



Bridging Intervention in Anaesthesiology: First results on treatment need, demand and utilization of an innovative psychotherapy program for surgical patients

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Abstract

Background Bridging Intervention in Anaesthesiology (BRIA) is a stepped care approach of psychotherapy for surgical patients in preoperative anaesthesiological assessment clinics. The objectives of this feasibility study on BRIA were 1) to determine how many patients have clinically relevant psychological problems and interest in psychotherapy sessions; 2) to compare patients with and without interest in psychotherapy with regard to indicators of psychological distress; 3) to report on the first therapy outcomes.

Methods In total, 4,568 consecutive patients participated in a computer assisted psychosocial self-assessment including a comprehensive battery of psychiatric screening tests. Patients with interest in psychotherapy were offered therapeutic sessions for up to 3 months that aimed primarily at motivating them for subsequent outpatient psycho- or addiction therapy.

Results Clinically relevant psychological problems ranged from 7.5% (n=338) for illicit substance use to 38% (n=1698) for depressive states. 11.6% (n=529) of the patients were interested in psychotherapy sessions. Compared with patients without interest in psychotherapy, they showed statistically significantly higher rates of depression, anxiety, substance use disorders and general psychological distress. 3.2% (n=145) of the patients had one therapeutic session. Additional 3.2% (n=144) had at least two therapeutic sessions, of whom 37.5% (n=54) engaged in subsequent psychosocial treatment programs.

Conclusion The high rate of clinically relevant psychological problems suggests considerable need for psychotherapy in surgical patients. Significant demand and utilization of treatment are reflected by approximately 12% of patients showing interest and over 6% participating in BRIA sessions, as well as a success rate of motivational interventions of more than 30%.

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Introduction

The majority of research on comorbid psychiatric disorders in medical illness is focused on chronic medical conditions (1) or general medical inpatients (2). Few studies have explicitly dealt with surgical patients. With the exception of two earlier large-scale studies (3;4), these trials are mostly based on small samples, distinct surgical fields and specific psychological factors. Taken together, the results suggest that depression, anxiety and substance use disorders are highly prevalent in surgical patients and that these disorders are associated with perioperative complications and increased morbidity and mortality, leading to worse surgical outcomes and higher health care costs (5-15). In a recent study, 5,429 consecutive patients from diverse surgical fields were examined, and finds showed that clinically significant depressive states are

frequent preoperative conditions that are significantly associated with a prolonged hospital stay (16).

However, despite their obvious clinical relevance, routine assessment of psychological problems is rare in anaesthesiology and surgery. Psychotherapy, although available, effective and well-established for patients with medical illness (17), is often not offered as a regular service for surgical patients with psychiatric disorders. As a consequence, knowledge is still limited on frequency of psychological distress, as well as on treatment needs, demand and utilisation of psychotherapy in surgical patients.

Bridging Intervention in Anaesthesiology (BRIA) has been designed as a treatment option to reach patients from all surgical fields. Implemented in the preoperative



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anaesthesiological assessment clinic, this stepped care approach comprises of a) the application of brief screening questionnaires for psychological problems, and b) subsequent comprehensive psychological assessment and treatment for those patients with a clinically relevant level of distress in the first therapeutic contact. The primary objective is to bridge the gap between inpatient surgical treatment and outpatient psychosocial health care including psychotherapy, psychiatry, and addiction treatment. BRIA consists of two major therapeutic elements: 1) A computer assisted self-assessment of social, lifestyle and psychological factors including a comprehensive battery of psychiatric screening tests, items concerning interest in psychotherapy and computerised tailored brief written advice (18), and; 2) Psychotherapeutic contacts with the objective either to motivate patients with psychiatric disorders and support them in participating in subsequent outpatient psycho- and addiction therapy, or to improve the patients' psychological symptoms and well-being so that a subsequent psychosocial treatment is not necessary.

This study investigated the feasibility of BRIA, focusing on treatment need, demand and utilisation. The primary objectives were: 1) to determine the frequency of clinically relevant psychological problems at preoperative assessment in an anaesthesiology clinic, including depression, anxiety and substance use disorders; 2) to determine how many of these patients are interested in psychotherapeutic sessions during their hospital stay; 3) to compare patients with and without interest in psychotherapy with regard to general psychological distress, subjective health, depression, anxiety, substance use disorders and clinical characteristics, and; 4) to report on treatment outcomes of those patients who participated in psychotherapeutic contacts of BRIA.

