

Compensatory Control

Achieving Order Through the Mind, Our Institutions, and the Heavens

Aaron C. Kay,¹ Jennifer A. Whitson,² Danielle Gaucher,¹ and Adam D. Galinsky³

¹University of Waterloo, Canada, ²University of Texas at Austin, and ³Northwestern University

ABSTRACT—*We propose that people protect the belief in a controlled, nonrandom world by imbuing their social, physical, and metaphysical environments with order and structure when their sense of personal control is threatened. We demonstrate that when personal control is threatened, people can preserve a sense of order by (a) perceiving patterns in noise or adhering to superstitions and conspiracies, (b) defending the legitimacy of the sociopolitical institutions that offer control, or (c) believing in an interventionist God. We also present evidence that these processes of compensatory control help people cope with the anxiety and discomfort that lacking personal control fuels, that it is lack of personal control specifically and not general threat or negativity that drives these processes, and that these various forms of compensatory control are ultimately substitutable for one another. Our model of compensatory control offers insight into a wide variety of phenomena, from prejudice to the idiosyncratic rituals of professional athletes to societal rituals around weddings, graduations, and funerals.*

KEYWORDS—*compensatory control; personal control; system justification; religiosity; pattern perception; religious belief*

It's not surprising then that they get bitter, they cling to guns or religion or antipathy to people who aren't like them . . . as a way to explain their frustrations. (Barack Obama, quoted in Fowler, 2008)

In the heat of the 2008 Democratic primary, Barack Obama expressed what could be taken to be a provocative hypothesis: that people who lack control over their daily lives compensate by seeing order in the heavens or perceiving a black-and-white world

of in-groups and out-groups. In the current review, we present evidence that aspects of this hypothesis may in fact be accurate.

The pursuit and maintenance of control has long been considered a key human motivation (Kelley, 1971). Indeed, a preponderance of research has converged on the notion that perceptions of personal control—an individual's belief that he or she can personally predict, affect, and steer events in the present and future—are key contributors to physical and mental well-being (Langer & Rodin, 1976; Luck, Pearson, Maddern, & Hewett, 1999).

Why might individuals hold this desire for control so strongly? One possibility is that perceptions of personal control buffer individuals from the uncomfortable reality that randomness and chance can determine important life outcomes. Believing the world distributes success and failure haphazardly provokes anxiety, making people keenly motivated to avoid shattering their “fundamental delusion” of nonrandomness (Lerner, 1980). From this perspective, the motivation to perceive personal control is not an end in itself but may be one means for meeting the more fundamental need to view the world as orderly and nonrandom.

Despite this need to see the world as nonrandom, life circumstances and situational constraints can lead to dramatic fluctuations in perceptions of personal control. We propose that humans have developed an arsenal of compensatory psychological and perceptual systems designed to preserve a sense of order and nonrandomness even when personal control vanishes. To insulate themselves from the disabling anxiety that perceptions of randomness incite, individuals psychologically imbue their social, physical, and metaphysical environments with order and structure.

These processes of compensatory control can take many forms. In the current review we highlight three routes to psychologically restoring a sense of order. One line of defense against perceptions of randomness is to literally see patterns, even illusory ones, in the world. Alternatively, having faith in institutions that impose structure and order (Antonovsky, 1979; Rothbaum, Weisz, & Snyder, 1982) can also be effective at

Address correspondence to Aaron C. Kay, Department of Psychology, University of Waterloo, 200 University Ave West, Waterloo, Ontario, Canada; e-mail: ackay@uwaterloo.ca.

satiating this need. People will even look to the heavens for order, toward interventionist deities that control what happens on earth. We first offer evidence for a model of compensatory control in these three interrelated domains and then describe nuances of the data that support our precise motivational account and rule out plausible alternatives.

PHENOMENA OF COMPENSATORY CONTROL

Compensatory Control in Our Minds: Pattern Perception

At the most basic cognitive level, one response to lacking control is to reestablish a sense of order and structure in the environment perceptually. Whitson and Galinsky (2008) hypothesized that people turn to pattern perception—the identification of a coherent and meaningful interrelationship among a set of stimuli—to meet this goal.

