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Qualitative interviews to support epidemiological study: statistical instruments for the interpretation

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Objectives

A research based on narrative interviews was carried out in the Campania Region (Italy), to provide qualitative insights of risk perception, lifestyles and strategies to face the environmental crisis. Those elements are pivotal to enhance scientists' knowledge and comprehension of the communities object of studies; it can help strengthening communication activities, facilitating the understanding of scientific terms, and tailoring the final recommendations of the study. This poster shows the statistical instruments used to support the analysis.

Introduction

A qualitative research was developed to complement an extensive epidemiological study based on human biomonitoring (HBM) in 16 municipalities in Campania, Italy, an area where extensive environmental pollution due to illegal dumping and lack of management of industrial and urban waste has been detected. A crisis was declared in 1994, and it lasted till the end of 2009. A Commissioner was appointed to manage the waste and remediation sector. As a parallel study activity, a sociologist was tasked with a research based on narrative interviews.

Methods

The responders were questioned about: the relationship between environment pollution and people; the issue of pollution absorbed by the body and the scientific information circulating in the population; the specificity of local situations.
It was decided to do a rational sampling '(a correct snow ball strategy).
A) People professionally involved in the risk management chain
B) People who for their role convey visions\ information with respect to the link between human health and the Environment: Teachers, General Practitioners, Pharmacists, parish priests; Environmentalists, Educators.
C) Consumers deemed 'sensitive' to the human health \ Environment link (exposed to risk): Men and women aged 30 to 45 with children aged less than 5 years.

Respondents were divided by sex, educational level, age (age groups 35-45 and 45-55 were then merged).

The interviews were transcripted and qualitatively analysed, to identify the main themes and recurrent issues and build interpretation hypotheses.
They were analysed using SPAD for content multivariate analysis, and TLAB for lexical multivariate analysis.

THE CUMULATIVE PROCESS OF ANALISYS
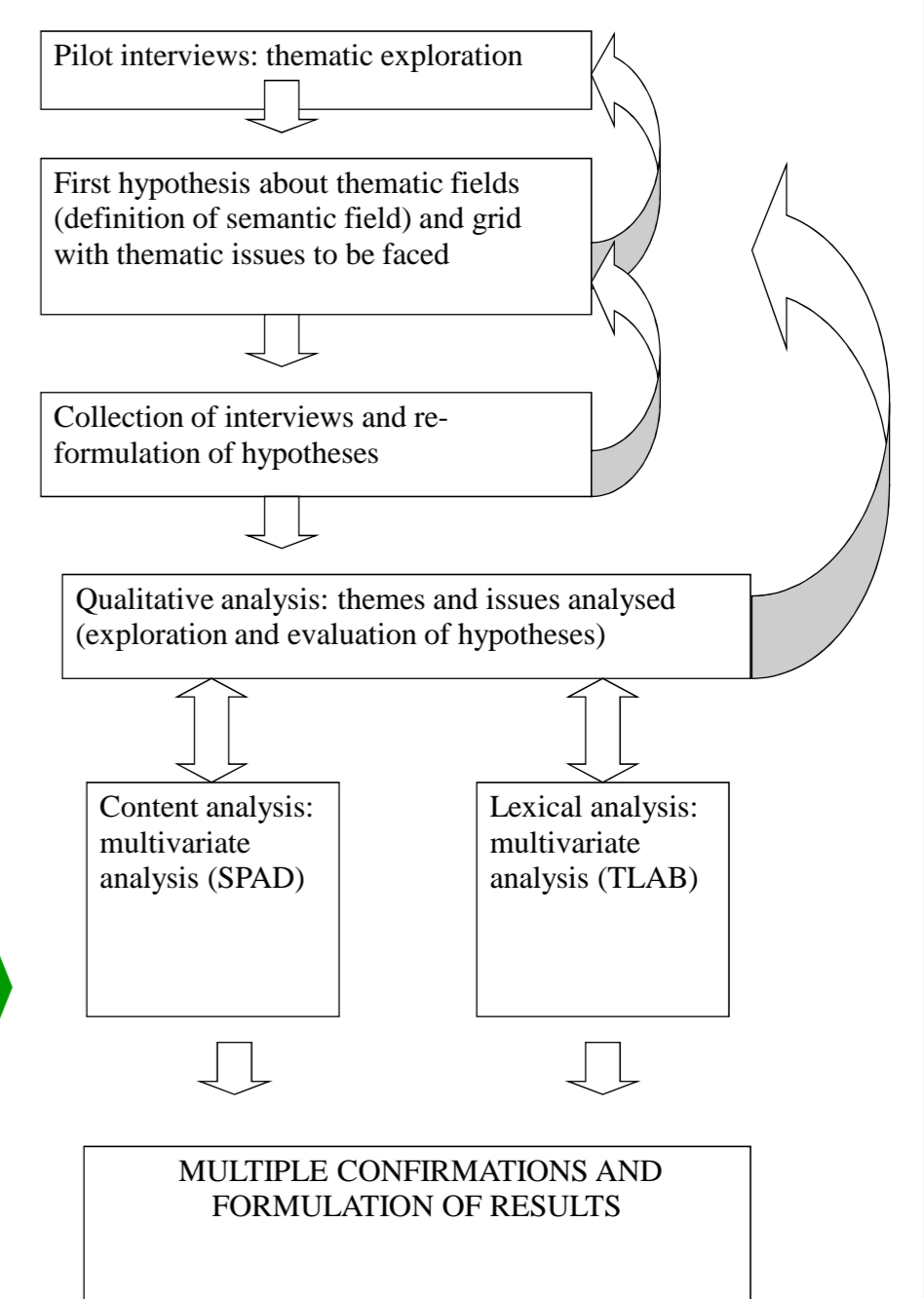
Results

