Moderating attitudes in times of violence through paradoxical thinking intervention

Boaz Hameiri[a,b,1], Roni Porat[b,c], Daniel Bar-Tal[d], and Eran Halperin[b,1]

[a]School of Psychological Sciences, Tel Aviv University, Tel Aviv 69978, Israel; [b]School of Psychology, Interdisciplinary Center, Herzliya 46150, Israel; [c]Department of Psychology, The Hebrew University, Jerusalem 91904, Israel; and [d]School of Education, Tel Aviv University, Tel Aviv 69978, Israel

Edited by Jeremy Ginges, New School for Social Research, New York, NY, and accepted by Editorial Board Member Mary C. Waters August 26, 2016 (received for review April 18, 2016)

In the current paper, we report a large-scale randomized field experiment, conducted among Jewish Israelis during widespread violence. The study examines the effectiveness of a "real world," multichanneled paradoxical thinking intervention, with messages disseminated through various means of communication (i.e., online, billboards, flyers). Over the course of 6 wk, we targeted a small city in the center of Israel whose population is largely rightwing and religious. Based on the paradoxical thinking principles, the intervention involved transmission of messages that are extreme but congruent with the shared Israeli ethos of conflict. To examine the intervention's effectiveness, we conducted a large-scale field experiment (prepost design) in which we sampled participants from the city population (n = 215) and compared them to a control condition (from different places of residence) with similar demographic and political characteristics (n = 320). Importantly, participants were not aware that the intervention was related to the questionnaires they answered. Results showed that even in the midst of a cycle of ongoing violence within the context of one of the most intractable conflicts in the world, the intervention led hawkish participants to decrease their adherence to conflict-supporting attitudes across time. Furthermore, compared with the control condition, hawkish participants that were exposed to the paradoxical thinking intervention expressed less support for aggressive policies that the government should consider as a result of the escalation in violence and more support for conciliatory policies to end the violence and promote a long-lasting agreement.

intractable conflict | field experiment | psychological intervention | paradoxical thinking

On September 13, 2015, a new cycle of violence erupted in Israel in what is referred by the international media as the "Knife Intifada," or "Lone Wolves Intifada" (1). This flare-up of violence directly affected Palestinians and Jewish Israelis across the State of Israel and the West Bank. The intensity of the unfolding events taking place in major cities all over Israel, including Jerusalem, Tel Aviv–Jaffa, and Be'er Sheba, sparked fear within many Jewish Israelis that this is in fact the beginning of a Third Palestinian Uprising (2).

Extreme violence in intergroup conflicts has an immense emotional impact and plays a pivotal role in the perpetuation and intractability of conflicts (3, 4). Thus, finding ways to moderate attitudes in violent times is crucial but often seen as an extremely difficult mission for three major reasons. First, the violence carried by the rival provides clear-cut evidence about its inhumane character and its mal-intentions (5). Second, living in fear and uncertainty can increase group polarization and extremism (6–8). Third, examining scaled-up interventions in field studies poses methodological constraints on implementing a successful intervention and designing rigorous research to assess the interventions' effectiveness (e.g., refs. 9–11).

The present research provides evidence of how a psychological intervention can moderate negative attitudes even in the context of widespread violence. It does so by creating a multichanneled campaign based on the theoretical framework of paradoxical thinking (12, 13). Although attempts of promoting peaceful and harmonious intergroup relations among adversary groups have received increasing scholarly awareness, only limited research examined large-scale interventions in contexts of widespread violence, when they are needed the most (e.g., refs. 14–15).

Paradoxical Thinking

Paradoxical thinking is "the attempt to change attitudes using new information, which is consistent with the held societal beliefs, but of extreme content that is intended to lead an individual to paradoxically perceive his/her currently held societal beliefs or the current situation as irrational and senseless" (ref. 13, p. 10997; see also ref. 16). It is based on the classic debating technique, *reductio ad absurdum* (17), as well as on practical knowledge accumulated in clinical psychological treatments (e.g., refs. 18–22). These treatments suggest that the extreme content can range from blatant extremity (e.g., ref. 19, see also ref. 16) to more subtle exaggerations, or amplifications, of held attitudes and beliefs and extrapolating from them absurd conclusions (e.g., refs. 17, 21). For example, the clinical theory of motivational interviewing (21) suggests that a therapist need not oppose the held attitudes and beliefs of a patient, as this would only lead to resistance, but rather use psychological judo—that is, to slightly turn or reframe the patients held attitudes and beliefs—to create a momentum toward a change. One especially relevant technique motivational interviewing offers is amplified reflection, in which the therapist reflects back what a patient has said in an amplified or exaggerated form. For example, if a patient, who is a heavy smoker, argues that "studies about

Significance

Societies involved in intractable conflicts are typically polarized in their views on how to resolve the conflict. Hawkish members of society adhere to an uncompromising and nonconciliatory ideology. Therefore, interventions that may change their attitudes are particularly important but simultaneously are very difficult to apply because hawks tend to reject messages that propagate peaceful resolution of the conflict. In the current investigation, we tested whether a large-scale campaign based on the paradoxical thinking framework can moderate attitudes during a widespread outbreak of violence. We found that rightwing (i.e., hawkish) participants exposed to the campaign decreased their adherence to conflict-supporting attitudes over time, were more supportive of conciliatory policies, and less supportive of aggressive policies.

Author contributions: B.H., D.B.-T., and E.H. designed research; B.H., R.P., D.B.-T., and E.H. designed intervention; B.H. and E.H. performed research; B.H. analyzed data; and B.H., R.P., D.B.-T., and E.H. wrote the paper.

