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Original article

A controlled clinical trial on the dynamics of worrying in generalized anxiety disorders

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SUMMARY

Worries are everyday phenomena known to everybody. They are anticipatory thoughts related to specific potential problems in the future, associated with cognitive rehearsal of how to prevent or solve negative developments. There is also pathological worrying as described in the context of generalized anxiety disorder (GAD). Worrying can be described in regard to the content, be it daily hassles or severe problems in life. Additionally, there are formal aspects of worrying like frequency or subjective controllability.

To investigate formal characteristics of worrying 30 patients, who were treated with cognitive behavior therapy because of generalized anxiety disorder, were assessed before and after treatment with the "dynamics of worrying scale", which asks for frequency, intensity, fluency, controllability, necessity, and self-creation of worrying. Additionally, a control group of 27 patients without GAD was recruited.

GAD patients indicated significantly and relevantly higher frequency, intensity, fluency of worrying, and lower controllability. GAD patients see in comparison to controls that they have a personal tendency to worry and that worries are unnecesssary.

The results support that worrying is a core feature of GAD. Formal dynamics of worrying differentiate between GAD patients and controls. This shows the importance of formal rather than content aspects of worrying. The fact that GAD patients have some insight in their problem is important for treatment. The dynamics of worrying scale is a useful instrument to specifically measure formal thought disorders in GAD.

Key words: generalized anxiety disorders, cognitive behavior therapy, worrying, formal thought disorder

Introduction

Worries and worrying are everyday phenomena and known to everybody (Taha et al 2022; Li 2022, Davey et al 2022). These are anticipatory thoughts related to possible problems in the future and associated with cognitive rehearsal of how to prevent or solve negative developments. There is some relation to "future anxiety" [1]. The difference is that worrying includes the personal feeling of patients, that their future oriented catastrophizing is to some part nessessary as it gives a subjective feeling of control and the impression that one can forsee what is coming and therefore counteract [2,3]. Worries relate to daily problems and minor hassles like whether one will be in time to catch the train, but also to severe events and threats like whether one will survive surgery or deatrh anxiety in general [4,5]. Worries always have a specific target in the future. Affected persons know what they are worrying about. The relation to specified events differentiates worrying from rumination, which are repetitive wandering thoughts about this and that, the future, the presence and the past, without a specific topic and without problem solving [6-8].

Worries and worrying can also be a symptom in mental disorders and especially in anxiety disorders [9,10]. Excessive worrying about multiple ev-

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eryday events is a core feature in the definition of generalized anxiety disorder (GAD) in ICD-11 [11]. It is also essential in the etiology and maintenance of these disorders [12].

The content of pathological worrying in GAD patients is by and large the same as in normal controls [13-15]. Differences are that GAD patients worry about a wider range of topics or worry more often about minor matters [16,17]. Instead of content, formal chracteristics of the worry-process differentiate between normal worrying and pathological worrying. The distinction between content of thoughts and formal thought disorder has a long tradition in the assessment of mental disorder [18]. Examples of formal thought disorders are circumstantial thinking, incoherence of thinking, inhibition or acceleration of thinking, thought induction. They are found in schizophrenic disorders, depression, dementia, and others. The characteristic feature is that such phenomena describe how a person thinks and not what he or she thinks. In regard to worrying, the problem is the frequency of worrying, the controllability, the intensity, and the generality of worrying [13,14,16,19,20]. So, the content is more or less of no importance. The formal thought process is the defining characteristic. This is of interest in regard to treatment or outcome measurement. Several studies report that psychotherapy leads to improved concreteness of worrying, a reduction of time spent with worrying, the number of worry domains, the tendency to catastrophize about ambiguous material [21-23]. The conclusion from such data is that the dynamics of worrying make the difference between pathological and normal worrying.

For diagnosis and treatment it can be of interest to distinguish between the different aspects of the formal process of worrying. Patients must learn to control their formal thought disorder, which is different from solving problems. Talking with these patients about threads and burdens in life may lead to see even more difficulties, while ending to worry will reduce to see problems. To focus on formal thought disorders instead on content can help to better understand the underlying process and dynamics of GAD.

Given the importance of formal characteristics of worrying in contrast to content, specific instruments are needed for diagnosis and treatment. Scales on GAD cover a mixture of content, formal prosesses of worrying and distress [24-27]. A short instrument which specifically targets formal thought disorders in GAD is the "dynamics of worrying" scale" [28]. It asks for subjective ratings on the frequency, intensity, fluency, uncontrollability, justification, and self-creation of worrying. In the present study we used this scale to investigate GAD patients before and after cognitive behavior therapy and in comparison to controls.

