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The Effectiveness of Cognitive-Behavioral Therapy on Anxiety, Career Path Identity, and Career Decision-Making Self-Efficacy in Perfectionist High School Students

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ABSTRACT

Objective: The present study aimed to investigate the effectiveness of cognitive-behavioral therapy (CBT) on anxiety, career path identity, and career decision-making self-efficacy in perfectionist high school students.

Methods and Materials: This quasi-experimental study was conducted using a pre-test and post-test design with a control group. The statistical population consisted of perfectionist female students in the first and second grades of high school in Mashhad during the 2020-2021 academic year. Thirty-two students who met the inclusion criteria, based on the Hewitt and Flett Perfectionism Questionnaire (1991) and selected through convenience sampling, were randomly assigned to experimental and control groups. Due to attrition, each group consisted of 12 students. The experimental group underwent eight 90-minute sessions of CBT for perfectionism, while the control group received no intervention during this period. Data were collected using the Beck Anxiety Inventory (1990), the Career Path Identity Questionnaire by Delas and Jeringan (1981), and the Career Decision-Making Self-Efficacy Scale by Betz, Klein, and Taylor (1996). The data were analyzed using descriptive statistics and covariance analysis.

Findings: The results from the comparison of post-test scores between the two groups indicated a significant difference in anxiety, career path identity, and career decision-making self-efficacy scores ($P < 0.01$).

Conclusion: According to the findings, CBT was significantly effective in reducing anxiety, improving career path identity, and increasing career decision-making self-efficacy in perfectionist high school students. Therefore, this therapy can be used to enhance career decision-making self-efficacy, career path identity, anxiety, and perfectionism in students.

Keywords: Anxiety, Career Decision-Making Self-Efficacy, Cognitive-Behavioral Therapy, Perfectionist Students, Career Path Identity.

1. Introduction

The school years are one of the primary stages in human development, during which the foundation of an individual's main personality in adulthood is formed. Generally, most psychological disorders in adulthood stem from neglecting the issues and problems of this period (Rice et al., 2016). Over the past three decades, research interest in personality has increasingly focused on perfectionism as an important and relatively stable personality construct in both clinical and non-clinical settings. In the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), perfectionism is defined as a pathological personality trait in the main diagnostic criteria for obsessive-compulsive personality disorder (American Psychiatric Association, 2022). Frost and Marten (1990) describe perfectionism as a behavioral characteristic in which individuals set their performance standards higher than necessary and critically evaluate themselves (Frost & Marten, 1990).

Many students have parents who expect them to graduate from high school with excellent grades and to be admitted to top universities nationwide. These high parental expectations often compel students to work hard during their school years, especially in high school, dedicating more time to studying than socializing with peers (Hewitt et al., 2020). These students may experience socially prescribed perfectionism, believing their value is measured by external achievements. In contrast, self-oriented perfectionism is driven by personal ambitions, with individuals believing that setting high standards and goals is beneficial for personal success (Smith et al., 2018).

Students often perceive perfectionism (whether socially prescribed or self-oriented) as a desirable trait, striving to meet standards beyond their capabilities and using all their resources to achieve their goals to gain approval from parents and teachers and to secure high academic and career positions in adulthood (Negru-Subtirica et al., 2023). However, some perfectionist students face difficulties in achieving excellent results on challenging tasks and may abandon their efforts due to their ambivalent attitudes toward perfectionism, displaying less diligence in academic decision-making (Jones, 2021).

Since perfectionism can affect individuals' accuracy in decision-making under difficult and challenging conditions (He, 2016), it can also impact career decision-making self-efficacy (Park & Park, 2018). Career decision-making self-efficacy refers to an individual's beliefs about their ability to

successfully perform tasks related to career exploration (Gnilka & Novakovic, 2017). It is recognized as an area influencing various aspects of academic and career progress, including academic satisfaction (Reed et al., 2012) and career indecision (Kim et al., 2014). Career decision-making self-efficacy involves the belief in one's ability to have successful career experiences, such as choosing a job, performing effectively, and persevering in it, affecting cognitive, behavioral, and emotional patterns at different levels of human experience (Wu et al., 2020). Tasks and behaviors related to this construct include assessing job-related abilities and skills, gathering job information, setting and applying career goals, and solving problems encountered along the way (Santos et al., 2018). Career self-efficacy is influenced by and reciprocally affects motivation and behavior, with high levels increasing individual engagement in job tasks and behaviors (Hou et al., 2019). Suh and Flores (2023) found that perfectionism significantly predicts career decision-making self-efficacy even after controlling for acculturation effects (Suh & Flores, 2023). Muliasari et al. (2019) also showed that self-oriented perfectionism positively and socially prescribed perfectionism negatively predict career decision-making self-efficacy (Muliasari et al., 2019).

