ISSN 1577-7057

Volume 23, number 1 March 1, 2023
Volumen 23, número 1 1 Marzo, 2023

ISSN: 1577-7057

IJP&PT

International Journal of Psychology & Psychological Therapy

https://www.ijpsy.com

IJP&PT is included in the following indexing and documentation Centers

International Journal of Psychology & Psychological Therapy, 2023, *23*, 1, 57-66

Factor structure invariance of the Defense Style Questionnaire-60 in outpatients

Louis De Page*

Mediter Psychotherapy Center & Centre Hospitalier Jean Titeca, Belgium

Gina Rossi

Vrije Universiteit Brussel (VUB), Belgium

Abstract

This study examined the content validity and consumer satisfaction of a newly developed forensic Measurement invariance across important subgroups such as gender and language has not yet been corroborated for Defense Style Questionnaire (DSQ). We examined the structure of the DSQ-60 (*N*= 509) using Exploratory Structural Equation Modelling with target rotation to the three factor-structure (Image distorting, Affect regulating and Adaptive style). We did find good fit to this 3-factor model for the data of the total group of outpatients. Next, we explored measurement invariance for both gender and language (French and Dutch). We did find configural invariance (i.e. pattern invariance) across gender and language. However, metric invariance (i.e. equal factor loadings) was not supported for gender and language. Moreover, the highest scale loadings were not always on the factor that would be expected based on three-factor solutions found earlier with different DSQ versions (i.e. an adaptive, image distorting style, and affect regulating style). We did find an adaptive and an image distorting factor. The third factor did not clearly represent the affect regulating style. We conclude that, although the widespread use of the DSQ, researchers must be careful in their use and interpretation of the DSQ-scales across important subgroups such as gender and language. Yet the DSQ is still a good screening measure for immature defenses and can give an indication of the presence of relatively more mature versus more immature defenses in an individual.

Key words: DSQ-60, Defenses, Exploratory Structural Equation Modelling with target rotation, Measurement Invariance, gender, language.

How to cite this paper: De Page L & Rossi G (2023). Factor structure invariance of the Defense Style Questionnaire-60 in outpatients. *International Journal of Psychology & Psychological Therapy, 23, 1,* 57-66.

Novelty and Significance

What is already known about the topic?

- The Defense Style Questionnaire (DSQ) has originated a considerable body of literature on assessing the consensual 30 defenses through self-report.
- A three-factor structure is the most frequent solution across DSQ versions, languages and populations.
- Most immature defenses load on a so-called "image distorting defense" factor. This factor has the highest incremental value (towards e.g. personality pathology, psychotherapy outcome) in external validation and predictive studies.

What this paper adds?

- This is the first study on the structure of the Dutch DSQ-60.
- This study is innovating by using Exploratory Structural Equation Modelling to examine measurement invariance of the DSQ-60 across gender and across two languages (French and Dutch).
- This study highlights the robustness of the immature defense factor in the DSQ-60 and increase knowledge about the psychometric issues of the DSQ-60, for example, the lack of a robust factor for affect regulation.

Psychological defenses are unconscious mechanisms that protect from excessive anxiety, painful thoughts and affects, and help maintain the self (Cramer, 2015). The construct of defenses stems from psychoanalytic theory (Freud, 1936) and has gained widespread recognition in non-psychoanalytic theories and cognitive psychology (Cramer, 2000, 2015). Defenses were included in appendix B of the fourth edition of the Diagnostic and Statistical Manual (American Psychiatric Association, 2000). Defenses have been

* Correspondence: Louis De Page, Centre Hospitalier Jean Titeca, Belgium, 11 rue de la luzerne, 1030 Bruxelles, Belgium. Email: Louis.de.page@chjt.be. Acknowledgements: Authors thanks Evelyne Hennequin for helping to realize this study and collect data.

proven to be meaningfully related to the assessment of personality pathology (Zanarini, Weingeroff, & Frankenburg, 2009; Zeigler-Hill & Pratt, 2007), psychopathology (Watson, 2002), and psychotherapeutic processes (Bond, 2004; Siefert, Hilsenroth, Weinberger, Blaguys, & Ackerman, 2006).

Despite their clear clinical relevance, the assessment of defenses is an ongoing issue of debate, especially in case of self-report questionnaires (Davidson & MacGregor, 1998). The core assumption for self-reported measurement of defenses is that individuals are capable of reporting their typical reactions when under stress, which are related to the underlying unconscious defense mechanisms. This assumption implies a lower-limit in measurement; the most immature or psychotic defences will not leave conscious derivates for one to remember (Berney, De Roten, Beretta, Kramer, & Despland, 2014; Constantinides & Beck, 2010). This level of defensive functioning is thus not captured by self-report methods. Nevertheless, self-reports have pragmatic advantage: it is an easy way to obtain data in a relatively time-saving way.

