Social Science Information

http://ssi.sagepub.com

Emotions and feelings in the Bible: analysis of the Pentateuch's affective lexicon

Dario Galati, Renato Miceli and Marco Tamietto

The online version of this article can be found at:

http://ssi.sagepub.com/cgi/content/abstract/46/2/355

Published by:

⑤SAGE Publications

http://www.sagepublications.com

On behalf of:

Maison des Sciences de l'Homme

Additional services and information for *Social Science Information* can be found at:

Email Alerts: http://ssi.sagepub.com/cgi/alerts

Subscriptions: http://ssi.sagepub.com/subscriptions

Reprints: http://www.sagepub.com/journalsReprints.nav

Permissions: http://www.sagepub.com/journalsPermissions.nav

Citations (this article cites 17 articles hosted on the
SAGE Journals Online and HighWire Press platforms):
http://ssi.sagepub.com/cgi/content/abstract/46/2/355#BIBL

Trends and developments

Courants et tendances

SSI

Dario Galati, Renato Miceli and Marco Tamietto

Emotions and feelings in the Bible: analysis of the Pentateuch's affective lexicon

Abstract. *This study aims to investigate how affective states are described in the Old Testament. Three psychology researchers were asked to read the first five books of the first Italian version (from the 18th century) of the Old Testament (Pentateuch, or Torah) and to select all the terms that referred to an emotion or a feeling. For each selected term, they also had to pinpoint its position in the text (i.e. book, chapter) and the various characteristics of the affective episode in which it appeared (i.e. experiencing subject, situational antecedent, intentional object, instrumental behaviors). The textual analysis showed that the affective terms most frequently cited referred to four categories: "fear, awe", "anger, hate", "affliction, pain, sadness" and "love, joy, happiness". These categories were significantly associated with specific instrumental behaviors and characters of the narration. Multivariate analysis also indicated that the frequency of citation of the affective categories varied significantly as a function of the book in which they appeared. In the conclusions, the authors discuss the conception of emotions and feelings issuing from the Pentateuch analysis.*

Key words. *Affective lexicon – Bible – Emotions – Feelings*

Résumé. *L'article se propose d'analyser de quelle manière les expériences affectives sont décrites et évaluées dans la Bible. On a demandé à trois chercheurs psychologues de lire les cinq premiers livres de la première version italienne (du 18ème siècle) de la Bible (le Pentateuque, ou Torah) et d'y sélectionner tous les termes se référant à des expériences*

affectives (émotions et sentiments). Pour chaque terme sélectionné, ils devaient aussi indiquer sa position dans le texte (livre, chapitre) et les différentes composantes de l'épisode au cours duquel l'émotion ou le sentiment étaient expérimentés (le sujet qui expérimentait l'expérience affective, la situation qui la causait, l'objet intentionnel auquel elle se référait, le comportement réactif du sujet, l'évaluation morale de l'expérience). Les résultats de la sélection ont mis en évidence que les termes affectifs les plus fréquents se réfèrent à quatre catégories d'émotions, à savoir, dans l'ordre, la peur, la colère, la tristesse, la joie. Ces émotions sont expérimentées à des fréquences différentes par les principaux personnages de la narration (Dieu, les hommes, le Peuple d'Israël). L'émotion le plus souvent expérimentée par Dieu est la colère et par les différents personnages humains, la peur. Aucune évaluation morale négative quant aux expériences affectives n'émerge de l'analyse du texte. L'analyse multivariée met en évidence le fait que la fréquence des citations des catégories émotionnelles change sensiblement en fonction des cinq livres du Pentateuque. Dans leurs conclusions, les auteurs examinent la conception implicite des émotions et des sentiments qui semble émerger du Pentateuque.

Mots-clés. *Bible – Emotions – Lexique affectif – Sentiments*

According to the recent claims of Positive Psychology (Seligman and Csikszentmihalyi, 2000; Snyder and Lopez, 2002), Western culture pays little attention to positive aspects of human life and, in particular, positive emotions and feelings, and so implicitly devaluates them. For this reason Western languages have far fewer words for positive emotions than for negative ones (Averill, 1980; Galati, 1986, 2002; Galati and Sini, 1998; Galati et al., 1998, 2000, 2006; Gehm and Scherer, 1988; Plutchik, 1980); Western psychology pays much more attention to negative emotion and affective states than to happiness and well-being (Diener et al., 1999; Kahneman et al., 1999). This remark is confirmed by research on the emotions characterizing ordinary people's everyday lives in Western countries. People more frequently report negative than positive emotional experiences (Galati and Cattaneo, 1995; Galati and Zucchetti, 1990; Galati et al., 1991, 1994; Scherer and Tannenbaum, 1986; Scherer et al., 2004).

This general attitude could be partly rooted in the basic ethical principles of Western culture, which are inspired mainly by the Judeo-Christian tradition. This tradition has often in the past considered emotions and feelings as a threat to ethical behavior and, in particular, happiness and earthly pleasures, as experiences that distract human beings from spiritual perfection, which can be reached only through suffering and expiation of one's sins. But as far as emotions and feelings are concerned, experts on the Jewish culture have sometimes hypothesized a distinction between the attitude of the old Christian tradition, rooted in the New

Testament and in Patristic and Scholastic philosophy, and the attitude of the Judaic tradition, rooted in the Old Testament.[1] More specifically, according to them, the Torah, the core of the Old Testament, has never legitimized any form of *damnatio passionum et felicitatis*.

The research

To the best of our knowledge, no empirical study has so far been written on the present topic. The Biblical texts have been analyzed in religious or philosophical studies using primarily the exegetic method: Old Testament experts interpret the holy text to extrapolate ever-new meanings. Among the various interpretations experts have come up with over the course of time are the canonical interpretations of the Judaic tradition and of the various Christian Churches. In this area the theological perspective (Rendtorff, 1999) and the moral perspective (Neusner, 1973a) prevail. The former deals with the interpretation of religious truth, the latter with the interpretation of the moral behavioral codes and the ethical values in the Old Testament. No attempt has thus far been made to apply a psychological approach to studying and understanding the explicit or implicit model of the psychological subject in the holy text.

