Evaluating the Effectiveness of Positive Career Counseling on Career Decision-Making and Future Orientation

Syarifah. Maisarah[1] , Mei-Ling. Chen[2]*

[1] Faculty of Social Sciences & Liberal Arts, Department of Psychology, UCSI University, Kuala Lumpur, Malaysia
[2] Department of Educational Psychology and Counseling, National Taiwan Normal University, Taipei, Taiwan

* Corresponding author email address: meiling.chen@ntnu.edu.tw

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A B S T R A C T

Objective: This study aimed to evaluate the effectiveness of Positive Career Counseling on career decision-making and future orientation among young adults in Taiwan.

Methods and Materials: The study utilized a randomized controlled trial design involving 30 participants from Taiwan, randomly assigned to an experimental group (n = 15) receiving Positive Career Counseling and a control group (n = 15) receiving no intervention. The experimental group participated in nine structured counseling sessions, each lasting 75 to 90 minutes, incorporating strengths-based and future-oriented exercises. Participants completed standardized measures, including the Career Decision-Making Difficulties Questionnaire (CDDQ) and Future Orientation Scale (FOS), at three time points: pre-test, post-test, and a five-month follow-up. Data were analyzed using repeated measures ANOVA and Bonferroni post-hoc tests with SPSS-27.

Findings: Results indicated significant improvements in career decision-making and future orientation within the experimental group. Repeated measures ANOVA demonstrated significant time × group interactions for career decision-making ($F(2,56) = 16.21$, $p < .001$, $\eta^2 = .373$) and future orientation ($F(2,56) = 19.11$, $p < .001$, $\eta^2 = .405$). Bonferroni post-hoc analyses showed meaningful enhancements from pre-test to post-test for both variables (career decision-making mean difference = -14.40, $p < .001$; future orientation mean difference = -5.73, $p < .001$). Improvements were sustained at the five-month follow-up, while the control group exhibited no significant changes.

Conclusion: These results support the effectiveness of integrating positive psychology and structured future-oriented exercises into career interventions, emphasizing their potential for long-term impact. Such interventions should be adapted for broader populations to enhance career preparedness and psychological resilience in culturally diverse contexts.

Keywords: Positive Career Counseling, Career Decision-Making, Future Orientation, Randomized Controlled Trial, Young Adults, Taiwan

1. Introduction

In today's rapidly shifting global economy, young individuals face increasing complexity in planning their careers, leading to heightened uncertainty and indecisiveness. As transitions between education and the labor market grow more non-linear and unpredictable, the ability to make informed career decisions and maintain a future-oriented mindset becomes not only a developmental necessity but also a psychological challenge. Career decision-making and future orientation are two core constructs that contribute significantly to individuals' capacity to navigate their life trajectories with confidence and direction. However, many adolescents and young adults lack the tools, support, and structured guidance necessary to make coherent career decisions, often resulting in anxiety, passivity, or disengagement from long-term goals (Najam & Ghazal, 2022). In response to these challenges, scholars and practitioners have increasingly turned to career counseling models that draw upon positive psychology, personalized interventions, and future-focused frameworks to empower individuals in the process of career development (Cardoso et al., 2023).

Career decision-making is widely recognized as a dynamic process involving both cognitive evaluations and emotional regulation. Research has demonstrated that this process is influenced by multiple factors including self-efficacy, outcome expectations, personal values, and perceived barriers (Argyro, 2019). Adolescents and young adults who struggle with career indecision often experience emotional distress and reduced motivation, which can hinder their academic and professional development (Fatimah et al., 2019). As a result, effective career interventions must address not only the provision of career information but also the psychological readiness and emotional engagement of the individual. Studies indicate that counseling programs that promote self-reflection, strengths identification, and goal-setting tend to foster more adaptive career behaviors and higher levels of decision-making self-efficacy (Milot-Lapointe & Arifoulline, 2025). This is particularly relevant in Asian contexts, where cultural influences on career choices may exacerbate indecision and require context-sensitive interventions (Li et al., 2019).