The authors declare no conflict of interest.

This article is a PNAS Direct Submission. J.G. is a Guest Editor invited by the Editorial Board.

[1]To whom correspondence may be addressed. Email: boazhameiri@gmail.com or eranh75@hotmail.com.

This article contains supporting information online at www.pnas.org/lookup/suppl/doi:10.1073/pnas.1606182113/-/DCSupplemental.

cancer don't prove anything," the therapist should reply that "indeed, lung cancer has nothing to do with smoking—it just happens."

In a study we recently published (13), Jewish Israeli participants were randomly assigned either to a paradoxical thinking media campaign with messages related to the Israeli–Palestinian conflict or to a control condition in which participants were exposed to generic television commercials unrelated to this conflict. The paradoxical thinking campaign included YouTube video clips expressing ideas that were consistent with the shared conflict-supporting societal attitudes and beliefs but much more extreme. These 30-s video clips emphasized how Jewish Israelis construe their identity on their conflict-related experiences. Each video clip presented one core Jewish Israeli identity theme—a conflict-supporting belief shared by the majority of the Jewish Israeli population (e.g., belief in morality, unity, or victimhood; e.g., refs. 3, 23)—and ended by suggesting that Israelis cannot afford to end the Israeli–Palestinian conflict, as its continuation helps maintain these beliefs. Importantly, the clips did not refute the core conflict-supporting belief but rather amplified it to extrapolate an absurd conclusion such that to be moral Jewish Israelis actually need the conflict. Results showed that the paradoxical thinking intervention (compared with control) led participants to express more conciliatory attitudes regarding the conflict and the adversary, particularly among participants with center and rightwing political orientation.

Although promising, the paradoxical thinking intervention in this study suffered from several limitations. First and foremost, participants received monetary compensation to watch the video clips and were asked several content-verifying questions to ensure exposure and attention to the clips. Thus, participants had an external motivation to watch the video clips. In that sense, the exposure to the intervention was not naturalistic and did not resemble exposure to messages in the real world (24), hindering the study's external validity. Second, participants were well aware of the fact that they were taking part in a study that assesses the effectiveness of a media intervention and were therefore aware of the link between the intervention and the measures, which may have resulted in high social demand. Third, due to relatively small samples, the statistical analysis was underpowered. Finally, as with most interventions, the study was conducted during a period of relative calm in the Israeli–Palestinian conflict (25).

Testing a Multichanneled Paradoxical Thinking Intervention

In the present paper, we report a large-scale study that addresses these aforementioned limitations. Hereafter, we introduce a unique attempt aimed at examining a multichanneled large-scale intervention targeting an entire city in the center of Israel. First, the most important aspect of the present study is that it was intentionally designed to be completely unobtrusive. Specifically, participants did not receive any external motivation to be exposed to the campaign materials and were completely unaware of the connection between the surveys they were requested to answer and the campaign, which took place in their home city. Second, to boost statistical power, our initial samples were quite large. Finally, during the intervention campaign (September–October 2015), the Knife Intifada erupted, with assaults taking place in major cities all over Israel, East Jerusalem, and the West Bank. This violent escalation provided us with the unfortunate context needed to test whether the paradoxical thinking intervention would also be effective in the face of highly negative conflict-related developments that sparked fear and constant threat.

The Present Study

Based on our previous work on paradoxical thinking, we developed a multichanneled intervention—"The Conflict" campaign—developed from the intervention we tested previously (13) that was disseminated in a small city in the center of Israel with ∼25,000 residents. It lasted for 6 wk, beginning in September 10, 2015, and included the following channels: (*i*) The online campaign was directed at the city residents using IP addresses. Residents of the city were exposed to online banners, linking to the "The Conflict" video clips, when browsing the internet, including the most visited websites in Israel. Furthermore, when watching video clips on YouTube, they were presented with "The Conflict" video clips as ads. Using the latest online marketing technologies, we were able to increase the visibility of the campaign for those who watched the videos and were exposed once to the campaign. Ultimately, during the 6 wk of the campaign, there were more than 4.4 million exposures to the online banners, 95% of which were in the targeted city and its immediate surroundings. Additionally, there were a total of almost one million views for the five 20-s "The Conflict" clips combined, 80% of which were from the targeted city and its immediate surroundings. (*ii*) "The Conflict" billboard posters were placed in 20 different central locations in the city for approximately a week and a half. And (*iii*) finally, during the second half of the campaign, in 18 d of field work, several hundred of "The Conflict" t-shirts, balloons, and 4,000 brochures were handed out to passersby in a strategically situated location in the city center (see *SI Text* for links to video clips and Figs. S1–S5 for pictures of the campaign materials).

To test our hypotheses, we devised a longitudinal field study consisting of two waves. In the first wave, we randomly sampled 351 participants, residents of the targeted city, as the paradoxical thinking condition and 502 participants from the surrounding area in the center of Israel as our control condition. Importantly, due to anticipated spillover exposure of the campaign materials to the targeted city's immediate surroundings, control participants were not sampled from areas adjacent to the targeted city. In the second wave, we targeted the same participants and obtained responses from 215 participants in the paradoxical thinking condition and 320 participants in the control condition. As mentioned, participants were not aware of the link between the study in which they were asked to take part and the paradoxical thinking campaign. The first wave was administered before the paradoxical thinking intervention began in the second half of August 2015. The second wave started 1 d after the campaign had ended and approximately 5 wk after the wave of violence erupted, in the midst of October 2015.