The overall reading possible through a Multiple Correspondence Analysis performed with SPAD seems to show that the variability in narrative about pollution and its causes lies mainly in the presence \ absence of reflections about the presence of 'dangerous' industries (whose presence seems to be significantly related to fear of harmful emissions into the air).
Another important dimension seems to contrast those narratives where the waste materials are less present and disturbing with other narratives, and this appears to be linked to living in the Vomero neighbourhood (an upper class neighbourhood) .
The reduction or expansion of the narrative about industries could be viewed as an index of critical activation of the urban \ industrial model (which causes air pollution) of its peri-urban and once agricultural areas, in mutual exclusion with the narrative about traffic (also an urban process \ and also an industrial air pollution factor) typical of the Vomero residential neighbourhood.

As a further evidence, the cluster analysis developed after ACM allows us to draw narrative profiles (to no longer consider only the statistical association among modes of variables - in this case arising from the classification of the types of issues in concepts - but to consider their combination within individual narratives \ interviews and to identify some narrative profiles based on the characteristics of the respondent).

Cluster analysis / partition

Class: CLASS 1 / 4
(Elements: 26 – Percentages: 30.23%)

Variables	Modalities	Test - Value	Histogram
FOOD PURCHASE	NOT LOCALLY PRODUCED	9.71	*************************************
AGE	<35 anni	2.81	**********
FOOD FACTOR SOURCE POLLUTION	SI	2.36	*********
SEX	F	2.02	*******

Classe: CLASSE 2 / 4 (Effectif: 13 - Pourcentage: 15.12)

Variables	Modalities	Test - Value	Histogram
FOOD PURCHASE	NO PREFERENCE	6.09	**********************

Classe: CLASSE 3 / 4 (Effectif: 35 - Pourcentage: 40.70)

Variables	Modalities	Test - Value	Histogram
FOOD PURCHASE	LOCALLY BUT FROM A KNOWN PRODUCER	9.49	*************************************
FOOD AS A SOURCE OF POLLUTION	YES	3.08	***********

Classe: CLASSE 4 / 4 (Effectif: 12 - Pourcentage: 13.95)

Variables	Modalities	Test - Value	Histogram
FATTORI CIBO FONTE INQUINAMENTO	NO	7.71	****************************
ACQUISTO DI CIBO	INDIFFERENTE	3.63	***********
SESSO	M	3.01	***********

