Boosting Career Success: Innovative Behavioral Measures for Guiding Saudi Secondary School Graduates

Adel Mohammed Alosaimi

Taif Education Administration, Ministry of Education, Taif, Saudi Arabia

ARTICLE INFO	ABSTRACT
	This study developed and validated a comprehensive behavioral measure for career guidance among secondary school graduates in Saudi Arabia, aiming to integrate soft skills, personality traits, attitudes, and cognitive factors to fill gaps in existing career guidance frameworks. Using a cross-sectional design, data were collected from 814 secondary school students (M_{age} = 16.47) from diverse urban (n = 407) and rural (n = 407) settings in Saudi Arabia. Multigroup latent profile analyses (LPA) were employed to identify distinct career decision-making profiles among students. The study explored whether urban and rural students exhibited different patterns of engagement in career guidance behaviors. Three distinct engagement profiles were identified: high, moderate, and low engagement, consistent across both settings. High engagement profiles were characterized by high self-efficacy, proactive career exploration, and low anxiety, linked to better career decision outcomes and greater satisfaction with career guidance. Variance analysis using the Games-Howell post hoc test was conducted to compare the profiles based on key behavioral measures such as self-efficacy, career exploration behavior, and anxiety. To further understand the contextual factors influencing these profiles, a multinomial regression analysis examined the impact of teacher support and resilience on career guidance engagement levels. Results indicated that higher levels of teacher support and resilience significantly predicted membership in high engagement profiles. These findings highlight the importance of incorporating behavioral components into career guidance programs, particularly those tailored to address the specific needs of urban and rural students in Saudi Arabia, ultimately supporting the broader educational and workforce development goals of Vision 2030.

1. Introduction

Career guidance is highly effective for secondary school students, especially in Saudi Arabia, where the Saudi government launched a policy called Vision 2030 to diversify the Saudi economy and modernize its workforce. Career choice is a very complicated process because it

encompasses cognitive, emotional, behavioral, and cultural dimensions. In Saudi Arabia, these complexities are amplified by social norms, family influences, and the limited availability of comprehensive career guidance in schools. As the pressure on secondary school graduates to make informed career choices intensifies in a rapidly changing job market, there is a pressing need for robust career guidance systems (Alamzeb & Shah, 2021; Aurangzeb & Yousaf, 2021; Hofstede, 2023).

Career guidance significantly influences students' educational and professional futures by helping them understand the job market, explore available career paths, and identify the skills required for various professions. Research indicates that comprehensive career counseling can enhance students' understanding of their personal strengths, weaknesses, interests, and values. This increased self-awareness, coupled with the development of sound decision-making skills, can facilitate more informed and purposeful career selections (Hulukati & Dewi, 2022). For example, career guidance and counseling services in schools are designed to help students navigate the complexities of the job market and make informed decisions about their futures (Anne & Samson, 2022). This need is particularly critical in Saudi Arabia, where economic diversification under Vision 2030 is transforming the job market (Aziz et al., 2023).

While cognitive factors undoubtedly influence career decision-making, emotional and psychological elements are equally crucial. Students often grapple with anxiety and uncertainty surrounding their career paths, which can impede their ability to make informed choices about their future endeavors (Anne & et al., 2022). Career guidance programs that address these emotional dimensions can help alleviate such anxieties, empowering students to take control of their career paths. Furthermore, teacher involvement in career guidance is crucial, as teachers can significantly influence students' attitudes and responses to career preparation. In Saudi Arabia, where cultural and familial expectations often dictate career choices, teacher support can help students navigate these pressures more effectively (Alamzeb et al., 2021).

Cultural factors in Saudi Arabia significantly impact students' career aspirations, with societal norms and family expectations often restricting the exploration of diverse career options, especially for women (Islam & Al-Mutairi, 2018). Therefore, career guidance programs must be culturally sensitive and tailored to address the specific challenges faced by students in this context. Research indicates that culturally inclusive career guidance initiatives are more effective at engaging students and supporting informed career decisions (Aurangzeb & Yousaf, 2021). This consideration is increasingly vital as Saudi Arabia's job market evolves and new industries emerge, necessitating a workforce equipped with diverse skills and competencies.

The integration of technology into career counseling services offers an additional avenue to improve their effectiveness. Online career guidance systems can complement traditional counseling methods by providing students with extensive information about career options, job market trends, and skills development (Cerrito & Behun, 2021). These systems also facilitate self-assessment and career exploration, enabling students to better identify their strengths and interests. As digital literacy grows in Saudi Arabia, the use of technology in career guidance can bridge the gap between students and the resources needed to make informed career choices (El-Sofany & El-Seoud, 2020).

Family dynamics significantly impact career decision-making, with familial expectations frequently shaping students' aspirations and choices (Islam & Al-Mutairi, 2018). Career guidance programs that actively involve parents and provide them with information about the job market can foster a supportive environment for students as they explore and navigate their career options. A collaborative approach can empower families to support their children's aspirations while encouraging students to explore diverse career options beyond traditional expectations.

Current career counseling programs in Saudi Arabia emphasize mainly cognitive aspects, such as providing information about career options and helping students make logical evaluations of their choices. However, these programs often neglect behavioral factors that are crucial in career decision making. Soft skills, personality traits, attitudes, and behavioral preparedness are frequently overlooked, leaving students unprepared for the emotional and psychological challenges associated with career decision making (Aryani et al., 2021). Behavioral measures such as goal setting, self-monitoring, and feedback seeking are essential for both decision-making and successful career planning (Bolu-Steve & Okesina, 2023), yet these elements are often absent from traditional career guidance approaches.

