THE TRANSLATION AND VALIDATION OF THE DISGUST SENSITIVITY SCALE REVISED IN THE SERBIAN LANGUAGE

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Summary

We could define disgust as a feeling of revulsion arising as a response to an aversive stimulus, that induces motivation to withdraw from that stimulus. There are several instruments to measure disgust sensitivity and the most used one is the disgust elicitor inventory, the Disgust Sensitivity Scale. It is the aim of this study to validate the translation of the mentioned scale into Serbian language.

The sample used for this study numbered 724 participants out of which 513 (70.9%) declared themselves female, and the average age of the participants was 28.3 (SD=6.9) ranging from 18 to 66 years. The sample was collected via an internet survey. The test battery additionally consisted out of the Depression, Anxiety and Stress Scale (DASS21) and the Patient Health Questionnaire 15 (PHQ15).

We tested several scale structure models, including the one, three, five and six factor models proposed in various translations and iterations of the scale. None of them proved to achieve adequate model fit criteria in confirmatory factor analysis, but the 6-factor model has the best metrics. However, the subscales in this model have low internal consistency. We have detected an expected gender difference in summary scores. There are almost no significant correlations with any other measured constructs, casting further doubt on the scale. The scale has good temporal stability.

We recommend using this scale with caution and using only the summative score, our research confirms the ever-growing body of work showing that elicitor-based disgust sensitivity scales are heavily influenced by the sociocultural environment and are difficult to replicate cross-culturally. A creation of a culture specific elicitor-based disgust sensitivity scale is probably the best solution for the measurement of this construct.

INTRODUCTION

We could define disgust as a feeling of revulsion arising as a response to an aversive stimulus, that induces motivation to withdraw from that stimulus[1]. It can be construed as a basic emotion possessing distinct behavioral, cognitive and psychological dimensions whose purpose is to prevent disease and contamination[2]. The primary function of disgust, as noted by Olatunji (2007), is to protect the self from physical and psychological contamination. It was also described as an emotional state that in the beginning operated as a safety net for oral defense mechanisms that has later evolved into an overarching trait that governs interpersonal relationships influencing the person's moral sense and the social order[3]. The mounting body of research indicates that feeling of disgust could be described as both "state" and "trait", much like anxiety[4].

Disgust sensitivity has been shown to negatively correlate with traits and Openness, positively with Neuroticism, Agreeableness and Consciousness, while having no significant correlation with Extraversion[5]. These findings have, however, been disputed, and subsequent research has shown only positive correlation with neuroticism, while only one facet of the measured construct, core disgust, shows weak negative correlation with trait openness[6]. The afore mentioned research also showed moderate

positive correlation with behavioral inhibition and negative with self-esteem. Also, a negative correlation between trait Psychoticism and disgust has been reported[7]. There are gender differences between levels of measured disgust sensitivity, with female participants scoring higher[5, 8]. Disgust has been brought into connection, as a risk factor and as a factor influencing the severity and continuation, of several mental disorders. These include obsessive-compulsive disorders, phobias of animal and human blood, eating disorders, schizophrenia and borderline personality disorder[9].

Washing and checking behaviors, as parts of the obsessive-compulsive disorder, were predicted by disgust levels, while it has not been strongly linked with rumination[10]. Disgust has a direct influence on washing and contamination concerned symptoms of obsessive-compulsive behavior, which is not mediated by anxiety[11], while there is some debate about the possible influence of other forms of aversions that might be confounded with disgust[12]. A positive correlation between disgust, injection phobia and fear of spiders was discovered as part of research that was aiming to discern the relationship of disgust sensitivity and anxiety related disorders[8] and avoidance behavior[4, 13]. Patients suffering from disorders such as anorexia nervosa have statistically more significant disgust sensitivity levels than those reported by control groups[14].

The wide-ranging scope of the influence of disgust sensitivity has been emphasized by research on its influence on moral judgment. Disgust has been related to disapproval of public displays of homosexuality[15], and further research has shown a positive correlation between disgust sensitivity and political conservatism[16]. Specifically disgust sensitivity has been found to relate more strongly to moral condemnation of purity-based transgressions than in other domains of moral judgment[17]. Also, from the beginning of its measurement there has been a gender differences in levels of disgust sensitivity with female participants scoring significantly higher, showing higher disgust sensitivity[7]. Such findings give us the idea of the wide-ranging influence disgust has on our lives spanning from the pathological on one end to the political and moral on the other.

