

## Factors affecting migration abroad of dental practitioners from Karachi: A cross-sectional survey

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### Abstract

This was a cross-sectional study. Survey was conducted from May 2016 to November 2016 among dental practitioners from four dental institutions of Karachi, two each from the public and private sector. From public sector, Dow University Hospital Dental Section Ojha Campus and Karachi Medical and Dental College, while from the private sector Baqai Medical University and Sir Syed College of Medical Sciences were randomly selected. After taking informed verbal consent, a total of 100 participants were interviewed using a self-administered questionnaire. The data were analyzed using SPSS version 21. Descriptive analysis was employed for categorical variables using frequencies and percentages. The findings of the study revealed the causes considered most important by the dental practitioners impacting migration abroad. Among the local push factors were bad law and order situation (59%), low salary (54%) and lack of job openings (53%) while local pull factor was mainly family responsibilities (40%). Foreign pull factors were better working environment (56%), high salary (52%) and enhancing knowledge and skills (50%) while the foreign push factor was racism (37%).

**Keywords:** Dental Practitioners, Migration, Push factors, Pull factors.

doi:10.5455/JPMA.291597

### Introduction

The movement of people to a new area or country in order to find work or better living conditions is called "Migration" and those who migrated, leaving their country are called emigrants.<sup>1</sup> Many highly skilled and competent professionals migrate to developed countries where there are more opportunities for productive growth both professionally and economically. Such countries offer professionals higher salaries resulting in

financial, social and economic gains.<sup>2</sup> In Pakistan, the migration of healthcare workers is a common phenomenon that has resulted in an acute shortage of healthcare professionals.<sup>3</sup> Majority of international graduates in the field of medicine in the US and UK originate from poorer countries, and Pakistan is the third most common source.<sup>4</sup> In 2005 it was reported that there were approximately 74,000 practicing physicians in Pakistan. Annually, about 1,150 physicians emigrate and an estimated 570 physicians discontinue their practice. The current ratio of 0.473 physicians to 1,000 populations is not adequate to maintain the nation's good health.<sup>3</sup>

It is well known there are certain push and pull factors that bring about the migration of healthcare workers.<sup>1,5</sup> Push factors are those that exist at the place of origin that pushes a person to migrate to the place of migration. Push factor includes lack of availability of resources, poor and unsatisfactory working environment, job dissatisfaction, terrorism, desire to settle abroad, relatives abroad etc. Pull factors are usually at the place of destination that attracts the person towards itself and include better job opportunities, lucrative salary, better working environment, job satisfaction, quality of training and better standard of life.<sup>5,6</sup>

The migration among health care professionals has received significant attention in the last few years, but the etiology of this migration has not yet been thoroughly examined in Pakistan. A better understanding and awareness regarding this migration of healthcare professionals from the country would help bring about changes in the current healthcare sector and academic policies.<sup>7</sup>

The purpose of this study was to investigate the ever-increasing migration of dental professionals from Karachi which could result in untoward consequences in the health sector. Since the literature suggests that the number of medical practitioners required to service the nation are decreasing day by day,<sup>2,3,6-9</sup> it would be safe to assume a similar trend exists among dental practitioners. As far as the author's knowledge is concerned, a study has been conducted exploring the push and pull factors of migration among dental practitioners in Lithuania

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previously,<sup>10</sup> however no prior study in this regard has been carried out in Pakistan. Therefore this study will serve the purpose of enhancing our knowledge regarding the serious issue faced by our health sector.

## Methodology

A cross sectional survey was conducted from May 2016 to Nov 2016 at four dental institutions in Karachi, two each from public and private sector i.e. Karachi Medical and Dental College, Dow University Hospital Dental Section, Ojha Campus, Baqai Dental College and Sir Syed College of Medical Sciences. Dental practitioners having at least one year experience after graduation and willing to participate in the study were included. Those dental practitioners already practicing abroad were excluded from the study. After taking their verbal informed consent, a cluster sampling technique was employed on a total of 100 participants enrolled for the survey.

Participants were interviewed using a self-administered questionnaire given by the principal investigator. A pilot study was also conducted on 12% of the sample size to pretest the questionnaire which was modified accordingly. Reliability analysis of the questionnaire with Cronbach's alpha gave the value of 0.827 indicating a high degree of internal consistency.

## Sample Size Estimation

Using the expected proportion of outcome variable from a previous study of 60.4%,<sup>6</sup> with 95% confidence interval and 10% standard error, the calculated sample size was 92 participants using the following formula:

$$n = z^2 (p) (1-p) / c^2$$

Where;

n = Sample size

$$z = 1.96$$

$$p = 0.604$$

$$c = 0.1$$

## Statistical Analysis

Data were entered and analyzed on Statistical Package for Social Sciences version 21. Descriptive analysis was employed by calculating frequencies and percentages for the study variables. Inferential analysis was performed by using Kruskal Wallis H test.