LEXICAL ANALISYS OF CO-OCCURRENCES: associations to the word SCIENTIST (SCIENZIATO) within the elementary analysis contexts
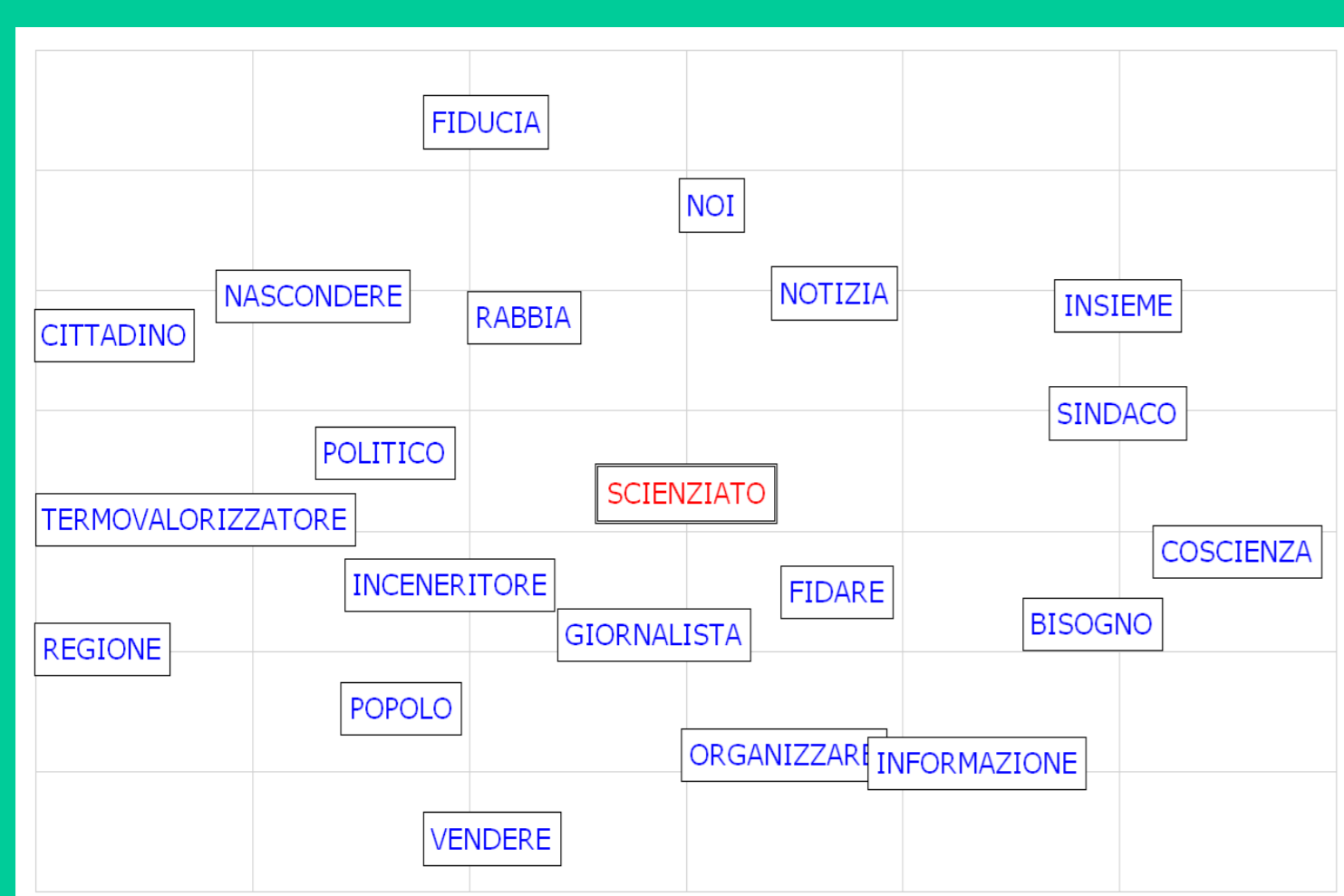

