

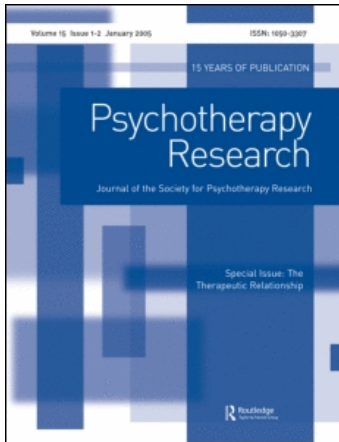
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Tumor patients in psychodynamic psychotherapy including daydreaming: Can imagery enhance primary process and positive emotions?

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Abstract

This therapy process study investigates the use of guided affective imagery for tumor patients. The therapeutic access to tumor patients is generally described as complex and challenging because of a disturbed emotion regulation and a defensive focus on reality. After autologous blood stem cell transplantation, 29 patients were treated with psychotherapy, including two daydreaming imagery sessions. Three text-analytical measures—Affective Dictionary Ulm, Regressive Imagery Dictionary, and Computerized Referential Activity for verbatim session transcripts—as well as the Quality of Life Questionnaire and the Karnofsky Performance Status were administered. Results show that guided affective imagery was able to enhance the psychotherapeutic process in tumor patients by activating the primary process, decreasing anxiety, and increasing referential activity. The positive emotional shift during imagery was achieved by the patients irrespective of their oncological severity status. Study limitations and future directions for research are discussed.

Keywords: process research; brief psychotherapy; dream work; psychoanalytic/psychodynamic therapy; emotion in therapy; psycho-oncology guided affective imagery

Currently, a rising number of studies report on the application of imagery techniques for cancer patients (Roffe, Schmidt, & Ernst, 2005), most of them describing some particular imagery technique combined with other methods (e.g., relaxation or suggestion). Imagery has proved its efficacy in the field of hematopoietic stem cell transplantation (HCT), especially during high-dose inpatient treatment (Sahler, Hunter, & Liesveld, 2003; Syrjala, Donaldson, Davis, Kippes, & Carr, 1995). Acceptance of imagery psychotherapy after HCT is associated with an increased survival chance (Frick, Motzke, Busch, Fischer, & Bumeder, 2005). The present study is the first investigation of the use of imagery with cancer patients, assessing not only efficacy but also process and change factors.

For guided affective imagery (Leuner, 1984), the daydreaming psychotherapy method applied in the present study, an outcome study (von Wietersheim, Wilke, Röser, & Meder, 2003) showed effect sizes

larger than 0.8 for somatic symptoms, mood, depression, and life satisfaction. These marked effects persisted at the 18-month follow-up and some effects even increased. Beyond the question of the efficacy of guided affective imagery, the search for its specific therapeutic factors has gained in significance over the last years. In a single-case study with a patient suffering from panic disorder, Stigler and Pokorny (2001) showed that verbal and imagery phases of guided affective psychotherapy sessions could be differentiated by means of a computer-assisted lexical content analysis, with imagery phases showing a higher amount of primary process vocabulary and more positive emotion words. Similarly, relationship patterns investigated by the core conflictual relationship theme method (CCRT; Luborsky & Crits-Christoph, 1998) were found to have more positive issues in relationship episodes from guided affective imagery (Stigler & Pokorny, 1999) than from clinical interviews. In a subsequent

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single-case study (Stigler & Pokorny, 2003) comparing relationship patterns in a verbal setting, imagery, and reported night dreams using the reformulated category system CCRT-LU (Albani et al., 1999), imagery led to even more positive relationship issues than night dreams. A study investigating text material from 12 guided affective imagery trainees (Meier, 2005) using RID, ADU, and CCRT also found more primary process, less negative emotions, and more positive relationship issues in imagery phases, thus corroborating the basic findings of the aforementioned studies.

Daydreaming imagery can thus be considered a therapeutic tool, enhancing specific therapeutic effects that we try to understand in analogy to Freud's dream theory (1900/1953), in particular to the dream work mechanism of displacement. By displacement, a high-anxiety-provoking real object (e.g., a violent father) is substituted with a less frightening symbolic object (e.g., a dog) that can be approached with less anxiety, with more positive relationship issues as a result.