Adolescence can be an anxiety-provoking stage, presenting many challenges such as maladaptation, inability to gain independence, and issues like choosing a field of study or future job and forming new relationships (Dunkley et al., 2014). Experiencing anxiety during this period can be triggered by family, personal issues, and academic and career stress (Lowndes et al., 2019), affecting not only adolescents' health but also their future academic and career performance (Hamblin, 2018). Freire et al. (2020) found that perfectionistic strivings are associated with reduced cognitive and physical anxiety, especially among boys, while perfectionistic concerns are associated with increased cognitive and physical anxiety in both genders (Freire et al., 2020). Tyler et al. (2019) showed a positive relationship between maladaptive perfectionism and anxiety disorder symptoms, with socially prescribed perfectionism uniquely predicting panic symptoms and self-oriented perfectionism significantly predicting social anxiety symptoms in adolescents (Tyler et al., 2019). Deer, Gohn, and Kanaya (2018) found that low levels of anxiety symptoms facilitate career decision-making processes and achieving career goals (Deer et al., 2018).

Additionally, another variable that perfectionism can affect is career identity (Garrison et al., 2016). Career

identity refers to an individual's belief about themselves in their occupational context and is considered a cognitive factor indicating the level of interest, motivation, and enthusiasm for their job (Karimi et al., 2018; Musch, 2013). Savickas (2019) viewed career identity as a career thesis influenced by life stories and experiences, serving as a criterion and model for behavior in social contexts (Savickas, 2019). Tomic and Macuka (2023) found a significant positive relationship between negative perfectionism and diffused/avoidant identity styles, and a significant positive relationship between positive perfectionism and information-oriented and normative identity styles (Tomić & Macuka, 2023). Piotrowski (2019) highlighted that perfectionistic concerns are associated with fundamental problems in forming and maintaining a successful identity (Piotrowski, 2019). Musch (2013) found that maladaptive perfectionists exhibit lower levels of self-efficacy and career identity compared to adaptive perfectionists (Musch, 2013).

Considering that career decision-making self-efficacy, career path identity, and anxiety are crucial for perfectionist high school students making decisions about their field of study and future career, and that they might face difficulties in these areas, exploring therapeutic approaches that can improve these concepts in perfectionist students is important (Shafran et al., 2016). Shafran et al. (2001) suggested cognitive-behavioral therapy (CBT) for treating perfectionism (Shafran et al., 2016). CBT is considered an established and first-line treatment with positive results, based on the premise that incorrect and disappointing beliefs, ineffective coping behaviors, and negative mood states contribute to the development and persistence of problems, and that individuals have the ability to think and act appropriately to situations but behave differently due to their understanding and expectations (Hobbs et al., 2017). The importance of this therapy lies in understanding that most thoughts are just thoughts and not reality, and the simple act of recognizing thoughts can liberate patients from distorted realities, often leading to greater insight and a sense of control over their lives (Huang et al., 2023). CBT uses cognitive strategies such as identifying cognitive distortions and anxiety-provoking thoughts, cognitive restructuring, and enhancing effective self-talk, as well as behavioral strategies including modeling, exposure, role-playing, muscle relaxation, self-efficacy, and coping skills training (Selvapandiyan, 2019). The core of CBT is primarily based on self-help, aiming to help patients develop the necessary skills to not only solve current problems but also similar

future issues, giving it a relative advantage over other psychological interventions (McFarlane et al., 2019). CBT is a short-term and often more cost-effective treatment than other therapies, with evidence supporting its effectiveness for a wide range of maladaptive behaviors, such as anxiety, depression, etc (Abdollahi & Talib, 2015; Deer et al., 2018; Hobbs et al., 2017; Joukar KamalAbadi et al., 2021; Lowndes et al., 2019; Orvati Aziz et al., 2020; Păsărelu et al., 2017; Reiss et al., 2017; Sheybani et al., 2020). Additionally, Lownds, Egan, and McEvoy (2019) demonstrated the effectiveness of CBT in reducing perfectionism, depression, and anxiety. Rismawan and Gading (2021) found that CBT improves career decision-making in high school students (Rismawan & Gading, 2021). Khofifah, et al. (2023) also showed that group counseling sessions based on CBT significantly improve students' career maturity and decision-making skills (Khofifah et al., 2023).

