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# 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

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.

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### *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 ($\chi^2$=.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 $\chi^2$ 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 ($\chi^2$= 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* | | | | | *$\chi^2$ difference test* | | |
|---|---|---|---|---|---|---|---|---|
| *Subgroups* | *$\chi^2$* | *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.

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