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Research Article

Mind Genomics Cartographies of Everyday Anxiety Producers

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Abstract

In 15 parallel studies dealing sources of anxiety, public and private, separate groups of approximately 120 respondents each evaluated different combinations (vignettes) of messages about anxiety -provoking situations. The vignettes presented the nature of the situation, the effect on people, the effort to contain the problem, and the individual's response to the situation. Each respondent evaluated 60 unique combinations of these vignettes, rating each vignette on a 9-point scale (1=Can deal with it.9= Cannot deal with it.) Data suggest that the basic level of anxiety is approximately the same across the 15 sources of anxiety, but that the elements, the messages dramatically differ in their respective abilities to drive or to reduce anxiety. Surprising, many of the so-called efforts to deal with the anxiety, especially from the sources outside one's family (e.g., government, local hospitals, etc.) increased anxiety, rather than diminishing it. The database (Deal with It!) shows the contribution to insights and to the social record from databases of studies of social situations, created in a systematic manner according to experimental design of ideas (Mind Genomics.)

Introduction

Anxiety is a leitmotif of our times, with a popular and an academic, as well as an artistic literature virtually unfathomable. A sense of the vastness of our concern may be given by today's arbiter of social internet, Google, which counts the number of available websites dealing with a topic. Table 1 presents Google Scholar hits for different topics dealing with anxiety. The table is sorted by number of hits. These topics constitute the 15 assessed in the Deal With It! set of Mind Genomics cartographies.

Table 1: Google Scholar hits for the topic coupled with 'anxiety'. Data up to 2003.

	Topic	Hits as of 2003
1	Relationships	1,130,000
2	Environment	954,000
3	Social Interactions	413,000
4	War	372,000
5	Sexual Failure	145,000
6	Lose Health	116,000
7	Aging	111,000
8	Failure of Health Care	109,000
9	Lose Income	57,700
10	Obesity	56,300
11	Infectious Disease	40,500
12	Phobias	26,800
13	Terrorism	20,900
14	Franken Food (Genetically modified)	18,800
15	Lose Assets	18,000

Anxiety pervades our life. It is the bread and butter of psychologists and others in the helping professions.. It is the topic of numerous self-help websites. And it is something familiar to many of us. Anxiety comes in such variety that the sheer vastness of the topic suffices to make one anxious, just dealing with that unwieldly richness.

This paper deals with anxiety as a situation presented in text form to a respondent, instructed to rate the degree that she or he can 'deal' with the situation or cannot deal with the specific described situation. We avoid the general topic of 'anxiety' and present the topic as something with which a person can deal. That is, we make the situation somewhat concrete by particularizing the events.

The origin of these studies emerged from consumer research promoted at first by an ingredients company, McCormick & Company, in 2001, but with a focus on food, not anxiety. That early focus led to a set of 30 parallel studies in what makes people really desire a food, called naturally 'Crave It!' [1,2]. The success of Crave It! quickly led to several other series of so-called It! studies, focusing first on food, then on beverages, on good-for-you foods, and finally and snack foods.

The early focus on foods also sparked focus on the approach to study situations. The major study to emerge was the use of this It! approach to study the responses to anxiety provoking situations. Rather than dealing with topics that were positive, the effort was focused on understanding how the different aspects of an anxiety-producing situation drive the response of 'Can deal with it (rating = 1).to. Cannot deal with it (rating = 9)'. This paper presents an extensive analysis of those data.

Since the early research in 2003, Mind Genomics has been applied to anxiety-relevant situations,, such as the anxiety of teens

in a doctor's office [3]; anxiety in social situations [4], anxiety about the toxicity of house plans [5], and anxiety in the midst of a crisis in the pharmaceutical industry [6] The hallmark of these studies is the disciplined deconstruction of the issues into messages, their recombination by experimental design, the analysis of the new combinations, and the emergence of insight data about how people make decisions using the information provided [7,8].

Combining Mind Genomics with Anxiety – A Step by Step Development of the It! Cartography

The easiest way to understand what Mind Genomics may contribute to the study of anxiety is through an experiment, or in this case 15 experiments, run simultaneously, with similar patterns of elements, and similar patterns of analysis [4]. We call these experiments 'cartographies' because they 'map out a terrain' rather than focus on affirming or falsifying a hypothesis in the tradition of the more typical hypothetico-deductive approach to science. That is, we search for patterns, for regularities, upon which hypotheses can be developed. In sum, Mind Genomics as we see below is 'hypothesis-generating.'

Step 1 - Create the Raw Material

The basic input for the Mind Genomics study is a topic, followed by a set of questions presenting different aspects of that topic and 'telling a story', and finally each question giving a set of answers which provide specific information. These answers take the form of a standalone phrases. Later the actual test stimuli will comprise vignettes, combinations of these answers (but never the questions.) It is vital that the answers, the elements, be able to stand alone, and make sense.

Figure 1 presents the 15 studies. The viewpoint of an It! project or even a single Mind Genomics cartography that there may be important things in a topic, the precision of learning will not be increased by repeating the same experiment many times, producing precision. It is better to cover many different topics, even if the coverage is more error prone because the resources are more fruitfully expended studying different topics, not the same topic with more people.

Table 1 presents the three of the studies (Terrorism, Infectious Disease, Obesity). Table 1 shows the four questions, nine answers for each question, language and topic attempting to be parallel across the 15 studies. It was impossible to make the elements exactly parallel, since it was also vital to have the elements seem real and relevant.

Across the 15 studies and 36 elements per study, there were 540 elements. The 36 elements for a study were divided into the four questions. Within each question the types of elements were to be similar to each other across studies, although often this requirement some editing and wordsmanship to make the element both match the anxiety provoking situation, but be similar in form to the other elements of this type across the remaining 14 studies. Table 2 gives a sense of the 36 elements created for three parallel studies; terrorism, Infectious disease, and obesity, respectively

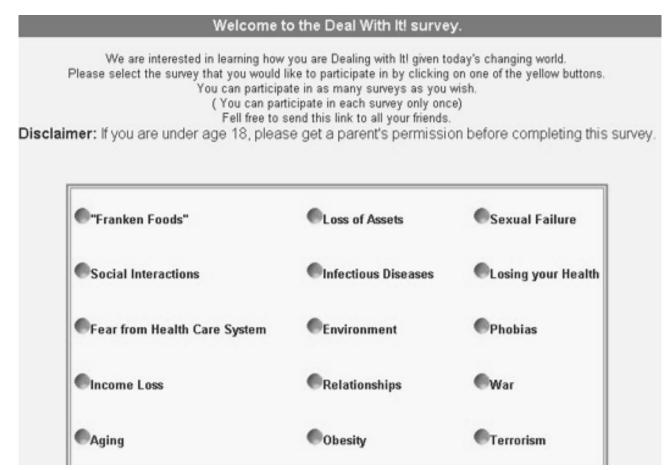


Figure 1: The 15 studies, shown by the 15 topics. The figure shows the 'wall of choice' Respondents could see the available studies, choose one, and do the corresponding Mind Genomics study.

