

## Original Research Reports

# The Differential Effects of Hope and Fear on Information Processing in Intractable Conflict

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### Abstract

Emotional barriers have been found to play a critical role in forming attitudes and behaviors in conflict and peace-making. A major effect of such affective barriers is cognitive freezing, which reduces openness to new information and opportunities to conflict resolution. In the current research, we examined the hypothesis that hope and fear have opposite effects on information processing in such contexts. A time-lagged correlational study with 222 Israeli-Jews was conducted using a new computerized information processing simulator. Results revealed that when faced with an opportunity for peace, long-term hope was associated with acquiring information in favor of accepting the opportunity, whereas fear was associated with acquiring information that was biased towards rejecting the opportunity. Results also showed that both emotions were not associated with the amount of information gathered by participants. Findings have both theoretical and practical implications regarding the differential roles of hope and fear in identifying opportunities for, and promoting, conflict resolution.

**Keywords:** intractable conflict, emotions, hope, fear, information processing

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Intractable conflicts are an exceptionally severe type of intergroup conflict that seems resistant to peaceful resolution, since both sides are incapable of winning, yet are not willing to compromise for peace (Azar, 1990; Bar-Tal, 2013; Coleman, 2003; Kriesberg, 1993, 1998). These conflicts are violent, revolve around goals viewed as existential, are perceived as being of zero-sum nature and irresolvable, occupy a central position in involved societies, require immense material and psychological investment, and last for at least 25 years (Bar-Tal, 2007, 2013; Kriesberg, 1993). In such long lasting conflicts, which escalate and de-escalate in a cyclical manner over a period of many years, various opportunities for conflict resolution may appear at certain points in time. These may include, for example, initiatives for negotiation, or notable changes in the outgroup's position, indicating readiness to compromise on the conflict's goals.

In line with the "bottom up" approach to conflict resolution (Bar-Tal & Rosen, 2009; Fisher & Keashly, 1991; Fitzduff, 2002; Gidron, Katz, & Hasenfeld, 2002; Lederach, 1997), which focuses on the people's contribution to setting conflict resolution in motion, such opportunities have to be noticed not only by leaders, but also by society members. Societal and group-based attitudes and emotions thus become a major factor in supporting and promoting peace. Various approaches seek to examine such conflicts while focusing on power relations and asymmetry between strong and weak players in the conflict (Halabi & Sonnenschein, 2004; Rouhana, 2011). These inequities play an important role within intractable conflicts and in attempts towards achieving peace. Within such frameworks, issues regarding conflict resolution are joined by questions about justice and inequality when referring to conflict resolution processes and outcomes, and intergroup relations. Other approaches focus on the importance of culture and religion in promoting conflict resolution and reconciliation (Abu-Nimer, 1996, 2001). According to these views, cultural and religious tendencies affect the ways groups perceive and react, not only to the outgroup but to opportunities for conflict resolution.

Nonetheless, in order to acknowledge opportunities for conflict resolution as such in the first place, a necessary precondition is that society members are able to identify and process new and unknown information that signals these prospects. If people cannot, for any reason, identify or recognize such opportunities, it becomes very difficult to seize them and move toward conflict resolution. Thus, openness to new information during intractable conflicts, as well as during peace-making processes, is of cardinal importance. The question that arises is, therefore, what psychological factors lead to openness to information regarding new opportunities for peace? One would expect people in such devastating conflicts to be open to opportunities to move the conflict towards peace-making. Unfortunately, socio-psychological barriers hinder those involved in intractable conflict from identifying opportunities for conflict resolution (Ross & Ward, 1995).

Recently, Bar-Tal and Halperin (2011) suggested an integrative theoretical framework for socio-psychological barriers to conflict resolution, which serves as an umbrella integrating various previous approaches. According to this, socio-psychological barriers consist of four cognitive, motivational, and emotional categories. The first includes general worldviews, which serve as orientations contributing to the conflict's continuation. This contains factors such as political ideology (Jost, 2006; Jost, Glaser, Kruglanski, & Sulloway, 2003), conservative values (Schwartz, 1992), and religious beliefs (Kimball, 2002), all of which do not relate to the conflict, but may play a negative role in the context of conflict (e.g., Feldman & Stenner, 1997; Golec & Federico, 2004; Jost et al., 2003; Kossowska, Bukowski, & Van Hiel, 2008).

Another category of barriers includes cognitive and motivational processes that may operate as barriers specifically during conflict resolution processes (Maoz, Ward, Katz, & Ross, 2002; Mnookin & Ross, 1995; Ross & Ward, 1995). These processes do not relate to the conflict's content, but take place when any new events or information come into play. Thus, they may become of utmost importance in light of a new opportunity for peace. One example includes cognitive phenomena in which people seek, process, and remember information which confirms their existing notions or attitudes, such as confirmation bias (for a review see Nickerson, 1998) and motivated reasoning (Kunda, 1990).

The third group of barriers includes specific conflict-supporting societal beliefs<sup>1</sup> held and shared by society members involved in conflict, which hinder attitudes needed for conflict resolution. For example, Bar-Tal (1998, 2000, 2007) has proposed the 'ethos of conflict', a configuration of societal beliefs that provides a dominant societal orientation within intractable conflicts. This category also includes perceptions regarding the ingroup and one's relationship

with it, such as ingroup attachment and glorification, which has been found to have detrimental effects in conflict (Roccas, Klar, & Liviatan, 2006), and ingroup narratives which serve as important factors influencing attitudes towards conflict resolution (Bekerman & Maoz, 2005; Bekerman & Zembylas, 2012).

