

Psalms and Coping with Uncertainty: Religious Israeli Women's Responses to the 2006 Lebanon War

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ABSTRACT Many scholars have argued that rituals serve to help individuals cope with challenges that arise under uncertain conditions. Ongoing research has been examining this claim with data collected on how Israeli women use psalm recitation to cope with the stress of war and terror. Here we compare the efficacy of psalm recitation among religious women who remained in northern Israel during the 2006 Lebanon War and women who relocated to central Israel, out of reach of Hizbollah Katyusha attacks. We show that psalm recitation is associated with lower rates of anxiety among women who remained in the north, but no such relationship was found among women who relocated outside of the warzone. We argue that psalm recitation reduces anxiety caused by the uncontrollable conditions of war but is ineffective at combating more mundane, controllable stressors. These findings will be discussed in light of Malinowski's theory of magic and related models. [*magic, religious coping, ritual, stress, uncertainty*]

"It was the war and I was very much afraid, so I had to do something . . . so I started to recite Tehilim [Psalms]." Here was the old joke—in the face of emergency, a Hasid calls out: "Jews, don't just stand there and depend on miracles. Do something! Recite psalms."

—Samuel Heilman, *A Walker in Jerusalem*

Magic arises as a symbolic means of handling important environmental influences which are not subject to empirical control, and also for dealing with the anxiety, frustration, or threat which may result when people are confronted with important environmental forces which they cannot master.

—Theodore Rosenthal and Bernard Siegel, "Magic and Witchcraft: An Interpretation from Dissonance Theory"

Anthropologists have long noted that in times of stress individuals often entertain superstitious beliefs and engage in magical rituals (Homans 1941; Kluckhohn 1942; Radcliffe-Brown 1939). Bronislaw Malinowski (1948) was among the first scholars to propose that magical responses to stress are a means of coping with uncertain and uncontrollable conditions. Although Malinowski's theory of magic is a fixture in introductory anthropology textbooks and courses, it has largely been relegated to the sideline of scholarly anthropological discourse.¹ Few anthropologists today rigorously debate or evaluate his insights (see Sørensen 2007a, 2007c), yet among social psychologists Malinowski's ideas are still inspiring compelling research (Vyse 1997). Here we

revisit the long-standing anthropological questions concerning the relationships between magical ritual, uncertainty, and anxiety that Malinowski's theory of magic addressed. We evaluate hypotheses derived from a contemporary version of Malinowski's theory that incorporates recent insights from modern psychology. Our primary aim is empirical evaluation of the theory, but we hope that our research also renews interest in those aspects of Malinowski's ideas worth revisiting and that it encourages anthropologists to participate in the interdisciplinary discussions and research emerging from his work.

Malinowski (1948) argued that under conditions of uncertainty individuals will turn toward magic to exercise some control over an unpredictable situation. Among the Trobriand Islanders he studied, Malinowski (1961) observed that magic was prevalent during dangerous fishing activities on the open seas in which there was high variance in yield. Magic was absent, however, when men fished in the lagoon, where there was little danger and returns were consistent and abundant.² Malinowski's theory of magic led to considerable debate among anthropologists (Evans-Pritchard 1929; Homans 1941; Kroeber 1963), but these discussions did not stimulate comparable empirical attention. A few anthropologists followed Malinowski's lead and evaluated his theory among ocean fishers (Mullen 1969; Poggie et al. 1976),³ but anthropological research quantitatively testing Malinowski's

theory of magic appears to have ceased by the late 1970s with George Gmelch's well-known studies among baseball players (Gmelch 1971) and test-taking students (Felson and Gmelch 1979).⁴ Malinowski's approach to magic fell into disfavor among anthropologists even though many studies, including those by Gmelch and John Poggie, were consistent with his theory.

Interest in Malinowski's theory of magic waned in anthropology in part because of his functionalist theoretical approach (Malinowski 1944). Functionalist theories characterize societies as closed systems that cannot function without the parts that comprise them (Aberle et al. 1950; Brown 1966). Malinowski (1948) assumed that magic emerges in societies because of its functional benefits; it enables individuals to cope with the uncertainty inherent in many aspects of life including resource acquisition, disease, and environmental disasters. But like other functionalist theories, Malinowski's formulation is tautologous and thus impossible to test.⁵ As Jane Collier and colleagues summarize: "The flaw in Malinowski's argument is the flaw common to all functionalist arguments: Because a social institution is observed to perform a necessary function does not mean either that the function would not be performed if the institution did not exist or that the function is responsible for the existence of the institution" (1997:73).

In returning to Malinowski's theory of magic, we are not endorsing his functionalist views, but we do maintain that Malinowski offered some powerful insights about magic that remain salient even after the functionalist veil on his theory of magic is lifted. Specifically, Malinowski correctly observed that magical rituals have effects on the internal states of individuals. Focusing on these effects, an increasing number of psychologists have recently engaged Malinowski's ideas, which they have dubbed the "uncertainty hypothesis" (Burger and Lynn 2005; Wright and Erdal 2008). The uncertainty hypothesis posits that magical rituals increase performers' sense of control, which reduces anxiety and allows individuals to cope with their unpredictable conditions and successfully perform the high-risk tasks they face. Psychologists have actively explored the emergence of magical rituals and beliefs among diverse populations facing uncontrollable conditions, including gamblers (Bersabé and Martínez Arias 2000); consumers in the marketplace (Block and Kramer 2009; Kramer and Block 2008); test-taking students (Rudski and Edwards 2007); targets of warfare (Keinan 1994, 2002); puzzle solvers (Dudley 1999); golfers (Damisch et al. 2010; Wright and Erdal 2008); baseball players (Burger and Lynn 2005); track and field athletes (Todd and Brown 2003); and various other athletes (Bleak and Frederick 1998; Schippers and Van Lange 2006; Womack 1992).

Psychologists have also explored the emergence of ritual under uncertain conditions in nonhuman animals, and some anthropologists (e.g., Gmelch 1992) have turned toward these studies, and the behaviorist approach (Skinner 1953) that motivated them, to understand how magical rituals stabilize once they emerge. In a classic report, B. F.

Skinner (1948) described the results of an experiment in which pigeons developed ritualized responses to an unpredictable feeding schedule. Although Skinner's interpretations of his findings have been challenged (Timberlake and Lucas 1985), similar results have been obtained under analogous experimental conditions in other organisms (Anderson and Shettleworth 1977; Pisacreta 1998; Reberg et al. 1977; Staddon and Ayres 1975), including human adults and children (Heltzer and Vyse 1994; Ono 1987). For example, in a study in which a mechanical clown dispersed marbles according to an unpredictable schedule, 75 percent of the three- to six-year-old children in the study developed magical responses aimed at securing more marbles (Wagner and Morris 1987). Recent evolutionary models suggest that such magical behaviors are an inevitable feature of adaptive behavior in all organisms (Beck and Forstmeier 2007; Foster and Kokko 2009).