The Defense Style Questionnaire (DSQ) is one of the most studied self-report questionnaires for defense mechanisms and has generated a considerable body of literature (e.g. Bond, 2004; Vaillant, 1992). Yet several challenges and limitations remain. Several DSQ versions have (co)existed with different items counts (e.g. 40, 42, 60, 72, 81, 88). Changes in item counts reflect attempts to optimize the psychometric properties of the instrument (e.g. Andrews, Pollock, & Stewart, 1989; Andrews, Singh, & Bond 1993; Bond, Gardner, Christian, & Sigal, 1983; Trijsburg, Bond, Drapeau, Thygesen, De Roten, & Duivenvoorden, 2003). Low internal consistencies of individual defenses have been repeatedly reported (Crașovan & Maricuțoiu, 2012), and only weak indications of unidimensionality of defenses were found (Wilkinson & Ritchie, 2015). In this ongoing process, some defenses were dropped (e.g. Consummation, Somatization), others were added (e.g. Repression), items have been reallocated to different defenses, defenses measured by several items have been split (e.g. Devaluating), etc. Today, the DSQ-60 (Thygesen, Drapeau, Trijsburg, Lecours, & De Roten, 2008; Trijsburg, Bond, Drapeau, Thygesen, De Roten, & Duivenvoorden, 2003) stands out as the most updated version, and the so-called best compromise on conceptual and psychometric grounds. The DSQ-60 was tailored to be congruent with the DSM-IV-TR's Defense Functioning Scale (DFS; American Psychiatric Association, 2000), except for the lowest level of defensive functioning (namely level 7, the level of Defensive dysregulation). The DFS is presented in Table 1, and is largely based on Perry's Defense Mechanism Rating Scale (DMRS; Perry & Høglend, 1998). The DFS/DMRS are conceptual classifications of defense mechanisms, not factor analytically constructed scales.

Table 1. The Defensive Functioning Scale and associated defenses

Defensive level	Defenses
Defensive dysregulation (Level 7) *	Delusional projection, Psychotic denial, Psychotic distortion
Action defenses (Level 6)	Acting out, Withdrawal, Passive aggression, Help rejecting complaining
Major image distorting defenses (Level 5)	Fantasy, Projective identification, Splitting (other/self)
Disavowal defenses (Level 4)	Denial, Projection, Rationalization
Minor image distorting defenses (Level 3)	Devaluation (self/other), Omnipotence, Idealization
Mental inhibition defenses (Level 2)	Displacement, Dissociation, Intellectualization, Isolation, Reaction formation, Repression, Undoing
High adaptive defenses (Level 1)	Anticipation, Affiliation, Altruism, Humor, Self assertion, Self observation, Sublimation, Suppression

Note: *Not measured by the DSQ-60.

A three factor structure has been frequently reported over time and across DSQ versions (Andrews *et alia*, 1989; Blaya, Dornelles, Blaya, Kipper, Heldt, Isolan, Gus Manfro, & Bond, 2007; Muris & Merckelbach, 1996; Thygesen *et alia*, 2008), and the factors were labelled 1) Adaptive style or "mature" defenses which includes defenses such as Affiliation, Humor, and Sublimation, 2) Image distorting style or "immature defenses" (or) encompassing defenses such as Splitting, Projection, and Denial, and 3) Affect-regulating defensive style or "neurotic defenses" (also called emotion-avoiding) with defenses such as Denial, Isolation, and Dissociation. Two-factor (e.g. Ramkissoon, 2014) and four-factor (e.g. Hyphantis, 2010) structures have been published, but the three-factor structure is the most consensual across languages and DSQ-versions. This three-factor structure has also been replicated very recently with other similar instruments (Prout, Di Giuseppe, Zilcha-Mano, Perry, & Conversano, 2022).

Although differences in use of defensive styles across important subgroups (e.g. gender) have been demonstrated (Petraglia, Thygesen, Lecours, & Drapeau, 2009; Sinha & Watson, 1999), measurement invariance (MI) of the underlying structure was never established (Drapeau *et alia*, 2011). However, The Drapeau et alia sample included both French and English-speaking participants, so lack invariance might be due to language differences. Furthermore, confirmatory factor analytic studies of the DSQ (Drapeau, Thompson, Petraglia, Thygesen, & Lecours, 2011; Thygesen *et alia*, 2008) reported structures encompassing half of the defenses and/or unsatisfactory fit indices. This lack of fit might be due to the fact that confirmatory factor analysis, requiring zero-cross-loadings, might be too constraining for the DSQ paradigm. Exploratory Structural Equation Modelling (ESEM, Asparouhov & Muthén, 2009) is probably a better approach to establish MI for the DSQ (Marsh, Morin, Parker, & Kaur, 2013). ESEM combines advantages from both exploratory and confirmatory factor analysis by enabling cross-loadings like in exploratory factor analysis (EFA), and also providing goodness-of-fit testing like confirmatory factor analysis.