Measurement

There have been several attempts to create a scale that could help in researching disgust, and the first of these is the Disgust and Contamination Sensitivity Questionnaire[18]. This scale measures the propensity to turn edible foodstuff un-edible by mere short contact with what is perceived as a contaminant. Since this scale is concerned mostly with the food aspect of disgust the Disgust Sensitivity Scale (DS) was later developed to

widen the scope of disgust related research[7]. It had 32 items that described stimuli known to elicit disgust pertaining to eight specific domains such as food, sex, bodily products, violations of the body, animals, hygiene, death and magical thinking. Each domain was covered by 4 items. The responses were not measured in the same way across the entire scale, the first 16 items were answered in true or false options, while the second 16 were measured by a three point scale (0 ="not disgusting at all", 1 = "slightly disgusting", 2 = "very disgusting").

Unfortunately, from its inception, the DS suffered from poor internal consistency and weak psychometric characteristics. While internal consistency values (Crombach's alpha) were acceptable for the questionnaire as a whole (0.81) various individual domains had values ranging from as low as 0.27 to 0.63 causing obvious problems[7]. Later the questionnaire was amended so that the scoring became a uniform four-point scale for the entire instrument, with answers ranging between "strongly disagree" and "strongly agree" in the first half and "not at all disgusting" and "very disgusting" in the second part[7]. This unfortunately did not significantly improve the metrics of the instrument therefore a revision was needed.

Olatunji et al[19] undertook the task of revising the scale creating the Disgust Sensitivity Revised scale (DS-R). In total seven items were eliminated while 3 were revised, therefore the new scale had 13 items in the first section and 12 in the second with the addition of 2 filter items. This variation consisted out of three subscales, Core Disgust (CD), Animal Reminder Disgust (AR) and Contamination Based Disgust (CoD) instead of the original eight. Core Disgust subscale encompassed feelings of disgust towards food, animals and body products such as fluids. Animal Reminder Disgust is related with feelings of disgust generated by a breach of the body envelope and those related to death (visual and olfactory stimuli). Contamination Based Disgust is strongly associated with hygiene, be it personal or public[7]. The validity of this scale was revisited and thoroughly reanalyzed[20] and its cross-cultural validity was further established[21].

However, not all the results during cross-cultural studies were corroborating the three-factor solution with weak metric characteristics found in Germany, Japan and the Netherlands[3] The examination of the Korean adaptation of the scale has shown that a five-factor model best fits the available data[22]. Further examination has shown yet another deviation from expected results with the Italian version conforming to the six-factor solution[3]. Clearly cultural and language differences influence the measurement of disgust with this scale that focuses on specific elicitors of disgust. Therefore, it was our intention to see how the DS-R would perform in the

Serbian language and weather the original intended three factor structure will be upheld.

It is the aim of our study to translate the Disgust Sensitivity Revised Scale and to validate its internal consistency and structure. With this study we hope to provide a viable instrument to measure disgust sensitivity in the Serbian language and to facilitate research in this field among the Serbian scientific community.

Method

The sample used for this study numbered 724 participants out of which 513 (70.9%) declared themselves female, and the average age of the participant was 28.3 (SD=6.9) ranging from 18 to 66 years. With regards to education 25.7% finished high school, 42.3% has collage education, 28.5% has master level degrees and 3.6% of the sample has a PhD. With regards to work status, 10.9% of the sample is unemployed, 34.9% is permanently employed, 14% are precariously employed and 40.2% are students. Out of the entire sample 22.4% reported to be suffering from a chronic illness or an affliction that required them to at one point use psychiatric medication. This sample was collected via the internet. It was formulated as an online survey, using google docs a free service. It circulated freely on social networks for a period of one month. It was posted on various social media groups and user account profiles. In this respect, as we have counted on the snowball effect, it represents a general population sample of individuals with social media accounts.

A second sample of students was used to determine the temporal stability of the scale. For subject credit students completed the online version of the survey and then after the period of 3 weeks completed it again. There were 112 students in total participating in this part of the study, out of them 92 (82.1%) were female and the average age of participants was 21.2 (SD=1.4) ranging from 18 to 25 years.