## Results

The study results revealed that 61(61%) of the participants were females whereas 70(70%) of them were aged  $\leq 30$  years. In the study 76(76%) of the participants graduated in 2006 or later of which 26(26%) had 2 years whereas 14(14%) of them had 4 years of postgraduate qualification. Those privately employed were 51(51%), whereas 59(59%) of them had monthly income  $< \text{Rs.}50,000$ . A little over half, that is 51(51%) of the participants were living in a joint family system.

Among the foreign pull factors, the study revealed that enhancing knowledge and skills, lucrative salary and better working environment were considered very important factors respectively by 56(56%), 52(52%) and 50(50%) of the study participants respectively. Among foreign push factors, racism and job competition were reported by 34(34%) and 33(33%) respectively as very important factors (Table-1).

Among the local pull factors, the study results revealed 40(40%) of the participants responded that family responsibilities as the major reason, whereas 41(41%) reported alternative finances as a main factor. Among local push factors, those considered important by the

Table-1: Assessment of foreign push and pull factors.

| Factors                      | Very Unimportant (%) | Unimportant (%) | Partly Unimportant (%) | Important (%) | Very Important (%) |
|------------------------------|----------------------|-----------------|------------------------|---------------|--------------------|
| <b>Foreign Pull Factors</b>  |                      |                 |                        |               |                    |
| Better job opportunities     | 3(3.0)               | 2(2.0)          | 8(8.0)                 | 40(40.0)      | 47(47.0)           |
| Research opportunities       | 4(4.0)               | 5(5.0)          | 23(23.0)               | 40(40.0)      | 28(28.0)           |
| High salary                  | 4(4.0)               | Nil             | 11(11.0)               | 32(32.0)      | 52(52.0)           |
| Better working environment   | 2(2.0)               | Nil             | 8(8.0)                 | 34(34.0)      | 56(56.0)           |
| Higher job satisfaction      | 2(2.0)               | Nil             | 6(6.0)                 | 46(46.0)      | 45(45.0)           |
| To enhance knowledge & skill | 1(1.0)               | 3(3.0)          | 17(17.0)               | 29(29.0)      | 50(50.0)           |
| Desire to settle abroad      | 3(3.0)               | 22(22.0)        | 41(41.0)               | 23(23.0)      | 11(11.0)           |
| Relatives abroad             | 14(14.0)             | 22(22.0)        | 33(33.0)               | 22(22.0)      | 9(9.0)             |
| <b>Foreign Push Factors</b>  |                      |                 |                        |               |                    |
| Long working hours           | 10(10.0)             | 20(20.0)        | 32(32.0)               | 18(18.0)      | 20(20.0)           |
| Racism                       | 2(2.0)               | 16(16.0)        | 25(25.0)               | 23(23.0)      | 34(34.0)           |
| More competition             | 8(8.0)               | 12(12.0)        | 21(21.0)               | 33(33.0)      | 26(26.0)           |

Table-2: Assessment of local push and pull factors.

| Factors                                | Very Unimportant<br>Frequency (%) | Unimportant<br>Frequency (%) | Partly Unimportant or Important<br>Frequency (%) | Important<br>Frequency (%) | Very Important<br>Frequency (%) |
|--|-----------------------------------|------------------------------|--|----------------------------|---------------------------------|
| <b>Local Push Factors</b>              |                                   |                              |  |                            |                                 |
| Lack of higher education               | 3(3.0)                            | 10(10.0)                     | 22(22.0)   | 39(39.0)                   | 26(26.0)                        |
| Lack of merit based jobs               | 6(6.0)                            | 4(4.0)                       | 7(7.0)   | 40(40.0)                   | 43(43.0)                        |
| Limited residency slots                | 6(6.0)                            | 6(6.0)                       | 14(14.0)   | 30(30.0)                   | 44(44.0)                        |
| Lack of job openings                   | 6(6.0)                            | 8(8.0)                       | 4(4.0)   | 29(29.0)                   | 53(53.0)                        |
| Bad law and order situation            | 5(5.0)                            | 5(5.0)                       | 11(11.0)   | 20(20.0)                   | 59(59.0)                        |
| Low salary                             | 2(2.0)                            | 4(4.0)                       | 12(12.0)   | 28(28.0)                   | 54(54.0)                        |
| Bad working environment                | 2(2.0)                            | 9(9.0)                       | 29(29.0)   | 35(35.0)                   | 25(25.0)                        |
| Political victimization                | 5(5.0)                            | 8(8.0)                       | 19(19.0)   | 31(31.0)                   | 37(37.0)                        |
| Job dissatisfaction                    | 6(6.0)                            | 8(8.0)                       | 21(21.0)   | 39(39.0)                   | 26(26.0)                        |
| Uncooperative seniors                  | 10(10.0)                          | 14(14.0)                     | 23(23.0)   | 23(23.0)                   | 30(30.0)                        |
| <b>Local Pull Factors</b>              |                                   |                              |  |                            |                                 |
| Desire to serve the nation and country | 9(9.0)                            | 10(10.0)                     | 21(21.0)   | 33(33.0)                   | 27(27.0)                        |
| Desire to settle in Pakistan           | 15(15.0)                          | 11(11.0)                     | 26(26.0)   | 31(31.0)                   | 17(17.0)                        |
| Family ties                            | 3(3.0)                            | 7(7.0)                       | 19(19.0)   | 34(34.0)                   | 37(37.0)                        |
| Family responsibilities                | 2(2.0)                            | 3(3.0)                       | 18(18.0)   | 37(37.0)                   | 40(40.0)                        |
| Parents pressure <sup>1</sup>          | 8(8.0)                            | 12(12.0)                     | 25(25.0)   | 32(32.0)                   | 22(22.0)                        |
| lack of resources                      | 6(6.0)                            | 7(7.0)                       | 29(29.0)   | 37(37.0)                   | 21(21.0)                        |
| Alternative finances                   | 4(4.0)                            | 8(8.0)                       | 29(29.0)   | 41(41.0)                   | 18(18.0)                        |
| Visa problems <sup>1</sup>             | 4(4.0)                            | 9(9.0)                       | 33(33.0)   | 29(29.0)                   | 24(24.0)                        |
| Political leverage <sup>2</sup>        | 8(8.0)                            | 17(17.0)                     | 36(16.0)   | 22(22.0)                   | 15(15.0)                        |
| Higher job satisfaction                | 4(4.0)                            | 17(17.0)                     | 28(28.0)   | 29(29.0)                   | 22(22.0)                        |
| Ease of faith based practices          | 10(10.0)                          | 13(13.0)                     | 24(24.0)   | 30(30.0)                   | 23(23.0)                        |

