# BEN-GURION UNIVERSITY OF THE NEGEV THE FACULTY OF HUMANITIES AND SOCIAL SCIENCES DEPARTMENT OF PSYCHOLOGY

# PRIDE FOR SHAME AND JOY FOR SADNESS: OFFERING SUPPORT ON TWITTER WITH A MATCHED-GOAL EMOTION

THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR

THE MASTER OF ARTS DEGREE (M.A)

Amitai Asaf

UNDER THE SUPERVISION OF PROF. TAL EYAL

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Signature of student:	Date: <u>1/02/2022</u>
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#### Abstract

The aim of this research was to test people's responses to negative emotions expressed by others — whether they involve matched or non-matched positive emotions. I predicted that people will respond more with a positive basic emotion (joy) to expressions of a negative basic emotion (sadness) and more with a positive self-conscious emotion (pride) to a negative self-conscious emotion (shame). The responses and expressions of emotions were measured by counting emotion relevant words of replies to tweets on tweeter. Tweets and replies were collected and scored via text analysis approaches using R and Python programming software. As predicted Twitter users responded with more pride related words to shame than sadness and more joy related words to sadness than shame. In addition, overall, they used more joy related words than pride related words to both sadness and shame. These findings might reflect differences that exist in the regulation of basic and self-conscious emotions.

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We all feel emotional from time to time. Sometimes we may want to cling to our emotions, whereas at other times we may want to make the emotions go away. Although the experience of negative emotions may be beneficial in some situations (Behrendt & Ben-Ari, 2012; Tamir, 2005), it is typically aversive, and therefore people are likely to be motivated to apply strategies that will reduce their intensity (Gross, 1998; Lazarus & Folkman, 1984; James, 1980). In order to do that, people may try to reduce unpleasant feelings by replacing them with pleasant thoughts and memories (Isen, 1985; Josephson, Singer, & Salovey, 1996; Parrot & Sabini, 1990) or by engaging in pleasant activities (Taquet, Quoidbach, de Montjoye, Desseilles, & Gross, 2016; Wegener & Petty, 1994). People may also try to regulate their emotions by sharing their emotions with others.

Since humans are social beings, it is no surprise that sharing an emotional experience with others is a common strategy in emotional regulation (Rime, 2009). From a young age people create social bonds with groups and peers that together weave a network of social connections (Heaney & Israel, 2008). In fact, being without social relationship can be damaging to health. This effect of isolation is taken to extreme when social isolation is used as means of torture for prisoners (Umberson & Montez, 2010).

The most striking evidence for the connection between social relationship and health comes from prospective studies of mortality across industrialized nations. Those who are involved with more social relationships are less likely to die than those who are involved with less social relationships (Brummett, et al., 2001; House, Landis, & Umberson, 1988; Lisa & Syme, 1979). The availability and usage of social networks for emotional support have shown to have health benefits due to stress reduction. When people experience stress, for example, they tend to turn to their social networks to seek emotional support which in turn reduces stress (Heaney & Israel, 2008; Umberson & Montez, 2010).

In the social sciences the term social network refers to a theoretical structure that consists of actors such as people or organizations and the relations between the actors (Brandes, Freeman, & Wagner, 2013). For example, students attending a certain class at the university (e.g., math) form a social network. While some students are directly connected by being in the same class, others can be connected indirectly, through ties that are mediated by students participating in different classes. thus, weaving a network of connections (Brandes, Freeman, & Wagner, 2013).

Today, with the rise of technology many people turn to social groups on the internet such as Facebook, Twitter and other online chats and forums with people around the globe. These medias are built around the idea of social networks, similarly to students attending classes at the university. Since many online networks share their data, and due to their structure, connections and conversations can be found and analyzed. As such, the social media is a great platform for studying which emotional experiences people share and how others respond to them, rather than just studying individuals in a laboratory vacuum. (Mislove, Marcon, Gummadi, Druschel, & Bhattacharjee, 2007).

One of the things people can do to downregulate negative emotions is to replace them with positive ones. This can be achieved by retrieving positive memories (Erber & Erber, 1994; Josephson, Singer, & Salovey, 1996; Parrot & Sabini, 1990), listening to positive mood music (Lei, Shuhua, & Bryant, 2007; Shifriss, Bonder, & Palgi, 2015), positive humor (Strick, Holland, Van Baaren, & Van Knippenberg, 2010) and even looking at positive faces (Sanches-Lopez, Vazquez, Gomez-Baya, & Joormann, 2014).

