

Intended Location of Future Career Practice among Graduating Medical Students: Perspective from Social Cognitive Career Theory in Nepal

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ABSTRACT

Background: Medical workforce shortages and mal-distributions world-wide make understanding how, where and what our future doctors wish to practice is increasingly important. Understanding of factors such as available infrastructure, provision of incentives and many others influences the decisions of doctors to leave or to stay. Therefore the strategies effective for retention, is imperative in conducting the study based on a sound theoretical framework in predicting future medical workforce needs. The study used the theoretical framework of Social Cognitive Career Theory to identify the predictors on future practice location.

Methods: The study was cross-sectional descriptive in design targeting the Nepalese medical students in the final year and doing internships in Nepal. Anonymous self administered questionnaire was distributed among 480 students but 393 students were involved due to non response and incompleteness. Findings of the study were presented in frequency tables for univariate descriptive analysis and bivariate findings were presented by cross tabulation.

Results: About two thirds 259 (65.9%) of the participants had chosen within country location for future practice. Among those who had chosen within country choice, about an equal percentage of the respondents had chosen rural 131 (50.8%) and urban 128 (49.2%) location. Among those who had chosen within country for future practice location, less than one fifth of the participants had chosen private sector for future practice.

Conclusions: Majority of the medical graduates wish to practice within country location. Most of which chose public sector for future practice. None of the SCCT construct had any significant association within country location.

Keywords: Choice of future practice; choice of location; medical students; socio cognitive career theory.

INTRODUCTION

There is a global crisis in the health workforce, expressed in acute shortages and mal-distribution of health workers, geographically and professionally.¹ This massive global shortage, though imprecise quantitatively, is estimated at more than four million workers.² To respond to this crisis, countries should first identify their health problems in order to properly address their health worker needs, retention, recruitment and training, if they are to come close to reaching the Millennium Development Goals (MDGs) for health.³

A major challenge in the new millennium is the retention of health workers, and understanding of factors that influence the decisions of health workers to leave or to stay, and the strategies effective for retention, is imperative.⁴ Social Cognitive Career Theory (SCCT) is anchored in Bandura's self-efficacy theory which postulated a mutually influencing relationship between people and the environment. SCCT offers three segmental models that have different emphasis centring around three core variables, which are self-efficacy, outcome expectations, and personal goals.^{5,6}

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METHODS

The study was cross-sectional and descriptive in design based on the theoretical framework of SCCT in order to identify constructs of SCCT as predictors for choice of future practice location among graduating medical students. It was conducted in public and private medical colleges run by or under the affiliation of Tribhuvan University and Kathmandu University in Nepal in the year 2011. Medical students (for quantitative) as well as recently graduated young doctors (for qualitative) were involved in the study as study population. List of private and public medical colleges in which medical students either studying in final year or doing internship under Bachelor of Medicine and Bachelor of Surgery (MBBS) program or those who had recently graduated was the sampling frame. We included ten medical colleges in the sampling frame out of which four were selected randomly from which 480 sampled students were enumerated (Table 1). Sample size was calculated by using the formula $z^2 p q / L^2$ (For $p=50$, $q=50$, $L= 5\%$ and response rate of 80%, Sample size will be 480). Hand delivered, paper based self administered anonymous questionnaire was distributed to 480 students but only 393 respondents were included in the study due to non response and incompleteness. Three in-depth interviews were conducted among graduated young doctors by using interview guidelines to gather qualitative information. Collected data was entered in epi-data version 3.1 and transferred to SPSS version 16 for further analysis. The SCCT construct variables were dichotomized based on the composite score of six items for self efficacy, eight items for professional outcome expectation, four items for lifestyle outcome expectation and six items for goal mechanism.

Test of significance for association was assessed by using odds ratio with 95% confidence interval and p-value of <0.05 . Variables which were found to be significant for association with choice of future practice location in bivariate analysis were further analyzed through logistic regression.

RESULTS

Two third of the participants were male and more than half were of below 25 years of age with mean age of 24.49 years and standard deviation of 1.59 years. Almost all of the respondents were unmarried and about two third of the respondents were of Brahmin and Chhetri ethnic group followed by one fourth of the Janajati, Dalits and ethnic minorities. About two third of the participants were of rural birth place while as 231 (58.8%) and 210 (53.3%) of them were of place of rearing and current permanent address in rural location respectively.