Instruments

The Depression, Anxiety and Stress Scale (DASS-21) was successfully adapted to the Serbian language showing good psychometric characteristics[23]. It consists of 21 items sorted into 3 subscales, the anxiety, depression and stress subscales, and it is measured on a 4-point scale ranging from 0 to 3. The internal consistency scores, Cronbach alpha, were favorable in this sample (.79, .87 and .82 respectively).

The Patient Health Questionnaire (PHQ-15) was successfully adapted for use in the Serbian language[24] as an inventory of most psychosomatic symptoms recognized by the WHO. It consists of 15 items, and the participants can choose one of three responses: not bothered

at all, bothered a little and bothered a lot.

In this research we used the revised version of the Disgust Sensitivity Scale that consisted of 27 items translated in the Serbian language (DS-Rsr), two disregarded filter items, where participant responses were measured on a 5-point scale, from 0 to 4. In total we tested four models in order to determine the best fit. The one and three factor model[19], the five-factor model[22] and the six-factor model[3]. The translation of this scale was performed by two separate professional translators, and these two versions were then combined into one translation by a bilingual psychologist and a Serbian language expert.

In our research we used methods of descriptive statistics, ANOVA, correlation (r coefficient), and confirmatory factor analysis in order to determine the parameters of the model fit. One of the indicators of the good model fit that we used is Root Mean Square Error of Approximation (RMSEA), with its maximum cut-off value .08, while <.05 is considered a good fit[25]. Next, we used the Comparative Fit Index (CFI) and the Tucker Lewis Index (TLI) with values of at least .90 to indicate an acceptable model fit, while values of .95 and above represent a good fit[26]. The following observed parameter was the Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) where models with lower AIC and BIC are considered better than those with higher values[27, 28].

RESULTS

We have performed confirmatory factor analysis of the DS-R by using the one, three, five and six factor solution models. The results of this analysis are presented in Table 1. Internal consistency indexes, Cronbach's α, for all subscales of the proposed models were calculated and the results are presented in Table 2. In order to determine the relationship between disgust sensitivity and other constructs we have adopted the single factor solution. The correlation indices between disgust sensitivity and other measured constructs are presented in Table 3. As we can see only the correlation between depression, as measured by DASS-21 significantly correlates with DS-Rsr. Other constructs show no significant correlation therefore their relationship to the DS-Rsr score is not relevant in this capacity.

Table 1

Results of the confirmatory factor analysis of the one, three, five and six factor solution models.

	CFI	TLI	RMSEA	AIC	BIC	X^2 (df)
F1	0.78	0.76	0.065	1216.84	1446.08	1116.84(275)
F3	0.84	0.83	0.056	986.85	1229.83	880.84(272)
F5	0.85	0.82	0.056	981.96	1257.05	861.96(265)
F6	0.86	0.84	0.053	923.54	1221.55	793.54(260)

F1= one factor solution; F3= three factor solution; F5=five factor solution; F6=six factor solution.

Table 2

Internal consistency values for all subscales in the proposed models.

One factor model		Three factor model		Five factor model		Six factor model	
Factor	α	Factor	α	Factor	α	Factor	α
Complete score	0.87	CD	0.74	Factor 1	0.72	Factor 1	0.79
		AR	0.79	Factor 2	0.72	Factor 2	0.62
		CoD	0.62	Factor 3	0.54	Factor 3	0.57
				Factor 4	0.51	Factor 4	0.35
				Factor 5	0.37	Factor 5	0.28
						Factor 6	0.55

Table 3

Correlation coefficients (r) between the general disgust score and other measured constructs (DASS21 and PHQ-15)

	Total DS-R score
Depression	-0.08*
Anxiety	0.05
Stress	0.06
PHQ-15 score	0.07

*Correlation is significant at p<0.05

The total DS-R score is 48.56 (SD=17.4; min=1; max=97). There are significant gender differences (t=9.68; df=722; p<.001) in complete DS-R score with female participants scoring higher, displaying greater disgust sensitivity. Also, there are significant differences in disgust sensitivity between those participants suffering from a chronic and/or mental disorder and those that have not reported any such hardship (p<0.05). There is no significant correlation between disgust levels and participant age.