Given that perfectionist students struggle with low career decision-making self-efficacy due to perfectionism, difficulties in forming a healthy career identity, and high anxiety, which hinder appropriate academic and career path selection, and considering the detrimental effects of negative perfectionism on students, and the lack of research on the effectiveness of CBT on variables such as career path identity and career decision-making self-efficacy, this study seeks to address this important issue. Therefore, the present study aims to answer the question: Can CBT effectively impact anxiety, career path identity, and career decision-making self-efficacy in perfectionist high school students?

2. Methods and Materials

2.1. Study Design and Participants

This study is applied in terms of its goal and semi-experimental with a pre-test-post-test control group design in terms of method. The statistical population included perfectionist female high school students in Mashhad during the 2020-2021 academic year, selected based on the Hewitt and Flett Perfectionism Questionnaire (1991) through convenience sampling. Initially, 95 students were given the perfectionism questionnaire in person, and 32 students meeting the cutoff criteria for perfectionism were randomly assigned to the experimental (16) and control (16) groups. Due to the challenging conditions of the COVID-19 pandemic and lack of cooperation, some participants dropped out, resulting in 24 students (12 per group) being included in the final analysis. Inclusion criteria included

being a perfectionist based on the questionnaire, aged 13-18 years, being a student, and having written consent and commitment to participate in the study. Exclusion criteria included absence from even one therapy session in the experimental group, lack of participation and cooperation, and not completing assignments during therapy sessions.

After selecting 24 perfectionist students and randomly assigning them to experimental (12) and control (12) groups, all participants completed the Hewitt and Flett Perfectionism Questionnaire (1991), Career Identity Questionnaire by Delas and Jeringan (1981), Beck Anxiety Inventory (1990), and Career Decision-Making Self-Efficacy Questionnaire by Betz et al. (1996) as a pre-test. The experimental group underwent eight 90-minute virtual CBT sessions for perfectionism based on Steel et al.'s (2013) protocol, while the control group received no intervention. Post-test data were collected after the protocol's completion. The questionnaires were administered in person, but therapy sessions were conducted virtually due to the COVID-19 pandemic, ensuring high quality and accuracy.

2.2. Measures

2.2.1. Perfectionism

Designed by Hewitt and Flett (1991) to measure perfectionism, this questionnaire contains 22 items divided into two subscales: socially prescribed perfectionism and self-oriented perfectionism, with 11 items each. Responses are scored on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). The scores for each subscale range from 11 to 55, with higher scores indicating higher levels of perfectionism. The Iranian version showed good content and face validity, with Cronbach's alpha coefficients of 0.83 for self-oriented and 0.87 for socially prescribed perfectionism. Bedarloo (2014) also reported acceptable content, face, and criterion validity, with Cronbach's alpha above 0.70 (Alizadeh et al., 2023; Emami Khotbesara et al., 2024; Hasheminejad et al., 2024).

2.2.2. Anxiety

Developed by Beck (1990) to measure the severity of anxiety in adolescents and adults, this self-report questionnaire contains 21 items scored on a four-point scale (0 to 3). The total score ranges from 0 to 63, with higher scores indicating higher anxiety levels. It has high internal consistency, with a Cronbach's alpha of 0.92 and test-retest reliability of 0.75. Five types of validity (content,

concurrent, construct, diagnostic, and factor) were all high. The Iranian version reported a content validity index of 0.72 and a Cronbach's alpha of 0.83, with test-retest reliability of 0.92 (Orvati Aziz et al., 2020; Sheybani et al., 2020).

