What Motivated Students to Choose a Career in Health Sciences? A Comparison of Rural and Urban-Origin Students in Three South African Universities

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Abstract:

Background:
Globally, there is a lower ratio of healthcare worker to population in rural compared to urban areas. Scholars are motivated by a number of factors to choose a career in health sciences. Determining these factors among rural and urban-origin students could inform recruitment and retention strategies to redress this imbalance.

Objectives:
To determine and compare motivating factors for a career in health sciences among Rural-Origin (ROS) and Urban-Origin Students (UOS) at three South African universities.

Methods:
Three institutions (former University of Limpopo (Medunsa Campus), now Sefako Makgatho Health Sciences University (SMU), University of KwaZulu-Natal (UKZN) and University of Cape Town (UCT) participated in the study 2011. Health science students completed a self-administered questionnaire. The SAS® (version 9.2) for Microsoft statistical software was used for analysis. Statistical significance was set at p ≤ 0.05.

Results:
A total of 1633 health sciences students participated in the study. Parents (505; 30.9%) and personal exposure (484; 29.6%) were the main motivating factors for both ROS and UOS, with significantly more UOS than ROS motivated by these factors (p < 0.001). The contribution of role models (93; 5.7%), friends (77; 4.7%), high school teachers (77; 4.7%), mentors (36; 2.2%) and university lecturers (18; 1.1%) was minimal, with no significant difference between UOS and ROS (p > 0.05).

Conclusion:
There is need for the health care sector to support students’ families and encourage students’ personal exposure to health care facilities and personnel in order to motivate them towards a career in health sciences.

Keywords: Rural-origin students, Urban-origin students, Motivating factors, Career, Health sciences, South Africa.

1. INTRODUCTION

The report of the World Health Organisation (WHO) has revealed that about 50% of the world population live in rural and remote areas with most of the health workers living and working in cities [1]. The trend of imbalance in the...
distribution of health workers between the rural and urban areas is more pronounced in developing countries [2] and has also been reported in South Africa where 43.7% of the population live in rural areas with an average of 13 generalists and two specialists per 100,000 people, compared to 30 generalists and 30 specialists for each 100,000 in urban areas [3]. Comprehensive strategies employed by the WHO to address this disproportionate distribution of health workers include refining the ways of student selection as well as creating better working and living conditions in rural areas [1].

A number of studies have indicated various motivating factors for career choices of scholars, including family and friends, care-givers, teachers, peers, experiences with some aspects of the career and the media [4]. The family, particularly parents have been shown to be an important factor in career choice among scholars as the latter consult with their parents or guardians for education and career advice [5, 6]. However, an investigation by Maharaj on parents who were themselves healthcare professionals did not show a strong parental influence on their children’s career choice (<10%) [7].

Maharaj explored a number of factors affecting a scholar in choosing a career in health sciences. Among these, the type of high school attended, the cost of courses being considered and the availability of funding to follow the course and source of information on careers. In this study, the majority of students (56.5%) obtained information from professionals visiting schools, followed by family and career guidance counsellors (52.2% and 50.7%, respectively) [7]. Willcockson and Phelps found that the family contributed a higher percentage (60.0%) as a motivating factor for a career choice [6].

In the study by Edwards and Quinter in Kenya, outcome expectations of a particular career, for example employment security, prestige, career flexibility and opportunities for self-employment were the most influential factors in students’ career choices [8]. A study by Drapper and Louw at the University of Cape Town, outlined medical students’ expectations of the medical career, the high ranking being job satisfaction, mental and intellectual stimulation, source of fulfilment and future success [9]. Expectations have been found to direct or motivate an individual towards the desired goal [10]. Willcockson and Phelps found that students were also influenced by the internet for a career choice as a large proportion of them reported to have obtained career guidance information from this source [6]. Another motivating factor found to play a role in career choice was ambition for altruism [11], and past experience with a professional from the career field chosen [12].

Mentoring, defined as “A learning partnership between a more experienced and a less experienced individual [13]”, and a “relationship that becomes more impactful over time [14]” has been shown to have an effect in scholar career choice [15, 16]. However, although its popularity is growing fast in South Africa, the idea of formal mentoring is fairly new in the country [17].