Lastly, as noted, another category of socio-psychological barriers consists of emotions, which are the focus of this paper. Recent work (e.g., Halperin, Sharvit, & Gross, 2011; Lerner, Gonzalez, Small, & Fischhoff, 2003; Mackie, Devos, & Smith, 2000; Maoz & McCauley, 2008; Tam, Hewstone, Cairns, Tausch, Maio, & Kenworthy, 2007) has added the emotional dimension, examining the role of emotions within the contexts of conflict and its resolution. Group-based emotions are emotions experienced on behalf of other group members as a result of one's identification with the group (Mackie et al., 2000; Smith, 1993; Wohl, Branscombe, & Klar, 2006). This includes both discrete emotional reactions as well as long-term emotions, which this paper examines. Long-term emotional sentiments are temporally stable, general emotional dispositions towards a person, group, or symbol that are unrelated to any specific action or statement of that object (Frijda, 1986; Lazarus, 1994).

Accumulated evidence indicates that emotions fulfill an important role in the context of conflict. As such, emotional experiences serve as barriers as well as catalyzers within the conflict and during peace-making processes (e.g., Bar-Tal, Halperin, & de Rivera, 2007; Halperin, Crisp, Husnu, Dweck, & Gross, 2012; Horowitz, 1985; Kelman, 1998; Lindner, 2006; Maoz & McCauley, 2008; Petersen, 2002; Reifen Tagar, Federico, & Halperin, 2011; Sabucedo, Mónica Alzate, & Rodríguez, 2011; Staub, 2005; Volkan, 1997). Recent studies have shown that emotions influence public opinion on issues of negotiation and compromises, and increase or decrease support for risk taking and creative conflict resolution methods (for recent reviews see Gross, Halperin, & Porat, 2013; Halperin, *in press*). Relatedly, Nadler (2002) discusses basic psychological and emotional needs as barriers or catalyzers for peace, which have been found important when approaching conflict and reconciliation processes (Shnabel & Nadler, 2008).

How exactly do emotions and other psychological processes affect people's political decisions in conflicts? One answer to this question would be that socio-psychological barriers do so by preventing the seeking and processing of alternative information that could potentially increase support for peace (Bar-Tal, 2013; Mnookin & Ross, 1995; Porat, Halperin, & Bar-Tal, 2013). In this way, barriers to conflict resolution support the continuation of the conflict and lead people to cognitive freezing, a state of closed-mindedness regarding issues related to the conflict (Bar-Tal & Halperin, 2011; Kruglanski, 2004). As a result, they may be unwilling or unable to process new information regarding conflict resolution, as well as become averse to taking risks towards changing the conflict situation. Thus, opportunities for conflict resolution that may dramatically improve the situation do appear. However, they either remain unidentified, or lead to biased information processing, and therefore are not utilized to support peace-making.

But what role do emotions play in that process? Outside the context of intractable conflicts, positive affect has been found to lead to more heuristic processing, while negative affect leads to systematic processing on the individual level (Clore, Schwarz, & Conway, 1994; Fiedler, 1988, 2000; Forgas, 1995; Schwarz & Bless, 1991; Schwarz & Bohner, 1996; Tiedens & Linton, 2001) as well as within political contexts. An example for this is the effect of anxiety and enthusiasm on voting processes (Marcus & MacKuen, 1993) and positive vs. negative emotions towards political candidates (Redlawsk, Civettini, & Lau, 2007). We suggest that within the context of intractable conflicts, discrete emotional processes (rather than just positive-negative affect) play an important role in the way people process new information about peace opportunities.

Two emotions that might play major roles in information processing within the context of conflict are fear and hope (Jarymowicz & Bar-Tal, 2006), and it is these two emotions that are the focus of the present study. Although fear and hope have been studied in these contexts, we are not aware of a study that empirically examines their simultaneous relationship with the processing of information in the face of new opportunities for peace.

## Fear, Conflict, and Information Processing

Fear is an aversive primary emotion that arises when one perceives a threat or danger towards oneself or a relevant ingroup (Gray, 1989; Öhman, 1993; Rachman, 1978). It is usually associated with an appraisal of low strength and low control over the situation (Roseman, 1984), and includes both physiological and psychological reactions aimed at increasing survival capabilities in dangerous situations. Although reactions of fear can be evoked through a cognitive process of situation evaluation, fear may be triggered automatically, and at times may overcome rationality and logic and control thinking altogether (Jarymowicz & Bar-Tal, 2006; LeDoux, 1995; Öhman, 1993).