An implicit psychological perspective is presented in the moral approach that proposes values and behaviors finalized towards self-perfection. This approach tackles the question of human nature and the goals it has to reach through ethical education. From this perspective, works have been written by lay authors guided by historical and sociological interests, such as the classic book by Jhos Pedersen, *Israel, Its Life and Culture* (1926), which reconstructs Israel's value system starting from the Biblical text. Some works have studied the unique characteristics of the Judaic culture and, particularly, of its morality (Blenkinsopp, 1977; Countryman, 1988; Neusner, 1973a, 1973b, 1977; Noth, 1965; Wenham, 1979); others have shed light on the transformations the Judaic ethic has undergone after meeting the Greek culture (Hengel, 1974), or on the relations between the Judaic ethic and the Christian ethic (Whittaker, 1984). These works have focused on broad ethical-social issues such as the family, its structure and its behavioral codes; the role of woman and man and their different educational styles; property; the codes of eating and sexual purity. All these works, and especially those comparing Judaic morality with Greek or Christian morality, show that the Old Testament pays no special attention to the psychological aspects of the individual, in the sense that there is no reference to the vision of the psychological subject,

of the nature of the mind, of its functions, and of the relation between body and mind. On the other hand this vision is clear and explicit in classical Greek philosophy, which founds its principle of moral education on its conception of the soul and the mind. For the Greeks such as Plato, Aristotle and the Stoics, moral education is founded on the development of the superior powers of the soul (the rational faculties), which guide and dominate all other powers, including emotions and, of course, the body. By contrast the implicit or explicit ethical-educational purposes of the Old Testament do not refer to the importance of superior mental functions and their development, i.e. of pure rationality that grants dominion over body and passions; instead, they refer to the creation of an individual who can fully observe the rules of conduct established in the covenant originally made between man and God. Only through adherence to this pact can salvation, sanctity and happiness follow. The Greek ethic has a rational foundation, the Judaic a religious foundation.

Research goals and general approach

This study aimed at gathering new data for a psychological reading of the Old Testament, with particular reference to emotions and feelings. For this reason, the research analyzed, using an empirical method, the way the Pentateuch presents, describes and judges human emotions and feelings. It then investigated how much space the Pentateuch gives to positive and negative emotions respectively so as to verify whether it gives more space to negative emotions – generally considered as indicators of unhappiness and suffering – or to positive emotions – considered as indicators of pleasure, well-being and happiness (Fredrickson, 1998, 2001; Galati and Sotgiu, 2004). All these elements of analysis shed light on the implicit vision of the Old Testament concerning human feelings and emotions, and concerning the legitimacy of happiness and pleasure and affective states. Finally the study explored how the Pentateuch explicitly or implicitly presents and judges, from an axiological point of view, emotions and feelings, pleasure and happiness.

The questions asked of the Pentateuch

We searched the Pentateuch text for the answers to our questions. We analyzed which emotions and feelings are described in the text and how they are valued. We computed the emotions and the occurrence of terms

indicating long-lasting feelings, and examined the context in which they appear.

Analysis was performed on the Italian version of the Pentateuch edited between 1769 and 1791 by Antonio Martini (*La Sacra Bibbia*, 1964). This version is the first Italian translation of the Latin text, or *Vulgata*, by Saint Jerome (405 AD). It was the canonical text of the Italian Catholic Church for at least two centuries, and was used in the liturgy and circulated among believers for a very long time, influencing Italian Catholic culture more than any other more recent translation. Given the lack of research on the subject and the nature of the empirical source (a textual corpus), we adopted a descriptive approach, which led to the formulation of six main questions guiding text analysis:

1. Which emotions and feelings does the Pentateuch most frequently speak of?
2. How much room is reserved for positive and pleasant emotions and feelings, and how much for negative ones?
3. Which characters experience emotions and feelings?
4. How are emotions and feelings described? What are their characteristics, their functions and the contexts they are used in?
5. What value judgment is made concerning them?
6. Do the different contents of the five books of the Pentateuch influence the way of describing the emotions and long-lasting feelings?

The answers to these questions helped us understand whether the Pentateuch text is at the root of the thought tradition that has fostered the devaluation of emotions and feelings and, in particular, that has devoted little attention to happiness and well-being, and to their indicators, namely positive emotions and feelings.

Theoretical bases

As a basis for our search for the occurrences of affective terms in the Torah, we formulated as our reference the following largely shared definitions of emotion and feelings emerging from the various psychological works on this topic (Ortony et al., 1987; Plutchik, 1994; Scherer, 1984):

> *Emotion* refers to the rapid-onset reaction of the body caused by given stimuli and targeted at given objects (you get angry with somebody, you are afraid of something). This reaction is characterized by a given pleasant or unpleasant subjective sensation, which implies bodily, expressive and behavioral changes, and cognitive evaluations of the

nature of the stimuli, and which usually is short-lived. Long-lasting *feeling* refers to an affective experience whose characteristics are similar to those of emotion. However, it lasts longer and persistently refers to some specific object, thus determining characteristics and consistent attitudes towards that object (you can hate a person for life, but you get angry with somebody for a much shorter time). Like emotions, feelings can be pleasant or unpleasant and can cause bodily, expressive and behavioral changes.

In carrying out the textual analysis, we decided to collect, for each mentioned emotion or feeling, the characteristics and context elements indicated by psychologists of emotion and by lay people as most typical of emotion and feeling conceptual categories (DeSousa, 1987; Fehr and Russell, 1984; Frijda, 1986; Galati, 1993, 2002; Galati et al., 1999; Plutchik, 1994; Shaver et al., 1987). First of all each affective category is labeled by a specific term and refers to the following elements:

– "experiencing subject", that is the subject who experiences a given emotion or feeling;
– "antecedent of emotion or feeling", that is the circumstances (things, persons, events, behaviors) that cause an emotion or feeling;
– "intentional object of emotion or feeling", that is the person or thing the emotion or feeling is targeted at (the person we get angry with, the person we fear, love or hate);
– "expressive behavior", which refers to the facial movements and body postures specific to the various emotions and feelings;
– "instrumental behavior", which refers to the actions generally caused by emotions and feelings;
– "physiological arousal", which refers to the physiological changes that usually accompany affective states, such as increase in arterial pressure or pulse rate, increase in muscle tone (together referred to as palpitations), and body tension; and
– "subjective aspects", into which we collapsed both the subjective sensations and the cognitive processes that accompany the emotion.