Table 2: Example of elements for three parallel studies; terrorism, infectious disease, and obesity.

Terrorism Infectious disease Question 1: What is happening? A1 The media talking about potential terrorism acts A2 A bomb threat for a building that is a false alarm A3 A bomb under your car A4 Bombs blowing up in the middle of a building A5 Fire raging through a building A6 Contamination of the food supply A7 A build is a supply and the supply and supply and the sup	
A1 The media talking about potential terrorism acts A2 A bomb threat for a building that is a false alarm A3 A bomb under your car A4 Bombs blowing up in the middle of a building A5 Fire raging through a building A6 Contamination of the food supply The media talking about diseases that are spread by human contact or by the air You have a dry cough and don't feel so good You've added a few pounds You have some red bumps on your skin and don't feel so good You can't take the weight off You have some red bumps on your skin and don't feel so good You can't take the weight off You have been on an airplane that just came from some place that has some known infectious diseases You have to travel to a place that has some known infectious.	
Al Ine media talking about potential terrorism acts Al A bomb threat for a building that is a false alarm You have a dry cough and don't feel so good You've added a few pounds You are getting a fever and don't feel so good You've added a lot of extra weig You have some red bumps on your skin and don't feel so good You can't take the weight off You reel really run down You can lose itbut you just can't take the weight off You have been on an airplane that just came from some place that has some known infectious diseases You have to travel to a place that has some known infectious.	
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A6 Contamination of the food supply that has some known infectious diseases You have to travel to a place that has some known infectious	n't keep the weight off
You have to travel to a place that has some known infectious	dge you
A/ A deadily disease like smallpox or anthrax let loose diseases	
A8 A Computer virus let loose that impacts your everyday businesses You know the disease has arrived in your country You eat right, exercise, and still	
A9 A dirty nuclear bomb set off You have to touch people that you know have some infectious disease You are uncomfortable because everyone does naturally	of your weight doing what
Question 2: Who is affected?	
B1 In a non-populated area You tell no one how you are affected You tell no one how you are affe	ected
B2 In a heavily populated area People you work with OR will be working with are affected People you work with are affected	ed by your size
B3 An area crowded with children Children are affected Your children are affected by yo	ur size
B4 An area crowded with senior citizens Senior citizens are affected Your parents are affected by you	ır size
B5 An area filled with tourists Tourists are affected Strangers are affected by your si	ze
B6 When you least expect it You never expected it to happen to you or someone close to you You never expected it to happen to you or someone close to you	en to you or someone close
B7 During a Yellow alert People are getting sick in the location you have to travel to People around you are embarrance.	ssed
B8 During an Orange alert Your health office warns you not to travel to this location People around you are so judgm	nental
B9 During a Red alert The area you are traveling to is going to be or is quarantined People around you don't see you	ı for who you are
Question 3: How do you react?	
C1 You are all alone and you feel helpless You think about it when you are all aloneand you feel so helpless You think about it when you are helpless	e all aloneand you feel so
C2 You think about it, you just can't stop thinking about it When you think about it, you just can't stop When you think about it, you just can't stop	ıst can't stop
C3 You'd drive any distance to get away from it You'd drive any distance to get away from it You'd drive any distance to get a	way from it
C4 You are scared inside and out You are scared inside and out You are scared inside and out	t
C5 You experience it all seeing, smelling, tasting You experience it in all your senses You experience it in all your senses	ses
	ou feel overwhelmed
C6 All the stress just builds up you feel overwhelmed All the stress just builds up you feel overwhelmed All the stress just builds up you	ory loss because there's just
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Step 2: Create Vignettes according to an Experimental Design

The heart of Mind Genomics is the use of combinations of stimuli, these combinations indicated by the underlying design. The design itself is simply a shell, ensuring that the elements are statistically independent of each other (allowing for OLS, ordinary east squares regression), and that the elements are laid out in such a way that each element appears equally often, and is absent an equal number of times from the full set of vignettes.

With the 4x9 design, the most popular during the early years, 2000-2006, a total of 60 combinations, called hence vignettes, comprised at most one element from a question, but quite often one or two of the questions was deliberated not allowed to contribute an element. The benefit of the design is that is can be automatically populated simply by a replacement table. The researcher need not have to think about the statistically issues. Figure 2 shows an example of a vignette comprising four elements. By design some vignettes comprised four elements (one answer from each question), other vignettes comprised three elements (one of the for questions did not contribute an element), and still other vignettes comprised two elements (two of the four questions did not contribute an element.) Each element appeared equally often.

Each respondent evaluated a unique set of vignettes. The uniqueness was established by a permutation scheme which kept the mathematical structure intact but simply permuted the elements. This produces 60 unique combinations for each respondent. The experimental designed was prescribed by a permutation approach [8,9], and automatically embedded in the technology.

The rationale for the incomplete experimental design is the downstream ability to perform an OLS (ordinary least squares) regression analysis on the data of each individual respondent. This is known as a within-subjects design. Were there even as few as one respondent, it would still be possible to create a model showing the number of rating points that could be attributed to each of the 36 elements. That property of individual-level modeling will become

important for clustering the data together to create mind-sets, an important aspect of Mind Genomics

Figure 2 presents a sample vignette that the respondent was shown. The vignette is simple, comprising simply the elements prescribed by the underlying experimental design, these elements simply placed there without any effort to connect that. The rating scale appears at the bottom. Although many marketing professionals prefer to test concepts which are full, more polished, with better production value, the reality is that the focus is on the respondent's evaluation of the different vignettes, and the discovery regarding which specific elements drive the response. It is counterproductive, in fact, to make the vignette ore dense, more connected. The respondent ends up wading through additional 'stuff' to get to the information. It is the information, not the connectives, which are importance, and as a consequence, the spare structure shown in Figure 2 is ideal. The respondent does not get fatigued.

Step 3: Acquire Respondents

The respondents were invited to participate by an online-panel provider, Open Venue LTD, headquartered in Toronto, but providing respondents in both Canada and the United States. The respondent was invited to the general study by Open Venue Ltd. The respondents who participated was led to the 'wall of available studies.' Studies whose quotas were filled (approximately 120 completed respondents) 'disappeared' from the wall, so only the available studies with incomplete quotas appear for the choice.

