

The Defense Style Questionnaire 60 (DSQ-60): Factor structure and psychometric
properties in a non patient population

by

Kylie Louise Thygesen

Department of Educational and Counselling Psychology
McGill University, Montreal

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ABSTRACT

The Defense Style Questionnaire (DSQ) is a self-report instrument designed to measure defensive functioning and coping styles. Originally developed by Bond and colleagues (1983), the questionnaire has been researched extensively. The present investigation sought to determine the factor validity of the newly developed DSQ-60 (Trijsburg, Bond & Drapeau, 2003) in a sample of English-speaking university students ($n = 305$) and French-speaking university students ($n = 212$). Using both exploratory and confirmatory factor analyses, three factors, or defense styles were revealed: image distorting, affect regulating, and adaptive. Cronbach's alpha for the three styles was .64, .72, and .61, respectively. Results are compared with prior research on the DSQ.

Résumé

Le Defense Style Questionnaire (DSQ) est un instrument auto-révélé visant à évaluer le fonctionnement défensif et les styles d'adaptation. Plusieurs recherches se sont intéressées à ce questionnaire développé par Bond et ses collègues (1983). Le but de la présente recherche est d'examiner la validité d'une nouvelle version de l'instrument (Trijsburg, Bond & Drapeau, 2003) à l'aide d'un échantillon d'étudiants universitaires anglophones ($n = 305$) et d'un échantillon francophone ($n = 212$). Des analyses factorielles exploratoires et confirmatoires ont révélé trois styles défensifs, à savoir un style impliquant une distorsion des représentations d'objet, un style visant une régulation de l'affect et un style adaptatif, avec des alphas de Cronbach de .64, .72, et .61 respectivement.

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CONTRIBUTION OF AUTHORS

The following authors have contributed to the article contained within this thesis.

Kylie Louise Thygesen

As principal investigator, she collaborated with Dr. Drapeau in the design of the study and obtained ethical clearance from McGill University. She designed the questionnaires, and collected, entered, and double-checked all data from the English-speaking sample. She performed all statistical tests save for the confirmatory factor analysis, which was done in consultation with Dr. Drapeau. She conducted a literature search and wrote the article.

Dr. Martin Drapeau

As co-author of the DSQ-60, he provided background on the scale. He assisted in conceptualizing the study and provided financial support to hire a research assistant to double check the dataset. He conducted the confirmatory factor analysis with Kylie Thygesen. He also provided significant editorial guidance.

Dr. Serge Lecours

He directed data collection for the French version of the DSQ-60 and provided Kylie Thygesen with the database.

Dr. Rutger Willem Trijsburg

As co-author of the DSQ-60, he provided background on the scale. He examined face validity of the scale and provided Kylie Thygesen with algorithms for the scale.

Dr. Yves de Roten

He translated and back translated the DSQ into French for data collection in the French sample.

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1. INTRODUCTION

The following Masters thesis explicates the complex construct of defense mechanisms, including their history and methods of assessment. In particular, the self-report Defense Style Questionnaire (DSQ) of Bond, Gardner, Christian, and Sigal (1983) is focused upon. Psychometric properties of successive versions of the instrument are described and compared to those of the recently developed DSQ-60 (Trijsburg, Bond & Drapeau, 2003).

As there is no research on the DSQ-60, the present investigation sought to validate it in a sample of Undergraduate students. Both an exploratory and confirmatory factor analytic approach was employed to examine the construct validity, and reliability was assessed using a measure of internal consistency. Furthermore, a unique factor structure dissimilar from most predecessors is discussed.

This thesis is written in a manuscript-based format. First, a comprehensive literature review will be presented, followed by the manuscript, and a general conclusion.

2. LITERATURE REVIEW - DEFENSE MECHANISMS

2.1. Theoretical considerations

Defense mechanisms have received considerable attention over the past century (e.g., Cramer, 1991; Fenichel, 1945; A. Freud, 1936; S. Freud, 1894; Kernberg, 1976; Klein, 1973; Vaillant, 1971, 1975, 1976). Sigmund Freud first theorized defense mechanisms in 1894 and modified his conceptualizations numerous times over a forty year period (e.g., 1894, 1915, 1926). He is credited with theorizing the defenses of altruism, displacement, dissociation, distortion, humor, hypochondriasis, intellectualization, passive-aggressive behaviour, projection, psychotic denial, reaction

formation, repression, schizoid fantasy, suppression, and sublimation (Vaillant, 1992). Overall, however, Freud devoted notably more attention to other psychoanalytic concepts (Vaillant, 1992). It was Anna Freud (1937) who wrote the pivotal book on defenses, summarizing her father's work, and shedding considerable theoretical insight into the processes. At minimum, A. Freud identified the defenses of denial in fantasy, denial in word, and identification with the aggressor.

More recently, many authors have made significant contributions to the defense mechanism literature. However, a review of even the most influential works is beyond the scope of this paper. Brief mention should be made of Klein (1973), Kernberg (1976), and Vaillant (1976), who in sum added another eight defenses to those suggested earlier: acting out, anticipation, fantasy, primitive idealization, projective identification, psychotic denial, splitting, and omnipotence with devaluation.

Vaillant (1986) summarized the seminal literature on defenses, noting that the original insights into these complex mechanisms still hold true today. Namely, that they are 1) predominantly unconscious means by which, 2) instinctual urges and emotions are managed, 3) considered both adaptive and maladaptive, with the latter resulting in psychiatric symptomatology, and 4) conceptualized as being malleable. They are proposed to prevent unbearable anxiety from expressing itself at a conscious level.

Despite the extensive theoretical work conducted on defense mechanisms, outlining their common features proves arduous in the midst of methodological constraints. Moreover, there has been significant controversy regarding the exact nature, number, and definitions of the mechanisms (e.g., Brenner, 1981; Haan, 1977; Moos, 1974; Siegel, 1968; Sjoback, 1973; Wallerstein, 1983). Divergent conceptualizations

even exist amongst Freudian psychoanalysts, and differences are pronounced when comparing European and North American scholarship (Vaillant, 1992). Further complications have arisen from the disregard of divergent definitions when employing common defense nomenclature and from treating coping reactions and defenses as synonymous (Endler & Parker, 1996).

2.2. From theory to research

In light of such varied defense conceptualizations, research progress has been arduous. Over the last thirty years there has been an increasing push to reach consensus regarding the scope and definitions of the mechanisms. In the early 1980's a movement began to have defenses occupy a new axis in the Diagnostic and Statistical Manual of Mental Disorders (DSM; Karasu & Skodol, 1980). Agreement regarding the quantity and definitions of the constructs was necessary to best operationalize the mechanisms. Due to notable variance in opinion regarding axis content, however, defenses were relegated to an appended glossary in the Diagnostic and Statistical Manual of Mental Disorders, Third Edition Revised (DSM III-R; American Psychiatric Association, 1987).

In 1986, a committee was formed with the intention of reaching consensus regarding defenses and developing a sixth axis exclusively for defense mechanism assessment (Advisory Committee on Defense Mechanisms, 1986). The utility of defense assessment was shown to have incremental validity above the DSM's global functioning scale, to be transtheoretical, and valid (Skodol & Perry, 1993). In light of such positive findings, the committee proposed that the axis be reserved for ranking defense styles, which are broad descriptions of clients' characteristic ways of dealing with stress, including internal conflicts. Furthermore, it was suggested that the axis be used to record

a maximum of seven individual defenses (which, although less reliable, are argued to be more clinically useful) (Skodol & Perry, 1993). Vaillant (1994) summarized the relevance of the axis well, noting:

...despite problems in reliability, the validity of defenses makes them a valuable diagnostic axis for understanding psychopathology. By including a patient's defensive style as part of the diagnostic formulation, the clinician is better able to comprehend what seems initially most unreasonable about the patient and to appreciate what is adaptive as well as maladaptive about the patient's defensive distortions of inner and outer reality. (p. 44)

Notably, in 1994, the Defensive Functioning Scale (DFS; American Psychiatric Association, 1994) was included in the DSM-IV as an axis for further study. The DFS contained 27 specific defenses and rankings for one of seven levels of defensive functioning. A number of studies (e.g. Perry et al., 1998; Perry & Hoglend, 1998) have further demonstrated the reliability, validity (including incremental validity in relation to the other axes), and clinical utility of this axis. These results affirm the importance of taking defense mechanisms into account in today's mental health practice.

In addition to the work cited on the DSM defense axis, the most frequent agreement amongst researchers concerns the existence of a continuous hierarchy of defenses (e.g., Battista, 1982; Bond et al., 1983; Perry & Cooper, 1989; Vaillant, 1986), ranging from adaptive to maladaptive (Perry & Skodol, 1993). Adaptive defenses are regularly associated with mental health, adjustment (e.g., vocational attainment, relationships, and physical health) (Vaillant, 1976), and good global functioning (Perry & Cooper, 1989). Conversely, maladaptive defenses are correlated with psychopathology,

increased symptomatology (Watson, 2002), and a weakened therapeutic alliance (Bond & Perry, 2004). Anxiety (Pollock & Andrews, 1989), depression (Bond & Perry, 2004), eating disorders (Steiner, 1990) and personality disorders (Sinha & Watson, 1999) have been linked with maladaptive defense use.

2.3. The assessment of defenses

For many of the reasons previously outlined, the empirical measurement of defense mechanisms has presented a significant challenge to researchers and clinicians. More rigorous methods of measurement did not proliferate until the 1960's (e.g., Gleser & Ihilevich, 1969; Haan, 1963; Weintraub & Aronson, 1962). Three primary modes of measuring defenses have been focused upon in the literature: projective techniques (e.g., Miller & Swanson, 1960), clinical rating systems (e.g., Perry & Cooper, 1986; Semrad, Grinspoon, & Fienberg, 1973; Vaillant, 1976) and self-report questionnaires (e.g., Bond et al., 1983; Byrne, 1961; Gleser & Ihilevich, 1969; Haan, 1965; Joffe & Naditch, 1977; Plutchik, Kellerman, & Conte, 1979).