The targeted city was selected for several important reasons. It is a city in the center of Israel, with ∼25,000 residents, that is mostly religious and rightwing (e.g., the two leading parties in that city in the last elections were the Jewish Home and the Likud, two rightwing parties, which together received 63.1% of the votes). To ensure similar sociopolitical characteristics between the two conditions, for the control condition, we selected participants from the targeted city's surrounding area that were similar to participants in the experimental condition in terms of their sociopolitical characteristics (i.e., socioeconomic scores, educational attainment, political views, and religious convictions), according to the Israeli Central Bureau of Statistics (26, 27). Furthermore, to ensure the control sample was as similar as possible in terms of its voting behavior to the paradoxical thinking sample, we based our sampling on the 2015 Israeli general election voting patterns in the targeted city (28). In the second wave of measurement, we attempted to first approach participants in the control condition who matched the distribution of the paradoxical thinking condition participants' level of religiosity and political orientation obtained from the first wave of measurement.

Following the findings from the study conducted by Hameiri, Porat et al. (13), we hypothesized that the paradoxical thinking intervention would lead to a decrease over time in the adherence of conflict-supporting attitudes and beliefs most Jewish Israelis share and that it would also have a downstream effect on participants' support for conflict-related aggressive and conciliatory policies. To test these hypotheses, we examined, before and after the intervention, participants' adherence to conflict-supporting

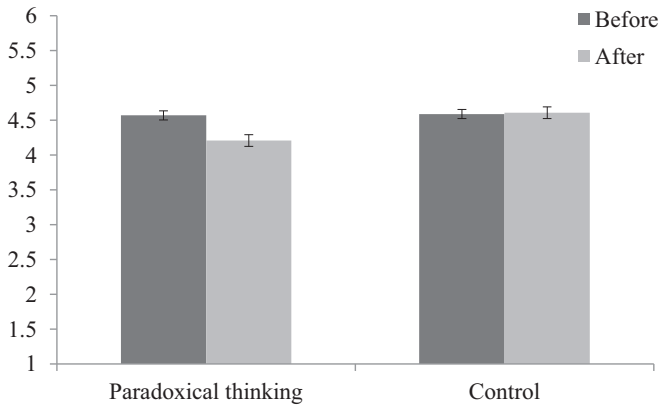

Fig. 1. The interactive effect of time of measurement and condition on adherence to conflict-supporting attitudes. Error bars represent SEs.

attitudes. Furthermore, following the intervention, we measured participants' support for aggressive and conciliatory policies that were directly related to the escalation in violence. Most importantly, based on the findings of Hameiri, Porat et al. (13; see also refs. 16, 20–21), we hypothesized that the intervention would be more effective the more participants were rightists/hawkish and held these conflict-supporting attitudes and beliefs more strongly.

Results

Preliminary Analysis. We first wanted to examine whether the conditions did not differ in terms of participants' political orientation and level of religiosity before the intervention. To do so, we ran an independent samples *t* test that showed that compared with the control, the paradoxical thinking condition was slightly, albeit significantly, more rightist ($M = 3.03$, $SD = 1.20$ vs. $M = 2.83$, $SD = 1.10$, respectively), $t(533) = -1.98$, $P = 0.049$, and marginally significant more religious ($M = 2.25$, $SD = 0.97$ vs. $M = 2.41$, $SD = 0.98$, respectively), $t(533) = 1.90$, $P = 0.059$. Thus, to examine our hypotheses and based on our previous findings (see ref. 13), we conducted all of the analyses with political orientation as a continuous moderator, while controlling for participants' level of religiosity. Importantly, the results we next detail remain identical when not controlling for levels of religiosity. For analyses of zero-order effects between conditions and of using level of religiosity as a continuous moderator, see *SI Text*. For means, SDs, and bivariate correlations for all study variables, see Table S1.

Adherence to Conflict-Supporting Attitudes. To test the intervention's effect on participants' adherence to conflict-supporting attitudes over time and whether political orientation moderated this effect, we used a mixed-linear model (generated using the lme4 R package; ref. 29). The effect over time was treated as a within-subject variable (before and after the intervention), the condition as a between-subject variable (paradoxical thinking vs. control), and political orientation (centered at the mean) as a continuous between-subject variable. Below we provide the main results of the analysis. For additional results, see *SI Text*.

First, the model (Condition × Time × Political Orientation) revealed a two-way interaction between the condition and the time of measurement, $b = 0.38$, $SE = 0.09$, $t(531) = 4.21$, $P < 0.001$, 95% confidence interval (CI) = [0.20, 0.55] (see Fig. 1). Simple slope analysis (30) revealed that in the paradoxical thinking condition, there was a significant decrease in participants' adherence to conflict-supporting attitudes across time from $M_{before} = 4.57$ to $M_{after} = 4.21$, $b = -0.35$, $SE = 0.07$, $t(531) = -5.06$, $P < 0.001$, 95% CI = [–0.49, –0.22], whereas in the control condition, this simple slope was nonsignificant, $M_{before} = 4.59$ to $M_{after} = 4.62$, $b = 0.03$, $SE = 0.06$, $t(531) = 0.05$, $P = 0.65$, 95% CI = [–0.08, 0.14]. This indicates that regardless of participants' political orientation, the paradoxical thinking intervention led participants to adhere less to conflict-supporting attitudes during a period of escalated violence all over Israel, whereas in the control condition it remained relatively unchanged. Importantly, this effect holds even when we did not control for participants' political orientation and level of religiosity (see *SI Text*).

