

## ORIGINAL RESEARCH

# Effect of rural practice observation on the anxiety of medical students

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## ABSTRACT

**Introduction:** The aim of this study is to identify the level and causes of anxiety of sixth year medical students related to working in a rural area and the effect of a 1-day mobile rural health service observation on their anxiety.

**Methods:** In the Ondokuz Mayis University Medical School in Samsun, Turkey, 212 students participated in a 1-day mobile rural health service led by a family physician. Between June 2011 and June 2013, during their family medicine internship, each student completed a structured questionnaire and a State-Trait Anxiety Inventory (STAI) before and after the observation.

**Results:** A total of 85.8% of the students preferred to work in an urban area compared to 14.2%, who preferred a rural area. Currently, 89.6% of the students live in an urban area while 84.4% had lived in an urban area during most of their childhood. A total of 18.5% had no opinion about living conditions in a rural area, 71.7% thought they would be able to deal with the challenges, and 52.4% said the idea of working in a rural area made them anxious. Those students who had lived in a rural area as a child were found to be less anxious about working in a rural area. The association between the preferred work area and the student's anxiety about working in a rural area was statistically significant ( $p < 0.001$ ). Of the students, 76.8% thought that rural areas are more difficult places to work; a major reason for this as stated by 76.4% was the desire to have access to easy transportation. Difficult living conditions was noted by the students as their main reason for not wanting to work in a rural areas. Of the students, 77.8% answered that the 1-day rural health service observation positively affected their perspective on working in a rural area. There were 102 (48.1%) anxious students before the observation and the total decreased to 87 (41%) after the observation.

**Conclusions:** Difficult living conditions were the main reason for students' anxiety about working in a rural area. Most of the students answered that the curriculum positively affected their perspective. Medical schools should provide students with the rural primary care environment experience, which would decrease their anxiety.

**Key words:** family medicine, mobile health service, primary care, rural practice, student anxiety, Turkey.



## Introduction

The internship period is a critical time in the lives of young doctors as this is when they make career decisions and gain confidence in their clinical skills<sup>1</sup>. Effective curriculums have recommended that doctors work in rural areas<sup>2</sup>. Training and practice in a rural environment that begins in the first years of their training affects the decisions of medical students when selecting to work in rural primary health care. This early exposure to the diversity of a rural medical practice provides the students with a level of knowledge and skills required for the primary care field<sup>3</sup>. The studies show that the students were positively affected by working in a rural area after a rural medicine clerkship<sup>1,3-5</sup>.

In Turkey, physicians who choose to specialize in family medicine or other specialties have to pass a standard exam, which allocates them to a residency program according to their score. The physicians who do not pass the specialty exam are granted a certified family doctor position with a smaller salary than specialists in the National Primary Health Care System<sup>6</sup>. Both family medicine specialists and certified family doctors work in primary care in rural and urban areas<sup>7</sup>. In Turkey, family medicine is a relatively new specialty, having been established through legislation in 1983. The first vocational training program was started in 1985<sup>6,7</sup>.

In this study the objective was to identify the level and causes of anxiety of the sixth year medical students related to working in a rural area and the effect of the 1-day mobile rural health service observation on their perceptions, thoughts and anxiety.

## Methods

### *Study design*

In the Ondokuz Mayıs University Medical School as part of the family medicine clerkship, all of the 212 sixth year students (with 9 or 10 in one group) participated in a 1-day

mobile rural health service led by a family physician working in the Carsamba Hacilicay village, which is near the city of Samsun. The students were transported in a bus provided by the administrative office of the university; the duration of their trip was 1.5 hours. The family doctor exposed the students to diverse health services, including outpatient care, homecare, home visit, and vaccination. The observation occurred both in the center and in two subdivisions of the village. The students spent a total of 5 hours in the village.

### *Questionnaire and measures*

All of the students agreed to participate in the study. Between June 2011 and June 2013, each student completed a structured questionnaire 30 minutes after the trip. The questionnaire was prepared based on literature searches of similar studies<sup>4,5</sup>. The questionnaire consisted of demographic data, questions regarding specialty choices, preferences on working in rural or urban areas, and questions focused on the effect of the observation on their thoughts about a rural practice and their willingness to work in a rural area. Each student used a pseudonym so the results remained anonymous. A State-Trait Anxiety Inventory (STAI) assessment<sup>8</sup> was also used.