In terms of shaping reactions and attitudes to conflict, fear motivates protection from events perceived as threatening. When experiencing high levels of fear, people may often deal with the situation by becoming aggressive, even when there is little or nothing to be achieved by doing so (Eibl-Eibesfeldt & Sütterlin, 1990; Lazarus, 1991). For example, perceiving threat from an outgroup has been found to be associated with support for aggressive policies in conflict (Maoz & McCauley, 2008). Studies indicate that fear also strengthens ingroup ties (Wohl, Branscombe, & Reysen, 2010), risk-averse political tendencies, suppression of creative ideas towards resolution, and objection to intergroup negotiation (Sabucedo et al., 2011). It has been suggested that fear leads people to be sensitized to threatening cues, to accentuate information about potential threats and to overestimate dangers and threats (Bar-Tal, 2013). Outside the context of intergroup conflicts, emotions such as anxiety have been found to induce information seeking (Marcus, Neuman, & MacKuen, 2000) and openness to information. However, this pertains to the amount, and not the type, of information sought. Most importantly for our purposes, studies showed that extreme fear leads to cognitive freezing (Kruglanski, 2004) and cognitive prioritization of threatening information, enabling selective retrieval of fear-relevant information and preventing openness to new ideas (Clore et al., 1994; Isen, 1990; LeDoux, 1995; Öhman, 1993).

## Hope, Conflict, and Information Processing

In contrast to fear, an emotion that has been found to be a catalyzer for conflict resolution is hope. Hope is a secondary, highly cognitively-based emotion which involves expectation and aspiration for a positive goal in the future, as well as positive feelings about the anticipated outcome (Staats & Stassen, 1985; Stotland, 1969). Hope facilitates goal setting, planning, use of imagery, creativity, and cognitive flexibility (Breznitz, 1986; Snyder, 1994, 2000).

Accordingly, hope has been pointed to as enabling those involved in violent conflicts to imagine a future that is different from, and better than, the past, as well as the negative present, and come up with creative solutions to the disputes at the core of the conflict (Jarymowicz & Bar-Tal, 2006). The belief that a peaceful resolution is possible is an essential step towards taking risks and compromising. Hope has been found to be associated with attitudes necessary for peace such as support for policies providing humanitarian aid (Halperin, Bar-Tal, Nets-Zehngut, & Drori, 2008; Halperin & Gross, 2011) as well as a decreased desire to retaliate and increased willingness to forgive the adversary (Moeschberger, Dixon, Niens, & Cairns, 2005). Recently, experimentally induced hope predicted

support for concession-making within the Israeli-Palestinian context (Cohen-Chen, Halperin, Crisp, & Gross, 2014). In terms of openness to new information and information processing, hope is a highly cognitively-driven emotion that is associated with better performance on cognitive tasks (Snyder et al., 1996) and better problem-solving abilities (Chang, 1998; Snyder, Cheavens, & Michael, 1999). As an energizing emotion, it has been conceptually stated that hope should lead people to search for information that is functional and conducive to the achievement of the expected goal, in our case achieving peaceful resolution of the conflict (Jarymowicz & Bar-Tal, 2006). However, although studies about the nature of hope and initial indications about its influence on attitudes within intergroup conflict do exist, hope's association with actual behavior in conflict, namely information processing, has not been examined.

As postulated by Bar-Tal and colleagues (Bar-Tal, 2001, 2013; Jarymowicz & Bar-Tal, 2003, 2006) in their conceptual work on the subject, hope and fear play opposite roles within the context of prolonged intractable conflicts. While hope promotes an orientation towards peace by inducing thought about a better future and various paths to reach it, fear inhibits hope and conflict resolution by highlighting threatening information. Thus, in this study we translate knowledge about emotional motivations into actual behavior in the political world, focusing on the separate, as well as integrative, relationship of long-term fear and hope with information processing in lieu of new opportunities for peace.

## Hope, Fear, and Ideology

Extensive work on appraisal theory of emotions has shown that emotions develop as a result of a certain interpretation of a situation, which is based upon factors such as long-term attitudes, experiences, and general worldviews. When dealing with a political context, these long-term dispositions are encapsulated in the term political ideology. Political ideology can be defined as "the shared framework of mental models that groups of individuals possess that provide both an interpretation of the environment and a prescription as to how that environment should be structured" (Denzau & North, 1994, p. 24). When faced with an event regarding the conflict, it stands to reason that people react in accordance with their political ideology, interpreting the situation in a certain way which leads to a certain emotional reaction.

Past research has shown a link between ideology and emotions (Bar-Tal & Halperin, 2011; Halperin, 2011; Jost, Napier, Thorisdottir, Gosling, Palfai, & Ostafin, 2007). More specifically, individuals who hold more rightist, conservative political ideologies were also found to have a higher perception of threat and experience higher levels of fear (Feldman & Stenner, 1997; Golec & Federico, 2004; Jost et al., 2003; Kossowska et al., 2008). On the other hand, hope has been said to be associated with more dovish, left-wing ideologies (Bar-Tal, 2001; Jarymowicz & Bar-Tal, 2003). Thus, we hypothesize that the relationship between political ideology and information processing will be mediated by emotions, such that political ideology will predict certain long-term emotions, which will further predict biased information processing.

## The Present Study

In the present study we aimed to empirically examine the association of long-term fear and hope with openness to new information and patterns of information processing in the context of the Israeli-Palestinian conflict. The Israeli-Palestinian conflict is a prototypical example of an intractable conflict. This conflict has escalated and de-escalated throughout the years over a period of decades (Tessler, 2009), and recurring failed attempts to end the conflict have resulted in wide-spread hopelessness and fear.

