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Evaluation of the Validity and Reliability of the Turkish Version of the Perceived Vulnerability to Disease Scale

Hastalıklara Karşı Savunmasızlık Algısı Ölçeği'nin Türkçe Sürümünün Geçerlilik ve Güvenilirliğinin Değerlendirilmesi

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Abstract

The spread of communicable diseases and causing disease in many living things is defined as an epidemic. Epidemics lead to an increase in anxiety and fear levels in society. Studies show that disgust also promotes psychologically-based response behaviors that serve as the first line of defense against pathogens, especially in situations such as pandemics. All of these defensive responses are referred to as the "behavioral immune system". The behavioral immune system is involved in triggering perceived vulnerability to infectious disease (PVD). This system is hypersensitive to any sign that might represent a threat from a pathogen, thus minimizing the possibility of infection. Studies show that protective behaviors are based on perceptions of high vulnerability to the disease. This study aims to evaluate the validity and reliability of the PVD-S for Turkish society and language. The study is methodological research conducted between February and April 2021. The participants were university students studying at different faculties. In the reliability analysis of the Turkish version of the scale, the internal consistency of Cronbach's alpha coefficient was 0.712. Test-retest evaluation of the scale yielded an intraclass correlation coefficient of 0.882 and a Spearman correlation coefficient of 0.815. When content equivalent form validity was evaluated, it was found that there was a weak and positive correlation between the SAI and PVD-S scores (r=0.268; p=0.003). The total variance explained by the scale after EFA was calculated as 56.517% and it was found that the scale items were divided into 4 sub-dimensions (infection perception, infection perception reverse-scored, germ avoidance, germ avoidance reverse-scored) using the Varimax rotation method. According to the data we obtained as a result of our study, it appears that the Turkish version of the PVD-S has sufficient psychometric properties and has adequate validity and reliability, especially in the young population.
Keywords: Illness, Vulnerability, Validity, Reliability

Özet

Bulaşıcı hastalıkların yayılarak çok sayıda canlıda hastalık oluşturması, salgın hastalık olarak tanımlanır. Salgınlar, toplumda korku ve kaygı seviyelerinde yükselişe neden olur. Çalışmalar, tiksinti duymanın da özellikle pandemi gibi durumlarda patojenlere karşı ilk savunma hattı olarak hareket eden psikolojik temelli tepki davranışlarını desteklediğini göstermektedir. Bu savunma tepkileri "davranışsal bağışıklık sistemi" olarak adlandırılmıştır. Davranışsal bağışıklık sistemi bulaşıcı bir hastalığa karşı savunmasızlık algısının (PVD) tetiklenmesiyle ilgilidir. Bu sistem patojen tehdidi olabilecek herhangi bir işarete aşırı duyarlı bir şekilde tepki vererek, enfekte olma olasılığını en aza indirir. Çalışmalar korunmacı davranışların, hastalığa karşı yüksek savunmasızlık algısına dayandığını göstermektedir. Bu çalışmada Hastalıklara Karşı Savunmasızlık Algısı Ölçeği'nin (HKSA-Ö) Türk toplumu ve dili için geçerliliğini ve güvenilirliğini değerlendirilmiştir. Çalışma, Şubat-Nisan 2021 tarihleri arasında yapılan metodolojik tipte bir araştırmadır. Katılımcılar farklı fakültelerde eğitim gören üniversite öğrencilerinden oluşuyordu. Ölçeğin Türkçe sürümünün güvenilirlik analizlerinde iç tutarlılık-Cronbach alfa katsayısı "0,712" olarak bulundu. Ölçeğin test-tekrar test değerlendirmesinde sınıf içi korelasyon katsayısı "0,882", spearman korelasyon katsayısı "0,815" olarak tespit edildi. Kapsam-eş değer form geçerliliğinin değerlendirilmesinde Sağlık Anksiyetesi Ölçeği'nden (SAÖ) alınan puanlar ile HKSA-Ö'den alınan puanlar arasında düşük kuvvette ve pozitif yönlü bir korelasyon olduğu saptandı (r=0,268; p=0,003). AFA'ya göre ölçeğin açıkladığı toplam varyans %56.517 olarak hesaplandı ve varimax döndürme metodu ile ölçek maddelerinin 4 alt boyuta (Enfeksiyon Algısı, Enfeksiyon Algısı Ters Puanlı, Mikroptan Kaçınma, Mikroptan Kaçınma Ters Puanlı) ayrıldığı izlendi. Çalışmamızın sonucunda elde ettiğimiz verilere göre HKSA-Ö'nün Türkçe sürümünün yeterli psikometrik özelliklere sahip olduğu ve özellikle genç popülasyonda yeterli geçerlilik ve güvenilirliğe sahip olduğu izlenmektedir.
Anahtar Kelimeler: Hastalık, Savunmasızlık, Geçerlilik, Güvenilirlik