The uncertainty hypothesis claims that magical ritual increases one's sense of control, but surprisingly, how this precisely occurs has been left unspecified in the literature. We suspect that because rituals consist of a predictable sequence of actions, individuals perceive having control when performing them. Rituals are easily linked to magical beliefs because actions ordinarily have effects on one's environment. Therefore, humans expect ritual behaviors to do something as well, but because they generally do not, magical beliefs are able to fulfill that cognitive expectation (McCauley and Lawson 2002; Sørensen 2007b). The inherent sense of control that emerges from repetitive fixed-action patterns makes rituals particularly receptive to associated magical beliefs about the power of ritual performance to influence social and environmental conditions (Rappaport 1999). As anticipated by the uncertainty hypothesis, research has demonstrated that a desire for control is an important motivation for magical behaviors (Bersabé and Martínez Arias 2000; Keinan 2002). Moreover, a recent series of experiments has shown that lack of control plays a critical role in the emergence of magical beliefs and perceptions of illusory patterns (Whitson and Galinsky 2008).⁶ In one experiment, merely recalling situations where one lacked control increased magical beliefs. Jennifer Whitson and Adam Galinsky also demonstrated that threat without the lack of control did not produce these effects. The authors argue that a sense of control is essential for psychological well-being and that when individuals lack control magical behaviors and beliefs emerge because they restore this apparently vital sense of control. The benefits of increased sense of control include increased optimism and enhanced confidence, both of which have been shown to improve task performance (Bandura 1997). The underlying physiological and psychological processes remain obscure, but Whitson and Galinsky speculate that illusions of control may "decreas[e] depression and learned helplessness, creating confidence, and increasing agency" (2008:117).

Most research exploring the emergence of magical behaviors and beliefs has been supportive or consistent with the uncertainty hypothesis. Yet despite receiving considerable

scholarly attention, significant gaps remain in our understanding of why humans turn toward magical ritual in times of stress, the types of stress that elicit ritual responses, the conditions under which ritual coping is efficacious, and the possible psychological and physiological mechanisms by which ritual could be efficacious (Boyer and Liénard 2007, 2008; Liénard and Boyer 2006). Here we aim to advance research in this area by extending previous studies conducted in Tzfat, Israel (Sosis 2007, 2008), that examined the efficacy of psalm recitation in helping Israeli women cope with the stress of terror.⁷ This work showed that psalm recitation was the most commonly employed magicoreligious coping practice during the Second Intifada and was believed to have the greatest efficacy in protecting one from attack and improving the political situation. Consistent with the uncertainty hypothesis, results demonstrated that psalm recitation was associated with success in coping with the stress of the Second Intifada. During the Second Intifada many Israelis altered their daily behavioral patterns in response to the threat of terror, such as reducing bus travel and avoiding large gatherings (Klar et al. 2002). Psalm recitation, though, was associated with less change in daily routines and also less caution after an attack. In other words, women who regularly recited psalms were apparently better able to cope with the uncertain conditions of the Second Intifada and carry on with their normal lives. However, this research did not systematically measure stress levels among participants and thus was unable to determine whether the relationship between psalm recitation and coping was related to a reduction in anxiety among women reciting psalms. Here we use data collected among Israeli women during the 2006 Lebanon War to specifically examine the conditions under which psalm recitation reduces anxiety.

We argue that the uncontrollability of conditions is a crucial factor in determining whether or not magical rituals reduce anxiety. Humans do not respond to all forms of stress with magical responses, presumably because some stress is elicited by conditions that appropriate action can rectify. Magical rituals are anticipated to emerge under conditions in which one lacks control and instrumental responses are limited. Richard Lazarus and Susan Folkman (1984) examined two types of coping: *active coping*, which involves solving stress-related problems by removing stressors, and *palliative coping*, which aims to regulate or reduce the emotional stress resulting from stressors.⁸ These researchers found that when action can result in productive outcomes people tend to employ active coping strategies and when conditions are uncontrollable people rely on palliative coping strategies (see also Case et al. 2004).

This typology, however, fails to capture the abundant magical rituals described throughout the ethnographic literature, including psalm recitation, that are believed to protect performers from dangers such as warfare, voyages, sorcery, and disease (e.g., Dow 1986; Evans-Pritchard 1929; Tambiah 1968; Tomlinson 2004). Psalm recitation presumably reduces emotional stress (as we demonstrate below) and

thus can be considered a form of palliative coping. However, as the quote by which we began this article amusingly reveals, psalm recitation is also believed by performers to be a form of active coping; in other words, psalm recitation can remove stressors by changing social, political, economic, and environmental conditions. Indeed, previous results from the Second Intifada (Sosis 2007) found that 77.8 percent of self-defined religious interviewees ($n = 270$) strongly agreed (rated 1 on a ten-point scale) with the statement “reciting psalms can improve the situation [of the Intifada]” and 68.7 percent strongly believed that “reciting psalms can protect one from an attack.” Moreover, psalm recitation was believed to have much greater efficacy than government actions in improving the conditions of the Second Intifada. We suggest that psalm recitation is an effective means of palliative coping precisely because it is believed to have instrumental power and offer control over otherwise uncontrollable conditions. However, we do not anticipate that psalms, or any magical ritual, will be an effective coping strategy when stressors can be eliminated through instrumental means. Indeed, when confronting predictable stressors that can be eliminated by one’s actions, magical rituals are likely to be cognitively and emotionally unsatisfying if employed in lieu of instrumental behaviors because their performance entails costs that reduce time and energy budgets available to pursue the instrumental behaviors that could eliminate the stressors.

There is a vast and impressive psychological literature examining religious coping strategies (Ano and Vasconcelles 2005; Pargament 1997), including coping with the stress of war (Pargament et al. 1994; Zeidner and Hammer 1992). This work, however, is rarely informed by anthropological models or data. And although there is a sizable experimental literature in psychology testing aspects of the uncertainty hypothesis, there is a qualitative difference between experimentally induced magical rituals and ones that occur in natural settings (Rudski 2001). The religious coping and psychology of magic literatures would both benefit from the ethnographic work of anthropologists (e.g., Steffen et al. 2005) that can provide a more nuanced depiction and assessment of human life that is typically lacking in these literatures, especially among laboratory studies. In turn, the multidisciplinary nature of anthropology is ripe to incorporate the findings of these literatures into new and testable models and to initiate collaborative interdisciplinary interactions on the nature of magical rituals and beliefs.

Using data collected during the 2006 Lebanon War, here we aim to advance these goals by examining the conditions under which magical rituals can serve as a buffer against stress. As we show below, during the 2006 Lebanon War religious Israeli women from Tzfat all faced stressful conditions, and much of this stress was a consequence of the unpredictability of their circumstances. However, the types of stress women encountered largely depended on where they spent the war. Women who remained in Tzfat during the war were primarily concerned with the unpredictable and uncontrollable Katyusha attacks, whereas women who

left Tzfat and relocated to central Israel were dealing with the more predictable and mundane stressors of relocation. We compare the efficacy of psalm recitation under these different conditions and hypothesize that psalms will have greater efficacy (i.e., reduce anxiety) among women who remained in Tzfat than women who relocated to the center of Israel. To evaluate this hypothesis, we (1) analyze the determinants of relocating during the war, (2) document the types of stressors that women faced during the war, (3) examine the demographic and experiential determinants of psalm recitation, and (4) evaluate whether psalm recitation lowers anxiety under varying conditions.

