

Test Performance Related Dysfunctional Beliefs

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Abstract

Objective: Examinations by using tests are very frequently used in educational settings and successful studying before the examinations is a complex matter to deal with. In order to understand the determinants of success in exams better, we need to take into account not only emotional and motivational, but also cognitive aspects of the participants such as dysfunctional beliefs. Our aim is to present the relationship between candidates' characteristics and distorted beliefs/schemata just before an examination.

Method: The subjects of the study were 30 female and 30 male physicians who were about to take the medical specialization exam (MSE) in Turkey. Dysfunctional Attitude Scale (DAS) and Young Schema Questionnaire Short Form (YSQ-SF) were applied to the subjects. The statistical analysis was done using the F test, Mann-Whitney, Kruskal-Wallis, chi-square test and spearman's correlation test.

Results: It was shown that some of the DAS and YSQ-SF scores were significantly higher in female gender, in the group who could not pass the exam, who had repetitive examinations, who had their first try taking an examination and who were unemployed at the time of the examination.

Conclusion: Our findings indicate that candidates seeking help before MSE examination could be referred for cognitive therapy or counseling even they do not have any psychiatric diagnosis due to clinically significant cognitive distortion. Measurement and treatment of cognitive distortions that have negative impact on MSE performance may improve the cost-effectiveness and mental well being of the young doctors.

Key Words: Test anxiety, distorted beliefs, schemas

Özet

Test Performansı İle İlişkili Disfonksiyonel İlaçlar

Amaç: Eğitim ortamında test usulü sınavlar çok sık olarak kullanılmaktadır ve sınav öncesi iyi bir çalışma, üstünde durulması gereken karmaşık bir durumdur. Testlerde başarıyı belirleyen faktörleri daha iyi anlamak için, sadece emosyonel ve motivasyonel faktörleri değil, sınava girenlerin disfonksiyonel inançları gibi bilişsel etkenleri de göz önünde bulundurmanız gerekmektedir. Amacımız sınav öncesinde adayların özellikleri ve çarpıtılmış inançları/şemaları arasındaki ilişkiyi göstermektir.

Yöntem: Çalışmanın katılımcıları Türkiye'de yapılmakta olan Tıpta Uzmanlık Sınavı'na (TUS) girecek olan 30 kadın ve 30 erkek tıp doktorudur. Katılımcılara Fonksiyonel Olmayan Tutumlar Ölçeği (FOTÖ) ve Young Şema Anketi-Kısa Form (YŞA-KF) uygulandı. İstatistik analiz F testi, Mann-Whitney, Kruskal-Wallis, ki-kare ve Spearman Korelasyon testleri kullanılarak yapıldı.

Bulgular: Verilen anketlerin sonucunda FOTÖ ve YŞA-KF puanlarının kadın cinsiyette, testi geçemeyenlerde, tekrarlayan bir şekilde teste girenlerde, teste ilk kez girenlerde ve test döneminde işsiz konumda olanlarda daha yüksek olduğu saptandı.

Sonuç: Bulgular TUS'a girmeden önce yardım için başvuruda bulunan adayların psikiyatrik tanıları olmasa bile anlamlı bilişsel çarpıtmaları nedeni ile bilişsel terapi ya da danışmaya yönlendirilmesi gerektiğini işaret etmektedir. TUS performansı üzerinde olumsuz bir etkisi olan bilişsel çarpıtmaların tespit ve tedavi edilmesi fayda-zarar ilişkisini ve genç doktorların ruhsal durumunu düzeltebilir.

Anahtar Kelimeler: Sınav anksiyetesi, çarpıtılmış inançlar, şemalar.