Material and Methods

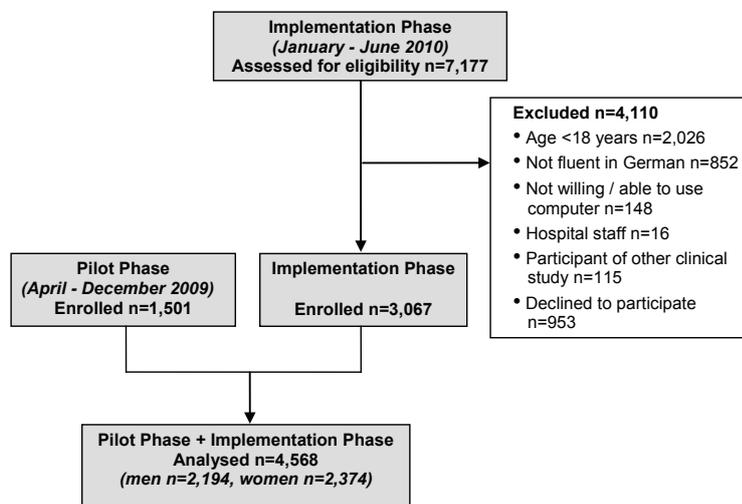
Setting and Design

This study was designed as a prospective observational study and approved by the local Ethics Committee (EA1/23/2004). It was conducted in the preoperative assessment clinics of the Charité - Universitätsmedizin Berlin, Campus Charité Mitte and Campus Virchow Klinikum, Berlin, Germany, between April 2009 and June 2010. The Department of Anaesthesiology and Intensive Care Medicine performs approximately 65,000 general anaesthesias per year. Each patient undergoing elective surgery is examined by an anaesthetist with two principle goals: Clarification of anaesthesia related risks of the intended surgery and the evaluation of the patient's individual level of risk.

During the pilot phase (April to December 2009), the treatment program was introduced in the preoperative assessment clinics and the computer-assisted self-assessment took place approximately two to three days per week between 9.00 am and 5.00 pm. In the following implementation phase (January to June 2010), BRIA was integrated in the routine care of the hospital so that the computer assisted self-assessment was performed from Monday to Friday, between 9.00 am and 5.00 pm, in order to cover the complete opening hours of the assessment clinics. Surgical patients examined by an anaesthesiologist in one of the two preoperative assessment clinics were assessed for inclusion and exclusion criteria (see below) and, in case of eligibility, asked for participation in the study. Inclusion and exclusion criteria were defined as follows. Inclusion criteria: Patient in preoperative anaesthesiological assessment clinic, sufficient knowledge of German language, age ≥ 18 years, written informed consent. Exclusion criteria: Surgery with an emergency or urgent indication; inability to attend the preoperative assessment clinic (bedside visit); members of the hospital staff; relatives of the study team; study participation in another clinical trial; homelessness; admitted in police custody; unwilling to use or incapable of using a computer.

During the pilot phase, 1,501 patients were enrolled. Detailed information on the inclusion process is available for the implementation phase: A total of 7,177 patients were assessed for eligibility, with 4,110 not being eligible according to the inclusion/exclusion criteria and 953 refusing to participate, resulting in 3,067 enrolled patients. In total, 4,568 patients participated in both pilot phase and implementation phase (see Figure 1 for details of the inclusion process).

Figure 1 Flowchart of phases of the clinical trial





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BRIA step 1: Computer assisted self-assessment

Upon receipt of written informed consent, eligible patients completed the computer-assisted self-assessment on demographic, lifestyle and psychological factors. In this assessment, psychological distress, anxiety and depression were assessed with several standardised screening questionnaires in order to cover a wide range of psychological symptoms and to increase the sensitivity of the screening (details of the screening tools in Table 1). All items were multiple choice questions that could be answered by the use of a mouse. The screening took approximately 25 minutes per patient, and a research as-

sistant was permanently present to assist patients when problems occurred concerning technical details or contents of the questionnaires.