Past research has shown that positive emotions are effective in decreasing the intensity of negative emotions (Fredrickson, Mancuso, Branigan, & Tugade, 2000; Strick, Holland, Van Baaren, & Van Knippenberg, 2010; Taquet, Quoidbach, de Montjoye, Desseilles, & Gross,

2016). For instance, in one experiment, participant were told they have a minute to prepare a speech and there is a chance they would need to deliver it. This was done to elicit anxiety in participants. Instead of delivering the speech participants were shown a video of either puppies to elicit joy, crying to elicit sadness or colored sticks piling up for a neutral emotion. The results showed that the video of puppies which elicited joy reduced anxiety the most (Fredrickson, Mancuso, Branigan, & Tugade, 2000). Another experiment was conducted to assess which component of humor, the cognitive or affective, helps reduce negative emotions. Participants were shown four different texts: demanding and positive, demanding and neutral, undemanding and positive, undemanding and neutral. The results showed that what reduced negative emotions the most was the affect elicited by the jokes rather than the cognitive demand (Strick, Holland, Van Baaren, & Van Knippenberg, 2010).

On the other hand, there is a body of research that did not find a connection between positive emotions and the alleviation of negative emotions (DeWall, et al., 2011; Matsumoto & Mochizuki, 2018; Rusting & DeHart, 2000; Wegener & Petty, 1994). For instance, in eight experiments DeWall et al. (2011) allocated participants to an exclusion group and an inclusion group. In the exclusion group participants were made to feel excluded either by not being accepted to a group or by being told that their personality test predicts future loneliness. In the inclusion group participants were either accepted to a group or were told that their personality test predicts a future of positive relationships and friends. Then participants rated their mood and were given tasks to examine if they would use an emotion repair strategy. For example, in one of the tasks participants were required to recall childhood memories and rate how positive or negative the experiences in the memories were. The purpose of these tasks was to test the availability of positive versus negative emotions. After the task participants rated their mood again. Participants in the exclusion group expressed a more negative mood, but their performance on the different tasks revealed greater availability of positive thoughts and

behaviors. These results show that participants feeling negative emotions used mood repair strategies. Surprisingly, their mood did not improve as a result.

One reason for not obtaining actual mood repair in these studies might be that while the negative emotions were emotions related to social exclusion, mainly self-conscious emotions like shame, the positive emotions were not necessarily self-conscious (i.e., pride) but rather of different types. Thus, past research did not take into account the differences that may exist between different types of emotions.

In my research I would like to propose that the type of an emotion is important to the process of mood repair. Specifically, there might be an interaction between the type of an emotion and the valance of an emotion on the effectiveness of negative emotion regulation. Thus, people might choos to regulate a negative emotion from a certain type (e.g., shame, a self-conscious emotion) with a matched positive emotion (e.g., pride, a self conscious emotion) more than with a non matched positive emotion (e.g., joy, a basic emotion).

Cognitive appraisal theories view negative emotions as experienced following an inference about failure to attain a goal and positive emotions as successful attainment of goals (Oatly & Jhonson-Laird, 1987; Moors, Ellsworth, Scherer, & Frijda, 2015). Goals associated with different emotions can be separated into different types as well. Negative basic emotions tend to follow the failure to attain short term goals and positive basic emotions tend to follow the failure to attain short term goals (Tracy & Robins, 2004). In self-conscious emotions, negative emotion (e.g., shame, guilt) usually follows failure to attain a long-term goal while positive emotion (e.g., pride) usually follows success in attaining a long-term goal (Carver & Scheier, 1990; Tracy & Robins, 2007).

Self-conscious emotions are emotions which require self-awareness. For instance, people experience self-conscious emotions following the assessment of how close they are to achieving

their aspirations and whether they have the ability to achieve them. It means that the object of self-conscious emotions is usually internal while the object of basic emotions is usually external (Tracy & Robins, 2004; Tracy & Robins, 2007; Lewis M., 1995). Self-conscious emotions require self relevance. It is the self that is to blame for the negative experience and negative attributes that their revelation elicited the emotion or to praise for the positive experience and positive attributes that their revelation elicited the emotion (Lewis M., 1995; Tracy & Robins, 2004; Tracy & Robins, 2007). The object of basic emotions comes from something outside the self. (Lewis M., 1995; Tracy & Robins, 2004; Tracy & Robins, 2007). It also means to have a sense of awareness about the relations between the self and others and how people think others evaluate them (Baldwin & Baccus, 2004; Leary, 2007; Tracy & Robins, 2004; Tangney, 2003). For example, to feel proud, first, one must be aware that it is they who did it, otherwise they cannot be the object of the action to be proud of. Second, they must be aware of others who can evaluate their actions as good and can project ideas of their evaluations upon themselves. Third, they must have a sense of relationship to others in order to perceive where they stands in comparison (Wills, 1981; van Osch, Zeelenberg, & Breugelmans, 2018; Williams & DeSteno, 2009; Karsh & Eyal, 2015).