The respondent was allowed to pick any study. Once the respondent selected the study, the respondent was led to the appropriate website. The first slide was the orientation slide (Figure 3). The orientation slide provides very little information about the study. Rather, the slide describes the topic by a few words, moves into the rating scale, and states that all the vignettes differ from each other. This last statement, viz., no repeat vignettes, emerged from exit interviews, where respondents said that they felt they were evaluating the same vignettes. The reality is that the respondents were evaluating the same elements, but different combinations of the elements.

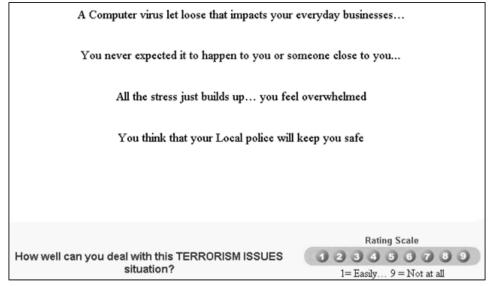


Figure 2: Example of a four-element vignette for Terrorism.

Welcome to the Deal With It! Terrorism Study.

With everything that is going on today in your life and around the world, we want to understand what situations you feel YOU CAN DEAL with.

On the following screens, you will be presented with 2-4 statements describing terrorism or destructive acts on both a personal and national level. Please consider these statements in total and tell us how well you can cope with the situation described. 1= Easily... 9 = Not at all

There are a total of 60 situation screens, and the test will take approximately 15-20 minutes of your time. You will see each statement presented several times ... each time in a different combination. No screen is exactly repeated.

After you complete the situation description section of this survey, you will be asked some additional questions. The information you provide will be used for research purposes only, and only in aggregate with that of other respondents, ensuring confidentiality.

Figure 3: The orientation page at the start of each of the 15 Deal With It! studies. The only thing which changed from study to study is the name of the topic (Welcome to the Deal With It! Terrorism Study).

It is worth noting that the majority of Mind Genomics studies conducted during the past 25 years have been studies in which a third party, e.g., Open Venue Ltd., has used its panel. Respondents do not like to spend 10 minutes of their time unless they feel that their efforts are valuable, or unless there is a reciprocal arrangement of give/receive on both ends. The number of completes for a compensated study, here about 33%, is far greater than the number of completes were these studies to rely upon the donated time of respondents without compensation. No matter how interesting or exciting the study, most respondents really want 'something' in the way of compensation.

Step 4: Surface Analysis - How Many Respondents Participated vs. How Many Dropped Out?

The objective in this Mind Genomics It! study was to recruit approximately 120 respondents for each of the 15 studies, or approximately 1800 respondents. Figure 1 shows the 'wall'. The respondent who participates could choose any of the studies available on the 'wall'. Without an artificial limitation, there would have been a preponderance of respondents choosing sexual failure, aging and war. To ensure an approximately equal number of respondents for each study, once the study reached about 120-125 completed respondents, the choice of the study disappeared. This strategy ensure the base sizes.

As part of the overall effort to balance the base size, the studies were launched at the same time, and the number of log-ins, as the number of completes were recorded on a daily basis for the first few days, and then done again after a three day hiatus. The rate of log-ins gives a sense of the interest in the topic. Figure 4 shows the cumulative number of log-ins over a two week period.

The key information in Figure 4 comes from the shape of the curve, and the number of log-ins need to reach the target quota of 120 respondents. The patterns can be deconstructed as follows:

- a. Steep at first lots of respondents are interested. Most of the topics are like that. Examples are Relationships and Phobias
- b. Less steep at first not as many respondents immediately interested. The best example is aging.
- c. Concave downwards the curve goes up, flattens into an asymptote. The study starts off strong but then fewer respondents are interested at the end. Example are Environment, Obesity
- d. Linear all the way the curve keeps going up in a straight line. The level of interest is the same from start to finish Examples are is Relationships and Aging.
- e. Level at day 15 is low. The number of logins to reach quota is smaller. People are interested in the topic. The best example is Lose Income.
- f. Level at day 15 is high. The number of logins to reach quota is higher. Many more people 'drop out of the experiment along the way, so they are not counted as part of the quota. Good examples are Relationship and Aging

The second surface analysis is to understand who participated. Knowing WHO the respondent is for many studies helps only when one wants to identify the specifics of the target population either because the study is most pertinent to them now or because there may emerge a strong linkage between the results of the study and the particular applicability of those results to a self-defined group. Thus, respondents were instructed to provide information about their interests and lifestyle, as well as on their previous behaviors. This information should make the study more relevant as a source of information about what concerns people.

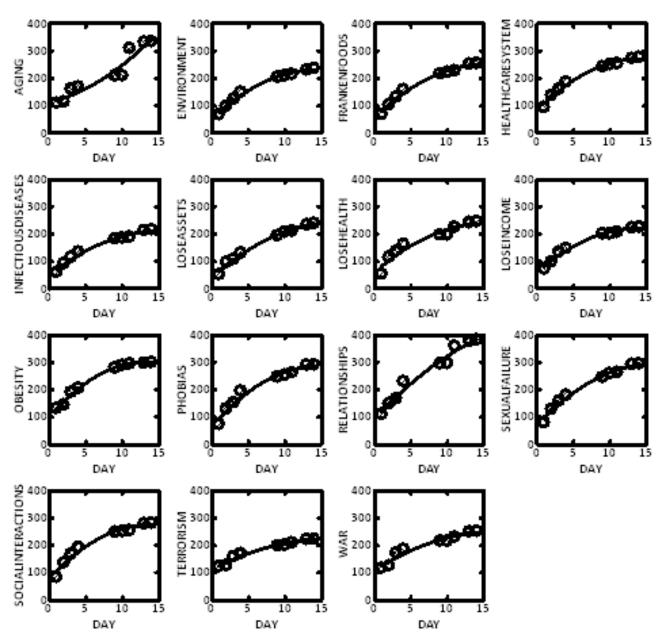


Figure 4: Cumulative log-ins for each study over a two week period. (No study exceed 125 respondents after successful log-in).

When we deal with 15 different studies, these studies dealing with different causes of anxiety and frustration, the patterns of who participated across the 15 studies interesting, even if there is no practical application as yet. Furthermore, the pattern of participation becomes even more interesting when one realizes that the respondents were free to select the study which interested them. After the respondent finished evaluating the test vignettes, the respondent completed a self-profiling questionnaire, telling the researcher about themself. The questionnaire instructs the respondent to self-classify in terms of gender, age, income, location where living, how severe is their experience with the anxiety, how frequently they experience the situation, the location, the ways they use to cope with the anxiety, and so forth.