Over the last three decades, the construct of primary process has evolved from the original Freudian concept of a primitive, regressive mode of mental functioning to one that continues to develop throughout the whole of life and works in everyone in a parallel and complementary way to the mode of secondary process (Holt, 2005; Noy, 1989). Freud's view on dreams has gained support by authors from the fields of neuropsychology, affective neuroscience, and neuroimaging, who see "close compatibility between Freudian dream theory and modern neuroscientific findings" (Solms, 2006). A prefrontal control function (located in the ventromesial frontal lobes) corresponding to the function of Freud's secondary process of maintaining the "reality principle" is supposed to inhibit the primary process mode (departing mainly from brain stem locations), a mental processing mode supposed by Freud to be governed by the "pleasure principle." In terms of modern neuropsychanalytic theory, primary process might be driven by the seeking system (Panksepp, 1998), a dopamine-mediated general purpose desire and self-stimulation system (also located in the brain stem) closely resembling Freud's "libido." When the prefrontal control function is reduced by brain damage, sleeping, or relaxation, the primary process becomes the dominating mode of mental processing. By the substitution mechanisms of displacement and symbolization, the predominantly unconscious primary process enhances mental productions that are closer to the pleasure principle than to the reality principle. In the domain of neurology, similar phenomena are observed in the case of Korsakoff syndrome, which is caused by prefrontal

brain damage. In these patients, the characteristic confabulations transform the unpleasant reality into a pleasant pseudoreality (Fotopoulou, Solms, & Turnbull, 2004), and they are typically preceded by low mood states and followed by improved moods (Turnbull, Jenkins, & Rowley, 2004). Today, Freud's model of the complementary mental processing modes of primary and secondary process is rejoined by similar (but not identical) constructs in the consciousness theories of leading neuroscientists like Edelman (2001; primary vs. higher order consciousness), Damasio (1999; core vs. extended consciousness), and Panksepp (2005; affective vs. cognitive consciousness).

The cross-sectional investigation presented here is the first study applying the described methodology to a larger clinical sample of cancer patients. Taking into account some characteristic psychological difficulties of cancer patients, desirable benefits would be an improved access to blocked emotion and fantasy layers and an improved flow of exchange between verbal expression and nonverbal inner experience, especially body sensations.

The main purpose of this study is, therefore, to investigate whether the effects of imagery previously observed in psychotherapy patients and healthy individuals can also be achieved in oncological patients and, if so, even for those patients suffering from higher somatic severity. The following research questions are addressed:

1. How do the different phases of the transcribed psychotherapy sessions (introduction, guided imagery, and elaboration) differ in the computerized linguistic measures for primary/secondary process, emotions, and referential activity?
2. How do the linguistic parameters in the described phases reflect severity status and quality of life?
3. Do different imagery motives have specific effects on the text-analytic parameters?

Method

Participants

This study is part of a larger investigation of integrated psycho-oncological treatment for tumor patients who have undergone autologous blood stem cell transplantation. *Autologous* means that the patients receive their own stem cells, harvested before high-dose chemotherapy or radiotherapy. We included all patients who had received a transplant between January 1999 and July 2003, either in a university hospital or in a municipal hospital specializing in hematology/oncology and who agreed to

take part in the study after an initial interview with Eckhard Frick. The inclusion criteria were as follows: minimum age of 18 years, a completely established baseline assessment (before high-dose treatment), a good knowledge of the German language, and the existence of complete transcripts of both imagery sessions “meadow” and “house.” Patients with major psychiatric diseases were excluded. The participants satisfying these criteria ($N=29$; 12 women and 17 men; mean age = 51.3 years, $SD=10.5$; range = 28–69 years) signed their consent according to the guidelines of the Faculty Research and Ethics Committee of the University of Munich, which approved the study.