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1. Introduction

Infectious diseases are caused by microorganisms such as bacteria, viruses, parasites, and fungi that can be transmitted from one person to another directly or indirectly. These microorganisms are transmitted from person to person through the mouth, nose, throat, and respiratory tract. It can spread through mucus with unwashed hands, coughing, and sneezing (1). The spread of communicable diseases and causing disease in many living things is defined as an epidemic. Today, with the development of modern transportation facilities, epidemics have become much faster and more imminent dangers than before (2).

Epidemics lead to an increase in anxiety and fear levels in society (3). Increasing anxiety and fear are also reflected in behavioral responses and have a strong impact on preventive behaviors. Behavioral responses related to anxiety are a product of the avoidance mechanism. People with high levels of fear may misbehave during the pandemic, for example, by excessive avoidance or unnecessary and repeated visits to physicians, placing an additional burden on an already stretched health care system. On the other hand, people with very low health anxiety may not adhere to basic hygiene rules or recommended health measures. These people facilitate the spread of infections during times of a pandemic (4). There may also be some positive aspects of fear. For example, some researchers say that certain negative emotions, which they call "functional anxiety," are normal and adaptive and not pathological. It is claimed that anxiety experienced during an epidemic produces positive behavioral changes, such as increased adherence to barriers, increased adherence to social distance rules, and improved hand-washing habits (5). Studies show that disgust also promotes psychologically-based response behaviors that serve as the first line of defense against pathogens, especially in situations such as pandemics. All of these defensive responses are referred to as the "behavioral immune system" (6)(7)(8). The behavioral immune system is involved in triggering perceived vulnerability to infectious disease (PVD). This system is hypersensitive to any sign that might represent a threat from a pathogen, thus minimizing the possibility of infection (7). It is thought to form the primary defense system by activating before the physiological immune system, which is normally reactive and becomes active when the person is infected (6). In 2009, Duncan et al. developed a 15-item psychological scale to measure perceived high vulnerability to the disease (9).

Today, the COVID -19 epidemic continues around the world. The World Health Organization declared this epidemic a global pandemic on March 11, 2020 (10). By the end of April 2022, the total number of COVID -19 cases worldwide exceeded 510,000,000 and the total number of deaths exceeded 6,220,000 (11). The lack of knowledge about the exact treatment of COVID -19 and the high transmission rates led to an increase in fear and concern among the population. With the rapid spread of the epidemic, society began to wash their hands more frequently, disinfect various items, use masks, and distance themselves from people (5)(12). Studies show that these protective behaviors are based on perceptions of high vulnerability to the disease (12). Triggering perceptions of vulnerability to the disease is also important concerning the outbreak of COVID -19. This is because many studies from abroad have found a positive association between a high perception of vulnerability and an increase in protective behavior (5)(13)(14)(15). Apart from these studies, no study in this direction was found in the literature in Turkey. We suspect that this is due to the fact that the Turkish version of the Perception of Vulnerability Scale (PVD-S) has not been studied for its validity and reliability. This study aims to evaluate the validity and reliability of the PVD-S for Turkish society and language.

2. Materials and Methods

Participants

The study is methodological research conducted between February and April 2021. The number of people to be included in the study was set at 10 times the number of scale items (15 items). The participants were university students studying at different

faculties (medicine, dentistry, law, computer engineering, etc.). The university students who will participate in the study were informed about the study, their verbal consent was obtained, and an online questionnaire was used. The study was approved by the AYBU Ethics Committee under number 64 dated 14/01/2021. Before adopting the PVD-S into Turkish, the necessary permissions for the use of the scale were obtained.