<sup>1</sup>n=99<sup>2</sup>n=98

study participants were lack of merit-based jobs by 43(43%), limited residency slots by 44(44%), lack of job openings by 53(53%), low salary by 54(54%) whereas bad law and order situation was reported by 59(59%) (Table-2).

Table-3 shows bivariate analysis of associations of demographic variables with the factors and it was observed that among foreign pull factors; qualification, income and family system were significantly associated with better job opportunities (p=0.028, p=0.046 and p=0.055 respectively) whereas only qualification was significantly associated with research opportunities (p=0.023), qualification and income were significantly associated with high salary (p=0.028 and p=0.067 respectively), gender and employment status were significantly associated with better working environment (p=0.082 and p=0.054 respectively) and only employment status was significantly associated with higher job satisfaction (p=0.038); Among foreign push factors; year of graduation and employment status were significantly associated with long working hours (p=0.097 and p=0.014 respectively) whereas only family system was significantly associated with racism (p=0.026)

Study findings further revealed that among local push factors; only year of graduation was significantly associated with lack of higher education opportunities and job openings (p=0.012 and p=0.086 respectively), qualification and year of graduation were significantly associated with lack of merit based job opportunities (p=0.048 and p=0.037 respectively) whereas only age was significantly associated with bad law and order situation (p=0.03) likewise only income was significantly associated with low salary and uncooperative seniors (p=0.026 and p=0.019 respectively), qualification and income were significantly associated with job dissatisfaction (p=0.085 and p=0.017 respectively); Among local pull factors; only employment was significantly associated with desire to serve nation and country, desire to settle in Pakistan, family ties and parents pressure (p=0.074, p=0.045, p=0.001 and p=0.016 respectively) likewise only gender was significantly associated with family responsibilities (p=0.014) whereas gender, year of graduation and employment status were significantly associated with lack of resources for migration (p=0.012, p=0.017 and p=0.019 respectively), employment status and income were significantly associated with political leverage (p=0.001 and p=0.005 respectively), only family

Table-3: Bivariate analysis of demographic variables with foreign and local pull &amp; push factors (Kruskal Wallis Test).