The subjective sensations characterize and distinguish qualitatively the affective experiences; they were differentiated into positive and negative. According to a shared tradition, by positive emotion or feeling we mean affective states linked to an experience of pleasure; by negative emotion or feeling we mean an affective state linked to an experience of displeasure. We also introduced a residual category labeled "neutral", in which we grouped emotions or feelings that are not directly linked to an experience of pleasure or displeasure, and whose affective value depends on the evaluation of context made by the experiencing subject. As this

evaluation is not available, in order to avoid interpretations, we preferred to introduce this category that is largely shared by emotion psychologists. For example surprise is a neutral "cognitive" emotion informing the body that it is facing an unexpected event whose pleasantness or unpleasantness depends on context. Desire is an appetitive feeling state, neither positive nor negative, whose value again depends on the context. The cognitive processes also included in the "subjective aspects" category, such as thoughts and reasoning, refer to the appraisal processes of the emotional stimuli. Finally "*duration* of emotion or feeling" refers to the time duration of experiencing subjects' affective experience; "value judgment of the affective state" refers to the explicit positive or negative evaluation of an affective state.

Method

Terms selection. We took into consideration terms for emotions as well as for long-lasting feelings, such as joy, sadness, fear, love, pain and hate. Three psychology researchers, who worked independently and were not aware of the purposes of this work, selected the terms. They were told only that we were performing a linguistic study on the Biblical text and that we wanted to learn about its affective and emotional lexicon. The three selectors were asked to carry out the task with great calm and accuracy, and were given three months to complete the selection. To motivate them, they were remunerated. Their task was to select all those terms in the text that indicated emotions and feelings, irrespective of their morphological form. They could thus select nouns, adjectives, verbs or adverbs. To homogenize selection criteria, they were asked to bear in mind the general definition of emotion and feeling indicated in the Theoretical Bases section. At the end of the three selectors' work, their lists were compared. The terms indicated by at least two selectors were included in the definitive list, which finally contained 550 terms. Averaged inter-rater reliability within each of the three possible couples of raters was significant (Mean K =.7, $p <. 0001$ for each comparison).

Context and attributes of emotions and feelings. For each term we pinpointed and noted its position in the text, the emotional or affective category to which it could be referred, the elements of the narrative context in which it recurred and the elements characterizing the emotion or the feeling, as more extensively detailed above. All these elements ($n = 14$)

were used as variables in constructing a matrix in which the single occurrence of a selected term was considered as a case, and the 14 variables as its characteristics. The 14 elements are listed in Table 1.

TABLE 1
Variables that specify emotional and affective experience for each selected term

Variables	
1	Affective category the term refers to
2	Book of the Pentateuch the term recurs in
3	Chapter
4	Verse
5	Quality of affective experience (positive, negative, neutral)
6	Experiencing subject (the person experiencing the emotion)
7	Antecedent of emotion or feeling (what causes the emotion or feeling)
8	Intentional object of emotion or feeling (the person or thing the emotion or feeling is targeted at)
9	Expressive behavior
10	Instrumental behavior (the behavior caused by emotion or feeling)
11	Physiological arousal
12	Subjective aspects
13	Length of emotion or feeling
14	Value judgment of the affective state

The first four variables identified the location of a term; the fifth the typology of affective experience (the specific emotional or affective category the term referred to). The remaining nine variables referred to the different characteristics of the emotions and feelings, and to their context elements. For each variable a great number of modalities emerged in the text. For example, different kinds of subjects could experience an emotion or a feeling: men, women, children, groups of people, the People of Israel as a whole, God himself. The antecedents could refer to particular natural phenomena or particular behaviors of single persons or God himself. The intentional objects to which emotions and feelings referred could be living objects (different sorts of people and animals), groups of people, the People of Israel as a whole, inanimate objects. Therefore, in order to avoid excessive data dispersal and to permit analysis, modalities were grouped into a smaller number of categories, not exceeding 10 for each variable. The categorization of the modalities referring to the 14 variables was carried out by three independent judges (three psychology researchers who were not those who performed the terms selection). Categorizations were then compared, and dissent resolved by discussion. More complex work has been done to categorize

the 550 affective terms found in the text into a small number of affective categories. In this case the three judges previously reduced to one nominal label (like anger, fear, happiness, etc.) all the terms referred to a same affective concept, although expressed in different morphological forms. In this way, 81 emotional labels were obtained. These terms were then grouped utilizing a categorization of Italian emotional terms already available (Galati, 1986; Galati and Sini, 1998). In this pre-existent categorization work, all the terms of the Italian emotional lexicon were compared using the multidimensional scaling method, and through this method were reduced to a limited number of semantic categories. Because this work listed emotional terms exclusively, the three researchers had to adjust the categories so as to code terms referring to feelings. A problem arose in the categorization of the terms referring to guilt and shame. According to the three researchers, they represented autonomous semantic groups. However, given their low frequency (1.6 percent of the total occurrences), the researchers decided to merge them into a more general category called "affliction, pain, sadness" so as to avoid excessive data dispersal, which would have created problems for statistical analysis. At the end of the work of categorization, nine general affective categories were identified.