Table 4 shows a reduced form, with the 15 topics as the data columns, the rows showing a few of the self-profiling questions answer by the respondent. We do not look at many classification levels, simply

because the vast amount of data would simply overwhelm. Table 4 shows by shaded cells the most frequent anxiety situation for each of the classification questions. It is clear from Table that respondents have varying degrees of interest in the topic. The data do not suggest randomness. Rather, the frequency of choice of a topic may indirectly reflect the basic interest in the topic. The clearest evidence of that is the is the comparison of two topics situated next to each other in Table 4. The data speak for themselves. These are aging and sexual failure, respectively, with 123 and 124 respondents, respectively.

Age 31-50 Aging chosen by 38 respondents, sexual failure by 64 respondents

Age 51-74 Aging chosen by 81 respondents, sexual failure by 41 respondents

(other ages not shown in Table 3)

Table 3: The composition of respondents who participated in the 15 Deal With It! studies. The columns show the studies. The rows show a partial breakout of the subgroups, defined both how he the respondent experiences the anxiety, and who the respondent is from a geo-demographic viewpoint.

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Base Size	Obesity	Lose Income	Aging	Sexual Failure	Lose Assets	Lose Health	Failure of Health Care	Social Interactions	Relationships	ár	Phobias	Franken Food	Environment	Terrorism	Infectious Disease
Total Sample	123	121	123	124	121	121	121	121	124	124	118	121	121	121	121
Do you experience anxiety when thinking about his topic															
Yes	84	70	69	61	60	56	53	37	36	33	28	18	16	10	6
How severe is your experience with the anxiety															
Extremely	14	46	12	16	35	19	30	12	16	11	10	8	5	10	6
Moderately	49	40	32	37	41	48	42	28	27	45	27	36	35	29	27
Once a day or more	39	32	18	25	27	30	22	15	23	67	17	6	16	42	20
Where or when do you experience the anxiety															
At Home	91	107	95	87	103	111	97	83	81	95	82	54	67	81	65
At Work	33	22	18	17	22	14	13	23	20	28	19	9	18	20	21
In the Car	22	35	15	20	30	27	22	28	25	23	28	10	17	22	14
In front of the TV	25	21	12	16	26	21	16	17	13	56	20	32	32	59	61
Reading a Newspaper/Magazine	11	17	9	8	21	9	18	9	8	25	10	31	34	29	26
Talking to Friends	16	34	29	21	27	20	26	28	23	23	18	15	14	21	22
Surfing the Internet	14	19	7	19	19	17	16	13	12	21	11	12	10	15	4
What reduce the anxiety															
Knowing you have a plan to deal with it	33	37	31	25	38	38	34	44	32	25	41	19	41	23	32
Knowing your government has a plan to deal with it	3	6	3	2	3	4	6	7	2	55	4	19	25	53	23
Eating right	48	6	37	13	9	37	32	16	19	9	16	63	10	3	29
Getting lots of exercise	36	15	40	27	13	26	19	20	25	5	12	29	9	7	20
Watching less TV or reading less	4	4	3	4	7	1	2	13	4	30	10	4	13	26	9
Focusing on the positives	58	73	69	61	77	69	66	73	66	59	69	56	62	72	59
Recognizing how I feel and dealing with it	53	59	57	69	57	59	53	66	62	50	63	31	47	47	47
Talking to Friends	23	38	41	34	39	29	35	51	46	43	30	23	36	43	36
Accepting help from others	14	30	15	18	27	27	26	19	22	5	26	4	14	9	14
Dealing with my anger	7	12	7	13	12	12	22	7	17	8	8	1	8	5	3
Helping others deal with it	5	8	4	8	9	7	8	10	13	11	8	9	16	16	13
Doing something I enjoy	38	42	50	51	34	39	33	42	33	37	33	31	36	32	22
Staying connected in my community	5	9	4	5	9	6	7	8	7	18	8	13	22	13	14
Gender															
Male	21	26	20	37	22	23	26	22	20	32	15	30	31	28	21
Female	102	95	103	87	99	98	95	99	104	92	103	91	90	93	100
Age															
31-50	74	57	38	64	51	55	53	64	66	69	59	69	55	63	62
51-75	40	61	81	41	62	60	62	43	39	46	41	40	53	53	44
Urban/Mid-Large	60	63	67	69	62	61	61	64	58	72	67	63	65	56	62

	Lose Income	Obesity	Sexual Failure	Lose Assets	Lose Health Insurance	Relationships	Lose Health	Franken Foods	Aging	Infectious Disease	Phobias	Social Interaction	Franken Foods	War	Terrorism
Total	40	37	36	36	34	31	27	24	24	23	23	22	20	20	19
Gender	Gender														
Female	43	38	37	39	33	32	26	27	24	25	24	25	20	20	19
Male	26	31	33	19	37	27	31	14	19	14	11	7	23	17	18
Age															
25-30	56	29	41	30	9	15	28	43	49	39	22	4	5	30	46
31-40	26	41	49	33	41	38	43	30	33	22	31	28	14	13	10
41-50	39	37	34	38	37	37	26	19	25	24	16	22	20	21	21
51-60	47	37	39	38	35	27	21	24	14	25	27	26	26	22	19
61-75	32	30	23	28	28	23	30	20	28	20	24	10	13	19	22
Suffer from anxiety about this	topic														
Yes	24	26	20	44	10	43	39	27	38	37	40	39	25	33	32
Extremely	33	59	41	58	48	44	44	41	54	31	57	50	31	36	45

Table 4: The additive constants for the total panel and for key subgroups. Additive constants of 30 or higher are highlighted.

Step 5: Relating the Elements to the Ratings Using Regression Modeling

The essence of Mind Genomics is the ability to relate the presence/ absence of the elements to the response, using regression analysis. The fact that the combination were systematically created means that we can actually measure the degree of 'causation', viz., that the presence of a specific element actually covaries in a specific way with the rating.

The first step when we relate the elements to the ratings is to decide whether the ratings need to be 'transformed'. For most basic science it is entirely adequate to work with the original rating scales, and apply statistical procedures to the ratings. When we deal with the world of application, however, we face a problem. The problem is simple, and is stated something like the following: 'What does a 7.08 mean?' Is a 7.08 good or bad? What should i do with that rating of 7.08? The foregoing question uses the value of 7.08 just as an example.

Fortunately, the issue of 'what does a scale point mean' is not a new one. The consumer researchers often have opted for yes/no scales, and have converted the rating scale to a binary scale. Thus, in conventional consumer research the respondent might be instructed to rate 'purchase intent' on a five point scale, ranging from 1=definitely not buy 5=definitely buy. Rather than working with the actual rating assigned by the respondent, the consumer researcher may transform the rating to a more easily understand binary scale. The typical consumer researcher will transform the ratings 1, 2, and 3 to 0, and the ratings 4 and 5 to 100, respectively. The thus data which had started out as a simple scale (often called a category scale or a Likert scale) becomes a binary scale (not buy/buy.)

