



ORIGINAL ARTICLE

How we think about depression: The role of linguistic framing[☆]



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Abstract Descriptions of emotional disorders vary according to cultural and historical context. Framing mental illness as a disease – as opposed to being a consequence of psychosocial factors – has been proposed as a strategy to fight stigma in recent years. Here we combine two studies, a corpus analysis and an experimental survey, to explore this issue in the case of Spanish. First, we conducted a corpus analysis to investigate the patterns of linguistic framing of depression – including disease-like descriptions and metaphorical frames – using data from Latin American countries. Two main patterns were identified: (1) depression is frequently framed as a brain disease. In line with medicalization trends observed worldwide, this pattern has increased over time. (2) The data showed that depression is also metaphorically construed as a place in space or as an opponent. Second, we investigated whether the instantiation of subtle linguistic cues influences people's perception of a description of a hypothetical case of depression. A survey experiment conducted among Colombian students revealed that when depression was framed as a disease, the participants' perception of the depressed person's responsibility was reduced. Moreover, disease-like descriptions and metaphorical frames influenced participants' initial interpretations of the role of social causal factors.

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PALABRAS CLAVE

Enmarque lingüístico;
Análisis corpus;
Depresión;
Medicalización;

Como pensamos sobre la depresión: el rol del encuadre lingüístico

Resumen Las descripciones de los desórdenes emocionales varían de acuerdo a la cultura y los contextos históricos. Recientemente, se ha propuesto que enmarcar lingüísticamente estos desórdenes como enfermedades – en contraposición a consecuencias de factores psicosociales – podría ser una estrategia para combatir estigmas. En este trabajo combinamos un análisis del corpus lingüístico y un estudio experimental para explorar las características y

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consecuencias del enmarque lingüístico en español para el caso de la depresión. En primer lugar investigamos la frecuencia de distintos patrones de enmarque – incluyendo enmarque de enfermedad y otros enmarques metafóricos – usando datos provenientes de distintos países de Latinoamérica. Dos patrones emergen: (a) La depresión es frecuentemente enmarcada como una enfermedad cerebral y (b) La depresión se describe metafóricamente como un lugar en el espacio o un oponente. En segundo lugar, investigamos si el enmarque lingüístico afecta la percepción de un caso hipotético de depresión. Una encuesta a estudiantes colombianos reveló que cuando la depresión se describe como una enfermedad, los participantes tienden a percibir una menor responsabilidad de la persona afectada. Por otra parte, los resultados revelan que los distintos enmarques metafóricos estudiados inciden en las interpretaciones de los participantes sobre el rol de las causas sociales.

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Over the last two decades, accumulating work in cognitive science and cognitive linguistics has provided evidence that language shapes thought. The way we frame things linguistically influences the way we conceptualize social matters such as political attitudes, and moral and causal reasoning (Bergen, 2012; Lakoff, 1987; Lakoff & Johnson, 1980, 1999; Landau, Meier, & Keefer, 2010). Linguistic framing shapes the way we perceive the world by constraining how we gather information about people, events and situations (Lakoff & Johnson, 1999). This paper extends this framework to the study of the influence of linguistic framing on the conceptualization of psychological problems, focusing specifically on the case of depression.

Linguistic descriptions of psychological disorders vary according to culture and historical context. For example, framing mental illness as a brain *disease* – as opposed to a reaction to or consequence of psychosocial factors – has been an observed trend in mental health discourse in recent years (Corrigan & Watson, 2004; Horwitz & Wakefield, 2007; Racine, Waldman, Rosenberg, & Illes, 2010). From a social perspective, the phenomenon of medicalization of discourse conveys the threat of transforming human differences into pathologies (Conrad, 2007; Wakefield, 2007). In the case of depression, many authors have stressed the importance of distinguishing between pathological depressive disorders (which warrants medical attention) and normal human sadness that emerges as a reaction to life events or personal contingencies (Horwitz & Wakefield, 2007).

Medicalization phenomena results, in part, from an effort to decrease stigma. The rationale behind it is that someone suffering a physical disease is not to blame for their affection (Corrigan & Watson, 2004; Weiner, Perry, & Magnusson, 1988). However, although biogenetic explanations might reduce perceived blame (Kvaale, Gottdiener, & Haslam, 2013; Kvaale, Haslam, & Gottdiener, 2013), they may also strengthen dangerous stereotypes suggesting that people with mental illness have no control over their behavior (Read & Law, 1999), induce pessimistic prognosis (Kvaale, Gottdiener, et al., 2013; Norman, Windell, & Manchanda, 2012), and increase the desire of social distance (Haslam, 2011; Kvaale, Haslam, et al., 2013). On the other hand, psychosocial explanations – framing psychological symptoms as reactions to life events – have been shown to reduce fear

and improve attitudes toward people suffering from mental illness (Read & Law, 1999).

