

Acidity. The Hidden Face of Conflictual and Stressful Situations

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Abstract The paper overviews the notion of acid communication and analyzes its multimodality and its relation with emotions by providing a theoretical framework of it in terms of cognitive of goals and beliefs. Then, a quantitative–qualitative study is presented using a lexicographic analysis. A questionnaire was submitted to participants, and its qualitative analysis showed that the idea of acid communication has a psychological reality: subjects can recognize it and provide examples of it; they define it, describe it, and attribute it to specific emotional causes in a consistent manner. Acid communication is a sort of half-inhibited aggression, expressed subtly or indirectly, caused by a mix of emotions like anger, bitterness, revenge, and impotence.

Keywords Acid communication · Multimodality · Emotions

Multimodal Interfaces and the Analysis of Emotions

A relevant area in research on Multimodal Interfaces is the construction of Empathic Agents [1]. In principle, an Empathic Agent should emulate an empathic human as close as possible, but so far it may not yet be so. In a human, we must distinguish between feeling empathy and expressing empathy (a nurse may feel deep empathy

toward a patient and yet not display it, not to let him worry more; if someone I hate has incurred in an unlucky accident, I may hypocritically show sorry to him). Artificial agents are not as yet able to *feel* empathy for the User, while they can *express* it. But moreover, it is not the same to show empathy in case of positive vs. negative emotions, nor, within the same valence, for joy versus pride, or sadness versus anger. So, whether or not an Empathic Agent can feel emotions, to show empathy, it must be endowed with an internal representation of the other's emotion.

In the last decades, research on emotion has gone far away. Several domains have been widely and deeply explored, functions of emotions, neuro-physiological mechanisms, verbal and multimodal communication, effects on everyday life, allowing advances in Affective Computing and emotion simulation. Nonetheless, more in-depth investigation is needed at least in two aspects of emotion research.

On the one hand, the range of the emotions investigated is still narrow. Maybe because investigation often moved from the standpoint of emotion expression, a great number of studies have been devoted to the so-called famous primary emotions: presumably innate, universal, displayed by the same expressive pattern in all cultures, and of early emergence. But the primary ones are only a bunch of emotions in the infinite number of affects, we happen to feel in our everyday life. It is (unfortunately) very rare that we feel happiness, and not so frequent, also, that we feel disgust. Even fear (fortunately) is not an emotion we feel everyday, except, perhaps, in countries confronting a war. Nonetheless, our everyday life is continuously accompanied by emotions that, albeit different from the primary ones, actually color our mood and make us feel merry or upset. On the workplace, for example, emotions heavily

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affect our relationship with colleagues, bosses, and customers; we often feel envy or indignation, anxiety or humiliation, contempt, admiration, sense of injustice, or bitterness. Now the time has come to focus on these emotions too: one that does not always give rise to those over-famous bodily expressions, and yet are very important in determining the quality of our life.

Now, one problem in present research on Affective Computing is the lack of a deep and thorough conceptual analysis of these emotions: A search for the specific beliefs implied in them that characterize and distinguish each single affective state from all others. Such an in-depth analysis would be useful for Multimodal Interfaces, Affective Computing, and Empathic Agents: A detailed representation of the beliefs implied by a certain emotion might be taken into account by the Interface to update its User Model and tailor its empathic expression by focusing on certain aspects of the User's feeling more than others. Suppose the Empathic Agent is a friend, a companion that helps you regulate your emotions: It should display very different behaviors in case you were feeling, for example, bitterness instead of anger, two emotions in which feelings, beliefs, and action tendencies are partly the same but partly very divergent. Only a representation that distinguishes the two emotions might result in more appropriate empathic reactions.

One more problem for these nonprimary emotions is the lack of studies investigating the subtleties of their expression: plenty of research on smiles of happiness, postures of depression, and grimaces of anger, but very few studies about the bodily and verbal behaviors revealing bitterness or sense of injustice.

Furthermore, beside being able of showing empathy, an Affective Computing system should be able to recognize or infer the causes of the detected emotions, and from them to guess the problems that, within the context in which the User is living and operating, gave rise to his/her emotion; this might give a hint on how to prevent the User's negative emotions by changing organizational or social aspects of the context, or the User's reaction to it.

An example is the emotional climate on the workplace, where an authoritarian leadership may enhance the level of competition and conflict among workers, possibly giving rise to ingratiation of the leader, inequity of treatment, mobbing, and consequently emotions of envy, jealousy, humiliation, sense of injustice, bitterness, and sense of exclusion.

Actually, since the quantity and quality of the emotions felt in a given context is a cue to the problems of that context, the detection of even subtle signals of emotions can be a tool for monitoring how conflict-loaded and stressful that context is and how much it threatens subjective well-being and social relationships between people.

A reliable symptom of such kind of environment is "acid communication": the verbal and multimodal

expression of a complex mixture of negative mixed feelings such as grudge and bitterness that is often present in contexts where people feel a sense of injustice but do not have the power to speak it out due to a stressful or distorted interaction or relationship.

In our daily life at home, on the street, in public offices, or on the workplace, we often feel social emotions such as irritation, disappointment, guilt or jealousy, envy or admiration, contempt, grudge, and awe: Emotions that only in the last few years have started to be studied in-depth. Yet for some everyday mental and affective states, we would neither know whether to call them emotions in their own right; they are simply particular ways of behaving, but imply affective states in their internal feeling and, possibly, in their immediate and remote causes. Such state is acidity: a way of being, behaving, and communicating, that stems out of negative feelings, and in a sense throws back negative feelings onto others.

To clarify the notion of acid communication and its relations with emotions, in this paper, we present a cognitive model of emotions in terms of goals and beliefs ("[Mental Ingredients: An Approach to the Analysis of Emotions](#)" section) and previous work on acid communication ("[Acid Communication](#)" section). Then, we propose an analysis of acid communication in terms of its mental ingredients, the beliefs, and goals that are supposedly represented in the mind of a person when s/he is feeling some negative emotions and expresses them in an "acid" way ("[Acidity in Written, Mediated, and Face to Face Multimodal Communication](#)" section). We then briefly overview a previous study on the multimodal communication of acidity ("[Multimodality of Acidity in Simulated Relationships](#)" section) and finally present a lexicographic empirical study investigating people's definitions of "acidity" and the description of their feelings and experiences when they themselves engage in acid communication ("[A Quantitative–Qualitative Analysis on Acid Communication, Its Related Emotions and Its Lexicon](#)" section). We conclude by showing—starting from the lexicon used—how the loop that links environment, emotions felt, their expression, detection by an Affective Computing system, may be closed by changing the environment and making it more adaptive for people.

Mental Ingredients: An Approach to the Analysis of Emotions

The view of emotions we adopt for our analysis is a cognitive model in terms of goals and beliefs [2]. As in other models [3, 4], an emotion is seen as an adaptive device that monitors the state of achievement or thwarting of a person's important goals: a complex subjective state

encompassing cognitive, physiological, expressive, motivational aspects, which is triggered as one believes that a current event causes or is likely to cause the achievement or thwarting of one's adaptively important goals [5, 6]. The cognitive side of an emotion includes the "mental ingredients" that, according to this view, must be represented in the mind of a person who is feeling that emotion: beliefs, expectations, evaluations, causal attributions, referred to an assumed or imagined event that is relevant for one of the person's important goals, but also the goal that is monitored by that emotion, and the goals triggered by it [7–9].