By virtue of the complexity of defenses, each method of measurement has been presented with significant challenges. Historically, both projective techniques and clinical rating systems have largely shown questionable reliability (e.g., inter-rater, test-retest), and in some cases, validity (Endler & Parker, 1996). In addition, these methods tend to require significant amounts of training, necessitate lengthy periods of time to complete, and are thus costly. More recent modes of measurement such as those of Perry and Cooper (1986) and the Defensive Functioning Scale (American Psychiatric Association, 1994) are showing significant improvements in these domains. Nonetheless, self-report measures offer a level of cost effectiveness yet to be attained through other methods.

2.4. Assessing defenses using self-report questionnaires

It is commonly agreed that defense mechanisms are largely unconscious processes (Vaillant, 1994), and thus are not obviously amenable to measurement via self-report questionnaires. In fact, the most common critiques of the self-report format center upon validity issues (e.g., failure to capture defensive processes, vulnerability to social desirability). According to Bond and colleagues (1983), “only a clinical examination could identify unconscious processes *as they are happening*” (emphasis added, p. 334). Clearly, clinical rating systems have the advantage of unearthing defensive processes through behavioural observation and inference that may otherwise be unknown to the client (Bond, 2004).

While in-vivo, self-report accounts of defense use may be impossible, retrospective accounts are indeed feasible. Bond (1992) asserts that self-reports of *conscious derivatives* of defenses are possible because

...there are times when defenses fail temporarily, and at those times a subject may become aware of the unacceptable impulses and his or her usual styles of defending against them. In addition, others often point out defense mechanisms to the person. (p. 131)

People are generally capable of reporting on defense use because they are aware of their typical behaviours when faced with stress (Bond, 1986) even if they lack insight into the defensive function of that behaviour (Plutchik, Kellerman, & Conte, 1979). Davidson and MacGregor (1998) summarize the issue well:

In theory, then, persons can be aware of their habitual behavior, such as washing their hands (the defensive behavior), and yet still remain unaware of both the

cognitive operation that motivates the behavior (the defense mechanism) and the threatening impulse that activates the defense mechanism (e.g., a forbidden sexual impulse). (p. 966)

Importantly, once an individual understands the purpose(s) of their behavior, they are deemed to be employing a coping, rather than a defense mechanism (Cramer, 1998).

Both Bond and colleagues and Gleser and colleagues have researched self-report methods of defense measurement extensively. At present, it appears that the self-report format offers a level of quantification, portability, and affordability yet unattainable in other methods of defense measurement.

2.5. The Defense Style Questionnaire

The Defense Style Questionnaire (DSQ) is a frequently used self-report instrument for defense measurement (Bond, 2004) and has been translated and validated in numerous languages (e.g., Chinese, Dutch, Egyptian Arabic, Finnish, French, German, Italian, Norwegian) (Bond, 2000). Originally developed by Bond and his colleagues (1983), it was designed to operationalize and assess conscious manifestations of defenses. Defense mechanisms were defined as, “not only an unconscious intrapsychic process but also behavior that is either consciously or unconsciously designed to reconcile internal drives with external demands” (Bond et al., 1983, p. 334). According to Bond (1992),

The DSQ was designed to elicit manifestations of a subject’s characteristic style of dealing with conflict, either conscious or unconscious, based on the assumption that persons can accurately comment on their behaviour from a distance. (p. 131)

Making conclusions about individual defense mechanism use on the basis of DSQ results appears unwarranted. However, groups of defenses (styles) can be assessed

accurately (Bond et al., 1983). These styles are typically derived by examining the DSQ's factor structure and grouping defenses which cluster together. Defense styles are primarily trait based (Bond, 2004), however, research has shown variability in DSQ scores over time, thereby rendering the instrument sensitive to state fluctuations (Bond et al., 1983). This sensitivity, however, may also stem from poor reliability of the scale.

The DSQ has undergone numerous revisions in an effort to increase reliability and validity (see Table 1). Many authors fail to cite the proper version of the DSQ (including number of items) when reviewing the literature, thus creating many discrepancies in reporting. The next section attempts to trace the chronological development of the questionnaire.

2.6. DSQ-81

Bond (1996, 2000, 2004) states that the first version of the DSQ was created in 1983 and contained 88 items. However, the first document published on the DSQ (Bond et al., 1983) reports on an 81 item version; the 88 item was not published until 1989. The defenses measured in the 81 item questionnaire were derived from five eminent psychodynamic theorists: A. Freud (1936), S. Freud (1926), Kernberg (1967), Klein (1973), and Vaillant (1976). Statements were selected by clinicians and item to total correlations to reflect 24 defense mechanisms (each measured by one to six questions). Unlike some proceeding versions of the questionnaire, respondents answered on a nine point scale, with 1 indicating strong *agreement* and 9 signifying strong *disagreement*.

Table 1. Review of DSQ validation studies

Study	DSQ version	Defenses measured (n)	Participants	Factors/styles	Findings
Bond, Gardner, Christian, & Sigal (1983)	81	24	209 total 111 controls 98 patients	14 defenses loaded on 4 styles (range .54-.78) Maladaptive action patterns (6): withdrawal, regression, acting out, inhibition, passive aggression, projection Image distorting (3): omnipotence, splitting, primitive idealization Self sacrificing (2): reaction formation, pseudoaltruism Adaptive (3): sublimation, humor, anticipation	Adaptive style positively, and other styles are negatively correlated with measures of ego strength and ego development All styles were significantly correlated (range -.28-.39), except adaptive with both image distorting and self sacrificing Maladaptive action was significantly correlated with both image distorting (.39) and self sacrificing (.37)
Vaillant, Bond, & Vaillant (1986)	67	15	131 former delinquents	Factor analysis was not conducted	Seven defenses measured by the DSQ correlated significantly (range .15-.31) with those previously identified by clinician assessment Test-retest reliability of styles ranged from .68-.73

Bond et al. (1989)	88	25	156 psychiatric outpatients	New items presumably forced onto DSQ-81 styles: Maladaptive action, image-distorting, self-sacrificing, adaptive	All styles but adaptive correlated (range .23-.36) with immature rankings on the Defense Mechanism Rating Scale (DMRS) Maladaptive action negatively correlated with DMRS mature rankings (.17, $p < .04$)
Andrews, Pollock, & Stewart (1989)	88	25	413 total 204 controls 67 family practice clients 142 psychiatric outpatients	23 defenses loaded on 3 styles (range .31-.72) Immature (12): projection, passive aggression, acting out, omnipotence/devaluation, help rejecting complaining, fantasy, isolation, splitting, projective identification, regression, somatization, denial Neurotic (6): reaction formation, undoing, inhibition, withdrawal, idealization, pseudoaltruism Mature (5): suppression, task orientation, anticipation, sublimation, humor	Scores discriminated patients from non patients
Andrews, Pollock, & Stewart (1989)	82	20	413 total 204 controls	20 defenses loaded on 3 styles (range .32-.73)	Scores discriminated patients from non patients

Andrews, Singh, & Bond (1993)	40	20	67 family practice clients	Immature (12): projection, passive aggression, acting out, devaluation, autistic fantasy, isolation, splitting, somatization, denial, displacement, dissociation, rationalization	2 factor solution is adequate, but 3 factors were retained for interpretability and partitioning of neurotic and mature defenses
			142 psychiatric outpatients	Neurotic (4): reaction formation, undoing, altruism, idealization	
				Mature (4): suppression, anticipation, sublimation, humor	
			712 total	40 items loaded onto 3 defense styles (range .32-.60)	Test-retest reliability .66 over 4 weeks
			388 controls		
			67 family practice clients	Immature (12): projection, passive aggression, acting out, devaluation, autistic fantasy, isolation, splitting, somatization, denial, displacement, dissociation, rationalization	Items were forced onto factors from Andrews and colleagues (1989), and compared. Correlations were high: .97 mature, .93 neurotic, .95 immature
255 psychiatric outpatients	Neurotic (4): undoing, pseudo- altruism, idealization, reaction formation	Coefficient alpha: .68 mature, .58 neurotic, .80 immature			
			Mature (4): sublimation, humor, anticipation, suppression	Scores discriminated patients from non patients	

Factor analysis was conducted on a group of 111 non patients and 98 psychiatric patients, resulting in four defense styles: maladaptive action patterns, image distorting, self-sacrificing, and adaptive (see Bond & Wesley, 1996). Fourteen defenses loaded satisfactorily on these styles (range .54-.78), with two to six defenses comprising each style. The reasons the specific defenses were included on the styles are unclear in light of high sideloadings and differential cutoffs for each factor (see Table 2). Nonetheless, as seen in Table 3, the styles were correlated in a manner consistent with a developmental continuum of defense (e.g., maladaptive $r = -.28, p < .001$ with adaptive). Convergent validity was established with correlations amongst two measures of ego strength (Adaptive style and Loevinger's ego development $r = .19, p < .01$; Adaptive style and Ego strength $r = .32, p < .001$). Furthermore, scores for the defense styles were highest in the patient group, save for the adaptive style.

These findings are limited as the sample was too small for factor analysis ($n = 209$), scant information was given as to the rationale for item retention, and neither eigenvalues nor variance estimates were provided. A wide number of items represented defenses, and relatively poor correlations for convergent validity were demonstrated. Given the limitations and failure of 10 defenses to load on the factors, it is surprising that significant revisions to the instrument were not undertaken.