| Factors                      | Demographic Variables                                      |   |   |   |  |   |   |
|------------------------------|--|---|---|---|--|---|---|
|                              | Gender<br>Male=1<br>Female=2<br><br>Mean Rank<br>(p-value) | Age<br><30 years=1<br>31-40 years=2<br>41-50 years=3<br>>50 years=4<br><br>Mean Rank<br>(p-value) | Qualification<br>BDS=1<br>M.S/M.Phil/<br>Mph/Mcps=2<br>FCPS/MDS/PHD=3<br><br>Mean Rank<br>(p-value) | Year of Graduation<br>2000 or before=1<br>2001-2005=2<br>2006-2010=3<br>2011-2015=4<br><br>Mean Rank<br>(p-value) | Employment Status<br>Government=1<br>Private=2<br><br>Mean Rank<br>(p-value) | Income<br><50000=1<br>between 50000-<br>100000=2<br>>100000=3<br><br>Mean Rank<br>(p-value) | Family system<br>Nuclear=1<br>Joint=2<br><br>Mean Rank<br>(p-value) |
| <b>Foreign Pull Factors</b>  |  |   |   |   |  |   |   |
| Better job opportunities     | 1=46.33<br>2=53.16<br><br>(p=0.208)                        | 1=50.46<br>2=50.44<br>3=49.25<br>4=55.25<br><br>(p=0.995)   | 1=52.64<br>2=39.65<br>3=61.46<br><br>(p=0.028)*   | 1=49.30<br>2=42.67<br>3=49.98<br>4=52.89<br><br>(p=0.755)   | 1=48.71<br>2=52.22<br><br>(p=0.508)  | 1=55.18<br>2=46.39<br>3=32.94<br><br>(p=0.046)*   | 1=55.11<br>2=44.99<br><br>(p=0.055)*                                |
| Research opportunities       | 1=45.91<br>2=53.43<br><br>(p=0.183)                        | 1=51.34<br>2=48.77<br>3=45.25<br>4=52.50<br><br>(p=0.957)   | 1=54.99<br>2=49.81<br>3=32.54<br>4=51.80<br><br>(p=0.023)*  | 1=43.67<br>2=51.50<br>3=51.64<br>4=51.80<br><br>(p=0.78)  | 1=50.12<br>2=50.86<br><br>(p=0.893)  | 1=53.15<br>2=50.05<br>3=32.81<br><br>(p=0.146)  | 1=52.03<br>2=48.01<br><br>(p=0.463)                                 |
| High salary                  | 1=47.50<br>2=51.63<br><br>(p=0.441)                        | 1=51.81<br>2=45.06<br>3=47.13<br>4=52.50<br><br>(p=0.737)   | 1=54.12<br>2=38.31<br>3=54.36<br><br>(p=0.028)*   | 1=45.43<br>2=35.94<br>3=54.19<br>4=51.42<br><br>(p=0.256)   | 1=51.00<br>2=49.02<br><br>(p=0.705)  | 1=55.10<br>2=43.00<br>3=41.88<br><br>(p=0.067)*   | 1=52.10<br>2=47.00<br><br>(p=0.327)                                 |
| Better working environment   | 1=44.91<br>2=54.07<br><br>(p=0.082)*                       | 1=49.11<br>2=55.54<br>3=44.75<br>4=50.00<br><br>(p=0.722)   | 1=52.00<br>2=44.92<br>3=54.43<br><br>(p=0.416)  | 1=53.10<br>2=55.17<br>3=53.50<br>4=46.48<br><br>(p=0.58)  | 1=55.56<br>2=45.64<br><br>(p=0.054)*   | 1=50.81<br>2=51.35<br>3=44.75<br><br>(p=0.801)  | 1=51.16<br>2=48.86<br><br>(p=0.653)                                 |
| Higher job satisfaction      | 1=44.74<br>2=53.28<br><br>(p=0.109)                        | 1=47.64<br>2=56.09<br>3=65.63<br>4=31.50<br><br>(p=0.726)   | 1=50.50<br>2=47.00<br>3=53.69<br><br>(p=0.726)  | 1=52.73<br>2=53.89<br>3=52.05<br>4=46.83<br><br>(p=0.745)   | 1=55.43<br>2=44.68<br><br>(p=0.038)*   | 1=49.54<br>2=53.44<br>3=39.63<br><br>(p=0.39)   | 1=49.81<br>2=49.19<br><br>(p=0.905)                                 |
| To enhance knowledge & skill | 1=49.21<br>2=51.33<br><br>(p=0.698)                        | 1=50.79<br>2=48.35<br>3=55.75<br>4=55.75<br><br>(p=0.941)   | 1=52.41<br>2=49.42<br>3=44.32<br><br>(p=0.577)  | 1=52.90<br>2=52.83<br>3=48.77<br>4=50.47<br><br>(p=0.955)   | 1=49.44<br>2=51.52<br><br>(p=0.697)  | 1=52.81<br>2=48.88<br>3=40.13<br><br>(p=0.412)  | 1=52.27<br>2=47.78<br><br>(p=0.399)                                 |
| Desire to settle abroad      | 1=46.29<br>2=53.19<br><br>(p=0.224)                        | 1=51.36<br>2=50.40<br>3=46.13<br>4=30.25<br><br>(p=0.743)   | 1=52.70<br>2=47.44<br>3=46.75<br><br>(p=0.62)   | 1=44.00<br>2=64.11<br>3=53.34<br>4=47.86<br><br>(p=0.289)   | 1=53.27<br>2=47.84<br><br>(p=0.327)  | 1=51.79<br>2=48.32<br>3=50.00<br><br>(p=0.845)  | 1=50.10<br>2=49.90<br><br>(p=0.971)                                 |
| Relatives abroad             | 1=46.27<br>2=53.20<br><br>(p=0.229)                        | 1=49.69<br>2=56.02<br>3=48.50<br>4=16.50<br><br>(p=0.269)   | 1=50.88<br>2=55.06<br>3=40.43<br><br>(p=0.288)  | 1=49.40<br>2=55.50<br>3=55.05<br>4=46.55<br><br>(p=0.569)   | 1=48.91<br>2=52.03<br><br>(p=0.579)  | 1=50.21<br>2=49.58<br>3=56.44<br><br>(p=0.819)  | 1=47.95<br>2=52.01<br><br>(p=0.468)                                 |
| <b>Foreign Push Factors</b>  |  |   |   |   |  |   |   |
| Long working hours           | 1=47.14<br>2=52.65<br><br>(p=0.341)                        | 1=51.50<br>2=46.83<br>3= 52.50<br>4=55.50<br><br>(p=0.902)  | 1=52.30<br>2=46.65<br>3=49.93<br><br>(p=0.693)  | 1=60.10<br>2=31.50<br>3=48.25<br>4=52.75<br><br>(p=0.097)*  | 1=57.58<br>2=43.70<br><br>(p=0.014)*   | 1=51.92<br>2=47.47<br>3=52.50<br><br>(p=0.751)  | 1=54.46<br>2=45.63<br><br>(p=0.116)                                 |
| Racism                       | 1=48.60<br><br><br>(p=0.341)                               | 1=50.32<br><br><br>(p=0.902)  | 1=49.45<br><br><br>(p=0.693)  | 1=51.03<br><br><br>(p=0.097)*   | 1=54.43<br><br><br>(p=0.014)*  | 1=52.53<br><br><br>(p=0.751)  | 1=56.27<br><br><br>(p=0.116)  |