In the present study, we will therefore apply an ESEM multi-group approach to examine MI for the DSQ-60 across both gender and language in a Belgian sample. The Belgian situation offers a unique linguistic opportunity, since both French and Dutch are official languages for the country.

Method

Participants

A total of 509 psychotherapy outpatients (M_{age} 37.46; SD= 12.93) from a Psychotherapy Centre in Belgium participated. These patients were in treatment for a wide variety of clinical syndromes such as depression, anxiety, grief, personality disorders and are comparable to patient populations in regular mental health centres in Belgium. The DSQ-60 was part of the standard assessment battery and was used for clinical diagnosis and evolution-monitoring purposes. Only one DSQ protocol per patient was (randomly) included in the current sample. There were 49% men in the total sample, and 73% was Dutch-speaking, the remaining were French speaking (Table 2). There were no associations between gender and language (χ^2=.55, p=.46). Data was collected from 2013 to 2022.

Table 2. Sample ratio's

	Women	Men	Total
French	67 (48%)	72 (52%)	139
Dutch	191 (52%)	177 (48%)	368
Total	258 (51%)	249 (49%)	507

Measures

Defense Style Questionnaire (DSQ-60). The original English DSQ-60 was introduced in 2003 (Trijsburg *et alia*, 2003), and was translated in Dutch and French by the same authors, and additional evidence for the psychometric properties was provided by Thygesen et alia (2008). DSQ-60 includes 60 items, measuring 30 defenses (2 items per defense). Items are scored on a 9-point Likert scale. Defenses scores are computed by averaging the items scores. The DSQ-60 items were mostly derived from the DSQ-88 and -40 item pool, except for the Repression items who were introduced in the DSQ-42. Defense style (factor scales) and defensive levels scores are computed by averaging items scores.

Data Analysis

First the three-factor model (baseline) was evaluated for fit to the data in the total group applying ESEM with target rotation and maximum likelihood estimation. This factor structure was based on the EFA solution found by Thygesen *et alia* (2008) using all 30 defenses. The advantage of target rotation is that it allows researchers to enter predefined theory-based target loadings (in this study, on which factor a defense is supposed to load and on which not). A target rotation can theoretically be placed between the mechanical approach of an exploratory factor approach and the hypothesis-driven approach of a confirmatory factor approach (Marsh *et alia*, 2014; Muthén & Muthén, 2017). To know whether the baseline model fits our data we examined common fit indices and cut-offs: *Root Mean Square Error of Approximation* (*RMSEA*) values ≤.05 suggest close model fit, values ≤.08 suggest approximate or good model fit, and ≥.10 suggest unacceptable fit (Browne & Cudeck, 1993; Chen, Curran, Bollen, Kirby, & Paxton, 2008; Hu & Bentler, 1999; Kline, 2005). *RMSEA* confidence interval provide more information than a point estimate. Therefore, we will use the upper bound of this confidence interval which should be ≤.10 (Chen et alia, 2008; Nevitt & Hancock, 2000) for acceptable model fit. The *Standardized Root Mean Square Residual* (SRMR; <.08 is indicative for a good fit) was evaluated as well (Yu, 2002).

Next, we conducted factor invariance tests across important subgroups: gender and language (Dutch/French). Degree of invariance (i.e., to which level the scales operate equivalently across important subgroups) was explored by different measurement models, each imposing different restraints levels of MI. The first level of MI is called configurational invariance and implies pattern invariance. This level serves as a baseline whereby models are freely estimated (i.e. no constraints on factor loadings and intercepts) in both subgroups. If configurational invariance holds (in terms of fit to the data), in a next step metric invariance is evaluated. At this level, factor loadings are constrained to be equal, which means that respondents across groups attribute the same meaning to the latent construct under study. The next level is scalar invariance and, besides factor loadings, item intercepts are also constrained. If this level holds, comparison of latent group means is allowed. To test if a level of invariance holds, fit of the current and

lower level are compared through χ^2 difference testing (MPlus, 2010). If there is no significant difference in fit according to this test, one may proceed to the next level of invariance. Although if invariance does not hold at a level, partial MI can be tested in confirmatory factor analysis, this is not possible in ESEM because this would result in a set of unequal parameters (i.e. multi-group ESEM does not allow non-invariant indicators).