Self-efficacy, the belief in one's capability to achieve desired outcomes, is a particularly influential behavioral factor in career decision-making. Research suggests that students with higher levels of self-efficacy are more likely to explore a diverse range of career options, exhibit clarity in their decision-making, and set ambitious and meaningful career goals (Chelagat & Muturi, 2022). In Saudi Arabia, improving self-efficacy and related behavioral skills through targeted interventions could significantly improve students' adaptability to the rapidly changing job market, especially as new industries and career opportunities emerge under Vision 2030 (Naseem & Dhruva, 2017).

Cultural influences further complicate career decisions in Saudi Arabia. According to Hofstede's cultural dimensions framework, Saudi society is highly collectivist, with family expectations and group consensus often guiding decision making (Panjaitan, 2023). This cultural context can pressure students to pursue careers that align with family expectations rather than with their personal interests and strengths. Many Saudi students feel compelled to enter prestigious fields such as medicine, law, or engineering, even when these paths may not suit their true interests or abilities (Schalkwyk et al., 2022). Gender norms also play an important role, and societal expectations often guide women toward education and healthcare and men toward business and technical fields **(Sushkova et al., 2019).** These constraints can limit students' perceptions of available career options, potentially leading to long-term dissatisfaction.

Despite the critical role of career guidance in helping students navigate these challenges, many secondary schools in Saudi Arabia lack comprehensive career counseling services. Existing programs often do not provide students with a broad range of options or the necessary tools to make thoughtful decisions (Lu & Qiu-hong, 2022). This gap exacerbates the challenges students face, leaving them without effective strategies to explore various career paths and make decisions aligned with their goals. The exclusion of behavioral components from current career counseling frameworks highlights a significant gap in existing practices, which typically focus on information dissemination and advice rather than preparing students for real-life challenges that can undermine their confidence and autonomy in decision-making.

To address these gaps, this study aims to develop and validate a comprehensive behavioral measure to improve career guidance among Saudi secondary school students. This measure integrates soft skills, personality traits, attitudes, and cognitive elements, offering a holistic approach to career decision making that aligns with the educational and economic goals of Vision 2030.

1.1. Research Objectives

The primary objective of this study is to develop and validate a behavioral measure of career guidance that encompasses soft skills, personality traits, attitudes, and cognitive factors. This research seeks to address existing gaps by creating an assessment tool that can be used in career

counseling to provide a more nuanced and effective approach to guide students through their career decision-making processes.

The specific objectives of this study are as follows:

- We identify key behavioral traits, including soft skills, personality traits, attitudes, and cognitive factors, that influence career decision-making among Saudi secondary school graduates.
- To develop a reliable and valid behavioral assessment tool that can be integrated into career guidance programs.
- To evaluate the effectiveness of this behavioral measure in real-world settings, its impact on career decision outcomes is compared with that of traditional cognitive-based methods.

By achieving these objectives, this research aims to support Saudi students in making more informed, resilient, and adaptable career choices, ultimately contributing to the greater goal of preparing a modern and diversified workforce according to Vision 2030.

2. Methodology

2.1. Research Design

This study employed a mixed methods approach, integrating both quantitative and qualitative methodologies to develop and validate a comprehensive behavioral measure for career guidance among secondary school students in Saudi Arabia. The study utilized latent profile analysis (LPA) to identify distinct behavioral profiles and the MEASURE approach for instrument development and validation. This approach ensured the creation of a robust and culturally relevant tool aligned with the educational and economic goals of Vision 2030.

2.2. Participants

Data were collected in autumn 2024 from a random sample of 454 secondary school students across various regions of Saudi Arabia, including urban and rural settings, to ensure diverse socioeconomic and cultural representations. The sample included 289 male and 165 female students who completed an anonymous online questionnaire administered in their respective schools. Informed consent was obtained from both the students and their parents, with no incentives provided for participation. Ethical approval was obtained from the relevant research ethics committees in Saudi Arabia.

On the day of data collection, students from 80 classes from 40 schools (20 urban and 20 rural) received a brief introduction to the survey from the research team. The questionnaire, which took approximately 35–60 minutes to complete, covered various domains, including soft skills, personality traits, attitudes, and cognitive factors related to career decision making. The average age of the participants was 16.47 years (SD = 0.81). The gender distribution was 49.9% female (n = 406) and 46.6% male (n = 379), reflecting the national demographics of Saudi secondary school students.

2.3. Measures

Cultural Background: Cultural background was assessed by determining whether the student and both parents were born in Saudi Arabia and whether all had Saudi citizenship. A migration background was defined as any deviation from these conditions, reflecting the diverse cultural landscape within the student population.

Career decision-making self-efficacy: This scale is measured via a 25-item scale adapted from the Career Decision-Making Self-Efficacy Scale (Taylor & Betz, 1983). This scale assesses students' confidence in their ability to make career-related decisions. The items were rated on a five-point Likert scale ranging from (1) 'no confidence at all' to (5) 'complete confidence', with higher scores indicating greater self-efficacy (Cronbach's alpha = 0.91). Example items include 'I can identify my career interests' and 'I can make a career decision'.

Career exploration behavior: Assessed via the Career Exploration Survey (Stumpf & Hartman, 1983), this 20-item measure evaluates students' participation in activities related to career exploration on a four-point Likert scale ranging from (1) 'never' to (4) 'very often' (Cronbach's alpha = 0.88). Example items include 'I talked to someone about careers that interest me' and 'I researched job descriptions online.'