Psychotherapeutic Intervention

The psychotherapeutic intervention for outpatients after HCT treatment consisted of about 15 sessions (range = 9–20) of an individualized dynamic short-term psychotherapy conducted by Eckhard Frick (psychiatrist and Jungian analyst, trained in guided affective imagery therapy). Daydream imagery sessions were intermingled with pure verbal sessions. Imagery sessions typically consisted of three phases: verbal introduction, daydreaming imagery, and verbal elaboration. The imagery phase can be described as follows: After a brief relaxation procedure with the patient lying on the couch with eyes closed, the therapist induces imagery by proposing one of the standard motives. In our study, this was a “meadow” in the first imagery session (second psychotherapy session) and a “house” in the second imagery session (which took place at the end of the therapy). Throughout the emerging daydream scenario, which continues to develop over 15 to 30 min in a manner very similar to night dreams, the therapist remains in a verbal exchange with the patient. The therapist’s interventions aim at keeping himself informed about the development of the patient’s imaginary scenario, slowing down the process to have the patient delve more profoundly into a specific focus or interaction or encouraging the patient to stand up to a painful emotional experience. Overall, the therapist’s attitude is more one of containing and confronting rather than of advice and suggestion. The obvious advantage when comparing this with the therapeutic use of night dreams is the active participation of the therapist, allowing for relatively complete information about the very details of the dream scenario as well as for the possibility of direct therapeutic interventions.

The start of the therapy was randomly assigned either immediately after dismissal from the oncology ward or 6 months after HCT treatment. A minor experimental variation was introduced for the second imagery motive: One subgroup of

patients was asked to imagine simply a house (leading implicitly to a finished house) and the other subgroup was asked to imagine an unfinished house. The attribution to one or the other subgroup was randomly decided before the sessions.

Measuring Instruments

Regressive Imagery Dictionary (RID; Martindale, 1975). This dictionary was originally developed for research in literature by Colin Martindale and co-workers and then increasingly applied in psychopathology and psychotherapy research (e.g., Stigler & Pokorny, 2001) and in social psychology (e.g., Frommer, Romppel, & Berth, 2005). The German version of the RID was prepared by Renate Delphendahl during her working visit at the University of Ulm (Ulm Textbank, E. Mergenthaler). RID attributes words to the primary and the secondary processes. Indicators of primary process are words from the categories Regressive Cognition (e.g., themes of the unknown, timeless, changed consciousness), Defensive Symbolism (e.g., passivity, diffusion, chaos), Sensation (e.g., touch, taste, smell), Icarian Fantasies (e.g., rise, heights, depths, fire), and “Drives” (themes from the oral, anal, and sexual spheres). Words from the categories Abstraction, Instrumental Behavior, Social Behavior, Time, Order, Rules, and Morals are seen as indicators of secondary process. Martindale et al. (Reynes, Martindale, & Dahl, 1984) reported a satisfactory construct validity of their instrument based on research covering a variety of themes: Higher primary process elements were present, as predicted, in texts from younger rather than elder children; in myths from primitive rather than more complex societies; in cases of authors with known psychopathology, psilocybin users, and paranoid schizophrenics; but also in working psychotherapy sessions compared with resistance sessions.

Affective Dictionary Ulm (ADU; Hölzer, Scheytt, & Kächele, 1992). The ADU differentiates between positive and negative, active and passive, as well as self (Me) and object (It) emotions. Affect words are grouped into eight categories: love and surprise (positive It), contentment and joy (positive Me), anger and fear (negative It), and depression and anxiety (negative Me). The current German version (see Pokorny, 1999) of the ADU dictionary consists of approximately 2,000 dictionary items in the basic form and 26,000 in the full form. The verbatim protocols were analyzed by our program HILL.

Computerized Referential Activity (CRA; Mergenthaler & Bucci, 1999). This dictionary

consists of two word lists: high CRA and low CRA. The high-CRA list contains functional words characteristic of concrete, visual, and narrative language (e.g., pronoun of the third person, articles, and time prepositions or adverbs). The low-CRA list contains functional words characteristic of logical thinking (e.g., conjunctions and indefinite pronouns). The CRA is conceived as a lexical indicator of the bridging function between nonverbal, sub-symbolic experience and verbal, symbolic expression, which may be particularly insufficient in cancer patients.

Quality of life. Patients' functional state was assessed by the treating oncologist with the help of the Karnofsky Performance Score (Karnofsky & Burchenal, 1949). The subjective quality of life as related to the state of health was obtained by the self-rating questionnaire European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30; Aaronson et al., 1993). This instrument consists of various single-item symptom scores and nine multi-item scales (five function scales; a scale of global health/quality of life; three symptom scales: Fatigue, Pain, Nausea/Vomiting).

