

Research article Ερευνητική εργασία

Constraint and loneliness in agoraphobia: An empirical investigation

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While progress in the aetiopathology and treatment of panic disorder is indisputable, research regarding agoraphobia lacks behind. One significant-yet untested- theory by Guidano and Liotti, suggests the existence of inner representations of fear of "constraint" and fear of "loneliness" as two major schemata, important in the pathogenesis and manifestation of agoraphobia. Activation of these schemata may occur in situations in which the patient: (a) feels as in an inescapable trap (constraint) or (b) alone, unprotected and helpless (loneliness). Upon activation, the "constraint" schema elicits such symptoms as asphyxiation, chest pain, difficult breathing, motor agitation and muscular tension, while the "loneliness" schema elicits such symptoms as sensation of tachycardia, weakness of limbs, trembling or fainting. Activation of these schemata by content-compatible stimuli is expected to trigger various, yet distinct, response patterns, both of which are indiscriminately described within the term "agoraphobia". In order to investigate this hypothesis and its possible clinical applications, several mental and physical probes were applied to 20 patients suffering primarily from agoraphobia, and their responses and performance were recorded. Subjects also completed the "10-item Agoraphobia Questionnaire" prepared by our team aiming at assessing cognitions related to Guidano and Liotti's notion of "loneliness" and "constraint". Breath holding (BH) and Hyperventilation (HV) were selected as physical probes. BH was selected as an easily administered hypercapnea - induced clinical procedure, because of its apparent resemblance to the concept of "constraint". Subjects were instructed to hold their breath for as long as they could and stop at will. Similarly, it was hypothesized that HV might represent a physical "loneliness" probe, since it can elicit such symptoms as dizziness, paraesthesias, stiff muscles, cold hands or feet and trembling, reminiscent of a "collapsing type" symptomatology. Patients' responses and performance were recorded by visual analogue scales and heart rate and respiratory rhythm were being registered continuously. Although the overall elicited symptoms were not differentiated in a meaningful way, a significant correlation was registered between duration of physical probes and scoring of the "10-item Agoraphobia Questionnaire". Duration of BH was inversely correlated ($r=-0.456$, $p<0.05$) with the score of the 5 "constraint-type" agoraphobic items

while duration of HV was inversely correlated ($r=-0.479$, $p<0.03$) with the score of the 5 "loneliness-type" agoraphobic items. Assuming that our questionnaire tapped the "loneliness" and "constraint" schema threat, our hypothesis derived from Guidano & Liotti's assumptions was partially confirmed.

Key words: Agoraphobia, constraint, loneliness, breath holding, hyperventilation.

Introduction

The relationship between panic disorder and agoraphobia is far from clear.¹ Furthermore, although, DSM-IV ascribes a status to each of them separately, as well as in combination,² the diagnosis of agoraphobia as a clinical entity of its own, is on the waning.^{3,4} This trend can be also traced in the psychotherapeutic practice where panic disorder takes preponderance over agoraphobia, the latter being implicitly or explicitly viewed as a psychopathological state secondary to panic,⁵ an attitude in contrast to the one displayed by the early behaviorists.⁶ To that respect, the theoretical model described by Guidano and Liotti⁷ may be an advanced working hypothesis for the study of agoraphobia, as an entity of its own.

According to this hypothesis agoraphobic patients represent a course of attachment behavior characterized by a detachment blockage, with more or less conspicuous hampering of exploratory behavior. The detachment blockage is usually created with indirect patterns, as opposed to a direct prohibition of exploration. The more common of these patterns are: (a) Continuous warning from hyperprotective patterns on the dangers of the outside world and therefore on the difficulties in dealing with it. (b) Insistence on the child's presumed physical and/or emotional weakness, which makes him or her particularly exposed to the world's dangers. (c) Modeling on the agoraphobic parent who, fearing loneliness, keeps the child with him or her. (d) Threats of desertion or family scenes that make the child insecure outside of the home. The anxious attachment that emerges provides the child with a conflicting self image since the continuous contact and attention from the parents to the child provide him or her with a self image as a lovable and valuable person whereas the continuous limitation of exploration furnishes him or her with a weak and/or fragile self-image within a threatening and hostile world. The individual has difficulties reaching the equilibrium between the efforts needed to obtain protection and to maintain