Particular attention should be paid to the presence of scientific advice in the discourse about the disease we are examining. It goes beyond the words of experts, and it does it in a fully 'aware' way, challenging the idea of reliable science.
The scientist, the expert, the consultant (including epidemiologists) are seen as an integral part of the political conflict and are therefore considered unreliable. Moreover, scientists often contradict one another: the idea emerges of a 'relative science', a capacity for truth flawed.
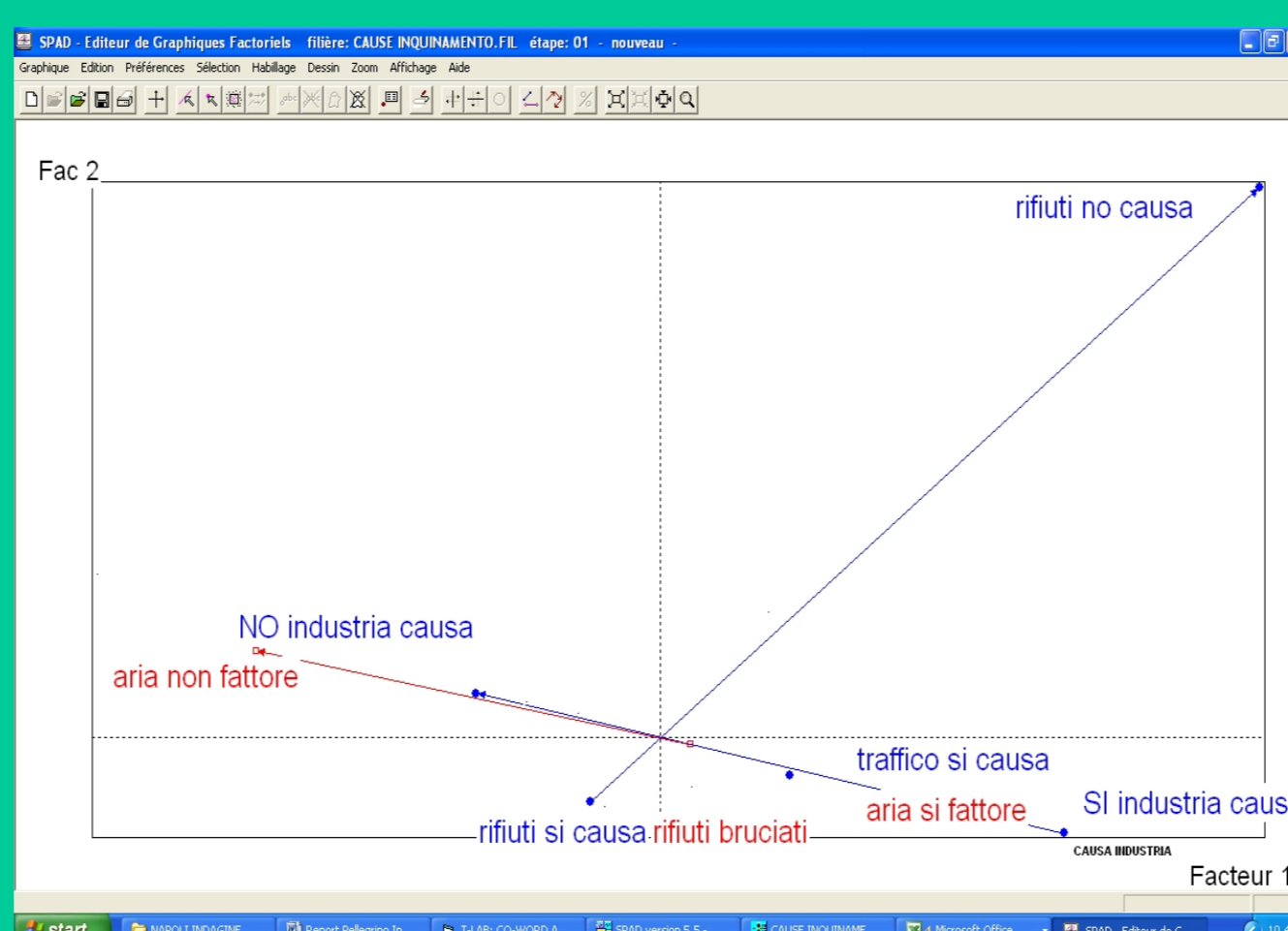
LEXICAL ANALISYS OF CO-OCCURRENCES: associations to the word TUMOR (TUMORE) highly recurrent in interviews (it is present in 76 cases)
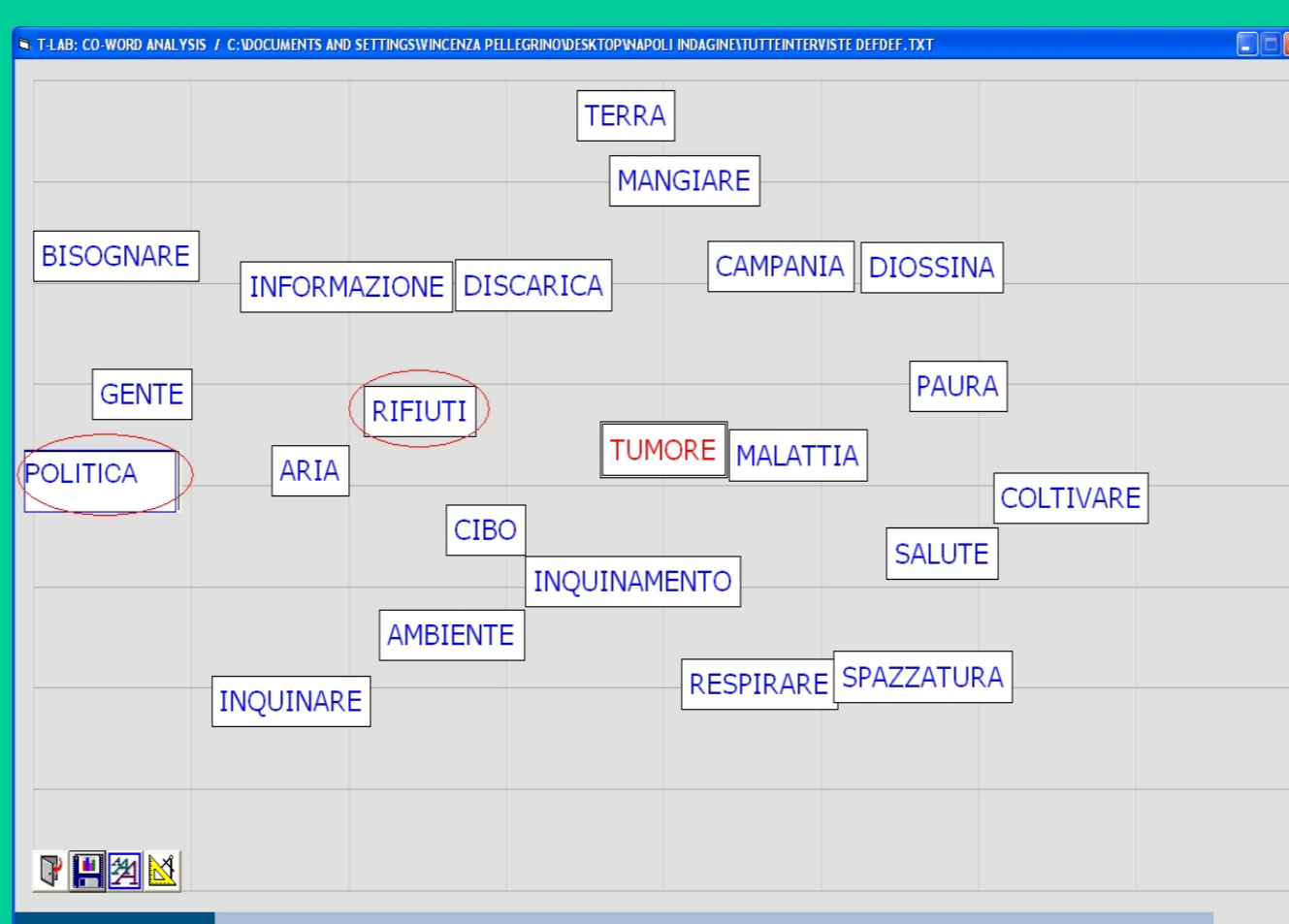
Conclusions