Statistical Analysis

The investigated linguistic measures are generally defined as relative frequencies of token words from a given category per patient. Variables defined in such a way do not exactly satisfy the assumption of the normal distribution. Hence, we apply the nonparametric methods whenever possible, as in the case of correlations or one-way group comparisons. For more complex models of repeated measures, we have to use parametric methods. The so-called arcsine (or angle) transformation improves the normal behavior of variables in such cases (e.g., Sachs, 2004, pp. 355–356).

Differences in linguistic variables between the three settings (verbal introductory phase, imagery phase, and verbal elaboration phase) in the sample of 29 patients are examined in three successive steps. First, the general existence of setting differences in the considered set of dictionary categories is examined by multivariate analysis of repeated measures. The model includes two repetition factors: setting (three levels) and category (with eight [or 4 or 2] levels for the ADU and two categories for RID and CRA). Roughly, setting expresses the setting differences similar for all considered categories, and the Setting \times Category interaction expresses the dissimilarities in the setting differences. The general existence of differences between settings is hence

tested by the pooled effect of the two mentioned complementary effects. Second, the nonparametric Friedman test for repeated measures is performed for each linguistic variable in turn. Third, the nonparametric Wilcoxon test is used for the three pairwise setting comparisons; the Bonferroni correction is considered.

Two experimental subgroups are compared by the Mann–Whitney U test. Differences are expected between the motives of the “finished house” versus the “unfinished house” imagery session, whereas instruction for the “meadow” imagery session was given without any modification to the whole sample.

Spearman correlations between linguistic variables and clinical scales are computed separately within the joint verbal (introduction plus elaboration) and imagination segments. Corresponding correlations are mutually compared by the test based on the Fisher's z transformation. The SPSS system is applied for statistical analyses.

Results

Sample

Of the 29 participants, 5 were single, 18 were married, 5 were divorced, and 1 was widowed. Twenty patients lived with a partner, and nine lived without. Eleven patients had no children, 8 patients one child, and 10 patients had two or more children. Diagnoses were distributed as follows: one with acute myeloid leukemia, 12 with non-Hodgkin's lymphoma, 12 with multiple myeloma, and four with other diagnoses. Karnofsky Performance Status (theoretical range = 0–100) scores before HCT were as follows: 60, $n = 2$; 70, $n = 9$; 80, $n = 12$; 90, $n = 4$; and 100, $n = 2$. The mean value on the Global Health Status from EORTC QLQ-C30 (theoretical range 0–100) was 57.1.

Text-Analytic Measures

The 58 session transcripts from the 29 patients contained a total of 266,341 tokens, which were examined by the text-analytic measures. The statistical analysis showed no correlation among age, gender, education, or other sociodemographic characteristics and the text-analytic parameters associated with the ADU, RID, and CRA. Moreover, the timing of the psychotherapeutic intervention (either immediately after dismissal from the oncology ward or 6 months after HCT treatment) had no bearing on the results. For this reason, we can treat both groups as one joint sample.

Imagery and Verbal Session Phases

The results show that the ADU, RID, and CRA clearly differentiated guided imagery from both verbal session segments. The general existence of setting differences was proved within the model of repeated measures with two repetition factors: setting (three levels) and linguistic category (two, four, or eight levels). Results of the exact F statistic for setting, pooled on the category levels, were significant for all considered sets of linguistic variables: for the eight ADU categories E1 (love) through E8 (anxiety), $F(21, 8) = 7.44, p < .01$; for the four aggregated categories positive It through negative Me, $F(9, 20) = 13.41, p < .001$; for the two variables representing positive and negative emotions, $F(3, 26) = 14.92, p < .001$; for primary and secondary processes, $F(3, 26) = 92.77, p < .001$; and for high and low referential activity, $F(3, 26) = 31.83, p < .001$. All analogous tests for the two setting levels imagery and verbal, the latter aggregating the introductory and elaboration phases, were significant as well (for all tests, $p < .001$).

Consequently, post hoc tests were possible. The setting differences followed the expected direction: more primary process, more positive emotions, and more high referential activity in imagery.

The predominance of positive emotions during imagery was mainly due to the positive Me emotion contentment (E3). Both the negative It emotion fear (E6) and the negative Me emotion anxiety (E8) were lower in imagery than in the verbal phases. Figure I shows the frequency of ADU category E8 anxiety in the "meadow" session and in the "house" session. Anxiety words were significantly less frequent in imagery in both sessions. As Table I and Figure I show, the main part of the total anxiety reduction in imagery stems from the "meadow" session.