The foregoing analysis was done for these data. The respondents used a 9-point scale. The transformation was ratings $1-6 \to 0$, and ratings

 $7 \rightarrow 100$, respectively. As a prophylactic measure prior to regression, a vanishingly small random number ($<10^{-5}$) was added to each transformed rating. The rationale was to ensure that the regression analysis would work even when a respondent assigned all vignettes a rating of 1-6 (which would transform to 0) or a rating of 7-9 (which would transform to 100.) The regression analysis requires a vanishingly small bit of variability in the dependent variable, the transformed ratings.

After the ratings were transformed, the Mind Genomics program separately estimated the following equation for each respondent: Transformed Rating (Binary) = $k_0 + k_1(A1) + k_2(A2)$. $k_{36}(D_9)$. The analysis was straightforward for the simple reason that the 60 vignettes evaluated by each respondent constituted a self-standing experimental design. That is, the data are 'readable' down to a base size of one respondent. One would never base the conclusion on one respondent so the approach is either to average the corresponding coefficients from the models of all respondents OR put in all the respondents from a single group into one analysis.

The equation provides a useful summary of the patterns in the data. We can think of the equation as showing the contributions of the different elements to the binary response of either *I can't deal with this* (ratings 7-9, now converted to 100), or the binary response of *I can deal with* this, or may/may not be able to deal with this (ratings 1-6.)

As an analogy, think of a statue standing on its base. The base is the additive constant. The base can be low (low additive constant), or high, or very high (very high additive constant.) Following the base are the different parts of the statue that can be placed atop one another. The parts can be small (low positive coefficients) and can even take away some of the base and thus reduce the height (negative coefficients.) Or the parts can be large (high coefficients), or can even take away a lot of the base (high negative coefficients.)

 Table 4a: Strongest anxiety-producing elements.

Study	Elements which very strongly drive anxiety	Coeff
Lose Assets	You lose your home	25
Lose Health	You believe Charities will help you get through this	25
Lose Health	You believe your company will help you get through this	22
Terrorism	A bomb under your car	21
Aging	Living in an old age home	20
Terrorism	A dirty nuclear bomb set off	20
Terrorism	You believe that international cooperation in the United Nations will keep you safe	20
	Elements which strongly drive anxiety	
Aging	You believe your plastic surgeon you have will help you get through this	19
Terrorism	You think United Nations Forces will keep you safe	19
Relationships	You believe dating services will help you get through this	18
Aging	You believe Charities will help you get through this	17
Environment	You trust that the Local government will keep the earth and you safe	17
Failure of Health Care	You believe Charities will help you get through this	17
Relationships	You believe talking to a lawyer or the courts will help you get through this	17
Sexual Failure	You were raped	17
Environment	You trust that the Environmental Protection Agency will keep the earth and you safe	16
Environment	You believe that the Businesses impacted will work to keep the earth and you safe	16
environment	A radioactive plume of dust over you	16
Lose Health	You believe whatever Supplemental insurance you have will help you get through this	16
War	A dirty nuclear bomb set off	16
Environment	You trust that the government will keep the earth and you safe	15
Income Loss	You believe your insurance will help you find new income	15
Infectious Disease	You believe Charities will help you get through this	15
Lose Assets	You believe Charities will help you get through this	15
Lose Health	Your doctor says you don't have long to live	15
Sexual Failure	You believe dating services will help you get through this	15
Social Interactions	You believe taking the right drugs will help you get through this	15
Social Interactions	You believe Food or Drink will help you get through this	15
Terrorism	Bombs blowing up in the middle of a building	15
Aging	You believe your company will help you get through this	14
Environment	You believe that international cooperation will keep the earth and you safe	14
Infectious Disease	You believe your company will help you get through this	14
Failure of Health Care	You believe your company will help you get through this	14
Terrorism	A deadly disease like smallpox or anthrax let loose	14
Infectious Disease	You believe whatever insurance you have will help you get through this	13
Lose Health	Losing control of your bodily functions	13
Infectious Disease	You trust that the government and the airports will stop this from entering your country in a big way	12
Failure of Health Care	The medical procedures you need are not covered by your insurance	12
Lose Health	Your body eating itself away from within	12
Lose Health	You believe whatever insurance you have will help you get through this	12
Relationships	You believe Food or Drink will help you get through this	12
Relationships	You believe Charities will help you get through this	12
Social Interactions	You believe Charities will help you get through this	12
Terrorism	You believe that the Center for Disease Control will keep you safe	12

Income Loss	You trust the government will help you find new income	11
Income Loss	You lose your job because you have done something wrong	11
Failure of Health Care	You believe your Local Hospital will get you through this	11
Lose Assets	You believe Local government services will help you get through this	11
Obesity	You believe that the food industry will work to help you find the right foods to eat	11
Phobias	You're afraid of speaking in publicand you must give a very important speech for your company to an audience of thousands	11
Phobias	You're afraid of spiders crawling near you and you have to reach in a dark musty space	11
Environment	You believe that Greenpeace will keep the earth and you safe	10
Frankenfoods	You trust the government will keep the earth and you safe	10
Infectious Disease	You have to touch people that you know have some infectious disease	10
Failure of Health Care	You believe whatever Supplemental insurance you have will help you get through this	10
Lose Assets	You lose your pension	10
Lose Assets	You lose your car	10
Lose Health	You believe your Local Hospital will get you through this	10
Social Interactions	Afraid to go out of the house	10
Terrorism	Contamination of the food supply	10
Terrorism	You believe that Homeland Defense will keep you safe	10

The analogy of the statue goes one step further, namely the height can be calculated by adding together the additive constant (the base), and the coefficients of up to four elements, as long as the elements come from different questions. The elements can either add to the height (positive coefficients) or diminish the height (negative coefficients.)

Step 5: The Strongest Anxiety-producing Situations as shown by the Additive Constant

The additive constant provides a measure of basic likelihood to say, 'I can't deal with it' (viz., ratings 7-9) in the absence of elements. The underlying 4x9 experiment design ensured that every vignette was populated by a minimum of two elements, a maximum of four elements, and that each of the four questions could contribute at most one element. The additive constant ends up being a purely estimated parameter, one useful to estimate the likely response to the (presumed) anxiety-provoking situation.