Although globally, the borders between the urban and rural areas are increasingly becoming diffuse and difficult to identify [18], “urban” basically refers to an industrialised and usually densely populated area [19] while “rural” areas are those outside major urban areas, provincial capitals and towns [20], or the “non-metropolitan areas” [21].” Reid and Cakwe brought in the socio-economic aspect in their description and referred to these areas as “rural or underserved regions” [22]. For the purpose of this study, a Rural-Origin Student (ROS) is the student who lived in a rural home and attended a rural high school [23], prior to pursuing a career in a tertiary institution.

In this study, “parents” referred to the members of the family whose gamete resulted in the respondent (as a child), “siblings” were the offspring having one or both parents in common, while “other family members” referred to the extended family members (uncles, aunts, cousins, and others). “Friends” were the respondent’s companions who were not family members, e.g. school mates. “School teachers” were the students’ educators in the various schools they had attended. “Mentors” were senior members in the community who played the role of experienced and trusted adviser to the respondent, e.g. the respondent’s clergy [24]. “University lecturers” were those academics from various universities who had paid visits to schools and motivated scholars towards a career in health sciences. “Role models” were the qualified health care professionals practicing in the respondent’s community or featuring in the public media, e.g. the family medical practitioner, nurse, pharmacist, etc. “Personal exposure” involved personal experience with the health science team, e.g. visiting a health care facility and being attended to by a health team member.

1.1. Significance of the Study

A study by De Vries and Reid in 2003 revealed that only 14.4% (138/961) of registered graduates from five South African medical schools were of rural origin. Of these rural origin graduates, 38.4% (53/138) were practising in rural areas, compared to 12.4% (102/823) of urban-origin graduates practising in rural areas. In this study, overall, only
16.1% (155) of the 961 graduates were practising in rural areas [25]. This underscores the gross deficit of healthcare practitioners in the rural areas of South Africa. Other studies have suggested that recruiting students with a rural background may help alleviate the shortage of healthcare practitioners in rural areas since rural-origin students are more likely to return and practise in their places of origin [26 - 28]. Although a number of studies have investigated factors that motivate students to follow a career particularly in health sciences [7, 29, 30]; at the time of writing this article, there was scarcity of studies that had drawn a comparison between motivating factors for a career in healthcare professions between ROS and their urban counterparts. The authors are of the view that identifying these differences could assist in bridging the gap in the interest of increasing recruitment among ROS.

1.2. Ethical Considerations

The study details were explained to each student, and written informed consent to participate was obtained before the study commenced. Confidentiality of information of the respondents was ensured by removal of all identifiers and keeping data safe and focused strictly for this study. Each participant was informed that s/he could discontinue with the study at any point without any adverse consequences. Ethical approval for the study was granted by the ethics committees of all three participating universities (UL-MREC/M/63/2010: IR, UKZN-HSS/0966/09 and UCT-HREC 353/2011).

2. MATERIALS AND METHODOLOGY

2.1. Study Aim and Objectives

The study aim was to determine the motivating factors for students to choose a career in health sciences at the SMU, UKZN & UCT – comparing the ROS and the UOS in these universities. The objectives were to determine the proportions of ROS and UOS in the three universities, compare the proportions of ROS and UOS in relation to the identified motivating factors in each of the three universities and to compare the combined proportions of ROS and UOS in relation to the identified motivating factors.

2.2. Study Design

This was a cross-sectional study.

2.3. Study Setting

This paper is one of a series of investigations into various aspects of university life and future career aspirations of health science students conducted by the Collaboration for Health Equity through Education and Research (CHEER) collaborators [31]. Three universities volunteered to participate in this study: University of Limpopo (Medunsa Campus) now known as the Sefako Makgatho Health Sciences University (SMU), the University of KwaZulu-Natal (UKZN) and the University of Cape Town (UCT) between August and October 2011. Each participating university traditionally represents a diversity in the proportions of urban and rural-origin students, from mainly urban-origin (UCT), to mainly rural-origin (UL), and an equal proportion of each student group (UKZN).

