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# The effect of exposure to missile attacks on posttraumatic stress disorder symptoms as a function of perceived media control and locus of control

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## ABSTRACT

Exposure is one of the most robust predictors of post-traumatic stress disorder (PTSD) symptoms in warfare situations. Yet, while many are sensitive to exposure, others do not develop PTSD. In the current study, we address how perceived media control along with external locus of control moderate effects of exposure on PTSD symptoms among 1268 individuals exposed to missile attacks (mean age = 36.97). We expected that the coupling of low perceived media control, whereby one feels poor control over media consumption (an inability to stop), especially when irrelevant and non-informative (e.g., involuntarily viewing the same terror incident shown repeatedly in a looped fashion) along with a self-perception of external locus of control, will render participants highly vulnerable to exposure. As expected, results suggest that effects of exposure on PTSD are not automatic, rather, the coupling of both low media control along with believing that life event are controlled by external factors exacerbates effects of exposure. These findings bear practical implications, as both media control and locus of control can be modified by therapeutic interventions, rendering one less vulnerable to the detrimental effects of traumatic exposure.

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### 1. Introduction

In this study, we examined PTSD symptoms in Israeli civilians following the 2014 Israel-Gaza conflict, during which more than 4500 missiles were fired on 70% of the Israeli population.<sup>1</sup> Our main goal was to address if the typical robust relationship between trauma exposure and PTSD symptoms can be moderated by the coupling of one's control over irrelevant media information in conjunction with an external locus of control (LOC). These two aspects of control may together exert an over-additive effect beyond their individual effects, as explained below. We begin by reviewing briefly effects of exposure, media and LOC on PTSD symptoms, followed by our specific prediction.

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# 1.1. Exposure and PTSD

The relationship between exposure and PTSD has been studied extensively. Within the context of warfare trauma, exposure is considered one of the most frequently demonstrated predictors of PTSD (Hoge et al., 2004; Miller et al., 2008; Orcutt et al., 2004; Sharkansky et al., 2000). Findings demonstrate a strong linear relationship between the number of life threating events (firefight) and PTSD symptom level (e.g., Hoge et al., 2004). Such findings also apply to civilians exposed to missile attacks, the greater the exposure the higher the trauma symptom level (Ben-Ezra et al., 2015; Besser et al., 2015; Hoffman et al., 2015; Palgi et al., 2009). While exposure was, and still is, considered a major factor in the development of PTSD disorder, the majority of people exposed to trauma do not develop PTSD (e.g., Kessler et al., 1995). Accordingly, studies have focused on variables that could moderate the relationship between exposure and PTSD symptoms. For example, both demographic variables such as gender (Stein et al., 2000) and social resources such as, intrapersonal resilience (Besser et al., 2015) have been shown to moderate the effect of exposure







on PTSD symptoms. In the current study, we look at the coupling of two psychological factors pertaining to control; the attribution of perceived behavioral media control in conjunction with locus of control, examining how they interact to moderate the effects of exposure on PTSD.

#### 1.2. Media and PTSD

In today's day and age, during and even after the traumatic event has subsided, the media (e.g., radio/television/social media) may maintain the traumatic event continuously salient. This may take several forms. For example, a recent study showed that Israeli civilians, who were exposed to constant<sup>2</sup> news broadcasting during the Israel-Gaza 2014 conflict, were more likely to display anxiety symptoms (Bodas et al., 2015). PTSD symptom levels were also increased with media exposure for people who witnessed the 9/11 attacks directly (Ahern et al., 2005). Furthermore, people who did not experience a traumatic event (e.g., Boston Marathon), but were repeatedly exposed to it via media coverage, showed greater levels of trauma symptoms than that observed in those who directly witnessed the trauma (Holman et al., 2014). Social media, specifically, Twitter and YouTube, were also observed to elevate PTSD symptoms following exposure both to the Super Typhoon Haiyan in the Philippines (Goodwin et al., 2015) and to hurricane Sandy (Goodwin et al., 2013). In these cases, media exposure was not helpful and even detrimental (see also Goodwin et al. (2016)), the greater the media exposure the more the PTSD symptoms. In the current study, we examine effects of perceived media control, namely how one may perceive oneself as exerting control and exposing one's self only to media that disseminates relevant information to the situation.