Table 2. Factor loadings for the DSQ-81 ($n = 209$)

Defense ($n = 24$)	Factor 1 Maladaptive action patterns	Factor 2 Image- distorting	Factor 3 Self- sacrificing	Factor 4 Adaptive
Acting Out	.76	.11	-.10	-.23
Regression	.67	-.01	-.09	-.29
Passive- aggressive behaviour	.74	.10	-.02	-.09
Withdrawal	.75	-.17	.11	.05
Projection	.69	.31	.02	-.41
Inhibition	.69	-.20	.17	-.01
Omnipotence- devaluation	.17	.70	-.10	.21
Splitting	.38	.60	-.05	-.20
Primitive idealization	.36	.54	.36	.15
Pseudoaltruism	.33	-.08	.62	.06
Reaction formation	.36	-.07	.56	.06
Sublimation	-.09	.12	.17	.64
Humor	-.14	.02	-.27	.63
Suppression	-.10	.02	.00	.62
As-if behavior	.62	.05	.07	.32
Clinging	.64	.34	.04	.02
Denial	.33	.04	.52	-.05
Displacement	.49	.15	-.19	.05
Dissociation	.63	.22	.15	-.17
Identification	.45	.32	.19	.29
Intellectualization	.49	-.12	-.11	.33

Repression	.53	-.08	.05	-.17
Somatization	.56	.19	.11	.10
Turning against self	.61	-.26	.02	-.03

Note. Table adapted from (Bond et al., 1983)

Table 3. Defense style correlations of the DSQ-81

	Maladaptive action patterns	Image- distorting	Self- sacrificing	Adaptive
Maladaptive action patterns		.39**	.37**	-.28**
Image-distorting	.39**		.18*	.07
Self-sacrificing	.37**	.18*		-.02
Adaptive	-.28**	.07	-.02	

**<.001, * p<.01

Note. Table adapted from (Bond et al., 1983)

2.7. DSQ-67

Some authors (e.g., Andrews, Singh, & Bond, 1993) reference the 67 item questionnaire as originating from Bond and peers (1983). However, Vaillant, Bond, and Vaillant (1986) reported on the 67 item questionnaire. The rationale for using this version instead of the 81 item was not explained, nor was the method by which the 67 items were chosen (or if they were selected from the 81). Factor analysis was not reported, rendering it unclear as to how the style scores were derived.

As with the 81 item version, the number of items representing each defense and style were highly divergent (e.g., 42 items for the “immature” defense style including one splitting, 10 passive aggression; 9 items for “neurotic” defense style including seven reaction formation, one displacement; six items for “mature” defenses including two suppression, one altruism). The scale was rated from one (strongly agree) to five (strongly disagree), and measured 15 defenses.

A sample of 131 male former juvenile delinquents was recruited from a longitudinal cohort pool. The DSQ’s individual defenses (referred to as “defense styles” by the authors) correlated significantly (range $r = .15 - .31$) with those identified by clinician assessment 6-10 years previously (using Vaillant’s life vignette method; Vaillant, 1976). More specifically, between 40-100% of DSQ defense statements were significantly correlated with seven of the clinically assessed defenses (data was not provided for the remaining 8 defenses). Oddly, DSQ items purported to measure mature defenses were significantly correlated with “mature mechanisms” identified by clinical raters, but not negatively with “immature mechanisms.” Slightly over half (24) of 42 immature defense items negatively correlated with clinical ratings of immature mechanisms. The authors interpreted their findings as further establishing the trait-based

nature of defenses, and showing concurrence between clinician and self-reports of defense use. Vaillant's defense hierarchy (Vaillant & Drake, 1985) was also verified.

A composite score for selected DSQ defenses correlated significantly with global mental health ($r = .48, p < .01$) and ego development maturity ($r = .35, p < .01$) (using the Health Sickness Rating Scale; Luborsky, 1962 and Loevinger's Sentence Completion Test; Loevinger, 1976). Bond and colleagues (1989) also reported that 67 items correlated with the Defense Mechanism Rating Scale (DMRS; Perry & Cooper, 1986), although it is unclear if the items are identical to those reported here.

The DSQ-67 is faced with many of the same limitations as the DSQ-81, namely, a small sample, and minimal reporting on how the scale was derived. A further challenge arises from the restricted sample (former male delinquents in their 50's) and lack of generalizability. While this study is frequently cited as affirming the validity of the measure because of the correlations with observer-rated measures, the strength of the associations is questionable.

2.8. DSQ-88

The first article published on the 88 item stems from Bond and colleagues (1989) who sought to establish the convergent validity of the scale with the Defense Mechanism Rating Scale (DMRS; Perry & Cooper, 1986). This version is sometimes referred to as the 78 item (e.g., Andrews et al., 1993) as 10 questions were for a lie scale.

Bond and colleagues (1989) modified the 81 item version by deleting 14 items that had previously failed to load onto any of the four defense styles uncovered by Bond and peers (1983). Twenty one items were added to measure anticipation, affiliation, help rejecting complaining, isolation, projection, task orientation, and undoing. The authors do

not state how many defenses were ultimately measured. Factor analytic procedures and results were not reported and it is unclear how the styles from the DSQ-81 were retained or how decisions were made to place the new defenses onto styles. Significant caution should be exercised when interpreting their results as the sheer number of alterations demand new validation and norming studies.

Clinical ratings of immature defenses on the DMRS correlated significantly with the DSQ's maladaptive ($r = .36, p < .001$), image-distorting ($r = .32, p < .001$), and self-sacrificing ($r = .23, p < .001$) styles in their sample of 156 psychiatric outpatients. The maladaptive defense style was negatively associated with DMRS mature defenses ($r = -.17, p < .04$). There were no significant relationships between DSQ styles and either the image-distorting, neurotic, borderline, narcissistic-obsessive, or mature summary defense scales from the DMRS. The DMRS action summary scale was significantly correlated with the maladaptive ($r = .31, p < .01$), image-distorting ($r = .32, p < .01$), and self-sacrificing ($r = .21, p < .01$) styles. The disavowal summary scale correlated ($r = .18, p < .01$) with the self-sacrificing style. All but two of the DSQ's maladaptive style defenses correlated with those contained within the DMRS immature category. Other individual DSQ defenses (neurotic denial, omnipotence/devaluation, projective identification, and splitting) were reportedly correlated with DMRS defenses, however, statistics were not presented.

Test-retest reliability was relatively stable in a sub-sample of 39 participants, reflecting the trait like nature of defense styles (maladaptive $r = .73$, image-distorting $r = .71$, self-sacrificing $r = .68$, adaptive $r = .69$). There was also an increase in the use of the adaptive style ($p < .001$), and a decrease in the maladaptive ($p < .005$) and image-distorting

styles ($p < .003$). Overall, the maladaptive and adaptive styles show the strongest psychometric properties. While the observer-rated and self-report correlations are small, the findings substantiate the notion that people can reliably identify the behaviours which are linked to their own defensive processes. Support was also provided for both the state and trait nature of defense style.

The authors offer a number of valuable caveats which may account, in part, for some of the divergence in the findings between the DSQ and DMRS. They point out: differential numbers of items measuring certain defenses on each measure, low base rates for certain defenses, discrepant definitions/operationalization of defenses using the same name, and the influence of setting/task on reporting. Without a doubt, these limitations, plus those already mentioned impact the strength of the DSQ-88 (the version upon which a large amount of research has been, and continues to be conducted).

2.9. DSQ-82

Andrews, Pollock, and Stewart (1989) modified the 88 item version in an effort to attain uniformity with the defense mechanisms contained in the draft glossary (Advisory Committee on Defense Mechanisms, 1986) for the DSM, 3rd edition revised (DSM-III-R; American Psychiatric Association, 1987). These authors paid particular attention to establishing face validity and described item selection procedures in detail. They first elicited both Bond and Vaillant to give defense labels to the 78 defense items. Examination of the labels revealed a lack of correspondence with the DSM-III-R defenses. The items were then examined by five raters who determined that 70 items matched DSM-III-R defense definitions. For example, item 32, which measured withdrawal according to Bond, was relabeled as suppression. Two items measuring

anticipation (which was not in the glossary) were retained due to perceived importance (see Vaillant, 1971). Although repression was contained in the glossary, all items measuring it on the DSQ were deleted as the construct was deemed impossible to measure via self-report. Items measuring intellectualization were also omitted due to incongruity in face validity. The 10 lie scale items were not modified.

This relabeled version was given to three psychodynamically trained professionals to refine and further determine congruence with the DSM-III-R defense definitions. Consensus between the initial five raters and the psychodynamic professionals was reported for 74% of the items, with a $K = .75$ for style items. Methods for dealing with the 26% disagreement were not reported. Task orientation, inhibition, withdrawal, pseudoaltruism, intellectualization, help rejecting complaining, projective identification, regression, affiliation, and consumption were relabeled or omitted. The final scale had 82 items (10 of which were the original lie/social desirability items) and was purported to measure 20 defenses. Each defense was measured by one to ten items and the scale of 1 (strongly disagree) thru 9 (strongly agree) was retained. It should be noted that they refer to the version as the “72 item” in this and subsequent publications (e.g., Andrews et al., 1993).

Both the 88 and 82 item versions were validated in a sample of 413 (204 controls, 142 psychiatric outpatients, and 67 individuals being seen by a family doctor). It is unclear whether the factor structure was derived from the entire sample, or components thereof. Even so, Bond’s four factor solution was not upheld. Three defense styles were deemed appropriate (mature, neurotic, immature) for both versions (see Tables 4 and 5). On the 88 item version, loadings ranged from .38-.52 on the mature factor, .32-.56 on the

neurotic, and .31-.72 on the immature. A number of defenses had high side loadings (e.g., regression loaded highly on both the immature (.38) and neurotic (.36) factors). As with prior validation studies, the rationale for retaining defenses which had high side loadings in the factor solution was not discussed.

The newly derived 82 item version had a similar factor structure to the 88. Loadings ranged from .36-.55 on the mature factor, .44-.55 on the neurotic, and .32-.73 on the immature. Due to high intercorrelations of the neurotic and immature styles, the authors proposed that a two factor solution (immature, mature) would also be feasible. Three styles were retained for clarity and separation of the neurotic from the immature defenses.