Data collection instruments

PVD-S is a 15-item scale developed by Duncan et al. in 2009. The scale has a two-factor structure: factor 1 measures people's beliefs about their susceptibility to infectious disease (questions 2,5,6,8,10,12,14), while factor 2 measures the emotional distress when perceived to be at high risk of transmitting pathogens (1,3,4,7,9,11,13,15. questions). Participants answered one item on a 7-point scale. Endpoints were set as "strongly disagree" and "strongly agree." 6 of the questions were reverse scored (3,5,11,12,13,14 questions). As the score on the scale increases, the perception of vulnerability increases.

The Health Anxiety Inventory is an 18-item self-report scale developed by Salkovskis et al. in 2002. The 14 items of the scale consist of statements with quartet responses that ask about the patient's mental state. The remaining four questions ask patients to speculate about what their mental state might be under the assumption of severe illness and to provide follow-up questions accordingly. The scale score for each item ranges from 0 to 3, with a high score indicating a high level of health anxiety.

Statistical analysis

Because the scale was adapted from different languages and cultures, validity and reliability studies were conducted in 2 stages. In the first stage, language validity, content validity, content-equivalent form validity, and construct validity were performed for validity analyses. In the second stage, internal consistency (Cronbach's alpha) and test-retest reliability were assessed as part of the reliability analysis. For linguistic and content validity, the PVD-S items were translated into Turkish by the study team using the back-translation method, and then the Turkish form was back-translated into English by another team member with language skills. The created Turkish form was submitted to a 4-member team for content validity testing, and the appropriateness of each scale item was assessed. The resulting questionnaire was pilot tested on a group of 10 individuals and assessed for comprehensibility. Exploratory factor analysis (EFA) was used for construct validity, while Spearman correlation analysis and the Mann-Whitney U test were used for content equivalence of form validation. The reliability of the scale was assessed using item-total correlation, internal consistency, and test-retest correlation. After the pilot study, the scale was used with a minimum number of participants. Three weeks later, it was applied again to 55 selected individuals to assess test-retest reliability.

3. Results

The 39.6% of the subjects participating in the study were male and the mean age of the group was 23.90±3.74 years. While more than half of the participants (51.2%) rated their academic performance as good, the majority (90.3%) had no chronic disease. Approximately half of the participants (47.3%) lived with their family (mother/father/siblings), while 16.4% had individuals over the age of 65 living at home.

Table 1.Some descriptive characteristics of the participants

	(n=207)
Age (year), μ±SD, median, (min-max)	23.9 ± 3.7 24 (18-63)
Sex, n (%)	
Male	81 (39.6)
Female	125 (60.4)
How would you rate your academic success? n (%)	
Bad	4 (1.9)
Average	75 (36.2)
Good	106 (51.2)
Very Good	22 (10.6)
Do you have a chronic disease? n (%)	
Yes	20 (9.7)
No	187 (90.3)
Who do you live with currently? n (%)	
By myself	36 (17.4)
With my own family (wife/husband/children)	11 (5.3)
With family (mother/father/siblings)	100 (47.3)
With my housemates	27 (13)
In dormitory	33 (15.9)
Is there an individual older than 65 yo in your household?n (%)	
Yes	34 (16.4)
No	173 (83.6)
Monthly total household income, n (%)	
Less than 2.500 TL	22 (10.6)
2.500 – 4.000 TL	29 (14.0)
4.000 – 6.000 TL	38 (18.4)
6.000 – 8.000 TL	36 (17.4)
8.000 TL and higher	82 (39.6)

n: Number of participants; %: Percentage; μ: Mean; SD: Standard deviation

While 86.5% of participants reported paying attention to social distance in busy environments in the past week, 18.8% reported using dietary supplements to protect themselves from COVID -19, and 13.0% reported having COVID -19 positive patients in their environment.

Table 2. Some protective behaviors of participants

	(n=207)
Have you had any newly starting fever, cough, respiration difficulties in the past week? n (%)	
Yes	4 (1,9)
No	203 (98.1)
Have you left the house in the past week? n (%)	
Yes	183 (88.4)
No	24 (11.6)
Have you put on a mask when you left the house in the past week? n (%)	
Yes	204 (98.6)
No	3 (1.4)
Have you worn gloves when you left the house in the past week?n (%)	
Evet	39 (18.8)
Hayır	168 (81.2)
Have you been cautious about social distance in crowded places in the past week? n (%)	
Yes	179 (86.5)
No	28 (13.5)
Have you used any dietary supplement in the past week to be protected from Covid-19? n (%)	

Yes	39 (18.8)
No	168 (81.2)
Is there anyone who is Covid-19 positive around you? (%)	
Yes	39 (18.8)
No	168 (81.2)

n: Number of participants; %: Percentage; μ: Mean; SD: Standard deviation

In the reliability analysis of the Turkish version of the scale, the internal consistency of Cronbach's alpha coefficient was 0.712, whereas Cronbach's alpha values did not decrease when the item was removed. The corrected total score correlations of the items ranged from 0.125 to 0.552. Test-retest evaluation of the scale yielded an intraclass correlation coefficient of 0.882 and a Spearman correlation coefficient of 0.815.