Many experimental studies have explored the influence of biogenetic explanations on stereotype (e.g., Aspinwall, Brown, & Tabery, 2012; Boysen, 2011; Boysen & Gabreski, 2012; Mehta & Farina, 1997). Kvaale, Gottdiener, et al. (2013) and Kvaale, Haslam, et al. (2013) analyzed data from 28 experimental studies exploring the effect of manipulating biogenetic and psychosocial explanations on attribution of blame, dangerousness, desire of social distance and prognostic pessimism in a range of psychological problems. Their results revealed that promoting biogenetic explanations helps to reduce blame but induces prognostic pessimism.

The medicalization of discourse is evidenced by media coverage of psychiatric neuroscience (Racine et al., 2010). As a consequence, the layperson is increasingly exposed to disease-like descriptions of psychological problems as part of their everyday life. Does the subtle exposure to linguistic frames shape the way we conceptualize mental health problems? Although the relation between biogenetic causal beliefs of mental health problems and stereotype has been explored before (e.g., Boysen, 2011; Mehta & Farina, 1997), here we deal with a different question: Does the mere instantiation of subtle contextual and metaphorical frames cause measurable effects on initial perceptions of a case of depression?

The goal of this work is twofold: We present the results from a corpus analysis – a standard method in *corpus linguistics*¹ – designed to investigate the frequency of the different types of linguistic frames used to describe depression in Latin American countries. Second, we explore whether subtle exposure to linguistic cues influences people's initial perception of a hypothetical case of depression.

Linguistic frames shape conceptual structure

The concept of framing is ubiquitous in the social sciences. According to Entman (1993), framing involves selecting some

¹ Corpus linguistics refers to the study of language occurring in samples (*corpora*) of real world text.

aspects of a concept and highlighting their salience in a communicating text. Importantly, it promotes a certain causal and moral interpretation for the item described. Framing could be realized by one or many sentences, which could be metaphorical or literal.

Metaphors are one of the linguistic tools used for framing mental health problems. For instance, psychological disorders can be metaphorically described as *opponents* that need to be fought against or as *places in space* where one has fallen into. We normally say things such as, “you need to *fight* negative feelings”, “sadness *got a hold* of her” or “I am *trapped inside* depression”.

Studies in cognitive science and cognitive linguistics have shown that the language we use affects our perception of people, situations and events (Lakoff & Johnson, 1980, 1999). Metaphorical frames influence a variety of cognitive domains such as time perception (Casasanto, 2010), social cognition (Landau et al., 2010), memory (Faucey & Boroditsky, 2010, 2011), moral and causal reasoning (Dehghani, Gentner, Forbus, Ekhtiari, & Sachdeva, 2009; Pickering & Majid, 2007; Spellman & Holyoak, 1992), problem solving (Thibodeau & Boroditsky, 2011), and political attitudes (Landau et al., 2010; Matlock, 2012). For instance, Thibodeau and Boroditsky (2011) showed that even very subtle variations in linguistic framing used to describe crime as a social problem influence participants’ opinions about effective strategies to solve the problem (crime). In another study, Landau et al. (2010) showed that when people read an essay describing the United States in terms of a *body*, while having heard discussions on how germs can penetrate and hurt the body, they change their opinions about immigration. More recently, Faucey and Matlock (2012) showed that the wording of political messages affects political attitudes, including judgments about whether or not candidates will be elected (see Bergen, 2012, for a review).

Lakoff and Johnson (1980) proposed that the conceptual structure of emotions emerges through metaphorization of more concrete, palpable concepts such as heat, cold, fire, liquid or spatial orientations. Emotions are not considered merely as feelings separated from thought, but rather as endowed with a complex conceptual structure, which is grounded – embodied – in physiological or physical reactions, such as rise of temperature, increase in heart rate or body posture associated with particular moods. Along these lines, the ontology of the concepts of emotions can be explained through mappings between target domains (e.g., emotions) and concrete source domains, such as spatial or temperature concepts, as in HAPPY IS UP or ANGER IS HEAT. This view is supported by numerous analyses of metaphorical expressions used in reference to emotions such as anger, hope, love and lust among others (Kövecses, 2000; Lakoff, 1987).

Some of these ideas have started to leak into psychiatric and medical literature (Eynon, 2002). For example, the impact of metaphors used to describe cancer and AIDS has been explored in the field of health discourse (Frank, 1995; Sontag, 1989). More recently, in a paper by Coveney, Netlich, and Martin (2009), metaphorical frame analysis of media coverage of a sleep drug (*Modafil*) has been used to investigate the medicalization of sleep at a conceptual level. They investigated the conceptual links created in the media discourse between sleep and health, through the analysis of

the contextual and metaphorical framing used to refer to the drug in the UK media.

Based on the principles of the Conceptual Metaphor Theory developed by Lakoff and colleagues, recent works have studied metaphors of depression in the case of English (Charteris-Black, 2012; Demjén, 2011; Hunt & Carter, 2012; McMullen & Conway, 2002; Schoeneman, Schoeneman, & Stallings, 2004). For example, Schoeneman et al. (2004) have identified metaphors of depression within William Styron’s memoirs. In another study, Charteris-Black (2012) looked at metaphors of depression in interviews of people who had experienced it, comparing the nature of expressions by gender.