Career decision-making anxiety: Measured via the Career Decision-Making Anxiety Scale (Osipow & Barak, 1996), this scale comprises 15 items rated on a four-point Likert scale (1 = 'not at all' to 4 = "very much"), which assesses the anxiety students experience when making career decisions (Cronbach's alpha = 0.85). Example items include 'I feel nervous when thinking about choosing a career' and 'I worry about making the wrong career choice'.

Soft skills: Soft skills were measured via a 12-item scale developed specifically for this study on the basis of relevant literature and expert consultations. The items were rated on a four-point Likert scale (1 = "not true at all" to 4 = "completely true"), assessing skills such as communication, teamwork, and adaptability (Cronbach's alpha = 0.83). Example items include 'I work well in a team' and 'I can adapt to new situations easily'.

Personality traits: The personality traits were assessed via the Big Five Inventory (BFI-10; (Rammstedt & John, 2007), a 10-item scale measuring the five main dimensions of personality: openness, conscientiousness, extraversion, agreeableness, and neuroticism. The responses were rated on a five-point Likert scale (1 = "strongly disagree" to 5 = "strongly agree"), with reliability coefficients ranging from 0.70 to 0.78. Example items include 'I see myself as someone who is open to new experiences' and 'I see myself as someone who is reliable.'

General Self-Efficacy: This scale is measured via the General Self-Efficacy Scale ((Schwarzer & Jerusalem, 2010), which consists of 10 items rated on a four-point Likert scale (1 = 'not true at all' to 4 = "completely true"), which assesses students' general belief in their ability to cope with various challenges in life (Cronbach's alpha = 0.87). Example items include "I am confident that I could deal efficiently with unexpected events."

Satisfaction with Career Guidance: Satisfaction was measured via a single-item indicator, asking students to rate their satisfaction with the career guidance provided at their school on a four-point Likert scale (1 = 'not at all satisfied' to 4 = "completely satisfied").

2.4. Data Collection

The preliminary measure was pilot tested with a small sample of 50 students to assess the clarity of the item and the initial reliability. The feedback from the pilot informed further refinements. The refined measure was administered to the entire sample of 814 students. Data were collected through a combination of paper-based and online surveys adjusted to accommodate accessibility for all participants.

2.5. Analytic Strategy

Step One: Differences in the measures applied across demographic variables, such as sex and region (urban versus rural), were examined via independent-sample t tests. This step aimed to

identify any significant variations in career decision-making self-efficacy, career exploration behavior, anxiety, soft skills, personality traits, self-efficacy, and satisfaction with career guidance among student groups.

Step Two: To identify distinct behavioral profiles related to career decision-making, multigroup latent profile analyses (LPA) (Muthén & Muthén, 2018), were performed using seven classification variables: career decision-making self-efficacy, career exploration behavior, career decision-making anxiety, soft skills, personality traits, general self-efficacy, and satisfaction with career guidance. LPA was performed in the general sample merged (N = 814) as well as in subgroups based on sex (male n = 439; female n = 375) and region (urban n = 407; rural n = 407). This analysis aimed to identify latent profiles reflecting different patterns of career-related behaviors and traits among Saudi secondary school students.

Step Three: To identify significant differences in the classification variables across the identified LPA profiles, variance analyses were performed via the Games–Howell post hoc test. This step allowed for the assessment of specific behavioral traits or factors that distinguished the different profiles, providing insight into how various combinations of skills, attitudes, and traits relate to career decision making.

Step Four: A multinomial regression analysis was conducted to investigate the relationships between the identified student profiles and key outcome variables, including perceived teacher support and self-reported resilience in career decision-making. This step aimed to understand the contextual and socialization conditions that influence students' career decision-making behaviors and how these conditions contribute to the emergence of distinct profiles.

All analyses were performed via Mplus version 8.1 (Muthén & Muthén, 2018), which provides robust tools to perform latent profile analysis and handle complex multigroup comparisons. This software facilitated the precise identification of latent profiles and the assessment of the relationships between these profiles and the external variables of interest.

3. Results

3.1. Reliability and Validity of the Main Scale

3.1.1. Reliability

To ensure the reliability of the newly developed career guidance behavioral measure, multiple forms of reliability testing were conducted, including internal consistency, test-retest reliability, and interitem correlation analyses.