Tablo 3. Corrected Item-Total Correlations and Cronbach's Alpha if Item Deleted

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Question 1	0.362	0.704
Question 2	0.411	0.699
Question 3	0.357	0.703
Question 4	0.321	0.708
Question 5	0.264	0.714
Question 6	0.400	0.699
Question 7	0.460	0.691
Question 8	0.552	0.679
Question 9	0.301	0.710
Question 10	0.224	0.718
Question 11	0.286	0.711
Question 12	0.284	0.711
Question 13	0.307	0.709
Question 14	0.125	0.726
Question 15	0.215	0.719

When content equivalent form validity was evaluated, it was found that there was a weak and positive correlation between the SAI and PVD-S scores (r=0.268; p=0.003). The results of the Spearman correlation analysis performed to determine the relationship between the results of the PVD-S and the SAI are shown in Table 4.

Table 4. Results of the Spearman correlation analysis performed to determine the relationship between the values of the PVD-S and the SAI.

Variables	N	r	P
PVD-SHAI Total Scores	120	0.268	0.003

PVD-S values were also higher in women than in men ($p < 0.05$). Contrary to our expectations, PVD-S levels were not higher in people with chronic diseases, in people who lived with people older than 65 years, in those who kept social distance outdoors in the past

week, in people who took dietary supplements for protection against COVID -19, and in people with COVID -19 positive cases in their environment ($p > 0.05$ in each case). The comparison of PVD-S values in relation with some characteristics of the participants is shown in Table 5.

Tablo 5. Comparison of PDV Scores in terms of some features of the participants

	PDV Scores		
	N	**Mean**	**p**
Sex			
Male	81	90.9	**0.015***
Female	125	111.6	
Chronic Disease			
Has chronic disease	177	99.28	0.838
Doesn't have chronic disease	20	96.53	
Lives with individual older than 65 years			
No	173	100.8	0.092
Yes	34	119.81	
Was cautious about social distance in crowded places in the past week			
Yes	179	107.10	0.060
No	28	84.20	
Dietary supplement usage to be protected from Covid-19			
Yes	39	101.7	0.797
No	168	104.5	
Covid-19 patient around the participant			
Yes	27	89	0.163
No	180	106.25	

Since the KMO value of the scale before EFA was 0.740, Bartlett's sphericity test $p < 0.001$, EFA was considered appropriate. The total variance explained by the scale after EFA was calculated as 56.517% and it was found that the scale items were divided into 4 sub-dimensions (infection perception, infection perception reverse-scored, germ avoidance, germ avoidance reverse-scored) using the Varimax rotation method. The factor load of the items in all dimensions were above 0.40 (0.496-0.788).

Table 6. EFA Results of Perceived Vulnerability to Disease Scale

	Infection Perception	**Infection Perception Reverse-Scored**	**Germ Avoidance**	**Germ Avoidance Reverse-Scored**
Question 6	0.766			
Question 10	0.751			
Question 8	0.734			
Question 2	0.626			
Question 1			0.666	
Question 4			0.664	
Question 9			0.635	
Question 7			0.509	

Question 14		-0.496		
Question 13			0.788	
Question 11			0.773	
Question 15			0.529	
Question 5	0.765			
Question 3	0.560			
Question 12	0.525			

4. Discussion

The COVID -19 epidemic had severe physical and psychological effects on people around the world, especially when it first occurred. Even today, we can see these effects under the definition of post- COVID -19 (cough, shortness of breath, fatigue after exercise, anxiety, depression, etc.) (16). For this reason, measurement tools developed to determine prevention and avoidance behaviors of people in the present and the future are necessary. Therefore, in this study, we investigated whether the Turkish version of the PVD-S has appropriate psychometric properties and sufficient validity and reliability in the young population.