Here we study metaphors of depression in Spanish. In the next section we describe the results of a corpus analysis of contemporary Latin American Spanish, showing that the relative frequency of some linguistic frames of depression has changed in the last three decades. Our results are in line with the medicalization trend observed worldwide. Moreover the corpus revealed common metaphorical frames of depression. Further below, we show results from a survey experiment suggesting that subtle instantiations of contextual and metaphorical framing shapes the way people perceive different aspects of the problem.

Corpus analysis

The current analysis was designed to provide an account of the kinds of linguistic frames used to refer to *depression* in four Latin American countries: Colombia, Argentina, Chile and Mexico. Frames, as conceived in cognitive linguistics, organize information in discourse by focusing on certain interpretations over others. We aimed to identify disease-like descriptions and metaphorical frames of depression. Broadly speaking, metaphors are linguistic forms in which one thing is described in terms of some other thing. Cognitive Linguistic theory proposes that metaphors are not just ornamental features of language but they play a role in the way we conceptualize one mental domain in terms of another (Lakoff & Johnson, 1980). The validity of using linguistic data as evidence of cognitive representations has been subject of debate (e.g., Casasanto, 2010; Edwards, 1991). Here, we adhere to the view that the study of cognitions benefits from the analysis of linguistic expressions since they are systematically tied to the conceptual system (e.g., Lakoff & Johnson, 1980; Sauciuc, 2009).

In the field of cognitive linguistics, conceptual metaphors are conventionally written in capital letters as: TARGET DOMAIN IS SOURCE DOMAIN. The target domain corresponds to the subject of reference, and the source domain is the concept from which we draw inferences about the target (usually more concrete than the target). Metaphorical frames establish a correspondence between two conceptual domains. For example, the metaphor *depression is a deep place* establishes a conceptual mapping between a *source* domain (e.g., space) and a *target* domain (e.g., depression).

Metaphors for emotions have been described in a wide range of languages (see Kövecses, 2010, for a review). Although the same metaphor – that is, the same mapping between source and target domains – may be said to exist

in many languages, the corresponding linguistic expressions of the metaphor may not be exactly the same.

In recent years, the study of metaphors in discourse has flourished (e.g., Semino, 2008). The identification of contextual and metaphorical frames in corpora has benefited from the development of criteria and methods for quantification of metaphorical expressions (Stefanowitsch & Gries, 2006). One way in which linguistic frames can be identified is through the searching of occurrences of lexical items that refer directly to the target domain concepts. The researcher then identifies the cases where the lexical item (target word) is embedded in metaphorical expressions as well as the kind of conceptual mappings in place (Stefanowitsch, 2004). In the present study, the target word was *depresión* (depression).

The corpus we used is the CREA corpus of written Spanish (Banco de datos CREA online, 2012 – *Corpus de referencia del español actual*. <http://www.rae.es>). The corpus contains over 160 million words, including written texts (90%) from a variety of sources, and oral transcriptions (10%). The corpus includes texts and transcriptions from different Spanish speaking countries – Spain (50%) and Latin American countries (50%). Texts vary also by source type: 49% of texts come from press, 49% from books –fiction and non-fiction – and 2% from other written sources such as emails and brochures. Non-fiction books cover a wide range of topics, such as politics, economics, technology, social sciences, finance, arts, science and miscellanea. For the purpose of this study, we conducted a target search over all texts in CREA coming from Argentina – 231 books (9.514.218 words), 8.166 press documents (4.167.708 words), 67 miscellanea texts (25.574 words); Colombia – 44 books (2.091.379 words), 5.094 press documents (2.091.379 words), 47 miscellanea texts (33.616 words); Chile – 84 books (3.218.986 words), 4.383 press documents (3.256.031 words), 7 miscellanea texts (19.949 words); and Mexico – 210 books (8.967.998 words), 6.292 press documents (4.752.464 words), 29 miscellanea texts (60.734 words).

We extracted all sentences where the target word *depresión* (depression) appeared. Each sentence was then analyzed to determine whether the target word was embedded in a frame of interest. In order to identify metaphors we used the following criterion. We considered an individual expression containing the lexical item *depresión* as metaphorical when:

1. The expression includes one or more relevant lexical items that, in context, refer to the word *depresión* (depression) and have another sense (related to the source domain) that has not to do with sadness per se.
2. The target domain *depression* can be said to be related to the source domain sense via a cross-domain mapping instantiated by the relevant lexical items in 1.

Although this criterion was created *ad hoc* for the purpose of our study, it is not inconsistent with the steps specified by the standard metaphorical identification procedure (MIP) developed by the Pragglejaz Group (Pragglejaz, 2007).