OBJECTIVE

We live in a test-conscious, test-giving culture in which the lives of people are in part determined by their test performance (Reteguiz JA 2006). Examinations by using tests are very frequently used in educational settings and successful studying before the examinations is a complex matter to deal with. In order to understand the determinants of success in exams better, we need to take into account not only emotional and motivational, but also cognitive aspects of the participants such as dysfunctional beliefs. Dysfunctional beliefs which are negatively biased assumptions and beliefs regarding oneself, the world, and the future have debilitating negative effects on examination performance (Lonka et al. 2008). To assess this kind of test related beliefs we selected medical doctors who take the Medical Specialization Exam (MSE) in Turkey, as a sample. In a study, the average medical student's anxiety level has been estimated to be at the 85th percentile compared to that of the general population (Powell 2004, Vitaliano et al. 1989). In another study with medical students, it is shown that they can use a variety of thinking and attribution strategies to deal with study-related threats to their self-worth (Nurmi et al. 2003). Some students deliberately seek to avoid challenging goals rather than make an active effort to deal with them. Such thinking strategies have been described in terms of task avoidance, pessimism, and as a maladaptive motivational style. Other students use more active, task-focused strategies, when they are faced with challenging goals. Students' expectations about success predict their academic achievement and satisfaction, which in turn increases their subsequent expectations about success (Lonka et al. 2008).

In Turkey, an aspiring physician must pass a series of examinations that is abbreviated as MSE in order to be a resident in any branch of medicine. These include Step 1 Language and Step 2 Basic Sciences and Clinical Medicine examinations. It is very critical in young doctors' lives and it is important to take account cognitive patterns to investigate their well-being. According to our knowledge, cognitive aspects of the relationship between test anxiety and their cognitive aspects has not been previously explored. Our aim is to present the relationship between candidates' characteristics and distorted beliefs and schemata before medical specialization examination (MSE) in Turkey.

METHOD

Subjects

The subjects for this study consisted of 30 female and 30 male consecutively interviewed volunteer physicians. The physicians who were interns in Dışkapı Yıldırım Beyazıt Research and Education Hospital were neither seeking psychiatric help nor on psychiatric treatment. The questionnaires were handed out and returned by hand.

Assessment measures

Dysfunctional Attitude Scale (DAS):

It was designed to assess the beliefs or schemata underlying the characteristic cognitive content of depression within Beck's cognitive theory of emotional disorders (Musser and Lloyd 1985, Sugiura et al. 2005, Heath et al. 1999). The 40 items were scored on a 7-point likert scale ranging from 1 (totally agree) to 7 (totally disagree) and include, for example, 'My value as a person relies greatly on what others think of me', and 'If I fail at work, I am a failure as a person'. The scoring direction depended on whether agreement or disagreement on a particular belief was to be judged as a maladaptive response; a higher score indicated more maladaptive thinking (Tanaka et al. 2006). The Turkish version of the DAS was also produced (Sahin and Sahin 1992).

Young Schema Questionnaire-Short Form-3 (YSQ-SF3):

Schemas are generally assumed to develop as a result of early experiences with attachment figures. Within this theoretical framework, a schema questionnaire was developed to evaluate early maladaptive schemas. The Young Schema Questionnaire – Short Form 3 (YSQ-SF3) consists of 114 items and measures eighteen cognitive schemas. The Turkish version of the Young Schema Questionnaire-Short Form-3 was also produced and it was showed that the factor structure of the Turkish YSQ-SF3 was generally consistent with previous studies and that it had acceptable levels of reliability and validity (Soygüt et al. 2009).

Statistical analysis

For descriptive purposes, univariate statistics were conducted on all the variables used and the demographic characteristics. Means and standard deviations were determined for each item. Mean group differences were examined by using F test in the case of sex groups. Mann-Whitney and

Kruskal–Wallis non-parametric tests were used to determine significant differences for the other groups. Dichotomous variables were analyzed using chi square tests. Correlations between 2 continuous variables were examined using Spearman's correlations. All statistical tests were 2-tailed with an [alpha] level of 0.05.

RESULTS

We made four comparisons according to sex, working status, exam success and the number of previous exposure to this examination. Characteristics for the four study groups are summarized in Table 1.

The potential differences across items of DAS and YSQ scores were examined among groups. In terms of sex, dysfunctional attitudes related to *need for approval* and *success–perfectionism* were higher in women than men. In schema items related to *Mistrust / Abuse* (the belief that in the end, the others will intentionally hurt, abuse, humiliate, cheat, lie, manipulate, or take advantage on us); *Social isolation / Alienation* (the sense that someone is different from others and is not part of any group); *Insufficient Self-Control / Self-Discipline* (the difficulty to practice self-control and discipline to achieve one's personal goals, or to restrain the excessive expression of one's emotions and impulses, the excessive desire to maintain the comfort and to avoid unpleasant situation); were scored significantly higher in women than men. Only one item score of YSQ-SF3 which

was related to *Emotional Deprivation* (the others don't offer us the nurturance, empathy and protection we need) was higher in men than women. (Table 2).