Internal consistency: The internal consistency of the scale was evaluated via Cronbach's alpha for each subscale and the overall measure. The results indicated high internal consistency across all the subscales, with Cronbach's alpha values ranging from 0.83--0.91, exceeding the commonly accepted threshold of 0.70 (Nunnally & Bernstein, 1994). Specifically, the career decision-making self-efficacy subscale had an alpha of 0.91, the career exploration behavior subscale had an alpha of 0.88, and the career decision-making anxiety subscale had an alpha of 0.85, reflecting strong internal reliability.
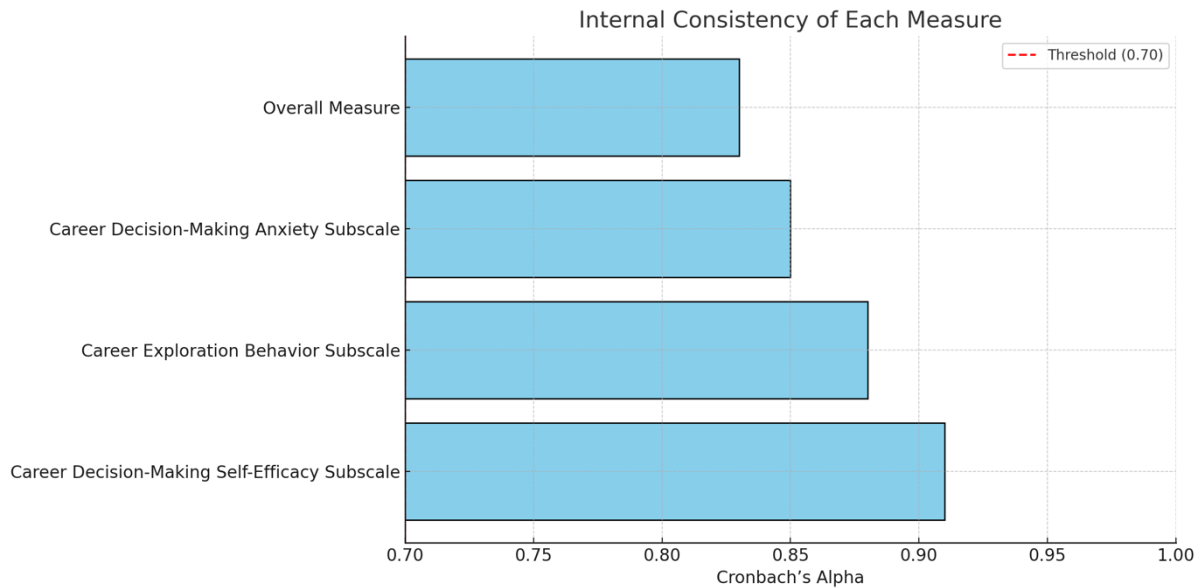
Figure 1. The Cronbach's alpha values for each measure

Reliability of the test and the test test: To evaluate the stability of the measure over time, a subset of 86 students from the original sample completed the scale again after three weeks. The test–retest reliability coefficients were calculated via Pearson's correlation, which revealed strong temporal stability for all the subscales (ranging from r = 0.76 to r = 0.82, p < .001), indicating that the scale produces consistent results over time.

Inter-Item correlation: The interitem correlations within each subscale were analyzed to ensure that the items were measuring the same underlying construct. The average interitem correlations were within the recommended range of 0.15--0.50 (de Vet et al., 2017; Gignac, 2014; Lei, 2006), suggesting that while the items are related, they do not overlap excessively, thus supporting the reliability of the scale.

3.1.2. Validity Analysis

Multiple forms of validity, including content validity, construct validity, and criterion-related validity, were assessed to establish the robustness of the scale.

Content validity: The content validity of the scale was ensured through expert consultations and literature reviews. A panel of five experts in career guidance and educational psychology reviewed the scale items for relevance, comprehensiveness, and clarity. On the basis of their feedback, minor revisions were made to refine the items. The content validity index (CVI) for the scale was calculated, with an overall CVI of 0.92, indicating excellent content validity (Polit et al., 2007; Polit & Beck, 2006).

Construct validity: Construct validity was evaluated via exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). EFA was conducted on the full sample via principal axis factoring with Promax rotation, revealing a clear factor structure corresponding to the theoretical domains. Self-Efficacy in career decision making, career exploration behavior, anxiety in career decision making, soft skills, personality traits, and general self-efficacy. All the items were significantly loaded onto their intended factors, with factor loadings ranging from 0.57 to 0.83. The CFA, conducted via Mplus version 8.1, confirmed the factor structure, showing good model fit indices: $\chi^2(284) = 613.24$, p < .001, RMSEA = 0.048, CFI = 0.94, TLI = 0.92, supporting the validity of the scale construct.

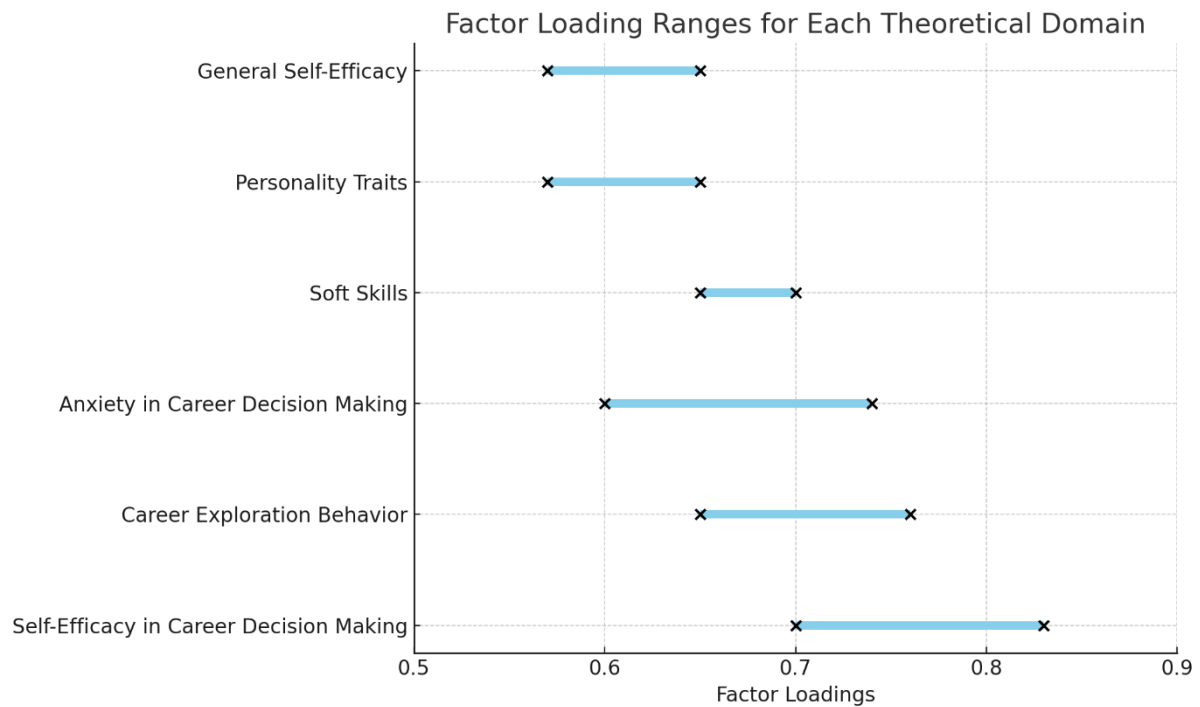Factor Loading Ranges for Each Theoretical Domain

