Mediterranean Journal of Clinical Psychology

ISSN 2282-1619

MJCP

Volume 9, n 2, 2021
Clinical Psychology

Initial validation of the Defense Mechanisms Rating Scales Q-sort: A Comparison of Trained and Untrained Raters

Vera Békés [1], Tracy A. Prout [1], Mariagrazia Di Giuseppe [2], Lauren Wildes Ammar [1], Thomas Kui [1], Giulia Arsena [1], Ciro Conversano [2]*

Abstract

Objectives: Defense mechanisms underlie a range of healthy and pathological psychological phenomena and are important mechanisms of change in psychotherapy. Thus, the identification of defense mechanisms in clinical work is crucial, however, measures commonly used for their assessment have various limitations. The Defense Mechanisms Rating Scale Q-set (DMRS-Q; Di Giuseppe, 2014) was developed to address these problems, and to provide an easy-to-use, valid, and reliable tool for the assessment of defense mechanisms. The present study aimed to evaluate the reliability of the DMRS-Q when used by trained versus untrained coders, and to examine the criterion validity of the DMRS-Q in relation to its original observer-rated version, the Defense Mechanisms Rating Scale (DMRS; Perry, 1990).

Methods: Collateral sessions (n = 13) with parents of children with externalizing problems were coded with the DMRS-Q by trained and untrained raters, and on the DMRS by an expert rater. *Results:* We found that both trained and untrained coders were able to assess most defense categories and levels with moderate to excellent reliability on the DMRS-Q, and that untrained coders' reliability was comparable although slightly lower than untrained coders' reliability. Moreover, our results indicate the generally good criterion validity of the DMRS-Q when compared to the original DMRS.

Discussion: These findings suggest that the DMRS-Q is a promising measure that can be used by clinicians and researchers at all levels of training and with minimal knowledge of defense mechanisms as a reliable and valid method to assess defense mechanisms in clinical settings.

[1] Ferkauf Graduate School of Psychology, Yeshiva University, Resnick Campus, 1165 Morris Park Avenue, Bronx, NY, United States

[2] Department of Surgical, Medical and Molecular Pathology, Critical and Care Medicine, University of Pisa, Italy

E-mail corresponding author: mariagrazia.digiuseppe@gmail.com

Keywords:
Defense mechanisms; Assessment; Validity; Reliability; Q-sort; Psychotherapy; Process-outcome; DMRS

Received: 15 June 2021
Accepted: 29 July 2021
Published: 8 August 2021

Citation: Békés, V., Prout, T. A., Di Giuseppe, M., Wildes Ammar, L., Kui, T., Arsena, G., Conversano, C. (2021). Initial validation of the Defense Mechanisms Rating Scales Q-sort: A Comparison of Trained and Untrained Raters. *Mediterranean Journal of Clinical Psychology, 9*(2).
https://doi.org/10.13129/2282-1619/mjcp-3107

1. Introduction

Defense mechanisms are largely unconscious processes which mediate the emotional experience of an individual when faced with conflicts and stressors (Martino et al., 2021; Merlo et al., 2021a; Perry, 2014; Rice & Hoffman, 2014) and they serve as an individual's first and automatic response to threat (Perry, 2014). Defenses are dynamic, changing and developing across the lifespan (Cramer, 1987; Merlo et al., 2020a; Rosa et al., 2019); however, precursors of adaptive defense mechanisms can be detected even in early stages of development (Di Giuseppe et al., 2020a; Gugliandolo et al., 2020; Porcerelli et al., 2016). Although defense mechanisms commonly serve as a protective factor against negative emotions, individuals who utilize more mature defenses are further able to alter their stressful interactions and modify them to create new experiences and form new perspectives (Békés et al., 2017; Hayden et al., 2021; Metzger, 2014; Tanzilli et al., 2021; Vita et al., 2021). Healthy defenses can promote adaptive adjustment to stressful experiences (Aafjes-van Doorn et al., 2021; Catalano et al., 2019; Conversano, 2021; Martino et al., 2020a), while less mature defenses may be detrimental as they can lead to the suppression and avoidance of important thoughts and feelings (Catalano et al., 2020; Merlo et al., 2020b; 2021a; Porcerelli et al., 2016; Prout et al., 2019).

Defense mechanisms are associated with various forms of physical and psychological pathology (Boldrini et al., 2019; Conversano & Di Giuseppe, 2021; Di Blasi et al., 2020; Di Giuseppe et al., 2021;Galli et al., 2019; Marchini et al., 2021; Martino et al., 2020b, 2020c; Perry et al., 2013; Pietrabissa et al., 2020; Settineri et al., 2018; Vicario et al., 2020) and are important mechanisms of change and improvement in psychotherapy (Albucher et al., 1998; Békés et al., in press; Cramer & Blatt, 1990; Drapeau et al., 2003; Hill et al., 2015; Johansen et al., 2011; Kipper et al., 2005; Knijnik et al., 2009; Kramer et al., 2010; Settineri et al., 2019). Moreover, improvement in defensive functioning (using higher level, more mature defense mechanisms) is associated with improvement in symptoms and general functioning (e.g., Babl et al., 2019; Hersoug et al., 2021; Kramer et al., 2010, 2013). Specific patterns of defense mechanisms have also been linked to various forms of psychological distress. Conceptual and empirical studies have demonstrated the prevalence of specific defense patterns in depression (de Roten et al., 2020; Høglend & Perry, 1998), anxiety (Babl et al., 2019; Merlo et al., 2021b), trauma (Békés et al., 2017; Perry et al., 2015), and masochism or self-defeating personality (Békés et al., 2018). Given the importance of defense mechanisms in maintaining and alleviating psychopathology, identifying defense mechanisms in patients is crucial in order to improve treatment efficacy (Di Giuseppe et al., 2020b). Specifically, identifying patient defense mechanisms early in therapy may allow

clinicians to adapt their treatment approach to provide more effective interventions and better address patients' problems in therapy (Conversano, 2021).

1.1 Hierarchical Organization of Defense Mechanisms

Although the adaptiveness of defense mechanisms may somewhat vary across situations, defenses can be arranged in a hierarchical organization based on their general adaptiveness (Perry, 1990; Soldz & Vaillant, 1998). In the widely used, gold standard hierarchy established by Perry (1990), which inspired the inclusion in the DSM-IV of an Axis for defense mechanisms assessment (APA, 1994), the 30 individual defenses are arranged under seven defense levels based on the psychological function of the group of defenses in each level. Defense levels include action, major image-distortion/borderline, disavowal, minor image-distortion/narcissistic, neurotic, obsessional, and high adaptive defenses (see Figure 1) (Perry, 1990, 2014). A further categorization divides the defenses into three large categories: mature, neurotic and immature, with this last category including two further groups of immature defenses known as depressive and non-depressive defenses. Finally, a weighted average of defense levels is summarized by Overall Defensive Functioning (ODF), where higher values refer to more adaptive, mature, and lower levels to more immature, maladaptive defensive functioning.