Parallel to career decision-making is the concept of future orientation, which reflects an individual's cognitive and motivational engagement with long-term goals and anticipated life outcomes. A strong future orientation has been linked to greater academic performance, lower risk behaviors, and higher psychological well-being (Sun & Yoo, 2023). It encompasses not only the ability to anticipate and plan for future events but also the belief in one's capacity to influence those outcomes through present actions. According to Wang et al. (2024), future orientation plays a critical role in adolescents' ability to persist in goal-directed behavior and cope with setbacks, particularly during transitional periods such as the move from school to work. When integrated into career counseling, future orientation serves as a motivational anchor that helps individuals sustain effort and commitment toward long-term career goals (Wang et al., 2024). The integration of collaborative, strength-based strategies and reflective exercises has also been shown to facilitate positive change in career-related cognition and behavior (Silva et al., 2022).

Recent innovations in career counseling practices have emphasized personalized, developmental, and process-oriented models. Cardoso et al. (2023) introduced a reconceptualization model within Career Construction Counseling, which elicited key moments of narrative transformation in clients (Cardoso et al., 2023). This aligns with the work of Maree and Fabio (2018), who advocate for combining personal and career counseling to support sustainable life design (Maree, 2022). The importance of supporting identity formation through narrative exploration and future scenario building is also emphasized by Sun and Yoo (2023), particularly for individuals experiencing career disruption or transitional stress (Sun & Yoo, 2023). These approaches not only address practical career concerns but also attend to the emotional and psychological processes that underlie effective decision-making.

In terms of implementation, group-based and school-based interventions have been shown to offer practical and scalable solutions. Szilagyi (2022) demonstrated the utility of group counseling models in educational settings, which facilitated peer interaction and collective learning (Szilagyi, 2022). Moreover, Sangadah et al. (2025) stressed the importance of integrating social and emotional support services within adolescent career programs to better equip students with the resilience and interpersonal competencies necessary for effective decision-making (Sangadah et al., 2025). Despite the documented effectiveness of career interventions, challenges remain in ensuring their cultural adaptability and relevance. Yanxia (2023) underscored the role of gender and socio-cultural expectations in shaping the counseling experience, especially in collectivist societies (Yanxia, 2023).

To address these complex and interconnected issues, the present study investigates the effectiveness of a structured Positive Career Counseling program designed to enhance career decision-making and future orientation in young Taiwanese adults.

2. Methods and Materials

2.1. Study Design and Participants

This study employed a randomized controlled trial (RCT) design to evaluate the effectiveness of Positive Career Counseling on career decision-making and future orientation. The participants consisted of 30 individuals from Taiwan, selected through purposive sampling based on their expressed difficulties in career planning and future uncertainty. Participants were randomly assigned into two equal groups: an experimental group (n = 15) that received the nine-session Positive Career Counseling intervention, and a control group (n = 15) that received no intervention during the study period. Inclusion criteria included being between 18 and 30 years of age, currently not engaged in a fixed career path, and demonstrating moderate to high levels of indecision on a pre-screening measure. Both groups were assessed at three time points: pre-test, post-test, and a five-month follow-up to determine the lasting effects of the intervention.

2.2. Measures

2.2.1. Career Decision-Making

To assess the variable of career decision-making, the Career Decision-Making Difficulties Questionnaire (CDDQ) developed by Gati, Krausz, and Osipow in 1996 was employed. This standard instrument is widely used in career counseling research and evaluates individuals' difficulties in making career-related decisions. The questionnaire comprises 34 items divided into three main categories: Lack of Readiness, Lack of Information, and Inconsistent Information, each with several subcategories that capture different aspects of decision-making challenges. Respondents rate items on a 9-point Likert scale ranging from 1 (does not describe me at all) to 9 (describes me well), with higher scores indicating greater difficulty in career decision-making. The psychometric properties of the CDDQ have been confirmed in numerous studies, demonstrating strong internal consistency, construct validity, and test-retest reliability across diverse populations (Bi et al., 2023;

Demirtaş-Zorbaz et al., 2023; He et al., 2021; Previarzya & Asmarany, 2023; Wahyuningsih et al., 2023).

2.2.2. Future Orientation

Future orientation was measured using the Future Orientation Scale (FOS) developed by Steinberg, Graham, O'Brien, Woolard, Cauffman, and Banich in 2009. This standardized tool is designed to assess adolescents' and young adults' orientation toward the future in terms of planning, anticipation of future consequences, and consideration of future goals. The scale includes 15 items rated on a 4-point Likert scale from 1 (strongly disagree) to 4 (strongly agree), and it is composed of three subscales: Anticipation of Future Consequences, Planning Ahead, and Time Perspective. Higher scores reflect a stronger orientation toward the future. The validity and reliability of the FOS have been supported in various empirical studies, with evidence of good internal consistency and factorial validity, making it a reliable instrument for psychological and educational research (Islam et al., 2021; Miconi et al., 2022).