### *State-Trait Anxiety Inventory assessment*

Each student completed a STAI assessment 30 minutes prior to the trip and 30 minutes after the trip. The STAI assessment measures two types of anxiety: state anxiety, or anxiety about an event (eg rural area observation), and trait anxiety, or anxiety level as a personal characteristic. Higher scores are correlated positively with higher levels of anxiety. The STAI assessment consists of 44 items, and there are two kinds of statements, one to explain negative emotions and one to explain positive emotions<sup>7</sup>. The S-Anxiety scale consists of statements that evaluate how respondents feel 'right now, at this moment', eg 'I feel at ease'. The other four response choices for this scale are 'not at all', 'somewhat', 'moderately so', 'very much so'. The STAI scale consists of statements that evaluate how respondents 'generally' feel, eg 'I am a



steady person'. The other four response choices for this scale are 'almost never', 'sometimes', 'often', 'almost always'<sup>8</sup>.

## Definition of 'urban' and 'rural'

There is no internationally valid definition for rural and remote areas. Some countries have created official urban-rural area classifications. Many countries have not, and researchers in those countries need to define what is and is not rural. Variables that are often used in defining rural areas are population size and density, distance from an urban area, concentrations of workforce relative to population, and the administrative classification of a particular area<sup>9</sup>. For the present study, the 2008 Turkish Demographic and Health Survey (TDHS-2008) was used, which defines 'urban' as a population greater than or equal to 10 000, and 'rural' as a population less than 10 000<sup>10</sup>. This information was provided to the students before they completed the questionnaire.

## Statistical analysis

Demographic data from the questionnaire and inventory results were analyzed using the Statistical Package for the Social Sciences v15.0 (SPSS 2006, <http://www.spss.com>). Data were evaluated and presented as frequencies. Anxiety about working in a rural area was a dependent variable; gender, locations of childhood and current home, willingness to work in rural area, and effect of the curriculum were the independent variables in the study. Student *t*-test and  $\chi^2$  test were used to analyze statistical significance, and the significance level was accepted as  $p < 0.05$ .

## Ethics approval

The study was approved by the Ethical Committee of Ondokuz Mayıs University Medical School in 2011, study approval number 716.

## Results

A total of 212 sixth year medical students participated in the study. Of those, 101 (47.6%) were female and 111 (52.4%)

were male. The mean age of the group was  $24.27 \pm 1.30$  years.

A total of 207 (97.6%) students wanted a specialty education. The specialty choices ranked in order of preference were dermatology, physical therapy and rehabilitation, pediatrics, and family medicine with 16 students (7.5%) selecting each specialty. A total of 28 students (13.2%) did not specify a preference. Radiology ranked fifth with 13 (6.1%) participants selecting that field. Orthopedics and ophthalmology were in sixth place with 12 (5.7%) students each. Otorhinolaryngology and urology were selected by only a few students. Internal medicine, general surgery, anesthesiology, child psychiatrics, public health, and emergency medicine were rarely chosen specialties. For the female students in the group, dermatology was the first choice with 16 (15.8%) interns; physical therapy and rehabilitation was second with 11 (10.9%). For the male students, orthopedics was their first choice with 12 (10.1%) interns; family medicine was second with 11 (9.9%) ( $p < 0.001$ ).

A total of 182 (85.8%) students indicated that they would prefer working in an urban area as a practitioner rather than in a rural area after specialization. There was an even split among the sexes with a total of 91 female (90.1%) and 91 male participants (82.0%) preferring to work in an urban area. Of all of the students who participated in the 1-day health service observation, only 30 (14.2%) indicated that they wanted to work in a rural area.

When the students were asked, 'Where do you want to work?', 182 (85.8%) preferred an urban area and 30 (14.2%) preferred a rural area.