1.2 Assessment of Defense Mechanisms

Self-report measures have been used in many studies to assess defense mechanisms (Aafjes van-Doorn et al, in press; Albucher et al., 1998; Andrews et al., 1993; Di Giuseppe et al., 2020c; Kipper et al., 2005; Knijnik et al., 2009; Nishimura, 1998; Nicolas et al., 2017). Despite their ease of administration, self-report assessment of defense mechanisms is limited by the individual's unawareness of their defenses, which are mostly unconscious by definition (Vaillant, 1971). Others have utilized projective measures such as the Thematic Apperception Test (TAT; Cramer & Blatt, 1990). However, both self-report measures and projective tests carry with them associated challenges of validity and reliability. Self-report measures are prone to demand characteristics and often have high face validity which may impact validity (Bornstein et al., 1994). Projective tools have problems associated with incremental validity and test-retest reliability (Lilienfeld et al., 2000). Finally, few of the self-report measures (and none of the projective assessments) rely on the empirically derived hierarchy of defenses (Di Giuseppe et al., 2020c; Soldz & Vaillant, 1998), nor do they use an observer-rater method.

Hierarchical Organization of Defenses

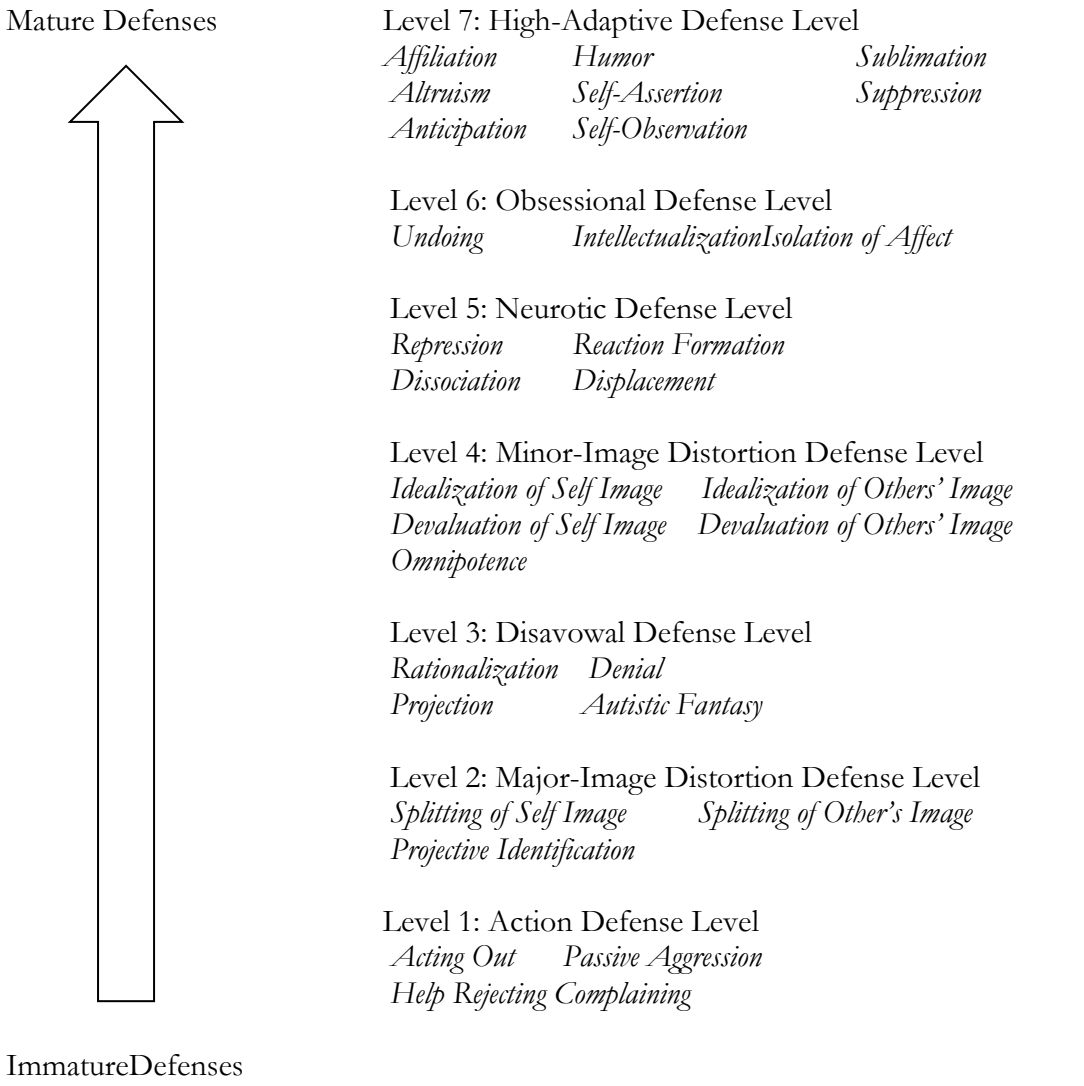

Figure 1

In contrast, the Defense Mechanism Rating Scale (DMRS; Perry, 1990) is an observer-based method that assesses 30 different defense mechanisms based on the seven hierarchical levels of defenses (Giovanardi et al., in press; Perry, 1990; Perry et al., 1993). The manual includes a definition and example for each defense as well as directions on how to identify each one. This coding utilizes written transcripts of sessions and has high inter-rater reliability (Perry et al., 1993; Perry, 2014). However, this method's major limitation is that it is very labor-intensive. Use of the DMRS requires extensive training and subsequent long hours for coding each defense as they occur in a transcript. Moreover, obtaining transcripts for each session is not always feasible for clinicians.

1.3 Defense Mechanisms Rating Scale - Q-Sort

To address these limitations, the Defense Mechanism Rating Scale Q-sort (DMRS-Q; Di Giuseppe, 2014) was developed to provide a quantitative assessment of defensive functioning, combined with a qualitative defensive profile narrative (DPN). The DMRS-Q utilizes the same defense definitions as the DMRS. The DMRS-Q includes 150 statements to assess 30 defense mechanisms (Di Giuseppe & Perry, in press) and takes approximately 30 minutes to complete (coding procedure available online at https://webapp.dmrs-q.com/login). Sample statements include "The subject has 'a chip on his or her shoulder' or a grudge, and seems to find reasons to feel unfairly treated, even when he or she is not" (passive aggression) and "The subject makes amusing or ironic comments about embarrassing situations to diffuse them" (humor). The DMRS-Q can be used to code videos of clinical interviews, therapy sessions, and other clinical material; it does require transcribed sessions or specialized training in defense mechanisms. A case study comparing results from the DMRS and the DMRS-Q demonstrates potential validity of the DMRS-Q (Di Giuseppe et al., 2014). More specifically, the patient's ODF increased by about 0.40 points on both the DMRS as well as the DMRS-Q over 2.5 years of psychotherapy. The results of this study indicate that the two scales similarly measure defense mechanisms. Therefore, while the DMRS has been used for many years, clinicians may consider utilizing the DMRS-Q as an easy-to-use measure for clinicians without specific training in defense mechanisms ratings.