To discover the mental ingredients of an emotion, one must go through real or fictitious cases, collected by the researcher's introspective analysis and/or by empirical research, in which that emotion actually has been or in principle can be felt. The features shared by all positive examples are the ingredients of that emotion. Yet, one should distinguish the minimal necessary set of ingredients from those that may add in some examples but not in others; when you think of cases in which you might feel or you actually have felt an emotion, some are prototypical cases of it, while others are not, and yet they can still be examples of that emotion. For instance, looking for the conditions to feel guilty, one that immediately comes to mind is *responsibility*, which pops up in the most typical cases of guilt feelings, e.g., if you run over someone because you are drunk. But in some cases, there is no responsibility, and yet guilt may be felt: take the survivors of concentration camps who feel guilty even if they had no responsibility for the others' death. The real crucial condition for feeling guilty is the sense of *inequity* of an event, whether or not due to our responsibility [6]. In brief, some ingredients of an emotion, some apparently crucial conditions of it, in fact do not hold in all instances of that emotion, but only in its prototypical cases, while others are so necessary that without them the emotion cannot be felt: these constitute the "core" ingredients of that emotion, and are common to both prototypical and more peripheral cases, while others only hold for the most central examples. Thus, we must not constrain research to prototypical cases of the emotion, but take all positive cases into account, to find all the ingredients and distinguish the "core" one that is present also in nonprototypical cases.

Finally, the notion of mental ingredients can be applied, beside to emotions, also to other notions, for instance, ways and types of communication such as acidity.

Acid Communication

People in everyday life are often subject to injustice and suffer when they are impotent to react. The sense of injustice, in fact, is at the basis of anger and revenge [4, 10, 11]; but not every time we are the object of injustice can

we express our anger to those who are responsible for attacks to our rights, because we are not in the position to struggle and to win against them; we have less power than the other and any attack or revenge, and even the very expression of our anger, might make things go worse. So we are forced to withdraw and to inhibit any aggressive impulse and angry expression.

Yet, such inhibition is not without consequences; the very physiological reactions to the anger triggering episode cannot be completely absorbed and in some cases may try to find a secondary issue and be expressed in an indirect way.

A previous work [12] has proposed the notion of "acid communication": the way of communicating of a person that feels s/he has been an object of injustice and feels emotions such as anger, envy, bitterness, grudge, or rancor, but feels s/he does not have the power to revenge or even the power to express his/her anger freely. So s/he comes out with a restrained and half-inhibited way of attacking other people.

The person who performs acid communication is feeling angry due to some feeling of injustice and would like to express one's anger, but cannot do so due to a feeling of impotence, both to recover from the injustice undergone, and to prevent the negative consequences of one's expression. This may occur even when a person does in fact have power over the other, but does not want to take advantage of it (e.g., a teacher who would like to reproach her student, but decides not to do so because she does not want to project an image of an authoritarian teacher and hence responds to him not in a blatantly angry, but simply an acid way). Besides these two cases, already considered by [12], there may be other cases in which the person A who is being "acid" is angry at a Target T1, who A thinks is responsible for injustice toward A, but just because s/he cannot—or could not—express one's anger directly due to the actual responsible, due to a device of "redirected aggression" actually expresses one's anger, in a retained way, toward an "innocent" Target T2.

Therefore, acid communication has been defined [12] as a type of communicative acts (either speech acts or communicative nonverbal acts) in which a Sender expresses aggressiveness toward another person (a Target), but not in an explicit way, rather in a covert, yet possibly ostentatious manner, because s/he feels s/he has less power (or does not want to take advantage of her more power) than the Target.

An acid communicative act is one by which:

1. Sender S aggresses the Target, and in particular aims at abasing either the Target's image before an Audience A, or simply the Target's self-image before oneself, but
2. does so in an indirect, subtle, somewhat concealed and understated way.

Acidity in Written, Mediated, and Face to Face Multimodal Communication

The type of aggression brought about by the Sender in acid communication is an attack to the Target's image: that is, an act of discredit. In sum, the typical communicative acts of acid communication aim at criticizing and accusing the other, making him feel guilty, making specification and pinpointing.

Yet, these attacks to the other's image are not carried on in an explicit and blatantly aggressive way, but in a covert manner, typically by means of indirect communication. Thus, the acid one often uses irony, sarcasm, euphemism, euphemistic litotes, oxymoron, allusion and insinuation, and other sophisticated rhetorical figures.

Both the types of acts and the sophisticated way in which they are performed aim at projecting the image of a smart and brilliant person, who did not deserve the injustice of being attacked or abased. In fact, the acid communicator in some way needs to put oneself in a judging position and does so both by the types of communicative acts typically performed toward the Target—criticism, making him feel guilty and so on—and by their sophisticated phrasing. Putting oneself in the position of a judge and doing so in a smart way are the acid person's weapon to overcome the sense of injustice undergone; moreover, since one's own being subject to injustice unmasks one's impotence against the other, thus spoiling one's own image; the acid person discredits the other in order to overcome his own discredit.

While Poggi and D'Errico [12] give the definition above of acid communication and support it with analyses of cases taken from media written communication—emails and sms—and fragments of conversation in TV talk shows, a subsequent work [13] provides a detailed observational analysis of a real case of acid communication, the reaction exhibited by a politician to an interview. The paper analyzes the verbal and bodily behavior of Massimo D'Alema, an Italian politician of the Democratic Party who decided not to run for primary elections due to severe opposition of a young member of his party and, when interviewed while coming out of his home to go for the vote, performs very acid signals in words, voice, head, gaze, body posture, and movement. An annotation scheme is presented in which each signal is described and attributed a specific meaning, and finally, the mental ingredients—beliefs, goals, social attitudes—resulting from the meaning conveyed are singled out; at a very high extent, the majority of D'Alema's communicative acts contain mental ingredients of Annoyance, Distance, Irony, Defiance, and Offense.

Multimodality of Acidity in Simulated Relationships

A third study [14] investigates what features of gestures, facial expressions, gaze, head movements, and body posture most typically characterize acid communication, and what combinations of them are most typical depending on the type of social relationship between the acid person and the Target, and on the particular type of acid communication, whether it uses irony or not.

Four scenarios were submitted to participants, in which the person performing an acid communicative act and the Target were in an “instrumental” or “affective” relationship (e.g., a clerk and his client vs. father and daughter), and in a “peer” or a “hierarchical” relationship (e.g., two friends vs. a teacher and a student). Further, the acid message might be phrased in an ironic or nonironic fashion.

The participants' multimodal communication was video-recorded while acting, as requested, in the role either of the acid person or of the Target; then, in a questionnaire, they reported the emotions felt while impersonating those roles.

The reported emotions result to affect acid communication at a considerable extent. For example, the sense of injustice underlying all the video-recorded stories is expressed in two different ways, *activated* and *de-activated*, the former mainly driven by irritation and the other by disappointment.

