Article

Change in Defense Mechanisms During Long-Term Dynamic Psychotherapy and Five-Year Outcome

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Objective: Research suggests that defense mechanisms may underlie other aspects of functioning and psychiatric symptoms. The authors examined whether defenses change in accordance with the hierarchy of defense adaptation during long-term dynamic psychotherapy and whether such change is associated with long-term outcomes on other measures.

Method: Twenty-one adults with depressive, anxiety, and/or personality disorders entered long-term dynamic psychotherapy (mean=248 weeks) and subsequent follow-along (mean duration, 5.1 years). Measures of functioning and symptoms were gathered in periodic follow-along interviews, external to the therapy. A median of eight psychotherapy sessions over 2.5 years for each participant were rated using the Defense Mechanism Rating Scales quantitative method.

Results: Overall, the lowest (action) and highest (high adaptive) defense levels in the hierarchy of defenses improved significantly, as did overall defensive functioning (median effect size=0.71, 95% CI=0.01–1.83). Overall defensive functioning still remained below the healthy-neurotic range. A higher number of axis I disorders and childhood histories of sexual abuse and witnessing violence were associated with a slower rate of improvement in defenses. Change in defenses within therapy by 2.5 years was highly associated with significant levels of change at 5 years in external measures of both functioning (r_s=0.60) and symptoms (r_s=0.58), controlling for initial levels.

Conclusions: Change in defensive functioning in long-term psychotherapy largely follows the hierarchy of defense adaptation. The relationship to long-term improvement in outcomes suggests that defenses be considered candidates for mediating improvement in functioning and symptoms.

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Defense mechanisms have been one of the most durable constructs in psychoanalysis and dynamic psychiatry and psychology, spanning theory, therapy, and research, since Freud's 1894 publication "The neuropsychoses of defense" (1). Following the development of systematic assessment methods, recent studies have demonstrated that defenses can be arranged hierarchically based on their usual level of adaptiveness (2–6). Studies of adult development have demonstrated that defensive functioning tends to improve over time in stepwise fashion, that is, individuals' repertoires of defenses tend to trade off lower for mid-level, then higher-level defenses in the hierarchy, progressing over many years (4). Subsequent naturalistic studies have also found that defensive functioning improves over the course of brief (7, 8), medium-term, and long-term psychotherapy (9–13) and psychoanalysis (14). Furthermore, defensive functioning at the outset of treatment predicts response at 6 months in major depression (15). One intriguing psychotherapy study found that change in distress was mediated by prior improvement in defensive functioning, but not in conscious coping (13).

Dynamic therapists consistently interpret defensive functioning even more frequently than they do transference. In one case series, addressing defenses surrounding therapeutic impasses was found to be critical to improving alliance (16). Another study (17) showed that addressing defenses during short-term psychotherapy improved neurotic defenses. While confirmation by controlled trials is needed, evidence to date suggests that change in defenses is related to or may promote other changes in symptoms and functioning. Defenses therefore warrant further clinical study.

In this study, we examined improvement in defensive functioning during long-term dynamic psychotherapy in relation to longer-term improvement in symptoms and functioning. We built on our previous study demonstrating that self-report defensive functioning, assessed outside of therapy, improved significantly (9). Our team subsequently developed the following four hypotheses characterizing change in defensive functioning in psychotherapy:

This article is featured in this month's AJP Audio, is discussed in an Editorial by Dr. Vaillant (p. 885), is an article that provides Clinical Guidance (p. A32), and is the subject of a CME course (p. 1005)

1. Defensive functioning tends to improve during long-term dynamic psychotherapy.

2. Defenses change in stepwise fashion, following the hierarchy of adaptation. Specifically, a) in the early phase of change, defenses low on the hierarchy (e.g., acting out) decrease while those in the middle of the hierarchy (i.e., neurotic) increase, whereas b) in the later phase of change, mid-level defenses decrease and high-level defenses (e.g., suppression) increase.

3. An individual's rate of change in defensive functioning is moderated by characteristics such as level of illness.

4. Improvement in defensive functioning during dynamic therapy will be associated with longer-term improvement in psychosocial functioning and symptoms.

We reported preliminary confirmation of these hypotheses in a systematic examination of four therapy cases with 1 to 14 years of follow-up (12). We extend our investigation here, using a naturalistic study of long-term dynamic psychotherapy to examine evidence for these hypotheses. Confirmation would support the hypothesis that changes in defenses in dynamic psychotherapy may in part mediate changes in symptoms and functioning.

Method

Design and Study Participants

The study design, inclusion and exclusion criteria, and participants have been described in detail previously (9, 18–21). Briefly, the overall aim of the study was to examine the course and outcome of long-term dynamic psychotherapy for individuals for whom clinicians deemed that previous, usually short-term, treatments had been insufficient. The design was naturalistic and observational. Study participants were referred from the outpatient psychiatric department of a university teaching hospital in Canada. Selection criteria included having a depressive, anxiety, and/or personality disorder, expressing a wish for psychotherapy, and agreeing to participate in the research component. Level of defensive functioning was not an inclusion criterion. Exclusion criteria included psychosis, organic brain disorders, and significant current substance abuse that might interfere with learning. Participants gave written informed consent after the study was explained to them and their questions addressed.