1.4 Trained vs. Untrained Coders

Coding systems and rating scales typically require fundamental knowledge about the subject at hand and some tools require extensive training before the users are deemed ready to utilize the tools (Eisenstadt, 1993; Perry, 1990). More recently, researchers and clinicians have shifted their focus towards developing tools that do not require coders and raters to go through extensive training. Linden et al. (2007) provided community psychiatrists who were not specially trained in an assessment tool for schizophrenia and found that their untrained raters' scores did not differ from scores by trained raters. On the other hand, while examining untrained and trained ratings on an assessment tool for global functioning in children, Lundh and colleagues (2010) found that untrained raters scored significantly higher scores than expert raters. In another study that compared trained and untrained coders' data and their predictive power of couple interactions five years later, researchers found that untrained coders' predictive power was similar or even superior to trained coders (Baucom et al., 2012). The conflicting data in the research points to the need for more studies to examine ratings and codings between trained and untrained individuals. Linden et al. (2007) demonstrated the practical benefits of developing

a coding instrument that could be immediately implemented by community professionals without training courses. By determining the factors that yield more accurate results in rating and coding instruments by untrained raters, clinicians and researchers may be able to expand the availability of assessment tools to low-resource community clinics and professionals.

1.5 Aims and Hypotheses

The aims of the present study were twofold: (1) to evaluate the reliability of DMRS-Q when used by trained versus untrained coders, and (2) to examine the criterion validity of the DMRS-Q in relation to the original observer-rated DMRS method.

2. Methods

2.1 Sessions

This study was reviewed and approved by the [Albert Einstein College of Medicine] Institutional Review Board. The collateral parent sessions (n = 13) used in this session were drawn from a randomized controlled trial of a psychotherapeutic intervention for children with acute externalizing problems. Treatment consisted of 16 45-minute individual child sessions, as well as four parent sessions (two at the beginning, one midway, and one pre-termination). For the present study, one parent session was randomly selected per participant. Parent sessions were video-recorded and stored on a secure, HIPAA-compliant, encrypted, password-protected online drive. Therapists and participants consented to video recording of their work together to be used in future studies.

2.2 Measures

The *Defense Mechanisms Rating Scale Q-sort* (DMRS-Q, Di Giuseppe et al., 2014) is an observer-rated Q-sort method, based on the DMRS (Perry, 1990). Similarly to the DMRS, the Q-set version assesses 30 defense mechanisms, and based on the individual defenses, it calculated seven defense levels, as well as the ODF, and the DMRS-Q follows the hierarchical structure of the DMRS. In contrast with the DMRS, the Q-set codings are done at one time (not as the defenses occur), typically after the full session has been watched. The DMRS-Q provides five items for each of the 30 individual defenses, that is, altogether 150 items to be coded and then rank-ordered into a seven-rank forced distribution. Preliminary validation studies have found good convergent validity and reliability of quantitative scores (Di Giuseppe et al., 2020c). Correlations between DMRS and DMRS-Q ranged from acceptable to excellent (0.72 to 0.92) for the ODF, with an ICC > 0.80 for defense levels, and median ICC= 0.60 for individual defenses (Di Giuseppe et al., 2020c).

The *Defense Mechanisms Rating Scale* (DMRS; Perry 1990) is an observer-based method that identifies defense mechanisms as they occur in verbatim transcripts of clinical interviews or therapy sessions. The DMRS provides a definition for each of 30 defense mechanisms, a description of its intrapsychic function, and criteria for discriminating a defense from near-neighbor defenses. The individual defense ratings can then be arranged under seven defense levels, based on the similarity in function of the individual defenses, and the seven levels are arranged hierarchically (Figure 1). Finally, the overall defensive functioning (ODF) score can also be calculated, which is a weighted summary score of all the individual defenses. The DMRS' convergent and discriminant validity has been found to be high, inter-rater reliability between trained raters for the ODF and defense levels are ICC > 0.80, and for the individual defenses 0.60 > ICC > 0.50 (Perry & Høglend, 1998).

2.3 Procedure

Coders. The data were coded using the DMRS-Q by a total of three trained and three untrained raters. Each videorecorded session was coded by two DMRS-Q raters independently from one another. The same sessions were coded by a single, expert DMRS rater. The DMRS rater (third author) received extensive training from the developer of the method, Dr. J. Christopher Perry, reaching a consistent high level of coding reliability and having about 15 years of experience in coding the DMRS subsequently. DMRS-Q codings were done by graduate students in adult and child psychology. Trained coders for the DMRS-Q (n = 3) received 6 hours of training from the developer of the measure, whereas untrained coders (n = 3) only read the coding manual and received a 90-minute general introduction to the 30 individual defenses by the first author.

2.4 Statistical analysis

Reliability of the DMRS-Q codings was measured as internal consistency and calculated with Cronbach's alphas test on ODF, defense levels, and individual defenses, compared to the expert coders' scores (MDG, DMRS-Q author). Pearson correlation analyses were used to test criterion validity comparing the DMRS-Q codings with the DMRS.

3. Results

Reliability. Table 1 shows the interclass correlation (ICC) between expert coder and the median coding scores of the two trained versus the two untrained raters on DMRS-Q subscales. Overall, the majority of ratings reflected moderate to excellent reliability across the board (Koo & Li, 2016). Trained coders' interrater reliability was slightly higher but comparable to the untrained coders in most cases. These exceptions included the Obsessional defense level, where untrained

coders had poor reliability, and the Major Image Distortion level, where the trained rater's reliability was poor.

Specifically, interrater reliability for all coders on the DMRS-Q's Overall Defensive Functioning scale was excellent. In the three defensive categories, whereas trained coders median reliability was close to excellent (ICC = .87), untrained coder's median ICC was moderate (ICC = .74). The median ICC on the defense levels was in the range of moderate to excellent for both trained (ICC range: .74 - .92) and untrained (ICC range: .65-.91) coders, except for Major Image Distortion level untrained coders' ICC = .42) and Obsessional defenses in untrained coders (ICC = -.09).