#### 1.3. Locus of control and PTSD

According to Rotter (1966), locus of control (LOC) is defined in terms of the extent by which people feel they control the events that affect them, which can either be by external (e.g., god, my boss, nature) or internal control (one's own actions). Previous PTSD research has found that PTSD symptom levels are higher in individuals showing low internal LOC (e.g., Casella and Motta, 1990; Solomon et al., 1988). Traditionally, effects of LOC were understood by the helpful contribution of internal LOC (Solomon et al., 1988), as internal LOC was assumed to provide greater resistance to psychological dysfunction (Strickland, 1978) or instrumental strategies for dealing with stress (Anderson, 1977). A different conceptualization of LOC to that of Rotter's (1966) was suggested by Levenson (1973), whereby internal and external LOC are assumed to be independent, e.g., being high in internal LOC does not necessarily indicate one's level of external LOC. Furthermore, two independent types of external LOC were suggested; chance (events are governed by random chance) and powerful others (events are not random, but are controlled by powerful others). Janoff-Bulman (1992) suggested that a trauma is an event that shatters one's basic assumptions. Two of these three basic assumptions are *meaningfulness* and *self-worth*. The former relates to the belief that the world operates according to certain rules in a non-random fashion that enables the prediction of outcomes. The latter includes the feeling that one feels control over his/her own life. These domains respectively parallel external and internal loci of control. Accordingly, the degree to which we feel our life events are controlled by external forces (others/chance) should be associated with PTSD symptom levels irrespective of the internal LOC level. Recent studies have found higher correlations of external LOC with PTSD symptom level than between internal LOC and PTSD symptoms (e.g., Zhang et al., 2014). The LOC-PTSD relationship according to this framework could be due to high external LOC being detrimental rather than only buffering effects of internal LOC.

#### 1.4. The current study

The present study addresses the relationship between exposure, perceived media control and LOC on the one hand and PTSD symptoms on the other hand among individuals following the Israel-Gaza 2014 conflict (July 7th-August 26th), the longest and most intense period of missile shootings experienced by Israeli civilians. During this conflict, 10's-100's missiles were fired daily over the majority of Israeli population.<sup>3</sup> The media adapted to this situation. For example, mobile applications were developed that informed people of missile attacks, videos of attacks were circulated within social media. Perhaps the most dramatic changes were to the television and radio broadcasting schedules. For example, national channels went into an "open-wave mode," which broadcasted information pertaining to the fighting. The open-wave began at 6:00 a.m. and continued past midnight. It included news, panels, and commentators. Viewer rating was very high, for example, for channel 22, a popular Israeli television channel, during the first weeks of the conflict the average rating level exceeded 43% of the Israeli population (Israeli television ratings, 2014). Yet, because there was much time to fill, news, photos and clips were repeated in loops, and much irrelevant information about the conflict was broadcasted. For example, broadcasters reported unfounded information based on rumors (e.g., how many missiles were shot, how many exploded, and how many civilians were injured), while they themselves acknowledged the fact that they did not have all the information. Bodas et al. (2015) note that while Israeli civilians reported finding the media addictive during the conflict, a large majority of the public was unhappy with so much open-wave media, which in turn increased anxiety, such that the more media consumption the greater the media consumers' anxiety level during this conflict.

In the current study, we examined how one's perceived control over media along with external LOC moderated the relationship between exposure and PTSD. By perceived media control, we mean one's perceived ability to watch/listen only to relevant information that may constructively contribute to one's coping. This differs from media consumption – a quantitative variable that addresses for example, daily hours of media consumption. By contrast, perceived media control is a qualitative measure that addresses one's feeling control over the type of information one was exposed to, regardless of quantitative aspects. Not being in control of one's media consumption reflects involuntary behavior of being drawn into the captivating media world, even when it is not supplying one with information of any importance.

In light of the above literature, we predict that effects of exposure on PTSD should be most pronounced when perceived low media control (i.e., people feel drawn to irrelevant media information without ability to stop) is coupled with an external LOC (either type). We critically expect the above three-way interaction (exposure, perceived media control, and LOC) only for external LOC and not for internal LOC in line with the above theoretical framework addressing high external LOC as detrimental rather than a buffering effect of internal.

<sup>&</sup>lt;sup>2</sup> Constant may literally refer to 18–24 h per day, in what is called in Israel "GAL-PATUACH" (i.e., open wave), see below.

<sup>&</sup>lt;sup>3</sup> http://en.wikipedia.org/wiki/2014\_Israel%E2%80%93Gaza\_conflict

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