Basic emotions on the other hand are often elicited following an action that expresses a need, directly related to survival (Tracy & Robins, 2004; Tracy & Robins, 2007; Moors, Ellsworth, Scherer, & Frijda, 2015; Oatly & Jhonson-Laird, 1987). For instance, fear could be elicited by the notion of danger that could be caused by something detrimental to health as a predator or harmful disease or by lack of important resources such as food or a pack to help fend from predators. Sadness could be triggered by the loss of something important. Anger occurs when something is perceived as foiling the achievement of goals (Smith & Lazarus, 1991; Tracy & Robins, 2007; Tracy & Robins, 2004; Moors, Ellsworth, Scherer, & Frijda, 2015; Oatly & Jhonson-Laird, 1987).

Another difference between basic and self-conscious emotions has been found to be the level of construal of their underlying appraisals (Moran & Eyal, in press). Self-conscious emotions require more complex and abstract global thinking (Bornstein, Katzir, Simchon, & Eyal, 2021; Eyal & Fishbach, 2010; Karsh & Eyal, 2015). As stated above, self-conscious emotions involve the consideration of self-representations, relationships between the self and others, aspirations, expectations, and moral values. These are things that do not require attending to physical aspects in the environment but rather to the symbolic meaning of the environment. Basic emotions require the consideration of actual concrete physical features of the environment such as food, shelter, harm, and other resources that are directly linked to survival (Tracy & Robins, 2004; Lewis M., 1995; Karsh & Eyal, 2015).

Self-conscious emotions are also related to different types of goals than basic emotions. The goals of self-conscious emotions are related to evaluation of the self. Usually these are goals that require a long time to achieve. Contrary to this, the goals of basic emotions relate to survival. This are usually short-term goals due to the immediacy of requirements to survive (Eyal & Fishbach, 2010; Zemack-Rugar, Bettman, & Fitzsimons, 2007; Tracy & Robins, 2007).

The goals related to negative self-conscious emotions are associated with a global negative evaluation of the self, while the goals related to positive self-conscious emotions are associated with a global positive evaluation of the self. In a similar fashion the goals related to negative basic emotions are associated with a local negative evaluation of the environment, while the goals related to positive basic emotions are associated with a local positive evaluation of the environment (Caho, Cheng, & Chiou, 2011; Lewis M., 1995; Lewis H. B., 1971; Tracy & Robins, 2004; Tagney, 1999; Tracy & Robins, 2007; Kemeny, Gruenewald, & Dickerson, 2004; Karsh & Eyal, 2015; Eyal & Fishbach, 2010; Bornstein, Katzir, Simchon, & Eyal, 2021).

I would like to suggest that emotions that share the same type of goals with opposing valences are conceptually incongruent. The experience that the self is bad following failure of achieving a long-term goal is incongruent with the experience that the self is good following success in achieving a long-term goal. Similarly, the experience that the environment is bad following a failure to achieve short-term goal is incongruent with the experience that the environment is good following the success to achieve short-term goal.

Thus, I propose that a positive emotion that shares the same goal with a negative emotion, would be more effective in decreasing its intensity than a positive emotion that does not share a goal with the negative emotion. Specifically, negative self-conscious emotions will be more effectively attenuated with positive self-conscious emotions and negative basic emotions will be more effectively attenuated with basic positive emotions. This is because a success in attaining a long-term goal that relates to a positive evaluation of the self is more likely to counteract the effect of a failure to attain a long-term goal that relates to negative evaluation of the self. Similarly, success in attaining a short-term goal that relates to positive evaluation of the environment is more likely to counteract the effect of a failure to attain a short-term goal which relates to negative local evaluation of the environment. This is due to the conflicting nature of emotions with different valance but similar goal type.

In his research on emotion regulation choice, Sheppes (2014) claims that similarly to classic theories in decision sciences (Payne, Bettman, & Johnson, 1988; 1993) people are sensitive to relevant cognitive and motivational factors that lead them to choosing an adaptive emotion regulation strategy. If this is indeed the case, I expect that people will choose an effective emotion regulation strategy. Thus, when people attempt to regulate negative emotions via mood repair, they are probably going to do so with positive emotions that share goal types. This is because, if people are sensitive to cognitive and motivational factors, they would be sensitive to conflict between emotions with matching goal type and opposite valance.

Moreover, when people advise others about an emotional regulation strategy, they would advise them in a similar fashion.