More importantly, the analysis also revealed a significant three-way interaction between condition, time, and political orientation, $b = -0.19$, $SE = 0.08$, $t(531) = -2.39$, $P = 0.017$, 95% CI = [–0.34, –0.03] (see Fig. 2). The three-way interaction was examined using simple slope analysis for the two conditions separately, examining the two-way interaction between time and political orientation. Political orientation was fixed at +1 SD, hereafter termed centrist participants, and –1 SD, hereafter termed rightist participants. Importantly, when examining the paradoxical thinking condition, we found a significant interaction between time of measurement and political orientation, $b = 0.25$, $SE = 0.08$, $t(213) = 3.26$, $P = 0.001$, 95% CI = [0.10, 0.40]. Examining this interaction using simple slope analysis revealed that for rightists there was a significant decrease in adherence to conflict-supporting attitudes across time, $M_{before} = 4.99$ to $M_{after} = 4.35$, $b = -0.64$, $SE = 0.12$, $t(213) = -5.51$, $P < 0.001$, 95% CI = [–0.87, –0.41], whereas for the centrist participants, this simple slope was not significant, $M_{before} = 4.17$ to $M_{after} = 4.11$, $b = -0.06$, $SE = 0.13$, $t(213) = -0.44$, $P = 0.661$, 95% CI = [–0.31, 0.20]. Furthermore, when examining the control condition, we found a marginally significant interaction, $b = 0.06$, $SE = 0.04$, $t(318) = 1.70$, $P = 0.090$, 95% CI = [–0.01, 0.14]. Simple slope analysis revealed that the change across time in participants' adherence to conflict-supporting attitudes was not significant for both rightists, $M_{before} = 5.09$ to $M_{after} = 5.03$, $b = -0.05$, $SE = 0.07$, $t(318) = -0.75$, $P = 0.454$, 95% CI = [–0.18, 0.08], and centrists, $M_{before} = 4.05$ to $M_{after} = 4.15$, $b = 0.10$, $SE = 0.06$, $t(318) = 1.65$, $P = 0.100$, 95% CI = [–0.02, 0.22].

Support for Aggressive Policies. In the second wave of measurement, following the intervention, we measured participants' support for aggressive policies directly related to the ongoing wave of violence. To examine the effects of our intervention and the moderating effect of political orientation on participants' support for aggressive policies, we used Hayes' (31) PROCESS model 1, $R^2 = 0.26$, $F(4, 530) = 47.63$, $P < 0.001$. Support for aggressive policies was predicted by the condition, $b = 0.23$, $SE = 0.09$, $t = 2.47$, $P = 0.014$, 95% CI = [0.04, 0.41], and by political orientation, $b = -0.40$, $SE = 0.04$, $t = -9.26$, $P < 0.001$, 95% CI = [–0.49, –0.32].

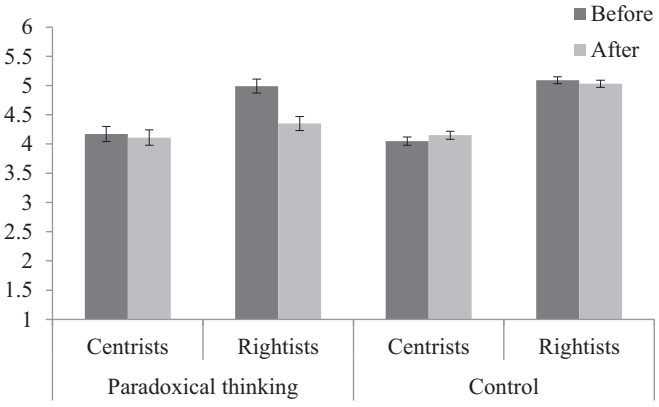

Fig. 2. The interactive effect of time of measurement and condition on adherence to conflict-supporting attitudes, as moderated by political orientation. Error bars represent SEs.

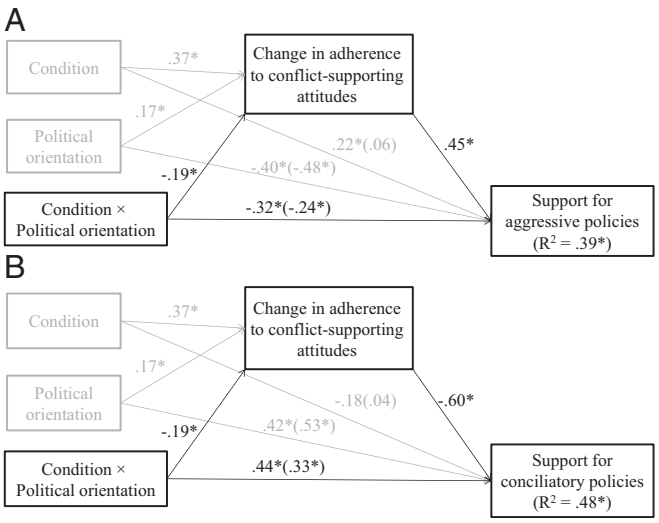

Fig. 3. Results of the moderated mediation models of support for different policies, examining the interactive effect of condition and political orientation on support for (*A*) aggressive policies and (*B*) conciliatory policies through the change in adherence to conflict-supporting attitudes across time. All coefficients correspond to the arrows beneath them. *$P < 0.05$.