Previous studies with Mind Genomics suggest very low additive constants for items or services which do not excite interest. Examples include credit cards, whose additive constants hover around 10-20. To build interest in the credit card is hard. The offeror will have to discover elements which have high coefficients, elements to be added to the offering. In contrast, there are items which enjoy high additive constants, such as pizza, with an additive constant around 65-70. That means that in the absence of any elements, and just knowing the offering of pizza, around 65-70% of the responses will be positive. Returning to th example of th credit card, only 10% of the responses will be positive when the respondent knows the offering is a credit card. Again, other elements have to add to the offering.

Table 4 shows the 15 additive constants, one for each topic. The columns show the 15 studies. The rows show the key groups beginning with total panel, then genders, and then ages. There were other classification groups, but in the interest of clarity, only these are presented.

To allow the patterns to emerge more clearly, all the additive constants of value 30 or higher are shown in shaded form. These are the anxiety provoking situations which, in theory, would generate at least 30% ratings of 7-9 (cannot deal with it), in the absence of elements.

The pattern of anxiety-provoking situations is clear from the additive constant. The big effects occur most strongly with 'Lose Income.' Then there are five more, ranging from obesity to relationships which are quite strong. The lowest level is occupied by Franken Foods (viz., non GMO), War, and Terrorism. Keep in mind that this study was run in 2003, after 9/11. Yet there is no free floating anxiety operative for terrorism as there is for losing one's income, obesity, and sexual failure, three events or conditions which are real.

The 'Deal with It!' studies were open to everyone. The period around 2003 would see studies filling up into the hundreds of respondents. Surprisingly, however, The Deal with It study filled up very slowly, with most of the respondent being women, typically around three out of every four respondents. Nonetheless with the within-subjects design, even the 30 or so male respondents provide statistically stable data. That stability allows us to compare males and females. Females are anxious at a basic level about losing income, and losing assets respectively These are the important gender differences, viz., high additive constant, and large difference between the genders.

Step 6: The Elements Which Provoke the Strongest Anxiety Responses, and the Elements Which Provoke the Smallest Anxiety Response

The set of 15 studies provides 540 elements, each with a coefficient from the total panel showing the degree to which the element drives a rating of 7-9, viz., *i cannot deal with what is being presented*. Fortunately, the additive constants are similar to each other, and need not be considered. Recall that the additive constant is the predisposition for a

respondent to feel anxiety (rate 7-9) in the absence of elements. Since the additive constants are reasonably close to each other (Table 4), we can feel comfortable looking at the magnitudes of the coefficients.

Table 5 shows the elements which provoke the great amounts of anxiety, namely elements with coefficients of +10 or higher for the total panel. Of the seven great anxiety-provoking elements, surprising three of these end up being statements about who will help you get through this (viz., loss of health being helped by charities and one's company; the United Nations will keep us safe from terrorism.) There is no clear pattern for these severe anxiety-provoking elements, other than they are impersonal symbols of authority.

The second tier of elements, coefficients between 11 and 20, comprise mostly solutions. It is surprising that the presumed help to reduce anxiety instead ends up provoking anxiety (Table 4a).

The Deal With It! studies were designed with 'helping or ameliorating' elements expected to score low on the 9-point scale, and thus expected to generate low coefficients, presumably negative one in the regression model (after binary transformation.) A negative coefficient tells us the degree to which adding the element to the vignette is expected to reduce the rating, below 7-9 anywhere to 1-6. We focus here on the elements with high negative coefficients, elements expected to drive the ratings down to around 1-3.

Table 5 shows those elements generating coefficients of -12 to -7. There are far fewer elements which reduce the rating of anxiety (viz., which move the rating from 7-9.) God and family and friends are the key elements which reduce anxiety. The other efforts, bringing in government, companies, etc., not only did not reduce anxiety, but rather increased anxiety, as Table 4 shows.

Step 7 – Most Seemingly Reasonable Solutions End Up Backfiring

One of the ingoing theses of the Deal With It! study is that the solutions selected would be effective, maybe perhaps strongly effective at times, weakly effective at others. The presumption was that those respondents suffering most severely would generate the biggest negative coefficients. Towards this end, the next analysis considered only those respondents who self-reported that they perceive themselves to suffer from the problem, and furthermore, rated their suffering extremely high (viz., 5 on a 5 point scale.) For these respondents we then looked at the performance of all elements which presented 'solutions,' or at least potential solutions.

Table 6 shows the coefficients for the elements. The only elements which appear in Table 6 are those which score strongly either in ability to decrease anxiety (high negative coefficients, -10 or lower), or on their ability to increase anxiety (high positive coefficients, +10 or higher.)

Table 6 surprised, because very few of the elements thought to be solutions to the problem are perceived as solutions. Rather, most of them are perceived as increasing anxiety, rather than decreasing anxiety. That is, the solutions are perceived as problems, not solutions. The only real solution appears to be God, which will be dealt with in the last analysis.

Step 8: In God We Trust

This analysis was occasioned by the observation that across the 10 studies where God was mentioned, most of them featured God as a believable reducer of anxiety, viz., someone or something which can

Elements which reduce anxiety (Bigger negat	ive = More Anxiety Reducing)	
Study	Element	Coeff
Relationships	Your family and friends will help until you get through this	-12
Relationships	You trust your God will help you get through this	-12
Lose your income	You trust your God will help you find new income	-12
Lose your health	You trust your God will help you get through this	-10
Lose assets	You trust your God will help you get through this	-10
Social interactions	You trust your God will help you get through this	-10
Relationships	Family and Friends play a big role in your life	-8
Aging	Your family and friends will help get you through this	-8
Sex failure	You believe passage of time will help you get through this	-8
Lose your assets	You trust your God will help you get through this	-8
War	It's important for the Media to keep you informed	-7
Lose your assets	People you work with are affected by this situation	-7
Aging	You trust your God will help you get through this	-7
Obesity	Your family and friends will help until you get through this	-7
Lose your health	Family and Friends play a big role in your life	-7
Sex failure	No one you know is affected by this situation	-7
Obesity	Family and Friends play a big role in your life	-7
Lose your assets	Family and Friends play a big role in your life	-7

Table 5: Elements which reduce anxiety.

Table 6: Strong performing elements either reducing anxiety (negative coefficients < -10), or increasing anxiety (positive coefficients > +10.) The elements in the table are chosen from presume 'solutions to the problem dealt with in the particular study.' The table is sorted by the coefficients of those who say they 'suffer extremely' from the topic of the individual study.