Consider, for example, the expression *getting out of depression*. The target word depression (target conceptual domain) is related to the source domain PLACE IN SPACE, via

cross-domain mapping instantiated by the relevant lexical items *getting out of*, which refer to depression but have another (spatial) sense that has not to do with sadness per se. Then the metaphorical mapping from source domain PLACE IN SPACE onto the target domain *depression* is established by the use of the relevant lexical items *getting out of*.

Now we consider the analysis of the *disease*-frame of depression. Should we consider it a metaphor? The definition of metaphor assumes the existence of conceptual mapping across two different domains. However, it is unclear whether symptoms of depression result from biological or biochemical factors, or just emerge as a psychosocial reaction to life events. Moreover, causes may vary on a case-to-case basis. Since metaphor definition requires the instantiation of a conceptual mapping across non-overlapping domains, *disease* frames were not considered metaphors in the strict sense. Rather, the *disease* frame of depression was defined using a more general notion, according to which a *frame* entails the highlighting of one conceptual structure (depression) against the background of another (disease) within an encompassing conceptual relation (Croft, 1993). Along these lines, the following criterion was used for identification: an individual expression containing the target word *depression* was considered framed as a *disease* when one or more of the lexical items that refer to depression have a medical, biological, genetic or chemical sense.

Consider, for example, the expression *the cure of depression*. The use of the lexical item *cure*, instantiates an implicit mapping between depression and disease. That is, the target concept (depression) is highlighted against the background of the encompassing concept of disease, via the use of the expression *cure*. In other cases, the *disease* frame is instantiated through statements that explicitly flesh out disease-like characterizations or biogenetic explanations as in *depression is a disease, the biological causes of depression or the genotype of depression*.

Results

The total number of hits for the word *depresión* was 968. Among these, we counted 523 hits in texts from Argentina distributed over 118 different documents, 243 hits in texts from Mexico distributed over 103 documents, 136 hits in texts from Chile, distributed over 64 different documents, and 66 hits in texts from Colombia distributed over 32 different documents. Individual expressions containing the target word were individually analyzed according to the criteria described above. We identified 166 linguistic frames of interest and they were classified as follows: 71 expressions were tagged as some version of the metaphorical frame DEPRESSION IS A PLACE IN SPACE, 29 expressions were tagged as some version of the metaphorical frame DEPRESSION IS AN OPPONENT and 62 expressions were labeled as *disease*-frame. Finally, 4 expressions were tagged as other metaphors (two of them as the metaphor DEPRESSION IS A NATURAL FORCE and the other two as DEPRESSION IS A TREE/PLANT).

The spatial metaphor was based around the use of expressions that construed depression a place in space to and from which a person could enter or get out. Expressions identified as examples of the metaphor DEPRESSION IS A PLACE

IN SPACE included many versions of the general formula. For example, depression was sometimes compared to a dark place or to a *pit*, as in *salir del pozo* (getting out of the pit). Other expressions were characterized by the presence of spatial terms such as *falling into*, *getting out of* or *standing up from* depression.

The opponent metaphorical frame was based around the use of expressions that constructed depression as an adversary, enemy or competitor. For example, depression construed as *attacking*, or something worth *combating*. Different linguistic expressions corresponding to the opponent metaphorical frame were found. Some of them included struggle-related terms such as fighting or defending against depression. Expressions in which depression was described as a beast or an animal were also counted as examples of the general formula because struggle or confrontational themes were implicit in the wording (see examples below).

Expressions identified as examples of the *disease* frame included expressions explicitly stating disease-like nature or biogenetic causes of depression as well as expressions that implicitly established a relation between depression and disease through the use of disease-related terms (e.g., cure or drugs). Importantly, in all cases, the target concept (depression) is highlighted against the background of the encompassing concept of disease or biogenetic phenomena.

The following examples illustrate the main patterns observed in the corpus data:

SPATIAL metaphorical frame

... *cayó en una profunda depresión* (he fell into [a] deep depression)
 ... *salir de la depresión* (get out of depression)
 ... *desbarrancarse en la depresión* (to fall over the cliff out of depression)

OPPONENT metaphorical frame

... *me agarró una depresión* (depression got a hold of me)
 ... *combatir la depresión* (to fight depression)
 ... *en garras de la depresión* (within the claws of depression)

Disease frame

... *la enfermedad de la depresión* (the disease of depression)
 ... *curarse de la depresión* (to cure from depression)
 ... *la depresión de Javier se me empezó a contagiar* ('Javier has started giving me his depression')

The spatial metaphor frame was the most frequent one. An influential analysis of conceptual metaphors of emotions by Lakoff (1987) proposed that EMOTIONS ARE BOUNDED SPACES is a general metaphor that applies to anger as well as to other emotions (Lakoff, 1987: 396–397). In the same work he proposes that the opponent metaphor frame was previously described in relation to the case of anger. Lakoff (1987) argues that anger is understood in our folk model as negative emotion. It produces undesirable physiological reactions, leads to an inability to function normally and is a danger to others. The angry person, recognizing this danger, views his anger as an opponent in a struggle (1987,

p. 391) A similar line of reasoning could be applied to the case of depression – feeling sad can also lead to the inability to function normally. Thus, conceptualizing depression as an opponent that needs to be confronted comes as a natural choice.