METHODS

Study Site and Population

Tzfat is located in the Galilee region of northern Israel and has a population of over 30,000 residents. It is recognized as the home of Jewish mysticism and maintains an eclectic mix of secular and religious Jews who peacefully coexist. Not only has Tzfat's scenic and remote setting inspired kabbalists but also artists have been attracted to the area, and an artist colony, which is where the first author resided during his fieldwork, has flourished there since 1949.

During the 2006 Lebanon War (July 12–August 14), Tzfat was one of the first places attacked and was subsequently regularly targeted; on most days, dozens of Katyusha rockets landed in Tzfat and the surrounding area.⁹ Sirens provided warning when rockets were en route, and most residents who remained in Tzfat would take refuge in bomb shelters on hearing the sirens. The timing of the attacks was often predictable, whereas the location, even for those launching the Katyushas, was unpredictable.

It has been estimated that over 450,000 Israelis were evacuated from northern Israel during the war (over 900,000 southern Lebanese were displaced) and nearly 3,000 Israelis were treated for shock (Israel Ministry of Foreign Affairs n.d.). Those who left Tzfat primarily settled in central Israel, out of reach of the Katyusha rockets. They stayed with friends or family or in public spaces, including schools, dormitories, and community centers. Thousands of northern residents also stayed on Israeli coastal beaches in tent cities funded by a wealthy Russian immigrant. Most interviewees who ultimately left Tzfat did so during the first week of the war (mean number of days from first attack until departure = 5.0, $SD = 2.9$, $n = 82$).

To cope with the stress of the war, women engaged in a variety of magicoreligious practices, including carrying the picture of a holy person, checking for errors in the parchment of their *mezuzot* (biblical verses hung on a doorframe), increasing Torah study, and increasing the performance of mitzvot generally. When asked by the lead author why they were engaging in a particular practice, many women expressed sentiments similar to the quote that opened the article: they felt compelled to do something.¹⁰ As one woman rhetorically responded, “Could I really do nothing?” (conversation with author, August 30, 2006). The compulsion

that many women felt “to do something” most often resulted in the recitation of psalms.

Psalm Recitation

Although reciting psalms is not mandated by Jewish law, many religious Jews regularly do so as a daily spiritual practice, and the Book of Psalms has deep resonance even among secular Jews.¹¹ Indeed, the lead author's initial interest in psalm recitation emerged from a conversation with a secular Israeli cab driver who kept the Book of Psalms on his dashboard as protection while driving through dangerous areas. Although the Talmud (e.g., *Shevuot* 15b) provides evidence that Jews have been reciting psalms for protection for much of their history, it appears that it was not until the Middle Ages, under the influence of the kabbalists from Tzfat, that it was considered meritorious to recite the entire Book of Psalms (Wertheim 1992). Although many rabbis encourage their followers to regularly recite psalms, there is some debate among rabbinic sources concerning the legitimacy of psalm recitation under certain conditions.¹² There are strong prohibitions in Judaism against the practice of magic, and Talmudic (*Shevuot* 15b) and later rabbinic authorities (Maimonides, *Avodat Kochavim* 11:12; *Shulchan Aruch Y.D.* 179:8) forbid Jews from using psalms and other verses of Torah to magically heal oneself.¹³ Jewish law (*halachah*) permits the recitation of psalms as protection, but once a person is injured it is not permitted to recite psalms as an incantation for a cure.¹⁴

Psalms are recited by Jews throughout the world, but it is more common among Israeli than U.S. Jews, and women recite psalms more frequently than men. As one woman proclaimed during an interview, “Men have their *tzitzit* [ritual fringes on four cornered garments] and *tefillin* [phylacteries] for protection; we have psalms” (interview, January 8, 2003). Women recite psalms at any time in any place: waiting for an appointment, on a bus, watching children at a playground, at a graveside, in one's home, et cetera. Occasionally women will organize themselves to recite psalms in the company of other women in a park, home, or community center, but even during such gatherings psalms are recited individually. It was not uncommon during the 2006 Lebanon War, as the well the Intifadas, for religious women to ensure that the entire Book of Psalms (150 psalms) was read daily, or even three times daily, by assigning women five or more psalms to read every day. Psalms are typically chanted quietly but are at least audible to the woman reciting them. Psalm recitation is not accompanied by formalized body movements such as bowing, but women often rock back and forth gently (*shokel*) while reciting psalms, as is common among Orthodox Jews during prayer. This swaying is environmentally contingent, being less common in a bus or waiting room than a place with religious meaning, such as a gravesite or the Western Wall.

The Book of Psalms is read by Jews when they wish to reach out to God, in times of danger as well as joy (Telushkin 1991). The poems capture a range of basic emotions, and

their personal nature has made them enduring and meaningful to Jews and non-Jews alike. The psalms were composed in Hebrew, but the Hebrew is quite challenging for Israelis who have not studied the psalms in detail. Indeed, in Israel the Book of Psalms is often found with Modern Hebrew translations accompanying the original text. Many women commented that although they read psalms daily, they do not necessarily understand every word they are reciting.¹⁵ One woman noted, “I have a sense of what each psalm is about, and this message is what engages me when I am reciting the words” (conversation with author, August 21, 2006). There are lists, sometimes printed on the inside cover, that indicate which psalms are appropriately recited for particular situations, such as on traveling, depression, healing, birth of a child, livelihood, peace, finding a mate, and countless other situations in which one might wish to either beseech or thank God. But women reciting psalms in response to the war did not restrict themselves to reciting psalms recommended for protection. When asked by the lead author why they did not simply recite psalms for protection from danger, such as Psalm 20, one woman captured a common sentiment: “I don’t think what I’m saying matters. I feel comfort in reciting words that are familiar to me and comfort in just holding my [book of] psalms” (conversation with author, August 21, 2006). Others commented that the particular psalms they were reciting was less important for them than the sense of power and community they felt knowing that other women were reciting psalms as well.

Data Collection

This research emerges from continuing fieldwork in Tzfat, Israel, initiated in 2002, that focuses on the relationships between religious practice, identity, and violence. The data reported here were collected during a field session from May 2005 to September 2006. As in previous work on ritual responses to terror conducted in Tzfat, this study focuses on women (see Sosis 2007 for rationale). However, in contrast to previous work, interviews were conducted only among those who self-identified as Orthodox Jews. A total of 115 protocol-based interviews were conducted between August 1 and August 13 by two female research assistants. Data were collected in the middle of a war of uncertain length, and data collection strategies reflect this reality. Convenience and snowball sampling were employed (Handwerker 2001), and interviews were conducted in person and by telephone.¹⁶ One interviewer remained in Tzfat during the war, and the other relocated to the center of Israel, but both interviewed women from both locations. Precisely how many residents left Tzfat during the war is unknown, but those who remained are likely overrepresented in our sample. Immigrants were also oversampled as it was assumed that they would respond to the conditions of war with greater anxiety than individuals born in Israel and raised under conditions of threat and war. All interviewees were residents of Tzfat for at least one year.