2.2.3. Career Decision-Making Self-Efficacy

Created by Betz et al. (1996) to measure career maturity, this questionnaire contains 25 items across five areas: self-appraisal, occupational information, goal selection, planning, and problem-solving. Responses are scored on a four-point Likert scale (1 = no confidence, 4 = high confidence). The total score ranges from 25 to 100. Betz et al. (1996) reported a high correlation (0.83) with the Career Development Questionnaire and a Cronbach's alpha of 0.92. The Iranian version showed good content validity and a Cronbach's alpha of 0.88 (Khalili et al., 2019).

2.2.4. Career Identity

Developed by Delas and Jeringan (1981) based on Marcia's model, this questionnaire places respondents in various career identity statuses (achieved, foreclosed, moratorium, diffused-lucky, and diffused-diffused). It consists of 7 items, each with 5 statements. Respondents choose one statement per item, and if four or more choices correspond to one status, they are classified in that status. Otherwise, they are considered undifferentiated. Delas and Jeringan (1981) reported a 91% match with Marcia's semi-structured identity interview and high Cronbach's alpha coefficients for overall and subscale scores. The Iranian version, translated by Feyzdarghah (1995) and modified by Rastgoo Moghadam (1998), showed good content and face validity, with Cronbach's alpha coefficients ranging from 0.64 to 0.92 for subscales (Karimi et al., 2018; Shirin et al., 2023).

2.3. Interventions

2.3.1. CBT for Perfectionism

Based on the protocol designed and evaluated by Steel et al. (2013) and books on CBT for perfectionism by Egan et al. (2014) and Shafran et al. (2010), this protocol was implemented in eight 90-minute virtual sessions for the experimental group (Shafran et al., 2016).

Session 1: Conceptualizing Perfectionism and Analyzing Its Advantages and Disadvantages

In the first session, the focus is on understanding the main characteristics and definitions of perfectionism, along with

the associated problems. The group engages in discussions about why perfectionism persists and explores its positive and negative aspects. Participants are given worksheets to identify the pros and cons of perfectionism and are assigned to read chapters 1 to 6 of "Overcoming Perfectionism" by Shafran et al. (2010) for homework.

Session 2: Self-Monitoring (Reality vs. Fantasy)

This session involves group discussions on the domains of perfectionism and how it manifests in daily life. The concept of self-monitoring and its benefits are introduced, along with educational information on common myths about perfectionism. Participants complete self-monitoring worksheets and are assigned to read chapters 7-1 and 7-2 of "Overcoming Perfectionism."

Session 3: Surveying and Behavioral Experiments

The goals for surveying are set, utilizing the thoughts recorded in last week's homework. Emphasis is placed on recognizing that surveying does not necessarily lead to contradictory beliefs but to more practical ones. Behavioral experiments are introduced to gather information about thoughts, feelings, and behaviors. Participants conduct behavioral experiments and surveys and read chapters 7-1 and 7-2 of "Overcoming Perfectionism."

Session 4: All-or-Nothing Thinking

The group discusses the introduction of all-or-nothing thinking with the goal of fostering more flexible thinking. The importance of changing rigid rules is emphasized, and participants create a list of life rules. Discussions also focus on accepting less-than-perfect performance. Homework includes conducting behavioral experiments, practicing continuum thinking, challenging life rules, and reading chapter 7-5 of "Overcoming Perfectionism."

Session 5: Broad Attention, Cognitive Distortions, and Daily Thought Recording

Participants challenge the cognitive distortion of filtering negative events and discuss how neglecting successes leads to non-winning situations. Group discussions cover cognitive distortions such as overgeneralization, should statements, labeling, and other cognitive distortions. Participants use routine thought recording to increase awareness and challenge harmful thoughts. Homework includes recording situations focusing on positive performance aspects, daily thought recording, and reading chapters 7-6 and 7-7 of "Overcoming Perfectionism."

Session 6: Procrastination, Problem-Solving, Time Management, and Planning for Enjoyable Activities

Group discussions address procrastination and areas where participants procrastinate. Flashcards are created to

help reduce procrastination, and practical assignments to challenge procrastination are discussed. The session also covers time management, planning for enjoyable activities, and filling out time management tables, emphasizing the value of balancing rest and progress. Homework includes behavioral experiments, daily thought recording to challenge procrastination, participating in at least one enjoyable activity per week, and reading chapters 7-8 and 7-9 of "Overcoming Perfectionism."