Materials and methods

Participants

Patients were recruited in the offices of psychotherapists in private practice, who were all state licensed cognitive behaviour therapists.

GAD was diagnosed following the standardized international neuropsychiatric diagnostic interview [29]. Therapists offered cognitive behavior therapy, following recommendations of Barlow et al. [30]. Treatment was fully reimbursed by health insurance.

A control group of patients was recruited who did not fulfill criteria of GAD according to the MINI interview.

Dynamics of Worrying Scale

The "Dynamics of Worrying Scale" is a revised version of an earlier instrument to measure formal thought dynamics and thought disorders in psychiatric patients [28]. Five everyday problems are presented which in most persons should not cause too much concern or reason for persistent worrying. As Table I shows there are six rating dimensions representing frequency, intensity, fluency, uncontrollability, justification, and self-creation.

TABLE I. *Dynamics of Worrying Scale (FAS)*

1.) I am regularly worrying whether I can live up to daily demands	
no	yes
When I start to worry about this, the intensity of worries is pronounced	
no	yes
When I start to worry about this, new and more worries will come up	
no	yes
When I start to worry about this, I am unable to stop worrying…	
no	yes
When I start to worry about this, I feel that this is necessary …	
no	yes
When I start to worry about this, then it is because of my own tendency to worry …	
no	yes
2.) WHEN a close person is late for an appointment, I tend to worry what could have happened	
3.) IF a job must be finished, I tend to worry whether it can be done in time	
4.) AFTER leaving the house I tend to worry whether I have turned off the oven	
5.) I often worry about the future and what will come	

It presents six minor reasons to worry about. For each item five visual analogue rating scales [31] are used to indicate on a continuous 10 cm line whether probands feel that their worrying is frequent, intense, fluent, uncontrollale, justified, and self-created. Reliability of these ratings range between. 70 and. 88.

Hospital Anxiety and Depression Scale

All participants answered the Hospital Anxiety and Depression Scale (HADS) [32]. It has two subscales with 7 items each, which measure anxiety and depression.

Procedure

Patients were assessed before and after 21 treatment sessions on average. They were again tested at follow up about eight months later.

The control group was assessed initially and again after about 14 weeks.

Data Analysis

T-test statistics were used to compare results of the scales between patient groups and between pre-, post- and follow up data.

Results

We included 30 GAD patients. Their average age was 45.4 (+- 12.3) and 80% were female. In the control group there were 27 patients. Their average age was 42.6 (+- 12.0) and 55.6% were female (Tab. II).

GAD patients showed increased anxiety and depression scores on the HADS.

There were significant and relevant differences in regard to the formal thought processing at the initial assessment (Tab. II). GAD patients showed high scores on frequency, intensity, fluency, and uncontrollability with scores above 50 on the 0-100 visual analogue scale. The controls had scores well below 50. GAD patients obviuosly have some insight in their problem, as they score higher on the self-creation and lower on the necessity scale.

There were no changes in the dynamics of worrying over time in the control group (Tab. III). After CBT, there were significant improvements for frequency, intensity, fluency, and controllability. There was a trend such that patients saw their worries less caused by their individual disposition. There were no significant changes in the perceived necessity. These effects remained stable over a follow up time of 8 months after the end of treatment (Tab. III).

Discussion

The results support other research in showing that worrying is a core feature of GAD [33]. This refers to the frequency of sorrowful thoughts, the intensity, the fluency, which means that one sorrow is followed by the next, the noncontrollability and inability to stop worrying, the conviction that worrying is necessary and to some part the insight that the poblem is also caused by one's disposition to indulge in sorrows.

The data also show that formal thought disorders and the dynamics of worrying differentiate between normal and pathological worrying. In comparison to non-GAD patients there were significantly different scores on all

TABLE II. *Age, gender, HADS, and dynamics ratings in GAD patients and controls.*

	GAD (n = 30)		CG (n = 27)			
Sample description	M/n	(S.D./%)	M/n	(S.D./%)	t / CHI²	p
Age	45.4	12.3	42.6	(12.0)	0.89	.38
Gender (% female)	24	(80.0%)	15	(55.6%)	3.93	.05
HADS -anxiety	13.6	(2.8)	7.1	(4.0)	6.97	< .001
HADS - depression	9.1	(3.2)	5.3	(3.6)	4.25	< .001
Rating	M	(S.D.)	M	(S.D.)	t	p
Frequency	60.4	(14.4)	27.1	(11.6)	9.65	< .001
Intensity	61.8	(14.6)	35.0	(16.0)	6.63	< .001
Fluency	54.8	(16.1)	31.5	(18.0)	5.14	< .001
Unontrollability	62.8	(19.0)	34.9	(23.0)	-5.00	< .001
Necessity	39.8	(19.0)	58.3	(23.7)	3.23	.002
Self- creation	69.6	(15.9)	37.8	(24.3)	5.77	< .001

