

A Neglected Priority: Medical Doctors' Awareness of Travel Medicine in Turkey

İhmal Edilen Bir Öncelik: Türkiye'de Tıp Doktorlarının Seyahat Tıbbi Farkındalığı

Varol Tunalı

Muğla University Faculty of Medicine, Department of Emergency, Muğla Turkey

Cite this article as: Tunalı V. A Neglected Priority: Medical Doctors' Awareness of Travel Medicine in Turkey. Türkiye Parazitol Derg 2021;45(4):293-303.

ABSTRACT

Objective: This study aimed to assess the attitudes and awareness of medical doctors practicing in Turkey about the discipline of travel medicine (TM).

Methods: This study was a cross-sectional survey conducted via the internet for 1 month between January 10, 2020 and February 10, 2020. The study participants were medical students or graduated medical doctors. The questionnaire used for the survey was broadly structured to measure participants' education on TM, perception of TM, and general knowledge about TM.

Results: A total of 502 participants were included in the study, of which 188 (37.4%) were medical students and 314 (62.6%) were medical doctors. Forty-nine out of 82 (60%) medical faculties' students or graduates took part in this study. Experience in medicine was significantly associated with education and perception of TM but not with general knowledge about TM.

Conclusion: Our data indicate that medical doctors in Turkey are not familiar with the discipline (60%) and that the medical doctors believe that the importance of TM is increasing (58.4%). In total, 93.2% participants believe that social awareness about TM is insufficient. A total of 69% participants believe that infectious diseases make up the bulk of TM. To the best of our knowledge, this study is the first study to assess the awareness and attitudes of medical doctors in Turkey about TM.

Keywords: Travel medicine, medical education, migration medicine, Turkey

ÖZ

Amaç: Bu çalışmanın amacı, Türkiye'de görev yapan tıp öğrencisi ve doktorların seyahat tıbbi (ST) disiplini hakkındaki tutum ve farkındalıklarını değerlendirmektir.

Yöntemler: Bu çalışma, 10 Ocak-10 Şubat 2020 tarihleri arasında internet üzerinden bir ay süreyle dağıtılan kesitsel bir anket çalışmasıdır. Katılımcılar tıp fakültesi öğrencileri ve mezun doktorlardan oluşmaktaydı. Anket, katılımcıların ST konusundaki; "A: ST Eğitimi; B: ST Algısı; C: ST Hakkında genel bilgi" parametrelerini ölçmek üzere yapılandırıldı.

Bulgular: Çalışmaya 502 katılımcı dahil edildi. Katılımcıların 188'i (%37,4) tıp öğrencisi ve 314'ü (%62,6) mezun tıp doktoru idi. Türkiye'deki 82 tıp fakültesinden 49'unun öğrenci ve mezunları (%60) bu çalışmaya dahil edildi. Mesleki tecrübe, ST eğitimi ve algılanmasıyla önemli ölçüde ilişkili bulunurken, ST hakkında genel bilgi ile ilişkili olmadığı görüldü.

Sonuç: Verilerimiz, Türkiye'deki tıp doktorlarının ST disiplinine aşina olmamakla beraber (%60), ST'nin öneminin arttığına inandıklarını (%58,4) gösteriyor. Katılımcıların %93,2'si ST ile ilgili sosyal farkındalığın yetersiz olduğuna ve %69'u ise bulaşıcı hastalıkların ST'nin en büyük bileşeni olduğuna inanıyor. Çalışmamız, bilindiği kadarıyla tıp doktorlarının ST konusundaki farkındalıklarını ve tutumlarını değerlendiren Türkiye'deki ve literatürdeki ilk çalışmadır.

Anahtar Kelimeler: Seyahat tıbbi, tıp eğitimi, göçmen sağlığı, Türkiye

INTRODUCTION

Travel medicine (TM) defines all travel-related health and illness conditions. It is a medical discipline that can be dealt with in a wide range, from infectious diseases such as malaria, tourist diarrhea, yellow fever to problems encountered during travel such as trauma, embolism, jet-lag, sunburn, and all similar travel-related conditions (1,2). Although TM is a

comprehensive discipline, one of its main components is infectious diseases (3,4). Among these infectious diseases, parasitic and tropical diseases are the major causes of mortality and morbidity (5-7).

International travel is one of the most important routes for the spread of infectious diseases (8). It is reported that in 2018, 1.4 billion people traveled internationally and the world tourism volume



Received/Geliş Tarihi: 20.04.2021 Accepted/Kabul Tarihi: 20.08.2021

Address for Correspondence/Yazar Adresi: Varol Tunalı, Muğla University Faculty of Medicine, Department of Emergency, Muğla Turkey
Phone/Tel: +90 555 630 32 31 E-mail/E-Posta: varoltunalı@gmail.com ORCID ID: orcid.org/0000-0003-1799-2539

exceeded \$1.7 trillion (9). TM, which is a relatively new field of medicine, is a discipline that directly affects more than 1.4 billion people all over the world and indirectly concerns the whole world population. TM is expected to develop rapidly due to reasons such as increased travel opportunities and facilitation of international travel in general (10). There are travel disease clinics and centers in Europe, Australia, and North America, and collaborations such as GeoSentinel and EuroTravNet try to provide worldwide surveillance (3,4).

Turkey is situated as a geographical bridge between three continents; Asia, Africa, and Europe. Owing to its geographical location, it is a major route for displaced people like migrants, asylum seekers, and refugees to get to Europe. According to the United Nations Refugee Agency (UNHCR), 57% of UNHCR refugees came from 3 countries; Syria, Afghanistan and South Sudan (11). Turkey is the main route for Syrian and Afghan refugees to get in Europe and thus Turkey is the World's largest refugee-hosting country with more than 3.7 million refugees (11). There have been several reports of imported cases of malaria and leishmaniasis, both among refugees and Turkish residents (12,13). In addition to that, with its temperate climate, long coastal line, and rich cultural heritage, Turkey is an important destination for international tourists. According to the World Tourism Organization's latest report, Turkey is the 6th top destination for tourist arrivals worldwide, receiving more than 46 million tourists in 2018 (9).

This study aims to assess the awareness and attitudes of medical students and medical doctors practicing in Turkey, about the discipline of TM.