2.3. Intervention

2.3.1. Positive Career Counseling

The intervention in this study was based on the principles of Positive Career Counseling, aiming to enhance participants' career decision-making abilities and their future orientation. The program was structured into nine sessions, each lasting between 75 and 90 minutes. The intervention integrated elements of positive psychology, cognitive-behavioral techniques, and career development theory. Each session was designed to promote self-awareness, goal setting, future thinking, and strengths-based approaches to career planning. Participants engaged in individual reflections, group discussions, experiential activities, and practical exercises tailored to build clarity, confidence, and motivation in their career paths.

Session 1: Introduction and Establishing the Foundation

The first session focused on introducing participants to the goals and structure of the intervention. The concept of Positive Career Counseling was explained, emphasizing the use of strengths, values, and hope in the career decision-making process. Rapport-building activities were conducted, and participants were encouraged to share their current career concerns and expectations. The importance of future orientation in career development was discussed, and

participants completed a self-assessment to explore their current levels of career clarity and future thinking.

Session 2: Exploring Personal Strengths and Core Values

This session aimed to help participants identify and articulate their personal strengths and core values. Through guided self-reflection, group discussions, and structured inventories (e.g., VIA Character Strengths), individuals gained insights into how their unique traits can influence their career choices. Activities also encouraged participants to recognize how personal values align with long-term goals, which is essential for meaningful career planning and future orientation.

Session 3: Identifying Interests and Career Aspirations

In the third session, participants explored their career interests, aspirations, and possible pathways. Career interest inventories and visualization techniques were used to expand their awareness of suitable career options. The session emphasized the connection between interest patterns and potential satisfaction in future careers. Participants reflected on past experiences and imagined ideal futures, linking personal interests with concrete professional directions.

Session 4: Enhancing Self-Efficacy and Decision-Making Skills

This session concentrated on strengthening participants' confidence in their ability to make sound career decisions. Cognitive-behavioral techniques were used to challenge limiting beliefs and increase self-efficacy. Participants learned decision-making models and practiced applying them to real-life scenarios. Group exercises focused on weighing options, evaluating outcomes, and reducing decision-related anxiety.

Session 5: Goal Setting and Planning for the Future

The fifth session centered on setting realistic and motivating career goals using the SMART (Specific, Measurable, Achievable, Relevant, Time-bound) model. Participants formulated short- and long-term career goals and developed action plans. Emphasis was placed on breaking down goals into manageable steps and linking them to personal values and strengths identified in earlier sessions.

Session 6: Managing Career-Related Stress and Uncertainty

This session addressed emotional and cognitive responses to career-related stress, uncertainty, and fear of failure. Techniques such as mindfulness, stress management strategies, and cognitive reframing were introduced. Participants practiced skills for maintaining motivation and psychological flexibility when faced with challenges or indecision about the future.

Session 7: Expanding Career Information and Resources

In the seventh session, participants were guided to explore various sources of career information and resources, such as educational programs, labor market trends, and occupational databases. Emphasis was placed on developing information literacy and proactive information-seeking behaviors. Participants practiced evaluating and organizing information relevant to their career paths to reduce ambiguity and enhance future planning.

Session 8: Building Support Networks and Social Capital

This session focused on the importance of social support and networking in career development. Participants identified key support figures (e.g., mentors, peers, family) and learned how to seek guidance, feedback, and opportunities through these networks. Activities included role-playing effective communication, informational interviewing, and strategies for building professional relationships.

Session 9: Integration and Future Commitment

The final session was dedicated to reviewing and integrating the insights gained throughout the program. Participants reflected on their progress, reinforced their career goals, and committed to specific steps for continued growth. A future vision statement was crafted by each participant, summarizing their aspirations and intended actions. Group members shared their reflections and received affirmations, concluding the intervention with a sense of closure and empowerment.

2.4. Data Analysis

Data analysis was conducted using SPSS version 27. To examine changes in the dependent variables—career decision-making and future orientation—over time and between groups, analysis of variance with repeated measurements (repeated measures ANOVA) was employed. This approach allowed for the evaluation of both within-subject and between-group differences across the three assessment points. When significant differences were found, Bonferroni post-hoc tests were used to identify the specific time points at which changes occurred, thereby controlling for Type I error in multiple comparisons. The significance level for all tests was set at $p < .05$.

