

Chapter 8

Empirical evidence

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8.1 Introduction

The purposes of this chapter are:

1. to verify the hypotheses which were formulated during the presentation of the vital needs model, and exactly:
 - among all the items suggested by different theories, the items relative to suffering ("I feel dissatisfied", "I feel unhappy" e "I feel discontented") should obtain the highest correlations with the items which have been suggested by the vital needs model ("I feel depressed", "I feel anguish", "I feel lonely" and "I feel useless");
 - as a consequence of the identity conflict equation, the feelings of depression and anguish should be correlated in a mathematically perfect way;
2. show an example of how the relational methodology can be used and how it can permit to handle subjective and masked information. The relational methodology allows to study together an unlimited number of qualitative and quantitative, subjective and objective information.

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8.2 The questionnaire

The relational methodology allows to ask direct questions about subjective experience such as “do you feel depressed?”. In this way the data gathering process becomes very simple and inexpensive, tools are easy to develop and easy to answer. In a questionnaire formulated in this way, hundreds questions can be answered in a short time. In table 1 a questionnaire devised for this methodology is shown.

Instruction

Describe yourself using votes from 0 to 10. 10 equals to Yes, 0 to No, 1 to very little, 5/6 to average and 7/8 to a lot.

For example:

I feel:	
a) Happy	8
b) Depressed	0
c) Cheerful	7

I feel:					
1. Ambitious	_____	15. Emotional	_____	29. Nervous	_____
2. Anxious	_____	16. Empty	_____	30. Obedient	_____
3. Attractive	_____	17. Frightened	_____	31. Ordered	_____
4. Bored	_____	18. Fulfilled	_____	32. Restless	_____
5. Brilliant	_____	19. Happy	_____	33. Rigid	_____
6. Calm	_____	20. Honest	_____	34. Romantic	_____
7. Cheerful	_____	21. Idealist	_____	35. Satisfied	_____
8. Confused	_____	22. In love	_____	36. Scared	_____
9. Content	_____	23. Insensitive	_____	37. Sensitive	_____
10. Creative	_____	24. Kind	_____	38. Sentimental	_____
11. Depressed	_____	25. Lively	_____	39. Sociable	_____
12. Despised	_____	26. Lonely	_____	40. Spontaneous	_____
13. Displeased	_____	27. Mannered	_____	41. Uncertain	_____
14. Distracted	_____	28. Neglected	_____	42. Unhappy	_____

Tabel 1 – Example of a questionnaire with direct questions which can be analyzed using the relational methodology

8.3 The MonteOro questionnaire

The two hypotheses which originate from the vital needs model will be tested using the MonteOro questionnaire. Answered by 974 high school students, in a study relative to the causes of suffering and distress in teenagers, this questionnaire research work was carried out in 1993 in the province of Teramo (Italy). The MonteOro questionnaire was devised using a brainstorming process during which psychologists, psychiatrists and social workers put forward suggestions about what could explain the suffering of teenagers.

The reasons why hypotheses will be tested using an already existing database are the following:

- The items of the MonteOro questionnaire were chosen by experts who had no knowledge of the vital needs model and, therefore, it was not distorted by the wish to verify the hypotheses which originate from this model.
- It unites very different hypotheses suggested by experts in different fields, from psychoanalysis, cognitive/systemic approach, psychiatric and sociological;
- The sample is consistent (974 students) and allows to discriminate small relations;
- Some items of the questionnaire can be used to verify the hypotheses which originate from the model of vital needs (feeling depressed, anguish, useless, lonely);
- The data file is public, and can be downloaded freely by everyone who wants to replicate the data analysis.

8.4 Sample

Heterogeneity allows to maximize concomitances (correlations); it is a fact that in order to maximize correlations it is necessary to maximize the variability of data. The relational methodology requires heterogeneous samples, which are usually quite easy to obtain. The MonteOro questionnaire was answered during the first week of May 1993 by a total of 974 students of 12 high schools of the province of Teramo. This short period allowed to exclude

that variability could be attributed to external causes, such as climatic or social factors. The questionnaire did not require an interviewer and was usually completed in less than 40 minutes, it was therefore answered during a one hour school lesson. The supervisors received the following instructions:

- No explanations about the meaning of items should be given;
- The questionnaire had to be completed immediately; it was not permitted to take it home and hand it back the day after;
- The questionnaire had to be answered with no change in the setting, and with no interruptions.

8.5 Questionnaire items

The purpose of the MonteOro research was that of studying what the explanation of the dissatisfaction of teenagers. The key variables of the questionnaire describe therefore feelings of dissatisfaction: "I feel dissatisfied", "I feel satisfied", "I feel happy", "I feel unhappy", "I feel content", and "I feel discontented".