Primary process vocabulary was highest in imagery and lowest in the verbal introduction segment (see Table I), with elaboration in between. The same order (imagery > elaboration > introduction) was found for referential activity (high CRA).

Text-Analytic Measures and Quality of Life

In Table II, the correlation between linguistic parameters and quality of life, as seen by the patients themselves and the treating oncologists, is shown for the joint verbal phases (introduction and elaboration) as well as for the guided imagery phases (imagery).

Impressive correlations were found between emotional data and the oncological parameters. The significant correlations between quality-of-life scales and emotion categories found in the verbal segments correspond to expected directions for positive and

negative emotion categories. In other words, in the verbal parts of the therapies, the computerized instrument ADU reflects an emotional state corresponding to the recognized clinical scales. This can be seen as a contribution to the clinical validation of this instrument.

For the imagery phase, however, a different pattern emerged: Correlations in the imagery phase differ significantly from those in the verbal phase (test based on Fisher's z transformation; see footnoted cells in Table II), underscoring the distinct nature of the imagery setting. Keeping in mind that an increased volume of positive emotional words and a decreased volume of negative words were found within the imagery phase, the lack of correlations in imagery means that this emotional profile concerns all investigated patients, with both higher and lower quality of life. This is a clinically important result: Even the patients with the lowest quality of life and the shortest life expectancy are able to produce emotionally highly positive imagery.

The results from Figure II indicate the relevance of how a particular motive is announced by the therapist: "Allow a house to appear in your imagination" or "Allow an unfinished house to appear in your imagination." Daydreaming about implicitly finished houses leads to significantly more primary process vocabulary than imagining unfinished houses. As Figure II shows, this finding appears to be specific to the "house" imagery: There was no significant difference in primary process for the same patients' subgroups during the "meadow" imagery.

Discussion

This is the first investigation of tumor patients participating in a psychotherapy setting combining classic psychodynamic psychotherapy with the daydream-provoking method of guided affective imagery. Session transcripts from the verbal and the imagery parts have been analyzed by means of text-analytic measures for emotions, primary process, and referential activity. In previous text-analytic studies investigating dynamically oriented imagery psychotherapy with healthy individuals and a patient with panic disorder, imagery had shown a special efficacy profile when compared with purely verbal psychotherapy by enhancing an increase in primary process, positive emotions, and referential activity. The main question of the present study was whether imagery would be able to produce similar effects in the often not only somatically but also psychologically severely disturbed and difficult-to-treat category of tumor patients. The psychotherapeutic approach in these patients is frequently impeded by their fixation on body function and medical acts; by

Table I. Emotional Vocabulary (ADU), Primary Versus Secondary Process (RID), and CRA in Psychotherapy Transcripts (N=29)

Variable	PRE vs. IMA vs. ELA			Friedman test	Group pairs ^a	IMA vs. VER	
	PRE	IMA	ELA			ES	Wilcoxon test
ADU emotion	1.39	1.37	1.29			-0.02	
Positivity index	47.29	72.12	54.95	***	IMA > ELA, PRE	1.27	***
Positive	0.66	1.01	0.69		IMA > ELA, PRE	0.70	*
Negative	0.73	0.36	0.60	***	PRE, ELA > IMA	-1.26	***
E12 positive It	0.23	.32	0.28			0.15	
E34 positive Me	0.43	0.69	0.42	**	IMA > PRE, ELA	0.89	**
E56 negative It	0.22	0.11	0.18	**	PRE > IMA	-0.81	**
E78 negative Me	0.52	0.25	0.42	**	PRE > IMA	-1.00	***
E1 love	0.11	0.18	0.14			0.29	
E2 surprise	0.12	0.14	0.14			-0.03	
E3 contentment	0.14	0.33	0.19		IMA > PRE	0.76	**
E4 joy	0.29	0.36	0.22			0.47	
E5 anger	0.06	.04	0.04			-0.16	
E6 fear	0.16	0.07	0.14	*	PRE, ELA > IMA	-0.81	**
E7 depression	0.30	0.18	0.24			-0.54	*
E8 anxiety	0.22	0.07	0.18	***	PRE, ELA > IMA	-1.24	***
RID primary index	38.00	62.83	43.80	***	IMA > ELA > PRE	3.72	***
RID primary	7.17	13.23	8.13	***	IMA > ELA > PRE	3.27	***
RID secondary	11.65	7.80	10.42	***	PRE > ELA > IMA	-2.27	***
CRA index	42.15	51.32	44.07	***	IMA > ELA, PRE	1.23	***
CRA high	21.15	22.72	21.53	**	IMA > PRE	0.30	*
CRA low	29.08	21.60	27.32	***	PRE > ELA > IMA	-1.75	***

Note. ADU = Affective Dictionary Ulm; RID = Regressive Imagery Dictionary; CRA = Computerized Referential Activity; PRE = introduction (pre-imagery); IMA = imagery; ELA = elaboration.

bold = highest group mean by significant group differences.

