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An application of Career Decision Self-Efficacy Scale – Short Form among Vietnamese medical students

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Abstract:

BACKGROUND: Choosing the right career can be one of the most crucial decisions in one's life. Nevertheless, career decisions are filled with uncertainty and daunting challenges. Therefore, finding ways to assist students to better understand and cope with these difficult career decisions is a worthy topic of research. This research was aimed to examine the career decision-making self-efficacy of medical students' using a version of the Career Decision Self-Efficacy Scale-Short Form (CDSES-SF) that was translated and adapted with permission to the Vietnamese context.

MATERIALS AND METHODS: A descriptive study was carried out at Can Tho University of Medicine and Pharmacy with a total number of 326 questionnaires distributed to freshmen students and 314 questionnaires collected back. Exploratory factor analysis (EFA) was used to finalize the structure of the Vietnamese Career Decision Self-Efficacy Scale- Short Form (VCDSES-SF).

RESULTS: EFA resulted in the five named factors or subscales of the VCDSES-SF with 23 items: Occupational Information and Planning (7 items), Self-Assessment and Career Readiness (6 items), Confidence to Change Careers (3 items), Fit My Lifestyle and Interests (4 items), and Goal Selection (3 items).

CONCLUSIONS: A number of empirical studies undertaken in various cultural contexts have found different models of career decision-making self-efficacy measurement. The present study found that although the VCDSES-SF is somewhat different than the original CDSES-SF, the resultant measure is a reliable and effective tool that can be used within the Vietnamese context.

Keywords:

Career decision-making, medical students, self-efficacy, Vietnam

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Introduction

Choosing the right career can be one of the most crucial decisions in one's life. Career decisions are filled with uncertainty and daunting challenges. Therefore, finding ways to assist students to better understand and cope with these difficult career decisions is a worthy topic of research. A number of theorists have developed models which can help us to understand the complexities of career decision-making. Super posits that career selection and individual growth are rooted fundamentally in complex

interactions between one's self-concept and their surroundings.^[1] In Super's view, human development progresses through five distinct stages: Growth, Exploration, Establishment, Maintenance, and Disengagement. According to his model, it is in the Exploration Stage of development (ages 15–24 years) that one explores and comes to know the "self" and its vocational preferences. This coming to know the "self" occurs through engaging in activities such as school, hobbies, and recreation, which, over time, lead to the realization of one's preferred vocational interests, preferences, and perhaps even specific occupational goals.

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From a social cognitive perspective, Albert Bandura posits the notion of “self-efficacy.”^[2] According to Bandura, self-efficacy refers to the judgments one makes concerning their ability to successfully carry out certain actions. He notes that people are more likely to engage in certain activities to the extent that they feel confident in their ability to carry out those activities. Furthermore, he proposes that a person’s sense of self-efficacy stems from four sources of information: personal performance, vicarious or indirect experience, social persuasion, and physiological and emotional factors (i.e., how one feels about performing a task). In light of Bandura’s concept of self-efficacy, it follows that people are likely to be guided to some degree by their self-efficacy beliefs when choosing a future career.

Career decision self-efficacy was initially defined by Karen Taylor and Nancy Betz as the degree a person believes they can successfully complete tasks involved in making significant career decisions.^[3] Furthermore, they designed and published the Career Decision Self-Efficacy Scale (CDESES) as a measure to assist with research in the field of career decision-making and as a practical tool to assist career counselors in their work supporting people through the challenges of making difficult career decisions. Since its inception, the CDESES has served to increase knowledge and understanding of the process of career decision-making.^[3] In addition, Betz and Luzzo note that the study of career decision self-efficacy has attracted considerable attention from researchers owing to its positive contribution in assisting people to make successful career decisions by identifying hindrances to effective career decision.^[4]

Vietnam has only eight physicians per 10,000 population; whereas, Singapore reports 23 physicians per 10,000 population, the United States 26, the United Kingdom 28, and Germany 42, according to statistics compiled by the World Health Organization.^[5] To redress the relative shortage of medical practitioners in Vietnam, the government established the Can Tho University of Medicine and Pharmacy (CTUMP) in December 2002. CTUMP is the only public medical university responsible for the education and training of health care professionals in the Mekong Delta region, in particular, and for Vietnam, in general. CTUMP’s primary mandate is to educate and train students at the bachelor level in the following eight fields of study: General Medicine, Odonto-Maxillo Stomatology, Pharmacy, Nursing, Traditional Medicine, Public Health, Preventive Medicine, and Laboratory Medicine Technique. Most CTUMP graduates will supplement the health care workers in the region of 13 provinces.