Figure 2. The factor loading ranges for each theoretical domain identified in the Exploratory Factor Analysis (EFA). The horizontal lines show the loading ranges, with the black dots indicating the start and end points of each range.

Validity related to the criteria: Validity related to the criteria was evaluated by examining the correlations between scale scores and external measures theoretically related to career guidance behaviors, such as academic performance and teacher evaluations of student participation in career activities. Significant positive correlations were found between the Career Decision-Making Self-Efficacy subscale and academic performance ($r = 0.42$, $p < .001$), as well as between Career Exploration Behavior and Teacher Evaluations ($r = 0.39$, $p < .001$). These findings support the criterion-related validity of the scale, indicating that the measure predicts relevant external outcomes.

3.2. Analytic Step One: Regional Differences between Measures

To examine regional differences in career guidance behavior measures among secondary school students in Saudi Arabia (Urban n = 407; Rural n = 407), independent samples t tests were performed (see Table 1). The analysis aimed to explore differences in career decision-making self-efficacy, career exploration behavior, career decision-making anxiety, soft skills, personality traits, general self-efficacy, and career guidance satisfaction between urban and rural students. The results indicated that there were no significant regional effects for personality traits or general self-efficacy. However, significant regional differences were identified for other measures, with urban students showing higher levels of self-efficacy in career decision-making and exploration behavior, whereas rural students demonstrated greater satisfaction with career guidance and soft skills. In particular, career decision-making anxiety was significantly greater among urban students, suggesting potential areas for targeted interventions.

Table 1.
Regional sample mean levels (and standard deviations) of all observed variables

Variables	Range	Urban (n = 407) M (SD)	Rural (n = 407) M (SD)	Cohen's d
SCDM-SE:	1–5	3.67 (0.62) **	3.52 (0.58) **	-0.25
CEB	1–4	3.11 (0.71) **	2.94 (0.68) **	-0.24
CDM-A	1–4	2.88 (0.55) ***	2.71 (0.52) ***	-0.31
SS	1–4	2.85 (0.44)	3.12 (0.41)	0.65
BFI-10	1–5	3.18 (0.61)	3.22 (0.64)	-
GSE	1–4	3.01 (0.43)	2.98 (0.47)	-
SWCG	1–4	2.78 (0.82) *	3.03 (0.78) *	0.31

SCDM-SE: Self-Efficacy of Career Decision Making; CEB: Career Exploration Behavior; CDM-A: Career Decision Making Anxiety; SS: Soft Skills; BFI-10: Big Five Inventory-10; GSE: General Self-Efficacy; SWCG: Satisfaction with Career Guidance. *Note: * = p < .05, ** = p < .01, *** = p < .001 between urban and rural regions.
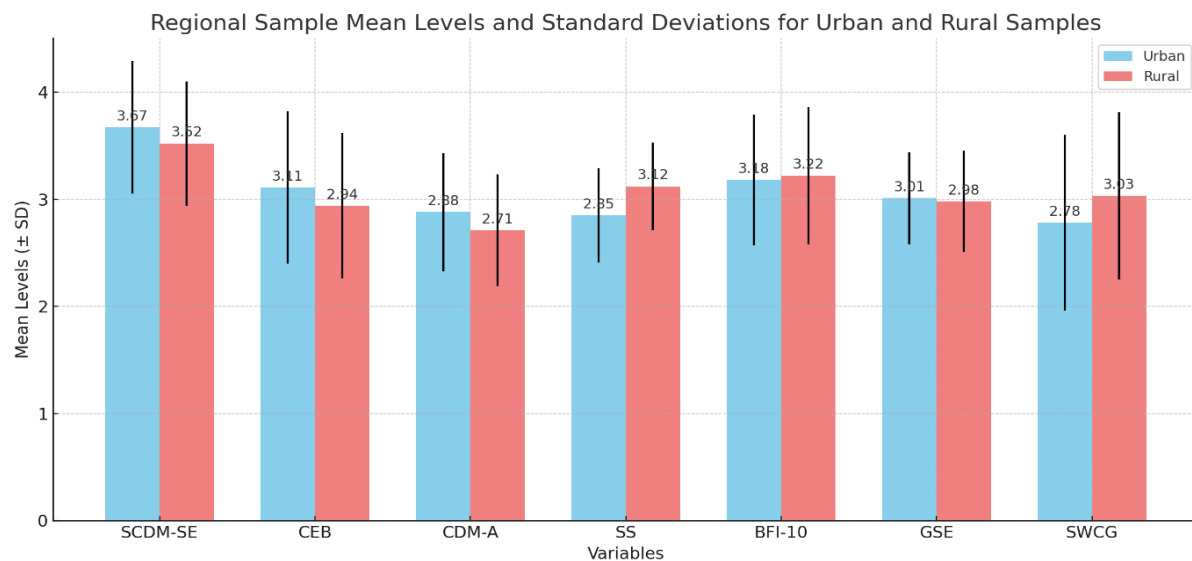