One-way ANOVA was performed in order to determine is there a difference in the total DS-R score between participants of various education levels. The analysis was significant at the level of p=0.003 (F=4.62; df=723). There is significant difference in disgust sensitivity levels (p<0.05) between those participants with high school level education and those with graduate and master level education, while there is no significant difference between other groups, showing that participants with high school education level have lower levels of disgust sensitivity. The same analysis was performed with employment status as a discriminating factor (F=3.96; df=73; p=0.008). Those permanently employed have lower levels of disgust sensitivity, while unemployed and precariously employed have the highest levels of disgust sensitivity. There are only statistically significant differences between those permanently and precariously employed (p<0.05). Disgust sensitivity as a trait was proven to be very stable with a correlation of 0.91 on a test-retest sample over a period of 3 weeks, regarding the general score.

Discussion

Structurally speaking disgust sensitivity as measured by the DS-R scale has proven to be quite illusive. First of all, the goodness of fit parameters for the originally proposed three factor solution fall short of our proposed criteria. This goes against previous findings of cross-cultural studies[29]. At this point it is worth noting that none of the countries included in the study were situated in eastern Europe and none of them had a Slavic cultural environment. This in fact was one of the reasons that prompted us to perform this study.

After this solution to the problem of the DS-Rsr structure has failed us we have proceeded to test other solutions found in literature. The five-factor solution[22] proposed in the Korean translation was also tested, and unfortunately found lacking. In this case, the values of variables pertaining model fit were more favorable but still falling short of the minimal desired criteria. This was also the case with the 6-factor solution proposed in the Italian translation[3]. All of the parameters in this model were outside the minimal requirements except the RMSEA, but overall, this does not make the model viable.

This is a worrisome situation we have found ourselves in with no model fitting our data, also a look at the internal consistency of the proposed subscales in various models, even if there was a model fit, the alpha values are so small that we could not be sure what exactly were the subscales measuring. Fortunately, we are not the first finding ourselves in this situation. The Swedish translation of the disgust sensitivity scale has encountered similar problems[30], however, this study has been performed using the 32-item version of the scale. They have tested the one factor, five factor and an eight-factor solution with no tangible success. Although this was before the scale was revised, so we cannot directly translate and replicate their findings, we believe that the way out of this conundrum that they have offered is viable. Namely Bjorklund and Hursti[30] indicate that because of the low internal consistency of the subscales in the eight-factor solution, even though it meets the criterion for the RMSEA variable, as is in our case with the six-factor solution, the usage of the proposed subscales is not viable. Instead, they propose using the summary score of the entire scale as a tool for measuring disgust sensitivity, considering them reliable enough to be used with caution. One of their proposals was to reduce the scale by eliminating some of the items in order to attain better metrics and this was indeed performed in the process of revising the scale[19], but even after this we still find ourselves in the same predicament. For what it's worth the scale has shown remarkable temporal stability of a .91 correlation coefficient between results over a 3-week period of time, therefore showing that if the exact constructs and metrics cannot be replicated, certain aspects of its reliability can.

Other than structural difficulties our results show a mixed picture regarding the scales validity with relation to other constructs. While the present gender differences and over all disgust sensitivity levels correspond to those in the relevant literature[20], the correlations between it and stress and anxiety are virtually nonexistent. This was not expected given the reported high to medium correlations to various clinical aspects of anxiety[6]. Though this can perhaps be partially explained by the fact that we did not use phobia specific questionnaires but a more general measurement of anxiety, the DASS-21 scale. Correlation between disgust and the depression subscale of the DASS-21 was extremely low, probably an artefact of sample size. Also, there is no significant correlation between somatization as reported by the PHQ-15 scale and the DS-Rsr. This itself cannot be interpreted neither as a corroboration nor a lack of justification for the scales validity as there is no direct link in literature between these constructs. Since there is a link between anxiety and other factors of psychological

distress with somatization, we believed that there is a possibility that disgust sensitivity is itself connected with somatization. This hypothesis although not proven by this study, cannot be disproven because we have not found expected links between disgust measured by the DS-Rsr and said factors of psychological distress, therefore it is possible that with a disgust scale that encompasses that aspect of disgust findings could be different.

On the other hand the significant difference in disgust sensitivity levels detected between those participants that self-reported suffering from chronic or mental illness again points to the clinical implications of the construct measured by the DS-R, regardless of the correlation with anxiety. This warrants further investigation in the differences in disgust sensitivity between clinical and non-clinical population samples, but we cannot find exact results that will correspond to our method of self-reporting chronic or mental illness. At present we are left to speculate about the clinical usefulness of these findings, as the very nature of the measurement instrument is in question. Never the less this is an opening for further study.