Anxiety Scale

To measure anxiety, we appropriated Donald Berwick and colleagues’ (1991) mood-disorder scale (see Handwerker 1999). Interviewees were asked: “Since the beginning of the war, how often have you . . .” followed by nine questions about their emotional state, such as “felt nervous; gotten angry quickly; had difficulty falling asleep at night” and so forth (see Appendix). Responses were elicited on a five-point scale (none, rarely, sometimes, regularly, and all the time). Factor analyses indicate that responses are highly clustered (single factor $\alpha = 0.85$). We constructed the anxiety scores used in our analyses from the standardized factor scores (mean = 0, $SD = 1$) so that positive scores are above the mean (high anxiety) and negative scores are below the mean (low anxiety).

RESULTS

The independent variables used in the analyses are presented in Table 1. Seventy-one percent of the sample left Tzfat during the war. Sixty-three percent of the women in our sample recited psalms daily in response to the war. Women expressed five primary motivations for reciting psalms: (1) end the war (and prevent the war from escalating to other regions), (2) end the rockets, (3) provide protection from rockets, (4) preserve the safety of everyone (except Hizbollah fighters), and (5) ensure that the IDF successfully accomplished its mission. Many women were internally conflicted because, as they recognized, some of their wishes were incompatible: for example, on the one hand, they wanted the war to end immediately and for their lives to return to normal; on the other hand, they did not want the war to end until the IDF removed Hizbollah from southern Lebanon, which they acknowledged would take time.

Stressors

Interviewees were asked “what has been most stressful since the beginning of the war?” and instructed to list up to three items. Responses that occurred more than three times are listed in Table 2. Although those who left Tzfat and those who remained listed many of the same stressors, there are some important differences in the stressors they experienced. Of those who remained in Tzfat, 75.8 percent listed concerns about damage to property as one of their most significant sources of anxiety, whereas among those who left Tzfat only 11.0 percent expressed concerns about property damage. Those who remained were also more likely to be concerned about the loudness of the sirens, conditions of the bomb shelters, and government incompetence. In contrast, 81.7 percent of those who left Tzfat listed at least one challenge of displacement—childcare or keeping children occupied, lack of schedule, not having their own things, imposing on others—among their primary stressors.

Remaining in Tzfat

There are only two significant determinants of whether or not one remained in Tzfat (all other variables tested were

TABLE 1. Variables Used in Analyses

	Variable/coding schema	Mean	Standard deviation	Percent
<i>Demographic</i>				
1	age (18–61)	44.27	10.01	–
2	currently married (0/1)	0.76	0.43	–
3	total fertility	3.79	2.77	–
4	number of children living at home (0–9)	2.77	2.36	–
5	children currently serving in IDF (0/1)	0.11	0.35	–
6	monthly income	2.11	0.72	–
	1 = ≤3000 NIS ^a	–	–	20.9
	2 = 3001–5000 NIS	–	–	47.0
	3 = >5000 NIS	–	–	32.1
7	born outside of Israel (0/1)	0.72	0.45	–
8	years lived in Tzfat (1–50)	14.47	9.86	–
9	religious self-identification	2.29	0.77	–
	1 = Ultra-Orthodox (<i>Haredi</i>)	–	–	19.1
	2 = Modern Orthodox (<i>Dati Leumi</i>)	–	–	33.0
	3 = other Orthodox	–	–	47.8
10	raised in religious household (0/1)	0.72	0.45	–
11	politically leftwing/rightwing (0/1)	0.92	0.27	–
<i>Experience and Expectations</i>				
12	income decreased during war (0/1)	0.66	0.48	–
13	expect income decrease after war (0/1)	0.23	0.47	–
14	expect to know someone killed (1–7)	3.98	1.72	–
15	expect house to be hit by rocket (1–7)	3.71	1.59	–
<i>Response</i>				
16	reciting psalms (0/1)	0.63	0.48	–
17	left Tzfat (0/1)	0.71	0.45	–
18	displacement location (n = 82)			
	1 = friends or family	–	–	52.4
	2 = public space	–	–	47.6

^aAt the time of the research 1 U.S. dollar equaled approximately 4.5 New Israeli Shekels (NIS).

not significant). First, monthly income is negatively related to the likelihood that one remained in Tzfat ($n = 115$, $df = 1$, $b = -1.35$, $p < .0001$). Poorer women presumably had greater difficulty incurring the expenses of displacement. Second, the number of children living at home was a significant predictor of whether one remained in Tzfat ($n = 115$, $df = 1$, $b = -0.69$, $p < .0001$). Of women with zero or one child living at home, 72.5 percent (29/40) remained in Tzfat, whereas there were no families in the sample with between two and five children living at home who remained in the area, and only 26.7 percent (4/15) of those with more than five children remained. During interviews, women who left Tzfat frequently noted that they left because the rockets and sirens were terrifying for their children.

Psalm Recitation

The regression models in Table 3 indicate that most demographic (Model 1) and experiential (Model 2) variables are not significant predictors of whether a woman was reciting psalms in response to the war. The rates of psalm recitation among those who left Tzfat (52 of 82) and those who remained (21 of 33) are virtually identical. Models 1 and 3 indicate that those born in Israel are more likely to recite psalms, which is consistent with general ethnographic observations that psalm recitation is much more prevalent as a spiritual practice among Israeli Jews than Diaspora Jews. Ultra-Orthodox women are more likely to recite psalms than other Orthodox women, and monthly income is positively correlated with likelihood of psalm recitation. Models 2 and 3 indicate that the likelihood of reciting psalms in

TABLE 2. *Self-Identified Causes of Stress during 2006 Lebanon War*

<i>Self-Identified Causes of Stress</i>	<i>Total</i>		<i>Remained in Tzfat (n = 33)</i>		<i>Left Tzfat (n = 82)</i>		<i>Pearson chi-square/ Fisher's Exact Test</i>
	<i>Frequency</i>	<i>Percent</i>	<i>Frequency</i>	<i>Percent</i>	<i>Frequency</i>	<i>Percent</i>	
safety of friends and family	40	34.8	11	33.3	29	35.4	0.06
uncertainty about everything	37	32.2	13	39.4	24	29.3	1.12
fear of property destruction	34	29.6	25	75.8	9	11.0	47.42***
childcare/occupying children	29	25.2	3	9.1	26	31.7	6.39***
lack of schedule	28	24.3	2	6.1	26	31.7	8.40***
not having one's own things	25	21.7	0	0.0	25	30.5	12.86***
always imposing on others	25	21.7	0	0.0	25	30.5	12.86***
finances	19	16.5	5	15.2	14	17.1	0.06
feeling trapped	16	13.9	6	18.2	10	12.2	0.70
uncertainty about when war will end	14	12.2	5	15.2	9	11.0	0.38
learning about deaths	13	11.3	5	15.2	8	9.8	0.68
government incompetence	13	11.3	7	21.2	6	7.3	4.53**
not working	12	10.4	2	6.1	10	12.2	0.95
concern for future of Israel	11	9.6	2	6.1	9	11.0	0.66
loudness of warning sirens	11	9.6	6	18.2	5	6.1	3.97**
poor conditions of bomb shelters	4	3.5	4	12.1	0	0.0	10.30***
<i>total responses</i>	331		96		235		

p* < .10; *p* < .05; ****p* < .01.