3. Findings and Results

The demographic characteristics of the participants revealed a relatively balanced distribution in terms of gender and education level. Among the total 30 participants, 16 individuals (53.33%) were female and 14 individuals (46.67%) were male. Regarding age, the participants ranged from 19 to 29 years old, with a mean age of 23.47 years (SD = 2.91). In terms of educational attainment, 10 participants (33.33%) held a high school diploma, 13 participants (43.33%) were enrolled in or had completed undergraduate programs, and 7 participants (23.33%) held a postgraduate degree. Both the experimental and control groups had similar demographic distributions, ensuring comparability between groups prior to the intervention.

Table 1

Means and Standard Deviations (M ± SD) for Career Decision-Making and Future Orientation by Group and Time

Variable	Group	Pre-test	Post-test	Follow-up
Career Decision-Making	Experimental (n=15)	124.87 ± 11.56	139.27 ± 10.41	137.93 ± 10.77
	Control (n=15)	122.33 ± 10.74	124.13 ± 10.22	123.60 ± 11.19
Future Orientation	Experimental (n=15)	36.47 ± 4.83	42.20 ± 4.21	41.73 ± 4.50
	Control (n=15)	36.00 ± 4.92	36.40 ± 4.58	36.20 ± 4.90

The descriptive statistics in Table 1 show that participants in the experimental group experienced an increase in both career decision-making and future orientation from pre-test to post-test, with a slight decrease at follow-up, though still notably higher than pre-test scores. For instance, the experimental group's mean score for career decision-making increased from 124.87 (SD = 11.56) at pre-test to 139.27 (SD = 10.41) at post-test and remained relatively stable at follow-up (M = 137.93, SD = 10.77). In contrast, the control group exhibited minimal changes across time. A similar trend was observed for future orientation, where the experimental group's mean improved from 36.47 (SD = 4.83) at pre-test to 42.20 (SD = 4.21) at post-test, and remained high at follow-up (M = 41.73, SD = 4.50), while the control group's scores showed no meaningful improvement.

Prior to conducting the repeated measures ANOVA, the necessary statistical assumptions were examined and confirmed. The assumption of normality was assessed using the Shapiro-Wilk test, which indicated that the distribution of scores for career decision-making (W = 0.968, p = .402) and future orientation (W = 0.973, p = .511) did not significantly deviate from normality. Levene's test for equality of variances showed non-significant results for both dependent variables at all measurement points (p-values ranged from .214 to .633), confirming homogeneity of variances. Additionally, Mauchly's test of sphericity was applied to the repeated measures factor and yielded a non-significant result for both career decision-making (W = 0.957, p = .369) and future orientation (W = 0.944, p = .275), thus supporting the assumption of sphericity. These results validated the appropriateness of using repeated measures ANOVA for the main analysis.

Table 2

Repeated Measures ANOVA for Career Decision-Making and Future Orientation

Variable	Source	SS	df	MS	F	p-value	η^2
Career Decision-Making	Time	1864.19	2	932.10	18.47	< .001	.399
	Group	1420.81	1	1420.81	28.13	< .001	.507
	Time × Group	1636.57	2	818.28	16.21	< .001	.373
	Error	2895.27	56	51.70			
Future Orientation	Time	301.20	2	150.60	21.33	< .001	.432
	Group	236.47	1	236.47	33.97	< .001	.548
	Time × Group	269.93	2	134.96	19.11	< .001	.405
	Error	395.67	56	7.06			

As detailed in Table 2, the repeated measures ANOVA revealed significant main effects of time for both career decision-making, $F(2, 56) = 18.47$, $p < .001$, $\eta^2 = .399$, and future orientation, $F(2, 56) = 21.33$, $p < .001$, $\eta^2 = .432$. The analysis also indicated significant main effects of group, with the experimental group outperforming the control

group in career decision-making, $F(1, 28) = 28.13$, $p < .001$, $\eta^2 = .507$, and future orientation, $F(1, 28) = 33.97$, $p < .001$, $\eta^2 = .548$. Crucially, there were significant interactions between time and group for both career decision-making,

$F(2, 56) = 16.21$, $p < .001$, $\eta^2 = .373$, and future orientation, $F(2, 56) = 19.11$, $p < .001$, $\eta^2 = .405$, indicating that the Positive Career Counseling intervention was specifically effective over time.