In addition, the data revealed significant changes in the relative frequencies of the observed framings over time. The CREA corpus includes documents dating from 1975 to 2004. Time was divided into three five-year periods (1990–1994, 1995–1999 and 2000–2004) and one 15-year period (1975–1989). The first period was longer than the other three in order to have comparable number of examples to compare across periods. Table 1 shows the frequency of occurrence of the three main patterns across time. A Pearson's chi-squared test revealed a significant unevenness of distribution over the four time periods ($\chi^2 = 20.15$; $df = 6$; $p < .003$; Cramer's $V = 0.25$).

Frequency distribution in the three patterns changed in recent decades as shown in Fig. 1. Since 1990, the *disease* frame has gained popularity, ($\chi^2 = 18.34$; $df = 3$; $p = .0004$; Cramer's $V = 0.13$). The data are consistent with the trend toward medicalization of mental health discourse documented in the literature (e.g., Horwitz & Wakefield, 2007) as well as the increase of biogenetic explanations of psychological problems observed in the media worldwide (Racine et al., 2010).

The spatial metaphor became significantly less popular ($\chi^2 = 10.56$; $df = 3$; $p = .014$, Cramer's $V = .10$). The relative frequency of occurrence of the metaphor DEPRESSION IS AN OPPONENT increased in number over the years but the difference did not reach significance ($\chi^2 = 3.84$; $df = 3$; ns ; $p = .27$).

Now we turn to the question of whether subtle instantiations of linguistic frames – of the kind studied in the corpus analysis – are sufficient to produce measurable effects on conceptualization of symptoms and causes of depression. The next survey study was designed to explore this question.

Survey experiment: linguistic framing of depression

Trends in mental health discourse motivate the question of whether the way we talk about psychological disorders affects how people perceive the problem and its causes. Previous work has explored whether exposure to biogenetic explanations of mental health disorders affect attitudes and beliefs (Aspinwall et al., 2012; Boysen, 2011; Boysen & Gabreski, 2012; Kemp et al., 2014; Kvaale, Gottdiener, et al., 2013). However, it is not clear whether the mere instantiation of linguistic frames – without incurring in full-blown explanation of the causes – are capable of producing measurable effects on beliefs. Moreover, we are also interested in the effect of using metaphors – such as place-in-space or opponent metaphors – to describe depression.

We used an experimental paradigm inspired on the one used by Thibodeau and Boroditsky (2011), where subtle differences in metaphorical framing were manipulated in a description about a hypothetical case of local *crime* – crime as a virus vs. crime as a beast. They provided participants with a fake report about increasing crime rates in a certain city and asked them to propose a solution. The results

Table 1 Frequency distribution of the three main framing patterns across time.

	1975–1989	1990–1994	1995–1999	2000–2004
<i>BOUNDED SPACE frame</i>				
Argentina	4	4	7	12
Colombia	3	2	1	2
Chile	8	3	5	3
Mexico	9	3	4	1
<i>Total</i>	24	12	17	18
<i>OPPONENT frame</i>				
Argentina	3	2	5	6
Colombia	1	0	0	3
Chile	0	0	1	1
Mexico	1	2	2	1
<i>Total</i>	5	4	8	11
<i>Disease frame</i>				
Argentina	2	13	11	19
Colombia	0	0	1	4
Chile	0	0	1	2
Mexico	0	0	5	4
<i>Total</i>	2	13	18	27
<i>Total number of hits^a</i>	183	233	320	232

^a Includes the number of hits that were not tagged as any framing of interest.

showed that the use of metaphors influenced how people proposed solving crime problems.

In this study participants were exposed to a description of a fake case of depression followed by a number of questions designed to assess their initial interpretations of the information they had read. The description varied across condition in that depression was framed differently – either as a disease or neutrally, and metaphorically described as an opponent or as a place-in-space.

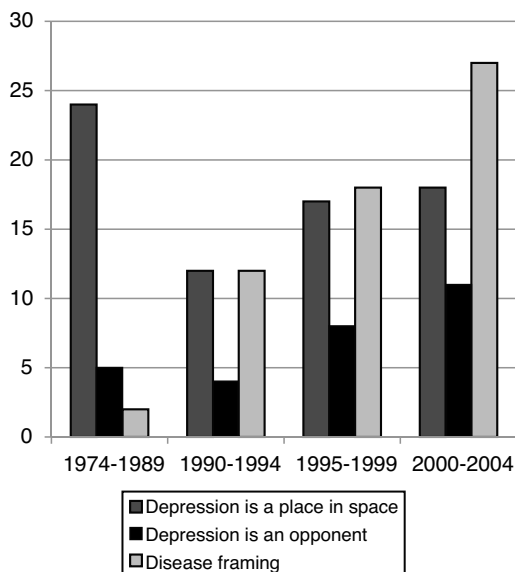


Figure 1 Distribution of linguistic framing patterns across four periods of time. Dark gray bars correspond to DEPRESSION IS A PLACE IN SPACE metaphor, dashed bars to DEPRESSION IS AN OPPONENT metaphor, and light gray bars to the *disease* frame.