Building off past correlational and anthropological findings, Whitson and Galinsky (2008) provided experimental evidence that lacking control leads people to perceive a wide variety of patterns, even illusory ones, in the environment. They demonstrated that taking away individuals' sense of control led them (a) to have a need for structure in their everyday world; (b) to see images in meaningless static; and (c) to believe that random, unconnected behaviors bear a cause-and-effect relationship—from forming superstitious rituals to endorsing conspiracy theories (see Fig. 1). For example, in one study, individuals who recalled a time in which they lacked control (versus had control) were more motivated to perform specific superstitious behaviors in the future. The need to see the world as nonrandom is so powerful that individuals produce patterns from noise to return

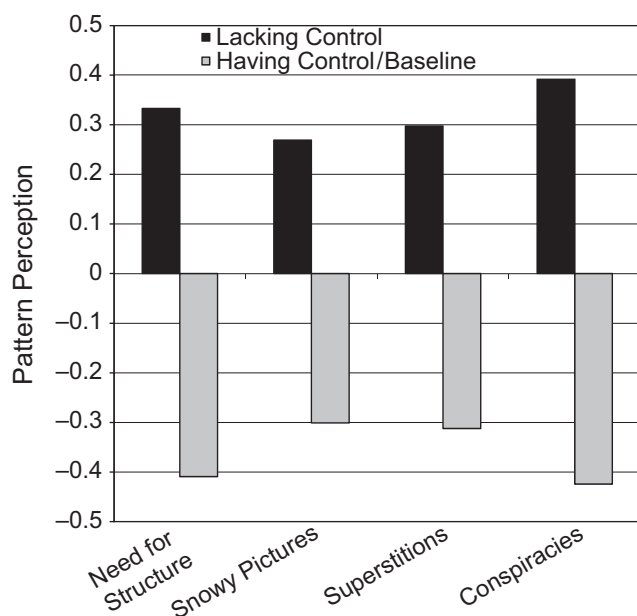


Fig. 1. Need for structure and forms of pattern perception—seeing images in snowy pictures (that only contained static), adherence to superstitious beliefs, and holding of conspiratorial perceptions—as functions of having or lacking control.

the world to an orderly state. Moreover, threats to control may not only distort perceptions but also drive implicit learning and the discovery of true patterns (Proulx & Heine, in press). This process represents what we believe to be the most basic instantiation of compensatory control.

If compensatory control springs from a fundamental human motivation, we would expect to see socially constructed extensions of this basic psychological phenomenon. A program of research (Kay, Gaucher, Napier, Callan, & Laurin, 2008; Kay, Moscovitch, & Laurin, in press; Laurin, Kay, & Moscovitch, 2008) conducted independently but in parallel with the experiments by Whitson and Galinsky suggests two such sociocultural forms of compensatory control: support for a controlling government and belief in an interventionist God.

Compensatory Control in Our Institutions: Government Defense

Research under the umbrella of system justification theory (Jost, Banaji, & Nosek, 2004; Kay et al., 2007) has repeatedly demonstrated that people routinely defend and legitimize their sociopolitical systems (e.g., their governments, universities, organizations). We suggest that system justification is so robust because these systems can serve as compensatory sources of control, leading people to place increasing faith in the structure offered by sociopolitical institutions when personal control is threatened. Rather than offering individuals an increased sense of personal control, this faith addresses their need to feel that events are not occurring randomly or haphazardly, which is the core of our compensatory control model.

In experimental research, Kay et al. (2008) have observed that lowering feelings of personal control—via a memory task that requires participants to recall noncontrollable events from their past—leads to increased support for one's current governmental arrangements, whereas bolstering levels of personal control increased willingness to criticize the government (Shepherd & Kay, 2009). These experimental results have been complemented by a cross-national study demonstrating that feelings of personal control are negatively correlated with increased preferences for governmental control—a relationship that held across 67 countries (Kay et al., 2008). The reciprocal link between institutional support and personal control has also been established: Decreasing people's faith in their government (via exposure to an article that describes a failed attempt by the government to fix an injustice) increased illusions of personal control (Kay et al., 2008). Thus, the defense of external sources of control, such as governmental institutions, can substitute for perceptions of personal control.

Interestingly, the aforementioned findings were moderated by the extent to which people viewed their governments as looking out for their best interests. Manipulations of low personal control only increased endorsement of one's government for participants

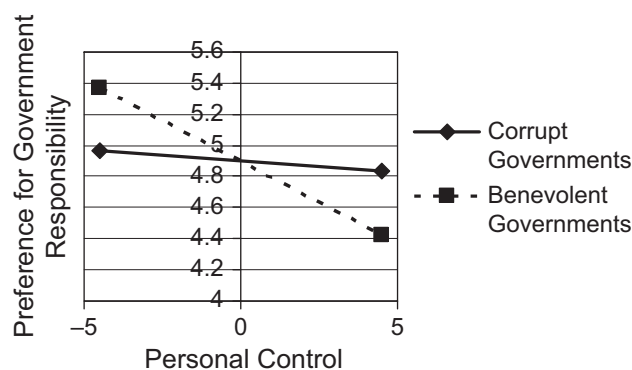


Fig. 2. Preference for governmental responsibility as a function of self-reported perceptions of personal control and an independent measure of government corruption. (Data were collected from participants in 67 countries.)