#### The Current research

I aimed to study this idea that people choose to repair negative emotions of others matched positive emotions on social media. I tested whether people use words related to positive self-conscious emotions more than basic emotions when responding to a post that refers to negative self-conscious (vs. basic) emotions on twitter. For simplification I chose a specific emotion from each type - joy for positive basic emotion, sadness for negative basic emotion, pride for positive self-conscious emotion and shame for negative self-conscious emotion. I predicted that replies on tweets expressing shame will include words related to pride more than words related to joy. On the other hand, replies on tweets expressing sadness will include words related to joy more than words related to pride. I also expected to find that tweets expressing shame will also express words related to pride more than words related to joy, perhaps as a mean of self-emotion regulation. On the other hand, a person who expressed sadness will also include words related to joy more than words related to pride.

#### Method

Because this is a field study, it is correlational, however, since tweets always come prior to replies it is safe to assume directionality. There were two parts to this research. First, I tested the relationship between the percentage of words related to negative and positive emotions in the tweet itself. Second, I tested the relationship between the percentage of phrases related to negative emotional experience in the tweet and the percentage of words related to positive emotion in the tweets and replies.

To test the relationship between negative and positive emotions in the same tweets, the independent variable was the emotion type (Shame/Sadness) in the tweet. There were two

dependent variables: (1) percentage of joy related words in the tweet, (2) percentage of pride related words in the tweet. To test the relationship between negative emotions in the tweets and positive emotions in the replies, the independent variable was the emotion type (Shame/Sadness) in the tweet. There were two dependent variables: (1) percentage of joy related words in the replies, (2) percentage of pride related words in the replies.

100000 tweets, and their replies, were analyzed for a high test-power and a stable effect size (Lamberink, et al., 2018). Tweets were taken from Twitter from 2009 up to 2020. Each tweet was used for both levels of the emotion type dependent variable.

Since the research focuses on twitter and utilizes data collection, several programming tools were used. The research methodology was programmed in the R programming software (R Core Team, 2017) and the Python programming software (Van Rossum & Drake Jr, 2009). In R and Python several programming packages were used for managing (Wickham, et al., 2019), collecting (Poldi & Zacharias, 2020), and processing data (Kenneth, et al., 2018).

At first, data was collected from Twitter via the Twint package (Poldi & Zacharias, 2020) which logs into the Twitter website and collects tweets based on search phrases. I used 20 search phrases, 10 for sadness and 10 for shame. In order to create an exhaustive search term list, I used the structure of the English language. The first word is the pronoun I, as we were looking for people writing about their own emotional experiences, then the verb was added (e.g., am, have been feeling, experiencing) and lastly the noun which is the emotion (e.g., sad, shame, ashamed). In order to ascertain that the tweets we collected were relevant to my prediction, only tweets which had replies were collected.

This process resulted in 193,839 tweets explicitly expressing sadness and 69,893 tweets explicitly expressing shame, amounting to a total of 263,732 tweets. Of course, not all tweets were useable. In order to make sure the tweets were written by humans, I used the R package

tweetbotornot2 (Kearney, 2020). This package uses a neural network to score how likely a person is to be human. Only tweets that scored a probability of less the 0.7 to be written by a computer program were kept. Next came the quantifying (i.e., text analysis stage), in which mainly the R package Quanteda (Kenneth, et al., 2018) was used. In this process texts bodies of the tweets and replies were scored based on the proportion of appearances of a word from a list representing a category. Tweets were scored for four categories: sadness, shame, joy and pride (Rane, 2016; Bornstein, Katzir, Simchon, & Eyal, 2021).

When this process finished, for research integrity and good practice, out of the remaining tweets, 100,000 tweets were sampled, 50,000 for shame and 50,000 for sadness. This was done as stated in the research proposal to avoid p-hacking. After this process finished, Twint was used again to collect replies to the tweets that were sampled. The replies were taken from the time of writing the tweet and up to a week later in order to make sure enough time passed for others to see and reply to the tweet. For the purpose of scoring the emotional expression in replies, all replies to a single tweet were treated as a single big text, thus receiving one score per emotion for each tweet.

Then analysis of the relationship between the independent variable (expression of sadness/shame in tweet) and the dependent variables (proportion of joy/pride related words in tweet) were conducted using multiple regression. The distribution was checked for normality, if the distribution was to be found normal then a linear model should be used, otherwise a negative binomial model should be used. For ease of analysis the type of positive emotion in the reply was inserted to the regression as an independent variable. Regression formula was as such: [proportion of emotion related word] = (original tweet type of negative emotion) + (original tweet type of positive emotion) + (original tweet type of negative emotion).