Table 3

Bonferroni Post-Hoc Comparisons for Career Decision-Making and Future Orientation

Variable	Comparison	Mean Difference	SE	p-value
Career Decision-Making	Pre-test vs. Post-test	-14.40	2.34	< .001
	Pre-test vs. Follow-up	-13.07	2.55	< .001
	Post-test vs. Follow-up	1.33	1.78	.462
Future Orientation	Pre-test vs. Post-test	-5.73	0.89	< .001
	Pre-test vs. Follow-up	-5.27	0.97	< .001
	Post-test vs. Follow-up	0.47	0.72	.512

Table 3 presents Bonferroni post-hoc tests examining pairwise comparisons for both dependent variables. For career decision-making, significant improvements were observed between pre-test and post-test (M difference = -14.40, $p < .001$) and between pre-test and follow-up (M difference = -13.07, $p < .001$), confirming substantial and lasting changes resulting from the intervention. The non-significant difference between post-test and follow-up (M difference = 1.33, $p = .462$) indicates that improvements were maintained over time. Similarly, future orientation demonstrated significant improvements from pre-test to post-test (M difference = -5.73, $p < .001$) and pre-test to follow-up (M difference = -5.27, $p < .001$), with stable results between post-test and follow-up (M difference = 0.47, $p = .512$), suggesting sustained intervention effects.

4. Discussion and Conclusion

The findings of the present study demonstrate the effectiveness of Positive Career Counseling in enhancing both career decision-making and future orientation among young adults in Taiwan. Participants in the experimental group showed statistically significant improvements in both variables at post-test and retained these gains at the five-month follow-up, while the control group exhibited no meaningful changes across the same time points. The repeated measures ANOVA results confirmed a significant time × group interaction, indicating that the counseling intervention, rather than the passage of time alone, was responsible for the observed improvements. Bonferroni post-hoc analysis further clarified that these changes were most pronounced between the pre-test and post-test intervals, with continued stability of gains at follow-up. These findings suggest that a structured, strengths-based,

and future-oriented intervention can have a lasting positive impact on young adults' career-related functioning.

The improvement in career decision-making aligns closely with prior literature highlighting the efficacy of individualized and structured career interventions. In particular, Milot-Lapointe and Arifoulline (2025) reported in a meta-analysis that career counseling interventions significantly improve career-related self-efficacy and reduce decision-making difficulties (Milot-Lapointe & Arifoulline, 2025). In this study, the emphasis on developing a supportive group atmosphere, coupled with activities focused on identifying values, strengths, and goals, likely played a key role in enhancing participants' decision-making capabilities. This is in line with Cardoso and Sales (2019), who observed that individualized and client-centered career interventions can bring about substantial improvements in decision-making confidence and career clarity (Cardoso et al., 2023).

The study's results regarding future orientation are also consistent with prior findings. Participants who underwent the intervention reported higher levels of future-oriented thinking, planning, and motivation to pursue long-term goals. These outcomes echo the observations of Wang et al. (2024), who concluded that career interventions targeting adolescents and young adults are most successful when they incorporate components that stimulate future thinking and goal-setting. Moreover, Sun and Yoo (2023) demonstrated that narrative and constructivist approaches in career counseling help clients build a more coherent future vision, especially in populations facing career interruptions or uncertainty (Sun & Yoo, 2023). In this study, exercises such as writing a future vision statement and setting SMART goals likely contributed to improved scores in future orientation. The maintenance of these improvements at

follow-up supports the assertion made by Milot-Lapointe and Corff (2024b) that well-structured interventions can lead to enduring change over time (Milot-Lapointe & Arifoulline, 2025).

The integration of strengths-based approaches throughout the sessions likely further enhanced participants' engagement and motivation. Identifying and applying character strengths is a core principle in Positive Career Counseling and has been associated with increased motivation, self-esteem, and agency in career planning (Maree, 2022). The use of personal strengths inventories, value clarification tasks, and narrative reflection in this study likely encouraged participants to reframe their self-concept positively and link their abilities to realistic career paths. This process not only clarified choices but also reduced internal conflict, a pattern similarly noted by Fatimah et al. (2019) in their intervention work with adolescents experiencing indecision (Fatimah et al., 2019).