2.4. Study Population and Sampling Strategy

The classes of the first and final years in a given discipline were visited by the research team in each institution. The number of students per institution is reflected in Table 3 below. The whole class per discipline was requested to participate in each institution. The study was explained to the students, including the reason for the focus on the first and final year students, namely that the larger CHEER study was aiming at gaining information on various aspects of university life and future career aspirations of health science students. A total of 1676 questionnaires were distributed among these students. Those who returned completed questionnaire forms were 1633 (97.4% response rate). Forty three questionnaires were excluded on account of non-completion of the section on the “Motivating factors for a career choice”. Students classified themselves as originating from a rural or an urban area in the question: “Would you classify your home as situated in a rural or urban area?”

2.5. Data Collection

Data collection was led by a CHEER representative at each university. An anonymous, self-administered questionnaire was distributed to all consenting students at each institution. Since the study was focusing at gaining information on various aspects of university life, all first- and final-year students across all disciplines offered at each
health science faculty or medical school were targeted. A qualitative study has already reported on the career aspirations of rural-origin health science students [32], which was followed by the report on curriculum challenges faced by rural-origin health science students at South African medical schools [33]. Regarding, motivating factors which was the focus of this study, the students had to choose from a list of the factors obtained through the qualitative study [32]. They had to indicate to what extent each factor had motivated them: “less motivating”, “motivating” and “highly motivating”.

2.6. Data Analysis

Data were entered into an excel spread-sheet at each site, collated and verified by the CHEER representative. The SAS® (version 9.2) for Microsoft statistical software was used for analysis. The results of univariate data analysis were presented as frequencies in tables, bivariate analysis was conducted to determine associations of dependent (motivating factors) and independent variables (baseline characteristics) using the chi-square test. Statistical significance was set at $p < 0.05$.

3. RESULTS

Table 1 shows that more female than male students participated in the study, they were mostly single with the mean age of around 21 years in all the three universities.

Table 1. Baseline characteristics (n=1633).

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>1541</td>
<td>94.4</td>
</tr>
<tr>
<td>Married</td>
<td>51</td>
<td>3.1</td>
</tr>
<tr>
<td>Living together</td>
<td>26</td>
<td>1.6</td>
</tr>
<tr>
<td>Divorced</td>
<td>3</td>
<td>0.2</td>
</tr>
<tr>
<td>Widowed</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>Other</td>
<td>10</td>
<td>0.6</td>
</tr>
<tr>
<td>Total</td>
<td>1633</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Range</th>
<th>Mean (Mode)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMU</td>
<td>18 – 58</td>
<td>23.2 (20)</td>
</tr>
<tr>
<td>UKZN</td>
<td>18 - 39</td>
<td>21.0 (19)</td>
</tr>
<tr>
<td>UCT</td>
<td>18 - 32</td>
<td>20.8 (21)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sex</th>
<th>Male n(%)</th>
<th>Female n(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMU</td>
<td>330 (44.2)</td>
<td>416 (55.8)</td>
</tr>
<tr>
<td>UKZN</td>
<td>142 (29.1)</td>
<td>346 (70.9)</td>
</tr>
<tr>
<td>UCT</td>
<td>108 (27.1)</td>
<td>291 (72.9)</td>
</tr>
<tr>
<td>Total</td>
<td>580 (35.4)</td>
<td>1053 (64.6)</td>
</tr>
</tbody>
</table>

Table 2 shows that medical students constituted the majority of the health sciences students, followed by the pharmacy students. The rest categories were represented by less than 10% each. Urban origin students constituted 60% of the students.

Table 2. Rural and urban-origin students according to their course of study (n=1633).