Table 1

Interrater Reliability of Trained Versus Untrained Raters Among the DMRS-Q Subscales

(n = 13)

Defense variable	**Trained Median**	**Untrained Median**
Overall Defensive Functioning		
ODF	.90	.88
Defensive categories		
Mature	.92	.71
Neurotic	.83	.60
Immature	.90	.83
Depressive	.85	.87
Nondepressive	.86	.67
Defense levels		
High-Adaptive	.92	.71
Obsessional	.81	-.09
Neurotic	.83	.65
Minor Image-distorting	.80	.68
Disavowal	.85	.74
Major Image-distorting	.42	.67
Action	.74	.91

Criterion validity. Tables 2 and 3 show Pearson correlations between scores on the DMRS-Q and DMRS for ODF, defense categories, and defense levels. The ODF assessed on the DMRS and DMRS-Q was highly correlated, as well as the Mature, Immature, and Depressive defensive categories. Correlations did not reach the level of statistical significance in the Neurotic and Immature Nondepressive categories. The correlations between defense levels on the DMRS-Q and DMRS were moderate to strong, except for Neurotic and Minor Image Distortion defense levels.

Table 2

Pearson Correlations Between the DMRS-Q and the DMRS for Overall Defensive Functioning and Defense Categories (n = 13)

	DMRS					
DMRS-Q Scale	ODF	Mature	Neurotic	Immature	Immature-Dep	Immature - Nondep
ODF	**.907*** **	.802***	.199	-.871***	-.870***	-.658**
p value	<.0001	<.0001	.477	<.0001	<.0001	.008
Mature	.804***	**.834*** **	-.049	-.742**	-.739**	-.565*
p value	<.0001	<.0001	.863	.002	.002	.028
Neurotic	-.413	-.669**	**.484**	.311	.310	.238
p value	.126	.006	.068	.259	.261	.393
Immature	-.869***	-.731**	-.272	**.851*** **	.848***	.648**
p value	<.0001	.002	.327	<.0001	<.0001	.009
Immature-Dep	-.874***	-.711**	-.299	.850***	**.847*** **	.647**
p value	<.0001	.003	.280	<.0001	<.0001	.009
Immature-Nondep	-.481	-.458	-.093	.484	.482	**.369**
p value	.069	.086	.743	.067	.069	.176

Notes: Neurotic refers to the homonymous defensive category. ODF = Overall Defensive Functioning; Dep = Depressive. Nondep = Nondepressive.

*$p < .05$; **$p < .01$; ***$p < .001$

Table 3

Correlations Between the DMRS-Q and the DMRS for Defense Levels (N = 13)

	DMRS						
DMRS-Q	High adaptive	Obsessi-onal	Neurotic	Minor I-D	Disavowal	Major I-D	Action
High adaptive	**.834****	.033	-.147	.124	-.709**	-.487	-.691**
p value	<.0001	.908	.601	.660	.003	.066	.004
Obsessional	-.451	**.632***	.219	-.085	.188	.115	-.102
p value	.092	.011	.292	.763	.675	.682	.717
Neurotic	-.509	-.177	**.142**	-.113	.495	.120	.572*
p value	.053	.527	.613	.690	.061	.670	.026
Minor I-D	-.292	-.226	.148	**.220**	.241	.368	.196
p value	.290	.418	.598	.431	.387	.177	.483
Disavowal	-.637*	-.270	-.007	-.155	**.718****	.425	.680**
p value	.011	.331	.981	.582	.003	.115	.005
Major I-D	-.465	-.113	.030	-.058	.357	**.541***	.459
p value	.080	.687	.915	.838	.191	.037	.085
Action	-.685**	-.341	-.146	-.160	.727**	.438	**.926*****
p value	.005	.214	.640	.569	.002	.068	<.0001

Notes: Neurotic refers to the homonymous defensive category. Minor I-D = Minor image distortion. Major I-D = Major image distortion.

* $p<.05$; ** $p<.01$; *** $p<.001$

4. Discussion

In the present study we aimed to evaluate the reliability of DMRS-Q when used by trained and untrained coders. In addition, we sought to examine the criterion validity of the DMRS-Q sort in relation to the original observer-rated DMRS method. Regarding our first aim, we found that coders with minimal knowledge of defense mechanisms and with no specific training on the DMRS-Q were able to assess most defense categories and levels with moderate to excellent reliability. Overall, trained and untrained coders' reliability was comparable, although slightly lower for untrained coders. As expected, the reliability decreased according to the deepness of the assessment (Di Giuseppe et al., 2020c; Perry & Hoglend, 1998): while excellent reliability was found on the general index of defensive maturity, the ODF, good and moderate reliability

was found for defensive categories and defense levels, respectively. Exceptions included Obsessional and Major image-distorting defense levels. Untrained coders showed insufficient reliability on Obsessional defenses, while trained coders showed poor reliability on Major image-distorting defense.

These results suggest that trainee psychologist coders with little clinical or research experience are able to reliably identify and code the main defensive processes in psychotherapeutic encounters with parents once they had a short, six-hour training on using the DMRS-Q. Moreover, even without any specific training and only a brief introduction to defense mechanisms in general, untrained coders could also reliably code clinical interviews in order to arrive at a comparable assessment of the subject's overall defensive functioning, as well as defensive categories and most defense levels. This finding lends support to the possibility of the DMRS-Q being used by clinicians at all levels of training for assessing their client's defensive functioning through the coding of one therapy session.

The reliable coding of some defenses appeared to be more challenging for those coders who did not receive training. The higher inter-rater reliability for trained coders (as compared to untrained coders) suggests that the training they received may have been helpful for identifying the more nuanced defenses. These areas of difficulty were most pronounced for Obsessional level defenses. Moreover, trained coders had difficulty in reliably assessing the Major Image Distorting Defense level, which includes Projective Identification and Splitting of Self/Other's Images. These defenses are often difficult to identify without advanced clinical training. Furthermore, Major Image Distortion defenses often have a low base rate, as was the case in the current study as well (M = 1.74; SD = 1.48), which implies that DMRS-Q coders need to use greater clinical inference for assessing the use of these defenses. This might have posed a challenge to less experienced coders. Nonetheless, both trained and untrained coders were able to recognize and reliably identify the most robust overall defensive functioning variable.

Regarding the second aim of this study, results indicate the DMRS-Q's generally good criterion validity. Specifically, the ODF, Mature, and Immature defense categories showed excellent criterion validity with the DMRS. One exception to these findings was the Neurotic defense category, which had a small correlation with the corresponding category on the DMRS. This may be due to the difficulties in assessing more protean defensive phenomena, which is often the case with defenses on the Neurotic level (Perry, 2014).