the sense of freedom and independence. This attitude towards reality becomes precarious as soon as the individual finds himself or herself confronting those specific situations that represent the dilemma, that is: possible loss of protection (e.g. a situation of loneliness threatened by the possible breaking off of a sentimental relationship) or possible loss of the sense of freedom and independence (e.g. finding oneself involved in a stable affective relationship with a "controlling" partner or with one who escapes the possibilities of control). Agoraphobic patients' avoidance behavior discloses the existence of two large categories of stimulus situations that are avoided: loneliness and constrain. The majority of agoraphobic patients avoid staying alone for long periods in their own homes, on the street, or in public places where there are no familiar or trusted people. Certain situations are also avoided even when a trusted companion is nearby. This is when a quick escape is difficult or impossible: crowded places (theaters, movie houses), streets with many traffic lights and heavy traffic, superhighways, planes or trains, elevators. The two categories of feared stimuli exist simultaneously in the majority of agoraphobic patients. Guidano and Liotti speculate that activation of the two large categories of stimulus-situations (schemata) in agoraphobia "constraint" and "loneliness" may trigger distinct somatic as well as psychological responses. Upon activation, the "constraint" schema elicits such symptoms as asphyxiation, chest pain, difficult breathing, motor agitation and muscular tension, while the "loneliness" schema elicits such symptoms as sensation of tachycardia, weakness of limbs, trembling or fainting (Guidano & Liotti, p. 206). If this hypothesis is confirmed, it might further delineate the psychopathological picture of agoraphobia, and contribute to the formulation of a more comprehensive therapeutic approach.

The aim of this study is to evaluate the performance and the response of agoraphobic patients to the administration of distinct (specific) anxiety-eliciting probes and their relationship –if any– to Guidano and Liotti's "loneliness" or "constraint" hypothesis.

Material and method

Subjects

Twenty consecutive consenting drug free agoraphobic patients referred for Cognitive Therapy at the Outpatient Clinic of the First Department of Psychiatry at the Athens University Medical School, Eginition Hospital, participated the study. Diagnosis was re-established with a thorough clinical evaluation, whether the patients met the DSM-IV criteria for agoraphobia with or without panic attacks agoraphobia.² Seven (7) males and thirteen (13) females, their age ranged from 19 to 44 y/o (mean: 30.3 SD \pm 6.5 y/o). All patients fulfilled the criteria for agoraphobia with history of previous or present panic attack, and none of the participants suffered from only panic disorder, without agoraphobia. Patients that did not fulfill the DSM-IV criteria or had another comorbid mental disorder or somatic illness were not included in the study.

All patients completed a "10-item Constrain and Loneliness Questionnaire" prepared by our team aiming at assessing cognitions related to Guidano and Liotti's notion of "loneliness" and "constraint". The items were selected from the DSM-IV and ICD-10⁸ diagnostic guidelines and clinical descriptions, Marks and Mathews' 5-item Agoraphobia factor from the Fear Questionnaire⁹ and from Chambless et al "Mobility Inventory for Agoraphobia".¹⁰ The items consist of five (5) dealing with situations suggestive of a "constraint-type" of threat ("trapped" and "inescapable") and five (5) with situations suggestive of a "loneliness-type" of threat (alone and unprotected). Patients were asked to rate the frequency of the avoidance they displayed on a five- point scale (see appendix).

Procedure

During the experimentation day subjects were individually given imagery stimuli followed by physical stimuli.

Imagery probes

Two sets of cognitive stimuli in the form of stories lasting two minutes were prepared and presented to the patients mainly aiming at activating the hypothesized corresponding cognitive domains. Both involved imaging places or situations in which either escape is difficult or help might not be available if needed. The structure of the text given to subjects was identical

for all, except that the particular situation representing the best example of the "loneliness" threat or the "constraint" threat was obtained from their completed the "10-item Constrain and Loneliness Questionnaire", and incorporated in the plot of the text. Patients indicated by raising their thumb that they managed to imagine successfully the particular situation (Texts are available upon request).