Immediately after the completion of the screening, the patients' data were analysed automatically and all patients received a computerised tailored brief written advice (18). The written advice was designed according to the client-centered principles of motivational interviewing (19;20) and contained feedback on the results of the screening tests, as well as suggestions for therapy options and behavior changes. Topics included depres-

Table 1 Standardised self-report screening questionnaires of the computer assisted self-assessment

Name	Description	Cut off score
Patient Health Questionnaire-4 [PHQ-4 (21)]	Ultra-brief screening tool: Subscales for depression (PHQ-2), anxiety (GAD-2), 1 single-item for impairment rating. Domains: Depression, anxiety; time frame: Past 14 days. 5 items, 4-point Likert scale from 0 to 3; for PHQ-2 and GAD-2 each 2 items, depression and anxiety subscales range from 0 to 6.	PHQ-2 sum score: ≥ 3 GAD-2 sum score: ≥ 3 (21;22)
Center for Epidemiologic Studies Depression Scale [CES-D (23)]	Short version of the CES-D: Frequency of depressive symptoms. Domain: Depression; time frame: Past 7 days. 15 items, 4-point Likert scale from 0 to 3; total score from 0 to 45.	CES-D sum score: ≥ 18 (23)
Brief Symptom Inventory [BSI (24)]	Short version of the Symptom Checklist 90-R (SCL-90-R): Severity of psychiatric symptoms. Domains: General and specific psychological distress; time frame: Past 7 days. 53 items, 5-point Likert scale from 0 to 4; total mean score from 0 to 4. Applied scores in this study: Global severity index (GSI), subscales depression and anxiety.	GSI, depression and anxiety T scores: ≥ 0.63 (24)
World Health Organization 5-item Well-Being Index [WHO-5 (25)]	Short depression screening tool of the WHO. Domain: Psychological well-being (mood, interests, energy, sleep, psychomotor functioning); time frame: Past 14 days. 5 items, 6-point Likert scale from 0 to 5; total score from 0 to 25; higher scores indicating better well-being.	WHO-5 sum score < 14 : clinically relevant depressive state (25)
Alcohol Use Disorder Identification Test [AUDIT (27;29)]	WHO screening tool for alcohol-related problems. Domain: Hazardous and harmful alcohol consumption, and alcohol-related problems; time frame: Past 12 months. 10 items, 5-point Likert scale from 0 to 4; total score from 0 to 40. Applied scores in this study: AUDIT sum score for any AUD, AUDIT-C score for risky consumption (sum of items 1 to 3), item 3 for heavy episodic drinking.	AUDIT sum score: ≥ 8 for men, ≥ 5 for women (27) AUDIT-C score: > 4 for men, > 3 for women AUDIT-item 3: ≥ 2 (29)
Heavy Smoking Index [HIS (26)]	Ultra-brief screening tool for nicotine dependence; short version of Fagerstroem Test for Nicotine Dependence (FTND-G). Domain: Nicotine dependence; time frame: Present, not otherwise specified. 2 items (FTND-G items 1, 4), 4-point Likert scale from 0 to 3; total score from 0 to 6.	HIS-G: ≥ 4 (26)
Illicit drug use adaption of the CAGE questionnaire (28)	Ultra-brief screening tool for illicit substance abuse / dependence. Domain: Illicit substance use (marijuana, cocaine, ecstasy, heroin and other illicit substances); time frame: Last 12 months. 4 items, 2-point scale of 0 and 1; total score from 0 to 4.	Sum score: ≥ 2 (28)



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sion, anxiety, general psychological distress, well-being and quality of life, substance use (alcohol, illicit drugs, tobacco), as well as other health factors like weight, sleep and physical exercise. The written advice also contained an offer for face-to-face-feedback of the screening results and immediate psycho- and/or addiction therapy sessions for patients who indicated interest during assessment.