The purpose of this research was to examine the career decision-making self-efficacy of medical students’ using

a version of the CDESES-Short Form (CDESES-SF) that was translated and adapted with permission to the Vietnamese context. It is believed that the application of the resulting Vietnamese Career Decision-Making Self-Efficacy Scale-Short Form (VCDESES-SF) will provide career and guidance counselors in Vietnam with another reliable tool with which to assist students making difficult career decisions. Furthermore, armed with the findings, the CTUMP Admission Board will be better able to select students more suited to careers in health care.

Materials and Methods

Study design and setting

This descriptive study was performed at CTUMP, Can Tho city, Vietnam with the total population of freshmen students in the academic year 2016–2017 (1349 students).

Study participants and sampling

Stratified sampling was used to select 1st-year CTUMP students from eight fields of study. Subsequently, proportional simple random sampling was used to select the final list of 326 participants: General Medicine ($n = 215$), Odonto-Maxillo Stomatology ($n = 16$), Pharmacy ($n = 16$), Traditional Medicine ($n = 21$), Preventive Medicine ($n = 19$), Public Health ($n = 10$), Nursing ($n = 14$), and Laboratory Medicine Technique ($n = 15$).

Data collection tool and technique

The CDESES-SF has been used in several countries around the world, such as Turkey,^[6] Italy,^[7] France,^[8] China,^[9] Australia and South Africa.^[10] The CDESES-SF consists of 25 items divided into five subscales: Self-appraisal (items 5, 9, 14, 18, 22), Occupational Information (items 1, 10, 15, 19, 23), Goal Selection (items 2, 6, 11, 16, 20), Planning (items 3, 4, 12, 21, 24) and Problem Solving (items 7, 8, 13, 17, 25). Respondents are asked to rate their level of confidence in completing specific career decision-making tasks using the following five-point Likert scale: No confidence at all (1), Very little confidence (2), Moderate confidence (3), Much confidence (4), and Complete confidence (5).

The researcher got permission from the publisher of the CDESES-SF, Mind Garden Inc., to translate the measure into Vietnamese and use it in this study. In consultation with a number of English teachers at CTUMP, the researcher translated the CDESES-SF into Vietnamese. The translated CDESES-SF (VCDESES-SF) retained the same structure as the original measure with 25 items loaded onto the same five subscales. Furthermore, as in the CDESES-SF, respondents are asked to rate their level of confidence relative to completing a number of career decision tasks using the same five-point Likert scale.

The interpretations of student mean scores were derived using Best's^[11] evaluation criteria as follows:

$$\frac{\text{Upper score} - \text{Lower score}}{\text{Number of levels}} = \frac{5 - 1}{5} = 0.8$$

Table 1 shows the levels of self-efficacy based on the obtained derived score.

The completed VCDSES-SF was pilot tested among 30 CTUMP students. The resultant overall coefficient of reliability was 0.945. Therefore, the VCDSES-SF was deemed sufficiently reliable for use in the present study.

Ethical consideration

The study proposal was approved by Mahidol University's committee on September 6, 2017 and the authors got permission from CTUMP's Rector for the data collection on December 28, 2017. Participants were informed of the purpose and objectives of the study and given an opportunity to ask questions. Participants indicated their understanding and voluntary participation in the study by signature.

Results

Sample characteristics

A total number of 326 questionnaires were distributed and 314 questionnaires were collected back which accounted for 96.3% of the total sample. The majority (91.8%) of respondents ranged from 19 to 20 years of age, compared with 92.4% of the CTUMP population. More females (61.8%) responded than did males (38.2%). General Medicine accounted for 65.6% of respondents, compared with 69.6% in the general student population. The proportion of respondents in other fields of study was: Traditional Medicine (6.7%), Preventive Medicine (6.4%), Pharmacy (5.1%), Odonto-Maxillo Stomatology (5.1%),

Laboratory Medicine Technique (4.8%), Nursing (4.1%), and Public Health (2.2%).