Physical probes

Since no formal physical probes exist aiming at exclusively activating the "constraint" and "loneliness" cognitive domain, we chose to apply physical stimuli relevant to the notion of "constraint" and "loneliness" in a least- stressful format and evaluate subjects' performance and/or possibly elicited symptoms.

Many patients being in "trapped" places report experiencing difficulties in breathing, tightness in the chest, palpitations, or a feeling of suffocation, symptoms that can be elicited by hypercapnea induced by CO₂ administration.¹¹ Breath holding (BH) was selected as an easily administered hypercapnea-induced clinical procedure, because of its apparent resemblance to the concept of "constraint".

The patient was asked to take a deep inhalation of room air and to hold his breath for as long as possible. The patient pushed his nostrils closed with his fingers and closed his mouth completely immediately after the end of the deep inhalation, and kept them closed during the BH. He removed his fingers from his nose as soon as he terminated the BH test. The examiner was behind him, measuring the BH duration with an electronic chronometer

Similarly, it was hypothesized that "hyperventilation" (H/V) might represent a physical "loneliness" probe, since it can elicit such symptoms as dizziness, paraesthesias, stiff muscles, cold hands or feet and trembling,¹² reminiscent of a "collapsing type" symptomatology. Subjects were asked to hyperventilate, i.e. deep and fast breathing, for about 60 breaths/min, for as long as they could and stop at will. The examiner was behind him, measuring duration time with an electronic chronometer

Measurements

A Visual Analogue Scale VAS (0–100) for the 13 items of DSM-IV Panic Attack was completed before

and after each stimulus. Each of the VAS consisted of a 10 cm line ranging from 0 "I don't feel it at all" to 100 "I feel it excessively", (table 1).

Statistical analysis

Descriptive statistics were used to explore the sample's demographic and clinical characteristics. The Spearman's (rho) coefficient was used to calculate bivariate correlation between the dependent variables (Loneliness VAS story, Constriction VAS story, BH VAS, HV VAS, BH time, HV time) and the independent variables (age, gender).

Results

Descriptive statistics from the available variables to enter in the analysis are presented in table 2. Regarding the "10-item Constrain and Loneliness Questionnaire" the 20 agoraphobic patients rated an avoidance level of 427.5 ± 196.3 . For the 5 items representing the loneliness scale the mean avoid-

ance score was 243.7 ± 131.5 while for the 5 items representing the constrain avoidance patients scored 183.7 ± 100.4 ($p < 0.000$).

The symptoms elicited by the two mental probes as measured in the VAS of the 13-items of DSM-IV for panic attack were more intense for the constrain situation (117.9 ± 153.8) compared to that elicited by the loneliness situation (62.1 ± 105) ($p = 0.001$).

The correlation matrix of all variables in the study are presented in table 2. Significant correlations between the score of avoidance in both constrain and loneliness situation were found for the physical probes but not for the mental ones.

The total score of the five items of the agoraphobic scale representing the "constraint" construct was inversely correlated with the breath holding (BH) duration ($r = -0.456$, $p < 0.05$). On the other hand, the total score of the five items of the same scale representing the "loneliness" construct was inversely correlated

Table 1. Descriptive statistics from the variables entered in the analysis. (Data from 20 agoraphobic patients).