RESULTS

The three-factor model of Thysegen et alia (2008) showed good model fit to our data in the total sample (χ^2= 511.897, *df*=348, p <.001, *RMSEA*= .030 (90% *CI* .025–.036), and *SRMR*= .039). Table 3 reports the completely standardized factor loadings and factor correlations. In this model with all 30 defenses (previous model tests encompassed only half of the defenses), the "Image Distorting" (immature) factor is well represented. The two other factors: Affect regulation (also called neurotic) and Adaptative, don't have the clear, usual pattern of expected defenses. In addition, the Image Distorting and Adaptive factor have an unexpected positive correlation.

Table 3. Completely standardized factor loadings and factor correlations of the 3-factor model in the total group (*N*= 509).

Defense style	Scale	3-factor solution		
		1	2	3
Image distorting	Displacement	**0.568****	0.065	0.037
	Undoing	**0.518****	0.013	-0.28**
	Acting-out	0.272	0.235	0.155
	Passive Aggressiveness	**0.336****	-0.086	-0.015
	Hypochondria	0.139	-0.087	*0.344**
	Projection	**0.444****	-0.047	-0.002
	Splitting-Self	**0.3****	0.088	0.132
	Splitting-Other	**0.381****	-0.099	0.095
	Projection	**0.309***	0.151	0.063
	Idealization	**0.386**	-0.299	0.098
Affect regulation	Isolation of affect	0.257	0.230	0.176
	Dissociation	0.294	-0.249	0.087
	Affiliation	0.198	0.182	0.167
	Intellectualization	0.269	-0.226	0.042
	Suppression	0.003	-0.071	*0.456***
	Autistic Fantasy	0.104	0.012	0.131
	Devaluation Self	0.193	0.179	0.171
	Devaluation Other	0.221	0.138	-0.011
	Denial	0.278**	-0.058	-0.138
	Apathetic Withdrawal	0.175*	-0.08	-0.059
	Repression	*0.302*	-0.16	0.213
Adaptive	Rationalization	-0.051	-0.154	**0.351**
	Humor	0.11	0.012	0.243**
	Anticipation	0.132	-0.047	0.203*
	Assertiveness	-0.013	0.073	**0.335***
	Omnipotence	-0.018	0.075	0.229
	Sublimation	0.138*	0.038	0.197
	Altruism	0.135	0.148	0.142
	Self-observation	0.092	-0.05	0.006
	Reaction formation	0.185	0.24	0.055
Factor correlations	1	1	0.046	**0.400****
	2		1	0.018
	3			1

Notes: *p <.05, **p <.01; Factor loadings above .30 on expected defense styles are in bold, unexpected higher cross-loadings on other defense styles are in cursive.

Next measurement invariance was tested. First, the model was freely estimated and demonstrated fir for pattern invariance in both gender groups (this means configural invariance). Next, we moved to metric invariance, but the metric model did not hold. Scalar invariance which imposes even more constraints was therefore not examined. We performed the same stepwise analysis with language groups and found the same results. Fit indices of the configural and metric model for subgroups (gender and language) are presented in Table 4, as well as the chi-square difference tests to compare the models.

Table 4. Measurement Invariance tests for gender and language and fit indices for the measurement models.

	Fit indices					*χ^2 difference test*		
Subgroups	*χ^2*	*df*	*RMSEA*	*RMSEA 90% CI*	*SRMR*	*$\Delta\chi^2$*	*df*	*p*
				Male/Female				
Configurational MI	934.152	696	.037	.030–.043	.051			
Metric MI	1082.798	777	.039	.034–.045	.059	148.646	81	<.005
				Dutch/French				
Configurational MI	945.963	696	.052	.031–.043	.052			
Metric MI	1111.754	777	.041	.036–.046	.061	165.791	81	<.005

Factor loadings in the gender subgroups are presented in Table 5. Similar to the pattern for factor loadings in the total sample (presented in Table 4), the Image Distorting factor emerges clearly as expected, but is also intermingled with loadings of affect regulating defenses (see unexpected higher cross-loadings in Tables 4 and 5).

Table 5. Factor Loading in Gender Subgroups.