TABLE 3. *Logistic Regression Analyses of the Probability of Reciting Psalms*

<i>Independent variable</i>	1	2	3
	<i>Parameter estimate (standard error)</i>	<i>Parameter estimate (standard error)</i>	<i>Parameter estimate (standard error)</i>
intercept	3.39 (1.98)	-0.743 (1.184)	-0.03 (1.19)
age	-0.01 (0.03)	-	-
born outside of Israel	-0.86 (0.39)**	-	-0.76 (0.31)**
married	-0.57 (0.49)	-	-
number of children living at home	0.03 (0.12)	-	-
leftwing or rightwing	-1.31 (0.85)	-	-
religiosity	-0.91 (0.36)**	-	-0.71 (0.31)**
raised in religious household	0.71 (0.62)	-	-
income	1.02 (0.45)**	-	0.72 (0.35)**
income decreased during war	-	-0.35 (0.52)	-
left Tzfat	-	-0.36 (0.55)	-
children in IDF	-	-0.92 (0.62)	-
expect future income decrease	-	0.34 (0.49)	-
expect house to be hit	-	0.51 (0.18)***	0.32 (0.15)**
expect to know someone killed	-	-0.18 (0.15)	-
<i>N</i>	113	113	113
Full model chi-square	24.97***	10.68*	24.00***

Note. Dashes represent variables not included in this table.

p* < .10; *p* < .05; ****p* < .01.

TABLE 4. Analysis of Variance Models of Anxiety Scores

Independent variable	1	2	3	4	5	6	7
	<i>F</i> -ratio	<i>F</i> -ratio	<i>F</i> -ratio	<i>F</i> -ratio	<i>F</i> -ratio	<i>F</i> -ratio	<i>F</i> -ratio
age	0.50	—	—	—	—	—	—
married	0.17	—	—	—	—	—	—
born outside of Israel	1.02	—	—	—	—	—	—
number of children living at home	1.52	—	—	—	—	—	—
children in IDF	0.58	—	—	—	—	—	—
leftwing or rightwing	0.50	—	—	—	—	—	—
religiosity	0.24	—	—	—	—	—	—
raised in religious household	0.30	—	—	—	—	—	—
years lived in Tzfat	15.68***	—	14.03***	14.55***	—	12.44***	11.89***
monthly income	13.44***	—	10.13***	13.22***	—	13.65***	15.40***
income decreased during war	5.63**	—	6.45***	12.85***	—	12.15***	12.90***
expect future income decrease	0.00	—	—	—	—	—	—
expect to know someone killed	0.31	—	—	—	—	—	—
expect house to be hit	0.14	—	—	—	0.78	0.77	0.58
reciting psalms	8.12***	13.94***	—	20.82***	9.81***	13.07***	5.44**
remained in Tzfat	0.24	8.66***	0.20	0.37	0.39	1.35	4.39**
psalm recitation * remained in Tzfat	—	9.28***	—	8.44***	9.74***	9.54***	—
psalm recitation * house hit	—	—	—	—	2.01	1.99	—
remain in Tzfat * house hit	—	—	—	—	1.08	0.90	—
psalm recitation * remain in Tzfat * house hit	—	—	—	—	3.45*	3.42*	11.79***
<i>n</i>	111	115	113	113	115	113	113
<i>r</i> ²	0.40	0.22	0.28	0.41	0.26	0.43	0.43

Note. Dashes represent variables not included in this table.

p* < .10; *p* < .05; ****p* < .01.

response to the war is higher among those who expect that their house will be hit by a Katyusha rocket.

Anxiety

Despite being further from the warzone, those who left Tzfat had significantly higher anxiety scores than those who remained in Tzfat ($F_{1,113} = 29.00, p < .0001$). There is no significant difference in anxiety levels between those who stayed with family or friends and those who stayed in public spaces ($F_{1,80} = 1.17, p = .283$). In Table 4, we control for other possible effects on anxiety and offer various models to demonstrate the robustness of the results. Model 1 indicates that those who had higher incomes, experienced a decrease in income because of the war, and spent fewer years living in Tzfat scored higher on the anxiety scale. Notice that where one experienced the war is not significant in Model 1 (or Models 3–6) because whether or not one stayed in Tzfat is highly correlated with income and experiencing an income loss (those who left were more likely to experience a loss because of a cessation of work). Women reciting psalms during the war scored significantly lower on the anxiety

scale than women not reciting psalms (see Table 4, Model 1). However, the efficacy of psalm recitation is highly dependent on where one experienced the war. Psalms had no effect on the anxiety of those who left Tzfat but had a significant effect on those who remained (see Table 4, Models 2 and 4; see also Figure 1). This effect is at least partially driven by concerns for one's house or apartment. Among those who remained in Tzfat and believed their home would be hit by a rocket, psalms had a significant effect on lowering their anxiety. No such effects were found among those who left Tzfat (see Table 4, Models 5–7; see also Figure 2).

DISCUSSION

The above analyses indicate significant differences in characteristics and experiences between women who remained in Tzfat during the war and those who relocated to central Israel. Women who remained in Tzfat were poorer, had fewer children, and were less likely to experience a loss in income than women who relocated. Women who remained in Tzfat and those who left expressed equal concern about the safety of friends and family, finances, and the