Table 4. DSQ-88 factor analysis using Bond's labelling ($n = 413$)

Defense ($n = 25$)	Number of Items	Factor 1 Immature	Factor 2 Neurotic	Factor 3 Mature
Projection	9	.72	.25	-.15
Passive aggression	5	.62	-.00	-.02
Acting out	5	.62	.17	-.07
Omnipotence/devaluation	6	.60	-.07	.19
Help rejecting complaining	3	.50	.25	-.28
Fantasy	1	.47	.16	-.17
Isolation	4	.44	.16	.17
Splitting	3	.44	-.01	.04
Projective Identification	1	.41	.26	-.18
Regression	2	.38	.36	-.49
Somatization	2	.34	.26	-.23
Denial	4	.31	.23	.18
Reaction formation	5	-.05	.56	.14
Undoing	3	.40	.53	-.14
Inhibition	5	.27	.52	-.31
Withdrawal	3	.28	.38	-.19
Idealization	2	.29	.37	.04
Pseudoaltruism	1	.02	.32	.04
Suppression	2	-.11	-.10	.52
Task orientation	2	.00	.16	.48
Anticipation	2	.11	-.06	.45
Sublimation	1	-.07	.06	.42
Humor	3	.05	.03	.38
Affiliation	2	.02	.19	.03
Consumption	3	.25	.27	-.19

Note. Table adapted from (Andrews et al., 1989)

Table 5. Factor loadings of DSQ-82, relabelled after the DSM-III-R ($n = 413$)

Defense ($n = 20$)	Number of Items	Factor 1 Immature	Factor 2 Neurotic	Factor 3 Mature
Projection	10	.73	.26	-.20
Passive aggression	8	.72	.17	-.08
Acting out	6	.62	.24	-.07
Isolation	4	.53	-.00	.20
Devaluation	3	.48	.26	-.14
Autistic fantasy	1	.48	.15	-.13
Denial	2	.46	.11	.18
Displacement	3	.46	.20	-.13
Dissociation	3	.45	.12	.02
Splitting	3	.41	.01	.02
Rationalization	1	.37	.21	.11
Somatization	2	.32	.30	-.20
Undoing	3	.40	.55	-.12
Altruism	2	.02	.47	.11
Idealization	3	.18	.44	-.01
Reaction formation	8	.17	.44	.01
Sublimation	3	-.06	.13	.55
Humor	2	-.16	-.02	.53
Anticipation	2	.06	.00	.44
Suppression	3	.05	-.06	.36

Note. Table adapted from (Andrews et al., 1989)

Table 6. The DSM-III-R DSQ-82 factor loadings in a combined sample of patients and non patients ($n = 712$)

Defense ($n = 20$)	Factor 1	Factor 2	Factor 3
	Immature	Neurotic	Mature
Projection	.82		
Passive aggression	.56		
Acting out	.68		
Isolation	.51		
Devaluation	.42		
Autistic fantasy	-		
Denial	.10		
Displacement	.09		
Dissociation	.27		
Splitting	.36		
Rationalization	-		
Somatization	.56		
Undoing		.50	
Pseudo-altruism		.19	
Idealization		.38	
Reaction formation		.65	
Sublimation			.53
Humor			.59
Anticipation			.32
Suppression			.07

Note. Table adapted from (Andrews et al., 1993)

The authors contended that respondents' answers showed wider variance in the second half of the questionnaire and therefore proposed a shorter version. No statistics were provided to back this observation. Items with the highest correlations to the mature and immature styles were examined, and the authors suggested that a 36 item scale would be comparable to the 72. Correlations between the 82 and 36 were good (.98 mature, .78 neurotic, .93 immature). Test retest reliability at 18 months was .60 - immature, and .71 - mature (Andrews et al., 1993). Prudence must be exercised when interpreting the results for the 36 item as it was not administered; results were derived from the 88 dataset. It is possible that the new ordering and deletion of items could influence participant responding, and thus, factor structure.

Spinhoven, Hendrikus, and Abraham (1995) translated the 36 item into Dutch and administered it to a sample of 894 participants. Although other translated versions were omitted from this paper, their study merits mention due to rigorous methodology. Similar to Andrews and colleagues (1989), three defense style factors were revealed (mature, neurotic, immature). This three factor solution accounted for 27-30% of the variance in scores amongst patients with a psychiatric diagnosis and non patients. However, the internal reliability of the styles was poor (ranging from .13 to .15), and Cronbach's alpha was deemed insufficient for all styles save the immature (.76). The correlations between the immature and neurotic were high ($r = .45, p < .01$) suggesting the plausibility of a two factor solution (see Table 7).

Table 7. Intercorrelations of the DSQ-36 defense styles using Pearson's correlation ($n = 894$)

	Immature	Neurotic	Mature
Immature		.45**	.09*
Neurotic	.45**		.03
Mature	.09*	.03	

* $p < .01$, ** $p < .001$

Note. Table adapted from (Spinhoven et al., 1995)

2.10. DSQ-40

Outlining inadequacies in the preceding versions of the DSQ, (e.g., items which measured symptoms versus defenses, unequal representation of items per defense) Andrews and colleagues (1993) created a 40 item version from the 82 and 88 item scales. Using a sample of 712 participants, item-to-defense and item-to-factor correlations, face, discriminant, and test-retest validity (amongst a host of other procedures) were all examined to select appropriate items. Thirty four (34) items from the original scales were deemed appropriate for the scale's reconstruction, and an additional three items were created to measure rationalization and autistic fantasy. The resultant scale had two items representing each of the 20 defense mechanisms. No lie scale items were retained. Respondents answered on a nine point scale, ranging from strongly disagree (1) to strongly agree (9). Scores were derived by calculating the mean of the two items measuring each defense, and averaging the items loading on each style.

Rather than examine defense-factor loadings, the authors chose to examine item-to-factor statistics. Three defense styles were revealed, with individual items on the mature style loading from .47-.59, .33-.55 on the neurotic, and .32-.60 on the immature. Correlations were high with the 82 item (Andrews et al., 1989) on the mature (.97), neurotic (.93), and immature (.95) styles.

In comparison to prior versions of the DSQ, the development of the 40 item appears more rigorous. The instrument would be strengthened if convergent validity was established.

2.11 Clinical utility of the Defense Style Questionnaire

Numerous studies have shown the clinical utility of the DSQ (see Bond, 2004 for a review). While an exhaustive review is beyond the scope of this paper, selected studies will be delineated. Findings must be viewed with caution in light of the psychometric challenges listed above (e.g., items measuring symptoms specific to certain disorders as noted by Andrews and peers (1993), poor defense style structure and reliabilities, problematic retention of certain questions, and utilization of different versions of the questionnaire).

Psychopathology

A large amount of research has elucidated the ability of the DSQ to differentiate patients from non patients (e.g., Andrews et al., 1993; Bond & Vaillant, 1986; Sammallahiti & Aalberg, 1995; Sammallahiti, Holi, Komulainen, & Aalberg, 1996). Patients consistently obtain significantly higher scores on the immature or maladaptive styles. In general, patients also score higher on the neurotic styles, and lower on the adaptive style than non patients (Andrews et al., 1989; Pollock & Andrews, 1989). The only exception to these findings stems from Spinhoven and peers (1995) who found that defense style differences were void when neuroticism and level of symptoms were covaried.

While the DSQ shows strong discriminant validity between patients and controls, results have been highly variable amongst patient groups (Sammallahiti, Aalber, & Pentinsarri, 1994). Some studies have found no correlation between defense style and specific diagnostic groupings, including anxiety disorders, eating disorders, and personality disorders (e.g., Bond, 1989; Bond et al., 1983; Bond et al., 1989; Bond &

Vaillant, 1986; Sinha & Watson, 1999; Stiener, 1990). In contrast, authors such as Bond, Paris, and Zweig-Frank (1994) have found clear patterns of defense style use that distinguish borderline personality disorder from other types of personality disorders, thereby showing the utility of the DSQ for certain differential diagnoses. Overall, however, research has yet to uncover clear patterns of defense style use within other personality disorder categories (Bond, 2004).

Pollock and Andrews (1989) found disparate defense styles and individual defense use amongst anxiety disorders. Interestingly, there were no significant differences between the patient groups on popular measures of locus of control, symptomatology, neuroticism. However, the authors state:

there was a gradation in this measure from panic disorder (effect size = 1) at the mild end of the spectrum, to agoraphobia (effect size = 1.5), to social phobia (effect size = 1.8), and finally to obsessive-compulsive disorder (effect size = 2.5), suggesting that this global measure of abnormality in defense style correlates with our clinical observation on treatment difficulty (p. 459).

These results were later nullified when the DSQ was revised and symptom-related items were removed (Andrews et al., 1993). Until stronger, consistent findings emerge in this domain, the DSQ is an inappropriate tool to predict individual diagnoses.

Psychotherapy implications

A number of authors have asserted that the DSQ has utility for patient-psychotherapy treatment matching, treatment planning, recovery prognosis, prediction of treatment obstacles/retention and outcome assessment (e.g., Bond et al., 1983; Spinhoven et al., 1995; Vaillant, 1994). Few studies have examined these assertions and the majority

of the literature remains speculative and theoretical. Despite the limitations of such work, the advice garnered makes clinical sense. The relationships between defense use and personality are clear and it is crucial that core defenses are identified. As Vaillant (1992) stated: "Today, no mental status or clinical formulation should be considered complete without an effort to identify to patient's dominant defense mechanism" (p. 3). The reasons for such an assessment are diverse. As one example, a clinician would be ill advised to use insight-oriented therapy with a client that uses primarily immature defenses such as psychotic denial.

In addition to determining the appropriateness of certain clients for specific therapies, defenses can be assessed to determine interventions. For example, Vaillant (1994) warns: "By thoughtlessly challenging irritating, but partly adaptive, immature defenses, a clinician can evoke enormous anxiety and depression in a patient and rupture the alliance" (p. 49). Bond's team (1983) suggested using a patient's typical defense style to enhance therapeutic interventions (e.g., encouraging a patient with a self-sacrificing style to perform altruistic acts). Future studies should assess the effectiveness of such an approach.

Overall, it appears useful to employ instruments like the DSQ to identify poor copers and to assist in the selection of clinical interventions within a dynamic framework. As previously noted, defenses are employed to ward off anxiety. However, there are times when the defense use itself creates pathology. The DSQ can assist clinicians in rapidly determining defense employment. The identification of core defense use can lead to inferences regarding personality traits (e.g., avoidance of social conflict in individuals using denial) and remedial interventions within a therapeutic context. In addition, defense

information from the instrument can be used to prevent therapeutic noncompliance and avoid treatment failures. Mullen and colleagues (1999) found that the image distorting style was significantly correlated with premature termination of treatment for depression. Alternately, employment of the adaptive defense style and healthier overall defensive functioning scores were associated with stronger therapeutic alliance (Bond and Perry, 2004). These authors also demonstrated that patient use of immature styles (maladaptive and self sacrificing) decreases, and overall defensive functioning improves over the course of treatment. Bond (2004) has shown that patients tend to employ more adaptive defenses, and fewer immature defenses during recovery. Such findings bring accountability to clinician's working in an era of managed care which focuses upon observable outcomes.