Defense style	Scale	3-factor solution					
		1	2	3	1	2	3
Image distorting	Displacement	**0.62****	0.03	0.07	**0.47****	0.06	0.08
	Undoing	**0.4****	0.10	-0.16*	**0.35****	0.20	-0.21
	Acting-out	**0.52****	-0.20**	0.05	**0.40****	-0.34**	0.06
	Passive Aggressiveness	**0.34****	0.09	-0.01	0.24**	0.15	-0.01
	Hypochondria	**0.32****	0	0.20**	0.22**	0	0.22**
	Projection	**0.37****	0.15	0.11	0.26**	0.23*	0.12
	Splitting-Self	**0.46****	-0.01	0.05	**0.32****	-0.02	0.05
	Splitting-Other	**0.38****	0.07	0.14	0.28**	0.12	0.15*
	Projection	**0.48****	-0.09	-0.01	**0.35****	-0.15	-0.01
	Idealization	**0.35****	0.22*	0.09	0.25**	0.35**	0.1
Affect regulation	Isolation of affect	*0.40***	-0.09	0.10	*0.32***	-0.16	0.13
	Dissociation	*0.30***	0.14	0.05	0.21**	0.23	0.06
	Affiliation	*0.33***	-0.08	0.10	0.26**	-0.14	0.12
	Intellectualization	0.20	**0.26****	0.04	0.14	**0.43****	0.04
	Suppression	0.07	0	*0.45***	0.05	0	*0.50***
	Autistic Fantasy	0.21**	-0.01	0.06	0.14**	-0.02	0.06
	Devaluation Self	0.29**	-0.09	0.19*	0.20**	-0.14	0.20*
	Devaluation Other	*0.35***	-0.07	-0.08	0.26**	-0.12	-0.09
	Denial	0.25**	0.10	-0.12	0.18**	0.16	-0.14
	Apathetic Withdrawal	0.15	0.10	-0.06	0.11	0.17	-0.07
	Repression	*0.37***	0.14	0.16*	0.25**	0.21	0.17*
Adaptive	Rationalization	-0.051	-0.154	**0.351**	0.01	0.04	**0.32****
	Humor	0.01	0.02	0.29**	0.11*	0.	0.25**
	Anticipation	0.18*	0	0.25**	0.09	0.11	0.25**
	Assertiveness	0.12	0.06	0.22**	0.05	-0.05	**0.32****
	Omnipotence	0.07	-0.03	**0.30****	0.04	-0.1	0.25**
	Sublimation	0.05	-0.06	0.22**	0.13**	0.04	0.18*
	Altruism	0.21**	0.03	0.19*	0.18**	-0.12	0.13
	Self-observation	0.24**	-0.07	0.11	0.02	*0.25**	0.03
	Reaction formation	0.03	0.14*	0.02	0.16**	-0.12	0.08
Factor correlations	1	1	0.15	-0.06	1	0.12	0.57**
	2		1	0.31		1	0.04
	3			1			1

Notes: *p <.05, **p <.01; Factor loadings above .30 on expected defense styles are in bold, unexpected higher cross-loadings on other defense styles are in cursive.

Discussion

We have found configural invariance for the DSQ-60 across gender and language for all DSQ-60 defenses. In other words, the latent factors (i.e. defensive styles) are measured by the same variables in the different subgroups (Muthén & Muthén, 2017; Putnick & Bornstein, 2016). We can therefore conclude that there is no construct bias. However, we could not demonstrate metric or scalar invariance, implying the styles have different pattern loadings on the defense styles factors and latent means across subgroups cannot be compared. Thus, the defense styles did not contribute in a similar way to the three-factor latent structure across important subgroups. This is not unexpected given previous studies indicated gender and cultural differences (Petraglia *et alia*, 2009; Watson & Sinha, 1998). In addition, when exploring the loadings form the ESEM solution in the total group, the scales do not always show their highest loading on the expected DSQ-60 factor. The content of three-factor structure of the DSQ-60 deviates in this way from three-factor solutions found earlier with different DSQ versions (i.e. an adaptive, image distorting style, and affect regulating style, e.g. Cazan & Clinciu, 2015; Hayashi, Miyake, & Minakawa, 2004; Muris & Merckelbach, 1996). We did find one adaptive and two maladaptive factors. One of the maladaptive factors seemed to encompass all immature defenses, and so seems to encompass more than only image distorting. The other had no significant loadings in the total sample, and higher cross-loadings with the first immature factor, thus does not differentiate affect regulating defences efficiently as a separate factor. Despite previous efforts to attain better psychometric properties, the newest DSQ-60 does not appear to have a factor structure that can disentangle the more maladaptive factors in a clear way. On one hand, it is reassuring that the immature defenses are clearly represented in one factor because the majority of the added value of the DSQ studies lies in maladaptive defenses (e.g. Watson, 2002). On the other hand, the absence of a clear separate factor with affect regulating defenses is a major drawback because this factor is thought to discriminate therapy outcome (e.g. Bond, 2004).

A statistical and a conceptual explanation can be provided for these unsatisfactory results. From a statistical point of view, factor structure cannot be invariant at scalar or more strict levels and will thus be unstable, if the defense scales themselves are not psychometrically strong, (Marsh *et alia*, 2013; Wilkinson & Ritchie, 2015). Although items were mostly rightly classified by experts (Trijsburg, Van Dam, Van't Spijker, & Duivenvoorden, 1998), it remains questionable that two items will each operate correctly and in balanced ways as conscious derivates of defenses in non-expert subjects. Secondly, the development of psychological defenses is a process whereby defenses emerge and are superseded through more adaptive defenses one acquires through psychological maturation (Cramer, 2015; Vaillant, 1992). For example, suppression (the semiconscious decision to postpone paying attention to a conscious impulse) can be seen as a more mature form of denial (refusing to acknowledge painful or disturbing stimuli). Both are forms of refusal, but suppression allows a modulation which is more adaptive than denial. This implies that the acquisition of defense mechanisms grows through "strands", with each node to be classified at a particular level of adaptiveness. Attempting to classify defense mechanisms cross-sectionally through levels of maturity dismisses their developmental pathways.