At the time, 190 (89.6%) were living in an urban area while 22 (10.4%) students lived in a rural area. A total of 179 (84.4%) students stated that they had lived in an urban area for most of their childhood, while 33 (15.6%) had lived in a rural area during that period. Students who lived in a rural area for most of their childhood were significantly less likely ( $p = 0.005$ ) to report anxiety about working in a rural



area (9, 27.2%) than students who had lived in an urban area (101, 56.7%).

When the students were asked, 'Do you have any opinion about living conditions in a rural area?' 172 (81.5%) said 'yes'.

When the students were asked, 'Do you think you will be able to deal with the challenges associated with living in a rural area while working in that area?' 152 (71.7%) said 'yes'.

When the students were asked, 'Does the idea of working in a rural area make you anxious?' 111 (52.4%) indicated that they felt anxious. Students who were anxious about working in a rural area preferred not to work in that area. The association between the preferred work area and anxiety about working in a rural area was statistically significant ( $p < 0.001$ ) (Table 1).

When the students were asked, 'Which one is better: to work away from your family in an urban area or to be close to your family in a rural area?' 131 (61.8%) answered 'urban' and 81 (38.2%) answered 'rural'.

When the students were asked, 'What kind of area is more difficult to work in?' 162 (76.8%) answered 'rural'.

Students were asked to choose the facility or facilities they would want access to in their working area. The choices were Internet, movie, theater, hotel, gymnasium, cafe, banks, facility to study for a specialty exam, shopping center, being close to big provinces, and easy transportation. A total of 162 (76.4%) students indicated that easy transportation was the most important factor for them. The Internet was second with 155 (73.1%) students, followed in third place by being close to the big provinces, for 129 (60.8%) students. The least requests were for facilities to study for the specialty exam, hotel, and gymnasium.

Of the students, 158 (74.5%) thought that a rural practice is more difficult for women, 3 (1.4%) thought that is also true for men, and 51 (24.1%) thought that there is no difference.

About financial opportunities, 147 (69.3%) students thought that working in a rural area presents better financial opportunities, while 65 (30.7%) thought that an urban area would be better financially.

When the students were asked, 'Which area (ie rural or urban) was viewed as a more prestigious place to work?' 166 (78.7%) answered 'rural'. When the students were asked, 'How would working in a rural area affect your professional career?' 162 (76.4%) thought it would have a negative impact on their career.

When students were asked to state the main reason for their unwillingness to work in a rural area, 40 (18.9%) of them indicated they felt the living conditions would be difficult, 19 (9.0%) stated they thought that access to facilities would be limited, 18 (8.5%) indicated that social activity would be limited, 17 (8.0%) felt that access to transportation would make living there difficult, and 16 (7.5%) stated they thought the working environment would be inadequate to meet their needs.

A total of 165 (77.8%) students answered that the observation had a positive effect on their perspective; 47 (22.2%) had a negative response. Of the positively affected group, 29 (17.6%) students want to work in a rural area; however, 136 (82.3%) students still preferred an urban area. In the negatively affected group, one (2.1%) student wanted to work in a rural area, and 46 (97.9%) preferred an urban area.

Of the 165 positively affected students, 82 (49.7%) said working in a rural area made them anxious, while 83 (51.3%) indicated that they did not experience any anxiety regarding working in a rural area. Of the 47 negatively affected students, 29 (61.7%) said working in a rural area make them anxious and 18 (38.3%) said they were not.

Of the 111 students who were anxious about working in a rural area, 82 (73.9%) students were affected positively by their rural observation experience, and 29 (26.1%) were negatively affected. Out of 101 students who did not



feel anxious, 83 (82.2%) were affected positively by their rural observation experience, and 18 (17.9%) students were negatively affected. The questionnaire findings show that both the non-anxious and anxious groups were affected positively after the one-day rural health service observation ( $p=0.099$ ).

### *State-Trait Anxiety Inventory results*

Mean scores of the STAI assessment answers were evaluated by comparing the trait results before the observation with the state results after the observation. After the rural health service observation, a decline was seen in the number of anxious students ( $p<0.001$ ). Mean scores were 38.75 and 34.14, respectively, for the before and after tests. The students with scores greater than the mean were accepted to fall into the anxious category (Table 2).