Session 7: Focusing on Values and Reducing Self-Criticism

The group discusses self-criticism, emphasizing the reduction of self-critical thoughts and identifying the self-critical voice. Efforts are made to increase self-compassion. Homework involves daily recording to help identify self-compassionate thoughts and reading chapter 8 of "Overcoming Perfectionism."

Session 8: Expanding Self-Evaluation and Relapse Prevention

The final session involves group discussions on weakening the link between self-judgment as a person and achievements, fostering self-esteem based on other factors, and avoiding rigid rules. Participants set goals for the next six months and discuss relapse prevention, including how to handle potential setbacks and create an action plan to manage relapses. Homework includes setting more goals, surveying behavioral goals, continuing behavioral experiments, and reading chapters 9 and 10 of "Overcoming Perfectionism."

2.4. Data Analysis

The data were analyzed using descriptive statistics and covariance analysis with SPSS26.

3. Findings and Results

In this study, 24 perfectionist female high school students with an average age of 15.75 (SD = 1.48) in the experimental group and 16.17 (SD = 1.33) in the control group participated. The academic grade distribution in the experimental group was as follows: 1 student (8.3%) in grades 7-8, 5 students (41.7%) in grades 9-10, and 6 students (50%) in grades 11-12. In the control group, 6 students (50%) were in grades 9-10, and 6 students (50%) were in grades 11-12. The means and standard deviations of the study variables are presented in Table 2.

Table 1

Means and Standard Deviations of Anxiety, Career Path Identity, and Career Decision-Making Self-Efficacy in the Experimental and Control Groups

Variables	Experimental Group (M, SD)		Control Group (M, SD)	
	Pre-test		Post-test	
Anxiety	12.75	7.42	9.67	6.14
Achieved Identity	0.92	1.24	4.55	3.29
Foreclosed Identity	3.93	2.95	0.67	1.23
Moratorium Identity	3.08	2.11	0.83	1.46
Diffused Identity	2.92	1.95	0.75	1.05
Diffused-Chance Identity	2.78	1.95	0.58	1.03
Career Decision-Making Self-Efficacy	78.75	7.68	79.73	9.35
Self-Assessment	16.93	2.19	21.67	3.23
Information Gathering	14.17	2.29	19.98	5.46
Goal Selection	16.67	3.31	23.75	4.05
Planning	15.58	2.35	21.75	3.61
Problem Solving	15.50	3.87	24.35	4.03

Table 1 shows the mean and standard deviation of pre-test and post-test scores for anxiety, career path identity, and career decision-making self-efficacy in the experimental and control groups. According to the results, in the experimental group, the post-test mean scores for anxiety, foreclosed identity, moratorium identity, diffused identity, and diffused-chance identity decreased compared to the pre-test, while the mean scores for achieved identity and career decision-making self-efficacy increased. This indicates a significant effectiveness of cognitive-behavioral therapy in the post-test mean scores of the experimental group. In contrast, no significant difference was observed between the pre-test and post-test mean scores in the control group.

Multivariate analysis of covariance (MANCOVA) was used to test the hypotheses. Before this, three main

assumptions—normality of score distribution, homogeneity of variances, homogeneity of regression slopes, and homogeneity of variance-covariance matrices—were examined. The Kolmogorov-Smirnov test showed that the distribution of pre-test and post-test scores in both experimental and control groups was normal ($P > 0.05$). Levene's test indicated equal variances of scores, confirming the assumption of homogeneity of variances ($P > 0.05$). The assumption of homogeneity of regression slopes was also confirmed for all dependent variables ($P > 0.05$). Additionally, Box's M test confirmed the homogeneity of variance-covariance matrices ($P > 0.05$).

The results of the ANCOVA for the effect of cognitive-behavioral therapy on anxiety in perfectionist students are presented in Table 2.

Table 2

Results of ANCOVA for the Effect of Cognitive-Behavioral Therapy on Anxiety in Perfectionist Students

Source	SS	DF	MS	F	Sig	Eta Squared	Power
Pre-test	1096.766	1	1096.766	28.97	0.000	0.580	0.999
Group	141.991	1	141.991	10.40	0.000	0.775	0.802
Error	795.788	21	37.895	-	-	-	-

The findings in Table 2 show that based on the impact factor of the anxiety variable (0.775), the difference between the post-test scores of the two groups is due to the

intervention. In other words, cognitive-behavioral therapy significantly reduced anxiety in perfectionist students ($P < 0.01$).