Our findings, although not isolated, are quite an eye-opener given the considerable body of literature the DSQ scales have generated over time. Although psychometric flaws of the DSQ scales have been reported many times, the scales continue to be used

and produce interesting results. For example, overall defensive functioning (a weighted summation of DSQ defenses) is shown to predict psychotherapy treatment outcomes (e.g. Van Manen, Horn, Stijnen, Timman, Busschbach, & Verheul, 2015). Notwithstanding, replication of factor solutions are scarce, if only for a handful null results (Drapeau *et alia*, 2011; Wilkinson & Ritchie, 2015). In the DSQ literature, positive results are often produced by authors having devised a particular structural revision to the DSQ (e.g. Andrews *et alia*, 1989, 1993; Muris & Merckelbach, 1996; Thygesen *et alia*, 2008). But those factor studies are nearly never replicated independently.

However, baby and bathwater don't have be to thrown out together. We do agree with Wilkinson and Ritchie (2015) in that item-level results (mean comparison, correlations, and so on) cannot be relied on. There is no way to circumvent the often-confirmed problems at defense item level. However, at scale level, the story might be different. DFS scales or Defensive Styles (Thygesen *et alia*, 2008) can be used, only one will have to remember that these are conceptual scales. These do make up defense styles across important subgroups (configural invariance), yet in terms of factor structures scales do not always load as highly on expected defense styles like expected.

We therefore advise using the DSQ-60 as a general measure of defensive functioning (e.g. Trijsburg *et alia*, 2000) or using the immature factor in clinical practice. Two methods for computing a defensive function score have been proposed. The first is a simple sum of all DSQ items. We do advice against this practice because, as evidence has repeatedly shown, the DSQ contains mature as well as immature items. Therefore, a same total score can be obtained through endorsing only adaptive defenses or endorsing only immature defenses with no way of differentiating adaptiveness. The second method to use DSQ items as a general measure of defensive functioning is a weighted item sum such as the Overall Defensive Functioning scale (DeFife & Hilsenroth, 2005; Trijsburg *et alia*, 2000). Aggregating many defenses of varying adaptiveness makes it less prone to the group-dependent psychometric failures of its constituents but still heavily relies on the individual defenses. Basically, the Overall Defensive Functioning scale is a weighted total. Weights are conceptually driven. We would recommend to review the weights according to present results. Another clinical use of the DSQ that is supported by our results, is concentrating on the immature defenses and defensive style.

In conclusion we found configural invariance across gender and language of the DSQ-60 meaning a three-factor structure was demonstrated. However, metric and scalar invariance could not be corroborated implying defense styles did not contribute in a similar way to the three-factor latent structure across important subgroups (and latent means cannot be compared). We therefore conclude that, although the widespread use of the DSQ, researchers must be careful in their use and interpretation of the DSQ-scales across important subgroups such as gender and language. Self-reports can be used as an estimate or as a proxy variable at best, and cannot be relied for 'precise' assessment of defensive maturity. Yet, we are convinced the defense scales of the DSQ are a good screening measure to have an idea of immature defenses and can give an indication of the presence of relatively more mature versus more immature defenses in an individual.

References

American Psychiatric Association (2000). *Diagnostic and Statistical Manual of mental disorders DSM-IV-TR Fourth Edition (Text Revision)*. Washington, DC: American Psychiatric Association.

Andrews G, Pollock C, & Stewart G (1989). The determination of defense style by questionnaire. *Archives of General*