Therapists

The study therapists were experienced practitioners of long-term dynamic therapy, with a mean of 13.1 years of postdoctoral experience; most were psychoanalysts. Therapists treated a median of three participants each.

Psychotherapies

Dynamic psychotherapy was offered once or twice weekly at the discretion of the participant and therapist. Treatment was provided at no cost to the participants, as is the general case in Canadian hospitals. Intending to reflect long-term dynamic therapy as locally practiced, we used neither specific therapy manuals nor supervision groups. While participants were offered a minimum of 3 years of treatment, they could terminate at will or try other therapies, such as pharmacotherapy, concurrently or sequentially, reflecting real-life practice conditions.

Study Procedures

Participants had an initial guided clinical interview with a psychiatrist who made DSM-IV axes I through V diagnoses, including provisional personality disorder types, and obtained a personal lifetime history (9), which was scored for 10 aspects of childhood adversity using the Traumatic Antecedents Interview scoring method (21). At baseline and every 6 to 12 months, research assistants interviewed participants using the Longitudinal Interval Follow-Up Evaluation–Adapted for the Study of Personality (22, 23). All psychotherapy sessions were audiotaped. Transcripts were made of sessions 3, 5, and 7, another three sessions at 6 months, and two more sessions at 2.5 years for those still in treatment. Audiotapes of these eight sessions were disguised as to session number and rated in random order using the Defense Mechanisms Rating Scales, quantitative method (24). A single rater rated the block of sessions for the participant, with a second, blinded rater rating the first and fifth sessions for reliability determination. After rating, both raters reviewed the session together and developed a consensus rating. Substantive analyses used the individual rating, except when a consensus rating was available. Rating procedures are detailed elsewhere (25). Rating sessions commenced after most treatments were completed.

Measures

The Defense Mechanism Rating Scales, 5th edition (24, 25) (English edition available from the first author) is an observer-rated method, nearly identical to the Provisional Defense Axis in Appendix B of DSM-IV (6, 7). Using quantitative scoring directions, raters identify each defense in order of occurrence in a session. This method differs from other observer-rated methods that yield qualitative or semiquantitative ratings based on global ratings for the whole interview (26). Three levels of scoring are used, yielding continuous, ratio scales. *Individual defense scores* are proportional or percentage scores, calculated by dividing the number of times each of 30 defenses was identified by the total instances of all defenses for the session. *Defense level scores* are proportional or percentage scores of each of seven defense levels. Each level consists of the sum of the scores of the three to eight constituent defenses with shared functions. The defenses are arranged hierarchically into seven defense levels based on their general level of adaptiveness (3). Table 1 lists the levels and their constituent defenses. *Overall defensive functioning* is a summary score obtained by taking the average of each defense level score, weighted by its order in the hierarchy, yielding a number between 1 (lowest) and 7 (highest). Finally, defense level scores are combined into superordinate categories: mature, neurotic, immature, and psychotic, although psychotic defenses were not included in this study. The intraclass $R_{(2,1)}$ interrater reliability statistics (I_R) for the defense summary variables were as follows (N=32): number of defenses identified per session I_R=0.82; overall defensive functioning I_R=0.81; defense levels, median I_R=0.71; immature category I_R=0.83; neurotic category I_R=0.70; mature category I_R=0.67.

The following symptom and personality measures were obtained at baseline and at each follow-along interview. The Symptom Checklist–90–Revised (SCL-90-R) is a self-report measure of psychiatric symptoms, summarized by the Global Severity Index (27). The 21-item Hamilton Depression Rating Scale (HAM-D) and Hamilton Anxiety Rating Scale (HAM-A) were rated by interview (28, 29). Each axis I disorder with any positive symptoms was coded week by week on a 5-point intensity-of-symptom scale using the Longitudinal Interval Follow-Up Evaluation method (22). The Social Adjustment Scale (longitudinal version) is a semistructured interview of social functioning using a 5-point ordinal scale (30), adapted to the above longitudinal format. Overall life satisfaction was scored by similar format. Monthly ratings for each follow-along interval were summarized as a mean of each social role rating. The Global

TABLE 1. The Hierarchy of Defenses and Adaptation[a]

Order	Category	Defense Level	Individual Defenses
7	Mature	High adaptive	Affiliation, altruism, anticipation, humor, self-assertion, self-observation, sublimation, suppression
6	Neurotic	Obsessional	Isolation of affect, intellectualization, undoing
5a	Neurotic	Hysterical	Repression, dissociation
5b	Neurotic	Other neurotic	Reaction formation, displacement
4	Immature	Minor image-distorting (narcissistic)	Devaluation of self or object images, idealization of self or object images, omnipotence
3	Immature	Disavowal	Denial, rationalization, projection. Although not a disavowal defense, autistic fantasy is scored at this level
2	Immature	Major image-distorting (borderline)	Splitting of other's images, splitting of self-images, projective identification
1	Immature	Action	Acting out, passive aggression, help-rejecting complaining
1–7		Overall defensive functioning	A summary variable consisting of the mean of each defense used, each weighted by its level

[a] Category and level of defensive dysregulation (psychotic defenses) omitted.

Assessment of Functioning Scale (GAF) was rated in a month-by-month format.