The experiment was a two-factorial fully crossed between participants design. The first factor was disease-frame with two levels: *disease* vs. *neutral* frames. The second factor was the metaphorical frame type, which included two levels: *opponent* metaphor vs. *place-in-space* metaphor. Four types of questionnaires were created, each corresponding to one of the following conditions: 1. *disease* frame X *opponent* metaphor; 2. *disease* frame/*place-in-space* metaphor; 3. *neutral* frame X *opponent* metaphor; 4. *neutral* frame X *place-in-space* metaphor. The 2X2 design allowed us to test for possible interactions between disease-frame and metaphor type.

Method

Ethics statement

The experiment reported here was done in accordance with the Declaration of Helsinki, and it followed the ethical requirements of the Universidad de los Andes institutional ethical review board. Participants were informed that their data would be treated anonymously and that they could terminate the experiment at any time without providing any reason. We received written informed consent from all participants before they participated in the experiment.

Participants

Ninety-six students from Universidad de Andes (47 male, 49 female) volunteered to participate in the study. All participants were 18 or older and declared their native language was Spanish. The average age of the participants was 21.0; ages ranged from 18 to 29. Participants were enrolled in different programs including Engineering (33.3%), Social

Sciences (25%), Administration (12.5%), Medicine (7.3%), Exact and Biological Sciences (6.3%), Economics (5.2%), Art and Humanities (5.2%), Architecture and Design (3.1%) and Law (2.1%). The data were collected between September 2013 and April 2014.

Materials and procedure

Each participant was presented with one of four versions of a description of a fake case of depression. Each version of the text differed only in the choice of disease/neutral frame and the kind of metaphorical frame used to describe depression. Linguistic frames varied across conditions according to the 2 X 2 design described above. The second paragraph of the text consisted of the listing of four common symptoms taken from the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM IV; American Psychiatric Association, 2000). The symptoms were identically described in all conditions. Questionnaires corresponding to each of the four conditions were evenly distributed across participants. The paragraph read as follows:

Juana tiene 20 años y es una estudiante muy juiciosa. Hace cinco semanas Juana ha {sido atacada por/caído en} un(a) {feroz/profunda} {enfermedad/estado} de depresión. Sus familiares y amigos están muy preocupados y desean ayudarla para que ella {salga de/luche contra} la {patología/situación} {que la tiene prisionera/donde se encuentra}. Es muy importante que Juana esté dispuesta a hacer todo lo posible para {curarse de/superar} este(a) {temible/oscuras} {síndrome/condición} depresiva(o). Juana ha presentado los siguientes {signos/síntomas} durante las últimas cinco semanas. Ha perdido del interés en casi todas las actividades y personas casi cada día. Presenta llanto continuo durante cuatro o más horas al día. Ha perdido considerable peso sin hacer dieta. Además presenta insomnio cinco de cada siete días de la semana.
[tr. Juana is a 20 year old Music major. She has always had good grades and her parents feel proud of her. Five weeks ago she {was attacked by/fell into} a {fierce/deep} {disease/state} of depression. Her friends and family are worried and want to help her {fight against/get out} the {pathology/situation} {where she is at/that has caught her}. It is very important that Juana is willing to do all in she can to {find a cure from/overcome} such a {fierce/dark} depressive {syndrome/condition}. Juana presented the following {symptoms/signs} over the last five weeks. She has lost of interest in almost all activities and people almost every day. She presents continuous crying over four or more hours a day. She lost weight without engaging on a special diet. She has suffered from insomnia five out of seven days.]

Lexical items in underlined bold correspond to the **disease frame** and those in underlined italics font correspond to *neutral frame* condition. Lexical items in non-underlined bold correspond to the **opponent** metaphor and those in non-underlined italics font correspond to *place-in-space* metaphor condition. Each of the four questionnaires corresponded to the one of the

following factorial combinations: 1. **disease frame/opponent** metaphor; 2. **disease frame/place-in-space** metaphor; 3. *Neutral frame/opponent* metaphor; 4. *Neutral frame/place-in-space* metaphor.

Participants were instructed to read the paragraph, turn the page and not to go back once the page had been turned. Response items were listed in the second page of the survey, consisting of eight seven-point Likert-like questions designed to assess participants' interpretations of the information they had just read. The questions were the following and were counterbalanced in order: In a scale from 1 to 7, where 1 = *not likely at all*, and 7 = *very likely*,

- "How likely do you think it is that Juana will recover to live a normal life?"
- "How likely do you think it is that Juana will improve her situation within the next three weeks?"