|                             |           |           |            |                  |           |            |            |
|-----------------------------|-----------|-----------|------------|------------------|-----------|------------|------------|
|                             | 2=51.71   | 2=51.04   | 2=50.90    | 2=38.00          | 2=46.73   | 2=47.24    | 2=43.86    |
|                             |           | 3=52.13   | 3=54.25    | 3=48.36          |           | 3=49.00    |            |
|                             |           | 4=47.00   |            | 4=54.43          |           |            |            |
|                             | (p=0.587) | (p=0.996) | (p=0.843)  | (p=0.413)        | (p=0.168) | (p=0.677)  | (P=0.026)* |
| More competition            | 1=48.73   | 1=48.91   | 1=49.00    | 1=60.23          | 1=52.93   | 1=51.41    | 1=52.41    |
|                             | 2=51.63   | 2=52.52   | 2=52.75    | 2=47.06          | 2=48.17   | 2=46.59    | 2=47.64    |
|                             |           | 3= 66.00  | 3=52.75    | 3=48.53          |           | 3=59.94    |            |
|                             | (p=0.614) | (p=0.666) | (p=0.807)  | (p=0.536)        | (p=0.396) | (p=0.448)  | (p=0.393)  |
| Local Push Factors          |           |           |            |                  |           |            |            |
| Lack of higher education    | 1=54.18   | 1=46.49   | 1=54.17    | 1=65.97          | 1=49.16   | 1=49.75    | 1=51.28    |
|                             | 2=48.15   | 2=59.65   | 2=46.25    | 2=67.89          | 2=51.78   | 2=51.11    | 2=48.75    |
|                             |           | 3=63.63   | 3=42.68    | 3=43.63          |           | 3=53.30    |            |
|                             |           | 4=55.00   |            | 4=46.67          |           |            |            |
|                             | (p=0.288) | (p=0.169) | (p=0.249)  | (p=0.012)*       | (p=0.636) | (p=0.927)  | (p=0.647)  |
| Lack of merit based jobs    | 1=49.22   | 1=49.98   | 1=56.12    | 1=60.47          | 1=52.17   | 1=52.54    | 1=49.22    |
|                             | 2=51.32   | 2=50.08   | 2=42.79    | 2=62.56          | 2=48.89   | 2=44.42    | 2=50.76    |
|                             |           | 3=68.63   | 3=40.75    | 3=41.08          |           | 3=60.50    |            |
|                             |           | 4=37.50   |            | 4=51.49          |           |            |            |
|                             | (p=0.703) | (p=0.508) | (p=0.037)* | (p=0.048)*       | (p=0.541) | (p=0.208)  | (p=0.774)  |
| Limited residency slots     | 1=45.32   | 1=51.74   | 1=53.95    | 1=49.43          | 1=50.11   | 1=54.81    | 1=49.78    |
|                             | 2=53.81   | 2=48.71   | 2=42.85    | 2=52.94          | 2=50.87   | 2=42.50    | 2=50.22    |
|                             |           | 3= 52.00  | 3=49.93    | 3=42.44          |           | 3= 51.75   |            |
|                             |           | 4=25.50   |            | 4=56.23          |           |            |            |
|                             | (p=0.129) | (p=0.585) | (p=0.222)  | (p=0.185)        | (p=0.889) | (p=0.115)  | (p=0.935)  |
| Lack of job openings        | 1=51.13   | 1=51.78   | 1=53.79    | 1=52.63          | 1=51.37   | 1=52.62    | 1=52.43    |
|                             | 2=50.10   | 2=48.19   | 2=43.56    | 2=58.50          | 2=49.67   | 2=45.24    | 2=47.62    |
|                             |           | 3=47.88   | 3=49.29    | 3=40.84          |           | 3= 56.56   |            |
|                             |           | 4=38.75   |            | 4=55.16          |           |            |            |