		Suf	Suf
		ffer -	Suffer - Extremely
		Yes	Extre
			mely
	duced anxiety among those who self-classify as extreme sufferers Table 6: Strong performing elements either redu		
	re coefficients > +10.) The elements in the table are chosen from presume 'solutions to the problem dealt with in the path they 'suffer extremely' from the topic of the individual study.	particular study. The	table is sorted by the
Lose Income	You trust your God will help you find new income	-15	-20
Lose Income	You trust your God will help you find new income	-15	-20
Social Interactions	You believe talking to a therapist will help you get through this	-5	-19
Relationships	You believe talking to a therapist will help you get through this	-10	-13
Sexual Failure	You believe passage of time will help you get through this	-7	-13
Social Interactions	You believe taking the right drugs will help you get through this	16	-12
Elements which paradoxical	lly increase anxiety among those who self-classify as extreme sufferers		
Aging	You believe your Local Hospital will get you through this	12	10
Lose Assets	You believe whatever Supplemental insurance you have will help you get through this	4	11
Phobias	You believe your Local Hospital will get you through this	4	11
Relationships	You believe dating services will help you get through this	7	11
Sexual Failure	You believe talking to a sex therapist will help you get through this	8	11
Lose Assets	You believe Local government services will help you get through this	9	11
Lose Assets	You believe whatever savings/investments you have will help you get through this	3	12
Lose Assets	You believe whatever insurance you have will help you get through this	5	12
Aging	You believe whatever insurance you have will help you get through this	9	12
Infectious Disease	You believe your Local Hospital will get you through this	30	12
Obesity	You believe talking to diet counselor will help you get through this	-1	13
Relationships	You believe Charities will help you get through this	4	13
Obesity	You believe that the food industry will work to help you find the right foods to eat	10	13
Lose Income	You believe your company will help until you find new income	8	14
Terrorism	You believe that Homeland Defense will keep you safe	10	14
Infectious Disease	You believe what it insurance you have will help you get through this	27	14
Sexual Failure	You believe work will help you get through this	12	15
Lose Health	You believe your Local Hospital will get you through this	11	16
Infectious Disease	, , , , ,	23	
	You believe your company will help you get through this	6	16
Relationships	You believe talking to a lawyer or the courts will help you get through this		17
Lose Assets	You believe Charities will help you get through this	14	17
Aging Lose Income	You believe your company will help you get through this	18	18
	You believe your insurance will help you find new income	18	18
Environment	You believe that the Businesses impacted will work to keep the earth and you safe You believe Charities will help you get through this	29	20
Lose Health Insurance Franken Food	1, 0	0	21
Lose Health Insurance	You believe international cooperation will keep the earth and you safe		22
	You believe whatever insurance you have will help you get through this	11	23
Lose Health	You believe whatever insurance you have will help you get through this	16	23
Aging	You believe your plastic surgeon you have will help you get through this	19	25
Failure of Health Care	You believe whatever Supplemental insurance you have will help you get through this You believe your Local Hospital will get you through this	20	25
Failure of Health Care	You believe your Local Hospital will get you through this You believe Charities will help you get through this	20	26
Aging Egilyra of Hoalth Cara	You believe Charities will help you get through this	22	26
Failure of Health Care	You believe your company will help you get through this You believe that interrectional companion will keep the conth and you cofe.	25	30
Environment	You believe that international cooperation will keep the earth and you safe	26	30
Lose Health	You believe whatever Supplemental insurance you have will help you get through this	22	32
Lose Health	You believe Charities will help you get through this	27	32
Lose Health	You believe your company will help you get through this	24	34

help people 'Deal With It'. Table 7 shows that in most of the studies and among the three groups (total, sufferer, extreme sufferer), the statement about God reduces the anxiety. The coefficients are mostly negative, many of them strongly negative, with values -10 or lower. These results suggest that at least as of 2003, Americans may have been become more secular, but God was still a comforting thought and presence to them across many of the topic issues causing anxiety.

Step 9 – Uncovering Mind-sets based upon Anxiety-provoking Elements

A hallmark of the Mind Genomics approach is the hypothesis that people differ from each other in their responses to the various situations and 'things' in their everyday world, especially those situations and things which call forth emotional responses. The underlying difference among people is not new; individual differences have been recognized since the time of Aristotle and Plato, as well as Machiavelli, not to mention writers, poets, politicians, and the like [10,11]

The contribution of Mind Genomics is the ability to use a small, short experiment, inexpensive and scalable experiment to uncover patterns of responses to the everyday, working at the level of the granular experience. In doing so, Mind Genomics follows a well-trod path, finding its roots in psychology (especially those of individual differences), and consumer research (psychographic segmentation; [12]).

The segmentation approach for Mind Genomics works with the set of coefficients from the study, clustering the coefficients [13]. Those respondents in the same cluster are 'similar to each other' based upon the pattern of the coefficients. Those respondents in different clusters are 'dissimilar to each other,' again based on the pattern of coefficients. The clustering method is a mathematical treatment of the data, attempting to put the 'things' (here the respondents) into a small set of meaningful, interpretable groups.

The studies here featured different groups of elements, customized to fit the specific topic. As a consequence, the cluster analysis had to be conducted separately for each study. To get a sense of the different mind-

Table 7: Coefficients for elements mentioning God, reported for Total Panel, for those self-reporting that they suffer anxiety regarding the study topic, or suffer extreme anxiety regarding the topic study.

Element: You trust your God will help you get through this	Total	Suffer	Suffer Extremely
Social Interactions	-10	-11	-20
Relationships	-12	-11	-16
Failure of Health Care	-10	-7	-16
Infectious Disease	-6	4	-16
Lose Assets	-8	-12	-15
Lose Health	-10	-13	-12
Aging	-7	-6	-7
Sexual Failure	-1	-2	-5
Obesity	-6	-9	-3
Phobias	-5	-13	11

sets, we created two clusters or mind-sets, doing separately for each of the 15 topics. Table 8 shows the base sizes and the additive constant for each of the mind-sets. For the most part, the additive constants for the two complementary mind-sets are similar in magnitude. It will be in the patterns of coefficients where the differences occur, generally in the elements which provoke anxiety (viz., the positive coefficients).

The elements which drive the strongest anxiety for the two mind-sets (now called Types) appear at the top of Table 9. We use the phrase Mind-Set Types to denote the fact that the mind-sets were developed separately for each topic. The elements which reduce the anxiety, appear in the bottom of Table 9. Keeping in mind that each study was subject to its own clustering analysis, it appears that there are two themes running through the mind-sets, themes which reveal themselves from the positive coefficients (anxiety-provokers), but not from the negative coefficients (anxiety-reducers).

The underlying pattern which continues to emerge is that Mind-Set A respondents strongly to actual events which are presumed to provoke anxiety. In contrast, Mind-Set B respondents respond strongly to social institutions which presumably should reduce anxiety but for respondents in this second group of 15 mind-sets ends up increasing anxiety.