About two third of the participants had completed their secondary level education from private school where as more than two third had completed the higher secondary education from private college. Less than one third of the participants had scored distinction in secondary level education whereas near to same of the respondents had scored distinction in higher secondary level education.

About two thirds of the participants had chosen within country location for future practice. Among those who had chosen within country choice, about equal percentage of the respondents had chosen rural and urban location for their future practice after being graduated. Among those who had chosen within country for future practice location, less than one fifth of the participants had chosen private sector for future practice after being graduated (Table 2).

Four constructs of the social cognitive career theory were computed from the constituents of the each constructs. Based on ordinal score measured in Likert scale, constructs of the theory was assessed in to two broad categories: poor level of confidence and better level of confidence. On self efficacy level (minimum 6-maximum 30 score) about half (50.12%) of the participants showed the poor self efficacy belief (less than 21 score), with median score of 21 and inter quartile range of 17-25. About the level of belief on professional outcome expectation (minimum 8 score - maximum 40 score) more than half (53.18%) of the respondents expressed poor level (less than 32 score) of confidence on professional outcome expectation with median score of 32 and inter quartile range of 29-35.

Table 1. Respondents from sampled medical colleges

S.N	Name of colleges	Final years students		Interns students		Total Sample drawn
		Distributed	Returned	Distributed	Returned	
1.	Maharajgunj Medical Campus, Maharajgunj	40	33	41	40	73
2.	Universal Medical College, Bhairahawa	78	64	62	60	124
3.	Nepal Medical College, Jorpati	68	46	80	71	117
4.	College of Medical Sciences, Bharatpur	60	54	49	40	94
TOTAL SAMPLE		246	197	234	201	408*

*Among 408 responses fifteen were excluded from the study due to incompleteness.

Regarding the lifestyle outcome expectation (minimum 4 score - maximum 20 score) about one third of the study population expressed the better (more than 16 score) level of confidence on lifestyle outcome expectation with median score of 16 and inter quartile range of 14-18. About the level of confidence on goal mechanism (minimum 6 score - maximum 30 score) more than one fifth of the respondents showed the better (more than 24 score) level of confidence on goal mechanism with median score of 24 and inter-quartile range of 23 -27 (Table 3).

Table 2. Choice of future practice location for study population.

Choice of location	Numbers	Percentage
Within country and out of country choice (n=393)		
Within country	259	65.9
Out of country	134	34.1
Urban and rural choice (n=260)		
Urban location	128	49.2
Rural location	132	50.8
Public and Private Choice (n=260)		
Public sector	213	82
Private Sector	47	18

Table 3. Variables related to SCCT constructs.

SCCT constructs	Numbers (n=393)	Percentage
Level of self efficacy(6-30)		
Poor confidence (up to 21)	197	50.12
Better confidence (>21)	196	49.88
Median score(IQR)	21 (17-25)	
Level of Professional outcome expectation(8-40)		
Poor confidence (Up to 32)	209	53.18
Better confidence (>32)	184	46.82
Median score(IQR)	32 (29-35)	
Level of lifestyle outcome expectation(4-20)		
Poor confidence (up to 16)	245	62.34
Better confidence (> 16)	148	37.66
Median score(IQR)	16 (14-18)	
Level of confidence on goal mechanism(6-30)		
Poor confidence (up to 24)	288	73.28
Better confidence (>24)	105	26.72
Median score(IQR)	24 (23-27)	

Four constructs of Social cognitive career theory viz. self efficacy, professional outcome expectation, lifestyle outcome expectation and goal mechanism were assessed for their association with within country choice amongst which none were significant (Table 4).

Table 4. Association of SCCT constructs with choice of country (n=393).