The explicative variables were suggested by experts in different fields of psychology, psychiatry and social sciences. Explicative variables were divided in the following groups:

- what I think about the social crisis;
- situations of discontent which I know about;
- my neighborhood;
- how I use my free time;
- difficult situations which I happen to experience;
- my family;
- my childhood;
- the environment in which I live;

- my school;
- my friends;
- my relations;
- when I see two persons hugging I think;
- with my partner.

Different explicative models share these same groups, for example:

- M. Klein suggests that suffering is linked to traumas experienced in childhood. These traumas cause a failure to remember the childhood (this hypothesis was translated in items "I remember very little of my childhood" and "I have beautiful memories of my childhood");
- The family-relational approach lead to the formulation of several items relative to the relations among teenagers and his/her family;
- The psychoanalytical approach suggested items relative to the dependency relation with parents;
- The psychiatric approach suggested items relative to contagious behaviors among unhappy teenagers.

8.6 Hypothesis

The aim of this chapter is to verify the following hypotheses:

1. *Hypothesis number 1* – Among all the items suggested by the different models it is expected that those items which describe the need of unity and the need of meaning ("I feel depressed", "I feel anguish", "I feel useless" e "I feel lonely") will obtain the highest correlations with the key variables of dissatisfaction and unhappiness.
2. *Hypothesis number 2* – The identity conflict equation suggests that depression and anguish should be correlated in a nearly perfect mathematical way. As a consequence

the correlation among “I feel depressed” and “I feel anguish” should be the highest observed among all the items of the questionnaire.

8.7 Data analysis

Data analysis was performed using the software Sintropia-DS which is based on relational methodology and which can be freely downloaded at the address <http://www.sintropia.it/italiano/index2.htm>.

Dichotomization of variables

As was discussed in the previous chapter, the relational methodology requires Yes/No variables; the operation which was required before data analysis could be performed was that of dichotomizing the answers given to the MonteOro questionnaire which used a scale with values ranging from 0 to 10. It is important to remember that concomitances are strengthened when the variability among Yes/No is higher. For this reason data is usually gathered using a wide scale and then dichotomized using the median value which tends to divide equally the subjects between the modalities Yes and No.

Concomitances

As was discussed in chapter 7, relational methodology requires dichotomic variables, and allows to study concomitances (also known as connections or correlations) using 2x2 tables, of the type:

		I feel anguish		
		No	Yes	Total
I don't feel depressed	I don't feel depressed	376	56	432
	I feel depressed	79	463	542
Total		455	519	974

Table 2 – Absolute values

These tables are named 2x2 because the column and the row variable have 2 modalities (Yes/No). Concomitances are observed when the values between column percentages differ. For example, transforming table 2 in a table where each column is expressed in percentages (the sum of each column adds up to 100%) table 3 is obtained:

		I feel anguish		
		No	Yes	Total
I don't feel depressed	I don't feel depressed	82,64%	10,79%	44,35%
	I feel depressed	17,36%	89,21%	55,65%
Total		100,00%	100,00%	100,00%
		(455)	(519)	(974)

Table 3 – Column percentages

The comparison is performed between column percentages. For example, in the row “I feel depressed” 89,21% of the subjects answer Yes “I feel depressed” and Yes “I feel anguish”, while only 17,36% of those who have said Yes to “I feel depressed”, say No to “I feel anguish”. If no relation existed between “I feel depressed” and “I feel anguish” the same values should have been observed in the group which answered Yes and in the group which answered No to “I feel anguish”, and this percentage would have been similar to that of the total group. In other words, percentages in the total column are those *expected* in case no relation exists between the two variables, while the percentages in the Yes and No column

are those *observed* between the two variables. The difference between observed and expected percentages tells if a relation exists and how strong the relation is.

Statistical Tests

In order to answer to the hypothesis number 1 all the tables which cross the 195 items of the MonteOro questionnaire were calculated, obtaining a total of 18.915 tables. It is quite evident that it is impossible to read all these tables. It has therefore been necessary to express the strength of the relations using a statistical test, the Chi Square (χ^2).

Many statistical tests allow to study the existence of relations among dichotomic variables, and the Chi Square test is one of the most widely used. Chi Square calculates the strength of the relation of two variables adding, for each cell, the squared difference among the expected and observed frequencies: the higher the value of Chi Square the stronger the relation among the two variables. When no relation is observed the Chi Square value equals to 0. With 2x2 tables the highest Chi Square value coincides with the total number of subjects. The Chi Square value is compared with probabilistic tables which allow to assess the equivalent statistical significance (p). Statistical significance tells which is the risk when stating that a relation exists among the two variables. It is a convention to consider valid all those relations which show a risk inferior to 1%. In 2X2 tables the 1% significance is reached with a Chi Square value of 6,635. The higher the value of Chi Square the more significant the relation among the two variables.