Annotations to table 1: CG: control group, HADS: Hospital anxiety and depression rating scale
Values refer to mean scores of the FAS-Rating subscales (0-100)

TABLE III. *Scores in GAD patients before and after a waiting period and CBT treatment (univariate comparisons).*

	PRE		POST		FU*		PRE / POST		PRE / FU	
Contact control group (n = 7)	M	(S.D.)	M	(S.D.)	M	(S.D.)	t	p		
Frequency	61.0	(13.3)	64.9	(19.6)	-		-0.76	.47	-	
Intensity	63.0	(12.6)	63.0	(20.5)	-		0.00	> .99	-	
Fluency	60.2	(14.3)	61.6	(22.8)	-		-0.23	.82	-	
Uncontrollability	35.8	(23.6)	37.0	(26.1)	-		-0.38	.72	-	
Necessity	39.4	(18.3)	40.5	(22.0)	-		-0.31	.77	-	
Self- creation	65.9	(21.9)	70.3	(23.9)	-		-0.95	.38	-	
Therapy group (n = 18*)										
Frequency	59.4	(15.1)	44.1	(15.1)	42.2	(13.7)	3.86	.001	3.60	.003
Intensity	61.3	(15.8)	44.0	(15.7)	42.0	(17.8)	4.07	< .001	4.33	.001
Fluency	53.9	(17.0)	41.1	(17.8)	32.4	(18.0)	3.64	.002	4.42	.001
Controllability	37.8	(19.4)	59.3	(19.2)	62.5	(21.0)	-5.14	< .001	-4.61	< .001
Necessity	38.6	(20.7)	40.8	(17.6)	42.3	(19.0)	-0.44	.66	-0.56	.58
Self- creation	71.4	(15.0)	55.3	(19.2)	53.6	(16.2)	3.01	.01	3.27	.006

Annotation to table 2
Values refer to mean scores of the FAS-Rating subscales (0-100)
** Of the 18 patients who filled in the scale at the end of therapy, 14 sets of data are available at follow up.*

subscales of the dynamics of worrying scale.

Of therapeutic interest is that according to our results GAD patients think that their worrying is necessary, but at the same time agree, that they have a tendency to worry and that they are overdoing it in this regard. Patients seem to have some insight in their illness and are aware of the fact that some problems are rather made by themselves instead of being real. This is important when it comes to treatment. Many patients come to see a therapist because of their many problems in life. They expect help and advice in regard to external calamities. It is therefore an important first step in treatment to motivate the patient to look at his own way of thinking and to recognize that worrying instead of real life events cause the problems.

The data show no change in the dynamics of worrying in the non-GAD controls over time. This confirms that the tendeny to worry is close to a personality trait which characterizes persons. When taking a psychotherapeutic history many GAD patients report that they have been reliable individuals already in childhood, always taking care of homework assignments and avoiding risks.

In spite of this long-term problem, it is obviously possible to improve formal thought disorders through CBT. Frequency, intensity, fluency, uncontrollability improve significantly and substantially. This replicates findings from other studies [21-23]. Of similar importance is that these changes are stable over a follow up period of eight months. The goal of treatment in GAD is "worry control" as proposed by Barlow et al. [30]. This means that patients learn to recognize their worry style and that they learn methods of self control. There may worries come to their mind in the future, but now they realize in an early stage what is going wrong, they can qualify their thoughts, make rational decisions about when it is important to worry or not and counteract with internal dialogues unnecessary worrying.

Conclusion

GAD has to be seen as a formal thought disorder problem. Important is how patients react to their environment instead of the state of the environment. Catastrophising about the future is the key feature. This view helps to better understand worrying, delineate it from content of worrying, diagnose GAD and guide specific treatments. The dynamics of worrying scale is a specific and useful instrument to assess core features of the formal thought disorder process which is driving GAD.

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Conflict of Interest statement

The author has no conflict of interest to declare.

Ethical considerations

Informed consent was obtained from all individual participants included in the study. The study has been approved by the ethics committee of the Charité University Medicine Berlin.

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