In a similar fashion the analysis of the relationship between the independent variable (expression of sadness/shame in tweet) and the dependent variables (proportion of joy/pride related words in replies) were conducted using multiple regression. Regression formula was as such: [proportion of emotion related word] = (original tweet type of negative emotion) + (reply type of positive emotion) + (original tweet type of negative emotion) x (reply type of positive emotion).

#### **Results**

#### Positive and negative emotions within the same tweet

First, I tested the relationship between the negative emotion expressed in a tweet and the term frequency of positive emotions. As can be seen in Figure 1 the distribution of the positive emotions deviates from normality and appears similar to a poisson distribution.

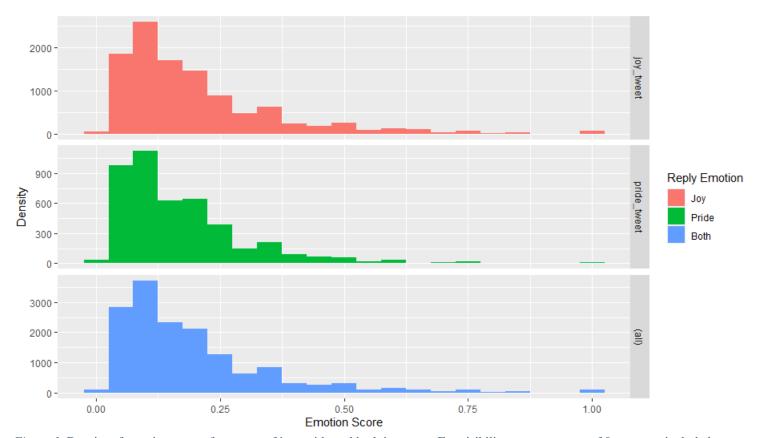


Figure 1. Density of emotion scores for scores of joy, pride and both in tweets. For visibility reasons scores of 0 were not included as there was so many that the rest of the graph was to small to be seen. For similar reason scores above 1 were also not included as they were very sparse and numerically low

For this reason, a poisson regression model was used to test the relationship between the negative emotion expressed in the tweet and the term frequency of positive emotion related words in the replies: [proportion of emotion related word] = (original tweet type of negative emotion) + (reply type of emotion) + (original tweet type of negative emotion) x (reply type of emotion) theta = 1014.8434, 2LL(199996) = 28499.46-, LR(3) = 19150.05, p < .001. As can be seen in Figure 2 there was a significant main effect of tweet positive emotion type on negative emotional score b = -1.78794, z = -26.14, p < .001, as well as a significant main effect of tweet negative emotion type on positive emotional score b = -0.63307, z = -14.40, p < .001. Thus, people used more words related to positive emotions when they expressed sadness than when they expressed shame and used more words related to joy than words related to pride. More importantly, as predicted, a significant interaction between emotion type in the tweet and emotion used in replies was found b = 1.37802, z = 15.56, p < .001.

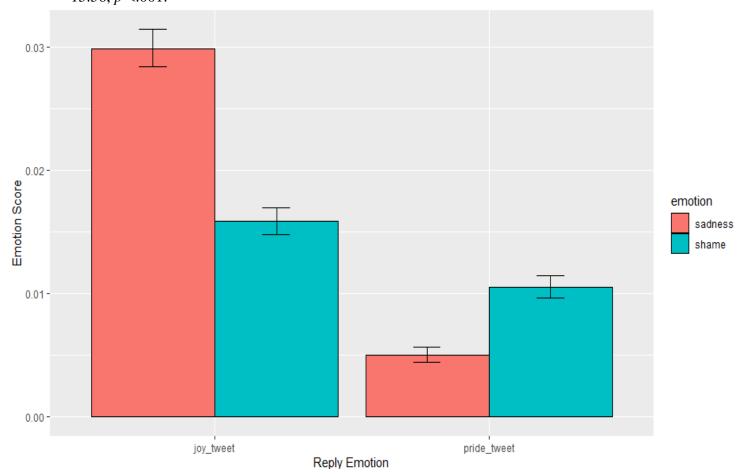
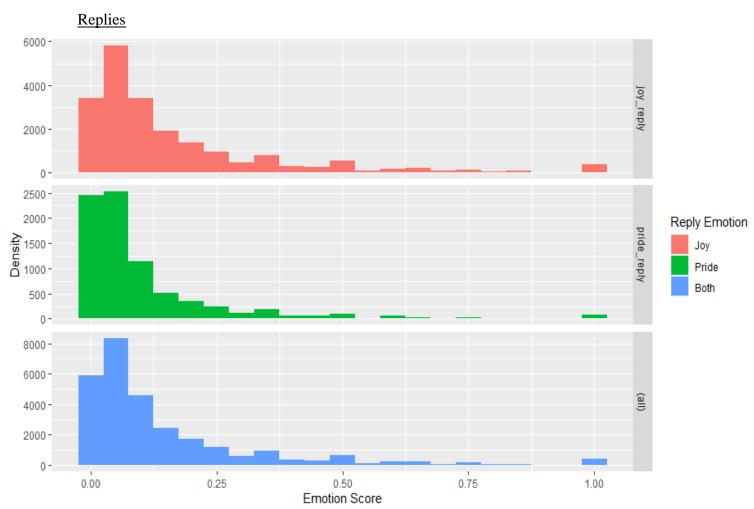