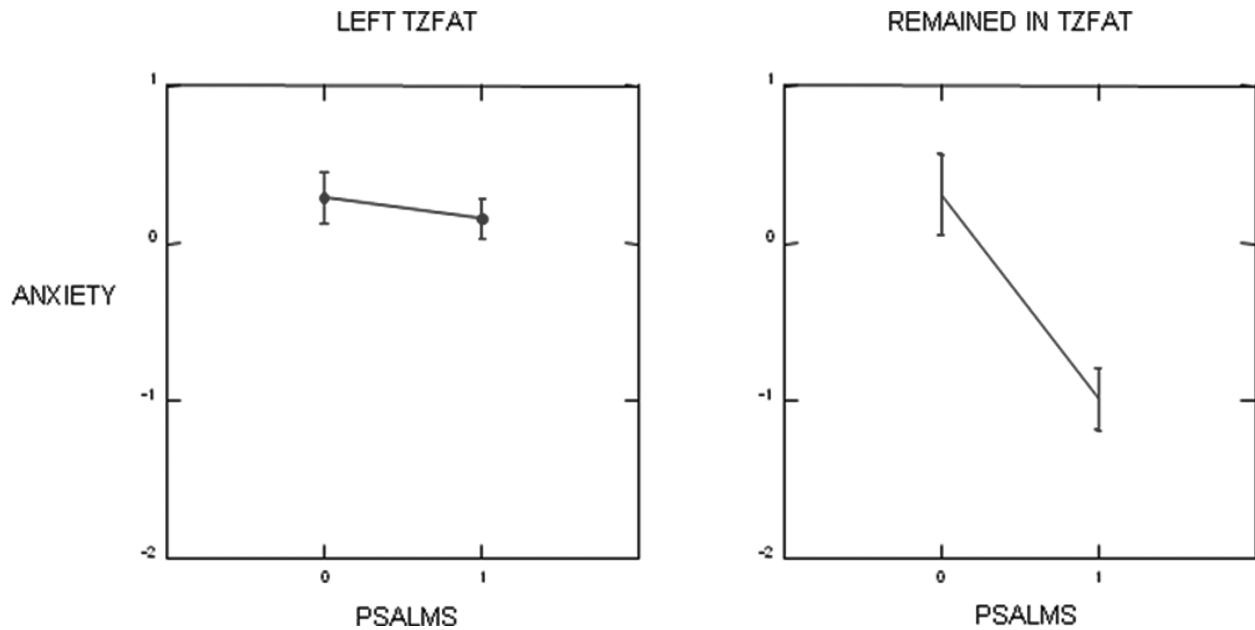


FIGURE 1. Anxiety scores of women who left Tzfat and remained in Tzfat during the 2006 Lebanon War by psalm recitation.

overall uncertainty of everything during the war. However, women who remained in Tzfat were much more stressed about the potential destruction of their property, whereas women who left Tzfat were much more stressed about issues related to their relocation, such as occupying their children, imposing on others, lacking a schedule, and not having their own things. The significant difference in concern over the destruction of one's property is not surprising; women who remained in Tzfat directly experienced the destruction of daily Katyusha attacks, and their lives during the war revolved around the timing and location of attacks. Despite the differences between those who left and stayed when asked to list their primary stressors, when asked directly about the likelihood of one's house being hit by a Katyusha, there were no significant differences among these two groups ($F_{1,113} = 0.34, p = .56$). Moreover, there is no relationship between belief that one's house will be hit and indicating property destruction as a major stressor ($F_{1,113} = 0.45, p = .50$). Nor is there a significant interaction between whether one stayed or left Tzfat during the war and indicating property destruction as a major stressor ($F_{3,111} = 0.94, p = .34$). In other words, regardless of where they spent the war, women assessed the risk of property destruction equally, but for relocated women this risk was not a primary stressor as their immediate concerns of dislocation took priority.

Interviewees who were Ultra-Orthodox, born in Israel, and had higher incomes were more likely to recite psalms. It is not clear to us why those with higher incomes were more likely to recite psalms, but the effect is robust to all models examined. There was no difference in the rates of psalm recitation among those who left Tzfat versus those who stayed, and the only significant predictor of psalm recitation among experiential variables was that those who believed their house would be hit were more likely to recite psalms.

Women who left Tzfat scored higher on the anxiety scale than women who stayed in Tzfat. This finding remains significant when controlling for income ($F_{2,112} = 5.14, p = .025$) but not when income loss is included in the model ($F_{3,109} = 0.19, p = .67$). Psalm recitation was negatively related to anxiety, but this was highly dependent on location during the war. Psalms were efficacious for women who remained in Tzfat and believed their house would hit by a rocket, whereas psalms were unrelated to anxiety levels among women who left Tzfat, regardless of their expectation about the destruction of their house.

Consistent with Malinowski's original claims, these results suggest that psalms can reduce anxiety when stressors are unpredictable and uncontrollable. However, psalm recitation does not reduce anxiety when stressors are predictable and controllable. Reciting psalms (it is believed) can protect your house from destruction by a Katyusha, but psalms cannot make the floor space your family is sleeping on grow larger, keep your children busy, or make your belongings suddenly appear in your new residence. These are all stressors that require action to resolve (again moving one's family, enrolling the kids in camp, collecting possessions from the north). There are no actions, however, that could reliably protect one's house from Katyushas. Thus, without instrumental alternatives, psalm recitation is an effective coping strategy, apparently offering a sense of control in otherwise uncontrollable conditions.

Studies on the efficacy of religious ritual in times of crisis have notoriously produced mixed results. In a comprehensive survey, Kenneth Pargament (1997) found that 40 percent of the studies examined reported rituals to be helpful in times of crisis and 23 percent reported that rituals decreased participants' ability to cope. Some of the variance is probably a result of differences in the rituals studied,