BRIA step 2: Psychotherapeutic treatment

Patients with interest in psycho- or addiction therapy were offered therapeutic sessions which were provided by a team of certified psychologists (two licensed psychotherapists, three psychotherapists in training). The date of the first session was arranged according to the patients' demand either preoperatively, (e.g. immediately after the anaesthesiology examination), or the day after surgery at the bedside. Therapy sessions were offered during inpatient hospital stay as well as in outpatient setting for a period of up to three months after discharge. Patients who missed all inpatient appointments were not contacted after discharge. However, all patients who called BRIA at their own initiative were offered therapy sessions. In case patients missed an outpatient appointment, the therapist called him or her by telephone to arrange another appointment. The BRIA therapeutic interventions aimed primarily at clarifying whether a subsequent psychosocial treatment would be needed, and if so, at motivating patients to search for outpatient psycho- or addiction therapy. Patients were assisted in finding a therapy option that they would consider appropriate for their condition, were taught strategies on how to search for therapists by telephone or by Internet, as well as how to differentiate between specific therapeutic approaches. In case patients' psychological symptoms and well-being improved sufficiently during BRIA, no further psychosocial treatment was recommended. The BRIA program combines procedures from Motivational Interviewing in the treatment of psychological problems (19;20), cognitive-behavioral therapy and social casework. Important topics are displayed in Table 2.

Measurements

The computer assisted self-assessment included a set of standardised screening questionnaires with sound psychometric properties. It covered the domains of general psychiatric distress, well-being, depression, generalised anxiety (21-25) and substance use disorders (26-29) (details in Table 1). Additional single-item questions dealt with interest in psycho- and/or addiction therapy sessions of BRIA, demographic information (gender, age, partnership status, level of education, current status of employment), self-reported physical characteristics

Table 2 Important topics of the BRIA psychotherapeutic treatment

- Detailed psychological assessment and clarification of psychiatric diagnoses according to ICD-10
- Development of therapeutic alliance and activation of resources
- Enhancement of motivation for behaviour change and for therapy participation
- Emotional relief and individually oriented crisis interventions
- Training of relaxation and stress management techniques
- Guided discovery of complex reciprocal relationships between behaviour, cognition, emotion and medical condition
- Elaboration of a biopsychosocial model of disease and health
- Introduction to the concept of coping and problem skills training
- Information on options of psycho- and addiction therapy and teaching of skills how to apply for psychosocial health care

(body weight, height), sleeping disturbances, stress, loneliness, subjective health status (visual analogue scale of the EQ-5D, 30), as well as number of disability days and primary care consultations during the last 6 months.

Data on ASA (American Society of Anaesthesiologists) classification and surgical field were available for 2,981 patients in the implementation phase. The evaluation of patients' perioperative risk according to the ASA physical status classification system was used as an overall indicator for physical health. The evaluation was performed by the anaesthesiologists who did the preoperative assessment. Information on the surgical field was obtained from the electronic patient management system of the Charité - Universitätsmedizin Berlin and comprised the categories 1) abdomino-thoracic surgery, 2) peripheral surgery 3) neuro-, head and neck surgery.

For patients who participated in at least two therapy sessions, their psychiatric diagnoses according to ICD-10 were made by clinical psychologists. Therapy outcomes were either rated by the therapist at the time of last therapeutic contact or asked within 6 months after the baseline assessment by personal interview, telephone, email or by post. Outcomes were classified into 5 categories: 1) improvement of well-being with no further demand of subsequent therapy, 2) engagement in subsequent psychosocial treatment program, 3) resumption of preoperatively interrupted psychotherapy, 4) dropout, 5) death.

Statistical Analyses

Data were entered into a computerised database and statistical analyses were performed with SPSS Statistics for Windows, Version 18 (SPSS Inc., Chicago, Illinois 60606, USA). Results were expressed as relative frequencies in percent, or median (Md) and range of the



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25th-75th percentiles (interquartile range IQR). Statistical comparisons of patients with and without interest in psychotherapy were tested with Chi-squared test for categorical data or Mann-Whitney-U-Test for ordinal data as well as for continuous data because distributions were skewed. A two-tailed p-value <0.05 was considered statistically significant. Due to the exploratory nature of the study, p-values were not adjusted for the number of tests that were performed.

Results

Computer assisted self-assessment

A total of 4,568 surgical patients participated in the computer-assisted self-assessment. The rate of patients with clinically relevant psychological problems was high and ranged from 7.5% (n=338) for illicit substance use to 38% (n=1698) for clinically relevant depressive states according to the WHO-5 (World Health Organisation 5-item Well Being Index). Specific indicators of psychological distress and substance use problems are displayed in Table 3, and details of demographic and clinical characteristics are shown in Table 4.