According to the success in MSE, there were significant differences in DAS items related to *vulnerability*, *need for approval*, *success–perfectionism* and in schemas related to *Dependence / Incompetence* (belief that one needs considerable help from others to handle one's everyday responsibilities in a competent manner); *Social isolation/Alienation*; *Approval-Seeking/Recognition-Seeking* (excessive emphasis on gaining approval, recognition, attention from other people, the one's sense of esteem is dependent on the reactions of others); *Failure* (the belief that one has failed and will inevitably fail in areas of achievement, so he is stupid, lower in status, or less successful than others); and *Self-sacrifice* (excessive focus on voluntarily meeting the needs of others in daily situations, at the expense of one's own gratification). Results are shown in Table 3.

In group of working status none of the compared DAS items were significant. In YSQ, items related to *Social isolation / Alienation and Dependence / Incompetence* showed significance (Table 4).

In terms of number of previous entrance to exam; DAS items related to vulnerability and success–perfectionism and YSQ items related to *Failure*; *Negativity / Pessimism* (an excessive focus on the negative aspects of life and minimizing or neglecting the positive aspects); *Unrelenting Standards /*

Table 1: Frequencies of Group Characteristics

Groups		n	%
Sex	Male	30	50,0
	Female	30	50,0
Working Status	Working	25	41,7
	Not working	35	58,3
Examination Success	Passed	9	15,0
	Failed	35	60,0
	No Entrance	16	25,0
Number Of Examinaton Entrance	0	16	26,7
	1	5	8,3
	2	15	25,0
	3	8	13,3
	4	1	1,7
	5	5	8,3
	6	6	10,0
	10	2	3,3
	11	1	1,7
	12	1	1,7

Table 2: Items found significant in terms of sex.

Items	SEX	Mean	SD	p
DAS-8 If a person asks for help, it is a sign of weakness	Female	6,37	1,159	,051
	Male	5,67	1,539	
DAS-20 If I don't set the highest standards for myself, I am likely to end up a second-rate person.	Female	5,13	1,814	,026
	Male	3,90	2,339	
DAS-21 If I am to be a worthwhile person, I must be truly outstanding in at least one major respect.	Female	5,20	1,919	,044
	Male	4,07	2,282	
DAS-22 People who have good ideas are more worthy than those who do not.	Female	4,57	1,888	,025
	Male	3,37	2,141	
YSQ-5 I have rarely had a strong person to give me sound advice or direction when I'm not sure what to do.	Female	2,17	1,177	,044
	Male	2,97	1,771	
YSQ-11 I feel that people will take advantage of me.	Female	2,00	,788	,037
	Male	1,53	,900	
YSQ-19 I feel alienated from other people.	Female	2,03	1,273	,036
	Male	1,47	,681	
YSQ-44 I often feel as if my parent(s) are living through me I don't have a life of my own.	Female	2,20	1,400	,046
	Male	1,57	,971	
YSQ-75 I have rarely been able to stick to my resolutions.	Female	2,27	1,530	,047
	Male	1,63	,765	

Hypercriticalness (the belief that one must strive to meet very high internalized standards, usually to avoid criticism. Its forms are the perfectionism, the excessive attention to details, the rigid rules and the "shoulds") were found significant which was summed in Table 5.

Spearman correlations between number of examination entrance and DAS and YSQ scores are presented in Table 6. Significant associations were evident in *Unrelenting Standards / Hypercriticalness, Defectiveness / Shame* (the feeling that one is bad, unwanted, inferior, in important respects; or that one would be unlovable to significant others); *Failure, Social isolation / Alienation, Dependence / Incompetence, vulnerability* domains.