2.12. A revised version of the DSQ: the DSQ 60

Condensing the vast amount of literature on the DSQ is difficult in the midst of conflicting findings and varied methodologies. In the early research on the DSQ (e.g., Andrews et al., 1989, Bond et al., 1983, Bond et al., 1989, Vaillant et al., 1986), methods used to develop the scale were insufficient. Item selection procedures were ambiguous and defenses tended to be represented by variable numbers of items (e.g., one to nine in Bond et al., 1989). Samples were often inadequate in size to warrant the use of factor analysis and the justifications for retention of items/defenses on factors were typically not reported. As previously discussed, common criteria for item retention were largely ignored (e.g., omitting defenses which had high sideloadings, choosing factors based on eigenvalues/scree plots, revising scales with poor internal consistency).

Remarkably, revisions were rarely made to the scales on the basis of validation results. For example, only 14 defenses loaded satisfactorily on the 81 item version (Bond et al., 1983), yet the scale continues to be administered. Items which have shown poor psychometric properties tended to recur in new scale versions. This paper aims to address these limitations.

The DSQ was revised (Trijsburg, Bond & Drapeau, 2003) to make its defenses and operationalization congruent with the DSM-IV (APA, 1994). Items from the DSQ-88 (Bond et al., 1989), DSQ-40 (Andrews et al., 1993), and DSQ-42 (Trijsburg et al., 2000) were examined and the authors refined items and formulated new questions for any DSM-IV defenses which were missing.

A pool of items was then translated from English to Dutch, and Dutch to English. Face validity was assessed in a sample of Dutch psychoanalysts and psychoanalytically trained therapists ($n = 155$). Items were matched with defense titles and adaptiveness ratings were provided. On average, 72% of the items were correctly allocated to the defenses (range 12% to 99%). Items which failed to be allocated adequately were revised and assessed by Bond, Trijsburg, and Drapeau.

An overall defensive functioning (ODF) score successfully discriminated psychiatric patients from Undergraduate students: $t(645) = 9.02, p < 0.001$. Further, defenses were allocated to the seven DSM-IV defensive functioning levels (APA, 1994), and the mean scores of the levels were significantly different between the two groups. These results provide preliminary support for the validity of the DSQ-60.

In response to previous limitations in data analysis, the present investigation used factor analytic procedures to determine the content validity of the DSQ-60. Both

exploratory and confirmatory factor analyses were conducted on two non patient samples. Strict empirical and theoretical criteria were used to ascertain the factor structure of the scale.

The next section presents the manuscript portion of this thesis. A general conclusion appears after the manuscript.

3. ARTICLE ONE

Running Head: DEFENSE STYLE QUESTIONNAIRE

The Defense Style Questionnaire 60 (DSQ-60): Factor structure and psychometric
properties in a non patient population

Kylie Louise Thygesen¹, Martin Drapeau¹, Rutger Willem Trijsburg²,
Serge Lecours³, & Yves de Roten⁴

¹McGill University

²University of Amsterdam

³University of Montreal

⁴University of Lausanne

Contact Information:

Dr. Martin Drapeau

Department of Educational and Counselling Psychology, McGill University

3700 McTavish

Montreal, QC, H3A 1Y2

514 398 4904

martin.drapeau@mcgill.ca

ABSTRACT

Factor analytic strategies were employed to determine the underlying structure of the Defense Style Questionnaire-60 (DSQ-60; Trijsburg, Bond & Drapeau, 2003). The scale was administered to a group of students attending an English-speaking university ($n = 305$) and a French-speaking university ($n = 212$). Three factors (image distorting, affect regulating, and adaptive) accounted for 47.93% of the variance. Confirmatory factor analysis corroborated the three factor model. Cronbach's alpha for the three styles was .64, .72, and .61, respectively. Results are compared with prior research on the DSQ.

Key Words: Defense mechanisms, rating scales, coping, DSQ, Defense Style Questionnaire

Defense mechanisms have received considerable attention over the past century (e.g., Cramer, 1991; Fenichel, 1945; A. Freud, 1936; S. Freud, 1894, 1957, 1959; Kernberg, 1976; Klein, 1973; Vaillant, 1971). Sigmund Freud first theorized defense mechanisms in 1894 and modified his conceptualizations numerous times over a forty-year period. Vaillant (1986) summarized Freud's work, noting that his insights into these complex mechanisms still hold true today. Namely, that they are 1) predominantly unconscious means by which, 2) instinctual urges and emotions are managed, 3) considered both adaptive and maladaptive, with the latter resulting in psychiatric symptomatology, and 4) conceptualized as being amenable to modification. Adaptive defenses are regularly associated with mental health, adjustment (e.g., vocational attainment, relationships, and physical health) (Vaillant, 1976), and good global functioning (Perry & Cooper, 1989). Conversely, maladaptive defenses are correlated with psychopathology, increased symptomatology (Watson, 2002), and a weakened therapeutic alliance (Bond & Perry, 2004).

The present day importance of defense mechanisms has been affirmed by their inclusion in the Diagnostic and Statistical Manual of Mental Disorders (DSM). In 1994 the Defensive Functioning Scale (DFS) was included in the DSM-IV as an axis for further study. The DFS contains 27 specific defenses and allows for ranking of one of seven levels of defensive functioning (American Psychiatric Association, 1994). A number of studies (e.g. Perry et al., 1998; Perry & Hoglend, 1998) have shown the reliability, validity (including incremental validity in relation to the other axes), and clinical utility of this axis.

There are three primary modes of measuring defenses: projective techniques (e.g., Miller & Swanson, 1960), clinical rating systems (e.g., Perry & Cooper, 1986; Semrad, Grinspoon, & Fienberg, 1973; Vaillant, 1976) and self-report questionnaires (e.g., Bond, Gardner, Christian, & Sigal, 1983; Byrne, 1961; Gleser & Ihilevich, 1969; Haan, 1965; Joffe & Naditch, 1977; Plutchik, Kellerman, & Conte, 1979). By virtue of the complexity of defenses, each method of measurement has been presented with significant challenges in the domains of reliability and validity (Endler & Parker, 1996). More recent modes of measurement are showing significant psychometric improvements.

Self-report formats offer a level of quantification, portability, and affordability yet unattainable in other methods of defense measurement. However, defense mechanisms are largely unconscious processes (Vaillant, 1994), and thus are not obviously amenable to measurement via self-report questionnaires. Bond (1992) asserts that self-reports of *conscious derivatives* of defenses are possible because

there are times when defenses fail temporarily, and at those times a subject may become aware of the unacceptable impulses and his or her usual styles of defending against them. In addition, others often point out defense mechanisms to the person (p. 131).

People are capable of reporting on defense use because they are aware of their typical behaviours when faced with stress (Bond, 1986) even if they lack insight into the defensive function of that behaviour (Plutchik et al., 1979).

The Defense Style Questionnaire (DSQ) is a broadly used self-report instrument for defense measurement (Bond, 2004) and has been translated and validated in numerous languages (e.g., Chinese, Dutch, Egyptian Arabic, Finnish, French, German, Italian,

Norwegian) (Bond, 2000). Originally developed by Bond and colleagues (1983), it was designed to operationalize and assess conscious derivatives of defenses.

The DSQ has undergone numerous revisions in an effort to increase reliability and validity (e.g., Andrews, Singh, & Bond, 1993, Andrews, Pollock, & Stewart, 1989, Bond et al., 1989, Trijsburg et al., 2000). By and large, in the early research on the DSQ (e.g., Andrews et al., 1989, Bond et al., 1983, Bond et al., 1989, Vaillant et al., 1986), methods used to develop the scale were insufficient. Item selection procedures were ambiguous, and defenses tended to be represented by variable numbers of items (e.g., one to nine in Bond et al., 1989). Samples were often inadequate in size to warrant the use of factor analysis and the rationales for retention of items/defenses on factors were typically not reported. Notably, common guidelines for item retention were largely ignored (e.g., omitting defenses which had high sideloadings, choosing factors based on eigenvalues/scree plots, revising scales with poor internal consistency).

The DSQ-60 (Trijsburg, Bond & Drapeau, 2003) is a promising new instrument as rigorous procedures were used to correct prior weaknesses in its development and psychometric properties. For purposes of comparison, the statements in the DSQ-81 (Bond et al., 1983) were selected by clinicians and item to total correlations to reflect 24 defense mechanisms (each measured by one to six questions). Factor analysis was conducted on a group of 111 non patients and 98 patients. Four defense styles, or groupings of defenses were uncovered: maladaptive action patterns, image distorting, self-sacrificing, and adaptive. Fourteen (14) of the 24 defenses loaded satisfactorily on these styles (range .54-.78), with two to six defenses comprising each style. The reasons

the specific defenses were included on the styles are unclear in light of high sideloadings and differential cutoffs for each factor. Variance estimates were not provided.

Outlining inadequacies in the preceding versions of the DSQ, (e.g., items which measured symptoms versus defenses, unequal representation of items per defense) Andrews and colleagues (1993) created a 40 item version from the 81 and 88 (Bond et al., 1989) item scales. Using a sample of 712 participants, item-to-defense and item-to-factor correlations, face, discriminant, and test-retest validity (amongst a host of other procedures) were all examined to select appropriate items. The resultant scale had two items representing each of the 20 defense mechanisms. Factor analysis unveiled three defense styles, with individual items on the mature style loading from .47-.59, .33-.55 on the neurotic, and .32-.60 on the immature. Although this scale showed significant improvements over its predecessors, there remained a number of areas amenable to improvement.

Trijsburg and colleagues (2000) noted the need for enhanced content validation, and improved discriminant validity of the DSQ-40. They suggested a new approach to scale analysis (multidimensional scaling) in addition to a new scoring procedure. To test their assertions, the authors modified the DSQ-40 into the DSQ-42, a Dutch instrument. A large sample ($n = 279$) of experts judged the content validity (e.g., defensive maturity, item-defense matching) and the instrument was administered to psychiatric outpatients, medical students, and problem students. Results revealed that a three factor maturity solution could not be derived. The authors suggested that an overall defensive functioning score be calculated and that the traditional scoring via summing items loading on factors be discontinued.