<table>
<thead>
<tr>
<th>Course of Study</th>
<th>Rural</th>
<th>%</th>
<th>Urban</th>
<th>%</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicine</td>
<td>230</td>
<td>14.1</td>
<td>417</td>
<td>25.5</td>
<td>647</td>
<td>39.6</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>40</td>
<td>2.4</td>
<td>131</td>
<td>8.0</td>
<td>171</td>
<td>10.4</td>
</tr>
<tr>
<td>Physiotherapy</td>
<td>51</td>
<td>3.1</td>
<td>104</td>
<td>6.4</td>
<td>155</td>
<td>09.5</td>
</tr>
<tr>
<td>Occupational Therapy</td>
<td>49</td>
<td>3.0</td>
<td>106</td>
<td>6.5</td>
<td>155</td>
<td>09.5</td>
</tr>
<tr>
<td>Sports Science</td>
<td>9</td>
<td>0.6</td>
<td>56</td>
<td>3.4</td>
<td>65</td>
<td>04.0</td>
</tr>
<tr>
<td>Dentistry</td>
<td>35</td>
<td>2.1</td>
<td>24</td>
<td>1.5</td>
<td>59</td>
<td>03.6</td>
</tr>
<tr>
<td>Speech language pathology</td>
<td>13</td>
<td>0.8</td>
<td>39</td>
<td>2.4</td>
<td>52</td>
<td>03.2</td>
</tr>
<tr>
<td>Dental therapist</td>
<td>25</td>
<td>1.5</td>
<td>25</td>
<td>1.5</td>
<td>50</td>
<td>03.0</td>
</tr>
<tr>
<td>Dietetics</td>
<td>24</td>
<td>1.5</td>
<td>14</td>
<td>0.9</td>
<td>38</td>
<td>02.4</td>
</tr>
<tr>
<td>Audiology</td>
<td>10</td>
<td>0.6</td>
<td>24</td>
<td>1.5</td>
<td>34</td>
<td>02.1</td>
</tr>
</tbody>
</table>
Table 3 shows that there were significantly more rural origin students who participated in the study at SMU (p < 0.001), while the opposite was true for UCT and UKZN (p < 0.001 in both cases). Overall, there was proportionally more UOS than ROS (p < 0.001).

Table 3. The proportion of rural and urban origin students per university (n=1633).

<table>
<thead>
<tr>
<th>Student Origin</th>
<th>SMU</th>
<th>UKZN</th>
<th>UCT</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural n (%)</td>
<td>462 (61.9)</td>
<td>137 (28.1)</td>
<td>55 (13.8)</td>
<td>654 (40.0)</td>
</tr>
<tr>
<td>Urban n (%)</td>
<td>284 (38.1)</td>
<td>351 (71.9)</td>
<td>344 (86.7)</td>
<td>979 (60.0)</td>
</tr>
<tr>
<td>Total</td>
<td>746 (100.0)</td>
<td>488 (100.0)</td>
<td>399 (100.0)</td>
<td>1633 (100)</td>
</tr>
<tr>
<td>P-values</td>
<td>&lt; 0.001</td>
<td>&lt; 0.001</td>
<td>&lt; 0.001</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

Table 4 above demonstrates that the main motivating factors in their order of frequency were parents (505; 30.9%), personal exposure (484; 29.6%) and the combined siblings and other family members (189; 11.5%). Significantly more UOS than ROS indicated that they had been motivated by parents to choose a career in health sciences (337; 20.6%) versus (168; 10.3%), p < 0.001. Furthermore, significantly more UOS than ROS indicated that they had been motivated by personal exposure (320; 19.6%) versus (164; 10.0%), p < 0.001. There was no significant difference between these two groups of students regarding the other listed motivating factors, p > 0.05.

Table 5 below demonstrates the comparison per university between UOS and ROS regarding their motivating factors to choose a career in health sciences. Except for SMU, the trend observed in the combined picture (Table 4) was again demonstrated among the UOS and ROS regarding parents and personal exposure as motivating factors (p < 0.001), in both institutions.

Table 5. Comparison of the motivational factors among rural and urban origin students per university (n=1633).

<table>
<thead>
<tr>
<th>Motivating Factors</th>
<th>ROS n (%)</th>
<th>UOS n (%)</th>
<th>Total n (%)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SMU</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents</td>
<td>113 (15.1)</td>
<td>78 (10.5)</td>
<td>191 (25.6)</td>
<td>0.179</td>
</tr>
<tr>
<td>Siblings</td>
<td>49 (6.6)</td>
<td>19 (2.5)</td>
<td>68 (9.1)</td>
<td>0.253</td>
</tr>
<tr>
<td>Other family members</td>
<td>39 (5.2)</td>
<td>18 (2.4)</td>
<td>57 (7.6)</td>
<td>0.436</td>
</tr>
<tr>
<td>Friends</td>
<td>35 (4.7)</td>
<td>14 (1.9)</td>
<td>49 (6.6)</td>
<td>0.440</td>
</tr>
<tr>
<td>Mentors</td>
<td>11 (1.5)</td>
<td>8 (1.1)</td>
<td>19 (2.6)</td>
<td>0.915</td>
</tr>
</tbody>
</table>
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4. DISCUSSION