METHODS

Design

This study was a cross-sectional survey that was distributed via the internet for one month between 10 January and 10 February 2020. The participant's consent was obtained by the acceptance for the completion of the questionnaire and all the participant's e-mail addresses were demanded for the authentication via e-mail. All the participants were informed that the answers would be published anonymously.

Subjects

The targeted participants were either medical students or graduated medical doctors over 18 years of age. Medical students were grouped as; 1st-3rd grade and 4th-6th grade medical students and medical doctors as; to 10 years after graduation, 10 to 20 years after graduation and 20 years or more after graduation.

Questionnaire

The questionnaire was pretested for the validity of questions by a group of ten physicians with clinical experience in the field of TM. This group of physicians consists of infectious diseases, internal medicine, emergency medicine, clinical microbiology and clinical parasitology specialists working in various clinics around Turkey. The questionnaire was broadly structured in three objective categories to measure participants'; A. Education on TM, B. Perception of TM, C. General knowledge about TM. The statements in the questionnaire were randomly placed and participants were asked to answer the statements from a five-point likert scale. The participants were asked to give points to each statement, from 1 to 5 where the numbers stand for; 1. Strongly disagree - 5.

Strongly agree. The statements in the questionnaire are shown in Table 1.

Statistical Analysis

Descriptive data analysis of means was conducted using the Statistics package (SPSS Statistics 22 version). Multinomial logistic regression was used with the reference category "medical student 1st-3rd grade". Results were depicted with B coefficients, and 95% confidence intervals. Statistical analysis of each objective category for every participant group has been conducted. Five participant groups have been compared based on the experience level (years passed in medical practice starting from the 1st year of medical faculty).

RESULTS

There were 502 participants included in the study. The participant's answers to statements between Statement-1 (S-1) and S-15 from a scale of 1 to 5 respectively are provided in Table 1. Of all participants (n=502), 22.7% were medical students in the 1st-3rd grade and 14.7% were 4th-6th grade. Participants who are medical doctors who have less than 10 years of experience, 10-20 years of experience and more than 20 years of experience make up 35.9%, 9% and 17.7% of all participants respectively (Figure 1).

Forty-nine out of 82 (60%) Turkish medical faculties' students or graduates have taken part in this study. These medical faculties are distributed across all geographical regions of Turkey.

The average points given to every individual statement by participant groups have been compared statistically. Mean value has been calculated for each objective category (A, B, C) based on the relevant statements. The mean value for each objective category is presented for each participant group in Figure 2.

Statistical analysis of each objective category for each participant group based on their experience levels have been calculated (Table 2). Experience in medicine was significantly associated with education on TM (χ^2 : 12.8, df: 4, p=0.01), and perception of TM (χ^2 : 13.0, df: 4, p=0.01). The association between experience in medicine and general knowledge about TM was below the significance level (χ^2 : 9.06, df: 4, p=0.06). Detailed statistical analysis reports for each statement and objective category has been provided as Supplementary material.

DISCUSSION

Travel history is a very important component of anamnesis. Every physician, regardless of their specializations, institutes or positions, should include travel history for every anamnesis they take (10). A thorough travel history will enable the physician to better identify the possible causes of the illness and enable him/her to contain it in cases of infectious diseases (14). The current Coronavirus disease-2019 (COVID-19) pandemic displays the fragility of our global health administration mechanisms against novel or re-emerging infectious agents (15). Health professionals and, medical doctors in particular, are the main actors for the prevention and management of epidemics or even pandemics caused by these agents. Therefore, their awareness and knowledge about TM is crucial to prevent and contain these situations.

Interpretation of our data indicates that most of the medical doctors in Turkey have not received any education about TM (84.4% of participants) but they are aware of the need for

Table 1. Statements included in the questionnaire about travel medicine (TM) and participants' answers (n=502)

Numbers	Statement	1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree
1	I have heard about/I am familiar with TM discipline	214 (42.6%)	84 (16.7%)	79 (15.7%)	60 (12%)	65 (12.9%)
2	I have had education on TM as a discipline/field	359 (71.5%)	65 (12.9%)	44 (8.8%)	18 (3.6%)	16 (3.2%)
3	I believe I have necessary knowledge/skills about TM	259 (51.6%)	16 (23.1%)	101 (20.1%)	15 (3%)	11 (2.2%)
4	I see TM as a health parameter instead of a discipline	48 (9.6%)	65 (12.9%)	179 (35.7%)	132 (26.3%)	78 (15.5%)
5	I believe the necessary curriculum for TM was available in my education	281 (56%)	120 (23.9%)	79 (15.7%)	11 (2.2%)	11 (2.2%)
6	I believe the importance of TM is increasing	46 (9.2%)	55 (11%)	108 (21.5%)	136 (27.1%)	157 (31.3%)
7	I would like to attend courses, panels and conferences on TM	41 (8.2%)	62 (12.4%)	119 (23.7%)	110 (21.9%)	170 (33.9%)
8	I would plan to apply for Master or Doctorate degree in TM	165 (32.9%)	112 (22.3%)	112 (22.3%)	56 (11.2%)	57 (11.4%)
9	I think the social awareness about TM is sufficient	351 (69.9%)	117 (23.3%)	25 (5%)	6 (1.2%)	3 (0.6%)
10	Infectious diseases is the first thing that comes to my mind about TM	43 (8.6%)	38 (7.6%)	75 (14.9%)	184 (36.7%)	162 (32.3%)
11	Trauma and accidents are the first things that come to my mind about TM	86 (17.2%)	127 (25.3%)	141 (28.1%)	104 (20.7%)	44 (8.8%)
12	I think TM is a multi-disciplinary field	16 (3.2%)	29 (5.8%)	80 (15.9%)	172 (34.3%)	205 (40.8%)
13	I think TM is an important field for the amelioration of human health	23 (4.6%)	45 (9%)	115 (22.9%)	172 (34.3%)	147 (29.3%)
14	I have taken medical support for a cause concerning TM	378 (75.3%)	63 (12.5%)	24 (4.8%)	10 (2%)	27 (5.4%)
15	A relative has taken medical support for a cause concerning TM	291 (68%)	61 (12.2%)	53 (10.6%)	44 (8.8%)	53 (10.6%)