More importantly, we found a significant interaction between the condition and political orientation in their effect on support for aggressive policies, $b = –0.32$, $SE = 0.08$, $t = –4.01$, $P < 0.001$, 95% CI = [–0.48, –0.17] (see Fig. S6). The conditional effects revealed a nonsignificant effect for centrist participants, $b = –0.15$, $SE = 0.13$, $t = –1.11$, $P = 0.268$, 95% CI = [–0.41, 0.12], whereas the rightist participants, in the paradoxical thinking condition, showed less support for aggressive policies compared with the control, $b = 0.60$, $SE = 0.13$, $t = 4.70$, $P < 0.001$, 95% CI = [0.35, 0.86].

Support for Conciliatory Policies. We ran a similar analysis to examine the effects of our intervention, and the moderating effect of political orientation, on participants' support for conciliatory policies. We again used PROCESS model 1, $R^2 = 0.29$, $F(4, 530) = 54.94$, $P < 0.001$. Support for conciliatory policies was marginally significantly predicted by the condition, $b = –0.19$, $SE = 0.10$, $t = –1.91$, $P = 0.058$, 95% CI = [–0.38, 0.01], and significantly predicted by political orientation, $b = 0.42$, $SE = 0.05$, $t = 9.20$, $P < 0.001$, 95% CI = [0.33, 0.51]. More importantly, we also found a significant interaction between the condition and political orientation in their effect on support for conciliatory policies, $b = 0.44$, $SE = 0.09$, $t = 5.14$, $P < 0.001$, 95% CI = [0.27, 0.61] (see Fig. S7). The conditional effects revealed a significant effect when examining centrist participants, $b = 0.32$, $SE = 0.14$, $t = 2.29$, $P = 0.022$, 95% CI = [0.46, 0.60], such that unexpectedly participants in the paradoxical thinking condition expressed less support for conciliatory policies compared with the control; however, the rightist participants in the paradoxical thinking condition showed more support for conciliatory policies compared with the control, $b = –0.69$, $SE = 0.14$, $t = –5.11$, $P < 0.001$, 95% CI = [–0.96, –0.43].

Assessing the Moderated Mediation Models of Support for Different Policies. In light of these results, we then examined whether the interactive effect of our intervention and participants' political orientation on their support for different policies could be explained by its effect on levels of adherence to conflict-supporting attitudes (see Fig. 3). To this end, we conducted two analyses using Hayes' PROCESS model 8 to test the indirect effect of the interaction term between political orientation and the condition on both support for aggressive policies (Fig. 3*A*) and support for conciliatory policies (Fig. 3*B*) through the change in adherence to conflict-supporting attitudes across time (to that end, we computed the delta between the pre- and postintervention scores), controlling for the unique effects of the condition and political orientation variables. The analyses revealed that the interaction term's effect on support for aggressive policies, $b = –0.32$, $SE = 0.08$, $t = –4.01$, $P < 0.001$, 95% CI = [–0.48, –0.17], and on support for conciliatory policies, $b = 0.44$, $SE = 0.09$, $t = 5.14$, $P < 0.001$, 95% CI = [0.27, 0.61], was reduced after the change in adherence to conflict-supporting attitudes was considered in the models—aggressive policies: $b = –0.24$, $SE = 0.07$, $t = –3.23$, $P = 0.001$, 95% CI = [–0.39, –0.09]; conciliatory policies: $b = 0.33$, $SE = 0.07$, $t = 4.44$, $P < 0.001$, 95% CI = [0.18, 0.47]—and that both the interaction's indirect effects were significant—aggressive policies: effect = –0.08, $SE = 0.04$, 95% CI = [–0.16, –0.02]; conciliatory policies: effect = 0.11, $SE = 0.05$, 95% CI = [0.02, 0.22].

Consistent with our previous findings and our predictions, when probing these effects further, we found in both models a significant indirect effect for the rightist participants—aggressive policies: effect = 0.26, $SE = 0.07$, 95% CI = [0.15, 0.41]; conciliatory policies: effect = –0.35, $SE = 0.09$, 95% CI = [–0.54, –0.19]—indicating that for them, the effect of the manipulation on support for the different policies (in fact, less support for aggressive policies and more support for conciliatory policies) was transmitted through change in their adherence for conflict-supporting attitudes (in fact, decrease in adherence across time). For the centrist participants, the indirect effects were not significant in both models—aggressive policies: effect = 0.07, $SE = 0.05$, 95% CI = [–0.03, 0.17]; conciliatory policies: effect = –0.09, $SE = 0.07$, 95% CI = [–0.23, 0.05].

Discussion

The goal of the present study was to examine the effects of the paradoxical thinking intervention in the "real world," using a naturalistic and unobtrusive design, in a situation of violence. Our attempt provides a meaningful departure from the controlled setting in which we previously studied paradoxical thinking. It provides an opportunity to establish external validity in a robust way, in the midst of a dramatic wave of violence. The results suggest that the paradoxical thinking intervention had a significant effect on the beliefs and attitudes of rightwing (hawkish) participants. Specifically, the results indicate that there was a significant decrease in their adherence to conflict-supporting attitudes over time. Additionally, compared with rightists in the control condition, those in the experimental condition expressed lower support for aggressive policies as well as higher support for conciliatory policies.

At the same time, centrist participants in both conditions showed similar levels of support for aggressive policies. Surprisingly, centrist participants in the paradoxical thinking condition expressed less support for conciliatory policies compared with the participants in the control condition. It is possible that at least some participants perceived the paradoxical thinking messages literally—that is, the messages had a literal rather than a paradoxical effect—which led to this surprising effect. Although we did not find similar trends when examining other dependent variables, this possibility should be further examined in future studies nonetheless. Finally, consistent with our predictions and previous findings (13), we found that for rightists the policy-related effects were transmitted through a general decrease in their adherence for conflict-supporting attitudes.