Multimodal acid communication in the *instrumental* conditions is mainly expressed through signals as the nod of revenge [15], eyebrows raised, high tone and rhythm of voice, and interjections (like “*ahhh*” of surprise or “*eh?*” of request for confirmation at the end of an interrogative sentence). In the *peer relationships*, in which participants report more negative social emotions like *contempt*, we find distancing signals such as *backward postures* or *shoulder shake*. Distance is also communicated by *turning head away*, *gaze avoidance*, *partial closure of eyelids*, or *looking from down up*; finally, *wrinkled mouth* with *raised upper lip* communicates disgust [16].

A frequent activation signal during acid communication is *head position* and *head movement*; irritated participants tend to affirm their position either by *nodding once* (as in a nod of revenge; [15]) or by *nodding repeatedly and quickly* (with gaze to the interlocutor) but also in some cases by a *head canting* [17] accompanied, mostly in the ironic case, by a *small smile*. In the *instrumental low status* relationship, acid communication also uses *jerky gestures* usually *repeated* with *high muscular tension*, *gestures toward the opponent* like the “accusing finger”, and gestures that indicate closure; conversely, in *high status*, *slow and fluid gestures* are used, and the gesture of *moving one hand from down upward repeatedly*, indicating how vain is any effort

to improve the low status situation, and gestures indicating how easy or clear is what one is talking about.

When being ironic, participants often use “parody” [18], that is, an exaggerated imitation of the other aimed at stressing the potentially ridicule features of his communication, to make fun of him. The parodistic intent is often expressed by *head canting*, small *smile*, *eyebrows raised*, *gaze to interlocutor*, and a thin *voice* which mimics the other’s voice. For example, in the hierarchical instrumental scene, the student mimics the teacher’s voice by infantilizing her, just as the teacher has infantilized herself, to show how stupid she is in doing so.

The multimodal expression of acidity driven by *deactivated emotions* such as disappointment, bitterness, and sense of impotence is evident especially in the *hierarchical affective situation, high status*, where the acid message is expressed by a *low tone* and *slow rhythm of voice*, *slow head movement*, and worried or disappointed *facial expression* with *tight eyebrows* and *wrinkles* and *slightly downwards corner of the mouth*, *crossed arms* or *gestures* like *praying hands*, or deictic gestures to indicate things mentioned in discourse, of slow velocity and good fluidity.

In the *low status affective* condition, *head movement*, *gestures*, and *rhythm of voice* are faster than in the *high status* condition, and the *facial expression* is mostly characterized by signals of anger—presumably as a reaction to fear and embarrassment, higher in this condition than in the high status one—like *gaze* directed to interlocutor with *wrinkles* (*tight eyebrows*), *half open eyelids*, and *tightened mouth*. On the other side, *gestures* are *repeated* but *ample and fluid*, in general, a cue to a lower level of anger. So, in the *low status affective* case, two opposite tendencies coexist: one to aggress the other, who is felt as responsible for injustice, and one to refrain from overt aggression, possibly due to the desire to preserve the relationship. In this condition, the emotions felt are one’s typical of a disappointed person who tries to recover his/her position (fear) or his/her image (embarrassment), so the level of activity is not so high as in the *instrumental condition*, where even in the *low status* contempt and irritation toward the other prevail.

Based on this study, two types of acidity can be distinguished, a more depressive one, connected to emotions such as bitterness and disappointment, and generally expressed in affective hierarchical relationships, and a more aggressive one, linked to emotions like irritation and contempt, expressed mainly in peer instrumental relationships. That acidity takes up a more depressive nuance in affective relationships may be accounted for by two different reasons: first, because a sense of injustice inflicted by a friend or relative induces the idea of a failure in one’s social relationships, thus triggering emotions like sadness even more than anger; second, because the aggression to

the other in such cases conflicts with a tendency to protect the other and to maintain the relationship.

Another difference detected in the emotions felt and in the signals of acidity is in the level of activation. In this case, one in high status position feels less activated emotions; probably, being in the up position of power in the relationship, he is less involved and less wounded by sense of injustice, so he is more at ease in his expression of acidity. On the contrary, the one in the down position of power has much to lose from submitting to the injustice, and this might account for his higher level of activation.

A Quantitative–Qualitative Analysis on Acid Communication, Its Related Emotions and Its Lexicon

The notion of acidity has never been studied by “official” Psychology. Classical studies on emotions basically consider two different kinds of them, primary (such as anger, sadness, and disgust) and secondary ones, among which self-conscious emotions (such as pride, shame, humiliation, and guilt), and other “social” emotions (such as gratitude, admiration, and contempt). No study on these categories has ever focussed on a mental state such as “acidity.” Yet, in everyday life, we often meet examples of it. This is why acidity looks worth being scientifically investigated.

From a methodological point of view, the analysis of verbal and multimodal acid communication is heuristically effective, as shown above. But traditional methods such as self-report questionnaires are sound too, especially if analyzed not only through traditional content analysis but also through automatic lexicographic analysis. Therefore, we conducted a research survey to study the notion of acidity as it is represented in laypeople. Let us overview research questions, methodology, and results of this study.

Research Questions

Some first hypotheses one might put forward about acidity are the following:

- that an “acid” way of behaving exists,
- that some people sometimes behave in an “acid” way,
- that this way of being or behaving stems out of some negative feeling
- that such negative feeling might be either a transitory emotion or a somewhat permanent (durational) personality trait. That is, sometimes one may behave in an acid way, but in some cases, persons are “acid” themselves.

In a sense, then, this means wondering if a notion of acidity is recognized by people in a fairly shared way, and if it is referred more to a steady personality trait or to a

transitory state of some person. Further, if this characteristic of acidity is recognized and shared, does it also give rise to prejudice? Are there, for example, some areas of everyday life, some public persons, or categories of people to which acidity is more easily attributed?

Other research issues concern the clues to acidity. Is there a clear pattern of behavior that can work as a clue to acidity? What are, if there are, the bodily and verbal behaviors that allow us to classify a behavior or a person as such? Are there—as hypothesized in our previous paper—some types of speech acts that are more typical of acid communication? And are people conscious of them? As to body behavior, are there vocal, postural, gestural, facial cues of acidity, and how are they described and recognized by people?

A third set of questions regards the causes of acidity and its connection to other emotions. What are the remote causes and the triggering antecedents of acid behavior or of an acid personality? Is acidity an emotion or another kind of affective state? Are there some emotions that more than others are close to acidity, either because they cause it or because they make part of the feeling of acidity? How does the expression of acidity affect the emotions of both the victim and the acid person, and their reciprocal relationships?

Method, Questionnaire, and Participants

To explore possible answers to the research questions above, we submitted a questionnaire about acidity to 80 Italian participants (balanced for gender, one control variable: 52 females and 38 males), between 21 and 31 years old (25.5 m), all students in a course of General Psychology in Rome.

In the questionnaire (for an English translation, see Annex 1 below), questions 1–4 investigate how acidity is conceptualized in participants, first by testing if the very idea of “acidity” in some way tells them something (question n. 1), then by asking them to describe the behavior of an acid person (n. 2), to tell an episode of acidity (n. 4) and to define the notion of acidity (n. 3). Questions n. 5, n. 9 and n. 12 investigate the verbal and bodily clues of acidity. A bunch of questions ask participants what do they think to be the general and specific causes of acidity, by focusing first on another person’s acidity (questions n. 6, 7, and 8) but then asking the participants to remember or imagine the possible causes of one’s own acidity (questions n. 11 and 15). The emotions felt after acid behavior and the subsequent social relationship with the victim are tackled by questions n. 13 and 14. Questions from n. 16 on finally investigate the existence, in the mind of participants, of well-known exemplars of acidity (n. 20), but also of specific areas of life (n. 16), or

finally, specific categories of persons (n. 17–18) more keen to acidity, while trying to elicit judgments about the existence of possible prejudices in this field (n. 19).