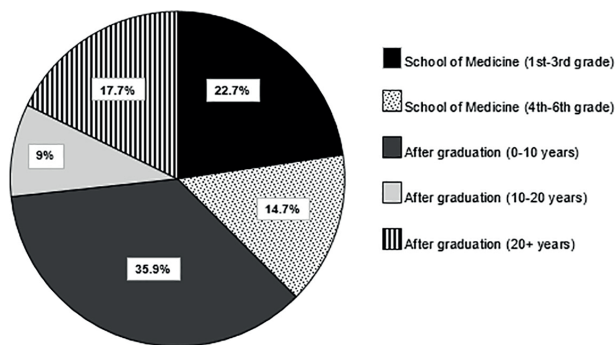


Figure 1. The distribution of participants according to experience groups

education possibilities about it. Perception of TM (Category B) was the highest-ranking objective category for all the study groups, while education on TM (Category A) was the lowest, pointing out the awareness of medical doctors about TM (Figure 2). Among all study groups, 70% of the participants believe that the necessary curriculum for TM was not available to them. Our data also shows that even if most of them are not familiar with the discipline of TM (60%), most of them believe the importance of TM is increasing (58.4%) and they are willing to participate in

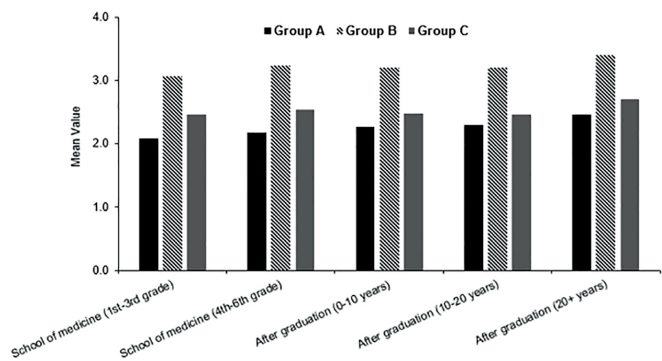


Figure 2. Mean values of the A, B and C objective groups

educational works about TM (55.8%). 93.2% of the participants believe the social awareness about TM is insufficient which in our opinion points out to the fact that if physicians' awareness is improved, social awareness about TM will improve proportionally. Most of the physicians in Turkey believe, infectious diseases make up the bulk of TM (69%) and TM is important for the amelioration of human health (63.6%).

Our study indicates that TM education should be included in the curriculum of medical faculties in Turkey. Several studies have been conducted about the importance of TM education in medical faculties. A single question travel history is no longer sufficient

Table 2. Comparison of medical experience for each objective category (medical faculty 1st-3rd grades are reference)

	Medical faculty 1 st -3 rd grades	Medical faculty 4 th -6 th grades	Medical doctors ≤10 years exp.	Medical doctors 10-20 years exp.	Medical doctors ≥20 years exp.
	Mean B (SD) (95% CI)	Mean B (SD) (95% CI)	Mean B (SD) (95% CI)	Mean B (SD) (95% CI)	Mean B (SD) (95% CI)
Education on TM (category A)	12.53 0 (ref) (3.73)	13.05 0.02 (4.59) (-0.39-0.92)	13.6 0.05 (5.12) (-0.00-0.10)	13.8 0.60 (4.88) (-0.01-0.13)	14.86 0.10** (5.11) (0.04-0.16)
Perception of TM (category B)	17.71 0 (ref) (3.65)	18.51 0.05 (3.72) (-0.02-0.13)	18.45 0.04 (3.93) (-0.01-0.11)	18.73 0.06 (3.85) (-0.02-0.16)	19.62 0.13** (3.76) (0.05-0.21)
General knowledge about TM (category C)	9.79 0 (ref) (2.88)	10.13 0.04 (2.60) (-0.06-0.15)	9.88 0.01 (2.57) (-0.07-0.10)	9.86 0.01 (1.90) (-0.12-0.14)	10.84 0.13* (3.16) (0.03-0.23)

Exp: Experience, ref: Reference, SD: Standard deviation, CI: Confidence interval *:p≤0.01, **:p≤0.001

for coping with travel-related medical conditions and especially for the emerging and re-emerging diseases (16). A recent study by Flaherty et al. (17) discusses the benefits of integrating special study modules to undergraduate medical curriculum. In addition to that, general practitioners' awareness and knowledge about TM should be constantly increased and kept up-to-date (18).

CONCLUSION

Data of this study was collected in a unique interval between January-February 2020, just weeks before World Health Organization declared COVID-19 as a pandemic. Our study outlines the need for TM education both for undergraduate and graduate medical doctors. There is significant difference between undergraduate and graduate medical doctors for the awareness or attitudes about TM which points out to the fact that medical doctors' awareness of TM is increasing with work experience. Considering Turkey's geopolitical position, tourist potential, İstanbul's possible role as an important hub in terms of airline traffic, and the ongoing global refugee crisis, TM clinics are considered to be a necessity for Turkey.

Our study is the first study to assess the awareness and attitudes of medical doctors about TM in Turkey and to the best of our knowledge in the literature.

ACKNOWLEDGEMENTS

The authors would like to thank Dr. Sıla Selin Tunali for her invaluable help in distributing the questionnaire nationwide and Dr. Umut Kırılı for assessing the data. We also would like to thank Turkish Society of Microbiology Study Group for Infections Related to Migration and Travel for their support.

* Ethics

Ethics Committee Approval: This study was a cross-sectional survey that was distributed via the internet for one month between 10 January and 10 February 2020.

Informed Consent: Informed consent was obtained.

Peer-review: Internally peer-reviewed.

Financial Disclosure: The author declared that this study received no financial support.