Our study design, intended to assess a large-scale campaign disseminated in a city using a naturalistic and unobtrusive research method, precluded the possibility to randomly assign participants to the two conditions. Thus, to address this limitation, we attempted to make the two conditions as comparable as possible, based on several parameters. Furthermore, our study design did not assess each of the campaign channels separately, which leaves open an interesting avenue for future research, with practical importance. Still, we believe that the results show unequivocally that the paradoxical thinking intervention is effective

in unfreezing the conflict-supporting repertoire, especially among rightists that are often well anchored in this repertoire and considered as rigid (e.g., ref. 32). These results were obtained not only in a real setting with a population that was skewed toward hawkish support for the continuation of the conflict but incidentally in the framework of a new cycle of violence that provides many Israeli Jews with undeniable evidence for the assumed belief that Palestinians only seek to annihilate them and have no interest in peace. Thus, the results of the study were obtained in a context that is generally inhibitory to attitude change (e.g., refs. 6, 8, 33), and they therefore should be considered with extra weight.

The present findings together with the results of our previous study (13) provide an innovative outlook on attitude change of society members involved in bloody and protracted conflict. We propose an intervention that does not provide alternative information that usually evokes resistance but does provide exaggerated and amplified information that is in line with the held beliefs and attitudes. Thus, it overcomes the barrier of resistance and at the same time forces individuals to reconsider their views (16, 21). Drawing on the literature, there are several possible mechanisms that can explain the effectiveness of the manipulation specifically among rightists. We argue that for the paradoxical thinking messages to be effective, they have to be in line with the recipients' existing beliefs and attitudes, considerably more extreme but still within the latitude of acceptance. They do not raise resistance or defenses but may arouse a sense of absurdity and surprise (16, 17, 19, 21), which according to the literature evokes heightened processing and in-depth exploration (18–20). In these cases, the messages may lead to a sense of threat to the recipient's identity and subsequent depolarization (16, 21). This sense of threat may be manifested in the recipient's fear to be associated with the views expressed in the message or with other in-group members who may hold such views. In cases where the paradoxical thinking messages fail to evoke a sense of surprise, absurdity, and threat to one's own identity, it will not lead to depolarization. In these cases, individuals go through the automatic thinking process: Some may simply reject the new information, whereas others will consider it in its literal sense (see refs. 13, 16). We argue that the latter group may account for the unexpected effects found for the centrist participants. Future studies should deepen the examination of possible mediating mechanisms.

The present study was conducted in the context of the Israeli–Palestinian conflict, with Jewish Israeli participants. Thus, all campaign materials were crafted in a painstaking process for several years (see ref. 13) to suit this specific context and population. Research indicates that the more Israeli Jews are rightists, the more they adhere to conflict-supporting beliefs (see refs. 3, 23; see also Table S1). As mentioned earlier, "The Conflict" intervention messages were based on these conflict-supporting beliefs to draw the exaggerated, absurd conclusion outlined above. Still, we argue that the fundamental idea of paradoxical thinking and the hypothesized mechanisms are general and apply to other contexts and populations. The literature supports this notion, with paradoxical techniques successfully applied in clinical psychology to treat severe cases of obsessive-compulsive disorder, phobia, and addiction (e.g., refs. 20, 21) and in moderating US undergraduates' conservative beliefs regarding women's roles previously held with high certainty (16).

We suggest that the evidence accumulated thus far points to a unique approach to societal attitude change that needs to be further explored. Once the paradoxical thinking phenomenon is established in the context of intractable conflict, as we believe it already is, it is time to move the study to other contexts, to study deeply the cognitive and emotional processes that lead to this change, and to explore its limiting and facilitating conditions and its ramifications. We hope that future research in the social sciences will also move in this direction. The challenging findings of our research are a promising beginning for this long journey.

Method

The present study was approved by The Interdisciplinary Center's Review Board, and all participants completed an online consent form. It was designed to examine the causal effect over time of a multichanneled revised version of the paradoxical thinking campaign we developed in a previous study—"The Conflict" (13)—in the most naturalistic manner possible. To do so, we disseminated the intervention in a small city in the center of Israel with a population of ∼25,000 residents, predominately characterized as rightwing and religious. Before the start of the intervention, we sampled participants from this city to answer online questionnaires. The participants were not aware of the relation between the campaign that took place in their city and the survey they were requested to answer. This group was compared with a control group that was sampled from the surrounding places of residence, but not adjacent to the targeted city, with similar demographic characteristics.

Participants. Before the initiation of "The Conflict" campaign, during the second half of August 2015, for 2.5 wk, ending 5 d before the campaign initiation, we randomly sampled, using online surveying platforms, 351 participants from the city in which the campaign was designed to run and 502 participants in the surrounding area in the center of Israel but not adjacent to the targeted city. Importantly, participants were not aware of the link between the survey they were asked to fill out and the intervention that was about to be administered. A day after the end of the campaign and a month and a half after the end of the first time of measurement, during the second half of October 2015, we returned to the same participants and asked them to answer a second questionnaire. Again, participants were not aware of any links between the survey and the campaign until they finished with the survey. Ultimately, 215 participants (M_{age} = 37.52, SD_{age} = 12.29; 108 women) from the paradoxical thinking condition and 320 participants (M_{age} = 37.80, SD_{age} = 12.52; 172 women) from the control condition completed the questionnaires (62.7% of the baseline sample). After the completion of the study, the participants received a small reward as a gratitude for their full participation.