## Discussion

### *Study group characteristics*

In the present study, 47.6% of the students were female and 52.4% male. The mean age of the group was  $24.27\pm 1.30$  years. In Turkey, 42.6% of the medical students are female<sup>11</sup>.

Of the students in the present study, 74.5% think that a rural practice is more difficult for women. In rural areas, the number of female doctors is still less than male doctors. Of the female doctors, 35% said they would take into consideration the wishes of the husband and children, but only 10% of the male doctors would do the same. The women wanted a lighter workload<sup>12</sup>.

The literature indicates that most medical students want to specialize. Studies in Turkey and other countries indicate that students generally prefer other specialties over primary care<sup>9</sup>. The authors of this study conducted a similar study involving 770 students. In that study, we found that 99.6%<sup>13</sup> of the

students preferred other specialties over primary care medicine.

Students view a rural family medicine specialty as prestigious for others, but interestingly, they do not elect a rural family medicine specialty practice for themselves. In some studies, the students indicated that family medicine does not contribute to their personal development<sup>14</sup>.

### *Working in urban versus rural areas*

In the present study, the results show that students prefer to work in an urban area. When students were asked which area was more difficult to work in, 76% answered 'rural'. Participants thought that their professional career, research and educational opportunities, and prestige would be better in an urban area<sup>15,16</sup>.

A total of 85.8% students indicated that they would prefer working in an urban area as a practitioner without a specialization rather than working in a rural area as a family medicine specialist. That total was evenly split: 90.1% of the female students and 82% of male students preferred to work in an urban area. The literature validates that fewer students prefer to work in a rural area. In Australia, 27% of the medical students preferred to work in a rural area<sup>17</sup>. In a study in Turkey, 13.5% of the newly graduated students wanted to work in underdeveloped areas. Gender affects this choice as indicated by 9.1% of the female students preferring an underdeveloped area compared to 17.5% of the male students<sup>15</sup>.

At the time, 89.6% of students were living in an urban area, and 84.4% stated that they had lived in an urban area during most of their childhood.

Difficult living conditions were the main reason for the students' unwillingness to work in a rural area. In another study, final year students were asked about why they were unwilling to work in a rural area; 95% talked about the difference between lifestyle, and 57% indicated the difficult working conditions<sup>18</sup>.



**Table 1: Anxiety related to working in a rural area relevant to willingness to work in a rural or urban area**

| Anxiety about working in a rural area | Willingness to work in a rural or urban area (n(%)) |              |              |
|---------------------------------------|---|--------------|--------------|
|                                       | Rural   | Urban        | Total        |
| Yes                                   | 3 (10.0%)   | 108 (59.3%)  | 111 (52.4%)  |
| No                                    | 27 (90.0%)  | 74 (40.7%)   | 101 (47.6%)  |
| Total                                 | 30 (100.0%)   | 182 (100.0%) | 212 (100.0%) |

**Table 2: Mean scores of the State-Trait Anxiety Inventory answers and number of students over the mean score**

| Inventory      | Mean score $\pm$ standard deviation | N (%) of students over the mean score |
|----------------|-------------------------------------|---------------------------------------|
| Trait (before) | 38.75 $\pm$ 7.33                    | 102 (48.1%)                           |
| State (after)  | 34.14 $\pm$ 9.11                    | 87 (41.0%)                            |

Of the study group, only 18% did not have any opinion about living conditions in a rural area. However, in another study, the students were anxious about living in a rural area. The students perceived that the rural and urban financial conditions were not equal<sup>19</sup>. In another study, 45% of the participants preferred to work in an urban area because they felt that living in a rural area would result in difficult living conditions, limited social life, and limited educational opportunities<sup>20</sup>. In the present study, difficulties in living conditions, transportation, and uncertainty seem to be the most important factors creating anxiety around living in a rural area.