REFERENCES

1. Steffen R, DuPont HL. Travel Medicine: What's That? J Travel Med 1994; 1: 1-3.
2. Aw B, Boraston S, Botten D, Cherniwchan D, Fazal H, Kelton T, et al. Travel medicine: what's involved? When to refer? Can Fam Physician 2014; 60: 1091-103.
3. Schlagenhauf P, Weld L, Goorhuis A, Gautret P, Weber R, von Sonnenburg F, et al. Travel-associated infection presenting in Europe (2008-12): an analysis of EuroTravNet longitudinal, surveillance data, and evaluation of the effect of the pre-travel consultation. Lancet Infect Dis 2015; 15: 55-64.
4. Leder K, Torresi J, Libman MD, Cramer JP, Castelli F, Schlagenhauf P, et al. GeoSentinel surveillance of illness in returned travelers, 2007-2011. Ann Intern Med 2013; 158: 456-68.
5. Showler AJ, Wilson ME, Kain KC, Boggild AK. Parasitic diseases in travelers: a focus on therapy. Expert Rev Anti Infect Ther 2014; 12: 497-521.
6. Norman FF, Monge-Maillo B, Martínez-Pérez Á, Perez-Molina JA, López-Vélez R. Parasitic infections in travelers and immigrants: part I protozoa. Future Microbiol 2015; 10: 69-86.
7. Norman FF, Monge-Maillo B, Martínez-Pérez Á, Perez-Molina JA, López-Vélez R. Parasitic infections in travelers and immigrants: part II helminths and ectoparasites. Future Microbiol 2015; 10: 87-99.
8. Baker KS, Dallman TJ, Ashton PM, Day M, Hughes G, Crook PD, et al. Intercontinental dissemination of azithromycin-resistant shigellosis through sexual transmission: a cross-sectional study. Lancet Infect Dis 2015; 15: 913-21.
9. (2019) International Tourism Highlights, 2019 Edition. World Tourism Organization (UNWTO)
10. Tunali V, Turgay N. The Concept of Travel Medicine and the Actual Situation of Travel-Related Illnesses. Turkiye Parazitoloj Derg 2017; 41: 114-8.
11. UNHCR - Figures at a Glance. <https://www.unhcr.org/figures-at-a-glance.html>. Accessed 16 Mar 2020.
12. Tünger Ö, Çakmak A, Özbilgin A, Tunali V, Çetin ÇB. Imported Malaria in Turkey: The Importance of Diagnosis and Treatment of *Plasmodium falciparum*/*Plasmodium vivax* Mixed Infection. Turkiye Parazitoloj Derg 2018; 42: 164-7.
13. Özbilgin A, Gencoglan G, Tunali V, Çavuş İ, Yıldırım A, Gündüz C, Harman M. Refugees at the Crossroads of Continents: A Molecular Approach for Cutaneous Leishmaniasis Among Refugees in Turkey. Acta Parasitol 2020; 65: 136-43.
14. Rodriguez-Morales AJ, Schlagenhauf P. Zoonoses and travel medicine: "one world--one health". Travel Med Infect Dis 2014; 12: 555-6.

15. Peeri NC, Shrestha N, Rahman MS, Zaki R, Tan Z, Bibi S, et al. The SARS, MERS and novel coronavirus (COVID-19) epidemics, the newest and biggest global health threats: what lessons have we learned? *Int J Epidemiol* 2020; 49: 717-26.
16. Kozarsky PE, Steffen R. Travel medicine education-what are the needs? *J Travel Med* 2016; 23.
17. Flaherty G, Thong Zi Yi C, Browne R. The missing link: introducing travel medicine into the undergraduate medical curriculum. *J Travel Med* 2016; 23.
18. Leder K, Bouchaud O, Chen LH. Training in Travel Medicine and General Practitioners: A Long-Haul Journey! *J Travel Med* 2015; 22: 357-60.

Supplementary Material

```

Variable | Obs      Mean      Std. Dev.   Min      Max
-----|-----
educat  | 114     12.53509   3.73024     6         25

. summarize educat if var00001== 1

Variable | Obs      Mean      Std. Dev.   Min      Max
-----|-----
educat  | 74      13.05405   4.595686    6         30

. summarize educat if var00001== 2

Variable | Obs      Mean      Std. Dev.   Min      Max
-----|-----
educat  | 180     13.6       5.12154     6         29

. summarize educat if var00001== 3

Variable | Obs      Mean      Std. Dev.   Min      Max
-----|-----
educat  | 45      13.8       4.887833    6         25

. summarize educat if var00001== 4

Variable | Obs      Mean      Std. Dev.   Min      Max
-----|-----
educat  | 89      14.86517   5.110575    6         30
    
```

Experience VS. education on TM

. summarize educat if var00001== 0

var00001	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
tip_1_3_donem (base outcome)						
tip_4_6_donem						
educat	.0266785	.0337284	0.79	0.429	-.0394279	.0927849
_cons	-.7733529	.4580546	-1.69	0.091	-1.671123	.1244175
md_0_10						
educat	.0520413	.0270363	1.92	0.054	-.000949	.1050315
_cons	-.2223583	.3689924	-0.60	0.547	-.9455701	.5008534
md_10_20						
educat	.0607457	.0379471	1.60	0.109	-.0136292	.1351206
_cons	-1.727898	.537732	-3.21	0.001	-2.781834	-.6739628
md_20_ustu						
educat	.1029062	.0304421	3.38	0.001	.0432408	.1625717
_cons	-1.649625	.4394342	-3.75	0.000	-2.5109	-.7883501

LR chi2(4) = 12.80

Prob > chi2 = 0.0123

Experience in medicine was significantly associated with education on TM (x²:12.8, df:4, p=0.01)

```

Variable | Obs      Mean      Std. Dev.   Min      Max
-----|-----
percept | 114     17.71053   3.654852     6         25

. summarize percept if var00001== 1

Variable | Obs      Mean      Std. Dev.   Min      Max
-----|-----
percept | 74      18.51351   3.724202    10         28

. summarize percept if var00001== 2

Variable | Obs      Mean      Std. Dev.   Min      Max
-----|-----
percept | 180     18.45      3.93562     6         28

. summarize percept if var00001== 3

Variable | Obs      Mean      Std. Dev.   Min      Max
-----|-----
percept | 45      18.73333   3.857696    8         25

. summarize percept if var00001== 4

Variable | Obs      Mean      Std. Dev.   Min      Max
-----|-----
percept | 89      19.62921   3.76401     9         30
    
```

Experience VS. perception on TM

. summarize percept if var00001== 0

var00001	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
tip_1_3_donem (base outcome)						
tip_4_6_donem						
percept	.0544165	.0391926	1.39	0.165	-.0223996	.1312325
_cons	-1.417985	.7292983	-1.94	0.052	-2.847383	.0114137
md_0_10						
percept	.049974	.0312045	1.60	0.109	-.0111857	.1111338
_cons	-.4469888	.5747053	-0.78	0.437	-1.573391	.6794129
md_10_20						
percept	.0699616	.0467172	1.50	0.134	-.0216025	.1615257
_cons	-2.204895	.8803895	-2.50	0.012	-3.930427	-.4793634
md_20_ustu						
percept	.1356885	.0388088	3.50	0.000	.0596246	.2117523
_cons	-2.783905	.7457051	-3.73	0.000	-4.24546	-1.32235