The study has demonstrated that overall, the main motivating factors for students to follow a career in health sciences were parents, personal exposure, siblings and other family members. There was a significant difference in proportions between the ROS and UOS in the combined universities regarding parents and personal exposure as motivating factors. Mentors and university lecturers featured the least as motivating factors for both the ROS and UOS, with no significant difference between these students.

4.1. Parental Motivation

This study showed that, in comparison with other factors, parents were a significant motivating factor for students to choose a career in health sciences when the three universities were combined, (as well as in UKZN and UCT when considered individually), with a significantly higher proportion among UOS. In a study conducted among 124 high school pupils in Houston (USA), Willcockson and Phelps also confirmed that the family ranked the highest in terms of influencing the career choice of an individual [6]. Furthermore, parental attitude to science was also shown to have a positive influence on primary and secondary school children to aspire for a career in science in the UK [34]. Unlike in this study, the USA and UK studies did not differentiate between ROS and their urban counterpart. In his dissertation, Clutter highlighted the effects of parental influence on the carrier choices of their children, emphasising that the decision impacts not only on the student, but the family system as a whole [30]. The parental influence was also demonstrated by Olaosebikan and Olusakin in the career choices of adolescents at secondary school level in Nigeria [35].

A study by Maharaj, investigating factors affecting the career choice of selected first year health-care students...
(physiotherapy, chiropractic, medicine and occupational therapy) in KwaZulu-Natal, demonstrated a similar trend whereby parents were a major factor influencing career choice (68.1%) followed by the significant other people (42%) [7]. This study showed that parents (in terms of absolute numbers) were the most consistent motivational factor in the three participating universities. However, there was scarcity of studies comparing parental influence on the choice of a career in health sciences between rural and urban origin students.

4.2. Personal Exposure

In this study, personal exposure was one of the major motivating factors for a student to choose to pursue a career in a health science course. As explained in the study background above, personal exposure entailed an event or events in which the individual had a personal experience with the health care environment and the health care personnel in action. Studies in other fields have shown that among the extrinsic factors responsible for a career choice in that field was the exposure of the scholar in that field [36, 37]. Past experience with career activities and working in hospital were shown to play a major motivational role in individuals’ decision to follow a career in nursing in Hong Kong [29]. The study by Maharaj showed that previous past experience with a professional from a chosen career field (comparable to personal exposure in this study) had a relatively strong influence (46.4%) among the students’ career choices [7]. The proportion in the study by Maharaj was slightly higher than that in this study (25.1% in ROS and 32.7% in UOS). However, Maharaj did not compare rural and urban origin students, which comparison (in this study) showed that personal exposure significantly motivated more urban than rural origin students for a career choice in health sciences [7].

4.3. Siblings and other Family Members

It has been shown that the relationship among siblings can be supportive or antagonistic in various aspects of life [38]. A study conducted in the USA on the career choices of children and the influence of their parents and siblings, indicated that up to 15% of 2.37 million same gender siblings shared a similar occupation through the influence among themselves [39]. This study showed a low combined proportion of students (5.9%) who were motivated by their siblings for a career in health sciences. This could be explained by the relatively low sample size in this study. There were no comparable studies found in literature in this regard.

4.4. Friends and Teachers

Although studies have shown a significant role of friends in influencing students towards a career in health sciences [40, 41]; in this study the proportion of students who had been motivated by friends was low for both the ROS and their counterpart. In the late 1990s, lack of information about careers and entry requirements by institutions of higher learning were identified as factors adversely affecting student career choices in the rural and remote areas of Australia [42]. The authors of this article are of the view that such information should be provided by the school teachers through career guidance. In support of this view, it has been shown that visiting professionals from various fields have a positive influence for a career choice among scholars [43]. Research conducted by Alexander, et al in South Africa indicated that teachers, like parents play a significant role in the motivation of scholars towards a career choice [37].