To help understand how we performed the final coding of the textual elements taken from the passages in which emotions and feelings were reported, we present an example from the book of Exodus in which God is angry with the People of Israel because, while waiting for Moses who had ascended Mount Sinai, they built a golden calf and worshipped it:[2]

> Il Signore disse allora a Mosè: "Va scendi, perché il popolo che tu traesti dall'Egitto ha prevaricato; si sono fatti un vitello e lo hanno adorato … Lascia che la mia ira si accenda contro di loro e li consumi". [The Lord then said to Moses: "Go down, because the people you brought out of Egypt have acted dishonestly; they have made a calf and they have worshipped it … Let my wrath light against them and consume them". (Exodus 32, 7–10)

In this passage there is an affective term (wrath), which falls into the category "anger, hate, rage"; an experiencing subject (God), coded in the category "God"; an antecedent of emotion or feeling (the idolatrous behavior of the People of Israel), coded as "behavior of the People of Israel"; an intentional object of emotion or feeling coded as "the People of Israel"; an instrumental behavior (consume the People of Israel), coded as "aggressive behavior".

A list of the most frequent variables used in the data analysis (cited in more than 30 percent of coded episodes) and their modalities is reported in Table 2.

TABLE 2
List of the variables used in the data analysis and of
the modalities resulting from categorization

Variable	Modalities
Emotion or feeling	Affliction, pain, sadness
	Love, happiness, joy
	Desire
	Disgust, disdain, contempt
	Anger, hate, rage
	Jealousy, envy
	Fear, awe
	Pleasure, serenity
	Astonishment, surprise
Experiencing subject	God
	People of Israel
	One or more human characters
Antecedents	Natural phenomena or events that cannot be attributed to given subjects
	Behaviors of the People of Israel as a whole
	God's behaviors
	Behaviors of one or more people
Intentional object	Behavior, state, attribute of the experiencing subject
	Behavior, state, attribute of people other than the experiencing subject
	God and his behavior
	The People of Israel
	One or more human characters
	Non-human characters
Instrumental behaviors	Aggression
	Withdrawal behaviors and behavioral inhibition
	Sociable and friendly behaviors
	Flight and Hiding
	Other

Results

The emotions and feelings cited in the Pentateuch

The 550 selected terms were grouped into the nine affective categories (Table 2). These categories were then divided into three groups according to their valence: 71.1 percent refer to negative or unpleasant emotions or feelings, 24 percent to positive or pleasant emotions, and 4.9 percent to neutral emotions. As shown in Figure 1, the most recurrent terms refer to only four affective categories out of nine: "fear, awe" (22.2 percent of the
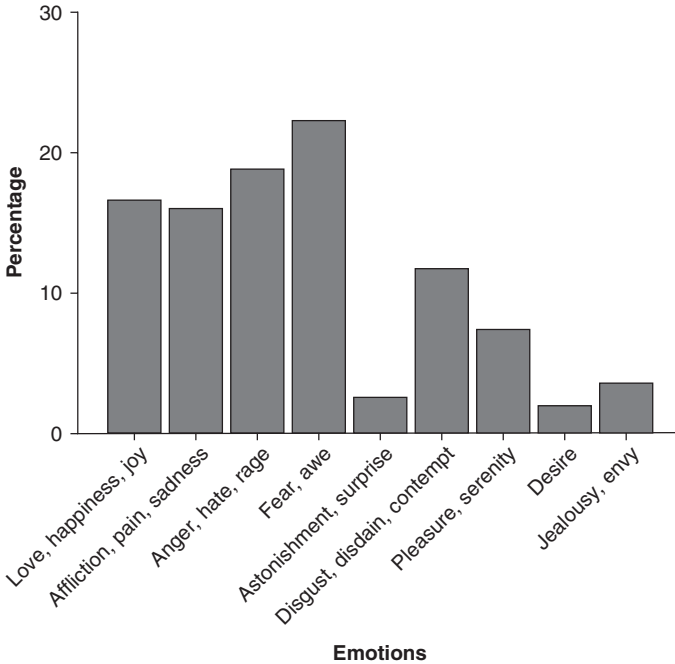
FIGURE 1
The percentage frequencies of the nine affective categories
resulting from the coding process

occurrences), "anger, hate, rage" (18.7 percent), "love, happiness, joy" (16.5 percent), "affliction, pain, sadness" (15.8 percent). Altogether, these four categories account for 73.2 percent of the total occurrences. Among them, three categories refer to negative emotions, while only one has a positive valence.

Experiencing subjects, context and attributes of emotions

We specially concentrated the analysis on those characteristics of emotions and feelings that were most frequently cited and so could be considered as more typical of affective experience (cited in more than 30 percent of coded episodes). These characteristics are summed up by four variables, which are, in order: "experiencing subject" (cited in 100 percent of the cases), "intentional object" of emotion (cited in 74.7 percent

of the cases), "antecedent" (cited in 62.9 percent of the cases), "instrumental behavior"(cited in 57.3 percent of the cases).

Considering the variable "experiencing subject", the characters who most frequently experience emotions and feelings (Table 2) fall into the categories "one or more human characters" and "People of Israel", which together make up 76.3 percent of the occurrences of this variable. God is presented as the subject experiencing an emotion in 22.8 percent of the cases. Other typologies of characters (animals, inanimate objects) account for a negligible frequency of 0.9 percent.

The categories of antecedents that cause emotions and feelings (Table 2) are ranked in the following order: "God's behaviors" (30.6 percent), "behaviors of one or more people" (28.9 percent), "behaviors of the People of Israel as a whole" (25.7 percent). The actions summarized in these categories take place during the interaction among human characters, between God and human characters, and between God and the People of Israel as a whole, and they profoundly affect the relation itself. Various typologies of events follow that do not imply interaction among characters (14.8 percent of the occurrences): they are natural phenomena or events that are not attributed to given subjects. Altogether 85.2 percent of antecedents of emotions have a relational nature because they have to do with interaction among humans or between humans and God.

As concerns intentional objects, emotions are more frequently targeted at "one or more human characters" (42.8 percent), "God" (16.5 percent), "the People of Israel" (29.9 percent), which altogether make up 89.2 percent of the occurrences. "Non-human intentional objects" such as natural phenomena, pleasant or unpleasant events, inanimate objects or animals are mentioned in only 10.7 percent of the cases.