LR chi2(4) = 13.01

Prob > chi2 = 0.0112

Experience in medicine was significantly associated with perception on TM (x²:13.0, df:4, p=0.01)

Experience vs. general knowledge about TM**

```
. summarize generall if var00001== 0
```

Variable	Obs	Mean	Std. Dev.	Min	Max
generall	114	9.798246	2.881678	4	19

```
. summarize generall if var00001== 1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
generall	74	10.13514	2.603077	6	18

```
. summarize generall if var00001== 2
```

Variable	Obs	Mean	Std. Dev.	Min	Max
generall	180	9.888889	2.578139	4	19

```
. summarize generall if var00001== 3
```

Variable	Obs	Mean	Std. Dev.	Min	Max
generall	45	9.866667	1.902152	7	16

```
. summarize generall if var00001== 4
```

Variable	Obs	Mean	Std. Dev.	Min	Max
generall	89	10.8427	3.165506	4	20

var00001	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
tip_1_3_donem (base outcome)					
tip_4_6_donem					
generall	.0475996	.0559659	0.85	0.395	-.0620915 .1572908
_cons	-.9064257	.5790429	-1.57	0.117	-2.041329 .2284775
md_0_10					
generall	.0132252	.0457928	0.29	0.773	-.076527 .1029775
_cons	.3265773	.465918	0.70	0.483	-.5866052 1.23976
md_10_20					
generall	.010012	.0672181	0.15	0.882	-.121733 .1417571
_cons	-1.027978	.684916	-1.50	0.133	-2.370389 .3144329
md_20_ustu					
generall	.1351074	.0515333	2.62	0.009	.034104 .2361109
_cons	-1.638807	.5507261	-2.98	0.003	-2.718211 -.5594038

LR chi2(4) = 9.06
Prob > chi2 = 0.0597

The association between experience in medicine and general knowledge about TM was below the significance level ($\chi^2:9.06, df:4, p=0.06$)

Variable	Obs	Mean	Std. Dev.	Min	Max
s1	114	1.789474	1.132572	1	5

```
. summarize s1 if var00001== 1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
s1	74	2.216216	1.416829	1	5

```
. summarize s1 if var00001== 2
```

Variable	Obs	Mean	Std. Dev.	Min	Max
s1	180	2.427778	1.398445	1	5

```
. summarize s1 if var00001== 3
```

Variable	Obs	Mean	Std. Dev.	Min	Max
s1	45	2.555556	1.485621	1	5

```
. summarize s1 if var00001== 4
```

Variable	Obs	Mean	Std. Dev.	Min	Max
s1	89	3.011236	1.654844	1	5

** experience vs. s1**

```
. summarize s1 if var00001== 0
```

var00001	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
tip_1_3_donem (base outcome)					
tip_4_6_donem					
s1	.2621657	.1170727	2.24	0.025	.0327074 .491624
_cons	-.9538955	.2798551	-3.41	0.001	-1.502401 -.4053896
md_0_10					
s1	-.3671524	.0967557	-3.79	0.000	-.5675147 -.1667901
_cons	-.3086035	.2271463	-1.36	0.174	-.7538 .1365971
md_10_20					
s1	.4264247	.1299885	3.28	0.001	.1716018 .6811975
_cons	-1.842557	.345073	-5.34	0.000	-2.518887 -1.166226
md_20_ustu					
s1	.6259705	.1090563	5.74	0.000	.4121241 .8396169
_cons	-1.715306	.2940162	-5.79	0.000	-2.295487 -1.135125

Variable	Obs	Mean	Std. Dev.	Min	Max
s2	114	1.192982	.6363223	1	5

```
. summarize s2 if var00001== 1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
s2	74	1.608108	.9625532	1	5

```
. summarize s2 if var00001== 2
```

Variable	Obs	Mean	Std. Dev.	Min	Max
s2	180	1.705556	1.09696	1	5

```
. summarize s2 if var00001== 3
```

Variable	Obs	Mean	Std. Dev.	Min	Max
s2	45	1.6	.96295	1	4