The DSQ-60 was created (Trijsburg, Bond & Drapeau, 2003) to further improve the scale and to make its defenses and their operationalization congruent with the DSM-IV (APA, 1994). Items from the DSQ-88 (Bond et al., 1989), DSQ-40 (Andrews et al., 1993), and DSQ-42 (Trijsburg, et al., 2000) were examined and the authors refined and formulated new items for any DSM-IV defenses which were missing. Face validity was assessed using a sample of Dutch psychoanalysts and psychoanalytically trained therapists ($n = 155$). Items were matched with defense titles and adaptiveness ratings were provided. On average, 72% of the items were correctly allocated to the defenses (range 12% to 99%). Items which failed to be allocated adequately were revised and assessed by the authors.

An overall defensive functioning (ODF) score successfully discriminated psychiatric patients from Undergraduate students: $t(645) = 9.02, p < 0.001$. Further, defenses were allocated to the seven DSM-IV defensive functioning levels (APA, 1994), and the mean scores of the levels were significantly dissimilar between the two groups. These results provide preliminary support for the validity of the DSQ-60.

The purposes of this study are to add to the research on the newly developed DSQ-60 and to address prior limitations in the DSQ research. Both exploratory and confirmatory factor analytic procedures are employed to examine the underlying structure of this instrument. We have ensured that our sample sizes are adequate for our analyses, that our rationales for factor retention are explicit, and that we have closely followed factor analytic guidelines (Floyd & Widaman, 1995; Hinkin, 1998; Jensen, 2003).

Method

The data were collected from two independent samples.

Sample one

Participants ($n = 322$) were recruited from a large English speaking university (ESU) in Montreal, Quebec, Canada between June 2004 and December 2004.

Undergraduate students were verbally solicited from classes. No compensation was provided and participation was completely voluntary and confidential. The informed consent form, the DSQ-60, and a demographics questionnaire were handed out to all class members. There is no data available regarding the number of refusals, or the characteristics of the non-responders due to the anonymous nature of recruitment.

Two participants were excluded from data analysis due to missing more than 50% of DSQ responses. The final sample ($n = 305$) included 247 females (81%) and 58 males (19%). The mean age of participants was 23 years ($SD = 6.57$). Other demographic data can be found in Table 1.

Sample two

To examine the factor structure across samples, a dataset from a French speaking university (FSU) in Montreal, Quebec was obtained. Participants were recruited from an Undergraduate class in the fall of 2003 and winter of 2005. The students were not compensated and their participation was confidential and voluntary. Multiple questionnaires (e.g., the French DSQ-60, measures of alexithymia, coping, etc.) were completed during the participants' free time (e.g., outside of the classroom) and were returned at their convenience. Data regarding non responders is not available.

Two hundred and seventeen ($n = 217$) participants completed the French version of the DSQ 60. Five participants were excluded from the present analysis due to missing more than 50% of DSQ responses. The sample used for analysis had 212

individuals, including 135 females (64%), 33 males (16%). Gender was not reported for 44 (21%) of individuals. The mean age of participants was 21 years ($SD = 3.69$). No other demographic variables were available from the FSU dataset.

There were no differences in age between the ESU and FSU samples after 15 obvious outliers were removed. Gender distribution was equal in both samples.

The DSQ-60

The DSQ-60 is derived from previous versions of the instrument (e.g., Andrews, Singh, & Bond, 1993; Bond et al., 1983; Trijsburg et al., 2000) and has undergone a test of face validity with four psychodynamically trained professionals. Other psychometric properties have been reported elsewhere (e.g., Trijsburg, Bond, Drapeau, Thygesen, & de Roten, 2005; Thygesen, Hunter, Lecours, Trijsburg, & Drapeau, 2005; Thygesen & Drapeau, in progress).

The DSQ-60 is purported to measure the conscious derivatives of 30 defense mechanisms, with two items per defense. The defense mechanisms assessed include: acting-out, affiliation, altruism, anticipation, denial, devaluation of self, devaluation of other, displacement, dissociation, fantasy, help-rejecting complaining, humor, idealization, intellectualization, isolation, omnipotence, passive-aggressive, projection, projective identification, rationalization, reaction formation, repression, self-assertion, self-observation, splitting of self, splitting of other, sublimation, suppression, undoing, and withdrawal.

Respondents answer each of the 60 items on a 9 point likert scale with anchors of one (not at all applicable to me) and nine (completely applicable to me). Scores for each

defense are calculated by taking the mean of the two items representing the defense. Style scores are derived by taking the mean of the items belonging to each factor scale.

Results

Exploratory factor analysis

Principal components analysis with varimax rotation was conducted on the ESU sample ($n = 305$) using the mean scores for each defense. Orthogonal rotation was employed as we sought to unearth factors which were relatively independent of one another (Hinkin, 1998). The goal was to see how the 30 individual defenses loaded onto factors, commonly referred to as defense styles. Eight components had eigenvalues greater than one (Kaiser criterion; Jensen, 2003) and together accounted for 56.16% of the variance. Plausible two, three, and four factor solutions were revealed.

Examination of the scree plot, scree elbow curves, (Floyd & Widaman, 1995) and eigenvalues above two indicated that a three factor solution was the most parsimonious. The three rotated components accounted for 12.48, 24.49, and 9.96 percent of the variance (total = 47.93%). Table 2 displays the rotated factor loadings and side loadings. Eigenvalues and variance estimates for the rotated solution are provided in Table 3. As a general rule, loadings above .30 and variance estimates above 50% are consequential (Floyd & Widaman, 1995).

Examination of the three factors revealed that some defenses would need to be deleted; some failed to make theoretical sense in their groupings, while others loaded poorly, or had high sideloadings. Confirmatory factor analysis was conducted to further determine the strongest items of the scale and make recommendations for refinement (Floyd & Widaman, 1995).

Confirmatory factor analysis

In the FSU sample ($n = 212$), the fit statistics of four models were compared. The fit statistics for all models are found in Table 4. As with the exploratory analysis, the mean score for each defense was used. In model one, defenses with factor loadings less than .45 in the exploratory analysis were dropped ($n = 7$ – idealization, devaluation of other, denial, withdrawal, repression, reaction formation, and affiliation). In model two, three defenses (suppression, rationalization, and omnipotence) were dropped due to their standardized regression weights (-.001, .15, and .19, respectively). The defenses of displacement, devaluation of self, and undoing were dropped from model three for theoretical reasons. Similarly, acting out and passive aggression were omitted in model four based on theory. Altruism was dropped in the fifth model due to its regression weight in model four (.34). Fantasy was retained despite high sideloadings for theoretical reasons, leaving the final model with 14 defenses and 28 items.

We examined various fit indices: goodness of fit index (GFI), incremental fit index (IFI), and the comparative fit index (CFI) (Hoetler, 1983; see Table 4). The fifth model proved to be the best fitting for a combination of empirical and theoretical reasons: $\chi^2/df = 2.92$; $GFI = .87$; $IFI = .79$; $CFI = .79$. Although the χ^2/df increased from the first to fifth models (2.48 to 2.92), the value was still under three, which is considered acceptable (Hinkin, 1998). Further, the values for the CFI, IFI, and GFI were closest to one in this last model, indicating the most robustness (Hinkin, 1998). Comparable fit statistics were found in the ESU sample (see Table 4). Table 5 contains the factor loadings for both the FSU and ESU samples. Intercorrelations of the factors are shown in Table 6.

In the final model, the first factor is best described as the image distorting style and is comprised of help rejecting complaining, splitting – self/other, projection, and projective identification. Factor two contains the defenses of intellectualization, dissociation, isolation, and was named the affect regulating style. The third factor contains defenses generally thought to be healthy (self observation, self assertion, anticipation, sublimation, and humor), and thus was called the adaptive style.

Reliability

Internal consistency reliability of the three styles was assessed in the ESU, FSU, and combined sample using Cronbach's coefficient alpha (Cronbach, 1951; see Table 7). In the combined ESU and FSU sample ($n = 517$), the alpha for both the image distorting style ($\alpha = 0.64$) and the adaptive style ($\alpha = 0.61$) were found to be low in terms of potential clinical significance (Cicchetti, 1994). The internal consistency of the affect regulating style ($\alpha = 0.72$) was deemed fair.

Discussion

Exploratory factor analysis revealed a three factor solution, yet not all items loaded satisfactorily. Confirmatory factor analysis was used to find the best empirically and theoretically cogent groupings. Defenses conceptualized as more adaptive were opposite those considered maladaptive.

The first factor fit well into the conceptualization of Bond and colleagues' (1983) second factor in that the five defenses are primarily of an image distorting nature (help rejecting complaining, splitting of self/other, projection, and projective identification). We employed the same name as it seemed most fitting, however, the styles only had one defense in common (splitting). Overall factor loadings were similar, ranging from .48-.71

in our study, and .54-.78 in Bond's. Two defenses (projection and splitting) were shared between our image distorting style and the immature style of Andrews and colleagues (1993).

The second factor, comprised of intellectualization, dissociation, isolation, and fantasy was reasoned to be an affect regulating style. Curiously, none of these defenses clustered together in the works of Bond or Andrews and we appear to have uncovered a unique pattern of defense use. It is possible that this defense style was revealed due to our use of exploratory and confirmatory analysis, and in-depth consideration of theory.

Our third factor consists of healthy defenses: sublimation, self observation, humor, anticipation, and self assertion. This adaptive style is highly similar to that of Andrews and colleagues (1993), whose mature factor contained sublimation, humor, anticipation and suppression.

There are numerous other similarities between our findings and those of other authors. Only 14 of the 30 defenses were retained in our factor analyses. Similarly large numbers of defenses with inadequate loadings and theoretically inconsistent groupings have been reported elsewhere. For example, just 14 of 24 defenses from the DSQ-81 were retained after exploratory factor analysis (Bond et al., 1983). Further, defenses which perform well in factor analysis do not always reliably cluster together within styles. Internal consistency was acceptable (.80) only for the immature style of Andrews and colleagues (1989). In general, the most unhealthy styles exhibit greater stability (e.g., Andrews et al., 1989, Bond et al., 1983, Flannery & Perry, 1990). Our most unhealthy style had poor reliability (.64). Reliability for the affect regulating style can be considered adequate (.72) for research purposes.