^aWilcoxon test, $p < .05$, Bonferroni corrected.

* $p < .05$, two-tailed. ** $p < .01$, two-tailed. *** $p < .001$, two-tailed.

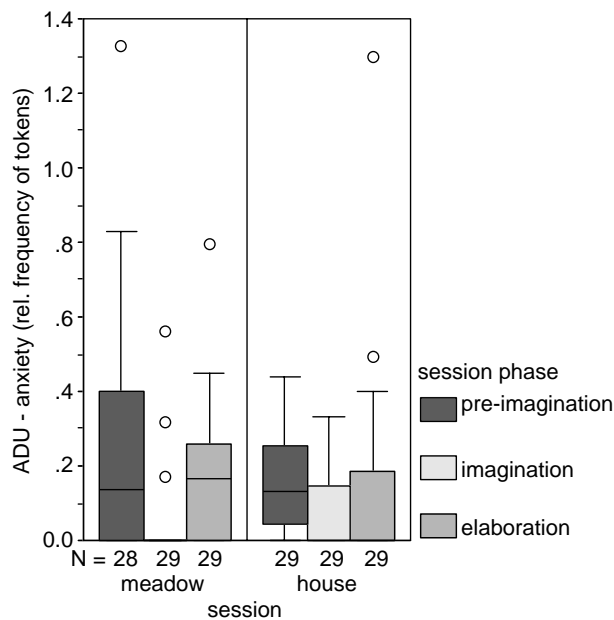


Figure 1. Frequency of Affective Dictionary Ulm (ADU) category E8 anxiety in the three session phases.

their limited access to emotions, fantasy, and creativity; and by a limited capacity to make links between the somatosensorial domain and conscious mental processing (Sami-Ali, 2000). In addition, we were interested to see whether the degree of severity of the health status had an influence on the obtained effects of imagery.

The results of the present study show that this category of patients did benefit from guided affective imagery, and that the effects were analogous to those obtained in the previous studies investigating this method. First, the segments of guided imagery showed significantly higher primary process vocabulary than the purely verbal introductory and elaboration segments. This shift in the proportion of primary and secondary processes to more primary process is clinically meaningful for the therapeutic support of cancer patients. HCT patients' characteristic defense mechanisms such as intellectualization, rationalization, and minimization (Grulke et al., 2004) generate specific coping styles (Tschuschke, 2002) associated with a predominantly secondary process mode of functioning, which has been shown to be associated with resistance in psychotherapy

Table II. Spearman Correlations Between Linguistic and Oncological Parameters in Verbal Versus Imaginative Psychotherapy Segments ($25 \leq n \leq 27$)

Variable	Verbal			Imagination		
	EF [§]	GHS [§]	KPS	EF [§]	GHS [§]	KPS
ADU emotion positivity index	-.42*	-.28	-.50**	.01	-.09	-.04
Positive	.52**	.52 ^a **	.52**	.14	-.20 _a	.06
Negative	.24	.40*	.04	.10	-.11	.01
E12 positive It	-.56**	-.48 _b *	-.58* _c	-.22	.08 _b	-.07 _c
E34 positive Me	.03	.26	-.07	-.16	-.28	-.21
E56 negative It	.29	.23	.14	.28	.04	.15
E78 negative Me	-.45 _d *	-.44*	-.40*	.12 _d	.12 _e	.01
E1 love	-.58**	-.44*	-.57* _f	-.12	.05	-.08 _f
E2 surprise	-.06	.16	.11	-.23	-.31	-.35
E3 contentment	.10	.26	-.04	-.08	-.20	-.04
E4 joy	.28	.21	-.03	.11	-.01	-.23
E5 anger	.14	.20	.28	.24	.14	.32
E6 fear	-.29	-.24	-.02	.16	.09	.27
E7 depression	-.37	-.49*	-.45*	-.13	-.08	-.23
E8 anxiety	-.55**	-.49*	-.54**	-.14	.04	-.12
RID primary index	-.35	-.19	-.32	-.30	-.12	-.19
RID primary	.08	.17	-.09	.29	.09	.00
RID secondary	.07	.19	.02	-.16	-.12	-.33
CRA index	.04	-.03	.11	-.44*	-.12	-.14
CRA high	.48*	.38	.29	.46*	.31	.14
CRA low	.16	.15	.03	.00	-.10	-.14
	-.66***	-.52**	-.41*	-.66***	-.56**	-.42*