CONCLUSION

It is known that cognitive distortions have negative impact on the learning process, motivation and examination success. They are associated with higher levels of anxiety and negative mood before examinations, a lack of self-confidence and fear of failure (Knights and Kennedy 2007). Our preliminary

research has laid the groundwork for investigating the relationship between cognitive distortions and MSE performance among young doctors.

The study showed that gender might influence the dysfunctional beliefs. The level of some DAS and YSQ item scores were increased in female gender. These findings seemed to be in agreement to the generally recognized fact that depression is more prevalent in women than men (Angst and Merikangas 1997, Blazer et al. 1994, Kessler et al. 1994, Kessler 2003, Nolen-Hoeksema 1987). In several clinical studies investigating stress levels of dental students, females were significantly more stressed than males (Morse and Dravo 2007, Al-Omari 2005, Sanders and Lushington 1999, Musser and Lloyd 1985, Rosli et al. 2005, Sugiura et al. 2005, Heath et al. 1999, Westerman et al. 1993). In addition, there are also studies found that female students have higher test anxiety than male students from early elementary school through college, but there are no meaningful sex differences in academic performance (Hembree 1988, Chapell et al. 2005).

We studied whether cognitive distortions were seen more in the candidates who could not pass and

Table 3: Items found significant in terms of examination success

Items	Success	Mean Rank	Chi square	p
DAS-6 It is possible to gain another person's respect without being especially talented at anything	Passed	28,89	7,78	,02
	Failed	26,58		
	No entrance	40,87		
DAS-9 If I do not do as well as other people, it means I am an inferior human being.	Passed	27,39	7,54	,02
	Failed	35,22		
	No entrance	21,03		
DAS-11 If you cannot do something well, there is little point in doing it at all.	Passed	22,11	6,06	,05
	Failed	34,85		
	No entrance	25,10		
DAS-15 If other people know what you are really like, they will think less of you.	Passed	34,39	6,25	,04
	Failed	33,19		
	No entrance	21,70		
DAS-21 If I am to be a worthwhile person, I must be truly outstanding in at least one major respect.	Passed	33,83	7,81	,02
	Failed	33,29		
	No entrance	19,07		
DAS-37 I can be happy even if I miss out on many of the good things in life.	Passed	29,17	8,53	,01
	Failed	26,22		
	No entrance	41,57		
DAS-40 I can find happiness without being loved by another person.	Passed	41,72	6,89	,03
	Failed	26,13		
	No entrance	34,27		
YSQ-9 When I feel someone I care for pulling away from me, I get desperate.	Passed	19,50	7,99	,02
	Failed	29,75		
	No entrance	38,90		
YSQ-17 I'm fundamentally different from other people.	Passed	19,67	7,07	
	Failed	29,96		
	No entrance	38,30		
YSQ-21 No man/woman I desire could love me when he/she sees my defects.	Passed	23,11	6,80	,03
	Failed	29,13		
	No entrance	38,23		
YSQ-22 No one I desire would want to stay close to me if he/she knew the real me.	Passed	27,33	11,35	,00
	Failed	26,83		
	No entrance	41,20		
YSQ-26 Almost nothing I do at work (or school) is as good as other people can do.	Passed	25,17	10,22	,01
	Failed	27,79		
	No entrance	40,20		
YSQ-27 I'm incompetent when it comes to achievement.	Passed	24,61	6,86	,03
	Failed	28,71		
	No entrance	38,33		
YSQ-30 I'm not as intelligent as most people when it comes to work (or school).	Passed	24,78	6,18	,04
	Failed	28,88		
	No entrance	37,83		
YSQ-71 I can't seem to discipline myself to complete routine or boring tasks.	Passed	40,28	8,56	,01
	Failed	25,26		
	No entrance	37,20		

Table 4: Items found significant in terms of employment

Items	Employment	N	Mean Rank	Sum of Ranks	Z	p
YSQ-9 When I feel someone I care for pulling away from me, I get desperate.	yes	25	23,24	581,00	-2,89	,00
	no	35	35,69	1249,00		
YSQ-17 I'm fundamentally different from other people.	yes	25	24,98	624,50	-2,16	,03
	no	35	34,44	1205,50		

Table 5: Items found significant in terms of examination history.