16.7% of the patients (n=762) asked for face-to-face feedback of their screening results and 11.6% (n=529) showed interest in psycho- and/or addiction therapy. Regarding surgical field and physical health according to the ASA classification, patients with interest in therapy sessions did not differ from those with no interest (Table 4). However, they showed statistically significantly higher rates of clinically relevant general psychological distress, depression, anxiety, substance use disorders and general health problems, as well as worse subjective health, more disability days and more primary care consultations during the last six months (p's between <.001 and .04 for the specific comparisons, for details see Table 3). There were also statistically significant differences concerning demographic variables: Patients with interest in therapy sessions were younger, were more likely to be female and unemployed subjects, as well as less likely to live with a partner (p's between <.001 and .021 for the specific comparisons, for details see Table 4).

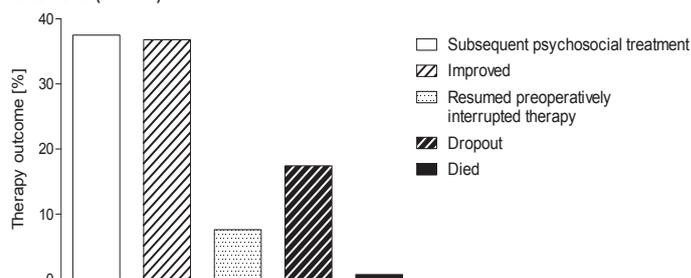
Psychotherapeutic treatment

145 patients (3.2%) had one therapeutic session. An additional 3.2% (n=144) engaged in two therapy sessions or more (Md: 2, Min: 2, Max: 23, 25th percentile: 2, 75th percentile: 3). Data are available on psychiatric diagnoses and therapy outcomes for those patients who received two or more therapeutic sessions. The most frequent primary diagnoses were mood disorders (n=53/144; 36.8%), adjustment disorders (n=37, 25.7%) and substance-use disorders (n=16, 11.1%). Further psychiatric

diagnoses included anxiety disorders (n=11, 7.7%), behavioural syndromes associated with physiological disturbances and physical factors (n=10; 6.9%), personality disorders (n=8; 5.6%) and unspecified mental disorder (n=3; 2.1%). Finally, 4.2% of patients (n=6) had no mental disorder according to ICD-10 criteria. Therapy outcomes are shown in Figure 2.

37.5% (n=54) of the patients with at least two BRIA contacts engaged in subsequent psychosocial treatment programmes, 36.8% (n=53) were rated by their therapist as improved with no further demand of subsequent therapy, 7.6% (n=11) resumed their preoperatively interrupted psychotherapy after discharge from hospital, 17.4% (n=25) dropped out of the BRIA treatment, and 1 patient (0.7%) died after discharge from hospital. Therapy outcomes did not differ between groups of mental disorders ($\chi^2=28.290$; $p=.78$).

Figure 2 First therapy outcomes of BRIA patients with at least two therapy sessions (n=144)



37.5% of the patients (n=54) were engaged in subsequent psychosocial treatment programs, 36.8% (n=53, column with white and black stripes) improved with no further demand of subsequent therapy, 7.6% (n=11, dotted column) resumed their preoperatively interrupted psychotherapy after discharge from hospital, 17.4% (n=25, column with black and white stripes) dropped out of the BRIA treatment, and 1 patient (0.7%, black column) died after discharge from hospital.

Discussion

The most important result of this study is that approximately 12% of all patients included showed interest in BRIA. Patients with interest in therapy sessions had an increased severity of psychological distress and half of them had at least one therapeutic session.

Concerning frequency of psychological distress and substance use problems, the prevalence rates of this study are comparable with the rates of previous studies in surgical patients regarding depression (10, 11, 14-16), anxiety (4), alcohol use disorders (7;13), smoking (13;16) and misuse of illicit substances (8). To the authors' knowledge, this is the first study to provide data on interest and engagement in psychotherapy sessions in surgical patients. We found that treatment need, demand and utilisation of psychotherapy for surgical patients are very different in preoperative anaesthesiological assessment. The most general indicator of treatment need can be seen in the high rate of clinically relevant psychologi-



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Table 3 Indicators of psychological distress and substance use problems