In the first stage we measured long-term emotions with regards to the conflict and the Palestinians as well as political ideology. In the next stage, conducted five months later, we provided participants with seemingly reliable information regarding a new opportunity for peace, and examined their openness to such information through their processing patterns. We hypothesized that long-term fear and hope would be associated with information processing in opposite directions – that is, whereas hope would predict a bias towards information favoring the opportunity for peace, fear would predict a bias towards information rejecting this opportunity. We further hypothesized that people who are more politically dovish regarding the conflict would experience more long-term hope, whereas those who are more hawkish would experience more fear, which both in turn influence information processing.

## Method

### Participants

Two hundred and thirty (of which 8 were excluded for reasons stated below) participants (43.5% male; age  $M = 42.56$ ,  $SD = 14.74$ ) were recruited using an online survey platform that offers monetary compensation in return for participation in surveys. Participants were all Jewish-Israelis, and the survey was conducted in Hebrew. In terms of religiosity, 61% stated they were secular, 23% stated they upheld tradition, 12% they were religious, and 4% they were ultra-orthodox. In terms of political orientation, 44% stated they were Rightists, 28% they were Centrists, and 28% they were Leftists.

### Procedure

Participants were contacted in February 2012 and asked to fill in a questionnaire regarding their attitudes and opinions on general social and political issues. The survey was administered as part of a wider project which included a large number of scales related to relevant issues in Israel. Here we included our measures of long-term emotions, political ideology, and socio-demographic information.

Approximately five months later (August 2012), participants were contacted once again and invited to take part in a seemingly separate study. During the five months between the two stages of the study (from March to July 2012), no significant events (including war or wide-scale military operations, terror attacks, negotiations, or peace talks) that would have a substantial effect on participants' emotions or attitudes took place. Participants received a link to a mock news website in which they were told that the Palestinian President, Mahmoud Abbas, was intending to offer a proposal to renew negotiations for peace. The mock news website resembled the Israeli website YNET, a leading online news website, affiliated with Israeli mainstream Jewish society. The information included in the website was created on the basis of relevant political events at the time in order to make the experience resemble an information acquisition process as it is in everyday life. Participants were told that they would be asked to make a decision regarding the Palestinian proposal, and that in order to help them make this decision and form an opinion we had gathered a number of articles of different types. They were informed that acquiring information was optional, but not obligatory in any way, giving them no motivation to read articles and thus examining their real willingness to acquire new information.

The news 'website' was in fact a computerized web-based platform that was developed in our laboratory in order to trace decision-making patterns and information processing acquisition.<sup>ii</sup> Upon entering the website, all participants

read an article about a new opportunity in the form of a peace proposal (the content of the proposal was described in another article, which participants were not required to read), and when finished were transferred to the 'home page'. This included a list of eight article titles (including the main article) that they could click on in order to read the rest of the content. The articles' order was randomized by the website. The content was created by the authors, but was written in the same style as articles in the website which the platform resembles. Titles indicated the type of article; three articles presenting a positive attitude towards the peace initiative (e.g., "*Secretary of State Clinton: Abbas's proposal is a 'historic opportunity'*"), three articles presenting a negative attitude towards the initiative (e.g., "*Security Specialists: renewing negotiations could lead to a wave of terrorism*"), and two articles (including the mandatory one) presenting a neutral, more informative approach towards the proposal (e.g., "*Abbas's proposal for negotiation renewal: What does it include?*"); for the full list of titles, see Appendix). The platform mapped and recorded the number of articles participants entered, the amount of time they spent reading each article before returning to the 'home page', and the overall amount of time spent on the website. This information enabled us to create different variables, indicating the type of information participants acquired.

## Measures – Stage I

Long-term emotions were assessed using self-reported items (Halperin, 2011). These items were: *Fear from the Palestinians and their actions in the future*; *Hope regarding the future of Israeli-Palestinian relations*. Answers ranged from 1 (*not at all*) to 6 (*to a very large extent*) indicating to what extent participants experienced each of those emotions. Additionally, we wanted to make sure that it is hope and fear that predict information processing, as opposed to positive or negative affect. Therefore, we also measured two very powerful emotions within the context of intractable conflict: *Compassion towards the Palestinians* and *Hatred towards the Palestinians*.

Lastly, we measured socio-demographic information, including age, gender, and self-reported political ideology. The latter was measured using an item asking participants to indicate their political stance from 1 (*extreme right*) to 7 (*extreme left*).

## Measures – Stage II

In order to examine the amount of information acquired by participants, we measured the *total time* spent on the website, as well as the *overall number of articles* opened by each participant. Here, articles in favor of the proposal, articles rejecting the proposal, and neutral articles were all included.

Next, we were interested in the *type* of information participants acquired. Thus, we created two variables indicating biased information processing, for which we included only information indicating a bias (either positive or negative). Therefore, we omitted the neutral articles for two reasons. First, one of the neutral articles was mandatory and reading it therefore does not manifest participants' wish to acquire information. Second, and more importantly, the neutral articles do not indicate a bias to either positive or negative information. The first variable indicated the bias in the amount of time spent on articles in favor of the Palestinian proposal. This was computed as the proportion of time spent on articles in favor of the proposal that were entered by participants, out of the total amount of time spent on articles in favor or against the proposal ( $\text{time spent on articles in favor of the proposal} * 100 / (\text{time spent on articles against the proposal} + \text{time spent on articles in favor of the proposal})$ ). Next, we created a variable indicating a bias in the *proportion of articles in favor of the proposal read*. This variable was computed as the proportion of articles in favor of the proposal opened by participants, out of the total number of articles in favor or against the proposal opened ( $\text{number of articles in favor of the proposal} * 100 / (\text{number of articles against the proposal} + \text{number of articles in favor of the proposal})$ ).

