Brüne, M. (2009). Self concept, action control and ADHD symptoms under Methylphenidate treatment in adults with ADHD. *Pharmacopsychiatry, 42,* 109-113.

Elsässer, M., Nyberg, E. & Stieglitz, R.- D. (2010). Kognitiv-behaviorale Strategien in der Behandlung von Erwachsenen

mit ADHS. *Zeitschrift für Psychiatrie, Psychologie und Psychotherapie, 58,* 35-44.

Hervey, A. S., Epstein, J. N. & Curry, J. F. (2004). Neuropsychology of adults with Attention-Deficit/Hyperactivity Disorder: A Meta-Analytic Review. *Neuropsychology, 18, 3,* 485–503.

Krause, J. & Krause, K.-H. (2009). *ADHS im Erwachsenenalter. Die Aufmerksamkeitsdefizit-/Hyperaktivitätsstörung bei Erwachsenen* (2. Aufl.). Stuttgart: Schattauer.

Kordon, A. & Kahl, K. G. (2004). Aufmerksamkeitsdefizit-/Hyperaktivitätsstörung (ADHS) im Erwachsenenalter. *Psychotherapie, Psychosomatik, Medizinische Psychologie, 54,* 124-136.

Kuhl, J. (1983). *Motivation, Konflikt und Handlungskontrolle.* Berlin: Springer.

Kuhl, J. (1990). *Der Fragebogen zur Erfassung von Handlungsversus Lageorientierung* (HAKEMP 90). Unveröffentlichter Fragebogen, Universität Osnabrück.

Kuhl, J. (1994). Action and state orientation: Psychometric properties of the Action Control Scale (ACS-90). In J. Kuhl & J. Beckmann (Eds.), *Volition and personality: Action versus state orientation* (pp. 47-60). Göttingen: Hogrefe Publishing.

Kuhl J. (2000). Testgestützte Therapiegestaltung und Evaluation: Soziale Motive, affektiv-kognitive Stile und Selbststeuerungsfunktionen. In J. H. Mauthe (Hrsg.), *Affekt und Kognition* (S. 72-95). Sternenfels: Verlag Wissenschaft und Praxis.

Kuhl, J. (2001). *Motivation und Persönlichkeit. Interaktionen psychischer Systeme.* Göttingen: Hogrefe.

Kuhl, J. (2006). Individuelle Unterschiede in der Selbststeuerung. In J. Heckhausen & H. Heckhausen (Hrsg.), *Motivation und Handeln* (3. Aufl., S. 303-324). Berlin: Springer.

Kuhl, J. & Fuhrmann, A. (1998). *Das Selbststeuerungsinventar (SSI): Manual.* Universität Osnabrück.

Kuhl, J. & Kaschel, R. (2004). Entfremdung als Krankheitsursache: Selbstregulation von Affekten und integrative Kompetenz. *Psychologische Rundschau, 55*, 61-71.

Lee, D. L. & Zentall, S. S. (2006). The effects of continuous and partial reward on the vigilance task performance of adults with attentional deficits: A pilot investigation. *Journal of Behavior Therapy and Experimental Psychiatry 37,* 94–112.

Newark, P. E., Elsässer, M. & Stieglitz, R.-D. (2013). Self-esteem, self-efficacy, and resources in adults with ADHD. *Journal of Attention Disorders.*

Rösler, M., Retz, W., Retz-Junginger, P. & Stieglitz, R.-D. (2008). *HASE. Homburger ADHS-Skalen für Erwachsene.* Göttingen: Hogrefe.

Rosahl, S. K., Tennigkeit, M., Kuhl, J. & Haschke, R. (1993). Handlungskontrolle und langsame Hirnpotentiale: Untersuchungen zum Einfluß subjektiv kritischer Wörter. *Zeitschrift für Medizinische Psychologie*, *2,* 172-180.

Sonuga-Barke, J. S. (2002). Psychological heterogeneity in AD/HD – A dual pathway model of behaviour and cognition. *Behavioural Brain Research 13,* 29–36.

Surmann, C. B., Biedermann, J., Spencer, T., Miller, C. A., McDermott, K. M. & Faraone, S. K. (2013). Understanding deficient emotional self-regulation in adults with attention deficit hyperactivity disorder: A controlled study. *ADHD Attention Deficit and Hyperactivity Disorders,* March 15.

Stiensmeier-Pelster, J., John, M., Stulik, A. & Schürmann, M. (1989). Die Wahl von Entscheidungsstrategien: Der Einfluss von Handlungs- und Lageorientierung und die Bedeutung psychologischer Kosten. *Zeitschrift für experimentelle und angewandte Psychologie, 2,* 292-310.

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