In a scale from 1 to 7, where 1 = *completely disagree*, and 7 = *completely agree*, please rate how much you agree with the following statements:

- "Juana is responsible for her condition"
- "It is better to be away from people like Juana"
- "Juana has no control over what is happening to her"
- "Juana is a dangerous person"
- "What happens to Juana could be due to social factors"
- "What happens to Juana could be caused by lack of social support."

Results

A 2 X 2 (disease-frame X metaphor type) factorial analysis of variance tested the effects of disease framing and metaphor type on participants' first impressions of case described in the paragraph. Results were analyzed using multivariate analysis of variance (MANOVA) taking responses to questions in the survey as dependent variables and disease-frame and metaphor-type as independent variables. The MANOVA analysis showed a significant multivariate effect for responses as a group in relation to disease framing (disease vs. neutral: Roy's largest root = .222; $F(8,85) = 2.36$; $p < .024$) and a significant interaction between disease frame and metaphor type (Roy's largest root = .222; $F(8,85) = 2.32$; $p < .026$). However, the effect of metaphor type on responses as a group did not reach significance ($p = .267$). Results from univariate analyses of the individual item responses are shown in [Table 2](#).

Results indicated a significant main effect for the disease-frame factor on people's responses to the responsibility question, $F(1,92) = 15.43$, $p < .001$. Disease-like frame conditions elicited lower rating on average, suggesting that perception of the patient's responsibility decreased in this condition. The effect of metaphor type on responsibility ratings was marginally significant, $F(1,92) = 3.7$, $p = .057$, suggesting that depression framed as an opponent elicited lower perceptions of patient's responsibility. Overall, framing depression as a disease and opponent elicited the lower rates on responsibility ($M = 3.0$) and framing it neutrally and as a place in space elicited the higher rates ($M = 4.7$) (see

Table 2 Effects of linguistic frame conditions on individual question responses.

Item	Mean ratings				Effects		
	Disease f./ opponent m.	Disease f./ space m.	Neutral f./ opponent m.	Neutral f./ space m.	Disease frame <i>p</i> -value	Metaphor type <i>p</i> -value	Interaction
Likelihood of eventual recovery	5.2 (1.3)	.6 (1.5)	5.4 (1.6)	5.7 (1.0)	>.5	>.5	>.5
Likelihood of short term recovery	4.2 (1.3)	3.9 (1.2)	4.0 (1.0)	4.0 (1.0)	>.5	>.5	>.5
Juana is responsible for her problem	3.0 (1.4)	3.5 (1.2)	4.0 (1.6)	4.7 (1.4)	<.001	.057	>.5
Juana is a dangerous person	2.5 (1.4)	1.8 (1.4)	2.4 (1.9)	2.4 (1.5)	.40	.27	.35
It's better to be away from Juana	2.2 (1.8)	1.8 (1.8)	2.9 (1.8)	1.8 (1.0)	.32	.03*	.26
Causal role of social factors	5.4 (1.7)	4.4 (1.6)	3.8 (1.5)	5.1 (1.3)	.18	.69	<.001
Causal role of lack of social support	5.5 (1.2)	4.6 (1.7)	4.6 (1.6)	5.1 (1.7)	.47	.55	.03
Juana has no control over her situation	4.0 (2.0)	3.9 (1.9)	3.1 (1.8)	3.6 (1.6)	.09	>.5	.35

Note: Standard deviations (*SDs*) are displayed between brackets. Abbreviations: f. = frame; m. metaphor. Bold font indicates significant or marginally significant values.

Table 2 for mean comparisons). There was no significant interaction between factors.

There was a significant main effect for metaphor type on people agreement toward the statement "It is better to be away from people like Juana", $F(1,92)=4.55$, $p=.035$. Framing depression as an opponent elicited higher agreement levels ($M=2.5$) compared to framing it as a place-in-space ($M=1.8$). The effect of the disease-frame was not significant, and neither was the interaction between the two factors.

A significant interaction was found between the disease-frame and metaphor type in participants' agreement to the statement "what happens to Juana could be due to social factors" ($F(1, 92)=14.35$; $p<.001$). The file was split by disease-frame type groups in order to examine the interaction. Among the group of participants in the disease-frame condition, the opponent metaphor condition elicited higher agreement levels ($M=5.41$) than the place-in-space metaphor condition ($M=4.37$), ($F(1,46)=5.01$; $p=.030$). In contrast, the effect of metaphor type was the opposite ($F(1,46)=10.23$; $p=.002$): lower agreement levels were observed in the opponent metaphor condition ($M=3.83$) compared to the place-in-space metaphor condition ($M=5.12$). This suggests that people attribute more of a causal role to social factors in the place-in-space metaphor condition when depression is framed neutrally, but the opposite occurs when it is framed as a disease.