Analysis

Answers to the questionnaire have undergone two methods of analysis. On the one side, a “traditional” descriptive discourse analysis that takes into account the text of all answers to draw recurrent concepts from them. On the other side, answers have gone through automatic lexicographic analysis using TALTAC, a software for qualitative analysis.

The automatic quantitative–qualitative analysis of subjects’ answers was performed by (*Trattamento Automatico Lessicale e Testuale per l’Analisi del Contenuto (TalTac)*), i.e., “Lexical and Textual Automatic Processing for Content Analysis” [19], a software for textual data analysis based on a “lexicometric approach,” an application of statistical principles to textual corpora. The “textual statistics” [20] aims to extract the semantic level in a text starting from the list of words obtained by statistical analysis; for example, in the specificities’ analysis, the software extracts a list of significant words obtained by a statistical comparison between sub-parts of text according to selected variables. The lexicographic and textual analysis allow to extract the frequent lexicon regarding chosen variables, while “concordance analysis” evaluates the correct semantic dimension, extracting the sentences in which the selected words occur.

A quantitative–qualitative analysis of the answers will be overviewed in a subsequent work; here, we test the psychological ingredients found in the pilot study by focusing on the questions concerning the definition of “acidity,” its fields of occurrence, its relation to other emotions, and its communication (verbal and bodily).

We obtained a *corpus* which counts 11,366 (V) occurrences with 1,986 (N) different words and a medium lexical richness index $[(V/N)*100]$, equal to 17.47 %.

We also submitted subjects, a question on the emotion linked to acidity, measured on a Likert scale, in order to test which emotions are most correlated to acid communication, and we analyzed answers through statistical analysis reported below.

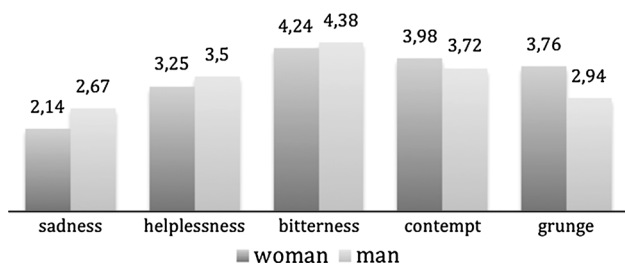
Results of the Descriptive Analysis

The descriptive analysis of the emotions that participants consider connected to acidity, their quantity, and mean score (see Table 1 below) points out that the number of “activated” emotions is higher both in general frequency and for the total mean; on the left row, we can see a high frequency for jealousy, envy, vengeance, anger, hate,

Table 1 Acidity and emotions

Proactive acidity		Passive acidity	
Jealousy	4.08	Helplessness	3.36
Envy	4.05	Resentment	3.33
Desire of revenge	4.05	Rancor	4.3
Anger	4.03	Delusion	3.04
Hate	3.97	Regret	2.73
Annoyance	3.97	Bitterness	2.69
Revenge	3.91	Sadness	2.37
Contempt	3.87	Total mean	3.11
Pride	3.62		
Grudge	3.29		
Indignation	2.21		
Sense of injustice	3.44		
Total mean	3.7		

Table 2 Gender*Emotions in acid communication



annoyance, revenge, contempt, pride, grudge, indignation, and sense of injustice, emotions that push to behave in potential aggressive ways; on the right, we can recognize the other side of acidity, the passive, and the de-activated one; these kinds of emotions are fewer (sense of impotency, resentment, rancor, disappointment, regret, bitterness, and sadness), and their total mean is lower than for the activated ones (3.11 vs. 3.70).

Acid communication seems to have a strict relation with all emotions negatively related to someone, but the case of envy seems paradigmatic, besides the fact that it is the one with higher mean, because as in our expectations, its semantic core is based on a sense of inferiority (i.e., social comparison) and discontentment but also a sort of responsibility attribution of it to the envied person [8, 21].

As we can see from Table 2, two different forms of basic emotions can be differentiated for gender in acidity communication, while women feel a higher level of “active” social emotions like grudge (3.76 vs. 2.94; $p < 0.05$) and contempt (3.98 vs. 3.72; $p < 0.05$) and men are higher in linking acidity to “deactivated” emotions like bitterness (4.38 vs. 4.24; $p < 0.05$), helplessness (4.38 vs. 4.24; $p < 0.05$), and sadness (2.67 vs. 2.14; $p < 0.05$).

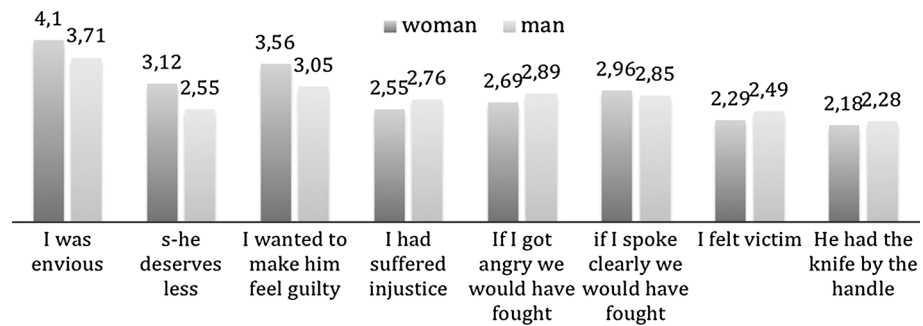
Table 3 Acidity motivations

Episodes		Negative emotions	
She/he behaved in the same way	3.44	I wanted revenge	2.32
She/he did not understand what I was saying	3.39	Relief valve	2.43
Total mean	3.41	I was nervous	2.97
Social comparison		I was angry with him	2.67
I was envious	3.93	Only possible reaction	3.66
I wanted him to lose face	3.57	Total mean	2.81
I wanted him/her to feel guilty	3.34	Relationship defense	
He deserves like me	3.25	If I spoke clearly, we would have fought	2.91
He deserved less than me	2.88	If I got angry, we would have fought	2.78
I deserved more	2.26	I felt victim	2.38
He is worth less than me	2.37	He had the knife by the handle	2.22
I wanted to show that I was right	2.55	I had suffered injustice	2.64
I wanted to demonstrate his incapacity	2.73	Total mean	2.58
Total mean	2.98		

The mental ingredients of acid communication were explored in our questionnaire by the list of sentences of question 15. The participants’ answers are aggregated below in four different groups in accordance with their similarity and considering their total mean, respectively, episodes (3.41), social comparison (2.98), negative emotions (2.81), and relational defense (2.58) (Table 3). Apart from the ingredient alluding to single “episodes,” the mental ingredients of social comparison and negative emotions (or high intensity) seem more frequent than does acidity seen as relational defense; acid communication is based mostly on a social comparison where acidity is a way to equilibrate a non acknowledged right or capacity; in other more rare cases, it is a way to avoid conflict or it is simply due to the fact that the acid person has been treated unjustly.