8.8 Results

Hypothesis number 1. Among all the items suggested by the different models it is expected that those items which describe the need of unity and the need of meaning ("I feel depressed", "I feel anguish", "I feel useless" e "I feel lonely") will obtain the highest correlations with the key variables of dissatisfaction and unhappiness.

The originality of this hypothesis is due to the fact that the vital needs model, differently from the other theories, suggest that, because all the individuals are constantly faced with the necessity of satisfying their vital needs, depression and anguish should be common to all people, and they should just vary in intensity. A non adequate satisfaction of needs would therefore be expressed in the form of depression, anguish and dissatisfaction and unhappiness. In table 4 the highest correlations obtained by the key variables of dissatisfaction are listed.

I feel unhappy	I feel discontent	I feel dissatisfied
Chi ²	Chi ²	Chi ²
193.88 I feel depressed 182.29 I feel lonely 166.86 I feel useless 165.87 I feel anguish 76.60 I am often refused by friends 46.35 I am often emarginated at school 39.75 I am often criticized 35.58 My family has big economical problems 23.50 I am very afraid of others people judgment	200.27 I feel depressed 172.19 I feel anguish 133.04 I feel useless 126.79 I feel lonely 75.26 Even when in a group I feel lonely 66.73 I am often refused by friends 50.65 I am often criticized 43.49 I am very afraid of others people judgment 21.27 My family has big economical problems	181.34 I feel anguish 179.18 I feel depressed 139.26 I feel useless 99.10 I feel lonely 54.29 I am often refused by friends 52.69 Even when in a group I feel lonely 35.21 I am often emarginated at school 33.89 I am very afraid of others judgment 18.94 My family has big economical problems 15.49 I remember little of nothing of my childhood
Inverse correlations:		
-55.32 My family is very united -39.97 My father is very affectionate	-40.30 My family is very united -37.21 My father is very affectionate	-38.47 My family is very united -34.04 My father is very affectionate

Table 4 – Strongest correlations obtained by the key variables

The 3 key variables which describe dissatisfaction show the strongest correlations with "I feel depressed", "I feel anguish", "I feel useless" and "I feel lonely", followed by "I am often refused

by friends", and "I am very afraid of other people's judgment" (which supports the idea that others people's judgment is a key strategy used in order to give a meaning to life). The first direct correlation with an item different from those suggested by the vital needs model is with the item "I remember little or nothing of my childhood", a correlation which supports Klein's hypothesis that distress is linked to traumas experienced in the early stages of life; but this correlation shows up only with one key item and with a very low values of Chi Square. Two items suggested by the systemic-relational approach: "My family is very united" and "My father is very affectionate" obtain inverse correlations.

While the correlations with the items which support the vital needs model obtained Chi Square values which tend to 200, the highest Chi Square value obtained by a different model (systemic-relational) obtained values approximately of Chi Square 50, while the item which supports Klein Hypothesis obtained a value of Chi Square 15,49.

Items which were used in the questionnaire to study risk behaviors such as: "I have thought to use drugs", "Life is not worth living", "I have thought to escape from my family", correlate with the key items relative to distress and then with the items which support the vital needs model, as it is shown in table 5.

Chi ²
78.15 I feel depressed
64.83 I feel anguish
63.76 I feel useless
55.53 I feel lonely
34.48 Even when in a group I feel lonely
34.23 I am often refused by friends
19.75 I am often criticized
15.81 My family has big economical problems

Table 5 – Highest correlations of the items which are relative to risk behaviors

Even when considering these items, all the other models which had been suggested by experts of different fields, do not reach statistically significant correlations.

This first short empirical test shows the strong explicative power of the vital needs model. Correlations which have been discussed here might seem obvious, as they are continuously confirmed by our daily experience and by the clinical work, but it is interesting to note that these correlations are, at the moment, suggested only by the vital needs model.

Hypothesis number 2 – The identity conflict equation suggests that depression and anguish should be correlated in a nearly perfect mathematical way. As a consequence the correlation among “I feel depressed” and “I feel anguish” should be the highest observed among all the items of this questionnaire.

As it was shown before the highest correlation obtained by items different to those suggested by the vital needs model were of Chi Square 55.32. It is important to remember that statistical significance ($p=0,01$, 1% risk error) is reached with a Chi Square value of 6,635 and that the highest majority of correlations do not reach this value. Here, instead, the hypothesis that “I feel depressed” and “I feel anguish” will show a nearly perfect relation, with a value superior to all the other values obtained in this study. Even if this correlation is well known in the clinical field, at the moment no theory or model explains why this correlation should exist, except for some neurophysiology observations which show that depression and anguish share the same areas (fact which could be a consequence of a perfect mathematical correlation among these two different forms of suffering). In the clinical field the difference in the etiology of depression and anguish is often underlined, where depression would originate from loss while anguish from fear. For this reason a low correlation would be expected, in consideration of the fact that the origins of these two forms of suffering are different. On the contrary the vital needs model suggests that the correlation between depression and anguish should be nearly perfect, and that it should be the highest observable among all the items of the questionnaire.