Note. Values that share subscripts a, b, c, d, e or f are pairs of significantly different correlations (test of equality of two correlations: $p < .05$, two-tailed). EF = emotional function; GHS = global health status; KPS = Karnofsky performance status; ADU = Affective Dictionary Ulm; RID = Regressive Imagery Dictionary; CRA = Computerized Referential Activity.

[§]European Organization for Research and Treatment of Cancer.

* $p < .05$, two-tailed. ** $p < .01$, two-tailed. *** $p < .001$, two-tailed.

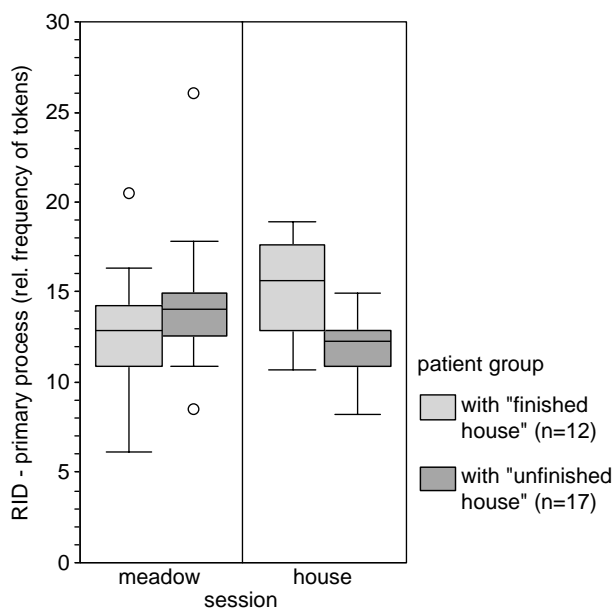


Figure 2. Regressive Imagery Dictionary (RID) level of primary processes in the imagery phase.

(Reynes et al., 1984). In the particular situation of HCT patients, it may correspond to a physician-oriented, compliant coping style. Lilja et al. (2003) examined the creative functioning (a capacity associated more with the primary than the secondary process) in cancer patients (i.e., their capacity to find new meanings when exposed to pictures). High creativity (i.e., finding new and subjective meanings) was associated with better oncological prognosis.

Primary process language is more emotional than informational. A content analysis of oncological consultations (Butow, Brown, Cogar, Tattersall, & Dunn, 2002) shows that patients gave, and doctors responded to, more informational than emotional cues. According to the Butow et al. study, doctors effectively identify and respond to the majority of informational cues; however, they are less observant of and able to address cues for emotional support.

Second, in the present study, imagery increased positive emotions, especially contentment. The negative emotions fear and anxiety appear clearly less often in imagery than in the two verbal conditions. This is consistent with the theoretical prediction of an anxiety-reducing effect of displacement in mental

modalities associated with a high proportion of primary process, such as dreams, daydreams, art, and humor. The substituted (symbolic) objects of dreams and imagery, although allowing for a transfer of almost the same relationship pattern, favor a less terrifying confrontation and thus more positive emotions and a more positive issue of the interaction. In the context of modern neuroscientific views (Solms, 2006; Solms & Turnbull, 2002), guided affective imagery may be hypothesized to work, similarly to the dream, by a relaxation-induced reduction of the prefrontal executive control function, which leads to a shift from secondary to primary process mode and thus from reality control to a substitutive world of more positively colored issues.