Some of our negative findings might be related to the fact that the data used for codings were not individual psychotherapy sessions, but, rather, collateral sessions with parents of children receiving psychotherapy. Even though defense mechanisms are at work in any spontaneous

verbatim exchange, it is possible that more clinical inference was needed when assessing participants' defensive profile in such sessions. These parent sessions are generally more structured and have a strong psychoeducational component (Kufferath-Lin et al., 2021), as compared to psychotherapy sessions, where the discussion may be more free-flowing, and allows or even calls for the open expression of emotions.

Limitations associated with this study include the small sample and the nature of the clinical material coded. Further studies using therapy session data, a larger sample, and more coders are needed to better understand the challenges regarding challenges with coding certain specific defenses. Although untrained coders in the current study were early graduate students and had very little training in recognizing and identifying defenses, all were enrolled in graduate programs that offer courses in psychodynamic theory and practice. It is unclear how coding abilities might differ for clinicians and researchers in settings with no support for psychodynamic principles. This may be an important area for future study as assessment of defenses has been shown to be a valuable marker of distress and change in psychotherapy, regardless of treatment orientation (Babl et al., 2019).

Overall, our study showed that the DMRS-Q is a promising, simple-to-use method with generally good reliability and criterion validity, which can be helpful for clinicians with minimal knowledge about defense mechanisms to identify defensive processes in their practice. The DMRS-Q may provide a unique opportunity for rapid clinician-reported assessment of defenses in clinical settings.

Ethical statement: The study protocol received ethics approval from the local Institutional Review Board. All procedures followed were in accordance with the ethical high standards of the Helsinki Declaration.

Acknowledgement: The authors wish to thank the graduate students who served as DMRS-Q coders for their contribution to this study.

Conflict of Interest Statement

The authors declare that the research was conducted in the absence of any potential conflict of interest.

References

1. Aafjes-van Doorn, K., Békés, V., Luo, X., Prout, T. A., & Hoffman, L. (2021). What do therapist defense mechanisms have to do with their experience of professional self-doubt and vicarious trauma during the COVID-19 pandemic? *Frontiers in Psychology,* 12, 647503. https://doi.org/10.3389/fpsyg.2021.647503
2. Aafjes-van Doorn, K., Békés, V., Luo, X., Prout, T., A., & Hoffman, L. (in press). Psychotherapists' Resilience During Covid-19: Professional Self-Doubt and Posttraumatic Growth. *Psychological Trauma: Theory, Research, Practice, and Policy.*
3. Albucher, R. C., Abelson, J. L., & Nesse, R. M. (1998). Defense mechanism changes in successfully treated patients with obsessive-compulsive disorder. *American Journal of Psychiatry*, *4*, 558-559. https://doi.org/10.1176/ajp.155.4.558
4. American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th Ed.). Washington, DC: Author.
5. Andrews, G., Singh, M., & Bond, M. (1993). The defense style questionnaire. *Journal of Nervous and Mental Disease, 181*(4), 246–256. https://doi.org/10.1097/00005053-199304000-00006
6. Babl, A., Holtforth, M. G., Perry, J. C., Schneider, N., Dommann, E., Heer, S., … Caspar, F. (2019). Comparison and change of defense mechanisms over the course of psychotherapy in patients with depression or anxiety disorder: Evidence from a randomized controlled trial. *Journal of Affective Disorders*, *252*, 212–220. https://doi.org/10.1016/j.jad.2019.04.021
7. Baucom, K. J. W., Baucom, B. R., & Christensen, A. (2012). Do the naïve know best? The predictive power of naïve ratings of couple interactions. *Psychological Assessment, 24(*4), 983–994. https://doi.org/10.1037/a0028680
8. Békés, V., Aafjes-van Doorn. K., Talia, A., Spina, D., Starrs., C., & Perry, J. C. (2021). The Relationship Between Defense Mechanisms and Attachment as Measured by Observer-Rated Methods in a Sample of Depressed Patients - A Pilot Study. *Frontiers in Psychology,* 12, 648503.
9. Békés, V., Perry, J. C., & Robertson, B. M. (2018). Psychological masochism: A systematic review of the literature on conflicts, defenses, and motives. *Psychotherapy Research*, *28*(3), 470–483. https://doi.org/10.1080/10503307.2016.1189618
10. Békés, V., Perry, J. C., & Starrs, C. J. (2017). Resilience in Holocaust Survivors: A Study of Defense Mechanisms in Holocaust Narratives. *Journal of Aggression, Maltreatment & Trauma, 26*(10), 1072.
11. Boldrini, T., Lo Buglio, G., Giovanardi, G., Lingiardi, V., & Salcuni, S. (2020). Defense mechanisms in adolescents at high risk of developing psychosis: an empirical investigation. *Research in Psychotherapy: Psychopathology, Process and Outcome*, *23*(1), 456. https://doi.org/10.4081/ripppo.2020.456
12. Bornstein, R. F., Rossner, S. C., Hill, E. L., & Stepanian, M. L. (1994). Face validity and fakability of objective and projective measures of dependency. *Journal of personality assessment*, *63*(2), 363-386. https://doi.org/10.1207/s15327752jpa6302_14
13. Bowins, B. (2010). Personality disorders: A dimensional defense mechanism approach. *American Journal of Psychotherapy, 64*(2), 153–169. https://doi.org/10.1176/appi.psychotherapy.2010.64.2.153