Statistical Analysis

All analyses were conducted with SAS 9.2 for Windows (31). As many distributions were nonnormal, bivariate and partial correlations were computed using the nonparametric Spearman rank correlation (r_s). Because in long-term follow-along studies data collection is subject to irregularities of time and missing data, as previously detailed (19), we calculated individual simple linear regression models for each participant for each measure for which there were two or more follow-along interview observations. We estimated the slope (rate of change) and the predicted scores at intake and last observed follow-up, calculating raw change. The Wilcoxon rank-sum or median tests were used to examine whether the rate or amount of change was significant. Within-condition (pre-post) effect sizes are presented as an approximate measure of the magnitude of change in defenses. Because this measure presumes normal distributions, it should be considered with caution. Given the small study group size, we considered the trade-off between type I and II errors, and given that our initial and final estimates of each variable were modeled using multiple observations, we considered the precision obtained a partial guard against false positive findings.

To avoid a problem with multiple comparisons when examining the 5-year outcomes, we combined the effect sizes of our eight outcome measures into two composite variables, as follows. First, each subject's effect size for the eight outcome measures was corrected for the subject's initial value, using simple linear regression. This produced eight residualized effect size variables. Taking the mean of the residualized effect sizes of the three functioning measures (GAF, Social Adjustment Scale, life satisfaction), we created a composite variable, called residualized functioning effect size (Cronbach's alpha=0.86). The mean residualized effect size of the five symptom measures (HAM-D, HAM-A, Global Severity Index, number of current axis I disorders, and proportion of all current axis I disorder symptom levels) was called residualized symptom effect size (Cronbach's alpha=0.85). After partialling out initial defense scores, we correlated raw change in defense levels with both composite variables.

Results

Of the 21 patients rated for defenses, 16 (76%) were female; the mean age was 34.2 years (SD=10.5, range=18–53), and the mean current Hollingshead II Factor Index was 3.7 (SD=1.3, range=1–5), indicating a mid to low socioeconomic stratum. The mean number of axis I disorders was 4.4 lifetime (SD=2.7) and 3.0 current (SD=1.7). Sixteen participants (76%) had an axis II disorder, and the most prevalent type was borderline personality disorder (N=6, 29%). The mean number of axis III conditions was 1.6 (SD=1.5), the mean axis IV stress score (DSM-III-R version) was 2.5 (SD=0.9), and the mean GAF score at intake was 54.4 (SD=4.1).

Patients received a mean of 0.74 sessions per week (SD=0.23). Treatment lasted a mean of 248 weeks (SD=103) with a mean of 176 sessions (SD=79). Follow-along lasted a mean of 5.1 years (SD=1.6). At the end of the study, two patients (10%) had dropped out and three (14%) had terminated because of a move; 16 (76%) had either completed treatment or were continuing treatment.

Table 2 lists the median and mean estimates of the proportional defense scores at the first month and 2.5 years, as calculated by the individual regression models. Two defense levels produced significant rates of change: level 1 (action) defenses decreased, while level 7 (high adaptive) defenses increased, yielding effect sizes of –0.83 and 0.80, respectively. Defense levels 2 through 6 did not show significant change, although the major image-distorting defenses, which had a very low base rate, showed a significant negative direction of change (sign test). In general, lower levels (1 through 4) showed a negative direction of change, while higher levels (5 through 7) showed a positive direction of change. There were two exceptions. Level 3 (disavowal defenses) showed a positive direction of change (increasing), while level 5a (hysterical defenses) showed a negative (decreasing) direction of change. Of the tripartite categories, the direction of change was negative for immature but positive for neurotic and mature defenses. The number of defenses used per session declined nonsignificantly. Overall defensive functioning score improved significantly (effect size=0.71), but the final median and mean values

TABLE 2. Change in Proportional Defense Level Scores in Patients With Depressive, Anxiety, and/or Personality Disorders in Long-Term Dynamic Psychotherapy, From Early Period to 2.5 Years of Therapy (N=21)

	Beginning of Therapy			2.5 Years of Therapy			Raw Difference			Median	
Measure	Median	Mean	SD	Median	Mean	SD	Median	Mean	SD	Effect Size	p[a]
Defense levels											
7. High adaptive	0.087	0.093	0.042	0.117	0.133	0.080	0.036	0.039	0.075	0.80	0.04; 0.38
6. Obsessional	0.297	0.281	0.093	0.264	0.270	0.105	0.007	–0.010	0.074	0.08	0.96
5a. Hysterical	0.102	0.099	0.056	0.081	0.093	0.062	–0.019	–0.007	0.047	–0.34	0.16
5b. Other neurotic	0.121	0.124	0.050	0.136	0.141	0.062	0.022	0.017	0.054	0.44	0.27
4. Minor image-distorting	0.135	0.144	0.080	0.124	0.132	0.080	–0.014	–0.012	0.049	–0.32	0.65
3. Disavowal	0.158	0.156	0.033	0.140	0.150	0.063	0.009	–0.006	0.073	0.26	0.51
2. Major image-distorting	0.011	0.018	0.021	0.004	0.029	0.059	–0.006	0.006	0.042	–0.29	0.13; 0.007
1. Action	0.090	0.086	0.050	0.040	0.059	0.053	–0.041	–0.047	0.028	–0.83	0.01; 0.04
Tripartite categories											
High adaptive (level 7)	0.087	0.093	0.042	0.117	0.133	0.080	0.036	0.039	0.075	0.80	0.04; 0.03
Neurotic (levels 5 and 6)	0.507	0.504	0.094	0.511	0.504	0.102	0.021	0.000	0.084	0.23	0.35
Immature (levels 1, 2, 3, and 4)	0.383	0.403	0.084	0.333	0.363	0.139	–0.056	–0.039	0.115	–0.67	0.14
Summary variables											
Overall defensive functioning	4.64	4.62	0.27	4.88	4.80	0.51	0.19	0.18	0.45	0.71	0.05; 0.03
Total number of defenses	58.18	54.14	17.07	47.66	51.71	19.48	−5.62	−2.43	13.90	–0.33	0.45

[a] This column contains the p value for the Wilcoxon rank-sum test; whenever present, the second number is the p value for the sign test.