The story is different when we look at the elements which reduce anxiety (bottom of Table 9). Mind-Set Type A believes in the elements which presumably ameliorate anxiety, being designed to do so. In contrast, Mind-Set Type B, which showed the aberrant responses to helping elements (provoking anxiety) appear to be totally random in what ends up ameliorating anxiety (viz., elements with highest negative elements). Generally their negative numbers are far smaller than the negative numbers of Mind-Set Type A, suggest two radically different groups when it comes to what seems to drive anxiety.

Table 8: Base sizes and additive constants for the two complementary mind-sets (MS1, MS2) for each topic.

	Base	Size	Additive Constant			
Торіс	MS1	MS2	MS1	MS2		
Aging	71	52	24	23		
Environment	51	70	17	23		
Franken Food	59	62	34	34		
Infectious Disease	49	72	19	29		
Lose Assets	83	38	41	38		
Lose Health	73	48	21	25		
Lose Health Insurance	33	88	25	30		
Lose Income	59	62	33	41		
Obesity	58	65	42	32		
Phobias	45	73	22	23		
Relationships	60	64	34	28		
Sexual Failure	79	45	33	40		
Social Interactions	78	43	18	29		
Terrorism	67	54	27	9		
War	77	47	23	15		

Table 9: Elements which most strongly drive anxiety (top of table) and which most strongly reduce anxiety (bottom of table) for the 15 topics, for the two mind-set types.

	T						
Topic	Mind-Set Type A Anxiety Provokers	I	Mind-Set Type B Anxiety-Provokers				
Aging	Living in an old age home	30	You believe Charities will help you get through this	32			
Environment	A radioactive plume of dust over you	28	You trust that the Environmental Protection Agency will keep the earth and you safe	31			
Lose Health Insurance	The medical procedures you need are not covered by your insurance	15	You believe your Local Hospital will get you through this	37			
Franken Food	You are scared inside and out	11	You trust the government will keep the earth and you safe	21			
Lose Income	You lose your job because you have done something wrong	14	You believe your insurance will help you find new income	25			
Infectious Disease	You have to touch people that you know have some infectious disease	16	You believe Charities will help you get through this	31			
Lose Health	Your doctor says you don't have long to live	32	You believe Charities will help you get through this	39			
Lose Assets	You lose your home	34	You believe Charities will help you get through this	33			
Obesity	You just can't control the eating	12	You believe a plastic surgeon will help you get through this	26			
Phobias	You're afraid of flyingand you must fly across the ocean	17	You believe Charities will help you get through this	23			
Relationships	You believe dating services will help you get through this	5	You believe dating services will help you get through this	32			
Sexual Failure	You were raped	21	You believe dating services will help you get through this	37			
Social Interactions	You just can't function	14	You believe Food or Drink will help you get through this	28			
Terrorism	A dirty nuclear bomb set off	39	You think United Nations Forces will keep you safe	34			
War	A dirty nuclear bomb set off	23	You believe international cooperation in the United Nations will keep you safe	28			
Topic	MindSet A- Anxiety Reducers		Mind-Set B - Anxiety Reducers				
Aging	You trust your God will help you get through this	-12	Not having as much energy as you used to	-10			
Environment	You believe that Greenpeace will keep the earth and you safe	-10	You trust that God will keep the earth and you safe	-6			
Lose Health Insurance	You trust your God will help you get through this	-15	You are scared inside and out	-15			
Franken Food	You believe international cooperation will keep the earth and you safe	-6	It's important for the Media to keep you informed	-11			
Lose Income	You trust your God will help you find new income	-18	Business downturns that result in layoffs in your company	-7			
Infectious Disease	You trust your God will help you get through this	-11	Your family and friends will help get you through this	-5			
Lose Health	You trust your God will help you get through this	-19	Family and Friends play a big role in your life	-7			
Lose Assets	You trust your God will help you get through this	-10	A burglar steals your jewelry and other things that are important to you	-10			
Obesity	Family and Friends play a big role in your life	-11	You trust your God will help you get through this	-10			
Phobias	You trust your God will help you get through this	-13	You're afraid of being in crowds and you must go shopping at Christmas time	-9			
Relationships	Not getting along with your partner	10	Not getting along with your partner	-7			
Sexual Failure	You believe passage of time will help you get through this	-11	You have performance issues	-11			
Social Interactions	You believe talking to a therapist will help you get through this	-15	You trust your God will help you get through this	-8			
Terrorism	A Computer virus let loose that impacts your everyday businesses	-2	You need to contact your friends and family to make sure they are OK	-11			
War	You trust that God will keep you safe	-14	Seeing my friends or family getting called up to go fight	-5			

Discussion and Conclusions

A cursory exploration of the topic of 'anxiety' brings up tens of thousands of 'hits' and many papers dealing with the manifold dimensions of anxiety. One could look at the topic of anxiety from deep inside the person, such as the approach espoused by psychoanalysis, or perhaps move a little more to the surface with cognitive behavioral therapy. Certainly, anxiety is no stranger to the world of clinical psychology, or business psychology, because of its prevalence and potentially damaging effects. Clinical psychology can teach us a lot about anxiety, from cause to manifestation to effects.

Moving beyond the clinical world is the effects of anxiety on the person's performance in the world, experiences, and interactions with the world of the everyday. Whether this be anxieties about what a person doe (e.g., relationships, sexual failure, etc.), to who a person is (e.g., aging), to what external events occur (e.g., lose health, lose assets), there is the need to understand the surround of this liferelevant interaction. There has been a lot published on these different, relevant aspects of anxiety. A Google Search of the phrase 'Anxiety in everyday life' brings up 12.5 million hits as of this writing (winter, 2022.) The same phrase in Google Scholar (r) as of winter, 2022,

brings up 1.6 million hits. When we limit the search to end at 2003, the number of hits drops to 155,000.

The foregoing observations tell us that there is a great interest in the topic of anxiety. At the same time, a search through the literature, or in Google Scholar (r) reveals the scattered nature of the topic. Each author focuses on that which is interesting, going in deeply. One does not have any sense of the world of anxiety dealt with in the coherent way done by a set of parallel Mind Genomics cartographies. The goal of the Mind Cartography is to systemize the data, and create understanding of the topic from the point of view of the everyday. Mind Genomics approach provides a way to understand anxiety and to allay it in a way which seems both practical and theoretical, working at the level of the granular, and yet giving a vision of a galaxy of such topics. Relevant data for the topics might be assembled painstakingly from the published literature, but without a coherent set of raw data underlying the studies. With Mind Genomics, a few weeks, and a modest budget, the entire study can be repeated. The integrated database of the granular aspects of daily experience promote newto-the-world discoveries, easily found, analyzed, synthesized, and integrated in both current thinking and visions of new vistas.

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