In table 6 the highest correlations obtained by the item “I feel anguish” are listed. The first correlation is with “I feel depressed” which obtained a Chi Square value of 507.08.

“I feel anguish” correlates with:

507.08 I feel depressed
231.06 I feel useless
204.17 I have little self-esteem
197.24 I feel lonely
188.33 I have little hope in life

Table 6 – Highest correlations of “I feel anguish” with the items of the questionnaire

Considering all the correlations among the 195 items of the questionnaire ($195 \times 194/2 = 18,915$ possible correlations) and putting them in order, the correlation between "I feel depressed" and "I feel anguish" ($\text{Chi}^2 507.08$) is by far the highest one, with Chi Square values considerably higher than the next correlation in the list.

It is important to note that identical forms of the same items obtained correlations lower than Chi Square 300. It is therefore possible to appreciate the strength of a Chi Square value over 500. In theory, the highest possible Chi Square value which could be obtained was 974 (the number of the sample), but in any social research work a "noise" factor always reduces the strength of correlations. In order to assess how strong the noise factor is, and how much it could reduce correlations, identical items were introduced in the questionnaire: in section N (My friends) and in section F (Which of the following situations do you experience?); the item was "I am often refused by friends. The correlation obtained by these two identical forms of the same item is Chi Square 293.86; as a consequence it is possible to state that correlations superior to Chi Square 300 can be obtained only by identical forms of the same item (perfect correlations). The Chi Square 507.08, obtained by "I feel anguish" and "I feel depressed", is therefore with no doubt a perfect correlation. The reason why these two items show correlations higher than those shown by identical forms of the same item can be explained by the fact that, on these items, the masks tends to be extremely coherent; according to the vital needs model, people tend to mask specifically the fact that they feel depressed and anguished. In those items in which the mask is less coherent, the statistical error between correlations would increase, lowering in this way the correlations between identical forms of the same item, when compared to the correlation between "I feel depressed" and "I feel anguish".

It is therefore possible to conclude that, considering the noise factor, the correlation between depression and anguish can be considered perfect, supporting in this way the hypothesis that these two different forms of suffering are linked together by the equation of the identity conflict.

The Chi Square value of 507.08 observed between "I feel depressed" and "I feel anguish" is the highest correlation observed among the 18,915 possible correlations. It is interesting to note that similar results have been obtained in other studies conducted by Di Corpo since

1981 which have repeatedly shown that the correlation between "I feel depressed" and "I feel anguish" is the highest observable correlation.

Correlation between "I feel lonely" and "I feel useless"

The vital needs model considers *loneliness* as the highest "empirical" expression of the dissatisfaction of the need of unity (anguish is the suffering which is experienced), and *uselessness* as the highest "empirical" expression of the identity conflict (depression is the suffering which is experienced). As a consequence the nearly perfect correlation which has been observed between "I feel depressed" and "I feel anguish" should be also observable between "I feel useless" and I feel lonely".

In table 7 it is possible to see that "I feel useless" correlates with "I feel lonely" obtaining a Chi Square value of 317.04, a value which is higher than that obtained by identical forms of the same item, and which can therefore be considered perfect.

"I feel useless" correlates with:

317.04 I feel lonely
231.06 I feel anguish
229.19 I feel depressed

Table 7 – Highest correlations obtained by the item "I feel useless"

It is therefore possible to state that "I feel useless" and "I feel lonely" correlate in a perfect, nearly mathematical way. I feel useless, coherently with what the vital needs model says, correlates then with "I feel anguish" and "I feel depressed". These correlations suggest that the identity conflict:

$$\frac{1 \times \infty}{\infty} = 1$$

can be solved by working on the loneliness and the feeling of uselessness experienced by people.

8.9 Conclusions

The aim of this chapter was dual: on one side that of showing an application of the relational methodology, on the other side that of testing the most general hypothesis which the vital needs model suggests.

The results discussed in the previous paragraphs show the possibility of working with qualitative and quantitative data, subjective and objective information, using this methodology. If the relational methodology would have not been capable of handling masked information correlations would have not emerged. It is also important to underline that the results obtained with this methodology tend to be robust and replicable by others.

The hypotheses which have been supported by the results of this short empirical work can be considered the first step towards the empirical validation of the vital needs model.