Figure 1. The mean levels and standard deviations for each observed variable, comparing urban and rural samples

3.3. Analysis Step Two: Identifying Career Guidance Behavioral Profiles via Latent Profile Analysis (LPA)

Latent profile analysis (LPA) was used to identify distinct behavioral profiles related to career guidance among the student sample, using measures of career decision-making self-efficacy, career exploration behavior, career decision-making anxiety, soft skills, personality traits, general self-efficacy, and satisfaction with career guidance. The analysis revealed three latent profiles for both urban and rural students on the basis of the optimal model fit indices, including the lowest BIC and high entropy values (see Table 2). The three-class solution included high-, moderate-, and low-engagement profiles in career guidance behaviors, with significant variations between urban and rural students.

Table 2.
Model Fit Indices for Different Numbers of Patterns/Classes in Latent Profile Analysis

Region	Patterns/Classes	Log-likelihood (dF)	BIC adjusted	Entropy
Urban	2	-2491 (37)	5136	0.85
Urban	3	-2418 (52)	5048	0.81
Urban	4	-2376 (67)	5019	0.80
Rural	2	-2457 (37)	5073	0.86
Rural	3	-2385 (52)	4992	0.84
Rural	4	-2348 (67)	4955	0.82

The three-class solution revealed different patterns of career decision-making behaviors: a high-engagement profile characterized by high self-efficacy, low anxiety, and strong exploration behaviors; a moderate-engagement profile with balanced levels across measures; and a low-engagement profile characterized by lower self-efficacy and exploration and higher anxiety. These profiles reflect varying levels of readiness and involvement in career guidance processes among students.

3.4. Analysis Step Three: Variance Analysis for Comparing LPA Classification Variable Levels Across Identified Patterns

To better understand the distinctions between the identified profiles, a variance analysis using the Games–Howell post hoc test was performed on measures of career-related behaviors and attributes. Notable differences were observed between the profiles of urban and rural samples (see Table 3). High-engagement profiles consistently demonstrated superior outcomes in career decision-making self-efficacy, career exploration, and career guidance satisfaction, while low-engagement profiles were associated with elevated levels of anxiety and diminished involvement in career-related activities.

Table 3.
Variance analysis with the Games–Howell post hoc test of career-related variables in identified LPA patterns

Variables	Region	Welch F	df	Low engagement M (SD)	Moderate Engagement M (SD)	High Engagement M (SD)
SCDM-SE	Urban	32.87***	5, 384	2.91 (0.48)	3.48 (0.53)	3.90 (0.52)
	Rural	30.14***	5, 393	2.94 (0.44)	3.32 (0.46)	3.85 (0.50)
CEB	Urban	45.11***	5, 367	2.61 (0.55)	3.06 (0.48)	3.42 (0.61)
	Rural	47.25***	5, 386	2.67 (0.54)	3.04 (0.52)	3.47 (0.58)
CDM-A	Urban	40.72***	5, 379	3.12 (0.51)	2.83 (0.46)	2.53 (0.49)
	Rural	37.88***	5, 391	3.08 (0.52)	2.89 (0.47)	2.57 (0.51)
SWCG	Urban	22.67***	5, 383	2.34 (0.81)	2.76 (0.65)	3.21 (0.69)
	Rural	26.41***	5, 389	2.47 (0.82)	2.89 (0.64)	3.34 0.73)

Note: SCDM-SE: Self-Efficacy of Career Decision Making, CEB: Career Exploration Behavior; CDM-A: Career Decision Making Anxiety, SWCG: Satisfaction with Career Guidance
*** $p < .001$; low, moderate and high involvement refer to the levels of participation in career guidance behaviors.

3.5. Analysis Step Four: Multinomial Regression Analysis of Identified Career Decision-Making Profiles Related to Teacher Support and Resilience

To explore the role of contextual and supportive factors influencing the identified career guidance profiles, a multinomial regression analysis was performed using teacher support and general resilience as predictors. The results indicated that higher levels of teacher support significantly predicted membership in high-engagement profiles for urban and rural students, highlighting the importance of supportive educational environments in promoting career-related behaviors (see Table 4). Furthermore, resilience emerged as a key predictor of high-engagement profiles, particularly in urban settings, suggesting that resilience-building interventions could enhance students' career decision-making processes.

Table 4.
Multivariate logistic regression of the effects of teacher support and resilience on career decision-making patterns by region

Predictors	Region	Profile	B	SE	Wald	OR
Teacher Support	Urban	Low	-0.45	0.24	3.56	0.64
	Urban	High	1.35***	0.36	14.08	3.86
	Rural	Low	-0.37	0.25	2.17	0.69
	Rural	High	1.28**	0.38	11.27	3.59
Resilience	Urban	Low	-0.22	0.18	1.44	0.80
	Urban	High	0.88**	0.32	7.50	2.42
	Rural	Low	-0.19	0.22	0.78	0.83
	Rural	High	0.71*	0.34	4.30	2.03

*Note: ** $p < .01$, *** $p < .001$. The high-engagement profile is the reference category.