TABLE 3. Correlations Between Each Change in Defense Level Scores in Patients With Depressive, Anxiety, and/or Personality Disorders in Long-Term Dynamic Psychotherapy, From Early Period to 2.5 Years (N=21)

Measure	Correlation[a]						
Defense level	Action	Major image[b]	Disavow	Minor image	Other neurotic	Hysterical	Obsessional
7. High adaptive	–0.48*	–0.30	–0.38	–0.53*	–0.20	–0.17	0.18
6. Obsessional	–0.53*	–0.09	–0.41†	0.04	–0.42†	–0.63**	
5a. Hysterical	0.54*	0.05	0.15	–0.25	0.20		
5b. Other neurotic	–0.20	0.23	–0.16	–0.45*			
4. Minor image-distorting	0.31	0.11	0.14				
3. Disavowal	0.17	–0.08					
2. Major image-distort[b]	–0.09						
1. Action							
Tripartite categories	Neurotic	High adaptive					
Neurotic (levels 5–6)		–0.02					
Immature (levels 1–4)	–0.57**	–0.74***					

[a] All correlations are Spearman rank-order, partialling out the initial value of each variable.
[b] N=18, since three subjects never used major image-distorting defenses.
†p<0.10. *p≤0.05. **p≤0.01. ***p<0.001.

remained below 5.0, consistent with depressive or higher-level personality disorders, which, while improving, had not yet attained neurotic or healthy-neurotic levels of functioning.

Table 3 addresses the second hypothesis, namely, that improvement in defenses proceeds stepwise up the hierarchy. It displays the intercorrelations of raw change (late value minus early value) for each defense level and category, after partialling out the initial values of each pair of variables. Decreasing action level defenses correlated significantly with decreasing hysterical but increasing obsessional and high adaptive level defenses.

As disavowal level defenses decreased, obsessional defenses increased, although this relationship fell short of significance. As minor image-distorting defenses decreased, both other neurotic defenses (displacement/reaction formation) and high adaptive defenses increased significantly. As hysterical defenses decreased, obsessional level defenses increased significantly. Given a low initial prevalence, only change in major image-distorting level defenses failed to demonstrate some relationship with other changes. Among the tripartite categories, decreasing immature defenses correlated with increasing high adaptive and neurotic defense categories. There was no relationship between changes in the neurotic and high adaptive categories.

The third hypothesis examined selected intake demographic, diagnostic, and childhood adversity variables as potential predictors of the rate of change in overall defensive functioning score, after partialling out the initial

TABLE 4. Correlations of Change in Defenses at 2.5 Years With Improvement in Psychosocial Functioning and Symptoms at 5 Years, Partialling Initial Levels, in Patients With Depressive, Anxiety, and/or Personality Disorders in Long-Term Dynamic Psychotherapy (N=21)

Measure	r_s for Functioning	r_s for Symptoms
Defense levels		
7 High adaptive	0.42†	0.62**
6 Obsessional	0.50*	0.35
5a Hysterical	–0.29	–0.24
5b Other neurotic	–0.03	–0.29
4 Minor image-distorting	–0.32	–0.21
3 Disavowal	–0.31	–0.28
2 Major image-distorting	–0.23	–0.27
1 Action	–0.61**	–0.54**
Tripartite categories		
High adaptive (level 7)	0.42†	0.62*
Neurotic (levels 5 & 6)	0.45*	0.03
Immature (levels 1 through 4)	–0.58**	–0.48*
Summary variables		
Overall defensive functioning	0.60**	0.58*
Total number of defenses	–0.25	–0.20

†p<0.10. *p<0.05. **p<0.01.

overall defensive functioning estimate (all N=21). Age, sex, and socioeconomic status were nonsignificant. The total numbers of lifetime (r_s=–0.45, p=0.05) and current (r_s=–0.55, p=0.01) axis I disorders were significant predictors, while the number of axis III disorders (r_s=–0.44, p=0.06) approached significance. The presence of significant traits or a definite axis II personality disorder, axis IV level of stress in the past year, and axis V current GAF did not reach significance. Two childhood abuse variables were significant predictors—total sexual abuse (r_s=–0.55, p=0.01) and total witnessing violence (r_s=–0.45, p=0.05)—while two others were nonsignificant—total physical abuse (r_s=–0.22, p=0.34) and total verbal abuse (r_s=–0.30, p=0.20). Negative direction indicates predicting a slower rate of change in overall defensive functioning score.