```
. summarize s2 if var00001 == 4
```

Variable	Obs	Mean	Std. Dev.	Min	Max
s2	89	1.595506	1.212802	1	5

var0001	RRR	Std. Err.	z	P> z	[95% Conf. Interval]
tip_1_3_donem	(base outcome)				
tip_4_6_donem	1.936276	.3962195	3.23	0.001	1.296541 2.891668
_cons	-.2448841	.0822281	-4.28	0.000	-.441308 -.047374
md_0_10	2.09888	.3891098	4.00	0.000	1.459433 3.018501
_cons	-.5637879	.1494849	-2.16	0.031	-.3352933 -.9479962
md_10_20	1.922226	.4293569	2.93	0.003	1.240727 2.978054
_cons	-.162971	.0576876	-5.13	0.000	-.0814361 -.2445061
md_20_uatu	1.914398	.3829798	3.25	0.001	1.293444 2.83346
_cons	-.3244285	.0967324	-3.78	0.000	-.1808518 -.4680052

** experience vs s2**
 . summarize s2 if var0001== 0

var0001	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
tip_1_3_donem	(base outcome)				
tip_4_6_donem	.2505856	.172731	1.45	0.147	-.087961 .589322
_cons	-.8345066	.3170796	-2.63	0.008	-1.455971 -.2130421
md_0_10	.4046067	.1403735	2.88	0.004	.1294797 .6797337
_cons	-.218491	.2369491	-0.85	0.395	-.722102 .2851199
md_10_20	.3352281	.1948545	1.72	0.085	-.0466797 .717136
_cons	-1.47916	.3729359	-3.97	0.000	-2.210101 -.7482194
md_20_uatu	.7573355	.1538281	4.92	0.000	.4558381 1.058833
_cons	-1.642701	.315747	-5.20	0.000	-2.261554 -.1023849

var0001	RRR	Std. Err.	z	P> z	[95% Conf. Interval]
tip_1_3_donem	(base outcome)				
tip_4_6_donem	1.284778	.2219209	1.45	0.147	.9157966 1.802424
_cons	.4340886	.1376406	-2.63	0.008	.2331738 .8081221
md_0_10	1.498713	.2103796	2.88	0.004	1.138236 1.973352
_cons	-.8037307	.2065179	-0.85	0.395	-.4857302 1.329922
md_10_20	1.398259	.2724571	1.72	0.085	.9543931 2.048558
_cons	-.2278289	.0849656	-3.97	0.000	-.1096895 -.3460284
md_20_uatu	2.132586	.3280516	4.92	0.000	1.577495 2.883005
_cons	.1934567	.0610834	-5.20	0.000	-.1041884 .3592098

*** experience s4**
 . summarize s4 if var0001== 0

Variable	Obs	Mean	Std. Dev.	Min	Max
s4	114	3.27193	1.093357	1	5

. summarize s4 if var0001== 1

Variable	Obs	Mean	Std. Dev.	Min	Max
s4	74	3.243243	1.13247	1	5

. summarize s4 if var0001== 2

Variable	Obs	Mean	Std. Dev.	Min	Max
s4	180	3.327778	1.137627	1	5

. summarize s4 if var0001== 3

Variable	Obs	Mean	Std. Dev.	Min	Max
s4	45	3.155556	.9989894	1	5

. summarize s4 if var0001== 4

Variable	Obs	Mean	Std. Dev.	Min	Max
s4	89	3.179775	1.344702	1	5

var0001	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
tip_1_3_donem	(base outcome)				
tip_4_6_donem	-.0216221	.1295661	-0.17	0.867	-.275567 .2323227
_cons	-.361697	.4473315	-0.81	0.419	-1.238451 .5150567
md_0_10	.0425341	.104608	0.41	0.684	-.1421019 .24717
_cons	.3163993	.3641436	0.87	0.385	-.397309 1.030108
md_10_20	-.0868952	.1518417	-0.57	0.567	-.3844993 .210709
_cons	-.6502567	.5153094	-1.26	0.207	-1.660245 .3597312
md_20_uatu	-.0680799	.1223809	-0.56	0.573	-.3088422 .1708823
_cons	-.0250325	.4187947	-0.06	0.952	-.845855 .7957901

**** experience s6**
 . summarize s6 if var0001== 0

Variable	Obs	Mean	Std. Dev.	Min	Max
s5	114	1.815789	1.024772	1	5

. summarize s5 if var0001== 1

Variable	Obs	Mean	Std. Dev.	Min	Max
s5	74	1.851351	1.05574	1	5

. summarize s5 if var0001== 2

Variable	Obs	Mean	Std. Dev.	Min	Max
s5	180	1.7	.9148068	1	5

. summarize s5 if var0001 == 3

Variable	Obs	Mean	Std. Dev.	Min	Max
s5	45	1.577778	.811533	1	4

. summarize s5 if var0001== 4

Variable	Obs	Mean	Std. Dev.	Min	Max
s5	89	1.550542	.9294578	1	5

var00001	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
tip_1_3_donem (base outcome)					
tip_4_6_donem					
s5	-.0334928	.1445984	0.23	0.817	-.2499148 .3169004
_cons	-.4935408	.3047129	-1.62	0.105	-1.090767 .1036856
md_0_10					
s5	-.1198452	.1212058	-0.99	0.323	-.3574042 .1177138
_cons	-.6672596	.2454115	-2.72	0.007	-.1862619 -1.148257
md_10_20					
s5	-.2701253	.1970935	-1.37	0.171	-.6564214 .1161708
_cons	-.4730408	.3668703	-1.29	0.197	-1.192093 .2460118
md_20_ustu					
s5	-.3080221	.1573698	-1.96	0.050	-.6164613 .0004171
_cons	-.2682058	.2952943	0.91	0.364	-.3105604 .866972

Variable	Obs	Mean	Std. Dev.	Min	Max
s6	114	3.201754	1.311487	1	5

. summarize s6 if var00001== 1

Variable	Obs	Mean	Std. Dev.	Min	Max
s6	74	3.378378	1.118986	1	5

. summarize s6 if var00001== 2

Variable	Obs	Mean	Std. Dev.	Min	Max
s6	180	3.572222	1.299035	1	5

. summarize s6 if var00001== 3

Variable	Obs	Mean	Std. Dev.	Min	Max
s6	45	3.955556	1.127256	1	5

. summarize s6 if var00001== 4

Variable	Obs	Mean	Std. Dev.	Min	Max
s6	89	4.235955	1.108054	1	5

**** experience s6**

. summarize s6 if var00001== 0

var00001	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
tip_1_3_donem (base outcome)					
tip_4_6_donem					
s6	-.1015723	.1136598	0.89	0.372	-.3243414 .3243414
_cons	-.766374	.4049244	-1.89	0.058	-1.560011 .0272632
md_0_10					
s6	.2194041	.0928215	2.37	0.018	-.0380653 .600743
_cons	-.2871184	.3331589	-0.86	0.389	-.9401371 .3659002
md_10_20					
s6	-.4893746	.1525655	-3.21	0.001	-.1903538 -.7883994
_cons	-2.691621	.6059022	-4.44	0.000	-3.879168 -1.504075
md_20_ustu					
s6	-.7480244	.1348955	-5.54	0.000	-.8834393 -1.012613
_cons	-3.070794	.551923	-5.56	0.000	-4.152943 -1.989045

Variable	Obs	Mean	Std. Dev.	Min	Max
s7	114	3.824561	1.213826	1	5

. summarize s7 if var00001== 1

Variable	Obs	Mean	Std. Dev.	Min	Max