*proposal + number of articles in favor of the proposal*). Finally, due to the high correlation between these two variables ( $r = .89, p < .001$ ), we averaged both variables and created a variable indicating *bias towards information favoring the proposal*.

## Results

Since the study was conducted online and thus administered at participants' home, we were worried that participants might not take the task seriously, or would engage in other activities that would compromise their concentration or the study's reliability (for example, looking for the "new" proposal online). Therefore, in addition to excluding any participant who opened another tab in their browser while conducting the study, we used the time variable to exclude outliers. Eight participants spent an irregular amount of time on the website. This included people who spent over 200 seconds on one single article, as well as those who spent low amounts of time reading an article, but over 200 seconds on the home page. This suggested that they engaged in other activities and did not participate seriously.

The average time (in seconds) spent in information favoring the proposal was 51.69 ( $SD = 100.90$ ), while the average time spent in information rejecting the proposal was 54.81 ( $SD = 98.94$ ). Participants read an average of 0.91 ( $SD = 1.23$ ) articles favoring the proposal, while the average number of articles read that rejected the proposal was 1.00 ( $SD = 1.22$ ). Generally, 109 participants read only 1 article (the mandatory neutral article), 59 read between 2 and 5 articles, and 54 read between 6-10 articles (since some articles were opened more than once). 92 participants opened one or more articles favoring the proposal, 105 opened one or more negative articles, and 64 read the neutral article that was not mandatory.

In terms of the total amount of time that participants spent on the website, the average time was 212.32 seconds ( $SD = 254.98$ ), while the mean number of articles read was 3.24 ( $SD = 2.79$ ). In terms of bias towards information favoring the proposal, the mean was 46.80 ( $SD = 16.62$ ). Results showed that 28% processed less than the mid-point score of 50, indicating a bias towards negative information. 51% had no bias in their information processing, and 21% processed more than the mid-point score of positive information, indicating a bias towards information favoring the proposal.

We then moved to examine bivariate correlations between the main research variables (see [Table 1](#)). When examining the total amount of time spent acquiring information, no significant correlation was found with both hope ( $r = -.04, p = .55$ ) and fear ( $r = -.02, p = .75$ ). As well, with regard to the total amount of articles acquired, no significant correlation was found with both hope ( $r = .02, p = .78$ ) and fear ( $r = -.02, p = .78$ ). This indicated that when faced with an opportunity for conflict resolution and in contradiction with aforementioned previous findings (e.g., [Marcus et al., 2000](#)), neither hope nor fear were associated with the total amount of information people acquired.

However, we were interested in whether these two emotional sentiments were associated with the *type* of information participants acquired rather than the total amount of information processed. A positive correlation was found between hope and bias towards information favoring the proposal ( $r = .17, p = .01$ ), indicating that those who tended to experience hope regarding future relations with the Palestinians also tended to hold a bias towards information in favor of accepting an opportunity for peace. On the other hand, fear from the Palestinians and their actions in the future was negatively associated with bias towards information favoring the proposal ( $r = -.15, p =$

.03). This indicated that those who tended to experience more fear regarding the future actions of the Palestinians also tended to be less inclined to acquire positive information about this opportunity.<sup>iii</sup>

Table 1

*Correlations Between Research Variables*

Measure	Mean (SD)	1	2	3	4	5	6	7	8	9
1- Hope (Scale 1-6)	3.58 (1.44)	—								
2- Fear (Scale 1-6)	3.78 (1.37)	-.02	—							
3- Total time (Seconds)	212.32 (254.98)	-.04	-.02	—						
4- Number of articles	3.24 (2.79)	.02	-.02	<b>.79**</b>	—					
5- Bias towards positive information	46.80 (16.61)	<b>.17*</b>	<b>-.15*</b>	.04	.05	—				
6- Political Stance (Scale 1-7; +Leftist)	3.68 (1.37)	<b>.49**</b>	<b>-.14*</b>	-.02	.01	.05	—			
7- Hatred (Scale 1-6)	2.86 (1.66)	<b>-.43**</b>	<b>.28**</b>	.004	-.03	-.09	<b>-.54**</b>	—		
8- Compassion (Scale 1-6)	3.15 (1.34)	<b>.51**</b>	-.06	.009	.08	-.07	<b>.49**</b>	<b>-.52**</b>	—	
9- Age	42.57 (14.74)	.12	-.07	-.13	-.09	.06	<b>.14*</b>	<b>-.25**</b>	<b>.22**</b>	—
10- Gender (+F)	1.56 (0.49)	-.04	<b>.22**</b>	.03	-.03	-.008	.01	.04	-.04	.06

\*Significant at the  $p < .05$  level. \*\*Significant at the  $p < .01$  level (two-tailed).