SCCT Constructs	Out of country n (%)	Within country n (%)	p-value	Odds Ratio	CI (95%)
Self efficacy score(6-30)					
Poor confidence (≤ 21 score)	63(32)	134(68)	-	-	-
Better confidence(> 21 score)	71(36.2)	125(63.8)	0.375	0.828	0.545 -1.257
Prof. outcome expectation (8- 40)					
Poor confidence (≤ 32 score)	67(32.1)	142(67.9)	-	-	-
Better confidence (> 32 score)	67(36.4)	117(63.6)	0.363	0.824	0.543 -1.251
Life style outcome expectation (4-20)					
Poor confidence (≤ 16 score)	82(33.5)	163(66.5)	-	-	-
Better confidence (> 16 score)	52(35.1)	96(64.9)	0.736	0.929	0.605-1.427
Goal mechanism(6-30)					
Poor confidence (≤ 24 score)	69(33.8)	135(66.2)	-	-	-
Better confidence (> 24 score)	65(34.4)	124(65.6)	0.906	0.975	0.642-1.480

Four constructs of social cognitive career theory viz. self efficacy, professional outcome expectation, lifestyle outcome expectation and goal mechanism were assessed for their association with public sector choice, amongst which only poorer goal mechanism was more likely to chose private sector location. This was the only predictor found to be statistically significant (Table 5). Among four constructs of Social cognitive career theory only two

viz. self efficacy and professional outcome expectation were found to be statistically significant as predictors. Thus participants having poor self efficacy were slightly likely to choose urban location for placement. Likewise participants having poor professional outcome were more likely to choose urban location for placement (Table 6).

Table 5. Association of SCCT constructs with choice of sector (n=260).

SCCT construct variables	Private sector n (%)	Public sector n (%)	p-value	Odds Ratio	CI (95%)
Self efficacy score(6-30)					
Poor confidence(≤21 score)	29(21.6)	105(78.4)	-	-	-
Better confidence(>21 score)	18(14.3)	108(85.7)	.123	1.657	0.868-3.163
Professional outcome expectation (8- 40)					
Poor confidence (≤32 score)	31(21.7)	112(78.3)	-	-	-
Better confidence (> 32 score)	16(13.7)	101(86.3)	0.09	1.747	0.903-3.382
Life style outcome expectation(4-20)					
Poor confidence (≤16 score)	29(17.8)	134(82.2)	-	-	-
Better confidence (> 16 score)	18(18.6)	79(81.4)	0.87	0.95	0.496-1.820
Goal Mechanism(6-30)					
Poor confidence (≤24 score)	31(23)	104(77)	-	-	-
Better confidence (> 24 score)	16(12.8)	109(87.2)	0.03	2.031	1.049-3.931

Table 6. Association of SCCT constructs with location choice (n=260).

SCCT Construct Variables	Urban location n(%)	Rural location n(%)	p-value	Odds Ratio	CI (95%)
Self efficacy score (6-30)					
Poor confidence(≤21 score)	74(55.2)	60(44.8)	-	-	-
Better confidence(> 21 score)	54(42.9)	72(57.1)	0.046	1.644	1.007-2.685
Prof. outcome expectation (8- 40)					
Poor confidence (≤32 score)	82(57.3)	61(42.7)	-	-	-
Better confidence (> 32 score)	46(39.3)	71(60.7)	0.004	2.075	1.262-3.412
Life style outcome expectation (4-20)					
Poor confidence (≤16 score)	83(50.9)	80(49.1)	-	-	-
Better confidence (> 16 score)	45(46.4)	52(53.6)	0.480	1.199	0.725-1.984
Goal mechanism (6-30)					
Poor confidence (≤24 score)	68(50.4)	67(49.6)	-	-	-
Better confidence (> 24 score)	60(48)	65(52)	0.711	1.100	0.676-1.789

DISCUSSION

About two thirds (66.9%) of the participants were male, this finding reflects the gender wise disproportionate access to medical education. Moreover it is also consistent with the findings of Nepal living standards survey 2010/2011 which showed that general literacy rate among male is 71.6% while as that of female is 44.5%.¹⁰ About two thirds (64%) of the respondents were found to be from rural place of birth which may be due to the higher proportion (83%) of general population residing in rural location as per the preliminary findings of census 2068.¹¹ Around two thirds (65.9%) of the participants had chosen the within country location for future practice as it was similar with the findings from the study of Nick Simon's Institute and Institute

of Medicine in which 63.1% of the graduates were found to be working within Nepal during the period of 2008 to 2010.¹

Rural place of birth, rural place of rearing, and rural located permanent address were found to be associated with the choice of within country location for future practice among various demographic variables. The findings were found to be consistent with the findings from the study done by Institute of medicine and Nick Simon's Institute that location of high school education and birth place might independently impact the likelihood of remaining in Nepal.¹

SCCT construct variables were not found to be significant with choice of within country location.