14. Catalano, A., Martino, G., Bellone, F., Papalia, M., Lasco, C., Basile, G., Sardella, A., Nicocia, G., Morabito, N., Lasco A. (2019). Neuropsychological Assessment in Elderly Men with Benign Prostatic Hyperplasia Treated with Dutasteride. *Clinical Drug Investigation,* 39, 97–102. https://doi.org/10.1007/s40261-018-0720-7
15. Catalano, A., Sardella, A., Bellone, F., Lasco, C. G., Martino, G., Morabito, N. (2020). Executive functions predict fracture risk in postmenopausal women assessed for osteoporosis. *Aging clinical and experimental research*, *32*(11), 2251–2257. https://doi.org/10.1007/s40520-019-01426-w
16. Conversano, C. (2021). The psychodynamic approach during COVID-19 emotional crisis. *Frontiers in Psychology*. https://doi.org/10.3389/fpsyg.2021.670196
17. Conversano, C., Ciacchini, R., Orrù, G., Di Giuseppe, M., Gemignani, A., & Poli, A. (2020). Mindfulness, compassion, and self-compassion among health care professionals: What's new? A systematic review. *Frontiers in Psychology*, 11:1683. https://doi.org/10.3389/fpsyg.2020.01683
18. Conversano, C., & Di Giuseppe, M. (2021). Psychological factors as determinants of chronic conditions: clinical and psychodynamic advances. *Frontiers in Psychology, 12*, 635708. https://doi.org/10.3389/fpsyg.2021.635708
19. Cramer, P., & Blatt, S. J. (1990). Use of the TAT to measure change in defense mechanisms following intensive psychotherapy. *Journal of Personality Assessment*, *54*(1/2), 236–251. https://doi.org/10.1207/s15327752jpa5401&2_23
20. Cramer, P. (1987). The development of defense mechanisms. *Journal of Personality, 55*(4), 597-614. https://doi.org/10.1111/j.1467-6494.1987.tb00454.x
21. de Roten, Y., Djillali, S., Crettaz von Roten, F., Despland, J. N., & Ambresin, G. (2021). Defense Mechanisms and Treatment Response in Depressed Inpatients. *Frontiers in Psychology*, *12*, 633939. https://doi.org/10.3389/fpsyg.2021.633939
22. Di Blasi, M., Giardina, A., Lo Coco, G., Giordano, C., Billieux, J., Schimmenti, A. (2020). A compensatory model to understand dysfunctional personality traits in problematic gaming: The role of vulnerable narcissism. *Personality and Individual differences*, 160. https://doi.org/10.1016/j.paid.2020.109921
23. Di Giuseppe, M., Nepa, G., Prout., T. A., Albertini, F., Marcelli, S., Orrù, G., Conversano, C. (2021). Stress, burnout, and resilience among healthcare workers during the COVID-19 emergency: the role of defense mechanisms. *International Journal of Environmental Research and Public Health*, 18, 5258. https://doi.org/10.3390/ijerph18105258
24. Di Giuseppe, M., Perry, J. C., Petraglia, J., Janzen, J., Lingiardi, V. (2014). Development of a q-sort version of the defense mechanism rating scales (DMRS-Q) for clinical use. *Journal of Clinical Psychology*, *70*(5), 452–465. https://doi.org/10.1002/jclp.22089
25. Di Giuseppe, M., Perry, J. C., Conversano, C., Gelo, O. C. G., Gennaro, A. (2020a). Defense mechanisms, gender and adaptiveness in emerging personality disorders in adolescent outpatients. *The Journal of Nervous and Mental Disease*, in press. https://doi.org/10.1097/NMD.0000000000001230

26. Di Giuseppe, M., Prout, T. A., Fabiani, M., Kui, T. (2020b). Defensive profile of parents of children with externalizing problems receiving Regulation-Focused Psychotherapy for Children (RFP-C): A pilot study. *Mediterranean Journal of Clinical Psychology, 8*(2). https://doi.org/10.6092/2282-1619/mjcp-2515
27. Di Giuseppe, M., Perry, J. C., Lucchesi, M., Michelini, M., Vitiello, S., Piantanida, A., Fabiani, M., Maffei, S., Conversano, C. (2020c). Preliminary reliability and validity of the DMRS-SR-30, a novel self-report based on the Defense Mechanisms Rating Scales. *Frontiers in Psychiatry, 11,* 870. https://doi.org/10.3389/fpsyt.2020.00870
28. Di Giuseppe M., Perry, J. C. (2021). The hierarchy of defense mechanisms: assessing defensive functioning with the Defense Mechanisms Rating Scales Q-sort (DMRS-Q). *Frontiers in Psychology*, 12, 718440
29. Drapeau, M., Roten, Y. D., Perry, J. C., & Despland, J. (2003). A study of stability and change in defense mechanisms during a brief psychodynamic investigation. *The Journal of Nervous and Mental Disease, 191*(8), 496-502. https://doi.org/10.1097/01.nmd.0000082210.76762.ec
30. Eisenstadt, T. H., Eyberg, S., McNeil, C. B., Newcomb, K., & Funderburk, B. (1993). Parent-child interaction therapy with behavior problem children: Relative effectiveness of two stages and overall treatment outcome. *Journal of Clinical Child Psychology, 22*(1), 42–51. https://doi.org/10.1207/s15374424jccp2201_4
31. Galli, F., Tanzilli, A., Simonelli, A., Tassorelli, C., Sances, G., Parolin, M., Cristofalo, P., Gualco, I., Lingiardi, V. (2019). Personality and Personality Disorders in Medication-Overuse Headache: A Controlled Study by SWAP-200. *Pain research & management*, *2019*, 1874078. https://doi.org/10.1155/2019/1874078
32. Giovanardi, G., Mirabella, M., Di Giuseppe, M., Lombardo, F., Speranza, A. M., & Lingiardi, V. (2021). Defensive functioning of individuals diagnosed with gender dysphoria at the beginning of their hormonal treatment. *Frontiers in Psychology*, *12*, 3196. https://doi.org/10.3389/fpsyg.2021.665547
33. Gugliandolo, M.C., Costa, S., Cuzzocrea, F., Larcan, R., Martino, G. (2020). Adolescents and Body Uneasiness: the Contribution of Supportive Parenting and Trait Emotional Intelligence. *Journal of Child and Family Studies,* 29, 2453–2462 (2020). https://doi.org/10.1007/s10826-020-01779-1
34. Hayden, M. C., Müllauer, P. K., Beyer, K., Gaugeler, R., Senft, B., Dehoust, M. C., & Andreas, S. (2021). Increasing Mentalization to Reduce Maladaptive Defense in Patients With Mental Disorders. *Frontiers in psychiatry*, *12*, 637915. https://doi.org/10.3389/fpsyt.2021.637915
35. Hersoug, A. G., Wærsted, M., & Lau, B. (2021). Defensive Functioning Moderates the Effects of Nondirective Meditation. *Frontiers in psychology*, *12*, 629784. https://doi.org/10.3389/fpsyg.2021.629784
36. Hill, R., Tasca, G. A., Presniak, M., Francis, K., Palardy, M., Grenon, R., Mcquaid, N., Hayden, G., Gick, M., & Bissada, H. (2015). Changes in Defense Mechanism Functioning During Group Therapy for Binge-Eating Disorder. *Psychiatry: Interpersonal & Biological Processes*, *78*(1), 75–88. https://doi.org/10.1080/00332747.2015.1015897
37. Høglend, P., & Perry, J. C. (1998). Defensive functioning predicts improvement in major depressive episodes. *The Journal of Nervous and Mental Disease, 186*(4), 238-243.
38. Johansen, P. Ø., Krebs, T. S., Svartberg, M., Stiles, T. C., & Holen, A. (2011). Change in defense mechanisms during short-term dynamic and cognitive therapy in patients with cluster C personality disorders. *The Journal of Nervous and Mental Disease*, *199*(9), 712-715. https://doi.org/10.1097/NMD.0b013e318229d6a7