We have not found any available data on socio-demographic variables influencing disgust scores; therefore we are not able to give any kind of meaningful comparison of our results. What we see is people with lower levels of education displaying lower levels of disgust sensitivity compared to those with higher education, and those permanently employed displaying lower levels of disgust to those that are either unemployed or precariously employed. At present, we cannot offer or postulate any explanation for these results but it should be the starting point for future research into the relation of disgust sensitivity and socioeconomic variables. Given the relation between disgust sensitivity and political and morality[16], there might be an avenue to further explore these findings from a sociological socio-psychological standpoint but this is far beyond the scope of this study.

Conclusion

To conclude our deliberations, we must stress that the DS-Rsr should be used with caution. We recommend using the scale as a composite measure without resorting to using its subscales because we doubt the validity of the conclusions that might be drawn from this practice. If nothing, this study has contributed to a growing body of work pointing out that elicitor-based disgust sensitivity measurements are highly dependent on the culture they are developed in. With their universality in question comparing findings between cultures is proving to be a daunting task, and other non-elicitor-based scales should be investigated. In the case of exploring this particular

type of disgust sensitivity it might be wiser to construct a completely original elicitor-based scale corresponding to particular linguistic and cultural specificities of its intended users.

Limitations

This study has several limitations, for instance divergent validity was not tested with phobia specific and eating disor-der specific instruments to test the correlations. The subsample of unhealthy participants relies on self-report only. More anxiety-based instruments should have been used.

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PREVOD NA SRPSKI JEZIK I VALIDACIJA REVIDIRANE SKALE OSETLJIVOSTI NA GAĐENJE

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Kratak sadržaj

Gađenje bismo mogli definisati kao osećaj odbojnosti koji nastaje kao odgovor na averzivni stimulus, koji indukuje motivaciju za povlačenje iz tog stimulusa. Postoji nekoliko instrumenata za merenje osetljivosti odvratnosti, a najkorišćeniji je inventar izazivača gnušanja, Skala osetljivosti na gađenje . Cilj ove

studije bio je da potvrdi prevod pomenute skale na srpski jezik.

Uzorak korišćen za ovu studiju brojao je 724 učesnika, od kojih se 513 (70,9%) izjasnilo kao žensko, a prosečna starost učesnika bila je 28,3 (SD = 6,9) u rasponu od 18 do 66 godina. Uzorak je prikupljen putem internet ankete. Test baterija se takođe sastojo od skale za depresiju, anksioznost i stres (DASS21) i upitnika za zdravlje pacijenta 15 (PHK15).

Testirali smo nekoliko modela strukturnih skala, uključujući jedan, tri, pet i šest faktorskih modela predloženih u različitim prevodima i iteracijama skale. Nijedan od njih nije pokazao da je postigao adekvatne kriterijume prilagođavanja modelu u potvrdnoj faktorskoj analizi, ali model sa 6 faktora ima najbolje metrike. Međutim, subskale u ovom modelu imaju nisku unutrašnju konzistentnost. Otkrili smo očekivanu polnu razliku u zbirnim rezultatima. Gotovo da nema značajnih korelacija sa bilo kojim drugim izmerenim konstrukcijama, što dovodi do dalje sumnje na skali. Vaga ima dobru vremensku stabilnost.

Preporučujemo upotrebu ove skale sa oprezom i korišćenje samo sumativne ocene, naše istraživanje potvrđuje da sve veći deo rada pokazuje da su skale osetljivosti na gnušanje zasnovane na elicitorima pod velikim uticajem sociokulturnog okruženja i da ih je teško preslikati u različitim kulturama. Stvaranje skale osetljivosti na gađenje zasnovano na kulturi zasnovanoj na elicitoru verovatno je najbolje rešenje za merenje ovog konstrukta.

Ključne reči:
skala osetljivosti na gađenje, prevod, validacija

DODATAK

DS-Rsr
Molim naznačite koliko se slažete sa sledećim izjavama, odnosno koliko su tačne za vas.