Figure 2. Means of emotional word score as a function of positive emotion and negative emotion expressed in tweet. Error bars indicate standard errors

All simple effects were significant. Specifically, contrary to prediction tweets expressing sadness included significantly more joy words than pride words b = -1.7879, t(199996) = -26.1382, p < .001. Similarly, tweets expressing shame also included significantly more joy words than pride words b = -0.4099, t(199996) = -7.2852, p < .001. However, supporting my prediction, joy was expressed significantly more in tweets expressing sadness than tweets expressing shame b = -0.6331, t(199996) = -14.3966, p < .001, and pride was expressed significantly more in tweets which expressed sadness b = 0.7449, t(199996) = 9.6890, p < .001.



*Figure 3*. Density of emotion scores for scores of joy, pride and both in replies to tweets. For visibility reasons scores of 0 were not included as there was so many that the rest of the graph was to small to be seen. For similar reason scores above 1 were also not included as they were very sparse and numerically low

First, the relationship between the negative emotion expressed in a tweet and the term frequency of positive emotion related words in the replies was tested. As can be seen in Figure

3 the distribution of the positive emotions deviates from normality and appears similar to a poisson distribution.

For this reason, a poisson regression model was used to test the relationship between the negative emotion expressed in the tweet and the and the term frequency of positive emotion related words in the replies: [proportion of emotion related word] = (original tweet type of negative emotion) + (reply type of emotion) + (original tweet type of negative emotion) x (reply type of emotion) theta = 387.5957, 2LL(199996) = -45094.46, LR(3) = 2555.049, p < .001.

As can be seen in Figure 4 there was a significant main effect of tweet negative emotion type on reply positive emotional score b = -0.58777, z = -18.36, p < .001, as well as a significant main effect of emotion type in reply and reply positive emotional score b = -2.10859, z = -36.27, p < .001. Thus, people used more words related to positive emotions in reply to tweets

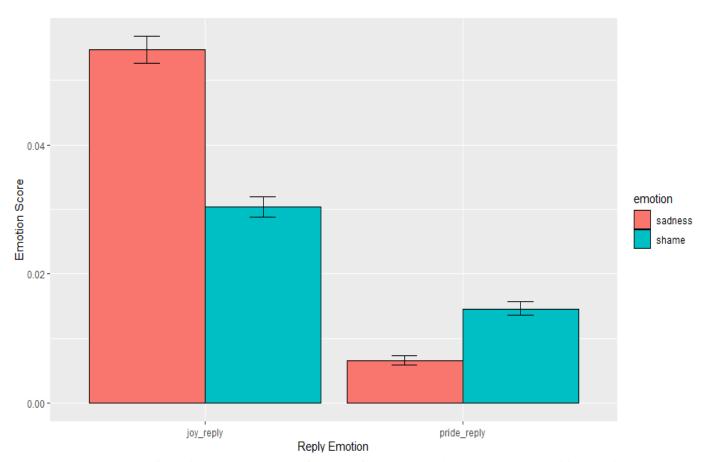


Figure 4. Means of emotional word score as a function of negative emotion expressed and positive emotion expressed in reply. Error bars indicate standard errors

expressing sadness than tweets expressing shame and used more words related to joy than words related to pride. More importantly, as predicted, a significant interaction between emotion type in the tweet and emotion used in replies was found b = 1.37634, z = 18.72, p < .001.

All simple effects were significant. Specifically, contrary to prediction replies to sadness included significantly more joy than pride b = -2.1086, t(199996) = -36.2719, p < .001, similarly, replies to shame also included significantly more joy than pride b = -0.7323, t(199996) = -16.2593, p < .001. However, supporting my prediction, joy was used significantly more in replies to sadness than replies to shame b = -0.5878, t(199996) = -18.3633, p < .001, and pride was used significantly more in replies to shame than replies to sadness b = 0.7886, t(199996) = 11.9108, p < .001

#### **Discussion**

This research examined two questions: (1) are people more likely to regulate their negative emotions with a matched positive emotion versus a non-matched positive emotion? (2) are people more likely to try to regulate others' negative emotion with a matched positive emotion versus a non-matched positive emotion?