In the present study, the idea of working in a rural area created anxiety in 52% of students. The students who were anxious about working in a rural area preferred not to work in that area. Students indicated that they were anxious because they thought that there would be a lack of staff, equipment, laboratories, and ambulances in rural areas. Furthermore, the students were asked which they preferred: to work in an urban area away from their family or to work in a rural area close to their family. A total of 61.8% answered 'urban'. In another study, it was determined that being away from family and friends affected the doctor's decision

whether to work in a rural area<sup>21</sup>. In particular, it was found that the family, spouse, and friends affected their preference<sup>22</sup>. In the present study this is supported as students indicated that they thought that moving to a rural area would be difficult for two reasons: their spouse being able to find a comparable job, and being able to provide the best education for their children<sup>23</sup>.

Easy transportation was the most important factor cited by students for working in an urban area. The Internet was second, followed by being close to the big provinces. Similarly, Internet connection and electronic health recording system were found to be necessary<sup>24</sup>.

A positive association was observed between rural background and preference for rural practice<sup>16,19,25</sup>. In a rural environment, the students perceived seeing more patients as beneficial for their experience<sup>26</sup>.

Of the students, 71.7% thought that they would be able to deal with the challenges associated with living in a rural area while working in that area.



In Greece and Turkey, the patients in rural areas prefer to visit private doctors even if long distance trips are required<sup>26</sup>. Tattersall reported that the nearest mall is located one hour away, but Internet shopping is possible. In the future, telemedicine may be a unique opportunity for rural doctors<sup>27</sup>.

Of the students in the present study, 69% reported that working in a rural area presented better financial opportunities. In another study, the students thought that financial opportunities in the rural areas are worse<sup>28</sup>. The European Rural and Isolated Practitioners Association (EURIPA) focuses on the financial problems of the rural doctors<sup>29</sup>. Most of the students in the present study think that a rural practice is more prestigious. However, when they were asked how working in a rural area would affect their professional career, 76.4% stated that it would have a negative effect.

Viscomi et al. found that rural doctors were perceived to be less qualified and this has a negative affect on the choice of a rural practice<sup>21</sup>. The people living in rural areas need qualified family physicians<sup>30</sup>.

The authors of the present study concluded that a rural clerkship has a positive impression on students in selecting to work in a rural area. Most of the students answered that the rural observation positively affected their perspective and decreased anxiety. Blue et al. found that, after a rural medicine clerkship, the students were positively affected by working in a rural area<sup>18</sup>. Providing rural medicine opportunities is recommended for the students<sup>27</sup>. A total of 463 students were evaluated between and after an 8-week rural rotation. At the end of the first week, 52% did not think they would want a rural career, 13% were hesitant, and 35% were positive. At the end of 8 weeks, 76% revealed a positive attitude toward a rural practice<sup>31</sup>. In another study, 85% were found to be affected positively after a rural clerkship, 12% thought that experience was really necessary, and 86% who preferred rural made this decision after the clerkship<sup>32</sup>.

There is an interest in rural medical education. The focus has been on offering students a rural practice experience; there is evidence that this is an important factor in their choice of a future career<sup>25</sup>. The WONCA Working Party recommends that all medical students should have an opportunity for rural exposure<sup>29</sup>.

After the rural health service observation, anxiety scores decreased. In the literature, a rural practice study using these inventories could not be accessed. In a study, anxiety about the working conditions was evaluated with the same inventories; 70% of the students were found to have anxiety. Their STAI scores were  $43.8 \pm 7.93$ <sup>33</sup>.

Currently, Ondokuz Mayıs University is the only university in Turkey that offers a rural clerkship curriculum. In the US, 16% of family doctors complained that they could not participate in a rural clerkship<sup>32</sup> as this experience was not offered as part of their university curriculum. The majority of medical schools in the US and Europe have included such courses in primary care<sup>33</sup> in their curriculum.

## *Limitations*

Because Ondokuz Mayıs University Medical School is the only school in Turkey that offers this curriculum, there is little Turkish literature on this subject.

## Conclusions

Difficult living conditions were the main reason for students' anxiety about working in a rural area. Most of the students answered that the curriculum positively affected their perspective.

Medical schools should provide students with a rural primary care environment experience to alleviate any anxiety associated with working in a rural location.



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