Next, we were interested in whether fear and hope predicted the type of information acquired above and beyond socio-demographic factors, as well as other positive and negative emotions. In addition to controlling for age and gender, we wanted to ensure that hope and fear were not merely emotional manifestations of political ideology. Therefore, we regressed bias towards information favoring the proposal on both hope and fear, while controlling for political orientation, age and gender, as well as compassion and hatred. Results showed that both hope ( $\beta = .21, p = .01$ ) and fear ( $\beta = -.16, p = .03$ ) were significant predictors of bias towards information favoring the proposal, above and beyond both socio-demographic factors and other emotions established as important within conflict resolution ( $R^2 = .06$ ). Political stance ( $\beta = -.08, p = .38$ ), age ( $\beta = .04, p = .62$ ), and gender ( $\beta = .03, p = .63$ ) were not significant predictors; neither were hatred ( $\beta = -.003, p = .98$ ) nor compassion ( $\beta = -.01, p = .90$ ).<sup>iv</sup>

Although political orientation was not associated with bias towards information favoring the proposal ( $r = .05, p = .46$ ), it was associated with fear ( $r = -.14, p = .04$ ) as well as hope ( $r = .49, p < .001$ ). For this reason, we used Hayes's (2013) 'Process' macro for SPSS to examine the indirect effect of political orientation on information processing through long-term hope and fear. Results showed that in terms of bias towards information favoring the proposal (Figure 1), fear ( $\beta = -.14, SE = .81, t = -2.27, p = .02$ ) and hope ( $\beta = .21, SE = .89, t = 2.71, p = .007$ ) were significant predictors in the opposite directions, while political orientation was not ( $\beta = -.07, SE = .93, t = -0.94, p = .35$ ). Furthermore, political orientation was related to more bias towards information favoring the proposal through both fear ( $a*b$  [indirect effect] = .25; 95% Confidence Interval [CI]: 0.01, 0.76) and hope ( $a*b = 1.23$ ; 95% CI: 0.35, 2.35).<sup>v</sup> Thus, participants with leftist political tendencies were more inclined to experience hope and less inclined to fear, which led them to process more positive information. Participants with more rightist political tendencies were more inclined to experience fear and less inclined to experience hope and this led them to a bias towards negative information.<sup>vi</sup>

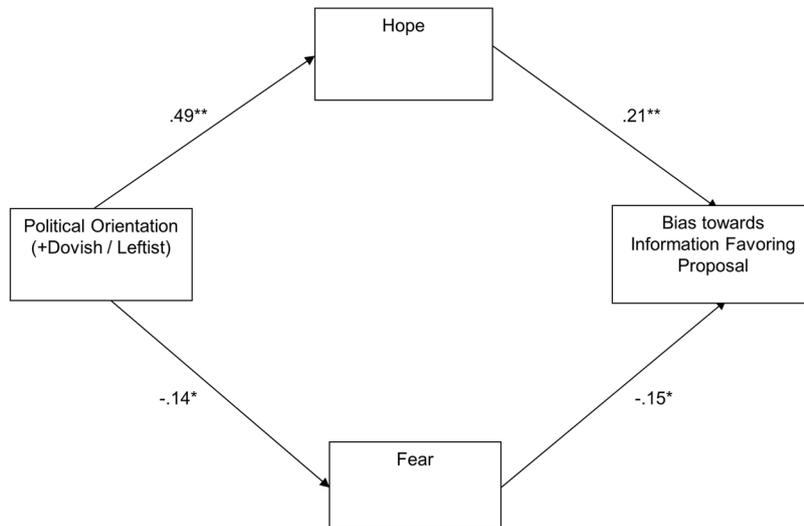


Figure 1. Indirect effect of political orientation on proportion of time spent on articles favoring the proposal through hope and fear.

## Discussion

It has been proposed and found that emotional barriers play critical roles in forming attitudes and behaviors in conflict and peace-making (Bar-Tal et al., 2007; Halperin, in press). One of the most predominant effects of these barriers is cognitive freezing, which affects openness to new information and to new opportunities to conflict resolution (Bar-Tal, 2013; Kruglanski, 2004; Porat, Halperin, & Bar-Tal, 2013). This becomes pivotal especially for advocates of bottom-up approaches that emphasize processes supported, but at times perhaps even led by the people (Lederach, 1997). When focusing not on leaders, but on the group and its members, decision-making processes in light of conflict-related events become important. When people are closed-minded to new information, their information processing becomes selective and biased, and this can lead them to "miss" important and very real opportunities to resolve the conflict.

In this paper we chose to focus on two long-term emotions: fear and hope. We examined the idea that hope and fear have differential effects on processing of information related to the peace process, an idea which has been expressed conceptually but has not been empirically studied as of yet (Bar-Tal, 2001; Jarymowicz & Bar-Tal, 2006). Specifically, findings showed that although hope and fear did not have a differential effect on the *amount* of information people wished to acquire, they had opposite associations in terms of the *type* of information people read. This strengthens previous conceptual work pointing towards the opposite roles played by fear and hope in conflict and conflict resolution (Jarymowicz & Bar-Tal, 2006). Whereas hope was associated with an inclination towards acquiring information that supports an opportunity for peace-making, fear was associated with a tendency towards attaining information rejecting the same opportunity. Thus, although both emotions were associated with biased information processing, fear was found to obstruct efforts for conflict resolution and solidify conservative

views that maintain the familiar situation of conflict (see [Jost et al., 2003](#), who showed that fear underlies conservative views). In contrast, hope was observed as stimulating the exploration of new and innovative views and information regarding alternatives leading to peace, which contain risk-taking, as also stipulated in the past ([Sabucedo et al., 2011](#)). Importantly, political ideology was found to predict biased information processing (favoring or rejecting an opportunity for peace) indirectly through long-term fear and hope. Dovish ideological tendencies predicted higher levels of long-term hope, which further predicted processing peace-supporting information. In contrast, hawkish ideological tendencies predicted higher levels of long-term fear, which led to processing peace-rejecting information.