The categories of "instrumental behaviors" (Table 2) are the following, in order: "aggression" (40.6 percent), "sociable and friendly behaviors", i.e. approach and positive interaction with others (18.8 percent), "flight and hiding" (10.8 percent). Together flight-or-fight behaviors (aggression, flight, hiding) were more frequently quoted than the sociable ones.

As concerns the remainder of the nine variables (Table 1) referring to the different attributes of emotions and feelings, the Pentateuch seems to pay little attention to them, as they are reported in very low frequencies. Descriptions of bodily or physiological reactions accompanying emotions and feelings are very rare (0.5 percent of the cases); rare also are references to length of time (3.5 percent) and expressive behavioral reactions (4 percent). Subjective aspects are cited more frequently (14.5 percent). Finally, an explicit value judgment on the emotions and feelings was found in only 29 episodes out of 550 (5.3 percent of the cases).

Negative judgments (82.8 percent) clearly prevail over positive ones (17.2 percent).

Considering jointly the rank and the modalities of the variables qualifying emotions and feelings, the Pentateuch seems to provide a rather objective description of them. It highlights the factual circumstances that generate them, the subjects who experience them, the objects they are targeted at and the objective behaviors through which they manifest themselves. Little attention is paid to subjective and mental aspects, including those related to pleasant- or unpleasant-feeling states, as well as those referring to thoughts and reasoning. Emphasis is placed on the functions of emotions and feelings. Considering that the typologies of antecedents, objects and behaviors that characterize emotions and feelings always refer to interaction episodes between typologies of characters, we can say that the Pentateuch attaches to emotions and feelings a priority function of communication exchange that can be positive and friendly, or negative and aggressive.

Relations among the variables

Through a first-level descriptive analysis, we identified the main aspects of the emotions and feelings that are presented in the Pentateuch. We then used bivariate and multivariate analysis to connect some of these aspects so as to answer our research questions. In particular we wanted, in the first place, to understand: (1) if each emotion or feeling had a specific function in addition to their common communicative function; (2) whether the typologies of experiencing subjects (God, the People of Israel, one or more human characters) preferentially experienced some kind of emotion or feeling; (3) which intentional objects the emotions and feelings were directed to.

To answer the first question, we crossed the typologies of emotions and feelings with the typologies of instrumental behaviors. The chi-square value[3] calculated on this crossing was significant ($x^2(35) = 209.10$, $p < .0001$); it highlighted specific associations between emotions and feelings and instrumental behaviors. The category "love, happiness, joy" was associated with approaching and collaborative behaviors, "affliction, pain, sadness" with withdrawal and behavioral inhibition, "fear, awe", with flight and self-protective behaviors. All these behaviors seem to refer to different adaptive functions.

To answer the second question, we crossed the affective categories with the categories of the experiencing subjects. The chi-square value

calculated on this cross-tabulation was significant ($x^2[10] = 141.10$, $p < .01$), showing that some emotions were experienced with different frequency by different characters. The People of Israel are focused on "fear, awe" (38.6 percent) and "affliction, pain, sadness" (20.3 percent). Anger is the emotion that more than any other characterizes God (44 percent), who, it is easy to understand, never experiences fear or surprise.

To answer the third question, we calculated the chi-square on the cross-tabulation of "experiencing subject" and "intentional object" of emotion; and its value was significant ($x^2[12] = 231.21$, $p < .01$). When the experiencing character is a single human being, the intentional object is, most of the time, another human being (56 percent). When the subject is the People of Israel, the most frequent intentional object is God (36 percent), and secondly other peoples (25 percent). Finally God most frequently addresses his emotions to the People of Israel (64 percent).

Differences between the five books

To show up possible differences among the five books, we calculated the chi-square on the cross-tabulation of the categories of emotions and feelings and the books of the Pentateuch. The chi-square value was significant ($x^2[16] = 61.32$, $p < .01$). Deuteronomy is the book with the highest number of affective terms, followed by Genesis, Exodus, Numbers and Leviticus. Using a loglinear model, a multivariate analysis was performed in order to analyze the relation between the categories of emotions and feelings, the categories of experiencing subjects and the five books. The simplest model compatible with the data included all the first-order interactions among the variables ($G^2[24] = 22.62$, $p = .54$).

Considering the interaction between emotion/feeling and book, the parameters regarding the Book of Numbers look particularly interesting and meaningful. In this book the occurrences of "affliction, pain, sadness" and "anger, hate, rage" increase significantly (0.62, $p < .01$ and 0.54, $p < .05$ respectively), whereas "love, happiness, joy" and "fear, awe" decrease, reporting tendentially significant values (-0.63, $p = .08$ and -0.53, $p = .09$ respectively). In Leviticus, the occurrences of "disgust, disdain, contempt" increase compared to the other categories of emotions and feelings and, particularly, to "fear, awe" and "affliction, pain, sadness". However, compared to the other books, the absolute frequency of "disgust, disdain, contempt" in Leviticus does not increase, and therefore the increase was not significant. This could be related to

the fact that Leviticus reports the lowest frequencies of all the feelings and emotions terms in the whole Pentateuch.

The analysis of the interaction between book and experiencing subject showed that Genesis has the significantly highest frequency of emotions and feelings experienced by the various typologies of human characters (1.17, $p < .0001$), whereas the frequency of emotions and feelings experienced by God increases in Numbers (0.54, $p < .05$) and Deuteronomy (1.08, $p < .01$).

Finally the analysis of the interaction between emotions and characters confirmed the results of the bivariate analysis, showing that anger increases significantly in relation to God (1.30, $p < .0001$), and significantly decreases in relation to the People of Israel (-1.32, $p < .0001$).