Table 3

Results of ANCOVA in the Context of MANCOVA for Career Path Identity and Career Decision-Making Self-Efficacy Variables

Variable	DF	MS	F	Sig	Eta Squared
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Achieved Identity	1	2.653	4.37	0.000	0.601
Foreclosed Identity	1	0.333	3.40	0.000	0.598
Moratorium Identity	1	0.603	3.18	0.000	0.670
Diffused Identity	1	0.667	3.35	0.000	0.780
Diffused-Chance Identity	1	0.081	2.99	0.000	0.509
Career Decision-Making Self-Efficacy	1	78.561	7.31	0.000	0.839
Self-Assessment	1	51.989	6.67	0.000	0.860
Information Gathering	1	12.034	5.31	0.000	0.839
Goal Selection	1	10.781	3.67	0.000	0.789
Planning	1	15.628	5.61	0.000	0.991
Problem Solving	1	11.312	5.67	0.000	0.998

The findings in Table 3 show that based on the impact factors of achieved identity (0.601), foreclosed identity (0.598), moratorium identity (0.670), diffused identity (0.780), and diffused-chance identity (0.509), the difference between the post-test scores of the two groups is due to the intervention. In other words, cognitive-behavioral therapy significantly increased achieved identity and decreased foreclosed, moratorium, diffused, and diffused-chance identities ($P < 0.01$). Moreover, based on the impact factors for career decision-making self-efficacy (0.839) and its components, including self-assessment (0.860), information gathering (0.839), goal selection (0.789), planning (0.991), and problem-solving (0.998), the difference between the post-test scores of the two groups is due to the intervention. In other words, cognitive-behavioral therapy significantly increased career decision-making self-efficacy in perfectionist students ($P < 0.01$).

4. Discussion and Conclusion

The aim of the study was to examine the effectiveness of cognitive-behavioral therapy (CBT) on anxiety, career path identity, and career decision-making self-efficacy in perfectionist high school students. The results showed that CBT significantly reduced anxiety in perfectionist students ($P < 0.01$). This finding aligns with prior studies (Deer et al., 2018; Hobbs et al., 2017; Joukar KamalAbadi et al., 2021; Lowndes et al., 2019; Orvati Aziz et al., 2020; Păsărelu et al., 2017; Reiss et al., 2017; Sheybani et al., 2020; Tyler et al., 2019), which also emphasized the effectiveness of CBT in reducing anxiety.

This can be explained by the fact that perfectionist students strive to excel in all aspects of their lives, particularly in academics and career choices, often exceeding standard expectations. This intense effort can negatively impact their physical and mental health, leading to significant anxiety symptoms (Tyler et al., 2019). CBT helps these students reduce and manage anxiety by correcting cognitive distortions and using behavioral

methods for relaxation, enabling them to make important life decisions, such as choosing a career path, with psychological well-being (Păsărelu et al., 2017). In essence, CBT is based on the theory that individuals with anxiety symptoms are involved in cognitive errors or distortions and have limited information about anxiety triggers. CBT enhances individuals' awareness of these cognitive distortions, which plays a crucial role in interpreting and shaping their emotional and behavioral responses.

Additionally, the study showed that CBT significantly increased career decision-making self-efficacy in perfectionist students ($P < 0.01$). This finding aligns with prior studies (Khalili et al., 2019; Lowndes et al., 2019; Rismawan & Gading, 2021), which emphasized the effectiveness of CBT on self-efficacy. Rismawan & Gading (2021) also demonstrated the effectiveness of CBT in improving career decision-making self-efficacy, particularly in high school students (Rismawan & Gading, 2021).

Career decision-making self-efficacy refers to an individual's ability to choose from several alternative options related to career choices and exploration, which during adolescence is linked to selecting a field of study and finding a career path (Rismawan & Gading, 2021). Low self-efficacy can lead to doubt and uncertainty about one's ability to complete necessary tasks in career decision-making. High self-efficacy facilitates the career decision-making process by enabling individuals to engage in self-assessment, gather information, organize and determine career paths, and solve problems related to career choices. In contrast, low self-efficacy hinders career selection (Lowndes et al., 2019).