The fourth hypothesis examined whether change in defenses in line with the hierarchy at 2.5 years was associated with improvement in functioning and symptom levels over a mean of 5.0 years, using the residualized composite effect size scores. In Table 4, positive correlations indicate that an increase in the defense level or category was associated with improvement, whereas a negative direction indicates that a decreasing defense score was associated with improvement (Figure 1). Decreasing action defenses correlated with improvement in both functioning and symptoms. Increasing obsessional defenses correlated with significant improvement in functioning, while increasing high adaptive defenses correlated with improvement in symptom levels as well as with improvement in functioning, although this association fell short of significance. All correlations with change in functioning below level 6 were negative in direction.

Among the tripartite categories, decreasing immature defenses correlated with improvement in both functioning and symptoms. Increasing neurotic defenses correlated with improved functioning but not with symptom levels. Increasing high adaptive defenses were positively correlated with improved functioning and symptoms, as noted above. Finally, improving overall defensive functioning score correlated equally significantly with improvement in both functioning and symptoms.

We previously found that a rating of "mostly satisfied" on life satisfaction was highly associated with improvement and recovery on other variables (19). In an exploratory analysis in this sample, we found that the six individuals who had attained this level of life satisfaction had all shown substantial positive increases in overall defensive functioning score (mean effect size=2.12, SD=1.16). Raw change in overall defensive functioning score was significantly greater than for the 14 participants who had not attained this level of life satisfaction (0.61 compared with –0.01; t=3.49, df=19, p=0.003).

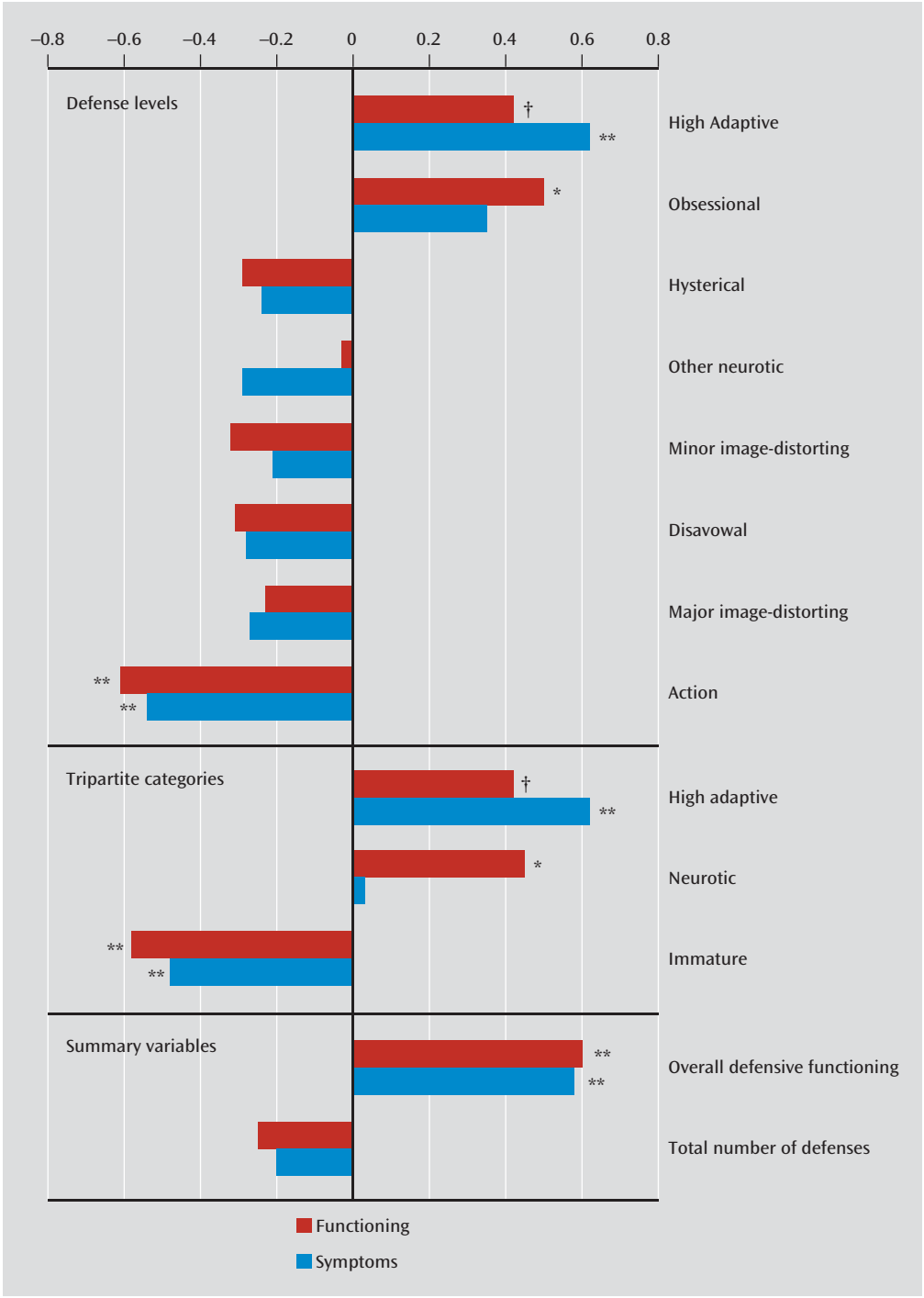
Discussion

All of our hypotheses were derived from the theory-based, empirically validated hierarchy of adaptation of defenses. In line with our first hypothesis, the lowest-level action defenses decreased and the high adaptive level increased significantly by 2.5 years in therapy, as did overall defensive functioning.