who saw their government as benevolent, and the association between lower levels of personal control and higher support for governmental control in the cross-national correlational study was weakest in those countries that, according to independent indexes, have the most corrupt governments (see Fig. 2). However, we do not believe that processes of compensatory control will only occur with benevolent external systems; rather, we merely suggest that when people have a choice of external systems, they will generally prefer those that are more benevolent. To this end, it should be noted that even those participants from corrupt countries demonstrated a smaller but still significant preference for governmental control as their personal control declined.

Compensatory Control in the Heavens: Belief in God

Believing in a controlling God (especially if that God is also seen as benevolent) may represent a potent means for guarding against a random and chaotic world. Indeed, archival evidence from Sales (1972) found that economic depressions increase interest in religion, specifically ones that offer strict control. More recently, we have experimentally confirmed that lowering perceived control increases belief specifically in an interventionist or controlling God (Kay et al., 2008, in press). Recalling an event in which one lacked control, even if the uncontrollable event was positive, increased belief in the existence of God when the controlling nature of God was emphasized. When this emphasis was removed and God was instead referred to simply as a “creator,” the effect disappeared (see Fig. 3).

MECHANISM: WHAT IS (AND IS NOT) DRIVING COMPENSATORY CONTROL?

We speculated earlier that feelings of personal control are but one substitutable means of buffering individuals from the anxiety aroused by seeing the world as random, arbitrary, or indis-

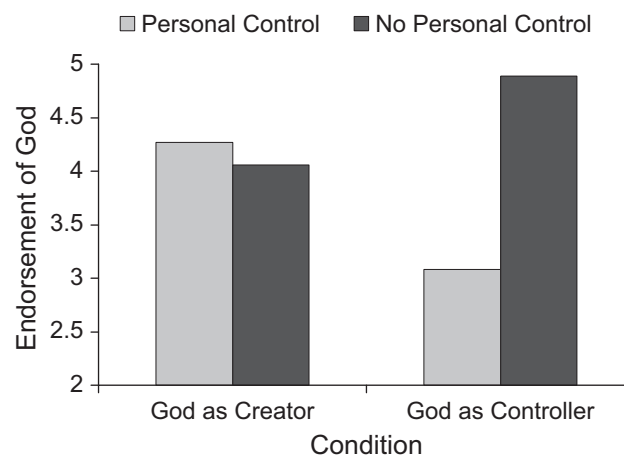


Fig. 3. Belief in God, framed as either a creator or controller, as a function of personal control. Personal control was manipulated via a task in which participants were required to recall positive recent events over which they did or did not have control.

criminate. When personal control is lowered and the fear of randomness is therefore increased, people actively search for compensatory sources of control (such as God, one’s government, and perceived patterns) in order to reestablish a sense of order.

Anxiety as the Driving Force

Several pieces of data support this specific motivational account. Kay et al. (2008) demonstrated that the relationship between lacking control and the belief in a controlling God was mediated by fears that the world may actually operate randomly. In addition, the role of anxiety in compensatory control was assessed in a study by Laurin et al. (2008) in which participants visualized an anxiety-provoking scenario (someone attacks you while walking home) either in the context of a manipulation of low personal control or high personal control, and then reported beliefs regarding the existence of a controlling God. In both conditions, this scenario created considerable anxiety (measured physiologically and through self-report). However, consistent with our model, feelings of anxiety only predicted increased beliefs in the existence of God for those participants in the low-personal-control condition.

In addition, to the extent that compensatory control processes are driven by the individual’s attempt to cope with anxiety, any manipulation reducing this state should break the link between lacking control and pattern perception. Indeed, when participants who lack control have an opportunity to affirm their most important values (Steele & Liu, 1983), they no longer show an increased tendency to see visual images in static or to form conspiratorial perceptions (Whitson & Galinsky, 2008). Finally, when participants can attribute any anxiety they may be experiencing to a pill they recently ingested, rather than to the personal control manipulation, compensatory control effects are eliminated (Kay et al., in press).