Similar results were shown by univariate analysis of degree of agreement to item "What happens to Juana could be caused by lack of social support". A significant

interaction was found between disease-frame and metaphor type ($F(1,92)=4.67$; $p=.033$). The file was split by disease-frame type groups to examine this interaction. It was found that among participants in the disease-frame condition there was a significant effect of metaphor type ($F(1,46)=4.15$; $p=.047$) indicating higher agreement levels in the opponent metaphor condition ($M=5.50$) compared to the place-in-space metaphor condition ($M=4.63$). In contrast, among participants in the neutral-frame condition the pattern of results was the opposite: ratings in the opponent metaphor condition ($M=4.58$) were lower than ratings in the place-in-space metaphor condition ($M=5.08$), however, the difference did not reach significance (ns ; $p=.292$). Then, this trend is the same as those observed in people's rating of importance of social causes. Finally, there was no other significant difference across conditions in the rest of the questionnaire items.

Discussion

The corpus analysis revealed two major metaphorical patterns used to refer to depression in the analyzed texts, which were described as DEPRESSION IS A PLACE IN SPACE and the DEPRESSION IS AN OPPONENT metaphors. These two conceptual metaphors have been previously described in Cognitive Linguistics literature as playing a key role in the conceptualization of emotions (Lakoff, 1987; Lakoff & Johnson, 1980). In addition, the corpus analysis revealed that depression is frequently framed as a physical *disease*. Importantly, the

relative frequency of this pattern has increased significantly over the past three decades in the Latin American corpus data, consistently with the trend toward medicalization of mental health discourse observed worldwide (Corrigan & Watson, 2004; Conrad, 2007).

The relation between biogenetic causal beliefs and stereotype has been explored before. However, the current study deals with a related but different question: Does the mere instantiation of linguistic cues cause measurable effects on the perception of depression? Our findings suggest that exposure to linguistic cues is enough to produce effects on first impressions, biasing participants toward certain interpretations over others. This is consistent with an increasing number of studies showing that contextual and metaphorical framing influences a variety of cognitive domains such as social cognition (Landau et al., 2010), moral and causal reasoning (Dehghani et al., 2009; Pickering & Majid, 2007; Spellman & Holyoak, 1992), problem solving (Thibodeau & Boroditsky, 2011), and political attitudes (Landau et al., 2010; Matlock, 2012).

The survey results showed that the disease-frame produced higher rates of perception of patient's responsibility. This is consistent with the established association between reduction of blame and biogenetic explanations of psychological problems (see Kvaale, Haslam, et al., 2013 for a review). The data also revealed that participants exposed to the opponent metaphor agreed more with the statement that it is better to be away from the depressed person. Finally, we found an interaction between disease-frame and metaphor type in participants' perceptions of the importance of social factors: when depression was framed neutrally (not as a disease), participants in the place-in-space metaphor condition favored social-related causal explanations compared to those in the opponent metaphor condition, while the opposite was true when depression was framed as a disease.

Taken together, the results suggest that subtle linguistic framings of depression trigger participants' initial interpretations about plausible causes underlying the problem. But, how do linguistic frames work? According to Conceptual Metaphor Theory, the meaning we give to abstract, social or emotion concepts depends not only on the schematic knowledge derived from culture and experience, but also on how abstract thought is *structured* in terms of more concrete concepts (Landau et al., 2010). In other words, structural metaphors produce systematicity in the way concepts are organized: the target domain becomes structured in terms of the source domain through a process of metaphorical mapping. As a consequence, linguistic frames shape the way we perceive things by highlighting certain aspects of situations and hiding others, affecting how we gather and put together information about people and events.

Along these lines, some of the results in our study could be interpreted as a consequence of the cross-domain mapping of attributes from source domain to target domain. For example, framing depression as an opponent might highlight the importance of fighting against symptoms or having a combative attitude as a patient. On the other hand, framing depression as a place in space might highlight the importance of *surroundings* or environmental factors because "spatial" attributes are moved to the foreground during perception. The observed interaction between

disease-frame and metaphor type on perceptions of social causes could be explained as follows. Contextual or social factors are highlighted by the use of space metaphors because spatial attributes such as environmental surroundings become salient. However, contextual factors will matter especially when depression is framed neutrally – described as a non-medical problem rather than a disease – because the social environment is less likely to produce a biogenetic condition.

In sum, the results are consistent with a growing bulk of work which shows that contextual and metaphorical frames affect the way we construct opinions about social and political matters (Faucey & Boroditsky, 2010; Faucey & Matlock, 2011; Matlock, 2012; Thibodeau & Boroditsky, 2011). Also, the data are consistent with previous work in medical anthropology that speaks of the importance of contextual and metaphorical choices for the construction of mental health discourse (Conrad, 2007; Corrigan & Watson, 2004; Horwitz & Wakefield, 2007; Mehta & Farina, 1997; Phelan, 2002). The way we talk about depression affects the way we think about the nature and causes of it. Choosing the appropriate words to describe emotions might not be just a matter of style. Rather, linguistic framing might shape the way we conceptualize and construct our thoughts about mental health problems.

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