Generally, immature defenses decreased, while neurotic and high adaptive defenses increased, in line with the second hypothesis of stepwise improvement up the hierarchy of defenses. However, high adaptive defenses increased more than did neurotic levels, indicating that a stepwise developmental pathway from immature through neurotic to mature defenses is only partly accurate. Instead, as immature defenses decrease, both neurotic and high adaptive defenses increase, slightly favoring the high adaptive level. Action and hysterical defenses decreased in tandem, correlating with increasing obsessional defenses. This indicates important differences between hysterical and obsessional levels, although both are neurotic. Overall, this hypothesis is largely but not completely upheld, because of the indication that immature defenses can directly change to high adaptive as well as to neurotic defenses.

The third hypothesis addressed predictors of the rate of change in overall defensive functioning. Age, sex, social class, axis II disorders (borderline personality disorder in particular), stressors in the past year (axis IV), and GAF score were insignificant. Two illness variables—the total number of lifetime and of current axis I disorders—predicted a slower rate of improvement. The number of axis III medical conditions was a negative predictor, approaching significance. Childhood total sexual abuse and witnessing violence histories were significant negative

FIGURE 1. Correlation of Changes in Defenses With Changes in Functioning and in Symptoms[a]



[a] Each bar represents the size and direction of the correlation between change in each defense variable and change in the composite functioning or symptom outcome variable.
†p<0.10. *p<0.05. **p<0.01.

predictors. These findings, that higher numbers of psychiatric and medical illnesses and certain types of childhood adversity predicted slower rate of improvement in defenses, suggest why some patients may require longer-term therapies to achieve a given level of improvement. This may inform patient selection in studies of longer-term therapies or indicate how study samples may not be comparable.

Our final hypothesis was upheld: improvement in defensive functioning was associated with improvement in longer-term functioning and symptom levels. Overall defensive functioning demonstrated large effects, as did

Patient Perspectives

Case 1: Changes in Defenses With Good Outcome

History

"Ms. N" was a student in her mid-20s who sought psychotherapy after cutting herself in an impulsive suicide attempt. She had major depressive disorder, in remission at intake, superimposed on dysthymic disorder with onset at age 5. During her teens, she developed mild obsessive-compulsive disorder (obsessions only), followed by bulimia nervosa, alcohol and substance abuse and dependence, and panic disorder. After a sibling's suicide, she developed posttraumatic stress disorder. She had significant borderline and avoidant traits, with milder depressive, dependent, and passive-aggressive traits.

Ms. N experienced her mother as caretaking and well meaning but ineffective, and she felt guilty making requests of her. She and her father got along well, but he was alcoholic and a spendthrift. After an accident, he lost his job, bankrupting the family. Ms. N never suffered abuse or physical neglect, but the household lacked consistent rules.

As a teen she began drinking and using drugs to numb feelings of guilt, and she became promiscuous. When sober, she became self-conscious with fears of rejection and being judged. This prevented her from pursuing certain jobs, or even going to a public beach.

Early in Treatment

The following selections are from Ms. N's fifth therapy session. The patient opened the session expressing various concerns, and then expressed concern about a comment the therapist made the previous session.

Pt: You mentioned last time that—it was our fourth session and you mentioned that I missed the first one. [*Repression*] It was not—it was not because I didn't want to be here, it's just—it really—it's just to show you how sometimes I don't even know which day of the week I am at. [*Passive aggression*] It's not because I say, "Oh, well, you know, maybe…" and I want to know how you—how you analyze the fact that I missed the first. I feel a pressure…

Th: [*Interprets defense*] Well, you felt that it was in your best interest to be here, but you forgot. So there's this conflict between knowing what's in your best interest…

Pt: But it's not forgetting, it's just [pause] I—I really feel a pressure about that.

The patient initially rejected the therapist's interpretation, explaining that she felt that the therapist was placing pressure on her. Sensing the patient's concern about the therapist's reaction to her, the therapist asked her about her perception, then offered a transference and defense interpretation.

Th: [*Question*] Do you think I'm mad at you for that?

Pt: [*Projection*] Well, not mad, but like kind of saying it just really shows "she really thinks she doesn't need to be here." I come here…

Th: [*Interprets motives and defense*] No, that's not what I'm saying. I'm saying that part of you really wanted to be here and you waited a long time to come.

Pt: Yeah.

Th: In spite of how much you wanted to be here, there was another part of you that thought either it was too scary or you don't deserve it.

The patient began to explore both her anxiety within and outside of therapy, along with her tendency to "shut down" emotionally whenever experiencing heightened anxiety and/or anger.

Th: [*Interprets defenses: repression, passive aggression*] Now, we've seen this before. When you get angry, you have a tendency to shut down.

Pt: Yeah.

Th: That the anger somehow goes inside of you and you can't do anything. It paralyzes you.

Pt: [*Dissociation*] Yeah, totally… It like pushes me back into a box and the door closes in front of me and I have to hide. It's weird. [*Passive aggression*] And it was—and my mom felt so bad about pushing the paper [referring to writing a paper for school]. I said, "Listen, it's not you. It's not you. Don't—even—it's not you, it's me. I'm like this. I'm going through this. I know it's me. It's not you."