While the correlational design does not enable us to rule out other explanations completely, and causality can only be inferred, ample research has established a process in which cognitive appraisals of situations lead to emotions, which guide and direct human behavior ([Averill, 1982](#)). Thus, existing theory points towards emotions as preceding behavior and leading to behavioral tendencies ([Frijda, 1986, 2006](#); [Frijda, Kuipers, & Ter Schure, 1989](#); [Mackie et al., 2000](#); [Roseman, Wiest, & Swartz, 1994](#)). Additionally, our study's time-lagged design (measuring emotional sentiments five months prior to testing the behavior) and the fact that our model fit the data better than an alternative model that was examined, lends further support to our explanation.

Our findings provide a number of contributions. One is that the aforementioned associations were found above and beyond both socio-demographic factors, including political orientation, and two additional strong emotions (hatred and compassion). Political orientation affected information processing tendencies indirectly through the opposite indirect effects of fear and hope. This result indicates that political positions, often perceived as rigid and extremely hard to change ([Jost, 2006](#)) in the context of conflict, lead to different information acquisition patterns through emotional experiences.

Relatedly, previous approaches such as confirmation bias (for a review see [Nickerson, 1998](#)) and motivated reasoning ([Kunda, 1990](#)) have linked ideology to information processing, indicating that political ideology should be viewed as a reflection of a motivated social cognition that can affect information processing ([Jost et al., 2003](#)). Some research has suggested that motivation underlying ideology is pivotal in information acquisition processes. [Kunda \(1990\)](#) suggested that motivation may lead to biases in the cognitive process, specifically in accessing, developing, and evaluating beliefs. [Iyengar and Ottati \(1994\)](#) suggested that people choose to expose themselves to certain information, which is aimed at confirming their existing beliefs. Thus, understanding and interpreting new information is done in accordance with one's ideological perspective (also see [Hamilton, Sherman, & Ruvolo, 1990](#); [Maoz et al., 2002](#); [Pfeifer & Ogloff, 1991](#); [Rosenberg & Wolfsfeld, 1977](#); [Taber, 2003](#)). Moreover, studies have suggested that society members tend to actively search for information that confirms their ideology ([Schulz-Hardt, Frey, Lüthgens, & Moscovici, 2000](#)). Since participants were found to acquire information confirming their ideology, these findings can be interpreted within such cognitive frameworks. However, our findings add to that prior knowledge by showing that emotions play an important role in explaining the relationship between ideology and decision making in light of political events, which constitutes this paper's main theoretical contribution.

Of special importance in the present study is the behavioral measurement of openness to new information and its processing, as opposed to self-reported measures. This measurement enabled us to examine more accurately a clear picture of the relationship between long-term emotions and information processing. Lastly, this study joins emerging literature asserting that each emotion has a specific and unique effect within the context of conflict and its resolution ([Halperin et al., 2012](#)). That positive and negative emotions other than fear and hope were controlled

for lends support to the proposition that specific emotional experiences lead to specific behavioral outcomes rather than general positive vs. negative affect.

Our study has practical implications as well. In a time characterized by freely circulating information, people in societies involved in intractable conflicts often do not experience conflict-related events (and especially conflict resolution) first-hand (Bar-Tal et al., 2007). Instead, they experience such events through the information they acquire, relying on various sources. Adding to the understanding of what leads to the acquisition and processing of different types of information, both in terms of political ideology and in terms of emotional processes, can serve those advocating for peace. Relatedly and importantly, recent work on emotions in conflict and emotion regulation within conflict situations has shown that emotions can be effectively regulated, leading to attitudinal and behavioral tendencies in conflict (for recent reviews see Gross, Halperin, & Porat, 2013; Halperin, *in press*; Halperin, Cohen-Chen, & Goldenberg, *in press*). Recent empirical evidence has shown that the discrete emotion of hope can be experimentally induced by transforming a belief in conflict as malleable, leading to support for conciliatory action (Cohen-Chen et al., 2014). Combined, this knowledge can serve those trying to promote conflict resolution and conciliatory attitudes, contributing to the development of educational interventions and media-based messages that will lead to more peace-supporting information processing in addition to more conciliatory attitudes.