Cronbach's alpha of the Vietnamese Career Decision Self-Efficacy Scale- Short Form

Table 2 presents the Cronbach's alpha coefficient of reliability for the five subscales of VCDSES-SF: Self-appraisal = 0.638, Occupational Information = 0.694, Goal Selection = 0.690, Planning = 0.763, and Problem Solving = 0.703. Also as noted in Table 2, two items were removed from the Problem Solving subscale due to lower than acceptable corrected item-total correlations (<0.3). Hence, there are only 23 items left in the VCDSES-SF.

Level of self-efficacy of the sample

CTUMP students were found to have a high self-efficacy with regard to activities of Self-appraisal, such as Assessing their abilities ($\bar{X} = 3.62$), Determining what his/her ideal job would be ($\bar{X} = 3.83$), Deciding what he/she values most in an occupation ($\bar{X} = 3.64$), Figuring out what he/she is and is not ready to sacrifice to achieve his/her career goals ($\bar{X} = 3.73$), and Determining the kind of lifestyle he/she would like to live ($\bar{X} = 3.87$).

Similarly, self-efficacy scores were high relative to decision tasks on the Occupational Information subscale, such as Searching the Internet for interest job information ($\bar{X} = 3.68$), Talking with a person already employed in the field he/she is interested in ($\bar{X} = 3.63$) and finding information about graduate or professional schools ($\bar{X} = 3.45$). Only moderate levels of self-efficacy were reported by students on the remaining two items of the occupational information subscale: Finding out employment trends for an occupation over the next ten years ($\bar{X} = 3.18$) and finding the average yearly earnings of people in an occupation ($\bar{X} = 3.11$).

Respondents reported high self-efficacy on four of the five Goal Selection items: Selecting one major from a list of potential majors ($\bar{X} = 3.73$), selecting one occupation from a list of potential occupations ($\bar{X} = 3.66$), choosing a career that will fit his/her preferred lifestyle ($\bar{X} = 3.65$), and choosing a major or a career that will fit his/her interests ($\bar{X} = 3.83$). Only moderate self-efficacy was reported on the remaining item: Making a career decision and then not worrying about whether it was right or wrong ($\bar{X} = 3.10$).

Table 1: Levels of self-efficacy

Level	Self-efficacy score	Meaning
5	4.21-5.00	Highest
4	3.41-4.20	High
3	2.61-3.40	Moderate
2	1.81-2.60	Low
1	1.00-1.80	Lowest

Table 2: Cronbach's alpha of the Vietnamese Career Decision Self-efficacy Scale-short form subscales

Variables	Factors	Cronbach's alpha	Total items	Number of items left	Number of items deleted
Self-efficacy	Self-appraisal	0.638	5	5	0
	Occupational information	0.694	5	5	0
	Goal selection	0.690	5	5	0
	Planning	0.763	5	5	0
	Problem solving	0.703	5	3	2
Total items in the questionnaire			25	23	2

Results for the planning subscale revealed high student self-efficacy on only one item: “Prepare a good resume” ($\bar{X} = 3.48$). Student responses on the other four planning items showed only moderate levels of self-efficacy: Make a plan of your goals for the next 5 years ($\bar{X} = 3.36$), Determine the steps to take if you are having academic trouble with an aspect of your chosen major. ($\bar{X} = 3.33$), Identify employers relevant to your career possibilities. ($\bar{X} = 3.22$) and successfully manage the job interview process ($\bar{X} = 3.15$).

Finally, student responses on all but two of the problem-solving items showed low to moderate levels self-efficacy: Changing majors if he/she does not like his/her first choice ($\bar{X} = 2.44$), Changing occupations if he/she is not satisfied with the one he/she enters ($\bar{X} = 2.53$), and Identifying some major or career alternatives if he/she is unable to get his/her first choice ($\bar{X} = 2.86$). Items I7 “Determine steps to take if you’re having academic trouble with your major” and I8 “Persistently work at your major or career goal even when you get frustrated” were eliminated from the final Problem Solving subscale due to their low correlation with the other items.

Exploratory factor analysis

Exploratory factor analysis (EFA) was used to determine the factor structure of the VCDSF-SF. Items with a factor loading of <0.35 were dropped from the measure, as recommended by Tabachnick and Fidell.^[12] Furthermore, based on Streiner’s^[13] recommendation, only factors of three items or more, and which account for at least 50% of the factor variance, were retained.