These findings also corroborate the work of Silva et al. (2022), who demonstrated that therapeutic collaboration and reflective dialogue in career construction counseling promote more adaptive identity exploration and decision-making. The structured group environment in this study provided a platform for such dialogue, allowing participants to articulate their thoughts, receive feedback, and refine their plans through guided discussion. Similarly, Cabell and Gnilka (2021) found that self-reflection and peer support within longitudinal career search interventions enhanced participants' self-efficacy and commitment to action, particularly in science and engineering students. The group dynamics in the present study may have reinforced such processes, providing social validation and motivation that strengthened individual outcomes.

Furthermore, the study contributes to ongoing conversations regarding the cultural adaptability of Western-developed career models. As Yanxia (2023) observed, cultural values and social expectations significantly shape how individuals interpret and respond to career guidance (Yanxia, 2023). The success of the intervention in the Taiwanese context suggests that with appropriate cultural sensitivity—such as encouraging collectivist-compatible goal-setting and addressing familial influences—Positive Career Counseling can be effectively translated across cultural settings. Li et al. (2019) similarly emphasized that counseling programs need to address the expectations and values of Asian participants, who may approach career decisions with different assumptions than those in Western societies (Li et al., 2019). The present study's design

considered these cultural elements by inviting participants to reflect on family expectations and reconcile them with personal values.

Additionally, the findings support the increasing call to integrate psychological development within career counseling frameworks. Maree and Fabio (2018) proposed a holistic model combining career and personal counseling to promote sustainable life design. This integration appears evident in the current study, where emotional regulation, identity development, and future planning were addressed simultaneously (Maree, 2022). Participants who initially expressed anxiety and confusion reported increased clarity and hope, which is also reflective of the outcomes reported by Najam and Ghazal (2022) regarding the role of emotional and cognitive components in career choice processes (Najam & Ghazal, 2022). Similarly, the inclusion of stress management and cognitive reframing exercises in this intervention may have mitigated the psychological barriers that often hinder forward movement in career decision-making.

Lastly, the durability of the observed improvements over a five-month period highlights the intervention's potential for lasting impact. Milot-Lapointe et al. (2019) found that clients' post-intervention gains in career construction were maintained several months later (Milot-Lapointe & Arifoulline, 2025), supporting the idea that career development involves internalized cognitive and emotional change, rather than temporary motivational shifts. The inclusion of future-oriented goal monitoring and social support strategies in this study likely contributed to the sustainability of its effects.

5. Limitations & Suggestions

Despite the promising results, the study has several limitations. The sample size was relatively small (N = 30), which may limit the generalizability of the findings. Although randomized controlled trials are considered a robust research design, the limited number of participants reduces statistical power and may obscure more nuanced effects. In addition, participants were all recruited from Taiwan, which, while culturally meaningful for this study, restricts the application of findings to other regions or cultural groups without further adaptation. Another limitation concerns the reliance on self-report questionnaires, which may be subject to social desirability bias or inaccurate self-assessment. Lastly, while the five-month follow-up adds valuable longitudinal data, it may not

fully capture the long-term developmental trajectory or sustained behavioral change beyond this time frame.

Future studies should consider expanding the sample size and including participants from a broader range of demographic backgrounds and regions to increase generalizability. Comparative studies between countries or cultural groups would also be valuable to explore how cultural norms influence the effectiveness of career counseling models. Moreover, future research could examine the differential effects of individual versus group-based Positive Career Counseling, as well as variations in session length or frequency. Incorporating mixed methods approaches, including qualitative interviews, would provide richer insights into participants' internal experiences and contextual influences. Finally, extending the follow-up period to one year or longer would allow researchers to assess the long-term sustainability of intervention outcomes and observe any delayed effects.

For practitioners, this study highlights the importance of integrating strengths-based, future-focused approaches in career counseling settings. Counselors should incorporate activities that promote self-reflection, goal setting, and emotional awareness to support clients in both career decision-making and future planning. Using narrative and constructivist tools can help clients develop coherent personal and professional identities. It is also recommended that practitioners tailor interventions to be culturally sensitive, especially when working with clients from collectivist backgrounds. Embedding social support strategies and involving family members when appropriate can further enhance counseling outcomes. Additionally, counselors should consider offering follow-up support to maintain gains and assist clients in adapting to new challenges after the formal intervention has ended.

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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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