|                             | (p=0.849) | (p=0.853) | (p=0.251)  | (p=0.086)*       | (p=0.747) | (p=0.347)  | (p=0.36)   |
| Bad law and order situation | 1=51.68   | 1=50.86   | 1=52.45    | 1=49.67          | 1=53.30   | 1=51.14    | 1=50.88    |
|                             | 2=49.75   | 2=56.00   | 2=44.25    | 2=54.39          | 2=47.81   | 2=50.82    | 2=49.14    |
|                             |           | 3=33.63   | 3=53.75    | 3=49.25          |           | 3=44.44    |            |
|                             |           | 4=5.50    |            | 4=50.90          |           |            |            |
|                             | (p=0.714) | (p=0.03)* | (p=0.349)  | (p=0.959)        | (p=0.286) | (p=0.784)  | (p=0.735)  |
| Low salary                  | 1=49.45   | 1=50.84   | 1=53.60    | 1=58.57          | 1=48.95   | 1=53.43    | 1=50.55    |
|                             | 2=51.17   | 2=48.83   | 2=43.15    | 2=46.28          | 2=51.99   | 2=41.53    | 2=49.46    |
|                             |           | 3=58.25   | 3=50.86    | 3=43.38          |           | 3=65.88    |            |
|                             |           | 4=43.00   |            | 4=53.80(p=0.195) |           |            |            |
|                             | (p=0.749) | (p=0.892) | (p=0.238)  |                  | (p=0.563) | (p=0.026)* | (p=0.834)  |
| Bad working environment     | 1=49.62   | 1=50.21   | 1=53.99    | 1=49.93          | 1=53.31   | 1=49.12    | 1=53.97    |
|                             | 2=51.07   | 2=55.69   | 2=43.40    | 2=51.89          | 2=47.80   | 2=55.61    | 2=46.11    |
|                             |           | 3=41.50   | 3=48.71    | 3=49.06          |           | 3=39.63    |            |
|                             |           | 4=16.50   |            | 4=51.45          |           |            |            |
|                             | (p=0.799) | (p=0.234) | (p=0.259)  | (p=0.983)        | (p=0.322) | (p=0.288)  | (p=0.155)  |
| Political victimization     | 1=47.23   | 1=50.76   | 1=51.07    | 1=49.80          | 1=53.10   | 1=50.92    | 1=52.44    |
|                             | 2=52.59   | 2=54.63   | 2=48.27    | 2=51.56          | 2=48.00   | 2=50.97    | 2=47.61    |
|                             |           | 3=38.38   | 3=52.21    | 3=47.67          |           | 3=45.44    |            |
|                             |           | 4=16.25   |            | 4=52.58          |           |            |            |
|                             | (p=0.345) | (p=0.225) | (p=0.884)  | (p=0.896)        | (p=0.357) | (p=0.865)  | (p=0.381)  |
| Job dissatisfaction         | 1=46.90   | 1=49.54   | 1=54.51    | 1=58.87          | 1=50.74   | 1=54.81    | 1=52.27    |
|                             | 2=52.80   | 2=52.08   | 2=40.19    | 2=52.22          | 2=50.26   | 2=39.67    | 2=47.78    |
|                             |           | 3=55.00   | 3=52.46    | 3=44.78          |           | 3=63.44    |            |
|                             |           | 4=56.25   |            | 4=51.45          |           |            |            |
|                             | (p=0.299) | (p=0.949) | (p=0.085)* | (p=0.421)        | (p=0.931) | (p=0.017)* | (p=0.416)  |
| Uncooperative seniors       | 1=45.88   | 1=49.82   | 1=53.57    | 1=54.63          | 1=51.68   | 1=55.14    | 1=49.53    |
|                             | 2=53.45   | 2=49.73   | 2=43.31    | 2=51.78          | 2=49.36   | 2=41.77    | 2=50.46    |
|                             |           | 3=61.88   | 3=50.71    | 3=49.69          |           | 3=52.25    |            |
|                             |           | 4=60.75   |            | 4=49.42          |           |            |            |