39. Kipper, L., Blaya, C., Teruchkin, B., Heldt, E., Isolan, L., Mezzomo, K., ... & Manfro, G. G. (2005). Evaluation of defense mechanisms in adult patients with panic disorder: before and after treatment. *The Journal of Nervous and Mental Disease*, *193*(9), 619-624. https://doi.org/10.1097/01.nmd.0000177783.46974.12
40. Knijnik, D. Z., Salum Jr, G. A., Blanco, C., Moraes, C., Hauck, S., Mombach, C. K., ... & Eizirik, C. L. (2009). Defense style changes with the addition of psychodynamic group therapy to clonazepam in social anxiety disorder. *The Journal of Nervous and Mental Disease*, *197*(7), 547-551. https://doi.org/10.1097/NMD.0b013e3181aac833
41. Koo, T. K., & Li, M. Y. (2016). A Guideline of Selecting and Reporting Intraclass Correlation Coefficients for Reliability Research. *Journal of chiropractic medicine, 15*(2), 155–163. https://doi.org/10.1016/j.jcm.2016.02.012
42. Kramer, U., Despland, J., Michel, L., Drapeau, M., & de Roten, Y. (2010). Change in defense mechanisms and coping over the course of short-term dynamic psychotherapy for adjustment disorder. *Journal of Clinical Psychology*, *66*(12), 1232–1241. https://doi.org/10.1002/jclp.20719
43. Kramer, U., Roten, Y. D., Perry, J. C., & Despland, J. (2013). Change in defense mechanisms and coping patterns during the course of 2-year long psychotherapy and psychoanalysis for recurrent depression. *The Journal of Nervous and Mental Disease, 201*(7), 614-620. https://doi.org/10.1097/nmd.0b013e3182982982
44. Kufferath-Lin, T., Aafjes-van Doorn, K., Prout, T. A., & Hoffman, L. (2021). An examination of parent sessions in regulation-focused psychotherapy for children. *Psychotherapy, 58*(1), 109–120. https://doi.org/10.1037/pst0000314
45. Lilienfeld, S. O., Wood, J. M., & Garb, H. N. (2000). The scientific status of projective techniques. *Psychological Science in the Public Interest: A Journal of the American Psychological Society*, *1*(2), 27–66. https://doi.org/10.1111/1529-1006.002
46. Linden, M., Scheel, T., & Rettig, K. (2007). Validation of the factorial structure of the Positive and Negative Syndrome Scale in use by untrained psychiatrists in routine care. *International Journal of Psychiatry in Clinical Practice, 11*(1), 53–60. https://doi.org/10.1080/13651500600884419
47. Lundh, A., Kowalski, J., Sundberg, C. J., Gumpert, C., & Landén, M. (2010). Children's Global Assessment Scale (CGAS) in a naturalistic clinical setting: Inter-rater reliability and comparison with expert ratings. *Psychiatry Research, 177*(1-2), 206–210. https://doi.org/10.1016/j.psychres.2010.02.006
48. Marchini, F., Langher, V., Napoli, A., Balonan, J. T., Fedele, F., Martino, G., ... & Caputo, A. (2021). Unconscious loss processing in diabetes: associations with medication adherence and quality of care. *Psychoanalytic Psychotherapy*, 1-19. https://doi.org/10.1080/02668734.2021.1922492
49. Martino, G., Catalano, A., Agostino, R. M., Bellone, F., Morabito, N., Lasco, C. G., Vicario, C. M., Schwarz, P., & Feldt-Rasmussen, U. (2020a). Quality of life and psychological functioning in postmenopausal women undergoing aromatase inhibitor treatment for early breast cancer. *PloS one*, *15*(3), e0230681. https://doi.org/10.1371/journal.pone.0230681
50. Martino, G., Caputo, A., Schwarz, P., Bellone, F., Fries, W., Quattropani, M. C., & Vicario, C. M. (2020b). Alexithymia and Inflammatory Bowel Disease: A Systematic Review. *Frontiers in psychology*, *11*, 1763. https://doi.org/10.3389/fpsyg.2020.01763

51. Martino, G., Caputo, A., Vicario, C. M., Catalano, A., Schwarz, P., & Quattropani, M. C. (2020c). The Relationship Between Alexithymia and Type 2 Diabetes: A Systematic Review. *Frontiers in psychology*, *11*, 2026. https://doi.org/10.3389/fpsyg.2020.02026
52. Martino, G., Caputo, A., Vicario, C. M., Feldt-Rasmussen, U., Watt, T., Quattropani, M. C., Benvenga, S., & Vita, R. (2021). Alexithymia, Emotional Distress, and Perceived Quality of Life in Patients With Hashimoto's Thyroiditis. *Frontiers in psychology*, *12*, 667237. https://doi.org/10.3389/fpsyg.2021.667237
53. Metzger, J. A. (2014). Adaptive defense mechanisms: function and transcendence. *Journal of Clinical Psychology*, *70*(5), 478-488.
54. Merlo, E. M., Sicari, F., Frisone, F., Alibrandi, A., & Settineri, S. (2020a). Personality types and dreaming in future health professionals: Effect of age and gender. *International Journal of Dream Research*, *13*(2), 160–172. https://doi.org/10.11588/ijodr.2020.2.70571
55. Merlo, E. M., Stoian, A., Motofei, I. G., & Settineri, S. (2020b). Clinical psychological figures in healthcare professionals: Resilience and maladjustment as the "cost of care". *Frontiers in Psychology,*11:607783. https://doi.org/10.3389/fpsyg.2020.607783
56. Merlo, E. M., Stoian, A. P., Motofei, I. G., & Settineri, S. (2021a). The Role of Suppression and the Maintenance of Euthymia in Clinical Settings. *Frontiers in psychology*, *12*, 677811. https://doi.org/10.3389/fpsyg.2021.677811
57. Merlo, E. M., Sicari, F., Frisone, F., Costa, G., Alibrandi, A., Avena, G., Settineri, S. (2021b). Uncertainty, alexithymia, suppression and vulnerability during the COVID-19 pandemic. *Health Psychology Report,* 9(2), 169-179. https://doi.org/10.5114/hpr.2021.104078
58. Nicolas, M., Martinent, G., Drapeau, M., & De Roten, Y. (2017). Development and evaluation of the psychometric properties of the Short Defense Style Questionnaire (DSQ-26) in sport. *International Journal of Psychology & Psychological Therapy, 17,* 175-187.
59. Nishimura, R. (1998). Study of measurement of defense style using Bond's Defense Style Questionnaire. *Psychiatry & Clinical Neurosciences*, *52*(4), 419–424. https://doi.org/10.1046/j.1440-1819.1998.00410.x
60. Perry, J. C. (1990). *Defense mechanism rating scales (5th ed.).* Harvard School of Medicine: The Cambridge Hospital.
61. Perry, J. C. (2014). Anomalies and specific functions in the clinical identification of defense mechanisms. *Journal of Clinical Psychology, 70*(5), 406-418. https://doi.org/10.1002/jclp.22085
62. Perry, J. C., & Høglend, P. (1998). Convergent and discriminant validity of overall defensive functioning. *Journal of Nervous and Mental Disease, 186*(9), 529–535. https://doi.org/10.1097/00005053-199809000-00003
63. Perry, J. C., & Ianni, F. (1998). Observer-rated measures of defense mechanisms. *Journal of Personality, 66*, 993–1024. https://doi.org/10.1111/1467-6494.00040
64. Perry J.C., Kardos M.E., & Pagano C.J. (1993) The study of defenses in psychotherapy using the defense mechanism rating scales (DMRS). In U. Hentschel, G.J.W. Smith, W. Ehlers, J.G. Draguns (Eds.), *The Concept of Defense Mechanisms in Contemporary Psychology.* Springer.
65. Perry, J. C., Metzger, J., & Sigal, J. J. (2015). Defensive functioning among women with breast cancer and matched community controls. *Psychiatry*, *78*(2), 156-169.