s7	74	3.283784	1.255348	1	5

. summarize s7 if var00001== 2

Variable	Obs	Mean	Std. Dev.	Min	Max
s7	180	3.494444	1.252917	1	5

. summarize s7 if var00001== 3

Variable	Obs	Mean	Std. Dev.	Min	Max
s7	45	3.577778	1.287861	1	5

. summarize s7 if var00001== 4

Variable	Obs	Mean	Std. Dev.	Min	Max
s7	89	3.898876	1.373821	1	5

var00001	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
tip_1_3_donem (base outcome)					
tip_4_6_donem					
s7	-.3292395	.1174609	-2.80	0.005	-.5555185 -.0990804
_cons	-.741149	.4410179	-1.68	0.093	-1.232303 .1605528
md_0_10					
s7	-.208241	.0967245	-2.15	0.031	-.3978174 -.0186645
_cons	1.219456	.3783561	3.22	0.001	.4780912 1.961122
md_10_20					
s7	-.1583636	.1307462	-1.13	0.257	-.43232 .1159428
_cons	-.3430206	.5404619	-0.63	0.524	-1.402267 .7162262
md_20_ustu					
s7	-.051992	.118546	0.44	0.661	-.1803539 .2843378
_cons	-.4483557	.4797815	-0.93	0.350	-1.38871 .4919988

*** experience s8***

. summarize s8 if var00001== 0

Variable	Obs	Mean	Std. Dev.	Min	Max
s8	114	2.394737	1.223794	1	5

. summarize s8 if var00001== 1

Variable	Obs	Mean	Std. Dev.	Min	Max
s8	74	2.391892	1.31188	1	5

. summarize s8 if var00001== 2

Variable	Obs	Mean	Std. Dev.	Min	Max
s8	180	2.427778	1.307608	1	5

. summarize s8 if var00001== 3

Variable	Obs	Mean	Std. Dev.	Min	Max
s8	45	2.711111	1.424178	1	5

. summarize s8 if var00001== 4

Variable	Obs	Mean	Std. Dev.	Min	Max
s8	89	2.550562	1.552207	1	5

var00001	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
tip_1_3_donem (base outcome)					
tip_4_6_donem					
s8	-.0014237	.1127849	-0.01	0.989	-.222678
_cons	-.4282474	.30843	-1.39	0.165	-1.032759
md_0_10					
s8	.018712	.0901566	0.21	0.836	-.1579916
_cons	.4116396	.2478684	1.66	0.097	-.0741735
md_10_20					
s8	-.1706357	.1285192	-1.33	0.184	-.0812573
_cons	-1.364705	.3798346	-3.59	0.000	-2.109167
md_20_ustu					
s8	.0861822	.1051614	0.82	0.412	-.1199308
_cons	-.4605947	.2967998	-1.55	0.121	-1.042312

Variable	Obs	Mean	Std. Dev.	Min	Max
s9	114	1.385965	.6311777	1	4

. summarize s9 if var00001== 1

Variable	Obs	Mean	Std. Dev.	Min	Max
s9	74	1.594595	.8426787	1	4

. summarize s9 if var00001== 2

Variable	Obs	Mean	Std. Dev.	Min	Max
s9	180	1.327778	.614813	1	5

. summarize s9 if var00001== 3

Variable	Obs	Mean	Std. Dev.	Min	Max
s9	45	1.244444	.5289593	1	3

. summarize s9 if var00001== 4

Variable	Obs	Mean	Std. Dev.	Min	Max
s9	89	1.460674	.8401323	1	5

*** experience s9**

. summarize s9 if var00001== 0

var00001	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
tip_1_3_donem (base outcome)					
tip_4_6_donem					
s9	.3506958	.1942863	1.81	0.071	-.030985
_cons	-.9516776	.3256911	-2.92	0.003	-1.590021
md_0_10					
s9	-.1396997	.1842302	-0.76	0.448	-.5007842
_cons	.6461837	.2778445	2.33	0.020	.1016185
md_10_20					
s9	-.399525	.3192732	-1.25	0.211	-1.025289
_cons	-.4065506	.4428289	-0.92	0.359	-1.274479
md_20_ustu					
s9	.1468584	.1980189	0.74	0.458	-.2412516
_cons	-.456398	.3155623	-1.45	0.148	-1.074889

Variable	Obs	Mean	Std. Dev.	Min	Max
s10	114	3.394737	1.442824	1	5

. summarize s10 if var00001== 1

Variable	Obs	Mean	Std. Dev.	Min	Max
s10	74	3.77027	1.319478	1	5

. summarize s10 if var00001== 2

Variable	Obs	Mean	Std. Dev.	Min	Max
s10	180	3.872222	1.118811	1	5

. summarize s10 if var00001== 3

Variable	Obs	Mean	Std. Dev.	Min	Max
s10	45	4.155556	.8516176	2	5

. summarize s10 if var00001== 4

Variable	Obs	Mean	Std. Dev.	Min	Max
s10	89	3.831461	1.099958	1	5

*** experience s10**

. summarize s10 if var00001== 0

var00001	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
tip_1_3_donem (base outcome)					
tip_4_6_donem					
s10	.2284984	.1191181	1.92	0.055	-.0049688
_cons	-1.252262	.459147	-2.73	0.006	-2.152174
md_0_10					
s10	-.3011574	.0957498	-3.15	0.002	-.1134914
_cons	-.6410716	.3669797	-1.75	0.081	-1.360339
md_10_20					
s10	.5463032	.1679655	3.25	0.001	.2170969
_cons	-3.013181	.6989685	-4.31	0.000	-4.383134
md_20_ustu					
s10	.2713656	.1143051	2.37	0.018	.0473317
_cons	-1.230634	.4430566	-2.78	0.005	-2.099009

Variable	Obs	Mean	Std. Dev.	Min	Max
s11	114	3.131579	1.258691	1	5

. summarize s11 if var00001== 1

Variable	Obs	Mean	Std. Dev.	Min	Max
s11	74	3.067568	1.368241	1	5

. summarize s11 if var00001== 2

Variable	Obs	Mean	Std. Dev.	Min	Max
s11	180	2.622222	1.134308	1	5

. summarize s11 if var00001== 3

Variable	Obs	Mean	Std. Dev.	Min	Max
s11	45	2.466667	.8686458	1	4

. summarize s11 if var00001== 4

Variable	Obs	Mean	Std. Dev.	Min	Max
s11	89	2.606742	1.154221	1	5

*** experience s11**

. summarize s11 if var00001== 0

var00001	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
tip_1_3_donem	(base outcome)				
tip_4_6_donem					
s11	-.0451681	.1253938	-0.36	0.719	-.2909355 .2005992
_cons	-.29213	.415583	-0.70	0.482	-1.106658 .5223978
md_0_10					
s11	-.3598969	.1026326	-3.51	0.000	-.561053 -.1587408
_cons	1.491786	.324613	4.60	0.000	.8555562 2.128016
md_10_20					
s11	-.4748687	.1533244	-3.10	0.002	-.7753789 -.1743584
_cons	.3979689	.4450049	0.89	0.371	-.4742247 1.270162
md_20_ustu					
s11	-.3711372	.1212295	-3.06	0.002	-.6087427 -.1335318
_cons	.8168531	.3728672	2.19	0.028	.0860469 1.547659

Variable	Obs	Mean	Std. Dev.	Min	Max
s12	114	3.850877	1.074503	1	5