4.5. Mentors, University Lectures and Role Models

The effectiveness of mentorship as a motivation strategy for a career choice has been demonstrated [15, 16]. The combined picture of the three universities showed that a low proportion of students (rural and urban origin) were motivated by mentors in their choice of a career in health sciences. This could mean that there was poor awareness on mentorship among high school students. In 1989, the Teachers and High School Students (TAHSS) Program was founded in Boston, Massachusetts (USA) to expose interested high school students of varied backgrounds to health care and related professions, providing mentorship support in their academic and personal development. This program has been shown to yield positive results by giving the necessary motivation and direction to the students [44]. A study conducted by Wolhuter et al. in South Africa showed that role models ranked very low (8th of the 12 listed factors) as a motivating factor for a career choice in the field of education [45]. The conducted study also demonstrated a low proportion of students who were motivated by role models for a career in health sciences. Again, there was scarcity of literature on role models as motivators for a career in the field of health sciences.

4.6. Strength and Weaknesses

The combined sample size obtained from the three universities was large to validate the results (power of the study). However, since it was voluntary, those who did not consent may have introduced selection bias in the study.
CONCLUSION

The study has demonstrated the important role of the family and student’s personal exposure to the health environment in motivating both the rural and urban-origin students for a career in health sciences. Mentors and university lecturers featuring as the least motivating factors for both the ROS and UOS reveals an untapped source of motivation for a career choice among student interested in following a career in health sciences.

RECOMMENDATIONS

Personal exposure entailed being under the care of a health care personnel (as a scholar) as a result of ill-health or while escorting an important other to a health care facility. It is therefore recommended that health care professionals should bring the exposure to scholars at their various schools through annual career motivation days.

Since parents formed the largest motivating factor in career motivation for their children, especially the UOS, this resource should be supported through invitations during career guidance conducted on open days in schools and institutions of higher learning. This could empower them to become even more effective career motivators.

Personal exposure of students to a health environment and health care personnel should be ensured in various schools.

Further studies should be conducted to explore the reasons underlying the difference between the ROS and UOS regarding the motivating factors towards their choice in following a career in health sciences.

AUTHORS CONTRIBUTIONS

L.H.M. drafted the manuscript. B.N. provided intellectual input and reviewed the draft manuscript. Both authors approved the final manuscript and agreed to submission to the Open Public Health Journal for publication.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethical approval for the study was granted by the ethics committees of all three participating universities (UL-MREC/M/63/2010: IR, UKZN-HSS/0966/09 and UCT-HREC 353/2011).

HUMAN AND ANIMAL RIGHTS

No animals were used for studies that are based of this research. All human research procedures followed were in accordance with the ethical standards of the committee responsible for human experimentation (institutional and national), and with the Helsinki Declaration of 1975, as revised in 2008.

CONSENT FOR PUBLICATION

The study details were explained to each student, and written informed consent to participate was obtained before the study commenced.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest, financial or otherwise.

ACKNOWLEDGEMENTS

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REFERENCES

The Open Public Health Journal, 2018, Volume 11


[12] Oosoki A, White J, Morago S, Van Sickel J. Factors affecting science undergraduates choice of teaching as a career A case study at Humboldt State University Humboldt State University, California Available from: http://www.academia.edu/9139978/Factors_Affecting_Science_Undergraduates_Choice_of_Teaching_as_a_Career_A_Case_Study_at_Humboldt_State_University2


[27] Peach HG, Bath NE. Comparison of rural and non-rural students undertaking a voluntary rural placement in the early years of a medical


[31] University of the Western Cape Collaboration for Health Equity through Education and Research (CHEER) Available from: https://www.uwc.ac.za/CE/Pages/Cheer.aspx


[44] Tufts University, School of Medicine, Boston (USA). Teachers and High School Students Program (TAHSS) Available from: http://medicine.tufts.edu/About-Us/Administrative-Offices/Office-of-Multicultural-Affairs/Pipeline-Programs/Teachers-and-High-School-Stu dent-Program

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