Public school for secondary education and public college for higher secondary level education were also found to be associated with within country choice, this may be due to the low level of confidence on self-efficacy among the participants who were from public school. Rural location for secondary and higher secondary education were also found to be associated with within country choice this may be due to poor access to information about abroad opportunities having with the respondents from rural schooling background. I.Sc. as higher secondary level education, and non distinction score in higher secondary level education were found to be associated with the within country choice for future practice. A consistent finding from the study of Nick Simon's institute shows the association of rural location of previous education with within country choice.¹

In qualitative findings of the study it was found that major factors for choosing out of country location were financial and life style related factors. In an in-depth interview one of the recently graduated doctors preparing for United States Medical License Examination stated that *"we desired to earn both money and post graduation in the subject of our interest at the same time which is less possible in Nepal so we have to struggle to go abroad to exchange hard labor with money and qualification at same time"*.

Interestingly it was seen that more than four among five (82%) of the participants had chosen public sector for future practice. As nearly half of the participants were found to be studying on scholarship of the Ministry of education so serving in the country for two years was a mandate.

Rural located permanent address was near to two times more likely to be associated with choosing public sector. This finding is partially consistent with the findings from "A study on professional expectation of medical students in Angola, Guinea Bissau and Mozambique in 2011" which showed that 44.4% of the medical students were interested to work in public sector of which around two thirds (63.4%) were from rural located permanent address.⁷

Secondary education from public school, rural location of secondary school, non distinction score in secondary level education, Public College for higher secondary education and rural location of higher secondary education were found to be associated. Among these findings rural location of secondary and higher secondary education were also found to be associated in a south African study among medical students entitled "preference of rural practice among graduating medical students in South Africa".⁸

Other factors for doctors unwilling to practice in public sector were clearly stated in the statement given by a recent medical graduate, *"Frequent transfer, political interferences in decision making, low wages and unavailability of diagnostic facilities makes us frustrated"*. This statement reveals the non-supportive working environment in public sector and frustration among young doctors due to existing working environment in public sector. But another aspects of the recently graduated doctors regarding public sector choice was clearly mentioned in his own statement as: *"Training opportunities, independent decision making opportunities, rapport with high profile district authority (like Chief District Officer, Local Development Officers etc) and social respect while working in remote district motivated me to work here"*. Though respondents had better confidence level on all constructs of SCCT in an aggregate, only one construct i.e. goal mechanism was found to be associated with public sector choice. Since no previous studies were available on this issue by using SCCT framework it was difficult to compare with other literature.

Contradictory findings of the study was that, around equal number of the respondents had chosen the urban and rural location for future practice but in the findings of Nick Simon's institute it was found that only one among three graduates were found as working in out of Kathmandu valley.

In the current study, rural place of birth, rural place of rearing and rural permanent address were found to be statistically significant for association with rural location choice. The findings were consistent with the findings of a USA based study in 1974 entitled "Choice of location for practice of medical school graduates" which revealed that rural place of birth, rural place of rearing and rural location of permanent address of the respondents were three times more likely to choose rural location. But the findings were contradictory with the study results of the "Factors influencing family physicians to enter rural practice: Does rural or urban background makes the difference? a study in Canada in 2005. The Canadian study results revealed that "two thirds of the rural physicians weren't from rural background".¹¹ But consistent findings were found in the study entitled "Do south African rural origin medical students return to rural practice?" which revealed that more than forty percent of the rural origin graduates were in rural practice compared to five percent of the urban origin graduates.⁹ No other study findings were found on this area by using the SCCT framework.

CONCLUSIONS

Majority of the medical graduates wish to practice within country location. Among which most of them chose public sector for future practice. Medical graduates having better goal mechanism were less likely to choose private sector for placement. Whereas graduates having better self-efficacy and better professional outcome expectation were less likely to choose urban location for placement.

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