On the basis of the previous semantic differentiation, we can recognize two main types of acidity: a “proactive” one, aimed to repair and recover a disequilibrium in terms of image, status and capacity, and a “defensive” one, aimed to limit damages or explicit conflicts (Table 4).

These two types of acidity seem to be affected by gender. An Anova pointed out that—quite unexpectedly—women are acid when they have to face a comparison, and more than men do they recall envy (4.1 vs. 3.7; $p < 0.01$) as a main motivation for acidity, or thoughts like “he was worth less than I am” (3.12 vs. 2.5; $p < 0.05$), “I wanted to make him feel guilty” (3.56 vs. 3.05; $p < 0.05$). Men

Table 4 Gender* causes of acidity

significantly tend to recall defensive acidity more than women.

Results of the Textual and Lexical Analysis

The lexical analysis includes some descriptive information, particularly interesting for the understanding of bitterness, like *theme words* which represent the most frequent words out of all occurrences, *adjective analysis* and *time analysis*.

Adjective Analysis

We used the dictionary of positive and negative adjectives present in TalTac2 by analyzing the negative index¹ to identify polarization through positive or negative lexicon. The index reveals that the characteristics of negative polarity of words in the corpus are 86 %, that is, much higher than the reference value (40 % according to a research based on Italian corpora; [22]). The adjectives are focused on the negative evaluation of acid communication and on the emotional experience surrounding acidity: among the most frequent, *impolite*, *stressed angry*, *unsatisfied*, *frustrated*, *aggressive*, *detached*, *cold*, *dry*.

Lots of verbs concern aggressive verbal and nonverbal expressions such as *gesturing*, *vent*, *answer*, *scream*, *talk*, *ask*, *respond*, *discharge energy*, *attack*, *reject*, *blame*, *accuse*, *injure*—communicative acts that the acid person performs toward the victim.

Time Analysis

Time analysis reveals an *orientation to the past*, because out of all verb frequencies, our participants—even when recalling past events—express time information most frequently as present (72 % present; 16 % imperfect; only 9 % past tense; 3 % future).

¹ The index is obtained by calculating the ratio between the total of negative occurrences and the total of positive ones (tot. Occ. Neg/tot. Occ. Pos*100).

Peculiar Lexicon

Beyond the absolute value of words, the *key words* or *peculiar lexicons* [19] are the words that result over-represented in the text under analysis by comparing the corpus to an external frequency lexicon, taken as a reference model.² The measure of the variance from the reference lexicon is represented by the *standard deviation*, which is the deviation between the form frequencies in the analyzed text and in the frequency lexicon [18].

From the corpus of answers, we extracted some semantic areas that are quite close to the ingredients of acidity. First, a very large area of “ACTIVATING EMOTIONS AND AGGRESSIVE BEHAVIORS” is mainly represented by words such as *rude* (*scortese*), *unhappy* (*insoddisfatta*), *nervous* (*nervosa*) *irritated* (*irritate*), *stinging* (*pungenti*), *tone* (*tono*), *angry* (*arrabbiata*), *wrong* (*storta*), *irritable* (*irritabile*), *voice* (*voce*), *answers* (*risposte*), *shrill* (*stridula*), *resentment* (*astio*), *biting* (*pungente*), *anger* (*rabbia*), *stressed aggressive* (*aggressive*), *gesture* (*gesticolare*), *sarcastic* (*sarcastico*), *dry* (*secco*), *envy* (*invidia*), *hysterical*, (*isterico*), *taglienti* (*sharp*), *annoyed* (*stizzito*), *contempt* (*disprezzo*), *answers* (*risponde*). Besides these, we also found—but with lower frequency—“PASSIVE EMOTIONS AND BEHAVIORS”: (detached) *distaccato*, *distaccata*, *cold* (*fredde*, *freddo*), *deluded* (*delusa*), *bored* (*annoiata*), *distances* (*allontana*), *detachment* (*distaccamento*), *bitter* (*amareggiata*, *amareggiato*), *haughty* *altezzosa*.

One more semantic area, that we call “ACIDITY EVALUATION,” includes negative judgments and insulting labels toward the acid person, and in different cases, it hides a social comparison such as *insicure* (*insicura*), *arrogant* (*arrogante*, *arroganti*), *stressed* (*stressata*), *stupid* (*ottuso*), *superiority* (*superiorità*), *stupid* (*stupida*), *superior* (*superiori*), *intrusive* (*invadente*), *rude* (*maleducata*), *unhappy* (*insoddisfatta*), *frustrated* (*frustrata*), *vulgar* (*volgari*), *flawed* (*viziate*), *repressed* (*repressa*), *snobbish* (*snob*), *lemon* (*limone*), *sharp* (*brusca*), *unpleasant* (*antipatica*), *stupid* (*cretina*).

² In this case we used the *standard Italian*, resource in Taltac.

The fourth semantic area concerns “ACIDITY CAUSES” and includes words such as *vent (sfogarsi)*, *insecurity (insicurezza)*, *stress (stress)*, *frustration (frustrazione)*, *self-defense (autodifesa)*, *shield (scudo)*, *mask (mascherare)*, *rudeness (maleducazione)*, *offense (offesa)*, *unpoliteness scortesia*, *self-centeredness (egocentrismo)*, *unsolved (irrisolte)*, *misery (infelicità)*, *fatigue (stanchezza)*.

The Characteristic Lexicon of Acidity

In the lexicometric approach, the analysis of specificities aims to identify the *characteristic lexicon* by comparing different sub-parts of a text. The characteristic lexicon is created by dividing a corpus into sub-texts (so-called *sub-occurrences*) according to the different levels of a chosen variable (e.g., to characterize a lexicon by gender, you divide the corpus into male and female sub-texts). Then, the different sub-texts are compared, by a *t test analysis*, to extract a list of words over-represented or under-represented with respect to a normal distribution³ [19, 20].

In the present study, we chose one main variable, “question,” to extract the most frequent responses from the lexicon, by leaving with this methodology, all participant’s answers open. In the following, we analyze the significant sub-parts of questions 2, 3, 4, 5/9, 6/7.

Question 2. Describe an Acid Person and His/Her Way to Behave

Question 2 is focused on a description of an acid person and from the lexicon used general and inclusive characteristics arise.

Acidity is seen mostly as a careless way to express oneself to others, the characteristic terms “*grumpy and surly, rude, unhelpful, not available, not socially oriented* ($p < 0.05$)” refer to a lack of care toward the other person, mostly expressed through a negative “*tone*”; acid communication is not seen as a negative emotion but it is defined as a “*behavior*” that is strictly linked to an actual high status, or a perceived high status “*superior*,” evaluated as “*arrogant*,” or not available for “*dialogue*” or that has the goal to “*drive the other away*,” as it is described in the sentences below extracted through the “*concordance analysis*,” which, in a lexicographic terminology, corresponds to the extraction of the whole sentence on the basis of the key word or relevant word [19] (Table 5).

Concordance Analysis

Una persona acida secondo me è scontrosa, che risponde sempre male.

³ The characteristic element index is calculated for all the units with a frequency of more than 5, with a probability threshold set at 5 % through T- Test (Bolasco 1999: 145).