4. Discussion

This study sought to develop and validate a comprehensive behavioral measure for career guidance tailored to Saudi secondary school graduates. The measure focused on integrating soft skills, personality traits, attitudes, and cognitive factors to address the shortcomings of existing career guidance programs in Saudi Arabia, which often overlook behavioral elements crucial for effective career decision making. This study, which included students with behavioral aspects, was designed to acquire self-efficacy, manage anxiety, and develop soft skills for all-round career guidance that would address students' needs in diverse ways. Additionally, the study compared the effectiveness of this behavioral measure in urban and rural school environments to understand regional variations in career decision-making behaviors among students.

Career decision making is a multifaceted process influenced by various factors, including self-efficacy, anxiety, and cultural expectations (Bolu-Steve & Okesina, 2023). According to this conceptual framework, our findings confirm that students' processes of making decisions about their careers are influenced not only by their own cognitive factors but also substantially by their behavioral features and emotional states, with significant variations among different groups of students. Among these, for example, self-efficacy—an individual's belief in their ability to be successful—plays a critical role in the career choice process with respect to the level of choices that students consider and the strength of overcoming difficulties (Chelagat et al., 2022). Similarly, anxiety related to career indecision can hinder students' ability to make informed choices, highlighting the importance of addressing emotional factors within career guidance programs. The findings of this study align with those of previous research suggesting that a holistic approach incorporating behavioral components can enhance career guidance outcomes, particularly in culturally complex settings such as Saudi Arabia (Chelagat et al., 2022).

4.1. Key Findings and Interpretation

The results of the LPA revealed three different engagement profiles among Saudi secondary school students: high engagement, moderate engagement, and low engagement in career guidance behaviors. These profiles were consistent between the urban and rural samples, indicating similar patterns of career-related behaviors despite regional differences in access to resources and support systems. High engagement profiles, characterized by increased self-efficacy, proactive career exploration, and reduced anxiety, were correlated with more effective career decision making and increased satisfaction with career guidance services. This underscores the critical role of self-efficacy and behavioral readiness in empowering students to navigate their career paths, as highlighted in previous studies (Schalkwyk et al., 2022).

Although regional differences were observed in specific behavioral measures, both urban and rural students demonstrated similar patterns of career-related behaviors. Compared with rural students, urban students exhibited higher levels of self-efficacy in career decision-making and exploration behaviors but also experienced greater anxiety. This finding may reflect the greater availability of career resources and opportunities in urban areas, which, while beneficial, may also lead to increased competition and pressure, thus increasing anxiety levels. In contrast, rural students reported greater satisfaction with career guidance and stronger soft skills, possibly due to more supportive community environments that foster these skills (Islam et al., 2018).

5. Implications

These results highlight the need for customized career guidance interventions that consider regional variations and target specific behavioral challenges faced by students. For urban students, this might involve integrating stress management and anxiety reduction strategies into career guidance programs. For rural students, enhancing access to a broader range of career information and opportunities could help bridge the gap in exploration behaviors. In addition, interventions that take advantage of rural students' strengths, such as their higher levels of soft skills and community support, could further enhance their career decision-making processes.

Furthermore, the identification of different engagement profiles underscores the importance of personalized career guidance approaches that address the unique needs and circumstances of different student groups. By tailoring interventions to the specific behavioral profiles of students, career guidance programs can more effectively support students in making informed and confident career decisions.

6. Limitations

This study has several limitations that should be considered when interpreting the findings. First, while the sample was designed to capture a diverse range of socioeconomic and cultural backgrounds by including both urban and rural settings in Saudi Arabia, it may not fully represent the entire population of Saudi secondary school students. Additionally, the operationalization of career decision-making behaviors focused on specific behavioral traits, such as self-efficacy, anxiety, and soft skills. However, the study did not explore other potentially influential factors, such as socioeconomic status, family dynamics, or parental expectations, which are known to play critical roles in shaping students' career decisions (Aryani et al., 2021).

One of the limitations is that it is a cross-sectional study; hence, it highlights a situation that reflects, at a particular point in time, students' behaviors and attitudes. The other limitation is that it relies on self-reported data, given that questionnaires are used to collect information. Although the measures employed demonstrated high reliability and validity, self-reports may not fully encapsulate the complexity of students' experiences and behaviors. Furthermore, the generalizability of the study to other cultural or national contexts remains unverified.

7. Conclusions

Overall, this study provides valuable information on the complex interplay of behavioral traits, emotional states, and contextual factors in shaping career decision-making among Saudi secondary school students. Therefore, this study offers a multifaceted foundation for combining both cognitive and behavioral dimensions to improve the provision of career support services in Saudi schools. This will eventually develop into a highly skilled and adaptable workforce that is in line with the development imperatives of Vision 2030.

Declaration of Competing Interests

None.

References

Alamzeb, Ali, A., & Ullah, A. (2021). The Role of Teachers in Career Guidance of Students at Secondary Level in Pakistan. *Journal of Social Sciences Review*, *1*(2), 26-37. https://doi.org/10.54183/jssr.v1i2.9

Alamzeb, A. A. N., & Shah, S. (2021). Teacher involvement in career guidance and its impact on students' career preparation in Saudi Arabia. *Journal of Educational Research*, *45*(3), 345-358.