```
. summarize s12 if var00001== 1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
s12	74	4.121622	1.084798	1	5

```
. summarize s12 if var00001== 2
```

Variable	Obs	Mean	Std. Dev.	Min	Max
s12	180	4.072222	1.00296	1	5

```
. summarize s12 if var00001== 3
```

Variable	Obs	Mean	Std. Dev.	Min	Max
s12	45	3.955556	1.1862	1	5

```
. summarize s12 if var00001== 4
```

Variable	Obs	Mean	Std. Dev.	Min	Max
s12	89	4.191011	.9519884	1	5

*** experience s12**

```
. summarize s12 if var00001== 0
```

var00001	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
tip_1_3_donem	(base outcome)				
tip_4_6_donem					
s12	.2405287	.1442094	1.67	0.095	-.0421165 .5231739
_cons	-1.39233	.6004147	-2.32	0.020	-2.569121 -.2155388
md_0_10					
s12	-.1917206	.1111341	-1.73	0.085	-.0260983 .4095395
_cons	-.3034645	.4549168	-0.67	0.505	-1.195085 .5881561
md_10_20					
s12	.0858864	.1611796	0.53	0.594	-.2300199 .4017927
_cons	-1.264834	.6571346	-1.92	0.054	-2.552794 .023126
md_20_ustu					
s12	-.3139949	.1400075	-2.24	0.025	-.0395852 .5884046
_cons	-1.513143	.5874146	-2.58	0.010	-2.664455 -.361832

Variable	Obs	Mean	Std. Dev.	Min	Max
s13	114	3.605263	1.156883	1	5

```
. summarize s13 if var00001== 1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
s13	74	3.783784	1.138014	1	5

```
. summarize s13 if var00001== 2
```

Variable	Obs	Mean	Std. Dev.	Min	Max
s13	180	3.722222	1.088567	1	5

```
. summarize s13 if var00001== 3
```

Variable	Obs	Mean	Std. Dev.	Min	Max
s13	45	3.711111	1.079188	1	5

```
. summarize s13 if var00001== 4
```

Variable	Obs	Mean	Std. Dev.	Min	Max
s13	89	4.011236	1.027955	1	5

*** experience s13**

```
. summarize s13 if var00001== 0
```

var00001	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
tip_1_3_donem	(base outcome)				
tip_4_6_donem					
s13	.1431463	.1348225	1.06	0.288	-.121101 .4073936
_cons	-.9612076	.5231214	-1.84	0.066	-1.986507 .0640916
md_0_10					
s13	.092105	.1060219	0.87	0.385	-.1156942 .2999042
_cons	.1192523	.4053594	0.29	0.769	-.6752375 .9137422
md_10_20					
s13	-.083095	.1570918	-0.53	0.597	-.2247994 .3909893
_cons	-1.233555	.6047081	-2.04	0.041	-2.418761 -.0483484
md_20_ustu					
s13	.3523143	.1354365	2.60	0.009	.0868637 .6177649
_cons	-1.592566	.5421615	-2.94	0.003	-2.655183 -.5299487

Variable	Obs	Mean	Std. Dev.	Min	Max
s14	114	1.45614	1.048727	1	5

```
. summarize s14 if var00001== 1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
s14	74	1.459459	.939093	1	5

```
. summarize s14 if var00001== 2
```

Variable	Obs	Mean	Std. Dev.	Min	Max
s14	180	1.383333	.8274279	1	5

```
. summarize s14 if var00001== 3
```

Variable	Obs	Mean	Std. Dev.	Min	Max
s14	45	1.4	1.074498	1	5

```
. summarize s14 if var00001== 4
```

Variable	Obs	Mean	Std. Dev.	Min	Max
s14	89	1.853933	1.434562	1	5

*** experience s14***

```
. summarize s14 if var00001== 0
```

var00001	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
tip_1_3_donem (base outcome)					
tip_4_6_donem					
s14	.0033056	.1489161	0.02	0.982	-.2885645 .2951757
_cons	-.4369523	.2635069	-1.66	0.097	-.9534164 .0795118
md_0_10					
s14	-.0802753	.1247742	-0.64	0.520	-.3248283 .1642777
_cons	.5706313	.2143241	2.66	0.008	.1505637 .9906988
md_10_20					
s14	-.0604352	.1859862	-0.32	0.745	-.4249613 .304091
_cons	-.8432726	.316543	-2.66	0.008	-1.463685 -.2228597
md_20_ustu					
s14	.2812621	.121924	2.31	0.021	.0422954 .5202287
_cons	-.7071639	.2437866	-2.90	0.004	-1.184977 -.2293509

Variable	Obs	Mean	Std. Dev.	Min	Max
s15	114	1.815789	1.347339	1	5

. summarize s15 if var00001== 1

Variable	Obs	Mean	Std. Dev.	Min	Max
s15	74	1.837838	1.216632	1	5

. summarize s15 if var00001== 2

Variable	Obs	Mean	Std. Dev.	Min	Max
s15	180	2.011111	1.353617	1	5

. summarize s15 if var00001== 3

Variable	Obs	Mean	Std. Dev.	Min	Max
s15	45	1.844444	1.380967	1	5

. summarize s15 if var00001== 4

Variable	Obs	Mean	Std. Dev.	Min	Max
s15	89	2.550562	1.644628	1	5

*** experience s15**

. summarize s15 if var00001== 0

var00001	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
tip_1_3_donem (base outcome)					
tip_4_6_donem					
s15	.0133331	.1159519	0.11	0.908	-.2139285 .2405947
_cons	-.4564899	.259355	-1.76	0.078	-.9648164 .0518367
md_0_10					
s15	.1089105	.0906923	1.20	0.230	-.0688432 .2866641
_cons	.2486791	.2087519	1.19	0.234	-.1604671 .6578253
md_10_20					
s15	.0172686	.1362358	0.13	0.899	-.2497487 .2842859
_cons	-.9611383	.3058963	-3.14	0.002	-1.560684 -.3615926
md_20_ustu					
s15	.3466637	.0996319	3.48	0.001	.1513888 .5419385
_cons	-.9951376	.2590864	-3.84	0.000	-1.502938 -.4873377