	All participants in the screening		Patients inter- ested in therapy sessions		Patients not interested in therapy sessions		<i>p</i>
	N=4568 +		n=529 +		n=4039 +		
General indicators of psychological distress and subjective health	%		%		%		
BSI, severity of psychological distress during last 7 days: GSI T-score \geq 0.63	691	(15.7)	251	(48.2)	440	(11.3)	<0.001
Self-rating of current subjective health ^{a)}	71	[50-85]	59	[38-79]	75	[50-85]	<0.001
Number of disability days during last 6 months	0	[0-14]	2	[0-21]	0	[0-10]	<0.001
Number of primary care consultations during last 6 months	3	[2-6]	4	[2-6]	3	[2-6]	<0.001
Interest in face-to-face-feedback of the screening results				++	416	(10.6)	-
Depression							
WHO-5, well-being during last 14 days							
Clinically relevant depressive states: Sum score < 14	1698	(38.0)	345	(66.0)	1353	(34.3)	<0.001
PHQ-2, depression during last 14 days: Sum score \geq 3	782	(17.6)	207	(40.0)	575	(14.7)	<0.001
CES-D, depression during last 7 days: Sum score \geq 18	532	(12.2)	191	(37.2)	341	(8.9)	<0.001
BSI, depression during last 7 days: T-score \geq 0.63	603	(13.7)	210	(40.5)	393	(10.1)	<0.001
Anxiety							
GAD-2, anxiety during last 14 days: Sum score \geq 3	623	(14.1)	198	(38.2)	425	(10.9)	<0.001
BSI, anxiety during last 7 days: T-score \geq 0.63	541	(12.3)	195	(37.4)	346	(8.9)	<0.001
BSI, interpersonal sensitivity during last 7 days: T-score \geq 0.63	429	(9.7)	152	(29.2)	277	(7.1)	<0.001
BSI, phobic anxiety during last 7 days: T-score \geq 0.63	488	(11.0)	166	(31.7)	322	(8.3)	<0.001
Alcohol use during last 12 months							
Alcohol abuse/dependence: ♂ AUDIT sum \geq 8; ♀ AUDIT sum \geq 5	509	(11.3)	96	(18.4)	413	(10.4)	<0.001
Risky alcohol consumption: ♂ AUDIT-C \geq 4; ♀ AUDIT-C \geq 3	942	(21.2)	133	(25.6)	809	(20.6)	0.008
Heavy episodic drinking: AUDIT-3 \geq 2	424	(9.5)	62	(11.8)	362	(9.1)	0.044
Tobacco smoking							
Current smoker	1591	(35.1)	220	(41.8)	1371	(34.2)	0.001
Severity of tobacco dependence in current smokers	312	(20.2)	61	(28.5)	251	(18.8)	0.001
Heavy smoking: HIS score \geq 4							
Illicit substance consumption during last 12 months							
Any illicit substance use	338	(7.5)	69	(13.1)	269	(6.7)	<0.001
Any illicit substance abuse/dependence in illicit substance users: CAGE sum score \geq 2	106	(31.7)	29	(43.9)	77	(28.7)	0.017
General current health problems – single item questions							
Sleeping disturbances: Yes	2029	(44.7)	336	(64.0)	1693	(42.2)	<0.001
Stress: Yes	1598	(36.4)	330	(63.8)	1268	(32.7)	<0.001
Loneliness: Yes	471	(10.4)	155	(29.7)	316	(7.9)	<0.001
Pain: Yes	1889	(42.0)	277	(53.2)	1612	(40.5)	<0.001

Between 04/2009 and 06/2010 (N=4568) participated in the screening, to comparison; (n=529) showed interest in therapy sessions and (n=4039) were not interested in therapy sessions. Median [25th – 75th percentiles].

+ Number ranges for the specific variables from 4275 to 4568 (all participants in the screening), from 510 to 529 (patients interested in therapy sessions), and from 3780 to 4039 (patients not interested in therapy sessions) because of missing data.

++ Therapy sessions included face-to-to-face feedback of the screening results

^{a)} Visual analogue scale, 0 to 100 with higher scores indicating better subjective health.