Napišite broj (0-4) da označite svoj odgovor: 1 = Otprilike se ne slažem (generalno nije tačno za mene) / 2 = Niti se slažem niti se ne slažem / 3 = Otprilike se slažem (generalno je tačno za mene) / 4 = Veoma se slažem (veoma je tačno za mene)

1. Možda bih bio/la voljan/na da probam majmunsko meso pod određenim okolnostima.

2. Smetalo bi mi da na času biologije vidim ljudsku šaku u tegli.

3. Smeta mi kada čujem kako neko pročisti grlo puno šlajma.

4. Nikada ne dozvoljavam da mi ijedan deo tela dotakne dasku WC šolje u javnom toaletu.

5. Radije biram duži put nego da proem kroz groblje.

6. Ne smeta mi kad vidim bubašvabu u nečijem domu.

7. Izuzetno bi mi smetalo da dodirnem mrtvo telo.

8. Muka mi je kad vidim nekoga da povraća.

9. Verovatno ne bih išao u moj omiljeni restoran da saznam da je kuvar bio

prehlaen.

10. Ne bi me uopšte potreslo da vidim osobu kako vadi stakleno oko iz svoje očne duplje.

11. Uznemirilo bi mi vidim pacova da mi pretrčava put u parku.

12. Radije bih pojeo/la komad voća nego komad papira.

13. Čak i da sam gladan, ne bih jeo moju omiljenu supu ako je bila promešana sa korišćenim i dobro opranim packalicom za muve.

14. Smetalo bi mi da spavam u lepoj hotelskoj sobi da znam da je noć pre čovek tu umro od srčanog udara.

Koliko bi vam sledeća iskustva bila odvratna? Molim napišite broj (0-4) da označite svoj odgovor:
0 = Nimalo odvratno / 1 = Blago odvratno /
2 = Srednje odvratno / 3 = Veoma odvratno
/ 4 = Izuzetno odvratno

15. Vidite crve na parčetu mesa u kanti za ubre napolju.

16. Vidite osobu da jede jabuku uz pomoć viljuške i noža.

17. Dok hodate kroz tunel ispod pruge, osetite miris mokraće.

18. Uzmete gutljaj soka i shvatite da je iz te čaše već pio vaš poznanik.

19. Mačka vašeg prijatelja je uginula i morate da podignete telo svojim rukama.

20. Vidite nekoga da stavlja kečap na sladoled od vanile i pojede ga.

21. Ugledate čoveka kojem su posle nesreće ispala creva.

22. Saznate da vaš prijatelj menja donji veš samo jednom nedeljno.

23. Prijatelj vam ponudi parče čokolade u obliku psećeg izmeta.

24. Slučajno dodirnete pepeo kremirane osobe.

25. Samo što niste popili čašu mleka kad osetite po mirisu da je pokvareno.

26. Kao deo nastave o seksualnom vaspitanju, treba svojim ustima da naduvate novi kondom bez lubrikanta.

27. Hodate bosi po betonu i stanete na glistu.

Izjave 12 i 16 trebaju biti zanemarene prilikom izgracunavanja konacnog skora.