Discussion and conclusions

The results we obtained allowed us to answer the questions we set forth at the beginning. First of all, the most frequently quoted categories of emotions and feelings in the Pentateuch are "love, happiness, joy", "affliction, pain, sadness", "anger, hate, rage" and "fear, awe". These four categories are included in all the lists of primary emotions psychologists of emotions had proposed over time. They are consensually described as regulating systems of the basic adaptive behaviors of the organism: attack (anger, hate), flight (fear), approach (joy, love), or defensive withdrawal often accompanied by behavioral inhibition (affliction, sadness). Lower frequencies are reported for secondary emotions (such as shame and guilt), which are connected with cognitive processes and more complex codes of social behavior. For this reason the characters in the Pentateuch seem to use the emotional affective system as a kind of compass helping them to orient themselves and distinguish, in a rather dichotomous way, between what is useful and beneficial and what is dangerous and potentially harmful. In its turn this distinction seems to rest on a more general vision of the world, in which good and evil are two dimensions with clear-cut boundaries, no overlapping areas and no nuances.

The orienting function of emotions and feelings is confirmed by the analysis of their most frequently quoted characteristics. They concern the causes that generate them, the objects they are targeted at and the behaviors towards them. The subjective, qualitative and mental dimension of feelings is not taken into great consideration.

The function of emotions and feelings becomes even clearer, jointly considering their subjects and objects. In most cases, objects and subjects

are human beings or God himself. Emotions and feelings are presented in interactive behaviors that imply a positive relation (approach and cooperation) or a negative relation (hostility, fight or withdrawal) among humans, or between God and humans. Thus emotions fulfill their adaptive and orienting function as means of communication within social relations. Emotions guide and regulate relations among individuals and the privileged relation between single individuals and the People of Israel, on the one hand, and their one God, on the other.

The analysis of the relations between typologies of emotions and feelings and experiencing subjects gave us further information on the emotional and affective quality of these relations. Humans experience for one another a wide variety of positive and negative emotions and feelings that refer to diverse social interactions. Less varied, more constant and fixed are the emotions that single individuals or the People of Israel experience for God, and that God himself experiences for them. God often experiences wrath and disdain for the behaviors of his People and especially when the People of Israel breach the norms that God himself has established, which ensure a good relation between creator and creature, as well as a path of self-perfection and salvation. The text of the Pentateuch depicts God as a strong, invincible figure, as a feared executioner, whose wrath one cannot escape. Besides wrath and disdain, God experiences love for humans and for his People, even though this feeling is quoted far less frequently. God's love manifests itself in times of perfect understanding between creator and creature, or when God lovingly decides to put an end to his People's suffering. The figure of God, thus represented, elicits an attitude of fear and awe in the individual and in the People of Israel, as well as pain and suffering when he inflicts his punishments. Never does an individual or the People of Israel express feelings of overt anger at God: aggressiveness towards God is totally inhibited. Wrath and fear thus seem to mediate the unequal relation between a very strong (dominant) figure and a very weak (dominated) figure. There is nothing man can do to harm or scathe the almighty figure of God who, in his turn, can seriously hurt man, punishing him for his betrayals. In spite of his strength, God can also experience pain and sadness – though rarely – as a consequence of man's reprehensible attitudes. However pain generally turns into wrath, giving rise to God's punitive behaviors. All this can explain the very low frequency of shame and guilt. Instead of a sense of guilt, the erring individual usually experiences fear of God's wrath because it is usually accompanied by punishment. Guilt stems from the fear of having seriously harmed something or somebody, but the God of the Old Testament is so strong that he cannot be harmed.

As far as the main questions of this study are concerned – whether in the Pentateuch there is devaluation of emotions and feelings, greater attention to negative emotions and feelings, and lastly little consideration for earthly happiness – the data obtained allow us to reach some conclusions. As concerns the first question, data analysis showed that a value judgment on emotions is extremely rare in the Pentateuch: it is made in only 5 percent of the cases. There seems to be no judgmental attitude, either positive or negative, towards emotions and feelings. They are described as experiences endowed with a useful, adaptive and communicative function. Evidence that there are no devaluating judgments or negative prejudices against emotions and feelings is the fact that they are also ascribed to God, who is represented as a rather passionate figure. In the very few cases in which an explicit judgment is made, it is generally negative. However, it is not exactly associated with emotions or feelings, but instead with excessive behavioral reactions that go beyond the conduct that is usually generated by an emotion or feeling. A clarifying example is Genesis 49, 12–50. At death's door, Jacob gives to each of his 12 sons a message of praise or blame according to their merits or demerits. Talking of Simeon and Levi, he reproaches them thus:

> Simeone e Levi sono fratelli, strumenti di violenza le loro armi … Nel loro furore hanno ucciso l'uomo e per loro gusto storpiarono i tori. Maledetta la loro ira perché violenta, la loro collera perché crudele. Li dividerò e li disperderò in Israele. [Simeon and Levi are brothers; instruments of violence are their weapons … In their rage they killed man and for their enjoyment they maimed bulls. Cursed be their wrath because it was violent, and their anger because it was cruel. I will divide them, and scatter them in Israel]. (Genesis 49, 12–50)

In this passage, Jacob does not condemn anger or wrath as such, but the excessively and gratuitously cruel and violent behavior associated with them. Gratuitous violence towards men or animals is unjustifiable. One may kill an animal for food, but not make it suffer. One may kill a man in battle or in a fair duel, but not out of sheer cruelty and for amusement. Emotions thus become reprehensible when they go beyond their natural function of adaptation and interaction, when man makes a perverse use of them.

As regards the alleged privilege granted to negative emotions in the emotional lexicons of the languages that have been studied so far and in the reports on emotional experience gathered in Western countries, confirmation is found in the Pentateuch. Negative emotions and feelings make up 71 percent of the occurrences, whereas positive emotions account for 24 percent. If we consider positive and negative emotions

as a quality-of-life index, and thus an indicator of the level of acquired happiness, we could say that the life of mankind and in particular of the People of Israel as described in the Pentateuch is not very happy: toil and troubles prevail over occasions of serenity, well-being and happiness.