[*Reaction formation*] And I had to take care of my mom also; it's always like that. When things happen to me, I have to say—I have to like take this anger or whatever's going on here, put it on the shelf, and then say, "Don't worry, Mom," and then take it back and then deal with myself. And I always have to take care of other people when I'm going through hard stuff.

Early in therapy the patient used eight defenses frequently (i.e., more than 5% per session). In descending order of frequency, they were rationalization (16%), intellectualization (12%), repression (11%), undoing (10%), passive aggression (10%), self-assertion (8%), devaluation of others (8%), and displacement (6%). Apart from self-assertion, she used three other high adaptive defenses to a lesser extent: suppression (2%), self-observation (1%), and affiliation (1%).

Later in Treatment and Outcome

Toward the end of the therapy, Ms. N's use of immature defenses diminished considerably. She became more direct and adaptive in dealing with conflicts.

"[*Self-observation*] At first, [my boyfriend] used to yell—French people yell a lot. And to me, to hear a loud voice, it freezes me. And I said, 'Why are you yelling at me?' He said, 'Well 'cause I'm just explaining…' and we realized that it's cultural and he doesn't have to yell… with me anyways."

Discussing a testy conversation with a girlfriend, she described the good aspects of their relationship, saying,

"[*Intellectualization*] and I realized that I… it's not a wall, it's… I carry that with me. It's not separate."

Over 2.5 years, her overall defensive functioning score improved from 4.38 to 4.88, reflecting a large effect size of 1.84, although not yet attaining a healthy-neurotic level.

Her repertoire of defenses improved, now including higher proportions of high adaptive and neurotic with lower proportions of immature defenses. In descending order of frequency, they were intellectualization (15%), displacement (13%), rationalization (13%), undoing (11%), repression (8%), self-assertion (5%), and passive aggression (5%). Apart from self-assertion, Ms. N now used five other high adaptive defenses to a lesser extent: suppression (4%), self-observation (2%), anticipation (2%), altruism (2%), and affiliation (1%).

Ms. N's therapy lasted 117 sessions over about 3 years. She made no suicide attempts, and her suicidal ideation disappeared entirely by 2 years and remained recovered. Two-thirds of the measures, on which Ms. N was initially not well, improved. Overall, we considered her very improved over her 6.7 years of follow-up.

Case 2: Minimal Changes in Defenses With Poor Initial Outcome

History

"Ms. C" was a 22-year-old single woman working in the erotic services field while studying for a helping profession. She had recently been hospitalized after a drug overdose. She had suicidal ideation most days of the week and intermittently self-mutilated. She scored in the upper ranges of several scales for borderline personality, but she also had dependent and depressive personality disorders with self-defeating and antisocial traits. Axis I disorders included major depressive, dysthymic, generalized anxiety, posttraumatic stress, and substance use disorders; her GAF at intake was 48.

During early to mid childhood Ms. C had been molested by a male second-degree relative. Both parents were emotionally neglectful, and her father would punish her by ordering her to undress and then beating her. Her mother never intervened. In her late teen years, Ms. C became addicted to heroin and cocaine under the influence of her boyfriend, who also pimped her. She was attracted to "bad boys," who often abused then abandoned her.

Early in Treatment

Ms. C was seen weekly in psychotherapy with a male psychoanalyst for a combined total of 189 sessions over 4 years. The following exchange from the sixth session demonstrates her defensive instability.

Pt: [*Repression*] Sometimes I don't even realize that I'm being mistreated until it's too late. I just think it's normal to feel certain ways and then I'll find out, no, it's wrong, so it's —I just, I blame myself for not knowing or for putting myself in that position. [Pause] And if I don't know, [*Reaction formation*] sometimes I just smile or I laugh, 'cause it's just [laughs] if I don't laugh, I'll cry. [*Devaluation-self*] Sometimes it's just so—it's so sick, it's ridiculous. It's funny. *[Passive-aggression]* Sometimes I'll recognize that I'm doing something wrong and I just—I can't help it, I just—I see myself repeating patterns. Just it's really confusing, 'cause then I hate myself for doing it and I hate whoever I'm with, 'cause if you loved me, then you wouldn't do it to me, but it's my own fault for letting you.

Th: [*Interprets her motives and defenses in general terms*] You're in this rut of repeated, lousy relationships where you get abused and you have an awareness and an insight that you're part of the pattern, because you allow it to happen. You fluctuate between blaming the other person and hating them to pieces, and hating yourself. You're suicidal and you want to cut yourself.

Early in therapy the patient used nine defenses frequently (i.e., a mean of 5% or more per session), with immature, then neurotic defenses predominating. In descending order of frequency, they were repression (27%), displacement (12%), undoing (10%), devaluation of self (9%), acting out (7%), devaluation of others (7%), passive aggression (6%), rationalization (6%), and projection (5%).

Later in Treatment and Outcome

During session 121 at 2.5 years, Ms. C complained that the therapist had offered a requested second weekly session at a time when she had to work. The therapist failed to engage the patient in exploration of the underlying issues and the topic ended as follows.

Pt: [*Intellectualization*] Well, you don't seem to understand how frustrating it is. You want me to deal with real issues, the root of everything, in 45 minutes and you're talking to somebody that—[*Devaluation-self*] I can't deal with anything, I can't f-ing speak.

Th: [*Offers his associations to the problem*] I understand that the 45 minutes is not enough, but it doesn't mean that I don't care.