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Table 4 Sociodemographic and clinical characteristics of all patients participating in the BRIA screening

	All participants in the screening		Patients interes- ted in therapy sessions		Patients not interested in therapy sessions		<i>p</i>
	N=4568 +		n=529 +		n=4039 +		
Sociodemographic characteristics	%		%		%		
Age	47	[34-60]	45	[35-56]	47	[34-61]	0.021
Male	2193	(48.0)	206	(38.9)	1987	(49.2)	<0.001
Partnership status: living with a partner	2819	(62.4)	283	(54.3)	2536	(63.4)	<0.001
Level of education: university entrance qualification	1885	(41.6)	235	(44.7)	1650	(41.2)	0.124
Employment status							
Employed	1954	(44.6)	200	(39.1)	1754	(45.3)	
Unemployed	457	(10.4)	91	(17.8)	366	(9.5)	
Pension	789	(18.0)	58	(11.3)	731	(18.9)	<0.001
Invalidity pension	330	(7.5)	60	(11.7)	270	(7.0)	
Undergoing education / training ^{a)}	755	(17.2)	93	(18.2)	662	(17.1)	
Residual group ^{b)}	99	(2.3)	10	(2.0)	89	(2.3)	
Clinical characteristics							
BMI	25	[22.15- 28.34]	24.43	[21.76- 28.03]	25.10	[22.22- 28.37]	0.016
ASA Classification ++							
ASA I, II ^{c)}	2579	(86.5)	263	(83.8)	2316	(86.9)	0.126
ASA III, IV ^{c)}	401	(13.5)	51	(16.2)	350	(13.1)	
Surgical field ++							
Abdomino thoracic surgery	1151	(38.6)	139	(44.3)	1012	(37.9)	
Peripheral surgery	895	(30.0)	83	(26.4)	812	(30.4)	0.087
Neuro-, head and neck surgery	935	(31.4)	92	(29.3)	843	(31.6)	

Between 04/2009 and 06/2010 (N=4568) participated in the screening, to comparison; (n=529) showed interest in therapy sessions and (n=4039) were not interested in therapy sessions. Median [25th – 75th percentiles].

+ Number ranges for the specific variables from 4384 to 4568 (all participants in the screening), from 512 to 529 (patients interested in therapy sessions and from 3872 to 4039 (patients not interested in therapy sessions) because of missing data.

++ Data are available for the implementation phase; numbers account to 2980 (ASA: All participants in the screening) and 2981 (surgical field: All participants in the screening), 314 (both ASA and surgical field: Patients interested in therapy sessions), 2666 (ASA: Patients not interested in therapy sessions) and 2667 (surgical field: Patients not interested in therapy sessions) because of missing data.

^{a)} School education, tertiary education, re-education, apprenticeship

^{b)} Working at home, military service, community service, gap year

^{c)} ASA I, II: Healthy patients (ASA I, n=944) and patients with mild systemic disease presenting no functional limitations (ASA II, n=1635); ASA III, IV: Patients with severe systemic disease presenting definite functional limitation (ASA III, n=394) and patients presenting a constant threat to life (ASA IV, n=7).

cal distress of up to 38%. However, demand for psychosocial treatment is lower with 11.6% of the patients showing explicit interest in psycho- and/or addiction therapy sessions. Regarding treatment utilisation, approximately 6% made use of therapy sessions, and only a small portion of 3% engaged in at least two therapy sessions. Importantly, analyses revealed that severity of psychological problems and treatment demand are associated since interested patients scored higher in all domains of psychological distress, substance use disorders, as well as healthcare utilisation and disability days. 37.5% of the patients with psychotherapeutic sessions decided to engage in subsequent psychosocial treatment alternatives.

Taken together, these results can be interpreted as first evidence for the feasibility of BRIA. Future randomised controlled trials are needed to investigate the efficacy of this therapy program.

The considerable difference between high prevalence of clinically significant psychological distress and relatively low proportions of patients who were interested in therapy sessions, and who engaged in therapeutic sessions, might be explained by two major factors: First, the applied screening questionnaires referred to self-reported symptoms. Patients scoring above any of the cut-off criteria may show subthreshold clinical syndromes, tran-



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sient elevated symptoms or specific psychiatric disorders. Preoperatively elevated psychological distress may improve during hospital stay so that patients reconsider their interest in therapeutic sessions. Second, it should be taken into account that the major reason for patients' hospital stay was not the psychiatric condition, but the medical disease. Despite a high rate of patients may have felt the need of therapy in terms of distress, they may not have been ready for change at this specific point in time. This interpretation is supported by the finding that none of the patients who missed the therapy appointments during the inpatient treatment made use of the possibility to ask by telephone for outpatient sessions with the BRIA therapists. On the other hand, the request of BRIA, at least in 12% of the patients included, and the engagement in therapeutic sessions in half of them is very promising to motivate for behavioural change.