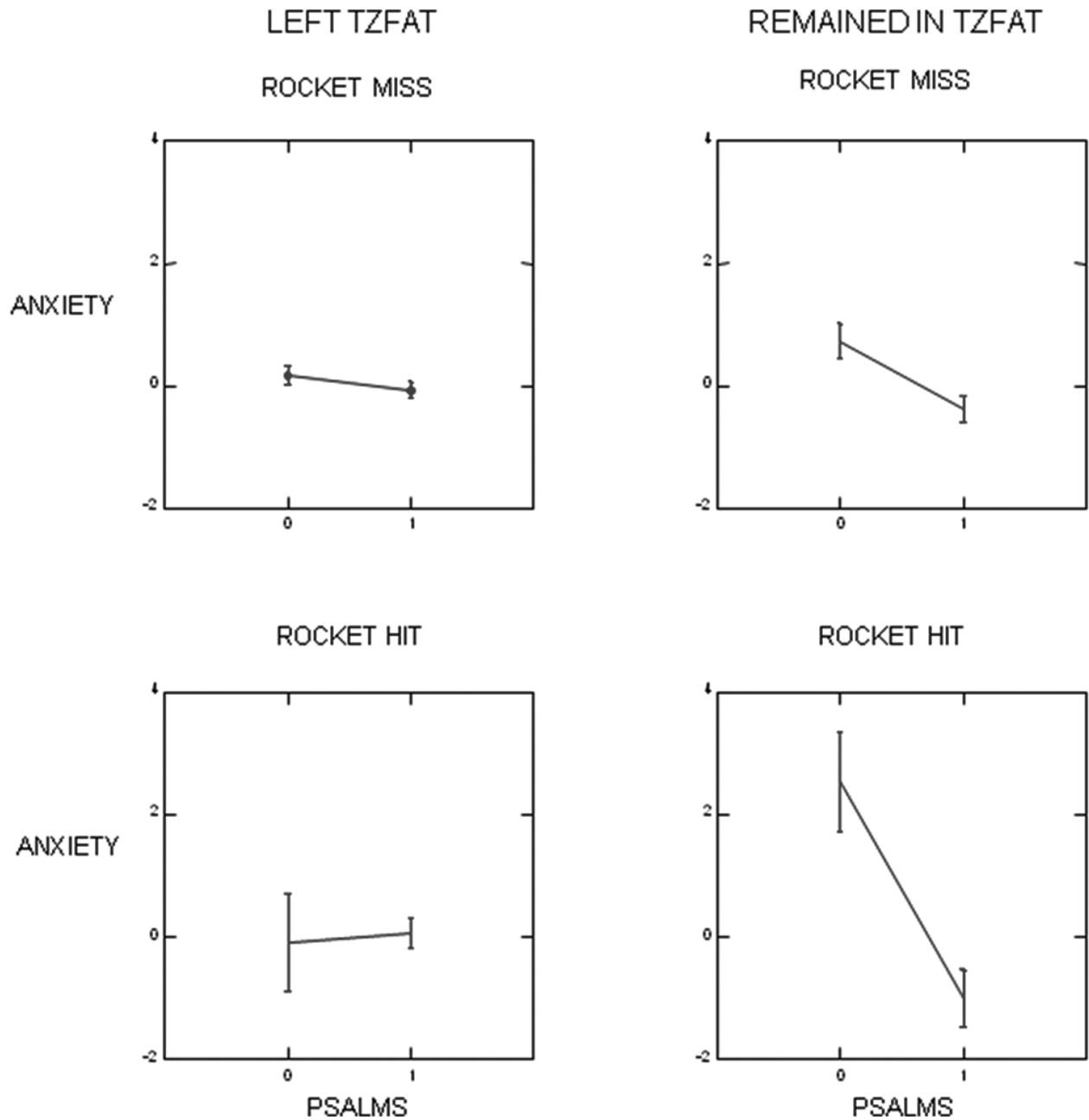


FIGURE 2. Anxiety scores of women who left Tzfat and remained in Tzfat during the 2006 Lebanon War by psalm recitation and dichotomous belief that house will be hit by a Katyusha rocket (responses 1–5 = rocket miss; 6–7 = rocket hit).

religiosity of populations, and intensity of the crises. And some variance is of course a consequence of methodological differences across studies. But our results here suggest another possibility: the uncontrollability of stressors may be a vital factor in determining the efficacy of a ritual coping strategy. Future studies on ritual coping must closely examine the types of stressors that individuals face.

It is clear that not all religious responses to crises are efficacious, and in a subsequent report we examine less successful religious responses to the war among Tzfat women. In an extensive study on the coping strategies of Israelis during the 1990 Gulf War, Moshe Zeidner and Allen Hammer

(1992) found that increased religious involvement during missile attacks was associated with increased anxiety. Unfortunately, religious coping was not the main focus of the study, and data were not collected on the types of increased religious involvement that occurred during the war, thus it is difficult to directly compare their findings to the present study. Also, in contrast to the present study, which focused on Orthodox Jews for whom a turn to religious practice in times of crisis simply entailed adding a familiar behavior to their normal religious routines, Zeidner and Hammer's interviewees were primarily secular: for them, a turn toward religious practice entailed a categorical shift in behavior.

Both studies rely on cross-sectional designs, thus neither demonstrates any causal relationships between religious responses and anxiety. It is very likely that crises such as war mobilize magical and religious coping strategies, and thus one would expect a positive correlation between anxiety and ritual activity (Pargament 1997). One might also observe such a relationship if rituals are mobilized under crisis conditions in which active coping strategies would still be effective. In other words, if a palliative coping strategy such as prayer is employed instead of action when appropriate action could eliminate or reduce stressors, relying on palliative coping may actually increase stress. Moreover, as Zeidner and Hammer (1992) note, if there is a delay in the efficacy of the ritual coping strategy, this will only be uncovered in a longitudinal study. When the relationship between ritual activity and anxiety is negative, as in the current study among those who remained in Tzfat, the interpretation is more straightforward. Because stressors probably do mobilize ritual activity, as Malinowski maintained (1948:79), a negative relationship suggests that the rituals are actually reducing anxiety. The alternative interpretation—that those who are less stressed more frequently choose to recite psalms—is of course possible, but it is not clear why this would occur.

Future work must assess what role the various elements of psalm recitation play in its efficacy. A promising avenue for investigation concerns the magical power of words (Tambiah 1968). Malinowski (1935) and others (e.g., Evans-Pritchard 1929; Leach 1966), observed that rituals consist of both actions and words. Malinowski's analysis of Trobriand rites emphasized how ritual speech, if properly performed, has a creative power that can bless, curse, and influence the course of events. Stanley Jeyaraja Tambiah (1990:80) credits Malinowski with anticipating "the notions of performative speech expounded by Austin and other linguistic philosophers" that are fundamental to many subsequent anthropological theories of ritual (e.g., Rappaport 1999). Judaism attributes great significance to the power of words and speech, and prayer in particular maintains a unique status in Jewish life (Dein 2002). As one interviewee stated: "We have an army now, but for most of our history our prayers were our defense and our weapons" (interview, August 6, 2006). It will be important to examine how the ritual speech of psalm recitation imbues performers with not only a sense of control but also a sense that their actions are protecting themselves and others.

CONCLUSION

Jesper Sørensen observes that, "throughout his extensive publications, Malinowski repeatedly discussed the relation between human biology, psychology, and cultural forms, and he persistently argued for a scientific approach to cultural phenomena taking all these levels into account" (2007c:81). Here we have sought to honor this vision of anthropology by incorporating recent advances in cognitive research into Malinowski's classic theory of magic. Moreover, as Malinowski would have endorsed, we have tested elements

of this updated theory with ethnographic data collected in ecologically appropriate conditions. Specifically, we found that psalm recitation reduced anxiety among women who faced uncertain and uncontrollable conditions but did not reduce anxiety among women who experienced mundane daily stressors. Future work will aim to address significant issues raised by our results.

Our research has focused on one aspect of psalm recitation: its ability to reduce anxiety. But psalm recitation likely serves many functions for religious Israeli women, such as identity formation and signaling of group commitments, and it is motivated by multiple complex factors that deserve further study. Some women, for example, may be partially motivated to recite psalms because of social costs that can be inflicted on those who do not follow expected norms within tight-knit religious communities. And as T. M. Luhrmann and colleagues (2010) have recently reminded us, there is considerable variation in how performers cognitively perceive their prayers. Nonetheless, psalm recitation is likely to have emerged as an expected cultural norm during times of crises within Israeli religious communities because of its ability to buffer against the stress of uncontrollable conditions. Although our results indicate that psalm recitation was not correlated with anxiety scores among women who relocated to central Israel, it seems likely to us that psalm recitation buffered against the uncontrollable stressors of war, even among these women who relocated to central Israel. We suspect that we found no correlation between psalm recitation and anxiety among women who relocated because any anxiety-reducing effects of psalm recitation were outweighed by anxiety resulting from mundane stressors with effects unable to be buffered by psalm recitation. Recent work among anthropologists and public health workers has underscored the negative effects of daily stressors for those exposed to war—stressors that often exceed those directly related to warfare (Miller and Rasmussen 2010; Panter-Brick et al. 2009). Future work will need to isolate the effects of psalm recitation and other ritual coping strategies in populations that face both controllable and uncontrollable stressors.