Table 5 The acid person description

Graphic form	Tot occ.	Sub occ.	p value
Grumpy	17	9	0.001
Irritable	4	4	0.001
Superior	14	7	0.015
Friendly	8	5	0.015
Not available	11	6	0.015
Arrogant	15	6	0.05
Smile	5	3	0.05
Irritable	197	34	0.05
To behave	21	6	0.05
Behavior	65	13	0.05
Bad	7	3	0.05
Grumpy	18	5	0.05
Dialog	6	3	0.05
Turn away	3	3	0.05

An acid person in my opinion is grumpy, one that always responds badly

Una persona non disponibile una persona scontrosa che non riesce a rapportarsi nel migliore dei modi con gli altri e invidia tutti

A person not available, a grumpy person who can not deal in the best way with others and envy all

Sempre scontrosa, non ride mai.

Always grumpy, never laughs.

scontrosa e scortese, incapace di relazionarsi e comprendere.

surly and rude, unable to relate to and understand.

Si Cupa, scontrosa, maleducata, facilmente irritabile

Yes dark, grumpy, rude, easily irritable

Era arrogante nelle risposte, aveva un tono di voce alterato.

He was arrogant in their responses, he had a voice altered.

Era una persona arrogante. Piena di sè, si sentiva superiore

He was an arrogant person. Full of self, felt superior il rispondere male o sentirsi superiore attraverso il suo modo di fare, allontanando gli altri.

answer badly or feel superior to its way of doing, removing others.

Restio al dialogo e alla collaborazione. Rendersi indisponibile nei confronti degli altri.

Reluctant to dialogue and collaboration. Become unavailable toward others

Una persona non disponibile una persona scontrosa che non riesce a rapportarsi nel migliore dei modi con gli altri e invidia tutti

A person is not available a grumpy person who can not deal in the best way with others and envy all

Table 6 Acid person description

Graphic form	Tot Occ.	Sub Occ.	<i>p</i> value
Behavior	75	37	0.05
Cold	19	11	0.05
To behave	21	10	0.05
Annoying	5	4	0.015
Defense	11	7	0.015
Lack	5	4	0.05
Detached	12	6	0.05
Negative	8	4	0.05
Way	197	46	0.05
Answer	14	14	0.001
Answered	14	14	0.001

Question 3. Definition of Acidity

The significant subset of lexicon associated with the third question, concerning the definition of acidity, is reported on Table 6. Acidity is seen primarily by our participants as a behavior that has the peculiarity, first, of taking distance from the other (“cold, detached”; $p < 0.01$). This is coherent with the emotional analysis below that, even if at a lesser extent, acidity primarily for men as a passive, resigned, and helpless way to face one’s own sense of injustice. On the other hand, proactive acidity is mostly identifiable as an “answer” to a question, and rarely as a statement or the first round (verbs such as “I replied,” “I answer” recur very frequently), almost as if this type of communication consisted of waiting for the “right moment,” the moment in which the acid interlocutor can (finally) emphasize his “annoyance” or contempt. A particular aspect of this is that participants—even when simply asked to provide a bare definition—are usually searching for a first justification of, by explaining it mostly as a “defense” due to severe personal psychological problems (as also emerges from question 6 and 7).

In the participants’ account reported below, extracted by means of *concordance analysis*, it emerges that the frequent tendency of an acid person to answer concerns two basic modalities: responses that either tend to the “claiming of a right,” in response to a sense of injustice, or to devaluating the other through precision sentences and ironic statements (e.g., “you know the difference between brake and accelerator”) to make him lose face and drive him away.

Sentences that aim at claiming a right:

“anche noi ne abbiamo diritto”

“We have the right to do so too”

“un attimo. Sono una e ho solo due mani”

“One moment. I am one and I only have two hands”
Sentences that aim at devaluating the other:

“se non sa nemmeno riconoscere la differenza tra freno ed acceleratore..”

“If you cannot even tell the difference between brake and accelerator..”

“di figli ne ho già due”

“I’ve already had two sons”

“non ce la può proprio fare”

“You just can not do”

“quello che c’è da fare può vederlo da sé”

“What to do can you see it for yourself”

“pensi anche lei ce la può fare..”

“don’t you know... you can do it, as well..”

“per carità non aggiunga altro..”

“For heaven’s sake do not say anything else..”

Other participants’ accounts that describe acidity as “defense mechanism”:

Spesso è un meccanismo di difesa. Una persona che prende un consiglio come una critica!

It is often a defense mechanism. Person who takes advice as a criticism.

L’acidità è un comportamento o atteggiamento di difesa verso gli altri e il mondo esterno quando ci si sente attaccati o ridicolizzati, stressati.

Acidity is a behavior or defensive attitude toward the others and whole when you feel attacked or ridiculed or stressed.

L’acidità è una mancanza di attenzione, una voglia di protagonismo, un senso di superiorità.

The acidity is a lack of attention, a desire for leadership, a sense of superiority.

È una mancanza di affetto o una frustrazione.

It’s a lack of affection or frustration.

Question 4. Tell an Episode in Which a Person Has Behaved in Such a Way as to Make You Think s/He was Acid

The fourth question on the episodes in which a person has behaved acidly highlights that potential context of acidity is one in which a “request for information” is present (information, request, answer, question, but also criticism, offence, clarification, attack). These typically occur in formal and public contexts (school, at work, public, hospital, call center, administrative office, restaurant) or between colleagues (work, colleagues, school class). The

Table 7 Acid context and behaviors

Graphic form	Tot Occ.	Sub Occ.	p value
Answered	36	26	0.001
Information	11	11	0.001
Episode	7	7	0.001
Ask	8	7	0.001
Information	7	7	0.001
Talking	5	5	0.001
Asking	6	6	0.001
Classroom	4	4	0.001
Day	4	4	0.001
School	7	5	0.001
Offense	5	4	0.001
Question	8	4	0.025
Answer	11	5	0.025
Criticism	4	3	0.025
Happen	4	3	0.025
Simple	4	3	0.025
Public	4	3	0.05
Work	6	3	0.05
Friends	6	3	0.05
Impolite	18	6	0.05
Specification	6	3	0.05

request for information, in instrumental and temporary interaction (“*episodes*,” “*one day*”), creates an acid context especially when one is asked to repeat already provided information (“*è scritto. Non vede?*” It’s written there. Can’t you see it?), but sometimes even the first time some information is asked for (“*perché non compra una cartina?*” (why don’t you buy a map [instead of asking for direction]?). *Public contexts* are very frequently recalled, different from familiar ones (just one word on the whole fourth question subtest, “*friends*”) (Table 7).

Concordance Analysis

Nel chiedere informazioni ad un’altra persona. Da quanto una persona è disposta ad aprirsi con te.

In asking for information to an other person. How much a person willing to be open with you.

Ho chiamato la segreteria dell’università per avere delle informazioni e mi è stato risposto in modo acido.

I called the secretary of the university to have the information and she answered acidly.

Mentre chiedevo informazioni alla segreteria dell’università.

While wondering information about the secretary’s University.

In metropolitana per chiedere informazioni, mi è stato risposto: “non me ne frega niente”!

In Metro to ask questions, I was told: “I do not give a damn”!

Un giorno ho chiesto ad una amica delle informazioni su un ragazzo e sono stata attaccata.

One day I asked a friend some information about a guy and have been attacked.

Chiedo informazioni per una via di Roma e una signora mi ha risposto in modo acido perché avrei dovuto comprarmi una cartina.