Anne, K., & et al. (2022). The impact of structured career guidance programs on students' career maturity and self-awareness. *Journal of Career Education*, *38*(1), 42-59.

Anne, R. B. J., & Samson, A. (2022). Career guidance and counseling services in schools: Enhancing career decision-making abilities. *International Journal of Career Development*, *12*(2), 101-116.

Aryani, F., Rais, M., & Arfandy, H. (2021). Development Need Analysis of U-Career Application in Choosing Department at Vocational High Schools. *Journal of Educational Science and Technology (Est)*, *7*(3), 316. https://doi.org/10.26858/est.v7i3.24705

Aurangzeb, Z. Q. F., & Yousaf, M. (2021). Culturally inclusive career guidance: Addressing challenges faced by Saudi students. *Journal of Multicultural Education*, *29*(1), 215-227.

Aziz, G., Waheed, R., & Alsaggaf, M. I. (2023). Investigating the Impact of Green Natural Resources and Green Activities on Ecological Footprint: A Perspective of Saudi Vision 2030. *Sustainability*, *15*(11), 8639. https://doi.org/10.3390/su15118639

Bolu-Steve, F. N., & Okesina, F. A. (2023). Need for Career Guidance in the Almajiri School System in Nigeria: Implication for in-School Adolescents. *Jurnal Kajian Bimbingan Dan Konseling*, *8*(1), 1-13. https://doi.org/10.17977/um001v8i12023p1-13

Cerrito, J. A., & Behun, R. J. (2021). Online Career Guidance Systems for PK-12 School Students: Compliments to a Comprehensive School Counseling Program. https://doi.org/10.5772/intechopen.95084

de Vet, H. D., Mokkink, L., Mosmuller, D., & Terwee, C. (2017). Spearman-Brown prophecy formula and Cronbach's alpha: different faces of reliability and opportunities for new applications. *Journal of Clinical Epidemiology*, *85*, 45-49. https://doi.org/https://doi.org/10.1016/j.jclinepi.2017.01.013

El-Sofany, H. F., & El-Seoud, S. A. (2020). The Implementation of Career and Educational Guidance System (CEGS) as a Cloud Service. *International Journal of Emerging Technologies in Learning (Ijet)*, *15*(20), 226. https://doi.org/10.3991/ijet.v15i20.16839

Gignac, G. E. (2014). On the inappropriateness of using items to calculate total scale score reliability via coefficient alpha for multidimensional scales. *European Journal of Psychological Assessment*, *30*, 130-139. https://doi.org/https://doi.org/10.1027/1015-5759/A000181

Hofstede, G. (2023). Cultural dimensions and career decision-making in collectivist societies: Insights from Saudi Arabia. *Cultural Impacts on Career Decisions*, 79-98.

Hulukati, M. P. R., & Dewi, I. (2022). The role of career guidance in enhancing students' self-awareness and decision-making abilities. *Career Development Quarterly*, *68*(1), 54-69.

Islam, S. R. M., & Al-Mutairi, A. (2018). Cultural and familial influences on career aspirations in Saudi Arabia: Implications for career guidance. *Journal of Educational Psychology and Counseling*, *7*(3), 213-225.

Lei, Z. (2006). Inter-item consistency reliability evaluation of comprehensive work ability index scales. *Journal of Occupational Health and Damage*.

Muthén, L. K., & Muthén, B. O. (2018). *Mplus User's Guide*. Muthén & Muthén.

Naseem, S., & Dhruva, K. (2017). Issues and challenges of Saudi female labor force and the role of Vision 2030. *International Journal of Economics and Financial Issues*, *7*(4), 23-27.

Osipow, S. H. C. C. G., & Barak, A. (1996). Career Decision-Making Anxiety Scale.

Panjaitan, R. A. (2023). Students' Perceptions of Career Guidance Services Towards the Selection of College Majors. *Scaffolding Jurnal Pendidikan Islam Dan Multikulturalisme*, *5*(1), 322-336. https://doi.org/10.37680/scaffolding.v5i1.2505

Polit, D., Beck, C., & Owen, S. (2007). Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Research in Nursing & Health*, *30*(4), 459-467. https://doi.org/https://doi.org/10.1002/NUR.20199

Polit, D., & Beck, C. T. (2006). The content validity index: are you sure you know what's being reported? Critique and recommendations. *Research in Nursing & Health*, *29*(5), 489-497. https://doi.org/https://doi.org/10.1002/NUR.20147

Rammstedt, B., & John, O. P. (2007). Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *Journal of Research in Personality*, *41*(1), 203-212. https://doi.org/10.1016/j.jrp.2006.02.001

Schalkwyk, I. V., Streicher, C., Naidoo, A. V., Rabie, S., Jäckel-Visser, M., & Berg, F. v. d. (2022). Teacher Evaluation of a Self-Directed Career Guidance Intervention for South African Secondary School Learners Amidst Severe COVID-19 Restrictions. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.854748

Schwarzer, R., & Jerusalem, M. (2010). General Self-Efficacy Scale.

Stumpf, S. A. C. S. M., & Hartman, K. (1983). Career Exploration Survey: Development and validation of a measure. *Journal of Vocational Behavior*, *22*(3), 191-226.

Taylor, K. M., & Betz, N. E. (1983). Applications of self-efficacy theory to the understanding and treatment of career indecision. *Journal of Vocational Behavior*, *22*(1), 63-81. https://doi.org/10.1016/0001-8791(83)90006-4