|  |                                  |  |  |  |                                  |  |                                  |
|--|----------------------------------|--|--|--|----------------------------------|--|----------------------------------|
| Local Pull Factors                     | (p=0.191)                        | (p=0.808)  | (p=0.301)                                  | (p=0.934)  | (p=0.681)                        | (p=0.019)*                                   | (p=0.868)                        |
| Desire to serve the nation and country | 1=50.82<br>2=50.30               | 1=51.12<br>2=49.96<br>3=50.25<br>4=35.75               | 1=53.23<br>2=48.67<br>3=42.21              | 1=52.57<br>2=40.11<br>3=55.41<br>4=48.35               | 1=55.60<br>2=45.60               | 1=47.48<br>2=55.61<br>3=51.69                | 1=46.88<br>2=53.06               |
| Desire to settle in Pakistan           | (p=0.927)<br>1=54.01<br>2=48.25  | (p=0.897)<br>1=51.17<br>2=44.35<br>3=60.88<br>4=80.00  | (p=0.387)<br>1=50.30<br>2=55.29<br>3=42.46 | (p=0.465)<br>1=61.00<br>2=33.28<br>3=51.11<br>4=50.00  | (p=0.074)*<br>1=56.26<br>2=44.97 | (p=0.408)<br>1=49.16<br>2=50.61<br>3=59.94   | (p=0.267)<br>1=45.48<br>2=54.43  |
| Family ties                            | (p=0.319)<br>1=49.05<br>2=51.43  | (p=0.271)<br>1=47.76<br>2=55.06<br>3=73.13<br>4=46.50  | (p=0.388)<br>1=49.14<br>2=55.60<br>3=46.86 | (p=0.14)<br>1=65.43<br>2=44.67<br>3=50.33<br>4=46.73   | (p=0.045)*<br>1=60.21<br>2=41.17 | (p=0.597)<br>1=46.09<br>2=56.24<br>3=59.31   | (p=0.11)<br>1=46.42<br>2=53.51   |
| Family responsibilities                | (p=0.674)<br>1=58.87<br>2=45.15  | (p=0.252)<br>1=47.49<br>2=56.58<br>3=61.25<br>4=61.25  | (p=0.528)<br>1=48.49<br>2=51.46<br>3=57.32 | (p=0.131)<br>1=65.10<br>2=41.17<br>3=48.56<br>4=48.84  | (p=0.001)*<br>1=54.33<br>2=46.82 | (p=0.153)<br>1=49.25<br>2=49.79<br>3=62.62   | (p=0.195)<br>1=49.69<br>2=50.30  |
| Parents pressure <sup>1</sup>          | (p=0.014)*<br>1=47.86<br>2=51.39 | (p=0.393)<br>1=50.36<br>2=51.21<br>3=49.75<br>4=23.75  | (p=0.538)<br>1=48.08<br>2=54.13<br>3=50.39 | (p=0.127)<br>1=54.83<br>2=35.06<br>3=54.09<br>4=48.40  | (p=0.168)<br>1=56.80<br>2=43.34  | (p=0.42)<br>1=46.90<br>2=55.61<br>3=49.38    | (p=0.911)<br>1=45.03<br>2=53.79  |
| lack of resources                      | (p=0.537)<br>1=41.73<br>2=56.11  | (p=0.606)<br>1=52.06<br>2=49.58<br>3=31.75<br>4=44.50  | (p=0.651)<br>1=52.99<br>2=50.87<br>3=30.14 | (p=0.274)<br>1=48.00<br>2=35.94<br>3=62.67<br>4=45.48  | (p=0.016)*<br>1=57.15<br>2=44.11 | (p=0.355)<br>1=49.10<br>2=56.00<br>3=38.13   | (p=0.116)<br>1=49.87<br>2=50.13  |
| Alternative finances                   | (p=0.012)*<br>1=50.10<br>2=50.75 | (p=0.539)<br>1=50.54<br>2=51.96<br>3=48.63<br>4=35.25  | (p=0.243)<br>1=52.38<br>2=49.29<br>3=44.68 | (p=0.017)*<br>1=49.83<br>2=43.67<br>3=56.11<br>4=48.05 | (p=0.019)*<br>1=53.97<br>2=47.17 | (p=0.219)<br>1=46.18<br>2=56.50<br>3=57.63   | (p=0.962)<br>1=48.36<br>2=51.61  |
| Visa problems <sup>1</sup>             | (p=0.908)<br>1=50.04<br>2=49.98  | (p=0.873)<br>1=47.24<br>2=58.43<br>3=52.13<br>4=45.50  | (p=0.62)<br>1=51.98<br>2=48.94<br>3=42.96  | (p=0.524)<br>1=59.87<br>2=59.75<br>3=49.23<br>4=45.42  | (p=0.217)<br>1=53.79<br>2=46.43  | (p=0.169)<br>1=47.31<br>2=53.27<br>3=56.00   | (p=0.553)<br>1=49.91<br>2=49.09  |
| Political leverage <sup>2</sup>        | (p=0.991)<br>1=47.86<br>2=50.54  | (p=0.403)<br>1=49.39<br>2=46.04<br>3=63.25<br>4=67.25  | (p=0.55)<br>1=49.84<br>2=48.38<br>3=50.14  | (p=0.245)<br>1=56.00<br>2=37.00<br>3=53.80<br>4=46.58  | (p=0.185)<br>1=58.74<br>2=40.26  | (p=0.498)<br>1=48.10<br>2=44.67<br>3=79.44   | (p=0.882)<br>1=51.63<br>2=46.53  |
| Higher job satisfaction                | (p=0.637)<br>1=46.77<br>2=52.89  | (p=0.527)<br>1=49.64<br>2=54.00<br>3=57.63<br>4=24.25  | (p=0.97)<br>1=53.10<br>2=47.67<br>3=44.61  | (p=0.264)<br>1=53.20<br>2=38.83<br>3=57.20<br>4=47.09  | (p=0.001)*<br>1=49.55<br>2=51.41 | (p=0.005)*<br>1=48.85<br>2=55.09<br>3= 43.75 | (p=0.355)<br>1=56.27<br>2=43.86  |
| Ease of faith based practices          | (p=0.288)<br>1=48.04<br>2=52.07  | (p=0.486)<br>1=50.61<br>2=44.98<br>3= 62.50<br>4=89.00 | (p=0.498)<br>1=51.30<br>2=51.15<br>3=45.86 | (p=0.245)<br>1=60.40<br>2=31.17<br>3=55.50<br>4=47.44  | (p=0.741)<br>1=58.05<br>2=43.25  | (p=0.461)<br>1=46.96<br>2=53.15<br>3=65.69   | (p=0.027)*<br>1=51.92<br>2=48.12 |
|  | (p=0.485)                        | (p=0.146)  | (p=0.802)                                  | (p=0.055)*   | (p=0.009)*                       | (p=0.17)                                     | (p=0.498)                        |