66. Perry, J. C., Presniak, M. D., & Olson, T. R. (2013). Defense mechanisms in borderline schizotypal, antisocial and narcissistic personality disorders. *Psychiatry: Interpersonal and Biological Processes*, 76(1), 32–52. https://doi.org/10.1521/psyc.2013.76.1.32

67. Pietrabissa, G., Gullo, S., Aimé, A., Mellor, D., McCabe, M., Alcaraz-Ibánez, M., Begin, C., Blackburn, M. E., Caltabiano, M., Sicilia, A., Castelnuovo, G., Dion, J., Granero-Gallegos, A., Hayami-Chisuwa, N., He, Q., Lo Coco, G., Maïano, C., Markey, C., Probst, M., Rodgers, R. F., Strodl, E., Manzoni, G.M., Fuller-Tyszkiewicz, M. (2020). Measuring perfectionism, impulsivity, self-esteem and social anxiety: Cross-national study in emerging adults from eight countries. *Body image*, *35*, 265–278. https://doi.org/10.1016/j.bodyim.2020.09.012

68. Porcerelli, J. H., Huth-Bocks, A., Huprich, S. K., & Richardson, L. (2016). Defense mechanisms of pregnant mothers predict attachment security, social-emotional competence, and behavior problems in their toddlers. *American Journal of Psychiatry, 173*(2), 138-146. https://doi.org/10.1176/appi.ajp.2015.15020173

69. Prout, T. A., Malone, A., Rice, T., & Hoffman, L. (2019). Resilience, defense mechanisms, and implicit emotion regulation in psychodynamic child psychotherapy. *Journal of Contemporary Psychotherapy*, *49*(4), 235-244. https://doi.org/10.1007/s10879-019-09423-w

70. Rice, T. R., & Hoffman, L. (2014). Defense mechanisms and implicit emotion regulation: a comparison of a psychodynamic construct with one from contemporary neuroscience. *Journal of the American Psychoanalytic Association*, *62*(4), 693-708. https://doi.org/10.117/0003065114546746

71. Rosa, V., Tomai, M., Lauriola, M., Martino, G., Di Trani, M. (2019). Body mass index, personality traits, and body image in Italian pre-adolescents: An opportunity for overweight prevention. *Psihologija*, 52 (4). https://doi.org/10.2298/PSI181121009R

72. Settineri, S., Merlo, E. M., Frisone, F. (2018). Psychothaumatology of images in gender dysphoria. *Open Psychology Journal*, 11(1), 222-234. https://doi.org/10.2174/1874350101811010222

73. Settineri, S., Frisone, F., Alibrandi, A., & Merlo, E. M. (2019). Emotional Suppression and Oneiric Expression in Psychosomatic Disorders: Early Manifestations in Emerging Adulthood and Young Patients. *Frontiers in Psychology*, *10*, 1897. https://doi.org/10.3389/fpsyg.2019.01897

74. Shedler, J., & Westen, D. (2004). Dimensions of Personality Pathology: An Alternative to the Five-Factor Model. *The American Journal of Psychiatry, 161*(10), 1743–1754. https://doi.org/10.1176/ajp.161.10.1743

75. Soldz, S., & Vaillant, G. E. (1998). A 50-year longitudinal study of defense use among inner city men: a validation of the DSM-IV defense axis. *The Journal of Nervous and Mental Disease*, *186*(2), 104–111. https://doi.org/10.1097/00005053-199802000-00006

76. Tanzilli, A., Di Giuseppe, M., Giovanardi, G., Boldrini, T., Caviglia, G., Conversano, C., & Lingiardi, V. (2021). Mentalization, attachment, and defense mechanisms: a Psychodynamic Diagnostic Manual-2-oriented empirical investigation. *Research in Psychotherapy: Psychopathology, Process and Outcome*, 31-41. https://doi.org/10.4081/ripppo.2021.531

77. Vaillant, G. E. (1971). Theoretical hierarchy of adaptive ego mechanisms: A 30-year follow-up of 30 men selected for psychological health. *Archives of General Psychiatry, 24*(2), 107-118. https://doi.org/10.1001/archpsyc.1971.01750080011003

78. Vicario, C. M., Nitsche, M. A., Salehinejad, M. A., Avanzino, L., Martino, G. (2020). Time Processing, Interoception, and Insula Activation: A Mini-Review on Clinical Disorders. *Frontiers in Psychology*, *11*, 1893. https://doi.org/10.3389/fpsyg.2020.01893

79. Vita, R.,Caputo, A., Quattropani, M. C., Watt, T., Feldt-Rasmussen, U., Puleio, P., Benvenga, S., Martino, G. (2020). Quality of life in patients with Hyperthyroidism: Where do we stand?. *Mediterranean. Journal of Clinical Psychology*,8(2). https://doi.org/10.6092/2282-1619/mjcp-2521

80. Westen, D., & Muderrisoglu, S. (2003). Reliability and validity of personal- ity disorder assessment using a systematic clinical interview: Evaluating an alternative to structured interviews. *Journal of Personality Disorders, 17,* 350–368. https://doi.org/10.1521/pedi.17.4.351.23967

81. Westen, D., Muderrisoglu, S., Fowler, C., Shedler, J., & Koren, D. (1997). Affect regulation and affective experience: Individual differences, group differences, and measurement using a Q-sort procedure. *Journal of Consulting and Clinical Psychology, 65,* 429–439. https://doi.org/10.1037/0022-006X.65.3.429

DOI: 10.13129/2282-1619/mjcp-3107