The quality and intensity of the characters' emotional life and the balance of positive/negative affective states vary as a function of the human affairs narrated in the five books. Genesis is the book with the highest number of characters experiencing different emotions, while in Exodus the relationship between Israel and God reduces the importance of all the other characters. In this book affliction and pain are the most frequent emotions because of the time of slavery in Egypt. Leviticus, although the least affective book of the Pentateuch, is characterized by three main affective categories: "disgust, disdain, contempt", "fear, awe", "affliction, pain, sadness", and particularly by the first. This is because Leviticus deals with the rules of purity that distinguish what is good and healthy from what is unhealthy and unclean, and thus a source of sensory and moral disgust. In the book of Numbers, the prevailing emotions and feelings are anger and hate experienced by God, and sadness and affliction by the People of Israel. Feelings get bitter in this book because the facts narrated refer to the peregrination of the People of Israel in the desert after their escape from Egypt. God becomes angry because of the constant mistakes and betrayals of his People, who cannot withstand the trials and suffering necessary to reach the Promised Land. Finally, in Deuteronomy, the affective quality of the narration is livelier: alongside negative feelings, more room is taken up by positive ones. Deuteronomy is the book that speaks the most about God's love for man and man's love for God. The vicissitudes narrated in this book refer to a much more serene period: peregrination and suffering in the desert are over, the People can settle down in the Promised Land, and God reminds them of the pact they have made, underlining how this pact is founded on the love man owes to God and his fellow people.

Considering the emotional and affective aspects of the five books in relation to happiness and well-being, we could conclude that, even though the Pentateuch speaks primarily about suffering and pain, it does not devalue human happiness, but instead makes it the leading principle of life. Life begins in a state of complete happiness in the Garden of Eden, where man's life can go by in the absence of need, in a state of well-being, satisfaction and positive affect. This ideal situation is man's natural condition, the one he was created for. This state is interrupted by the behavior of man himself, who does not meet the conditions that God had set for being happy. Unhappiness is thus caused by man; suffering,

pain, affliction are unavoidable punishments inflicted by God, but they are not the aim of human destiny. In the messianic message of the Torah, pain and punishment are necessary tools of purification so as to restore the lost condition and regain happiness. The observance of the covenant is the ultimate condition for man to regain happiness. This prospect seems to preserve the value of the world's material aspects as well as the more physical, affective, emotional and not only rational aspects of man.

In general, in the Pentateuch there is no clear devaluation of emotions and feelings, not even distrust of earthly happiness accompanied by an evaluation of suffering. Suffering is an evil necessary to restore the natural condition of happiness. *Damnatio passionum et felicitatis* does not seem to have a moral foundation in the Pentateuch.

A concluding remark regards the fact that our analysis and results refer to an Italian translation of the Pentateuch. In between the Italian translation and the original Hebrew text, two intermediate translations were made: from Hebrew into Greek, and from Greek into Latin. Therefore the original text presumably underwent some changes, as a translation is also an interpretation. These subsequent translations-interpretations may have been influenced by the Christian cultural tradition that, over the centuries, was getting organized, structured and also changed. In our opinion, this consideration does not diminish the value of our results, it simply puts them in a relativistic perspective. It can also foster the formulation of new research hypotheses: knowledge could be gained on the affective lexicon of the Bible by comparing the different translations that were done in very different historical periods. In so doing, we could verify if and to what extent the different historical and cultural contexts have influenced the translation-interpretation of the original text.

Dario Galati is full professor of General Psychology at the University of Turin. His main interest is in emotion psychology. *Author's address*: Dipartimento di Psicologia, Università di Torino, Via Verdi 10, 10124 Turin, Italy. [*email*: dario.galati@unito.it]

Renato Miceli is full professor of Psychometrics at the University of Turin. His main interest is in the analysis of lay people's beliefs. *Author's address*: Dipartimento di Psicologia, Università di Torino, Via Verdi 10, 10124 Turin, Italy. [*email*: miceli@ psych.unito.it]

Marco Tamietto holds a PhD in neuroscience. His main interest is in the psychological and neuropsychological analysis of cognitive and emotional processes. *Author's address*: Center for Cognitive Science, University and Polytechnic of Turin, Via Po 14, 10123 Turin, Italy. [*email*: tamietto@psych.unito.it]

Notes

1. We owe a debt of thanks to Matty Chiva for having stimulated the realization of this study. He was an expert on Jewish culture and professor emeritus at the University of Paris X–Nanterre; he also cooperated in the creation of ISRE (International Society for Research on Emotions). This work is dedicated to his memory.

2. In quoting the Bible, we report the original excerpt in Italian and its literal English translation. We did not take into account official English versions of the Bible, such as the King James version, because these are different texts, as we discuss in the conclusions.

3. The calculation of the bivariate statistics of association (chi-square) was performed by eliminating, in each contingency table, those categories that would have produced an expected frequency lower than five. Otherwise, the values of the association indices would have been artificially inflated.

References

Averill, J.R. (1980) "On the Paucity of Positive Emotions", in K.R. Blankstein, P. Pilner and J. Polivy (eds) *Advances in the Study of Communication and Affect*, Vol. 6: *Assessment and Modification of Emotional Behavior*, pp. 7–45. New York: Plenum.

Blenkinsopp, J. (1977) *Wisdom and Law in the Old Testament. The Ordering of Life in Israel and Early Judaism*. Oxford: Oxford University Press.

Countryman, W. (1988) *Dirt, Greed and Sex. Sexual Ethics of the New Testament and Their Implication for Today*. Philadelphia, PA: Fortress Press.

DeSousa, R. (1987) *The Rationality of Emotion*. Cambridge, MA: MIT Press.

Diener, E., Suh, E.M., Lucas, R. and Smith, H.L. (1999) "Subjective Well-being: Three Decades of Progress", *Psychological Bulletin* 125: 276–302.

Fehr, B. and Russell, J.A. (1984) "Concept of Emotion Viewed from a Prototype Perspective", *Journal of Experimental Psychology: General* 113: 464–86.

Fredrickson, B.L. (1998) "What Good are Positive Emotions?", *Review of General Psychology* 2: 300–19.

Fredrickson, B.L. (2001) "The Role of Positive Emotions in Positive Psychology: The Broaden-and-Build Theory of Positive Emotions", *American Psychologist* 56: 218–26.

Frijda, N.H. (1986) *The Emotions*. New York: Cambridge University Press.