Table 3 presents the rotated factor solution resulting from the EFA of the VCDSF-SF. As indicated, an analysis of sampling adequacy reveals that the data are suitable for factor analysis, (Keiser-Meyer-Olkin (KMO = 0.890 > 0.5). Bartlett’s test of Sphericity ($\chi^2 = 2.366E3, P < 0.001$) further supports the use of EFA to ascertain a contained factor structure.

As with the original CDSES-SF, EFA in the present study reveals five factors or subscales. The total variance explained by the five factors solution was equal to the initial Eigenvalues column (54.44% $> 50\%$), meaning that the variation explained by the initial solution was kept. Therefore, the methods for extraction were acceptable for this scale. As noted previously, two items from the CDSES-SF Problem-Solving subscale (#7 and #8) did not meet the inclusion threshold (>0.30) and thus were not included in the final VCDSF-SF.

Table 3 shows the items that loaded onto the five rotated factors = the item loadings range from 0.354 to 0.829.

Table 4 presents the five named factors or subscales of the VCDSF-SF: Occupational Information and Planning, Self-Assessment and Career Readiness, Confidence to Change Careers, Fit My Lifestyle and Interests, and Goal Selection.

Although many of the CDSES-SF items loaded on their corresponding Vietnamese subscales, the pattern of items in some cases was sufficiently different as to necessitate changing the names of some of the Vietnamese subscales to more accurately reflect their item content:

“Occupational Information and Planning” (F_1), includes items pertaining to the collection of information students should consider when thinking and planning their future careers, (items: I3, I10, I15, I19, I21, I23 and I24);

Table 3: Rotated factor structure of the Vietnamese Career Decision Self-efficacy Scale-short form

Items (I)	Factor loadings				
	1	2	3	4	5
I3	0.354				
I10	0.633				
I15	0.501				
I19	0.557				
I21	0.728				
I23	0.661				
I24	0.703				
I4		0.547			
I5		0.704			
I12		0.563			
I14		0.437			
I16		0.588			
I18		0.491			
I13			0.800		
I17			0.829		
I25			0.775		
I9				0.400	
I11				0.745	
I20				0.765	
I22				0.422	
I1					0.621
I2					0.706
I6					0.637

KMO=0.890, $P=0.00$, Total variance explained=54.44%.
KMO=Kaiser-Meyer-Olkin

Table 4: Vietnamese Career Decision Self-efficacy Scale-short form Subscales

Subscales	Items
F_1 - Occupational Information and Planning	I3, I10, I15, I19, I21, I23, I24
F_2 - Self-assessment and career readiness	I4, I5, I12, I14, I16, I18
F_3 - Confidence to change careers	I13, I17, I25
F_4 - Fit my lifestyle and interests	I9, I11, I20, I22
F_5 - Goal selection	I1, I2, I6

“Self-Assessment and Career Readiness” (F_2), includes items which require students to accurately assess their abilities, appreciate what they value in a career, and prepare a resume, (items: I4, I5, I12, I14, I16, and I18);

“Confidence to Change Careers” (F_3), consists of items which have the respondents reflect on their level of confidence to change fields of study should they not like their first choice or if their first field of study was not available, (items: I13, I17, and I25);

“Fit My Lifestyle and Interests” (F_4), includes items that ask respondents to rate their level of confidence choosing a career that is likely to fit their values and lifestyles, (items: I9, I11, I20 and I22); and

“Goal Selection” (F_5), contains items that rate the respondents’ confidence in finding information about their prospective careers and select a goal from a list of options, (items: I1, I2, and I6).