I asked about a way to Rome and a lady answered me so acidly because I should have bought a map.

Quando chiedo delle informazioni e ottengo risposte scocciate.

When I ask the questions and I get peeved answers

Questions 5–9. What are the Aspects of a Person’s Behavior in Which You Can See or Hear Acidity? In What Verbal Characteristics?

By far, the best signal that identifies acidity is the “*voice*” or “*tone of voice*,” as we can see from the more frequent graphic forms in the Table below. The acid person’s tone of voice is not rarely described: “*annoyed*,” “*irritated*,” “*nervous*” or “*altered*,” “*high*,” “*cold*,” “*dry*” or “*stinging*”; “*smile*” is used to mention the absence of a smile, but in some cases, it is described as a “*grin*”. A detailed description is the following: “A snappy attitude, a smile that conveys contempt just said, in a tone of voice often in falsetto to make more pronounced hatred, a snap of anger or resentment”;

The acid person’s language is well defined too: graphic forms as the following are recurrent: “*short, dry, monosyllabic language, stinging answers or jokes or even vulgar and insulting*.”

The word *expression* as evidenced by concordance and analysis of repeated segments (computation of words that co-occur together; [19]) mostly appears as “*facial expression*” and then as gaze or body signals that can be associated, respectively, to the different acidity identified previously and defined as proactive—“*look that glares*,” “*eyes of fire*,” “*gestures..*” (with high tension) “*rigidity*” “*stretched body or muscles*”—or passive “*avoiding his gaze*,” “*eyes downward*” (Tables 8, 9).

Concordances with word “*language*” which has different nuances:

Linguaggio freddo e distaccato.

Linguaggio cold and aloof.

Linguaggio lento per scandire bene ogni singola parola.

Linguaggio slow to scan every single good word.

Linguaggio pungente, movimenti frenetici degli arti superiori, espressione tirata.

Table 8 Verbal and non-verbal acidity signal

Graphic form	Tot Occ.	Sub Occ.	<i>p</i> value
Tone	77	35	0.05
Expression	22	14	0.05
Face	26	14	0.05
Gaze	12	8	0.025
Turn to someone	15	8	0.025
Speak	9	7	0.05
To behave	11	5	0.05
To deal	9	5	0.05
Speak	14	4	0.05
Behavior	65	11	0.05
Rigidity	6	4	0.05

Biting language, frantic movements of the upper limbs, pulled expression.

Linguaggio **poco socievole**. Si, alcune volte si confonde l'acidità con la timidezza.

Unsociable language. Yes, it sometimes confuses the acidity with shyness.

Linguaggio **distaccato e freddo**.

Detached and cold language

Linguaggio arrogante

Arrogant language

Linguaggio **aspro**, corpo in tensione

Harsh language, body tension

Linguaggio frenetico e **tono della voce alto**.

Frantic language and high **tone** of voice.

Linguaggio verbale molto **duro**.

Very **harsh** verbal language.

Linguaggio **scurrile**.

Foul language.

Linguaggio **scortese**.

Rude language.

Linguaggio **scurrile** e comunicazione corporea poco fluida e arrabbiata

Bad language and jerky and angry bodily communication

Linguaggio poco educato e **scurrile** e per quanto riguarda il corpo e la gesticolazione

Impolite and vulgar language and as far as the body and gestures

Del linguaggio verbale per esempio risposte a mono sillabi o risposte **sgarbate**.

Verbal language, for example, responses to single syllabus or **discourteous** answers.

Tono di voce **arrabbiato**, spesso accompagnato da un linguaggio **monosillabico**.

Angry **tone** of voice, often accompanied by a **monosyllabic** language.

Table 9 Verbal and non-verbal acidity signal

Graphic form	Tot Occ.	Sub Occ.	<i>p</i> value
Language	37	31	0.05
Tone	13	9	0.05
Dry	15	9	0.05
Voice	88	28	0.025
Body	9	7	0.025
Tone	77	20	0.05
High	12	7	0.05
Hands	4	4	0.05
Gesture	7	5	0.05
Vulgar	5	4	0.05
Altered	8	4	0.05
Short	4	3	0.05
Look	6	3	0.05
Closed	6	3	0.025
Shrill	5	3	0.025
Stinging	5	3	0.05
Words	10	4	0.05
Haughty	4	2	0.05
Facial	4	2	0.05

Dal linguaggio verbale e dalle battute **pungenti**.

From the verbal jokes and **stinging**.

Questions 6–7. Acidity reasons in a particular episode and in general

The Questionnaire also tried to elicit the motivations to acidity through an open question.

When participants describe the causes of the acidity of the person identified, they primarily use the graphical form “personal,” which co-occur with “nature” and “character” that seem to prevail—as emerges from the frequencies and concordances below—with respect to graphic forms such as “bad day” or “mood.”

Referring to the concordance of “personal,” participants in describing the acidity of another person offer a quite varied range of possible personal negative emotions or diseases, from “envy” to a “feelings of persecution.” So acid communication is subject to a severe judgment from the receiver’s point of view; the acid other is seen as “outpouring” or a “defense” (mostly in question 7) to a more general “lack of self confidence,” “dissatisfaction” and also relational diseases as “sense of superiority” “not normal relationship” (Table 10).

Concordances

Forse dei **problemi personali** lo portano a comportarsi in tal modo. Posso essere motivo di sfogo dei suoi problemi.

Table 10 Acidity causes

Graphic form	Tot Occ.	Sub Occ.	<i>p</i> value
Day	12	8	0.05
Insecure	8	5	0.05
Wrong	5	4	0.05
Problems	25	8	0.025
Unsatisfied	9	4	0.025
Insecure	7	3	0.05
Personal	6	3	0.05
Character	28	7	0.05
Nature	4	2	0.05
Superiority	4	2	0.05
Sympathy	4	2	0.05

Maybe some **personal problems** led him to behave in this way. I have no reason to vent his **problems**.

Si è acido perchè ognuno ha una **manca** di attenzione, senso di superiorità per mascherare la propria fragilità. Per vari **problemi personali**.

It is acids because everyone has a lack of attention, sense of **superiority** to mask his weakness. For various **personal problems**.

Per brutte esperienze **personali**. Può essere uno scudo usato contro altre persone.

To bad **personal** experiences. It can be used a shield against other people.

Una persona potrebbe essere acida per situazioni **personali**. Perché in fondo le manca qualcosa.

A person could be acid for **personal** situations. Because in the end it lacks something.

Motivi **personali**, caratteriali. Distacco, assenza, chiusura.

Personal reasons, character. **Detachment**, absence, closure.

È una persona che tende ad essere scettica insicura di se stessa. A causa del suo carattere.

He is a person who tends to be skeptical **unsure** of herself. Because of his **character**.

Perché **insoddisfatta** della propria vita. Per problemi personali.

Why **dissatisfied** with their lives. For personal problems.

Problemi personali, **manie di persecuzione**.

Personal problems, **persecution manias**.

Perché non ha sufficienti **soddisfazioni personali** ed è frustrata ed insoddisfatta

Why do not you have enough **personal satisfaction** and frustrated and **unsatisfied**

Perché è nel suo **carattere**.

Because it's in his **character**.

Perché **insoddisfatta** della sua vita.