As Hill, Spangler, Sim, and Baumann (2007) found, clients with positive dreams had better process and outcome than those with negative and other dream types. However, the dream content literature (Hall & van de Castle, 1966; Hill et al., 2007; Moorcroft, 2003) found more negative than positive dreams. In keeping with our displacement hypothesis, our view on dream valence is a different one insofar as we do not look only at the absolute positive or negative valence but rather at the relative valence of the daydream content compared with the valence prevailing in the transcribed texts of the waking therapy phases. The rater-based CCRT measure for interactions as well as the computerized lexical ADU measure (in the present study) for affective vocabulary showed consistently and significantly more positive interaction issues and more positive affect words in the imagery than in the waking condition. This appears to us to be an important issue, because even if a dream is judged as (absolutely) negative, this dream can be a substantially more positive version of the underlying waking pattern.

It appears as a remarkable clinical finding that anxiety reduction was comparable in the just-cited single-case study with a panic patient and in our group of tumor patients, for whom deeper and less mobile anxiety remnants are to be supposed. In particular, in the case of tumor patients, we have to take into account the presence of the fear of disease progression (Black & White, 2005; Herschbach et al., 2004), which is often kept at an unconscious level by means of a variety of coping and defense mechanisms (Faller, 1998; Ruszniewski, 1999).

Third, the imagery segments of the investigated psychotherapy transcripts showed also more referential activity vocabulary, with the high-CRA index being superior in imagery than in both the introductory and the elaboration segments. According to the multiple-code theory (Bucci, 2002), subsymbolic

processes (e.g., pain) can be distinguished from symbolic processes (e.g., nonverbal internal images and verbal symbols). The referential process links the nonverbal representations to one another and to the verbal representations. Referential activity “has central importance...wherever inner experience—images, ideas, emotions, sensations—must be captured and communicated in words” (Mergenthaler & Bucci, 1999). In terms of Bucci’s phase model of the therapeutic process, the induction of imagery can be understood as an enactment on the emotionally rich subsymbolic level, whereas the elaboration phase, with its focus on integrating the imaginary experience, would correspond to the symbolic level of reflection.

Fourth, no connection was found between emotionality, primary/secondary processes, and referential activity on the one hand and sociodemographic characteristics on the other. This may be due to the small and rather homogeneous sample in our study. A study comparing psychoanalytic first interviews from West and East German patients (Frommer et al., 2005) did find differences for distinct socio-demographic profiles: significantly more secondary process thinking in participants who lived in West Germany, who were male, and who were more educated.

Fifth, when investigating for correlations between text-analytic measures and quality of life, the most striking finding appeared in the domain of the emotion measure. Whereas in the verbal segments significant correlations were found in the expected directions between positive/negative emotions and clinical scales (e.g., more positive emotions in those patients doing well), none were found in the imagery segments. This means that the same imagery effect profile of increased positive emotions and decreased negative emotions was obtained for all patients in the group regardless of their level of somatic severity or quality of life. This finding is of twofold clinical importance: (a) It indicates that even severely impaired cancer patients can benefit from emotion-enhancing tools like imagery, and (b) imagery appears to act on a more profound functional level than predominantly symptom-oriented therapeutic methods.

Sixth, in the present study, a higher proportion of secondary process resulted when the therapist asked the patient to imagine an unfinished house rather than simply the (implicitly finished) house. Words representing security and atmosphere were found mainly in the (finished) “house” imagery, whereas the task to imagine an unfinished house may have confronted the patients with the unpleasant idea of the limited span of life and therapy. Ascher and Jouet (2004) described the massive impact of the objective

time of illness and transplantation on the subjective time scale of the patient. They define timelessness and immortality as key characteristics of the primary process and ask how the patient is able to find a balance between these unconscious fantasies and the potentially life-shortening illness.

In conclusion, the challenge of the present study to induce imagery in a category of somatic patients known for their impeded capacity to activate fantasy and imagery, with the aim of increasing the activation of primary process, positive emotions, and referential activity, has led to promising results. Besides enhancing the primary process mode of mental processing, imagery was able to raise positive emotions at all levels of somatic severity and not only in moderately impaired patients. The experience of our study with patients in a very difficult situation may serve as encouragement for future studies. One open question is whether our results with tumor patients also apply to other categories of somatically ill patients. One of the limitations of our study was that we put the emphasis mainly on primary process and displacement as hypothetical efficacy factors. Future studies should take into account additional possible therapeutic factors such as therapist personality, intervention style, or specific therapeutic alliance in dynamically oriented imagery psychotherapy.

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