There are various limitations to our results. Despite theoretical congruency amongst the derived defense styles, some psychometric properties are questionable. Internal consistency reliabilities are generally poor and the styles are highly correlated. It is possible that despite rigorous back translation procedures, the French and English versions may have contained different meanings (which may explain, in part, different alpha levels between the groups). In addition, the nine point scale used for answer selection is known to make discrimination amongst choices difficult (Clark & Watson, 1998). A shorter scale and use of the Spearman-Brown test extension formula (Nunnally, 1978) to determine the adequate number of items per style may improve reliability.

The strengths of the study lie in the use of both exploratory and confirmatory factor analysis in two sufficiently large, non patient, linguistically diverse samples. Every effort has been made to make our analytic approach explicit and replicable while detailed reporting has been used to illuminate our rationale for retaining specific defenses on each factor. Empirical and theoretical criteria were used for the factor analyses, and special attention was given to examination of the factor loadings, sideloadings, eigenvalues, and scree plot. In contrast to many studies, internal consistency and intercorrelations for the styles have been reported.

Multiple paths appear fruitful for future research. First and foremost, the results of both the exploratory and confirmatory factor analyses suggest that a number of defense items need to be revised, or that the defenses themselves need to be removed from the scale. Less than half (14) of the 30 defenses loaded appropriately onto the styles, leaving 16 defenses (and 32 items) to be reassessed. At this stage, it would be poor practice to administer this scale. An iterative approach should be taken to revise the poorly

performing defenses and to conduct pilot testing on new items. It is crucial that all defenses perform well on the scale given the importance of making the DSQ consistent with the DSM-IV.

Criterion validity is presently being established by examining overall defensive functioning and defense style scores between the ESU and FSU samples (Thygesen & Drapeau, in progress). Others could improve ecological validity by using treatment-seeking populations. Defense loadings and styles may vary in a clinical sample given the low base rates of certain defenses. As the recommended sample size of 200 for confirmatory factor analysis was narrowly met (Hoelter, 1983), new studies could employ larger, more diverse samples (including equal numbers of men and women). As defenses are elicited by adversity, current levels of life stress should be measured for covariance purposes. Finally, further work should be conducted in the areas of predictive, test-retest reliabilities, and concurrent and discriminant validity, with particular focus on other self-report measures of defenses and the DFS of the DSM-IV.

Conclusion

The results of the present investigation indicate that the DSQ-60 is a promising new instrument. In line with prior research, three main factors were uncovered which appear to lay on a continuum from maladaptive to adaptive. Defense loadings and internal consistency scores for the styles were largely consistent with other findings. Conversely, the composition of the three factors diverged noticeably from those found in other studies. The affect regulating style appears unique and warrants further examination.

In sum, while the results are mainly consistent with other research on the DSQ, present day standards and guidelines indicate that the psychometric features must be improved upon before broad use of the scale is warranted.

Table 1. Demographic statistics for the English speaking University sample ($n = 305$)

Demographic Variable	<i>N</i>	Mean (<i>SD</i>)	%
Female	247		81.0
Male	58		19.0
Age	304	22.22 (3.82)	
Cultural Background	274		
Canadian	32		10.5
Italian	28		9.2
Caucasian	15		4.9
Chinese	14		4.6
Greek	13		4.3
Religious Affiliation	299		
Catholic	81		26.6
None	72		23.6
Jewish	38		12.5
Christian	31		10.2
Protestant	13		4.3
Sexual Orientation	283		
Heterosexual	276		90.5
Gay/Lesbian/Transsexual/Bisexual	7		2.3

Marital Status	301	
Never Married/Single	264	87.7
Common Law/Married	36	11.8
Separated/Divorced/Widowed	1	0.3
Number of Children	293	0.9(.47)
0	280	91.8
1-4	13	4.4
Employment Status	296	
Part Time	143	46.9
Unemployed	117	38.4
Full Time	33	46.9
Homemaker	3	1.0
University Major	287	
Education	66	20.6
Psychology	41	12.8
Elementary Education	40	12.5

Table 2. Exploratory factor analysis on the ESU sample ($n = 305$)

Defense ($n = 30$)	Factor 1	Factor 2	Factor 3
Displacement	.61	.04	.02
Undoing	.61	.07	.25
Acting out	.60	.19	.08
Passive aggression	.55	.20	-.21
Help rejecting complaining	.54	.22	-.22
Projective Identification	.53	.07	.12
Splitting other	.50	.27	-.17
Projection	.47	.32	-.18
Splitting self	.45	.33	-.02
Idealization	.40	-.05	.18
Isolation	.07	.74	-.00
Dissociation	.25	.60	.10
Affiliation	.42	-.55	.23
Intellectualization	.22	.51	.11
Suppression	-.35	.48	.33
Devaluation self	.31	.48	-.14
Fantasy	.43	.48	-.25
Devaluation other	.27	.43	.12
Denial	.26	.41	.21

Withdrawal	.04	.40	-.09
Repression	.16	.35	.12
Rationalization	-.04	.01	.61
Humor	-.11	.27	.55
Anticipation	.17	-.08	.54
Self assertion	-.05	-.19	.54
Omnipotence	.07	.37	.54
Sublimation	-.08	.21	.48
Altruism	.15	-.08	.47
Self observation	-.08	-.23	.46
Reaction formation	.01	.16	.42

Table 3. Rotated variance and eigenvalues in the ESU ($n = 305$) sample

	Factor I	Factor II	Factor III	Total
Eigenvalue	3.74	3.60	2.99	10.33
Variance (%)	12.48	24.49	9.96	47.93

Table 4. Goodness of Fit Indices for AMOS models in the FSU sample ($n = 212$)

Model	χ^2 / df^a	GFI ^b	IFI ^c	CFI ^d
1	2.65	.79	.67	.67
2	2.50	.82	.75	.75
3	2.65	.85	.77	.76
4	2.93	.85	.77	.76
5	2.92	.87	.79	.79
5 ESU (n=305)	2.77	.91	.79	.79

^A Chi-square adjusted for degrees of freedom, ^b Goodness-of-fit index, ^c Incremental fit index, ^d Comparative fit index

Table 5. Standardized regression weights in the FSU ($n = 212$) and ESU ($n = 305$) samples

Defense ($n = 14$)	Factor 1	Factor 2	Factor 3
	Image-distorting	Affect regulating	Adaptive
Projection	.57 .61		
Splitting self	.51 .49		
Splitting other	.48 .47		
Help rejecting	.48 .50		
complaining			
Projective	.48 .53		
identification			
Isolation		.71 .63	
Intellectualization		.70 .55	
Fantasy		.70 .64	
Dissociation		.59 .55	
Self observation			.68 .49
Self assertion			.63 .50
Anticipation			.59 .48
Sublimation			.48 .38
Humor			.43 .40

Note. Each column contains standardized regression weights in the FSU and ESU samples respectively

Table 6. Cronbach's coefficient alpha values for the defense styles

	Combined ESU and FSU samples (<i>n</i> = 517)	ESU sample (<i>n</i> = 305)	FSU sample (<i>n</i> = 212)
Style 1 – Image distorting	.64	.66	.62
Style 2 – Affect regulating	.72	.68	.77
Style 3 – Adaptive	.61	.55	.67

Table 7. Correlations of defense styles in the ESU ($n = 305$), FSU ($n = 212$), and combined sample ($n = 517$)

	Image distorting	Affect regulating	Adaptive
Image distorting		.50**, .59**, .54**	-.12**, -.33**, -.20**
Affect regulating	.50**, .59**, .54**		-.02, -.24**, -.12**
Adaptive	-.12*, -.33**, -.20**	-.02, -.24**, -.12**	

** $p < .001$, * $p < .005$

Note. Correlations are displayed from left to right in the ESU, FSU, and combined samples, respectively

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4. CONCLUSION

The strengths of the study lie in the use of both exploratory and confirmatory factor analysis in two sufficiently large, non patient, linguistically diverse samples. Every effort has been made to make our analytic approach explicit and replicable and detailed reporting has been used to illuminate our rationale for retaining specific defenses on each factor. Empirical and theoretical criteria were used for the factor analyses, and special attention was given to examination of the factor loadings, sideloadings, eigenvalues, and scree plot. In contrast to many studies, internal consistency and intercorrelations for the styles have been reported.

Multiple paths appear fruitful for future research. First and foremost, the results of both the exploratory and confirmatory factor analyses suggest that a number of defense items need to be modified, or that the defenses themselves need to be removed from the scale. Less than half (14) of the 30 defenses loaded appropriately onto the styles, leaving 16 defenses (and 32 items) to be reconsidered. At this stage, it would be poor practice to administer this scale. An iterative approach should be taken to revise the poorly performing defenses and to conduct pilot testing on new items. It is crucial that all defenses perform well on the scale given the importance of making the DSQ consistent with the DSM-IV.

Criterion validity is presently being established by examining overall defensive functioning and defense style scores between the ESU and FSU samples (Thygesen & Drapeau, in progress). Others could improve ecological validity by using treatment seeking populations. Defenses loadings and styles may vary in a clinical sample given the low base rates of certain defenses. As the recommended sample size of 200 for

confirmatory factor analysis was narrowly met (Hoelter, 1983), new studies could employ larger, more diverse samples (including equal numbers of men and women). As defenses are elicited by adversity, current levels of life stress should be measured for covariance purposes. Studies should assess test-retest reliability, concurrent and discriminant validity, with particular focus on other self-report measures of defenses and the DFS of the DSM-IV. Work should also be done to determine, as Bond 2000 suggested, the meaning of DSQ scores.

In sum, the results of the present investigation indicate that the DSQ-60 is a promising new instrument. In line with prior research, three main factors were uncovered which appear to lay on a continuum from maladaptive to adaptive. Defense loadings and internal consistency scores for the styles were largely consistent with other findings. Conversely, the composition of the three factors diverged noticeably from those found in other studies. The affect regulating style appears unique and warrants further examination.

Present day standards and guidelines suggest that the psychometric features must be improved upon before broad use of the scale is warranted. If appropriate modifications are made, the DSQ-60 could be used in conjunction with other assessment means to select clients for psychodynamic therapy, identify defenses to target in treatment, or to help evaluate outcomes (a neglected area pointed out by Skodol and Perry, 1993). Despite the limitations in the research, the DSQ-60 exhibits potential as one component of a defense assessment battery.