In the reliability analysis of the Turkish version of the scale, the internal consistency of Cronbach's alpha coefficient was 0.712, while Cronbach's alpha values did not decrease when we removed the item. In the scale development studies by Duncan et al., the Cronbach's alpha coefficient of the scale was reported as 0.82, while Iranian validity and reliability study reported it as 0.70 and Spanish study reported it as 0.69 (9)(17)(14)(18). In its present form, our Cronbach's alpha value is considered adequate in terms of reliability.

In our study, the corrected total score correlations of the items ranged between 0.125-0.552. In the Iranian study, these values were reported as 0.37-0.55 (17).

In the retest evaluation of the scale, the intraclass correlation coefficient was found to be 0.882 and the Spearman correlation coefficient was 0.815. In the retest evaluation of the Spanish validity and reliability study of the scale, the intraclass correlation coefficients were calculated separately for the sub-factors and were calculated as 0.95 for perceived infectability and 0.98 for germ aversion, similar to our study (18). This result is considered sufficient in terms of the scale's capacity to measure reliably.

In the evaluation of content-equivalent form validity, it was determined that there was a weak and positive correlation between the scores from SAI and scores from PVD-S. In our study, which measures similar features in terms of assessing validity, we found a weak and positive correlation between PVD-S and SAI. In the literature, it is observed that there is a correlation between PVD-S and Health Anxiety Scale, Illness Attitude Scale, Disgust Sensitivity, Padua Inventory Contamination Scale, MMPI-II's Obsessions, and Hypochondria Scales, Whiteley Index, Illness Attitude Scale (9)(18). The positive correlation of these scales, which evaluated a similar content in our study, is valuable for the Turkish validity of the scale.

Similarly, females had higher levels of PVD-S than males. In a study conducted during the Covid-19 period, it was found that although men were more likely than women to experience negative health effects from COVID -19, women were twice as likely as men to report extreme Covid-19 anxiety (19). The high scores on the scale in the male population in our study may be due to the fact that the scale was tested on relatively young university students. The increasing incidence of chronic diseases with age, especially in the female population, may lead to a higher perception of disease susceptibility compared with men, whereas the perception of disease susceptibility is higher in men at a younger age. Contrary to our expectations, PVD-S levels were not higher in persons with chronic diseases, in persons who lived with persons older than 65 years, in persons who kept

social distance outdoors in the past week, in persons who took dietary supplements for protection against COVID -19, and in persons with COVID -19 positive cases in their environment. A meta-analysis showed that individuals with four serious chronic diseases, including cancer, Parkinson's disease, heart disease, and diabetes, had higher scores in avoidance behaviors, anxiety, and depression (20). Another study showed that fear of COVID -19 had a positive influence on people's intention to buy supplements (21).

In our study, the total variance explained by the scale was approximately 60%, and it was found that the scale items were divided into 4 subdimensions (infection perception, germ avoidance, germ avoidance with reversed values, infection perception with reversed values). The factor coefficients of the items in all dimensions were scored above 0.40. This is considered an important and sufficient result for demonstrating construct validity.

It is important to bring the Turkish version of this scale, which we consider important, to the literature to show the widespread psychological impact of new and re-emerging epidemics that we are likely to face in the coming years, especially in this period when the pandemic COVID -19 has taken a declining course. However, there are some limitations to our study. The study data consist of young people in a limited age range studying at different faculties. This situation of our questionnaire limited the generalizability to the general population.

Therefore, although the validity of the scale is considered adequate, we could not obtain meaningful results for our hypotheses, such as the presence of a chronic disease, living with a person older than 65 years, keeping social distance outdoors in the past week, taking dietary supplements for protection against COVID -19, and the presence of COVID -19 positive cases in their environment.

Epidemic disease factors can create a situation full of ambiguity for the whole society. We believe that it would be beneficial to renew this scale with a larger sample group, especially for all age groups and representative of the general society. According to the data we obtained as a result of our study, it appears that the Turkish version of the PVD-S has sufficient psychometric properties and has adequate validity and reliability, especially in the young population.

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Ethics

Ethics Committee Approval: The study was approved by Ankara Yıldırım Beyazıt University Noninterventional Clinical Research Ethical Committee (Decision no: 64, Date: 14. 01.2022).

Informed Consent: Verbal consent was obtained from the participants in the study group for the implementation of the study.