I hypothesized that people would prefer to regulate their own as well as other's negative emotion with a positive matched emotion rather than a non-matched emotion. Despite my expectations, Twitter users used more basic positive emotion related words when they felt negative emotions regardless of the type of negative emotion, they felt, or they responded to. This implies that there is a general preference toward basic positive emotions when dealing with negative emotions. Still, when negative emotions of a certain type were expressed both the tweet itself and replies included more of its matched positive emotion words than tweets and replies to the emotion of the other type.

It would be expected that people would use different strategies to attenuate different emotions. Yet despite that fact, people tended to rely upon basic emotions when offering support to people regardless of the emotion type of the negative emotion which was expressed by the one seeking support. This doesn't mean people are entirely unsensitive to relevant cognitive and motivational factors. The fact that people responded with less joy and more pride to shame than they did to sadness suggests the opposite. People are sensitive to relevant cognitive and motivational factors. It just doesn't have enough impact on their reaction so that it overcomes the bias towards basic emotions.

The reason behind the bias towards basic emotions may lie within their nature. As stated in the introduction, basic emotions are related to short term goals (Tracy & Robins, 2004) while self-conscious emotions are related to long term goals (Carver & Scheier, 1990; Tracy & Robins, 2007). Since short-term survival goals are more frequent due to their relation to survivability and are more easily achieved due to their being short term, emotions following their achievement should also be felt more frequently. The same reasoning works for self-conscious emotions. As long-term goals take longer to achieve, it takes more time for someone to experience the emotions following its achievements. Thus, people feel basic emotions more often than self-conscious emotions. This may imply that basic emotions are more available in people's minds than self-conscious emotions. Based on the availability heuristic theory, or availability bias (Tversky & Kahneman, 1973) it is assumed that people tend to see importance in issues more available in their minds. Thus, when making a choice, they choose based on what is more easily available in mind, in this case basic emotions.

Biases mostly occur when people use their automatic thinking (Tversky & Kahneman, 1983). It may be that when people respond to others' tweets online, they answer fast and intuitively due to the nature of the internet fast communication. Another possible bias may be related to the linguistic meaning of people's responses. It might be that people responded by

telling someone that they should be happy about their achievements, but what they actually meant to say implies more pride than joy. Maybe if participants would be thinking logically about it, they would phrase it in a way that only implies pride (e.g., "you should be proud of your achievements"). Thus, it may be that inducing rationale thinking may lead to increasing the expressions of matched emotions.

These results corroborate the notion that conflicting results in past research on mood repair might be due to differences between emotion types. As an example, in research on the effect positive emotions have on cardiovascular reaction, fear was used to induce heightened cardiovascular reaction, and pictures of puppies which caused amusement reduced the cardiovascular reaction back to normal (Fredrickson, Mancuso, Branigan, & Tugade, 2000). Its conclusion was that positive emotions helped to attenuate negative emotions. The results of my research possibly suggest that the reason that positive emotions attenuated the negative emotions was due to matched goals, as a short-term goal related emotion (joy) was used to relieve the experience short-term goal related emotion (fear).

A different research did not find that happiness attenuated emotional experience after social exclusion (DeWall, et al., 2011). My findings point to the possibility that this null effect might be due to not taking into consideration whether the negative and positive emotions match or not. Social exclusion tends to elicit negative self-conscious emotions of shame alongside feelings of not belonging (Robertson, Sznycer, Delton, Tooby, & Cosmides, 2018; Oravecz, Lilla, & Laszlo, 2004). My results imply that in order to attenuate these emotions one might wish to experience pride instead of joy.

Many people seek emotional help online (Prescott, Hanley, & Ujhelyi Gomez, 2019). This may sometimes help and at other times may not. As the results of the current research show, people tended to lean towards basic emotions when providing emotional support rather

than an emotion with a matching goal. This choice was done even though positive emotions with matched goals are likely to be more helpful in attenuating negative emotions. My results therefore imply that if a person feels a negative basic emotion, online emotional support could help attenuate their emotion, as it would likely be met with a positive emotion (joy) that has matched goal. If, on the other hand, a person feels a negative self-conscious emotion, online support may not be as efficient, as it would still probably be met with a basic positive emotion which has a non-matching goa. To ascertain this, research on the effect of goal matched emotional attenuation is required.