	Mean	Standard deviation	Min-Max
Age (years)	30.3	6.5	19-44
Loneliness scale	183.7	100.4	25-425
Constriction scale	243.7	131.5	25-425
BH time (sec)	41	20	7-67
HV time (sec)	68.4	39.7	19-184
Loneliness VAS story	62.1	105	0-380
Constriction VAS story	117.9	153.8	0-450
BH VAS	95.2	91.5	0-300
HV VAS	252.7	232.4	20-880
Loneliness scale	Sum of scores for the five items of the "10-item Constrain and Loneliness Questionnaire" Scale suggestive of a loneliness-type of threat that patients avoid		
Constriction scale	Sum of scores for the five items of the "10-item Constrain and Loneliness Questionnaire" suggestive of a constraint-type of threat that patients avoid		
BH time (sec)	Duration of time that patients voluntary hold their breath		
HV time (sec)	Duration of time that patients voluntary hyperventilated		
Loneliness VAS story	Score in a VAS (0-100) for the 13-items of DSM-IV for panic attack that patients rated after they imagined a place or situation in which help might not be available if needed		
Constriction VAS story	Score in a VAS (0-100) for the 13-items of DSM-IV for panic attack that patients rated after they imagined a place or situation in which escape is difficult		
BH VAS	Score in a VAS (0-100) for the 13-items of DSM-IV for panic attack that patients rated after they voluntary hold their breath		
HV VAS	Score in a VAS (0-100) for the 13-items of DSM-IV for panic attack that patients rated after they voluntary hyperventilated		

Table 2. Correlation matrix from all variables entered in the analysis.

	<i>Constriction scale</i>	<i>Age</i>	<i>Gender</i>	<i>Loneliness VAS story</i>	<i>Constriction VAS story</i>	<i>BH VAS</i>	<i>HV VAS</i>	<i>BH time</i>	<i>HV time</i>
Loneliness	.42	-.19	-.26	.10	.35	-.06	.09	-.26	-.48*
Constriction scale		.03	.00	.30	.29	-.15	.20	-.46*	-.32
Age			.32	.05	-.29	-.21	-.17	.12	.17
Gender				.23	.20	.11	.26	-.24	-.05
Loneliness VAS story					.69**	.38	.21	-.35	-.34
Constriction VAS						.21	-.02	-.67**	-.47*
BH VAS							.32	.16	-.20
HV VAS								.43	-.33
BH time									.31
HV time									

with the duration of hyperventilation HV ($r=-0.479$, $p<0.03$). Since the HV-loneliness correlation is dependent to HV-constrain correlation a test of significant difference between dependent correlation was made but no significant difference was found ($r=0.749$, $p=0.227$)

Discussion

Although no discriminant validity was documented between the avoidance type (constrain and loneliness) and the scores of elicited anxiety responses by the mental and physical probes, the significant correlations found between a self report measure that is the responses of the constraint and loneliness questionnaires and the objective physiological measure of duration of hyperventilation and duration of breath holding argue in favor of the presumed hypothesis. The fact that our sample primarily consisted of long standing cases of agoraphobia with a less prominent panic element, coupled with the application of physical probes under least-demanding conditions might be a sufficient explanation regarding the severity of the elicited symptoms. On the other hand, these "least demanding or threatening" challenges did favor the evaluation of the subjects' optimum capacity for BH or HV.

Thus, in our study we found that higher rating on "constraint" is correlated with a shorter BH duration and higher rating on "loneliness" is correlated with a shorter duration of HV. Both findings merit some comments: Zendbergen et al¹³ found that BH duration is shorter in panic as well as in other anxiety disorders, compared to healthy volunteers. However, it has been reported that BH duration is not a reliable index

of panic disorder,¹⁴ and is shorter in panic disorder than in Generalized Anxiety Disorder.¹⁵ Furthermore, McNally & Eke¹⁶ and Eke & McNally¹⁷ found that the duration of BH could not reliably predict the levels of anxiety in students. In brief, while the duration of BH seems to be shorter in patients with anxiety disorders than healthy volunteers, the specificity of this index is not further differentiated among the anxiety disorders, or between panic disorder and the other anxiety disorders. Among PD patients shorter BH after caffeine challenge was recorded in patients with more severe baseline psychopathology (Masrakis et al¹⁸). Our findings may reconcile some discrepancies: shorter BH duration might hold true only for those patients that score high on items related to "constraint-type" of threats. It is therefore possible that the exposure to a constraint threat such as BH may trigger its corresponding inner schema representations that forced patients regardless of their diagnostic category - to stop this procedure earlier.