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APPENDIX 1 – DEMOGRAPHICS INFORMATION

Participant # _____

Demographic Information

Please answer the following questions so that we can have an idea of the background you bring to this questionnaire.

1) Gender 01 female 02 male

2) Age _____

3) Citizenship _____

4) Cultural background _____

5) Religious affiliation _____

6) Sexual orientation _____

7) Marital status	01 Never married	04 Married	07 Widowed
	02 Single	05 Separated	
	03 Common law	06 Divorced	

8) Number of children _____

9) Employment status	01 Full-time	04 Retired
	02 Part-time	05 Disability
	03 Homemaker	06 Unemployed

10) Post secondary education completed (years) _____

11) University Major _____

APPENDIX 2 – DSQ-60

DSQ-60

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DSQ-60

INSTRUCTIONS

The items in this questionnaire refer to people's personal views about themselves. Please use the nine-point scale below to indicate to what extent an item is applicable to you by *circling a number (from 1-9)*.

Not at all applicable to me 1 2 3 4 5 6 7 8 9 Completely applicable to me

You will circle a higher number when you agree with an item. For instance, if an item is completely applicable to you, circle 9.

You will circle a lower number when you disagree with an item. For instance, if an item is not at all applicable to you, circle 1.

Please do not skip any items.

There are no right or wrong answers.

1. I get satisfaction from helping others and if this were taken away from me I would get depressed..... 1 2 3 4 5 6 7 8 9
2. People often call me a sulker 1 2 3 4 5 6 7 8 9
3. I'm able to keep a problem out of my mind until I have time to deal with it..... 1 2 3 4 5 6 7 8 9
4. I work out my anxiety through doing something constructive and creative like painting or woodwork..... 1 2 3 4 5 6 7 8 9
5. I often change my opinion about people; at one time I think highly of them, at another time I think they're worthless..... 1 2 3 4 5 6 7 8 9
6. I am able to find good reasons for everything I do..... 1 2 3 4 5 6 7 8 9
7. I'm able to laugh at myself pretty easily..... 1 2 3 4 5 6 7 8 9
8. People tend to mistreat me..... 1 2 3 4 5 6 7 8 9
9. If someone mugged me and stole my money, I'd rather he'd be helped than punished..... 1 2 3 4 5 6 7 8 9
10. If I have a conflict with someone, I try to think of what might have been my part in it..... 1 2 3 4 5 6 7 8 9
11. People say I tend to ignore unpleasant facts as if they didn't exist..... 1 2 3 4 5 6 7 8 9
12. I often feel superior to people I'm with..... 1 2 3 4 5 6 7 8 9
13. Someone is robbing me emotionally of all I've got..... 1 2 3 4 5 6 7 8 9
14. When there's real danger, it's as if I'm not there and I feel no fear..... 1 2 3 4 5 6 7 8 9
15. If I'm treated unfairly, I stand up for my rights..... 1 2 3 4 5 6 7 8 9
16. I manage danger as if I were Superman..... 1 2 3 4 5 6 7 8 9
17. I pride myself on my ability to cut people down to size..... 1 2 3 4 5 6 7 8 9
18. I often act impulsively when something is bothering me..... 1 2 3 4 5 6 7 8 9
19. Actually I'm pretty worthless..... 1 2 3 4 5 6 7 8 9
20. When dealing with people they often end up feeling what I feel..... 1 2 3 4 5 6 7 8 9
21. I get more satisfaction from my fantasies than from my real life..... 1 2 3 4 5 6 7 8 9

22. I withdraw when I'm angry..... 1 2 3 4 5 6 7 8 9
23. When I'm in difficulties I often feel unreal..... 1 2 3 4 5 6 7 8 9
24. I've got special talents that allow me to go through life with no problems..... 1 2 3 4 5 6 7 8 9
25. I prefer to talk about abstract things rather than about my feelings..... 1 2 3 4 5 6 7 8 9
26. There are always good reasons when things don't work out for me..... 1 2 3 4 5 6 7 8 9
27. I work more things out in my daydreams than in my real life..... 1 2 3 4 5 6 7 8 9
28. When people get angry with me, I tend to think they are exaggerating... 1 2 3 4 5 6 7 8 9
29. Sometimes I think I'm an angel and other times I think I'm a devil..... 1 2 3 4 5 6 7 8 9
30. If someone gets angry at me I tend to get annoyed by things I usually ignore..... 1 2 3 4 5 6 7 8 9
31. I get openly aggressive when I feel hurt..... 1 2 3 4 5 6 7 8 9
32. I hardly remember anything from my early school years..... 1 2 3 4 5 6 7 8 9
33. I withdraw when I'm sad..... 1 2 3 4 5 6 7 8 9
34. I always feel that someone I know is like a guardian angel..... 1 2 3 4 5 6 7 8 9
35. I'm actually worse than people think I am..... 1 2 3 4 5 6 7 8 9
36. As far as I'm concerned, people are either good or bad..... 1 2 3 4 5 6 7 8 9
37. If my boss bugged me, I might make a mistake in my work or work more slowly so as to get back at him..... 1 2 3 4 5 6 7 8 9
38. There is someone I know who can do anything and who is absolutely fair and just..... 1 2 3 4 5 6 7 8 9
39. If I've experienced something unpleasant then the next day I've sometimes forgotten what it was about..... 1 2 3 4 5 6 7 8 9
40. Helping others makes me feel good..... 1 2 3 4 5 6 7 8 9
41. I can keep the lid on my feelings if letting them out would interfere with what I'm doing..... 1 2 3 4 5 6 7 8 9
42. I'm usually able to see the funny side of an otherwise painful predicament..... 1 2 3 4 5 6 7 8 9

Not at all applicable to me 1 2 3 4 5 6 7 8 9 Completely applicable to me

43. I often find myself being very nice to people who by all rights I should be angry at..... 1 2 3 4 5 6 7 8 9
44. There's no such thing as 'finding a little good in everyone,' if you're bad, you're all bad..... 1 2 3 4 5 6 7 8 9
45. When something I do doesn't turn out well, I try to find out what I may have overlooked..... 1 2 3 4 5 6 7 8 9
46. People tend to be dishonest with me..... 1 2 3 4 5 6 7 8 9
47. When I have to face a difficult situation I try to imagine what it will be like and plan ways to cope with it..... 1 2 3 4 5 6 7 8 9
48. Doctors never really understand what is wrong with me..... 1 2 3 4 5 6 7 8 9
49. After I fight for my rights, I tend to apologize for my assertiveness..... 1 2 3 4 5 6 7 8 9
50. If someone is annoying me, then I tell them without hurting their feelings..... 1 2 3 4 5 6 7 8 9
51. I'm often told that I don't show my feelings..... 1 2 3 4 5 6 7 8 9
52. When I feel bad, I try to be with someone..... 1 2 3 4 5 6 7 8 9
53. If I can predict that I'm going to be sad ahead of time, I can cope better. 1 2 3 4 5 6 7 8 9
54. No matter how much I complain, I never get a satisfactory response..... 1 2 3 4 5 6 7 8 9
55. Instead of saying exactly what I feel, I explain my thoughts extensively. 1 2 3 4 5 6 7 8 9
56. Often I find that I don't feel anything when the situation would seem to warrant strong emotions..... 1 2 3 4 5 6 7 8 9
57. When I feel depressed or anxious, I like to engage in some creative or physical activity..... 1 2 3 4 5 6 7 8 9
58. If I got into a crisis, I would seek out someone to share my worries with 1 2 3 4 5 6 7 8 9
59. If I have an aggressive thought, I feel the need to do something to compensate for it..... 1 2 3 4 5 6 7 8 9
60. When something exciting is happening, I tend to fuss over unimportant details..... 1 2 3 4 5 6 7 8 9

THIS QUESTIONNAIRE CONTAINS 5 PAGES, PLEASE ENSURE THAT YOU HAVE COMPLETED EACH ONE.
PLEASE MAKE SURE THAT YOU HAVE NOT FORGOTTEN ANY QUESTIONS.
THANK YOU FOR YOUR COOPERATION!

APPENDIX 3 – ETHICS CERTIFICATE

APPENDIX 4 – COAUTHOR WAIVERS

I, Martin Drapeau, coauthor of: The Defense Style Questionnaire 60(DSQ-60): Factor structure and psychometric properties in a non patient population (Kylie Louise Thygesen, Martin Drapeau, Willem Trijsburg, Serge Lecours, & Yves de Roten) grant Kylie Thygesen permission to use this unpublished manuscript in her Masters Thesis.

Dr. Martin Drapeau, M.Ps., Ph.D.

Assistant professor - ECP, McGill University & Adjunct Professor of psychology - Université de Sherbrooke, & Utting Fellow - Institute of Community and Family Psychiatry

martin.drapeau@mcgill.ca

**ECP - McGill
University**

3700 McTavish

Street

Montreal, Quebec

H3A 1Y2 Canada

tel: 514-398-4904

fax: 514-398-6968

I, Serge Lecours, coauthor of: The Defense Style Questionnaire 60(DSQ-60): Factor structure and psychometric properties in a non patient population (Kylie Louise Thygesen, Martin Drapeau, Willem Trijsburg, Serge Lecours, & Yves de Roten) grant Kylie Thygesen permission to use this unpublished manuscript in her Masters Thesis.

Serge Lecours, Ph.D.
Département de psychologie
Université de Montréal
C.P. 6128, succ. Centre-ville
Montréal, Qc H3C 3J7
tél: (514) 343-2333
fax: (514) 343-2285
serge.lecours@umontreal.ca

Dear Kylie,

As you requested, here is my consent :

I, Yves de Roten, coauthor of: The Defense Style Questionnaire 60(DSQ-60): Factor structure and psychometric properties in a non patient population (Kylie Louise Thygesen, Martin Drapeau, Willem Trijsburg, Serge Lecours, & Yves de Roten) grant Kylie Thygesen permission to use this unpublished manuscript in her Masters Thesis.

Yves de Roten

Yves de Roten, Ph.D., PD , PD MER
Institut Universitaire de Psychothérapie
Département de Psychiatrie
Université de Lausanne
Site de Cery
Bat. les Cèdres
CH-1008 Prilly
Tel. +41 (0)21 643 6401; Fax +41 (0)21 643 6593
Secrétariat: Nathalie.Schaer@chuv.ch