One might also speculate to what extent stress posed by facing surgery may contribute to the high rate of clinically relevant psychological distress and may thus affect specificity rather than sensitivity of the screening questionnaires. Interestingly, O'Hara et al (1989) found in a pioneering large-scale study that the rate of patients with clinically relevant psychological distress was even higher 3 months after surgery than at the day before surgery suggesting a rather small influence of worries concerning surgery (4). Finally, it has to be mentioned that data on sensitivity and specificity of the applied screening tools only exist for the general medical field, but are missing for the perioperative setting.

Methodological limitations

As a nonrandomised feasibility study, this trial did not provide efficacy data of BRIA. Because the program was developed step-by-step, detailed information of the inclusion process, as well as data concerning surgical field and ASA classification were only available for the patients of the implementation phase.

The inclusion tree of this study is similar to that of our earlier work on computer assisted self-assessment of lifestyle factors of surgical patients in the preoperative anaesthesiological assessment clinic (7;8;16). Out of all patients assessed for eligibility, a considerable proportion was not included due to obvious reasons such as age below 18 years, or insufficient knowledge of German language. Only a minor portion (2%) was not able or willing to use a computer, and 13% refused participation.

Clinical implications and conclusion

Previous investigations found that - despite high prevalence rates - psychotherapy and psychopharmacological therapy are not offered to the majority of surgical pa-

tients with psychological distress and/or substance use disorders (7;10;14;16). These studies concluded that clinicians should more often apply established psychiatric interventions (10;14), and that innovative treatment programmes are needed that can be integrated in a primarily non-psychological setting (16). To the authors' knowledge, the present study is the first one that showed feasibility of a psychotherapeutic bridging intervention that addresses patients from all surgical fields.

In a stepped-care approach, BRIA combines screening, brief intervention, an offer to extend therapy sessions, and finally the support to engage in subsequent long-term therapy programmes. Frequency of interest in psychotherapy did not differ with regard to surgical field and physical health as estimated by the ASA classification. This finding supports the idea to offer psychotherapy concepts to hospital patients from all surgical fields and independently from physical health status and medical disease. Preoperative anaesthesiological assessment clinics are an ideal setting for the BRIA approach because these clinics are not restricted to specific surgical fields so that a wide range of hospital patients can be addressed. The question arises of how BRIA might be implemented in clinical practice of hospitals that need to save time and resources. BRIA has the advantage that, in routine care, the patients can complete the computer-assisted self-assessment without the supervision of a research assistant and independently from the anaesthesiological assessment, e.g. during waiting periods for medical examinations. In case the hospital does not have a preoperative anaesthesiological assessment clinic, the screening may also be completed at the hospital ward. Basically, there are 2 major prerequisites: 1) The patients need computer access in order to perform the self-assessment; 2) The psychotherapeutic contacts need to be provided by either clinical psychologists or medical staff who are trained in psychotherapy. After the screening, the patients may communicate potential interest in psychotherapy to the nursing staff to arrange first sessions with psychotherapists. This approach is both patient-oriented and cost-efficient given the fact that, on the one hand, possible psychotherapy starts on patients' own initiative, and on the other hand, all participants of the screening may benefit from the computerised tailored brief written advice: It comprises positive feedback for patients with a healthy lifestyle, non-confrontational brief advice for patients who show harmful health behavior but lack motivation for therapy, and finally immediate help for those who have relevant problems and are ready for psychotherapeutic sessions.

To conclude, as a major result, this feasibility study showed that based on a close collaboration of clinical



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psychologists with anaesthesiologists, surgeons and psychiatrists, it is possible to integrate a novel psychotherapy program into a context of clinical care that is dominated by somatic medical procedures often not alone sufficient to induce self-healing processes in the patient as required after each surgical procedure.

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