Regarding HV, Clark and Hemsley¹⁹ found that HV causes many symptoms similar to the ones appearing during a panic attack, Bonn et al²⁰ found that 67% of patients with agoraphobia and panic attacks were not in a position to finish a HV test (60 breaths/min for 3 minutes) as opposed to 4% of the healthy volunteers. Telch et al²¹ reported that duration of hyperventilation significantly predicted agoraphobia status among panic disorder patients even after controlling for differences in demographic and clinical characteristics. But, while HV is a well known panic-inducing clinical and research probe, in our study this test seems to be a sensitive probe for those agoraphobic patients that

scored higher on items related to "loneliness-type" of threat. Thus, the patients with an excessive "loneliness-type" schema behaved like the typical panic patients, in comparison to those having an excessive "constraint" schema. It is possible that the activation of the "loneliness" schema may have led patients to stop hyperventilation in order to avoid bigger exposition to non controllable symptoms.

Assuming that our questionnaire tapped the "loneliness" and "constraint" schema threat, our hypothesis derived from Guidano & Liotti's assumptions was partially confirmed. However, the findings and the conclusions of the present study should be considered as preliminary, due to its several limitations such as the small number of patients, the lack of a control group, and the, as yet not definitely standardized, "10-item Constrain and Loneliness Questionnaire".

Clinical implications from the empirical confirmation of Guidano & Liotti's assumptions will be mainly in psychotherapeutic practice. Agoraphobic patients should be able to recognize the relationship between their "need for freedom" and their inner constrain-loneliness constructs and therapy should eventually aim at modifying those schemata.

In order to further test our hypothesis, a more comprehensive series of valid stimuli for the presumed schemata in conjunction with more sensitive recording methods of cognitive, emotional, somatic and behavioral responses are needed.

If verified, our hypothesis will be consistent with the revision supported in DSM-5 (Wittchen et al²²) that Agoraphobia should be conceptualized as an independent disorder with more specific criteria rather than a subordinate, residual form of PD.

APPENDIX

"10-ITEM CONSTRAIN AND LONELINESS QUESTIONNAIRE"

Name	Age
Date	

Please indicate the degree to which you avoid the following places or situations because of discomfort or anxiety. Read carefully and rate your amount of avoidance when you are alone.

	Avoidance	Rating (%)
1	Never	0
2	Rarely	25
3	About half of the time	50
4	Most of the time	75
5		100

	Avoid	0	25	50	75	100
1	Crossing the center of an empty square	()	()	()	()	()
2	Staying at home alone	()	()	()	()	()
3	Going to crowded social and religious gatherings (church-wedding, visit etc)	()	()	()	()	()
4	Walking alone on deserted streets	()	()	()	()	()
5	Driving or riding a car in a traffic jam	()	()	()	()	()
6	Being far away from home	()	()	()	()	()
7	Going to a crowded theater	()	()	()	()	()
8	Standing in the center of gatherings (political, athletic etc)	()	()	()	()	()
9	Being far from medical care	()	()	()	()	()
10	Sitting in the center of a crowded restaurant or cafeteria	()	()	()	()	()