Authorship Contributions: Surgical and Medical Practices: AÖ, EÜ, MEG. Concept: AÖ, EÜ, MEG. Design: AÖ, EÜ, MEG. Data Collection or Processing: AÖ, EÜ, MEG. Analysis or Interpretation: AÖ, EÜ, MEG. Literature Search: AÖ, EÜ, MEG. Writing: AÖ, EÜ, MEG.

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Appendix-1

Turkish Version of the Perceived Vulnerability to Disease Scale (PVD-S)
Lütfen her soru için kendinize en uygun olanı işaretleyiniz

	Kesinlikle katılmıyorum						Kesinlikle katılıyorum
1. İnsanların hapşırırken ağızlarını kapatmaması beni gerçekten rahatsız ediyor.	1	2	3	4	5	6	7
2.Eğer bir hastalık 'etrafta dolaşıyorsa' hastalanırım.	1	2	3	4	5	6	7
3.Bir arkadaşımla bir su şişesi paylaşırken rahatım. (R)	1	2	3	4	5	6	7
4. Başkasının çiğnediği bir kalemle yazmak istemem.	1	2	3	4	5	6	7
5. Geçmiş deneyimlerim, arkadaşlarım hasta olsa bile hastalanmamın mümkün olmadığına inanmamı sağlıyor. (R)	1	2	3	4	5	6	7
6. Bulaşıcı hastalıklara yatkınlık öyküm var.	1	2	3	4	5	6	7
7. Birisinin elini sıktıktan hemen sonra ellerimi yıkamayı tercih ederim.	1	2	3	4	5	6	7
8. Genel olarak, soğuk algınlığı, grip ve diğer bulaşıcı hastalıklara karşı çok hassasım.	1	2	3	4	5	6	7
9. Kullanılmış kıyafetler giymekten hoşlanmam çünkü eskiden giyen kişinin neye benzediğini bilmiyorsunuz.	1	2	3	4	5	6	7
10. Etrafımdaki insanlardan bulaşıcı bir hastalığa yakalama olasılığım daha yüksektir.	1	2	3	4	5	6	7
11. Paraya dokunduktan sonra ellerim kirlenmiyor. (R)	1	2	3	4	5	6	7
12. Etrafta olsa bile soğuk algınlığı, grip veya başka bir hastalığı yakalamam pek olası değil. (R)	1	2	3	4	5	6	7
13. Hasta insanların etrafında olmak beni endişelendirmiyor. (R)	1	2	3	4	5	6	7
14. Bağışıklık sistemim beni diğer insanların hastalıklarından koruyor. (R)	1	2	3	4	5	6	7
15. Önceki kullanıcıdan bir şey yakalama riskim nedeniyle halka açık telefonları kullanmaktan kaçınırım.	1	2	3	4	5	6	7

(R) test puanlanan soru

For each question, please check the most appropriate answer.

	I strongly disagree						I strongly agree
1. It really bothers me when people sneeze without covering their mouths.	1	2	3	4	5	6	7
2. If an illness “going around”, I will get it.	1	2	3	4	5	6	7
3. I am comfortable sharing a water bottle with a friend. (R)	1	2	3	4	5	6	7
4. I do not like to write with a pencil someone else has obviously chewed on.	1	2	3	4	5	6	7
5. My past experiences make me believe I am not likely to get sick even when my friends are sick. (R)	1	2	3	4	5	6	7
6. I have a history of susceptibility to infectious disease.	1	2	3	4	5	6	7
7. I prefer to wash my hands pretty soon after shaking someone’s hand.	1	2	3	4	5	6	7
8. In general, I am very susceptible to colds, flu and other infectious diseases.	1	2	3	4	5	6	7
9. I dislike wearing used clothes because you do not know what the last person who wore it was like.	1	2	3	4	5	6	7
10. I am more likely than the people around me to catch an infectious disease.	1	2	3	4	5	6	7
11. My hands do not feel dirty after touching money. (R)	1	2	3	4	5	6	7
12. I am unlikely to catch a cold, flu or other illness, even if it is “going around”. (R)	1	2	3	4	5	6	7
13. It does not make me anxious to be around sick people. (R)	1	2	3	4	5	6	7
14. My immune system protects me from most illnesses that other people get. (R)	1	2	3	4	5	6	7
15. I avoid using public telephones because of the risk that I may catch something from previous user.	1	2	3	4	5	6	7

(R) test scored question