One limitation of the current research is that the sample was very heterogenous in terms of people's characteristics. Due to the anonymity of participants in this study, I could not test whether individual differences moderated the effect of the negative emotion expressed on choice of response (i.e., whether with a matched or non-matched emotion). It may be that different people have different choices based on their experiences. Of special interest are therapists who work in providing emotional support, including psychologist, social workers, counselors and mentors. While knowledge and experience can be good it can sometimes be detrimental (Huber, Kirchler, & Sutter, 2008). Practitioners who are well versed in the literature may be relying on research saying that positive emotions can attenuate negative emotions. Without understanding of the underlying mechanisms differing between types of emotions they may fall under biases when treating patients. Past research has shown that experts sometimes share some of the biases of average decision makers (Kahneman & Tversky, 1977; Montibeller & Von Winterfeldt, 2015). For this reason, it would be important to examine whether practitioners provide efficient responses following expressions of negative emotions of their patients.

Another limitation may be that in this research many emotional words were neglected due to the nature of the word collection. Because a word is counted as belonging to a certain emotion

if it exists under an emotional category in the word lists, it is important that these lists contains as many emotion related words as possible. Text analysis is still an improving and developing field in computer science and finding good lists that contains the most comprehensive categories for research. Most emotional lists only contain basic emotions and the lists that do contain more complex emotions are rather short in comparison. I chose word lists from sources that had all the emotions included in this research and were relatively matched in terms of words (Rane, 2016; Bornstein, Katzir, Simchon, & Eyal, 2021). However, these lists are small compared to lists which deal mostly with basic emotions and emotion valance such as LIWC (Pennebaker, Booth, Boyd, & Francis, 2015) and NRC (Saif & Turney, 2010). This may have impacted the accuracy of this research's result. Research on emotions could benefit from a linguistic project categorizing words to each emotion, forming a comprehensive dictionary of emotions for research such as this.

Several questions rising in this discussion call for further research. First, and may be the most obvious is whether matched goal positive emotions attenuate negative emotions. This study revealed that people choose to regulate emotions mostly with basic emotions Further research should study whether positive emotions with a matched goal are indeed more efficient in downregulating negative emotions.

#### **Summary**

My thesis research tested an interpersonal emotion regulation strategy. It tested the response people have to another person's expression of negative emotions — whether they respond with a matched positive emotion or not. This research was performed on social media with a large sample of users. Using text analysis of tweets and replies to these tweets my predictions were supported. The results suggest that people have a sense of relevant cognitive and motivational factors that underlie distinct emotions since they respond with a matched

positive emotion to others' expression of negative emotions, although they do have a preference for joy altogether.

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#### רשימת איורים

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#### תקציר

מטרת המחקר הייתה לבחון תגובות של אנשים לביטוי רגשות שליליים אצל אחרים – האם הם כללו רגשות חיוביים תואמים או לא תואמים. אני צפיתי שאנשים יגיבו עם יותר רגשות בסיסיים חיוביים (הנאה) לביטויים של רגשות בסיסיים שליליים (עצב) ויותר עם רגשות מודעות עצמית חיוביים (גאווה) לביטויים של רגשות מודעות עצמית שליליים (אשמה). התגובות והביטויים של הרגשות נמדדו על ידי ספירה של מילים קשורות רגש בתגובות לציוצים בטוויטר. ציוצים ותגובות נאספו וקיבלו ציון באמצעות שיטות לניתוח טקסט בשימוש בתוכנות R ו - Python. כפי שנצפה, משתמשים בטוויטר הגיבו עם יותר מילות גאווה עבור ביטויי אשמה מאשר עבור ביטויי עצב, ויותר מילות הנאה עבור ביטויי עצב מאשר עבור ביטויי אשמה. בנוסף, באופן כללי, הם השתמשו ביותר מילות הנאה מאשר מילות גאווה, גם עבור עצב וגם עבור אשמה. הממצאים הללו עשויים לשקף מילות הנאה מאשר מילות גאווה, גם עבור עצב וגם עבור אשמה. הממצאים הללו עשויים לשקף הבדלים שקיימים ברגולציה של רגשות בסיסיים ורגשות מודעות עצמית.

## אוניברסיטת בן- גוריון בנגב הפקולטה למדעי הרוח והחברה המחלקה לפסיכולוגיה

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- אתימת הסטודנט/ית:	Jaic.10	1/02/2022:תאריך
חתימת המנחה:		:תאריך
חתימת יו"ר המ"א המחל	זלקתי:	:תאריך

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אדר תשפ׳ו פברואר 2022

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