Εγκλωβισμός και μοναξιά στην αγοραφοβία: Εμπειρική διερεύνηση

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Οι ερευνητικές προσπάθειες διερεύνησης της αιτιοπαθογένειας της Αγοραφοβίας υπολείπονται συγκριτικά με τις προσπάθειες για τη διερεύνηση του Πανικού. Οι Guidano & Liotti έχουν προτείνει θεωρία για την Αγοραφοβία η οποία δεν έχει μελετηθεί επαρκώς. Οι συγγραφείς υποθέτουν την ύπαρξη των εσωτερικών αναπαραστάσεων φόβου «εγκλωβισμού» και φόβου «μοναξιάς» ως τα δύο μείζονα σχήματα που σχετίζονται άμεσα με την παθογένεση των εκδηλώσεων της Αγοραφοβίας. Η ενεργοποίηση των συγκεκριμένων σχημάτων επέρχεται σε συνθήκες στις οποίες ο ασθενής αισθάνεται: (α) παγιδευμένος, χωρίς διαφυγή (εγκλωβισμός) και (β) μόνος, απροστάτευτος ή αβοήθητος (μοναξιά). Η ενεργοποίηση του σχήματος εγκλωβισμού επιφέρει συμπτώματα όπως αίσθημα ασφυξίας, πόνο στον θώρακα, δυσκολία στην αναπνοή, κινητική ανησυχία, μυϊκή τάση ενώ η ενεργοποίηση του σχήματος μοναξιάς επιφέρει συμπτώματα όπως αίσθημα ταχυκαρδίας, αδυναμία, τρόμο ή αίσθημα κατάρρευσης. Η ενεργοποίηση αυτών των σχημάτων από ερεθίσματα συμβατά με αυτά αναμένεται να πυροδοτήσουν ποικίλα, αλλά διακριτά, είδη απαντήσεων τα οποία στο σύνολό τους περιγράφονται στην Αγοραφοβία. Η μελέτη στόχευσε στη διερεύνηση αυτής της θεωρίας και των κλινικών εφαρμογών που απορρέουν από αυτή. Σε 20 ασθενείς με Αγοραφοβία χορηγήθηκαν σωματικές και νοητικές δοκιμασίες και καταγράφηκαν οι απαντήσεις τους και η απόδοσή τους. Επιπλέον οι ασθενείς συμπλήρωσαν το «Ερωτηματολόγιο 10 λημμάτων για την Αγοραφοβία» το οποίο προτείνεται από την ομάδα μας ως κατάλληλο εργαλείο για την καταγραφή των γνωσιών εκείνων οι οποίες σχετίζονται με την έννοια του «εγκλωβισμού» και της «μοναξιάς». Ως σωματικές δοκιμασίες επελέγησαν το εκούσιο κράτημα της αναπνοής (ΚΑ) και η υπέρπνοια (Υ). Το ΚΑ επελέγη ως μια κλινική δοκιμασία η οποία με εύκολο τρόπο προκαλεί υπερκαπνοία και προσομοιάζει με την έννοια του «εγκλωβισμού». Ζητήθηκε από τους ασθενείς να κρατήσουν όσο το δυνατόν περισσότερο την αναπνοή τους και να διακόψουν τη δοκιμασία όταν αισθάνονταν ότι δεν μπορούν να συνεχίσουν πλέον. Η Υ θεωρήθηκε ότι προσομοιάζει με την έννοια της «μοναξιάς» αφού εκλύει συμπτώματα ζάλης, παραισθησίες, κρύα χέρια και πόδια, τρόμο, φαινόμενα δηλωτικά συμπτωματολογίας τύπου καταρρεύσεως. Οι απαντήσεις των ασθενών καταγράφηκαν ενώ υπήρχε συνεχής παρακολούθηση του καρδιακού και αναπνευστικού ρυθμού. Τα συμπτώματα που εκλύθηκαν από τα ερεθίσματα στο σύνολό τους δεν διαφοροποιήθηκαν μεταξύ τους. Σημαντική όμως συσχέτιση καταγράφηκε μεταξύ της διάρκειας των φυσικών δοκιμασιών και της βαθμολόγησης του «Ερωτηματολογίου 10 λημμάτων για την Αγοραφοβία». Η χρονική διάρκεια του ΚΑ συσχετίστηκε αρνητικά ($r=-0,456$, $p<0,05$) με τη βαθμολογία των 5 λημμάτων εγκλωβισμού του ερωτηματολογίου ενώ η χρονική διάρκεια της Υ συσχετίστηκε αρνητικά ($r=-0,479$, $p<0,03$) με τη βαθμολογία των 5 λημμάτων μοναξιάς του ερωτηματολογίου. Συνεπώς, με την προϋπόθεση ότι το ερωτηματολόγιο αναπαριστά το σχήμα απειλής εγκλωβισμού και μοναξιάς, η θεωρία των Guidano & Liotti εν μέρει επιβεβαιώνεται.

Λέξεις ευρετηρίου: Αγοραφοβία, εγκλωβισμός, μοναξιά, εκούσιο κράτημα της αναπνοής, υπέρπνοια.

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