<sup>1</sup>n=99

<sup>2</sup>n=98

\*Significant.

system was significantly associated with higher job satisfaction ( $p=0.027$ ) and year of graduation and employment status were significantly associated with ease of faith based practices ( $p=0.055$  and  $p=0.009$  respectively).

### Discussion and Conclusion

As mentioned earlier, high salary was the most significant foreign pull factor in our study.<sup>6,9</sup> In line with published literature, research opportunities were also considered a significant foreign pull factor by the participants.<sup>3</sup> Unlike two earlier studies, better working environment was also considered a significant foreign pull factor by the majority.<sup>6,9</sup> Also unlike an earlier study<sup>6</sup> and like another previous study<sup>11</sup> a high level of job satisfaction was reported as an important foreign pull factor by a significant percentage of dental practitioners.

Among the local push factors, bad law and order situation and political reasons were considered significant by the participants unlike a previous study.<sup>6</sup> In line with other published literature,<sup>2,3,7,9</sup> low salary was reported as a significant local push factor by the majority. Lack of higher education opportunities was reported as a significant local push factor by more than half of them in a few earlier studies<sup>2,3,11</sup> similarly as was bad working environment also by a majority.<sup>7</sup>

Interestingly, a significant local pull factor by more than half the participants was the desire to serve the nation, corresponding with a few earlier studies<sup>7,9</sup> but was also dissimilar to other findings.<sup>6</sup> Family ties and job satisfaction as well as a lack of resources were considered by a majority as significant local pull factors.<sup>6,7</sup> Though dissimilar findings have been reported in another study.<sup>9</sup> Other significant factors cited were religious factors, parental pressure, political factors and visa problems by almost half of them, although dissimilar findings have also been reported.<sup>6</sup>

Likewise as reported earlier, racism were reported as a significant foreign push factors by a majority although unlike the same study more competition abroad was a significant foreign pull factor.<sup>6</sup>

**Disclaimer:** This was the thesis Project of the corresponding author for the Masters in Public Health Program.

**Conflict of Interest:** None.

**Funding Source:** None to declare.

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Appendix A- Questionnaire

Study I.D:

Name: \_\_\_\_\_

Contact number: \_\_\_\_\_

Address: \_\_\_\_\_

Gender: Male  Female

Age: ≤ 30 years  31-40 years  41-50 years  > 50 years

Qualification: BDS  MS/M.Phil/MPH/MCPS  FCPS/MDS/PhD

Year of Graduation: 2000 or before  2001-05  2006-10  2011-15

Employment: Government  Private

Income: less than Rs.50000

Between Rs.50000 to Rs.100000

Greater than Rs.100000

Family System: Nuclear  Joint

The following questionnaire aims to determine relative contributions of different factors that influence dental practitioners to proceed abroad for their better career. Your help in filling this is much appreciated.

Note: to be filled by dental practitioners only.

|   | Very unimportant | Unimportant | Partly important/Partly unimportant | Important | Very important |
|---|------------------|-------------|-------------------------------------|-----------|----------------|
| Pull Factors (Foreign):<br>1- Better Job Opportunities<br>2- Research opportunities<br>3- Higher salary<br>4- Better working environment<br>5- Higher job satisfaction<br>6- To enhance professional knowledge and skills<br>7- Desire to settle abroad<br>8- Relatives abroad<br>Push Factors(Local):<br>1- Lack of higher education opportunities<br>2- Lack of merit based job opportunities<br>3- Limited residency slots<br>4- Lack of job openings<br>5- Bad law and order situation:<br>a) Target killing<br>b) Life threats<br>c) Extortion\ransom<br>d) Others<br>6- Low salary<br>7- Bad working environment<br>8- Political victimization<br>9- Job dissatisfaction<br>10- Uncooperative senior colleagues<br>Pull Factors(Local):<br>1- Desire To Serve The Nation And Country<br>2- Desire To Settle In Pakistan<br>3- Family ties<br>4- Family responsibilities<br>5- Parents pressure<br>6- Lack of resources for migration<br>7- Adequate alternative finances<br>8- Visa problems<br>9- Political leverage<br>10- Higher job satisfaction<br>11- Ease of faith based practices<br>Push Factors (Foreign):<br>1- Long working hours<br>2- Racism<br>3- More competition |                  |             |                                     |           |                |