Items	n of exam entrance	N	Mean Rank	Sum of Ranks	Z	p
DAS-6 It is possible to gain another person's respect without being especially talented at anything.	# ≤ 1	21	21,48	451,00	-2,89	,00
	# ≥ 5	15	14,33	215,00		
DAS-20 If I don't set the highest standards for myself, I am likely to end up a second-rate person.	# ≤ 1	21	15,55	326,50	-2,04	,03
	# ≥ 5	15	22,63	339,50		
YSQ-30 I'm not as intelligent as most people when it comes to work (or school).	# ≤ 1	21	21,00	441,00	-1,97,	01
	# ≥ 5	15	15,00	225,00		
YSQ-48 In relationships, I let the other person have the upper hand.	# ≤ 1	21	15,67	329,00	-1,99	,02
	# ≥ 5	15	22,47	337,00		
YSQ-61 I must be the best at most of what I do; I can't accept second best.	# ≤ 1	21	21,50	451,50	-1,94	,05
	# ≥ 5	15	14,30	214,50		
YSQ-62 I try to do my best; I can't settle for "good enough."	# ≤ 1	21	21,36	448,50	-2,06	,04
	# ≥ 5	15	14,50	217,50		

entered the examination repetitively. Interestingly we found that negative schemas related to *Dependence*; *Social isolation Approval-Seeking*; *Failure*; *Self-sacrifice* were significantly higher in the group who had never entered the examination than the group who had previously failed the examination. Furthermore; number of examination entrance were significantly negatively correlated with some schema scores. According to these results, it seems, it can be helpful to work with the candidates on these distortions especially before the first MSE experience.

On the basis of the literature, it is apparent that medical school graduates may not pass and re-enter the examination because of many reasons. Emotional problems may be related to problems in regulating one's own learning and avoiding tasks as well as not being very optimistic. Study habits are adversely affected by test anxiety, procrastination, disorganization, reduced effort, faulty study habits, and failure to monitor learning result (Smith et al. 1990). For those vulnerable to anxiety aroused by the prospect of taking exam can create a "dual

Table 6: Significant non-parametric correlations between items and number of entrance to the exam

Items		Number of exam entrance
DAS-21 If I am to be a worthwhile person,I must be truly outstanding in at least one major respect.	Spearman's rho p	,270(*) ,038
YSQ-9 When I feel someone I care for pulling away from me, I get desperate.	Spearman's rho p	-,285(*) ,027
YSQ-17 I'm fundamentally different from other people.	Spearman's rho p	-,303(*) ,019
YSQ-26 Almost nothing I do at work (or school) is as good as other people can do.	Spearman's rho p	-,303(*) ,019
YSQ-30 I'm not as intelligent as most people when it comes to work (or school).	Spearman's rho p	-,299(*) ,020
YSQ-61 I must be the best at most of what I do; I can't accept second best.	Spearman's rho p	-,280(*) ,031

* Correlation is significant at the .05 level (2-tailed).

** Correlation is significant at the .01 level (2-tailed).

deficit," which adversely affects test preparation, test performance, or both. A key feature of the first deficit is an inadequate preparation for the examination. Avoidance and procrastination, often disguised as over involvement in other apparently useful activities, cause some individuals to postpone studying for the exam until the last moment. The second deficit is the inability to control anxiety during the test so that failure occurs (Powell 2004). The cross-sectional design of the present study and our small sample size limit the degree to which generalizations can be drawn about the possible longitudinal or trait-like quality of dysfunctional attitudes and cognitive schemas. Secondly, criterion relevance may also have been affected by contamination of the actual criteria. Exam success may have been influenced by situational variables that were unaccounted for in our research, such as physical health, marital problems, interpersonal relationships, study habits, test anxiety or loneliness.

Clinically, our findings indicate that candidates seeking help before MSE could be referred for cognitive therapy or counseling even they do not have any psychiatric diagnosis due to clinically significant cognitive distortion. Measurement and treatment of cognitive distortions that have negative impact on MSE performance may improve the cost-effectiveness and mental well being of the young doctors. There is not sufficient information about these matters and this remains a potential area for future research.

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