Galati, D. (1986) "Radicali semantici nel lessico italiano delle emozioni [Semantic Roots in the Italian Lexicon of Emotions]", *Ricerche di Psicologia* 3: 5–34.

Galati, D., ed. (1993) *Le emozioni primarie* [The Primary Emotions]. Turin: Bollati Boringhieri.

Galati, D. (2002) *Prospettive sulle emozioni e teorie del soggetto* [Perspectives on the Emotions and Theories of the Subject]. Turin: Bollati Boringhieri.

Galati, D. and Cattaneo, M.T. (1995) "Vita quotidiana ed emozioni in soggetti con disabilità visiva [Everyday Life and Emotions in Visually Impaired People]", *Ricerche di Psicologia* 19: 27–56.

Galati, D. and Sini, B. (1998) "Les mots pour dire les émotions, recherche sur la structure du lexique émotionnel italien", *Revue de Sémantique et Pragmatique* 4: 13–30.

Galati, D. and Sotgiu, I. (2004) "Happiness and Positive Emotions", *Ricerche di Psicologia* 27: 41–62.

Galati, D. and Zucchetti, E. (1990) "Vita quotidiana ed emozioni negli anziani [Everyday Life and Emotions in Older People]", *Giornale di Gerontologia* 38: 439–47.

Galati, D., Massia, S. and Fazzari, M. (1994) "Emozioni e vita quotidiana in soggetti affetti da disturbo cardiaco [Emotions and Everyday Life in Subjects with Heart Rate Disorders]", *Ricerche di Psicologia* 18: 161–88.

Galati, D., Massimini, F. and Sini, B. (1998) "Il lessico delle emozioni nelle lingue neolatine: confronto tra l'italiano e il francese [Emotional Lexicon in Neo-Latin Languages: a Comparison between Italian and French]", *Ricerche di Psicologia* 22: 57–82.

Galati, D., Massimini, F. and Sini, B. (2000) "Il lessico delle emozioni nelle lingue neolatine: un confronto tra catalano e castigliano [Emotion Lexicon in Neo-Latin Languages: a Comparison between Catalan and Castilian]", in B. Cattarinussi (ed.) *Emozioni e sentimenti nella vita sociale*, pp. 165–83. Milan: Franco Angeli.

Galati, D., Miceli, R. and Gabba, C. (1999) "La gente comune sa definire le emozioni? [Asking People to Define Emotions]", *Psicologia e Società* 25: 13–26.

Galati, D., Millery, C. and Villot, V. (1991) "Emozioni e vita quotidiana nell'infanzia e nell'adolescenza [Emotions and Everyday Life in Infancy and Adolescence]", paper presented at the 22nd National Congress of Italian Psychologists, San Marino.

Galati, D., Sini, B. and Tinti, C. (2006) "The Lexicon of Emotion in Neo-Latin Languages", manuscript in preparation.

Gehm, T.L. and Scherer, K.R. (1988) "Factors Determining the Dimensions of Subjective Emotional Space", in K.R. Scherer (ed.) *Facets of Emotion: Recent Research*, pp. 99–113. Hillsdale, NJ: Lawrence Erlbaum.

Hengel, M. (1974) *Judaism and Hellenism*. Philadelphia, PA: Fortress Press.

Kahneman, D., Diener, E. and Schwarz, N. (1999) *Well-Being: The Foundations of Hedonistic Psychology*. New York: Russell Sage Foundation.

La Sacra Bibbia (1964) traduzione dalla Vulgata di Antonio Martini [The Holy Bible, translated from the Vulgate Bible by Antonio Martini]. Milan: Fratelli Fabbri Editori.

Neusner, J. (1973a) *From Politics to Piety*. Englewood Cliffs, NJ: Prentice-Hall.

Neusner, J. (1973b) *The Idea of Purity in Ancient Judaism*. Leiden: Brill.

Neusner, J. (1977) *The History of Mishnaic Law of Purity*. Leiden: Brill.

Noth, M. (1965) *Leviticus, a Commentary*. London: SCM Press.

Ortony, A., Clore, G.L. and Foss, M.A. (1987) "The Referential Structure of Affective Lexicon", *Cognitive Science* 11: 341–64.

Pedersen, J. (1926) *Israel, Its Life and Culture*. London: Geoffrey Cumberlege.

Plutchik, R. (1980) *Emotion: A Psychoevolutionary Synthesis*. New York: Harper and Row.

Plutchik, R. (1994) *The Psychology and Biology of Emotion*. New York: Harper Collins College.

Rendtorff, R. (1999) *Theologie der Alten Testaments* [Theology of the Old Testament]. Neukirche-Vluny: Neukirchener Verlag.

Scherer, K.R. (1984) "On the Nature and Function of Emotion: A Component Process Approach", in K.R. Scherer and P. Ekman (eds) *Approaches to Emotion*, pp. 293–317. Hillsdale, NJ: Lawrence Erlbaum.

Scherer, K.R. and Tannenbaum, P.H. (1986) "Emotional Experiences in Everyday Life: A Survey Approach", *Motivation and Emotion* 10: 295–314.

Scherer, K.R., Wranik, T., Sangsue, J., Tran, V. and Scherer, U. (2004) "Emotions in Everyday Life: Probability of Occurrence, Risk Factors, Appraisal and Reaction Patterns", *Social Science Information* 43(4): 499–570.

Seligman, M.E.P. and Csikszentmihalyi, M. (2000) "Positive Psychology: An Introduction", *American Psychologist* 55: 5–14.

Shaver, P.R., Schwartz, J., Kirkson, D. and O'Connor, C. (1987) "Emotional Knowledge: Further Exploration of a Prototype Approach", *Journal of Personality and Social Psychology* 52:1061–86.

Snyder, C.R. and Lopez, S.J., eds (2002) *Handbook of Positive Psychology*. New York: Oxford University Press.

Wenham, G. (1979) *The Book of Leviticus. New International Commentary on Old Testament*. Grand Rapids, MI: Eeerdmans.

Whittaker, M. (1984) *Jews and Christians: Greco-Roman Views*. Cambridge: Cambridge University Press.