Psychiatry, *46*, 455-460.
Andrews G, Singh M, & Bond M (1993). The Defense Style Questionnaire. *The Journal of Nervous and Mental Disease*, *181*, 246-256.
Asparouhov T & Muthén B (2009). Exploratory structural equation modeling. *Structural Equation Modeling: A Multidisciplinary Journal*, *16*, 397-438.
Berney S, Roten Y, Beretta V, Kramer U, & Despland J (2014). Identifying psychotic defenses in a clinical interview. *Journal of Clinical Psychology*, *70*, 428-439. Doi: 10.1002/jclp.22087
Blaya C, Dornelles M, Blaya R, Kipper L, Heldt E, Isolan L, Gus Manfro G, & Bond M (2007). Brazilian-Portuguese version of defensive style questionnaire-40 for the assessment of defense mechanisms: Construct validity study. *Psychotherapy Research*, *17*, 261-270. Doi: 10.1080/10503300500485581
Bond M (2004). Empirical studies of defense style: Relationships with psychopathology and change. *Harvard Review of Psychiatry*, *12*, 263-278. Doi: 10.1080/10673220490886167
Bond M, Gardner ST, Christian J, & Sigal JJ (1983). Empirical study of self-rated defense styles. *Archives of General Psychiatry*, *40*, 333-338.
Browne MW & Cudeck R (1993). Alternative ways of assessing model fit. In KA Bollen & JS Long (Eds.), *Testing structural equation models* (pp. 136-162). Newbury Park, CA: Sage Publications, Inc.
Cazan A-M & Clinciu AI (2015). Psychometric evaluation of the short version of the Defense Style Questionnaire on a Romanian non-clinical sample. *Procedia-Social and Behavioral Sciences*, *187*, 408-412. Doi: 10.1016/j.sbspro.2015.03.076
Chen F, Curran PJ, Bollen KA, Kirby J, & Paxton P (2008). An empirical evaluation of the use of fixed cutoff points in RMSEA test statistic in structural equation models. *Sociological Methods & Research*, *36*, 462-494. Doi: 10.1177/0049124108314720
Constantinides P & Beck SM (2010). Toward developing a scale to empirically measure psychotic defense mechanisms. *Journal of the American Psychoanalytic Association*, *58*, 1159-1188. Doi: 10.1177/0003065110396875
Cramer P (2000). Defense mechanisms in psychology today: Further processes for adaptation. *American Psychologist*, *55*, 637-646. Doi: 10.1037/0003-066X.55.6.637
Cramer P (2015). Defense mechanisms: 40 years of empirical research. *Journal of Personality Assessment*, *97*, 114-122. Doi: 10.1080/00223891.2014.947997
Crașovan DI & Maricuțoiu LP (2012). Adaptation of the Defensive Style Questionnaire 60 (DSQ-60) within a Romanian sample. *Cognition, Brain, Behavior. An Interdisciplinary Journal*, *16*, 509-528.
Davidson K & MacGregor MW (1998). A Critical Appraisal of Self-Report Defense Mechanism Measures. *Journal of Personality*, *66*, 965-992.
DeFife JA, & Hilsenroth M J (2005). Clinical utility of the Defensive Functioning Scale in the assessment of depression. *The Journal of Nervous and Mental Disease*, *193*, 176-182. Doi: 10.1097/01.nmd.0000154839.43440.35
Drapeau M, Thompson K, Petraglia J, Thygesen K, & Lecours S (2011). Defense Mechanisms and Gender: An Examination of Two Models of Defensive Functioning Derived from the Defense Style Questionnaire. *International Journal of Psychology and Psychological Therapy*, *11*, 149-155.
Freud A (1936). *The ego and the mechanisms of defence*. London: Karnac Books.
Hayashi M, Miyake Y, & Minakawa K (2004). Reliability and validity of the Japanese edition of the Defense Style Questionnaire 40. *Psychiatry and Clinical Neurosciences*, *58*, 152-156. Doi: 10.1111/j.1440-1819.2003.01209.x
Hu L & Bentler PM (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*, 1-55.
Hyphantis T (2010). The Greek version of the Defense Style Questionnaire: Psychometric properties in three different samples. *Comprehensive Psychiatry*, *51*, Article 6.
Kline T (2005). *Psychological testing: A practical approach to design and evaluation*. Thousand Oaks, CA: Sage.
Marsh HW, Lüdtke O, Nagengast B, Morin AJ, & Von Davier M (2013). Why item parcels are (almost) never appropriate: Two wrongs do not make a right-Camouflaging misspecification with item parcels in CFA models. *Psychological Methods*, *18*, 257-284. Doi: 10.1037/a0032773
Marsh HW, Morin AJ, Parker PD, & Kaur G (2014). Exploratory structural equation modeling: An integration of the best features of exploratory and confirmatory factor analysis. *Annual Review of Clinical Psychology*, *10*, 85-110. Doi: 10.1146/annurev-clinpsy-032813-153700
MPlus (2010). *Chi-Square Difference Testing Using the Satorra-Bentler Scaled Chi-Square*. Retrieved from: https://www.statmodel.com/chidiff.shtml

Muris P & Merckelbach H (1996). The short version of the Defense Style Questionnaire: Factor structure and psychopathological correlates. *Personality and Individual Differences*, *20*, 123-126.

Muthén B & Muthén L (2017). *Mplus*. Los Angeles, CA: Chapman and Hall/CRC.