In terms of political orientation, the final sample was skewed to the right compared with the distribution of the adult Jewish Israeli population (27, 34), as was expected due to the demographics of the city selected for the study (M = 2.95, SD = 1.16). The paradoxical thinking condition sample was relatively more rightist than the control condition, such that in the paradoxical thinking condition 74.4% of the participants reported they held extreme rightist to moderate rightist views, 16.7% reported they were centrists, and only 8.9% reported they held moderate leftist to leftist views; in the control condition, 67.8% reported they were rightists, 19.7% centrists, and 12.4% leftists (see Table S2 for a complete frequency table of political orientation). Not surprisingly, in terms of level of religiosity, the final sample was relatively religious compared with the adult Jewish population (M = 2.31, SD = 0.97). The paradoxical thinking condition sample was slightly less secular compared with the control sample, such that 27.0% reported they were secular, 12.6% observant, 53.0% religious, and 7.4% ultrareligious, whereas in the control condition the distribution was 35.0%, 8.4%, 53.4%, and 3.1%, respectively.

Previous research indicates that dropout ratios of between 30% and 70% are usually weakly associated with bias (35). Still, to examine whether our results were skewed due to participant dropout between the two measurements, as a result of their gender, political orientation, level of religiosity, or the condition in which they were assigned, we conducted a logistic regression. None of these variables were found to be a significant predictor of dropout (all Ps > 0.44) and accounted for less than 1% of the variance of attrition, indicating that it was mostly random.

Procedure. The first wave of measurement lasted for 3 wk—from August 16, 2015 to September 5, 2015—and included measurement of participants' adherence to conflict-supporting attitudes as well as several demographic items, such as gender, political orientation, and level of religiosity. Five days after the end of the first wave, on September 10, 2015, the paradoxical thinking multichanneled campaign was initiated. One day after the end of the campaign, the second wave of measurement was administered—from October 21, 2015 to October 30, 2015—in which we measured adherence to conflict-supporting attitudes once again as well as participants' support for aggressive and conciliatory policies. Finally, participants were also asked to indicate their age. The reported scales were embedded in larger questionnaires, which included additional exploratory items.

Measures.

Adherence to conflict-supporting attitudes. During the pre- and postintervention questionnaires, we asked participants to rank seven Likert-type items (Cronbach's alphas ranged from 0.80 to 0.84) indicating the extent (from 1 = completely disagree to 6 = agree to a very large extent) to which they adhere to conflict-supporting attitudes. This scale was developed for the purposes of the present study with items pertaining to different ethos of conflict themes (23) (for similar measures, see refs. 13, 23).

Support for aggressive policies. Participants were then asked to rank seven items indicating the extent to which they support (from 1 = strongly oppose to 6 = strongly support) different aggressive policies toward the Palestinians the Israeli government should adopt in the face of the violent escalation, which began during the course of the intervention (Cronbach's alpha = 0.88).

Support for conciliatory policies. Participants were then asked to rate four items indicating the extent to which they support, on a similar scale, different conciliatory policies to promote the end of the violent escalation and a long-lasting agreement (Cronbach's alpha = 0.84; for similar measures, see refs. 36, 37).

Demographic measures. Finally, we measured the following demographic variables: gender (1 = man, 2 = woman), age, level of religiosity (1 = secular, 2 = observant, 3 = religious, 4 = ultra-religious), and a standard self-identified item for measuring political orientation on a scale ranging from 1 = extreme right to 7 = extreme left (see *SI Text* for materials).

ACKNOWLEDGMENTS. The authors thank Yitzhak Frankental for his contribution to the initiation and development of this project; Oshik Rushinek, Ofir Shauman, and Romem Saranga for their help in the development and dissemination of the campaign; Amit Goldenberg for the help in the statistical analysis; and Nitzan Cohen for the help in collecting the data for the current study. This study was funded by a grant from the Arik Institute (E.H.), an Azrieli Fellowship award from the Azrieli Foundation (B.H.), and the Harry & Sylvia Hoffman Leadership & Responsibility Program and the Leonard Davis Institute for International Relations (R.P.).