## Limitations and Future Research

There are some limitations in our study which should be addressed in future research. The first is the fact that long-term emotions were measured using single self-report items. Future studies should perhaps utilize scales including emotional appraisals as well as emotional motivations, in order to better understand the relationships between these emotional experiences and information processing. The second limitation is the fact that the emotional experiences used were long-term emotions as opposed to discrete, short-term emotions leading to an immediate behavioral response. Although we feel it is important to examine the relationships between enduring, long-term emotional experiences and people's natural tendencies regarding information processing, it would be prudent to focus on the relationships between the discrete emotions of fear and hope and their immediate effect on information acquisition. Relatedly, issues of our indices' reliability due to the rather low number of articles used, as well as the moderate strength of our results should be mentioned and addressed in future work. Lastly, the relationships identified in this paper are correlational and therefore do not support a causal interpretation. Future endeavors would need to establish directionality, showing that it is the specific emotion that leads to certain patterns of information processing patterns.

## Conclusion

In summary, the present research adds an important dimension to the rich, relevant literature on emotions in intractable conflicts and peace-making. These initial indications help to better understand the role played by specific emotions and sentiments, as well as the relationship between ideology and information processing. Ultimately, our findings lead to a better understanding of how people form attitudes and make decisions in conflict, and raise additional questions which may be used in future work for the benefit of both policy-makers and researchers. This work joins recent lines of thought as a wide basis for developing messages and interventions grounded in science, with the potential of promoting and facilitating peaceful attitudes.

## Notes

- i) Societal beliefs are defined as shared cognitions by the society members that address themes and issues that the society members are particularly occupied with, and which contribute to their sense of uniqueness (Bar-Tal, 2000).
- ii) The platform is available and open for use upon request from the authors.
- iii) Additionally, we searched for another proportion variable which takes into account the non-mandatory neutral articles. The variable which we computed, like the bias variable, included two variables of proportion (proportion of time spent in articles and proportion of articles) out of the total amount of time / articles (including the non-mandatory neutral article). Since this included the neutral article, we computed two proportion variables, for information favoring and for information rejecting the proposal. Results showed a similar trend to the one found with the bias variable, for both the positive (hope:  $r = .20$ ,  $p = .04$ ; fear:  $r = -.22$ ,  $p = .02$ ; political ideology:  $r = .06$ ,  $p = .52$ ) and negative proportion variables (hope:  $r = -.16$ ,  $p = .09$ ; fear:  $r = .21$ ,  $p = .03$ ; political ideology:  $r = -.06$ ,  $p = .51$ ).
- iv) Similar results were maintained when controlling for the total amount of time spent on the website ( $\beta = .03$ ,  $p = .77$ ), the overall number of articles read ( $\beta = -.11$ ,  $p = .44$ ), and the number of neutral articles opened ( $\beta = .17$ ,  $p = .10$ ). Again, both hope ( $\beta = .18$ ,  $p = .01$ ) and fear ( $\beta = -.14$ ,  $p = .03$ ) were significant predictors of bias towards information favoring the proposal.
- v) Results were stable and consistent when conducting the analyses on the two bias variables separately. In terms of correlations, bias in the amount of time spent on articles in favor of the proposal was correlated with both fear ( $r = -.16$ ,  $p = .02$ ) and hope ( $r = .18$ ,  $p = .01$ ), as was bias in the number of articles in favor of the proposal (fear:  $r = -.12$ ,  $p = .07$ ; hope:  $r = .15$ ,  $p = .03$ ). The indirect effect of political orientation on bias in the amount of time spent on articles in favor of the proposal through both hope ( $a*b = 1.31$ ; 95% CI: 0.40, 2.48) and fear ( $a*b = 0.29$ ; 95% CI: 0.02, 0.87) was significant, as was the indirect effect on bias in the number of articles in favor of the proposal (hope:  $a*b = 1.14$ ; 95% CI: 0.34, 2.25; fear:  $a*b = 0.22$ ; 95% CI: 0.003, 0.69).
- vi) Given the limitations of our correlational design, we wanted to compare our model to alternative models which include other causal paths. For that purpose, we examined our hypothesized model (Figure 1) in Structural Equation Modeling (SEM) with latent variables, using the AMOS program (for information regarding fit indices, see Hooper, Coughlan, & Mullen, 2008; Kline, 2005). The model fitted the data well ( $\chi^2(1, N = 215) = 0.43$ ,  $p = .51$ , CFI = 1.000, RMSEA = .000). When adding a direct path from political orientation to biased information processing, this path was not significant ( $p = .51$ ). We also examined a model in which hope and fear were the independent variables, leading to political stance and then to information processing patterns. This reversed model did not fit the data well ( $\chi^2(2, N = 215) = 10.53$ ,  $p = .005$ , CFI = .87, RMSEA = .14).

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## Competing Interests

The authors have declared that no competing interests exist.

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## Appendix – List of Article Titles (Translated)

Main article (required): *Abbas waives preliminary demands: Will pass a proposal for the immediate renewal for negotiations between Israel and the Palestinian Authority.*

Neutral article: *Abbas's proposal for negotiation renewal: What does it include?*

Positive article I: *A Senior national source: Abbas's proposal constitutes an important breakthrough.*

Positive article II: *Secretary of State Clinton: Abbas's offer is a "historic opportunity"*

Positive article III: *Netanyahu's historical opportunity*

Negative article I: *Security specialists: Renewing negotiations could lead to a wave of terrorism*

Negative article II: *Rightist political parties: Another Palestinian trick – Abbas is no partner for peace*

Negative article III: *When there is no partner there is no negotiation*