Self-efficacy in career decision-making is rooted in several career-related beliefs and thoughts. Cognitive, behavioral, and emotional therapies can improve career decision-making by changing incorrect beliefs and promoting rational ones (Khalili et al., 2019). Cognitive errors in personal thinking lead to problems such as insecurity, dependence, anxiety, and indecisiveness in educational and career choices. CBT, through individual and

group sessions, can reconstruct these cognitive errors and change ineffective thoughts. Cognitive restructuring is based on the idea that each person has a cognitive structure, and ineffective thoughts lack an appropriate structure. Through cognitive-behavioral counseling, individuals learn to reconstruct their minds to think positively (Selvapandiyan, 2019).

Some individuals, influenced by perfectionistic attitudes, may hesitate in career choices, avoiding decision-making or deferring it to parents or peers. CBT helps them recognize and change irrational perfectionistic thoughts related to career decision-making, enhancing their self-efficacy in career decisions (Orvati Aziz et al., 2020). Overall, before participating in CBT, experimental group members believed they had to meet high standards in every task and could ideally achieve anything. After the intervention, they realized that not everything could go as planned or meet expectations, and sometimes the desired job choice was not possible due to existing conditions. Thus, students learned to prepare for realistic job choices and make appropriate career decisions.

Furthermore, the study showed that CBT significantly improved career path identity in perfectionist students ($P < 0.01$). This finding aligns with prior studies (Guci, 2021; Khofifah et al., 2023; Mustakim et al., 2022; Nazari et al., 2023), which emphasized the effectiveness of CBT on career identity and maturity. CBT focuses on changing negative thoughts and maladaptive beliefs, helping students solve career-related problems.

In group dynamics, CBT uses behavioral and cognitive techniques to help individuals change maladaptive career beliefs, interpretations, behaviors, and attitudes, guiding them toward suitable jobs (Lowndes et al., 2019). High perfectionism hinders students from achieving a healthy career identity. Perfectionist students have many negative and irrational beliefs that increase their worries, and cognitive distortions and maladaptive attitudes maintain perfectionism, negatively impacting their career identity (Musch, 2013). CBT targets and reduces perfectionism and its associated negative emotions, positively affecting the development of a healthy career identity (Guci, 2021).

Perfectionist students often criticize themselves excessively, worry about meeting social expectations, and struggle with forming a career identity, making career decisions, and experiencing high self-criticism and self-blame. CBT, focusing on individuals' insights to change negative thoughts and maladaptive beliefs about career problems, helps these students make suitable career choices

(Tomić & Macuka, 2023). Group CBT sessions help students realize they are not alone in facing career decision problems, encouraging them to improve their career identity (Nazari et al., 2023).

In CBT, relaxation and mental imagery techniques are taught to reduce self-blame, worry, and anxiety due to career indecisiveness and lack of career identity, helping students make better career decisions. CBT corrects negative and destructive beliefs, creating logical career beliefs and guiding individuals toward a cohesive career identity (Khofifah et al., 2023).

In this study, perfectionist students feared mistakes and set strict standards for their future careers. CBT challenged their negative beliefs using techniques like writing automatic thoughts, cost-benefit analysis, and evidence review, replacing negative beliefs with positive ones. This change helped students view themselves positively and avoid self-blame for not achieving a cohesive career identity. Cognitive distortions were introduced, and students identified these errors in their automatic thoughts, realizing how negative thoughts affected their emotions and behaviors, leading to negative experiences like anxiety and indecisiveness in career decisions. CBT improved their flexibility and performance in career decisions, helping them achieve a suitable career identity.

5. Limitations & Suggestions

Limitations include the lack of a follow-up program to assess the long-term effectiveness of CBT, convenience sampling, limited access to the research sample, non-face-to-face intervention due to the COVID-19 pandemic, and geographical and gender limitations, restricting generalizability. To increase external validity, future research should use random sampling with a diverse gender and geographical population and conduct face-to-face interventions.

Given the effectiveness of CBT on anxiety, career identity, and career decision-making self-efficacy in perfectionist students, it is recommended that this educational approach be utilized in schools and academic and career counseling centers to improve these variables in students.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed to this article.

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