1. Beaumont P (2015) What's driving the young lone wolves who are stalking the streets of Israel? *The Guardian*. Available at https://www.theguardian.com/world/2015/oct/18/knife-intifada-palestinian-israel-west-bank. Accessed February 1, 2016.
2. Margalit R (2015) Fear of a third intifada. *The New Yorker*. Available at www.newyorker.com/news/news-desk/fear-of-a-third-intifada. Accessed December 30, 2015.
3. Bar-Tal D (2013) *Intractable Conflicts: Socio-Psychological Foundations and Dynamics* (Cambridge Univ Press, Cambridge, UK).
4. Kriesberg L (1993) Intractable conflict. *Peace Rev* 5(4):417–421.
5. Bar-Tal D (2003) Collective memory of physical violence: Its contribution to the culture of violence. *The Role of Memory in Ethnic Conflict*, eds Cairns E, Roe MD (Palgrave Macmillan, Houndmills, UK), pp 77–93.
6. Canetti D, Elad-Strenger J, Lavi I, Guy D, Bar-Tal D (2015) Exposure to violence, ethos of conflict, and support for compromise surveys in Israel, East Jerusalem, West Bank, and Gaza. *J Conflict Resolut*, 10.1177/0022002715569771.
7. Huddy L, Feldman S, Weber C (2007) The political consequences of perceived threat and felt insecurity. *Ann Am Acad Pol Soc Sci* 614(1):131–153.
8. Skitka LJ, Bauman CW, Aramovich NP, Morgan GS (2006) Confrontational and preventative policy responses to terrorism: Anger wants a fight and fear wants" "them" to go away. *Basic Appl Soc Psych* 28(4):375–384.
9. Bilali R, Vollhardt JR, Rarick JRD (2016) Assessing the impact of a media-based intervention to prevent intergroup violence and promote positive intergroup relations in Burundi. *J Community Appl Soc Psychol* 26(3):221–235.
10. Halperin E, Cohen-Chen S, Goldenberg A (2014) Indirect emotion regulation in intractable conflicts: A new approach to conflict resolution. *Eur Rev Soc Psychol* 25(1):1–31.
11. Tropp LR (2015) Dismantling an ethos of conflict: Strategies for improving intergroup relations. *The Social Psychology of Intractable Conflicts: Celebrating the Legacy of Daniel Bar-Tal*, eds Halperin E, Sharvit K (Springer, New York), Vol 1, pp 159–172.
12. Hameiri B, Bar-Tal D, Halperin E (2014) Challenges for peacemakers: How to overcome socio-psychological barriers. *Policy Insights from the Behavioral and Brain Sciences* 1(1):164–171.
13. Hameiri B, Porat R, Bar-Tal D, Bieler A, Halperin E (2014) Paradoxical thinking as a new avenue of intervention to promote peace. *Proc Natl Acad Sci USA* 111(30):10996–11001.
14. Bilali R, Vollhardt JR (2015) Do mass media interventions effectively promote peace in contexts of ongoing violence? Evidence from Eastern Democratic Republic of Congo. *Peace Confl J Peace Psychol* 21(4):604–620.
15. Cole C, et al. (2003) The educational impact of Rechov Sumsum/Shara'a Simsim: A Sesame Street television series to promote respect and understanding among children living in Israel, the West Bank, and Gaza. *Int J Behav Dev* 27(5):409–422.
16. Swann WB, Jr, Pelham BW, Chidester TR (1988) Change through paradox: Using self-verification to alter beliefs. *J Pers Soc Psychol* 54(2):268–273.
17. Rescher N (2005) Reductio ad absurdum. *Internet Encyclopedia of Philosophy*. Available at www.iep.utm.edu/reductio/. Accessed February 2, 2016.
18. Andolfi M, Angelo C, De Nichilo M (1989) *The Myth of Atlas: Families & the Therapeutic Story* (Brunner/Mazel, New York).
19. Farrelly F, Brandsma J (1974) *Provocative Therapy* (Celestial Arts, Millbrae, CA).
20. Frankl VE (1975) Paradoxical intention and dereflection. *Psychotherapy* 12(3):226–237.
21. Miller WR, Rollnick S (2002) *Motivational Interviewing: Preparing People for Change* (Guilford, New York).
22. Watzlawick P, Weakland JH, Fisch R (1974) *Change: Principles of Problem Formation and Problem Resolution* (Norton, New York).
23. Bar-Tal D, Sharvit K, Halperin E, Zafran A (2012) Ethos of conflict: The concept and its measurement. *Peace Confl J Peace Psychol* 18(1):40–61.
24. Gerber AS, Green DP (2012) *Field Experiments: Design, Analysis, and Interpretation* (WW Norton, New York).
25. Cohn-Sherbok D, El-Alami D (2015) *The Palestine-Israeli Conflict: A Beginner's Guide* (Oneworld, London).
26. Central Bureau of Statistics (2008) *Statistical Abstract of Israel* (Central Bureau of Statistics, Jerusalem).
27. Central Bureau of Statistics (2013) *Statistical Abstract of Israel* (Central Bureau of Statistics, Jerusalem).
28. Israeli Central Elections Committee for the 20th Knesset (n.d.) *Israeli Central Elections Committee for the 20th Knesset: National Results*. Available at www.votes20.gov.il/. Accessed July 28, 2015.
29. Bates D, Maechler M, Bolker B, Walker S (2013) *lme4: Linear Mixed-Effects Models Using Eigen and S4. R Package Version 1.0-4*. Available at cran.r-project.org/web/packages/lme4/index.html. Accessed July 19, 2014.
30. Aiken LS, West SG (1991) *Multiple Regression: Testing and Interpreting Interactions* (Sage, Thousand Oaks, CA).
31. Hayes AF (2013) *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach* (Guilford, New York).
32. Jost JT, Glaser J, Kruglanski AW, Sulloway FJ (2003) Political conservatism as motivated social cognition. *Psychol Bull* 129(3):339–375.
33. Sharvit K (2014) How conflict begets conflict: Activation of the ethos of conflict in times of distress in a society involved in an intractable conflict. *J Exp Soc Psychol* 55:252–261.
34. Hermann T, Heller E, Atmor N, Lebel Y (2013) *The Israeli Democracy Index* (The Israel Democracy Institute, Jerusalem).
35. Galea S, Tracy M (2007) Participation rates in epidemiologic studies. *Ann Epidemiol* 17(9):643–653.
36. Halperin E, Porat R, Tamir M, Gross JJ (2013) Can emotion regulation change political attitudes in intractable conflicts? From the laboratory to the field. *Psychol Sci* 24(1):106–111.
37. Pliskin R, Bar-Tal D, Sheppes G, Halperin E (2014) Are leftists more emotion-driven than rightists? The interactive influence of ideology and emotions on support for policies. *Pers Soc Psychol Bull* 40(12):1681–1697.