Alternative Accounts

We have gone to great lengths to demonstrate that our effects cannot be accounted for via other processes or other theoretical accounts. Importantly, we have accrued evidence that suggests that it is not an artefact of general negativity or threat that caused people in our experiments to search for patterns, defend government, or call forth an interventionist God, but that threats to personal control, specifically, produced these effects. For example, Whitson and Galinsky (2008) demonstrated that threat, independent of lacking control, is not the driving force behind increased pattern perception. When participants recalled a time “in which something threatening happened” but they felt in control, they were less likely to see images in static or identify conspiracies than when they recalled a threatening situation in which they lacked control; coders established that the essays in the control versus lack-of-control conditions did not differ in their level of threat but did differ in their level of control. Likewise, in the experiments reported by Kay et al. (2008) on support for a controlling government and God, the manipulation of personal control required participants to recall *only positive* recent events over which they did or did not have control, ensuring that any effects would be due to differences in control and not to negativity. Indeed, extensive manipulation checks verified that this recall manipulation temporarily decreased perceptions of personal control without influencing mood, or self-esteem (see also Whitson & Galinsky, 2008).

Finally, the specificity of the effects also speaks to the precision of the manipulations and the model. For instance, our manipulations of personal control increased support only for a controlling God. Although models of meaning maintenance (Heine, Proulx, & Vohs, 2006) and terror management (Greenberg, Solomon, & Pyszczynski, 1997) would predict increased support for God more generally, we observed that loss of control only influenced beliefs in an entity clearly tied to establishing order. In addition, more recent data also demonstrates that threats to control increase defense of entities that decrease randomness and reestablish order (e.g., the justice system) to a much greater extent than entities explicitly associated with meaning and identity (such as the national flag and other cultural symbols; see Shepherd & Kay, 2009). Of course, we are not suggesting other types of threats won't affect the types of outcome variables discussed here (e.g., Heine, Proulx, & Vohs, 2006; Landau, Greenberg, Solomon, Pyszczynski, & Martens, 2006); rather, we are merely suggesting that the effects we describe here are not reducible to these other models.

FUTURE DIRECTIONS

As we gain a fuller appreciation of compensatory control processes, many exciting avenues of research reveal themselves. First, some basic questions still need attention. We have implied that personal control is primary and external sources of control

are compensatory. However, this is not necessarily the case. Given that both can help the individual to meet the same goal—to preserve beliefs in a nonrandom and orderly world—experience, context, or culture may determine which means people prefer to use to establish or reestablish order. Second, external sources of control may themselves relate to one another in important ways. For example, perhaps conditions of political instability (which reduce the usefulness of the government as a source of compensatory control) may increase beliefs in supernatural, religious deities.

At a broader level, exploring processes of compensatory control may increase our understanding of a surprisingly wide range of socially relevant phenomena. Terrorism, extremism, prejudice, and even spousal abuse may all be rooted, at least partially, in people's attempts to regain a sense of order and preserve beliefs in nonrandomness in the face of social or cultural conditions that limit personal control.

Processes of compensatory control may also offer insight into the origins of rituals that are pervasive across societies. Given that life transitions—from childhood to adulthood, from single to married, from life to death—are potent sources of uncertainty, it is not surprising that graduations, weddings, and funerals are all marked both by rituals and by religion. Similarly, many athletes whose positions involve some level of chance—for instance, free-throw shooters in basketball (who must contend with random bounces off the rim), field-goal kickers in American football (dealing with unpredictable wind), soccer goalies (who must correctly guess which direction the kicker will kick the ball during penalty kicks), and golfers (dealing with lucky and unlucky caroms)—create rituals in advance of competition. We contend these rituals inoculate against the anxiety and stress resulting from the partly random nature of these experiences and help individuals psychologically engage with, rather than withdraw from, their environments, ultimately increasing actual performance (Damisch, Stoberock, & Mussweiler, 2009). Overall, then, our model of compensatory control offers insight into a wide variety of phenomena previously studied in isolation. We hope it can be used to design interventions to minimize the consequences of the anxiety engendered by recognizing where randomness and lack of control lurk.

Recommended Reading

- Kay, A.C., Gaucher, D., Napier, J.L., Callan, M.J., & Laurin, K. (2008). (See References). Empirical research documenting processes of compensatory control as they pertain to God and governmental institutions.
- Lerner, M.J. (1980). (See References). Theoretically explores the development of personal control needs that motivate individuals to see the world in a particular way.
- McGregor, I. (2006). Offensive defensiveness: Toward an integrative neuroscience of compensatory zeal after mortality salience, personal uncertainty, and other poignant self-threats. *Psychological Inquiry*, 17, 299–308. Theoretically explores the concept of un-

certainty and how it relates to various types of compensatory behaviors.