Table 11 Causes of personal acidity

Graphic form	Tot Occ.	Sub Occ.	<i>p</i> value
Angry	20	10	0.001
Annoyed	13	7	0.001
Nervous	15	8	0.025
Mood	8	4	0.025
Stress	8	4	0.025
Fight	5	3	0.05
Particular	11	4	0.05
Angry	15	5	0.05
Moment	13	6	0.05
Cause	9	3	0.05
Injustice	4	3	0.05

Why is **dissatisfied** with her life.

Perché non è soddisfatta della propria vita Non è abbastanza **gratificata** dalla vita.

Why is not satisfied with his life. It's not quite **gratified** by life.

Questions 9–10. Situations of Personal Acidity Described by Participants

When participants describe their own acid communication, their judgments become more mitigated and contextualized (“particular,” “moment,” “day”) to an emotion or a “mood” like “anger” or “discomfort” after a “dispute,” or after a “suffered injustice,” at most, “discomfort” at a “stressing period,” mainly due to “limited time”; thus, they sustain that it is “not a way of being” (Table 11).

Question 12. How Do You Feel After the Acid Scene?

Acid Communication is not conducive to well-being in participants, the majority of them even point out that it causes quite a “sense of guilt” and “regret”; it often appears to be the acknowledgment of an error (“wrong”) that one would like to delete (“remorseful” or “stupid”).

Positive graphic forms such as “well, happy, and normal,” although significant in this section, however, have lower frequencies than those that express a negative mood following an episode of communicative acidity (Tables 12, 13).

Conclusions

Research on emotions should focus on the role of the social contexts within which they are expressed, trying to go beyond the classical approaches that describe them only as primary or secondary emotions; to this end, new affective–communicative constructs like one of acidity might be exploited.

Table 12 After acidity

Graphic form	Tot Occ.	Sub Occ.	<i>p</i> value
Character	28	14	0.001
To defend oneself	5	4	0.001
Problems	25	9	0.025
Relation	4	3	0.025
Defense	11	3	0.025

Acid communication, mainly in competitive, conflicting or stressful situations, is a way to express feelings of injustice, anger, envy, bitterness, grudge, or rancor, but in a context in which the subject has no power to revenge, nor even the power to express one's anger freely. This results in a restrained and half-inhibited way of attacking other people [13].

If we consider this definition, acid communication seems to be a broader construct to better understand the role of mixed emotions underlying a conflictual situation. In this perspective, the aim of our study was twofold, to understand the role of emotion through a qualitative approach that gives us the possibility to describe acid communication by identifying contexts, definition, and ways of expression of acidity, but also by assessing how lay people recognize, represent, and judge acidity or acid persons, through their lexicon.

To pursue these goals, we conducted a quantitative–qualitative study that on one side was focused on the analysis of emotions and on the other one on the common language lexicon of acidity.

On the emotions side, we have recognized two types of acidity: a proactive and a passive one.

In the former, processes of social comparison but also desire of revenge (or emulation?) are in the background—primarily oriented on the present time—while the latter is mostly based on emotions like bitterness, sense of impotence, victimization, referred to episodes presumably occurred in the past. Our study also demonstrates that proactive and passive acidity are higher, respectively, for women and men and this distinction seems to be coherent with previous research on acidity [14], where from simulation of acid scenes, it results that a crucial role in the intensity of acidity expression could be one played by status and relationship type.

The lexicographic analysis instead sheds light on the representation of acidity in words, verbal and non-verbal signals, but also on the most frequent contexts and evaluation of acid persons.

On the signal side, the signal most frequently identified as typical of acidity by participants is “tone of voice” but they also recalled nuances of indirect and aggressive lexicon that again is linked to a double type of acid sentence:

Table 13 After acidity

Graphic form	Tot Occ.	Sub Occ.	<i>p</i> value
Guilty	27	27	41
Bad	9	9	14
Regret	5	5	8
Sorry	4	4	7
Stupid	4	4	7
Wrong	10	3	3
Good	9	2	2
Normal	5	5	8
Unsatisfied	5	2	3

one aimed at claiming a right or one aimed at devaluating the other.

The causal attribution of acidity varies when participants report one's own or other's episodes; in the former case, it is simply a bad day or an accident, while in the other case, it is linked to personal and stable (“personality”) problems.

A further issue in research on acid communication is the intercultural one. While people from the Romance languages immediately identify the notion of acidity over-viewed here, and the words “acid” and “acidity,” is a straightforward trigger for this notion, it is not so immediately accessed by the same words for anglo–american people. Yet, the Oxford Dictionary defines acidity as “*Bitterness or sharpness in a person's remarks or tone,*” and gives examples such as: “*There was only the slightest bit of acidity in his tone.*” “*The gravel in the Brooklyn tones, the acidity in the wit and the raucous laugh remind us we are in the presence of one of the most controversial figures in literary history.*” “*I had to try really, really hard to instil some acidity into my voice.*”

Therefore, our next step will be to test possible similarities and differences in the notion of acidity as defined in different cultures.

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Annex 1

The questionnaire on acidity (English translation)

1. Did you happen to meet a person you might define as “acid”?
2. If you did, describe his/her way of being or behaving that causes you to define him/her as such
3. Based on your experience, how would you define “acidity”?

4. Tell of a case in which a person behaved in such a way that you thought s/he was “acid”
5. In your opinion, from what can one see or hear “acidity”?
6. In your opinion, why was that person acid?
7. Why is a person acid, in general?
8. In your opinion, how much each of the following emotions is a cause of acidity? Tell how much you agree from 1 to 5 (1 I do not agree—5 I completely agree). Emotions included: envy, pride, jealousy, disappointment, sadness, vengeance, revenge, contentment, anger, sense of injustice, contempt, hatred, rancor, enthusiasm, sense of impotence, regret, resignation, indignation, resentment, bitterness, grudge, annoyance, and other (please specify)
9. In your opinion, what are the traits of verbal language or bodily communication typical of an acid person?
10. Are there cases in which you think you have been acid?
11. If yes, why were you so? Describe the situation and its antecedents
12. If yes, how did you express your acidity? What did you say/do? From what could one tell it?
13. How did you feel afterward?
14. After that episode, how was your relationship with the person toward whom you had expressed your acidity?
 - i. Worsen–improved–unchanged
15. Imagine you are an acid person (or you behave acidly in a certain situation). Check how much you agree with the following statements (from 1 to 5): I want to let him feel guilty; I want to take vengeance on him; He is less worth than I am; I want him to lose his face; I feel I was subject to injustice; I feel he has power over me; I know that if I get angry with him, he will take vengeance on me; I feel that if I tell him what I think we would quarrel; I feel a victim; He is not as worth as I am; I want to demonstrate I am right; I envy him; I am angry at him; I want to demonstrate how ineffective he is; I deserve more than he; He deserves more than I; Other (please specify).
16. Consider the following areas/contexts. Which is the most acid context? Check your degree of agreement (from 1 to 5).
 - i. Work, politics, school, friendship, love, family relationships, show-business, sport, other (please specify)
17. In your opinion, are there categories of people that more (often) than others are (considered) acid? If yes, which ones?
18. In your opinion, why are they considered acid?
19. And in your opinion, are they really so? If no, why?
20. List up to three famous persons who are “acid”.
21. Why are they so?

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