After identifying the items to be included in the VCDESES-SF, the researcher formed factor equations based on component scores in order to investigate the influence of observed variables on the respondent students’ career decisions in health sciences, which resulted in component score coefficient matrices as follows:

$$F_1 \text{ (Occupational Information and Planning)} = 0.037I3 + 0.246I10 + 0.207I15 + 0.211I19 + 0.301I21 + 0.270I23 + 0.284I24$$

$$F_2 \text{ (Self-Assessment and Career Readiness)} = 0.259I4 + 0.377I5 + 0.273I12 + 0.161I14 + 0.305I16 + 0.230I18$$

$$F_3 \text{ (Confidence to Change Careers)} = 0.405I13 + 0.415I17 + 0.376I25$$

$$F_4 \text{ (Fit My Lifestyle and Interests)} = 0.175I9 + 0.441I11 + 0.459I20 + 0.204I22$$

$$F_5 \text{ (Goal Selection)} = 0.417I1 + 0.459I2 + 0.383I6.$$

Discussion

The purpose of this study was to investigate the career decision-making self-efficacy of Vietnamese medical students. For this purpose, the CDESES-SF, developed by Betz, N. E. and Taylor, K. M.^[14] was translated into Vietnamese and adapted for use in this study. Consistent with previous studies,^[8,9,15,16] the reliability of the full-scale Vietnamese version of the CDESES-SF was found to be the same as that reported by Betz and Luzzo.^[4] That is, both studies found the Cronbach alpha coefficient of reliability of the full scale to be 0.94. However, the internal consistency of the five subscales of the translated VCDESES-SF before factor analysis fell only within the moderate-to-high range, which was somewhat lower than those reported by Betz

and Luzzo:^[4] Self-appraisal ($\alpha = 0.638/0.73$ [Alpha of VCDESES-SF/CDESES-SF]), Occupational Information ($\alpha = 0.694/0.78$), Goal Selection ($\alpha = 0.690/0.83$), Planning ($\alpha = 0.763/0.75$), and Problem Solving ($\alpha = 0.703/0.81$). Nevertheless, the reliability of the Vietnamese version of the CDESES-SF was deemed acceptable for use as a measure to assess career decision-making self-efficacy in the present study.

The formation of factor equations based on the student respondents’ career decision-making self-efficacy component scores indicated that all twenty-three items of VCDESES-SF had positive effects on the students’ decisions when selecting a field of study in health sciences at CTUMP.

The final VCDESES-SF included only 23 of the 25 items contained in the Betz, N. E. and Taylor, K. M.^[14] CDESES-SF. Item analysis of the translated measure after the pilot study resulted in the removal of two items from the Problem Solving scale: #7 and #8. Furthermore, the pattern of items extracted through EFA was different than the pattern of items comprising the five subscales of the Betz, N. E. and Taylor, K. M.’s^[14] original measure, which necessitated the renaming of the factors to better align them with the factor content.

The fact that the present study resulted in a Vietnamese measure of career decision-making self-efficacy that differed from the original is consistent with the findings of Gaudron who reported a four-factor 18-item solution based on French university students;^[8] Chaney *et al.* who also found a four-factor solution based on the responses of African American college students;^[16] and finally, Hampton who reported finding only a three-factor 13 item solution based on Chinese college students.^[9]

Limitation and recommendation

The research was a well-designed study with rational sample size and a standardized questionnaire. However, the questionnaire was carried out with a specific group of students in only a medical university context, it may not be generalized to other groups of students. To the authors’ understanding, there is no any Vietnamese version of CDESES-SF at the time of this study, therefore, there were no other findings in Vietnam to compare. Further studies with other groups of students in various universities should be conducted to help confirm and validate the Vietnamese CDESES-SF.

Conclusions

Career decision-making self-efficacy, that is the degree to which a person is confident in making important

career decisions, has been found to be an important determinant in achieving a successful career. Self-efficacy is obviously more or less influencing on career decision making during one's lifetime. Measuring career decision self-efficacy has attracted extensive research attention because of its significance in relation to educational and career outcomes.^[6-10,17] However, a number of empirical studies undertaken in various cultural contexts have found different models of career decision-making self-efficacy measurement. The present study found that although the VCDSSES-SF is somewhat different than the original CDSSES-SF, the resultant measure is a reliable and effective tool that can be used within the Vietnamese context. Nevertheless, the VCDSSES-SF needs to be applied and studied in a number of other settings within Vietnam to confirm its suitability and adaptation in the Vietnam context.

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Ethical consideration

The study proposal was approved by Mahidol University's committee on September 6, 2017 and the authors got permission from CTUMP's Rector for the data collection on December 28, 2017. An informed consent attached to the questionnaires to clarify the objectives of the study was given to each participant for his/her agreement before they answered the questionnaires. All information collected from the participants were kept confidential and anonymous.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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