Pt: [*Help-rejecting complaining*] Fine, so what am I supposed to do about it?

Th: [*Offers a suggestion and begins an interpretation*] Try to see the reality itself. The external reality is much simpler than you think it is, although it's painful enough.

Pt: OK, so.

Th: [*Continues with interpretation of defenses*] If you add on to the external reality an extra thing that somebody has to be blamed and degraded and if it's not the other person it's you.

Pt: But then, I think, what am I going to talk about when I come in here. I don't want to sit here and talk bullshit like I've done for years.

T: [*Offers his assessment as an association*] I think this has been a good session.

P: [*Devaluation-other*] Oh, I'm glad you do, I feel like this is bullshit... I haven't learned an eff-ing thing.

At 2 years, her course was still volatile and she made a suicide attempt. However, by 2.5 years, she exhibited a slow improvement in overall defensive functioning, with a raw change of +0.05, about one-tenth of an effect size, compared with +0.71 for the sample. Her repertoire of frequent defenses improved slightly with a greater role for neurotic defenses. In descending order of frequency, they

were repression (27%), displacement (19%), undoing (9%), rationalization (7%), projection (7%), devaluation of self (7%), acting out (5%), passive aggression (5%), devaluation of others (5%), and reaction formation (5%). Her defensive functioning was still consistent with borderline personality disorder.

At 4 years, with her therapist's encouragement, Ms. C transferred to psychoanalysis, allowing her to be seen three to four times a week, as she wished. At 5 years, the end of the formal study, she had finished 1 year of analysis. She made no further suicide attempts, and suicidal ideation was decreasing gradually. While she showed improvement on about half of her measures of symptoms and functioning, change was incremental, beginning with attaining full-time employment in the helping profession for which she had studied.

Longer-Term Outcome

At 10 years, 5 years after the last research follow-up, we learned that Ms. C stabilized during her 3 years of analysis, and her suicidality diminished further. She married a very caring man and had a child. She occasionally took antidepressants, mood stabilizers, and methylphenidate. During analysis, she briefly attended a specialized clinic for borderline personality disorder. When a second child died during childbirth, she and her husband went for couples' grief counseling and seemed to benefit. Since the analysis, she has never resumed self-mutilating and has made no suicide attempts. She went on to have another child, who was healthy. At 10 years, her contact with the department ended.

action, obsessional, and high adaptive defense levels (32). However, the two highest defense levels showed differential effects. Increased obsessional defenses were associated with improved functioning more than symptom levels, while high adaptive defenses were associated with improved symptom levels more than functioning. Obsessional defenses allow awareness of facts and acceptance of taking personal action, thus promoting better functioning. The increase in obsessional defenses was also derived from decreases in hysterical and disavowal defenses, which detract from functioning by inhibiting awareness of conflicting ideas and by avoiding appropriating one's own problems. High adaptive defenses promote the expression of affect and wishes in accordance with one's interests while adapting to internal and external constraints, thereby relieving emotional contributions to symptoms, whereas obsessional defenses minimize affective engagement. Finally, it is remarkable that improvement in defenses measured moment to moment in therapy is associated with external improvements, including attaining a "mostly satisfied" level of life satisfaction.

This study had several limitations. Because it was a noncontrolled, naturalistic study, we cannot attribute the significant changes we observed to treatment. In fact, the direction of causal influence between change in defenses and change in symptoms and functioning was not determined. It may be that improvement in symptoms and functioning leads to changes in defenses, or alternatively, that some third variable leads to changes in both over time. Future studies should examine whether change in defenses mediates subsequent improvement in functioning, as others have shown for an increase in insight and improved interpersonal functioning (33). This limitation, however, has less influence on our hypotheses regarding the hierarchical order in which defenses change and the relationship to changes in other external measures. For some purposes, diagnostic heterogeneity is a limitation, potentially introducing confounds of treatment response. However, in this study, subject variability allowed the detection of relationships between illness and history variables and rate of change in overall defensive functioning, which homogeneity may have suppressed. While study group size was limited, modeling data from multiple occasions resulted in fairly precise and significant measurements of change, including recovery (19). Finally, our findings are most generalizable to sicker, nonpsychotic patients with anxiety, depressive, and/or personality disorders in long-term therapy.

While other studies have demonstrated that defenses change in therapies ranging from 1 to 12 months' duration (7, 8, 10), the present study and our previous studies (9, 19) demonstrated that change during longer-term therapy was associated with improvement in both functioning and symptoms over long-term follow-up. This finding is consistent with developments in more than a century's theoretical and clinical understanding of defenses: they are our first, automatic or spontaneous, adaptive response to threat, and they may play a role in the formation of symptoms (34). Future studies may include replication or controlled trials, such as comparing shorter and longer-term therapies on improvement in defensive functioning and other outcomes. Comparative treatment trials should be conducted to determine whether defenses improve similarly in other treatments, such as cognitive-behavioral therapy. Additional studies should incorporate illness and history predictors to delineate clinically meaningful moderators of rate of improvement, thereby identifying characteristics requiring longer-term therapies. Finally, elsewhere our team has enumerated hypotheses regarding specific therapist interventions that address defensive functioning in-session (35). Preliminary evidence suggests that the process of addressing defenses is related to overall outcome (17, 36). Future studies that examine those processes leading to improved defensive functioning should directly inform good clinical practice.

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