The results of content and lexical multivariate analyses confirm the qualitative analysis as framework for the social context of epidemiological investigations. The main issues reported are useful to tailor the communication of HBM research results.

1) The scientific communication appears as a matter of 'boxes' and not just 'content'.

Scientific communication is part of a wider scenario of confidence, and in this sense must be reconsidered. Therefore, those interviewed say they feel 'guarantee' if the expert is 'external' to the local context, and anyway they state that they need first clarity and transparency about tasks and responsibilities and then they could talk about the issue of competences.

2) The epidemiological imaginary (representations about the man - environment link in terms of health) provides important information to note some issues and necessary precautions.

The initial idea was linked to the hypothesis that the collective imaginary about pollution and its health implications could help to 'move' in the field of epidemiological research. This analysis confirms the goodness of this insight. The interviews show how the communities in this area are highly anxious and worried (just think of the speeches on increasing cancer incidence and its potential spread), but they are equally as eager to understand, to situate the 'truth' on pollution, to have outside help, to restore the network between different information and opinions.

3) The internal variability of a population: there isn't a single imaginary but several epidemiological imaginaries.

The epidemiological imaginary of people immersed in an environmental crisis is complex and multifaceted. On the one hand, there is the perception of a far-reaching and long-standing ecological crisis, linked to the rapid urbanization process, and a development project that has proved harmful (the pollution so described seems to be deep and multifaceted, especially in the case of young adult women and graduates); on the other hand, attention is paid to health issues in relation to the acute crisis of waste (men, especially when mature and with lower education). This different reading of the crisis is also reflected in a different attention to other possible factors of pollution of one's body'.