Whitson, J.A., & Galinsky, A.D. (2008). (See References). Empirical research documenting processes of compensatory control as they pertain to visual pattern perception, superstitions, and conspiracy theories.

REFERENCES

- Antonovsky, A. (1979). *Health, stress and coping*. San Francisco: Jossey-Bass.
- Damisch, L., Stoberock, B., & Mussweiler, M. (2009). *Keep your fingers crossed! How superstition improves performance*. Manuscript submitted for publication.
- Fowler, M. (2008, April 6). Obama: No surprise that hard-pressed Pennsylvanians turn bitter. *Huffington Post*. Retrieved September 9, 2009, from http://www.huffingtonpost.com/mayhill-fowler/obama-no-surprise-that-ha_b_96188.html
- Greenberg, J., Solomon, S., & Pyszczynski, T. (1997). Terror management theory of self-esteem and social behavior: Empirical assessments and conceptual refinements. In M.P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 29, pp. 61–139). New York: Academic Press.
- Heine, S.J., Proulx, T., & Vohs, K.D. (2006). Meaning maintenance model: On the coherence of human motivations. *Personality and Social Psychology Review*, *10*, 88–110.
- Jost, J.T., Banaji, M.R., & Nosek, B.A. (2004). A decade of system justification theory: Accumulated evidence of conscious and unconscious bolstering of the status quo. *Political Psychology*, *25*, 881–920.
- Kay, A.C., Gaucher, D., Napier, J.L., Callan, M.J., & Laurin, K. (2008). God and the government: Testing a compensatory control mechanism for the support of external systems. *Journal of Personality and Social Psychology*, *95*, 18–35.
- Kay, A.C., Jost, J.T., Mandisodza, A.N., Sherman, S.J., Petrocelli, J.V., & Johnson, A.L. (2007). Panglossian ideology in the service of system justification: How complementary stereotypes help us to rationalize inequality. In M.P. Zanna (Ed.), *Advances in Experimental Social Psychology* (Vol. 38, pp. 305–358). San Diego, CA: Academic Press.
- Kay, A.C., Moscovitch, D.A., & Laurin, K. (in press). Randomness, attributions of arousal, and belief in God. *Psychological Science*.
- Kelley, H.H. (1971). *Attributions in social interaction*. Morristown, NJ: General Learning Press.
- Landau, M.J., Greenberg, J., Solomon, S., Pyszczynski, T., & Martens, A. (2006). Windows into nothingness: Terror management, meaninglessness, and negative reactions to modern art. *Journal of Personality and Social Psychology*, *90*, 879–892.
- Langer, E., & Rodin, J. (1976). The effects of choice and enhanced personal responsibility for the aged: A field experiment in an institutional setting. *Journal of Personality and Social Psychology*, *34*, 191–198.
- Laurin, K., Kay, A.C., & Moscovitch, D.A. (2008). On the belief in God: Towards an understanding of the emotional substrates of compensatory control. *Journal of Experimental Social Psychology*, *44*, 1559–1562.
- Lerner, M.J. (1980). *The belief in a just world: A fundamental delusion*. New York: Plenum.
- Luck, A., Pearson, S., Maddern, G., & Hewett, P. (1999). Effects of video information on pre-colonoscopy anxiety and knowledge: A randomised trial. *Lancet*, *354*, 2032–2035.
- Proulx, T., & Heine, S.J. (in press). Connections from Kafka: Exposure to schema threats improves implicit learning of an artificial grammar. *Psychological Science*.
- Rothbaum, R., Weisz, J.R., & Snyder, S.S. (1982). Changing the world and changing the self: A two-process model of perceived control. *Journal of Personality and Social Psychology*, *42*, 5–37.
- Sales, S.M. (1972). Economic threat as a determinant of conversion rates in authoritarian and nonauthoritarian churches. *Journal of Personality and Social Psychology*, *23*, 420–428.
- Shepherd, S., & Kay, A.C. (2009). *On the Precision of Compensatory Control: Differentiating Sources of Order From Sources of Meaning*. Unpublished manuscript.
- Steele, C.M., & Liu, T.J. (1983). Dissonance processes as self-affirmation. *Journal of Personality and Social Psychology*, *45*, 5–19.
- Whitson, J.A., & Galinsky, A.D. (2008). Lacking control increases illusory pattern perception. *Science*, *322*, 115–117.