Although our results suggest that psalm recitation does not reduce anxiety resulting from mundane stressors, one unresolved issue concerns how psalm recitation reduces anxiety under conditions of uncontrollable stress. We have argued that the repetitive and predictive nature of ritual actions provides individuals with a sense of control that lowers stress induced by uncontrollable conditions. To further evaluate the uncertainty hypothesis, future work must measure whether psalm recitation does indeed increase performers' sense of control. Future research should also explore whether other magicoreligious practices employed by Israeli women to cope with stress are efficacious.

Such data, and data collected from other populations, will be critical for uncovering the particular features of ritual that affect their efficacy, but integrative theory building is also needed. Interdisciplinary work between anthropologists

and psychologists that fully integrates insights on magical ritual from both fields will be invaluable, and hopefully this article will facilitate such developments. It is also important that recent work on magical ritual is incorporated into more general models of ritual and cultural evolution. For example, Pascal Boyer and Pierre Liénard (2007) have developed a compelling multidisciplinary model of ritual that is ripe for integration with a contemporary version of Malinowski's theory of magic (see Fessler 2007). Such theory building efforts, and concomitant ethnographic and experimental data collection, will undoubtedly advance our understanding of why humans turn toward magical rituals under conditions of uncontrollable stress and will provide a fitting legacy for Malinowski's seminal contributions to the study of magic.

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NOTES

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1. Malinowski's theory of magic has also been referred to as "anxiety-ritual theory" (Mullen 1969).
2. The lead author has made similar observations among Micronesian fishers of Ifaluk Atoll, for whom magical rites permeate nearly every aspect of open-sea torch fishing, which is risky and produces highly variable yields, yet magic is entirely absent from the safe and reliable rope-fishing methods employed in the lagoon (Sosis 2002).
3. Sociologists have also empirically evaluated Malinowski's ideas, most notably Henslin's (1967) study of craps shooters.
4. One exception is Poggie and Pollnac's (1988) follow-up study of their earlier research on the rituals of New England fishermen.
5. Elster (1983, 2007) observes that most functionalist explanations in the social sciences have failed because they lack a plausible feedback mechanism that can account for how beneficial consequences are maintained. Some anthropologists have avoided this pitfall by providing an explanatory model grounded on the selective retention of useful effects (e.g., Smith and Winterhalder 1992), and psychologists and biologists have offered similar mechanisms (Dennett 1995; Knight 1994; Owens and Wagner 1992).
6. Although experimentally induced superstitions lack the rich meanings of magical beliefs that emerge from cultures, experiments on such beliefs are useful for isolating the psy-

chological mechanisms that underlie magical beliefs and for offering insights about the conditions that produce these beliefs. Ethnographic work such as reported here is vital, among other reasons, for evaluating laboratory findings of psychologists (Henrich et al. 2010) and providing the complex and layered dimensions of human life that are lacking in laboratory studies.

7. The research described here also responds to a recent "plea for an exploration of non-medical techniques of control, like religious pragmatics or magic . . . in western countries" (van Dongen 2008:265). van Dongen argues that "because of medical anthropology's focus on human agency and control, an important aspect may escape its attention, in particular in western countries. This is the exploration of controllessness" (2008:265).
8. Rothbaum et al. (1982) offer a similar typology in which they refer to such coping strategies as processes of "primary control" and "secondary control." When responses are instrumental, the process of control is primary. When conditions are uncertain and instrumental responses are ineffective, individuals rely on processes of secondary control, such as magical ritual (Case et al. 2004; Heckhausen and Schulz 1995).
9. This research is not intended to highlight the suffering of Israelis while minimizing or ignoring the suffering of the Lebanese. Almost a million Lebanese civilians were displaced during the war, and they suffered enormous casualties and loss of property, including the destruction of their homes. Nor does this research assess the political and human rights issues involved in the 2006 Lebanon War, although it should be noted that during and after the conflict Israelis expressed a great diversity of opinion about the merit of the war and the government's competence in carrying out its stated goals (Sharp 2006). The Israeli government committee appointed to assess the government's actions during the war, the Winograd Commission, was highly critical of the prime minister, defense minister, chief of staff, and others (vaadatwino.org.il).
Although as anthropologists we cannot ignore the political aspects of conflict, the aim of this research is to understand how people use ritual practices to help them cope with violent conflicts. The lead author has been conducting research in Israel since the late 1990s, hence its focus on the Israeli side of the conflict. The methods described here, however, will hopefully be employed to collect data among others, including Lebanese and Palestinians, and discussions with researchers who work with these populations suggest a great potential for comparative analyses.
10. Malinowski emphasized how uncontrollable stress elicits the need to do something: "His anxiety, his fears and hopes, induce a tension in his organism which drives him to some sort of activity" (1948:79). Subsequent researchers have considered compulsion one of the core features of ritual (Liénard and Boyer 2006).
11. For example, the autobiography of Russian refusenik Natan Sharansky (1988), *Fear No Evil*, offers an extraordinary account of how the Book of Psalms, which he could barely read, provided hope and sustenance throughout his imprisonment.

12. For example, Rabbi Yosef Yitzchak Schneersohn, the sixth Lubavitcher Rebbe, instituted among his Chasidim the practice of reading psalms daily, in addition to the psalms recited during the daily formal prayers (Sefer HaMinhagim 1994:40; see Levine 2003:39).
13. Nonetheless, magical folk traditions are prevalent historically and presently in Judaism (Marcus 1996; Nigal 1994; Trachtenberg 1974; Wex 2005).
14. The recitation of psalms for protection is formalized and expected of observant Jews in certain situations, such as the recitation of Psalms 3, 91, and 128 (and in some communities others) before sleep, which is described in the Talmud (*Berachot* 57b) as 1/60 of death. The Talmud (*Berachot* 29b) prescribes that a prayer must be recited before departing on a journey and the prayer that developed, *tefilat haderech* (wayfarer's prayer), includes a verse from Psalm 29. During fieldwork, the lead author regularly traveled on the religious bus line from Tzfat to Jerusalem, and at the beginning of most trips the bus driver would recite Psalm 29 over the intercom, to which the passengers would respond "Amen," fulfilling their *halachic* (Jewish law) obligation.
15. Mere familiarity does not seem to improve comprehension. Telushkin (1991:102) describes how a professor regularly stumps his observant friends by asking them to summarize the contents of Psalm 145, known as *Ashrei*, a psalm that observant Jews know by heart because it is recited during prayers thrice daily.
16. The choice to conduct some protocol-based interviews by telephone ($n = 17$) was primarily a consequence of the challenging conditions of collecting data during a war of uncertain length and offered the opportunity to increase our sample size and enable our interviewers to collect data beyond their immediate locale.

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APPENDIX.

The questions that follow ask about how you have been feeling. Since the beginning of the war, how often have you:

	<i>All the time</i>	<i>Regularly</i>	<i>Sometimes</i>	<i>Rarely</i>	<i>Never</i>
Felt nervous?					
Felt calm and peaceful?					
Felt downhearted and blue?					
Felt happy?					
Felt so down in the dumps that nothing could cheer you up?					
Felt tense?					
Had difficulty concentrating?					
Gotten angry quickly?					
Had difficulty falling asleep/sleeping at night?					