LITERATURE / LITERATURA

1. Rozin P, Haidt J, & McCauley CR. Disgust. In: M. Lewis, & J. M. Haviland-Jones, Handbook of emotions, 2nd Edition. New York: Guilford Press; 2000. p.637-53.
2. Olatunji BO, Cisler JM, Deacon BJ, Connoly K, & Lorh JM. The Disgust Propensity and Sensitivity Scale-Revised: Psychometric properties and specificity in relation to anxiety disorder symptoms. J Anxiety Disord 2007; 21(7): 918-30.
3. Giampietro M, Ruggi S, Caravita SC, Gatti M, Colombo L, Gilli GM. A Measure to Assess Individual Differences for Disgust Sensitivity: An Italian Version of the Disgust Scale - Revised. Curr Psychol, 2017.
4. Woody SR, Tolin DF. The relationship between disgust sensitivity and avoidant behavior: Studies of clinical and nonclinical samples. J Anxiety Disord 2002; 16(5): 543-59.
5. Druschel BA, Sherman, MF. Disgust sensitivity as a function of the Big Five and gender. Pers Individ Dif 1999; 26(4): 739-48.
6. Olatunji BO, Haidt, J, McKay D, David B. Core, animal reminder, and contamination disgust: Three kinds of disgust with distinct personality, behavioral, physiological and clinical correlates. J Res Pers 2008; 42(5): 1243-59.
7. Haidt J, McCauley C, Rozin P. Individual Differences in Sensitivity to Disgust: A scale sampling seven domains of disgust elicitors. Pers Individ Dif 1994; 16(5): 701-13.
8. Olatunji BO, Sawchuk CN, Arrindell WA, Lohr JM. Disgust sensitivity as a mediator of the sex differences in contamination fears. Pers Individ Dif 2005; 38(3); 713-22.
9. Ille R, Schoggel H, Kapfhammer H.-P, Arendsay M, Sommer M, Schienle A. Self-disgust in mental disorders - symptom related or disorder-specific? Compr Psychiatry 2014; 55(4): 938-43.
10. Mancini F, Gragnani A, D'Olimpio F. The connection between disgust and obsession and compulsions in a non-clinical sample. Pers Individ Dif 2001; 31(7): 1173-80.
11. Moretz MW, McKay D. Disgust sensitivity as a predictor of obsessive-compulsive contamination symptoms and associated conditions. J Anxiety Disord 2008, 22(4), 707-15.
12. Tolin, D. T., Woods, C. M., & Abramowitz, J. S. (2006). Disgust sensitivity and obsessive-compulsive symptoms in a non-clinical sample. J Behav Ther Exp Psychiatry 2006; 37(1): 30-40.
13. van Overveld M, de Jong PJ, Peters ML The Disgust Propensity and Sensitivity Scale-Revised: Its predictive value for avoidance behavior. Pers Individ Dif 2010; 49(7): 706-11
14. Ahroni R, Hertz MM. Disgust Sensitivity and Anorexia Nervosa. Eur Eat Disorders Rev 2011; 20(2): 106-10.
15. Inbar Y, Pizarro DA, Knobe J, Bloom P. Disgust Sensitivity Predicts Intuitive Disapproval of Gays. Emotion 2009; 9(3): 435-9.
16. Inbar Y, Pizzaro D, Iyer R, Haidt J. Disgust Sensitivity, Political Conservativism and Voting. Soc Psychol Personal Sci 2012; 3(5): 537-44.
17. Wagemans FM, Brandt MJ, Zeelenberg M. Disgust Sensitivity is Primarily Associated with Purity-Based Moral Judgements. Emotion 2018: 227-89.
18. Rozin P, Fallon A, Mandell R. Family resemblance in attitudes on food. Dev Psychol 1984; 20(2): 309-14.
19. Olatunji BO, Williams NL, Tolin DF, Abramowitz JS, Sawchuk CN, Lohr JM, Elwood LS. The Disgust Scale: Item Analysis, Factor Structure, and Suggestions for Refinement. Psychol Assess 2007; 19(3): 281-97.
20. van Overveld M, de Jong PJ, Peters ML, Schouten E.The Disgust Scale-R: A valid and reliable index to investigate separate disgust domains? Pers Individ Dif 2011; 51(3): 325-30.
21. Olatunji BO, Unoka ZS, Beran E, David

B, Armstrong T. Disgust Sensitivity and Psychopathological Symptoms: Distinction from Harm Avoidance. J Psychopathol Behav Assess 2009; 31: 137-42.

22. Kang J, Kim S, Cho H, Jhung K, Lee S, Lee E, An S. Psychometric analysis of the Korean version of the Disgust Scale-Revised. Compr Psychiatry 2012; 53(5): 648-55.

23. Jovanović V. Gavrilov-Jerković V. Žuljević D. Brdarić D. Psihometrijska evaluacija Skale depresivnosti, anksioznosti i stresa-21 (DASS-21) na uzorku studenata u Srbiji. Psihologija 2014; 47(1): 93-112.

24. Rokvic N. Initial Investigation of Somatization in the General Population of Serbia: Prevalence, Manifestations and Predictors. Med Pregl 2018; 71(11-12): 360-67.

25. Browne MW, Cudeck R. Alternative ways of assessing model fit. In K. S. Bollen, Testing structural equation models 1993. Beverly Hills, CA: Sage.

26. Bentler PM. Comparative fit indexes in structural models. Psychol Bull 1990; 107(2): 238-46.

27. Akaike H. Factor analysis and AIC. Psychometrika 1987, 52(3), 317-32.

28. Schwatz GE. Estimating the dimension of a model. Annals of Statistics 1978; 6(2): 461-64.

29. Olatunji BO, Moretz MW, McKay D, Bjorklund F, de Jong PJ, Haidt J, . . . Schienle A. Confirming the Three-Factor Structure of the Disgust Scale Revised in Eight Countries. J Cross Cult Psychol 2009; 40(2): 234-55.

30. Bjorklund F, Hursti T. A Swedish translation and validation of the Disgust Scale: A measure of disgust sensitivity. Scand J Psychol 2004; 45: 279-84.

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