Nevitt J & Hancock GR (2000). Improving the root mean square error of approximation for nonnormal conditions in structural equation modeling. *The Journal of Experimental Education*, *68*, 251-268. Doi: 10.1080/00220970009600095

Perry JC & Høglend P (1998). Convergent and discriminant validity of overall defensive functioning. *The Journal of Nervous and Mental Disease*, *186*, 529-535.

Petraglia J, Thygesen KL, Lecours S, & Drapeau M (2009). Gender differences in self-reported defense mechanisms: A study using the new Defense Style Questionnaire-60. *American Journal of Psychotherapy*, *63*, 87-99.

Prout TA, Di Giuseppe M, Zilcha-Mano S, Perry JC, & Conversano C. (2022). Psychometric Properties of the Defense Mechanisms Rating Scales-Self-Report-30 (DMRS-SR-30): Internal Consistency, Validity and Factor Structure. *Journal of Personality Assessment*, *104*, 833-843. doi.org/10.1080/00223891.2021.2019053

Putnick DL & Bornstein MH (2016). Measurement Invariance Conventions and Reporting: The State of the Art and Future Directions for Psychological Research. *Developmental Review*, *41*, 71-90. Doi: 10.1016/j.dr.2016.06.004

Ramkissoon M (2014). Examining the Defense Style Questionnaire 88 (DSQ-88) in an employee sample: Items and a two-factor model. *International Journal of Psychology & Psychological Therapy*, *14*, 291-299.

Siefert CJ, Hilsenroth M J, Weinberger J, Blagys MD, & Ackerman SJ (2006). The relationship of patient defensive functioning and alliance with therapist technique during short-term psychodynamic psychotherapy. *Clinical Psychology & Psychotherapy*, *13*, 20-33. Doi: 10.1002/cpp.469

Sinha BK & Watson DC (1999). Predicting personality disorder traits with the Defense Style Questionnaire in a normal sample. *Journal of Personality Disorders*, *13*, 281-286.

Thygesen KL, Drapeau M, Trijsburg R, Lecours S, & de Roten Y (2008). Assessing defense styles: Factor structure and psychometric properties of the new Defense Style Questionnaire 60 (DSQ-60). *International Journal of Psychology and Psychological Therapy*, *8*, 171-181.

Trijsburg R, Bond M, Drapeau M, Thygesen K, de Roten Y, & Duivenvoorden H (2003). *Defense Style Questionnaire 60: Development and psychometric evaluation*. University of Lausanne: Lausanne.

Trijsburg R, van Dam K, van't Spijker A, & Duivenvoorden H (1998). Representeren de Afweerfunctieschaal (DSM-IV) en de Defense Style Questionnaire (DSQ-42) een hiërarchie van afweermechanismen? Een onderzoek onder experts. *Tijdschrift Voor Psychoanalyse*, *4*, 150-169.

Trijsburg R, Van T'Spijker A, Van Henricus H L S, Hesselink A J, & Duivenvoorden H J (2000). Measuring overall defensive functioning with the Defense Style Questionnaire: A comparison of different scoring methods. *The Journal of Nervous and Mental Disease*, *188*, 432-439.

Vaillant GE (1992). *Ego mechanisms of defense: A guide for clinicans and researchers*. Washington, DC: American Psychiatric Publications.

Van Manen JG, Horn E K, Stijnen T, Timman R, Busschbach JJV, & Verheul R (2015). Tailoring psychotherapy in patients with personality disorders: Matching the level of psychological strengths to the level of stabilizing versus destabilizing psychotherapy. *Personality and Mental Health*, *9*, 133-149. doi.org/10.1002/pmh.1281

Watson DC (2002). Predicting psychiatric symptomatology with the Defense Style Questionnaire-40. *International Journal of Stress Management*, *9*, 275-287.

Watson DC, & Sinha B K (1998). Gender, age, and cultural differences in the Defense Style Questionnaire-40. *Journal of Clinical Psychology*, *54*, Article 1.

Wilkinson W & Ritchie T (2015). The dimensionality of defense-mechanism parcels in the Defense Style Questionnaire-40 (DSQ-40). *Psychological Assessment*, *15*, 1-6.

Yu CY (2002). *Evaluating cut-off criteria of model fit indices for latent variable models with binary and continuous outcomes*. University of California, Los Angeles.

Zanarini MC, Weingeroff JL, & Frankenburg FR (2009). Defense mechanisms associated with borderline personality disorder. *Journal of Personality Disorders*, *23*, 113-121.Doi: 10.1521/pedi.2009.23.2.113

Zeigler-Hill V, & Pratt D (2007). Defense styles and the interpersonal circumplex: The interpersonal nature of psychological defense. *Journal of Psychiatry, Psychology and Mental Health*, *1*, 1-15.

Received, January 16, 2023
Final Acceptance, February 4, 2023