



Firefighters: Hostility and world assumptions

Shannon L. Wagner* and Romana Pasca†

ABSTRACT

The present project was intended to provide an initial exploratory investigation into the relationship between hostility and world assumptions for a firefighting sample. Specifically, we hypothesized that increased hostility would be associated with more negative assumptions with respect to world benevolence, world justness, and self-worth, and that these variables would also be related to years of service and self-reported mental health. The current study was part of a larger study with firefighters from British Columbia, Canada, and included 186 paid-professional firefighters who completed a series of questionnaires. We demonstrated that, for our firefighting sample, hostility was related to both world benevolence and self-worth across multiple measures, even while controlling for the individual characteristic neuroticism. We did not find any significant relationship with years of service, but world benevolence and self-worth were also important in the prediction of mental health outcomes. These findings may have clinical or occupational intervention implications in therapeutic relationships with firefighters, in that the present project demonstrated a first indication that reduced hostility in combination with increased positivity in world assumptions may help achieve good mental health.

Key Words Firefighters; mental health.

INTRODUCTION

World Assumptions and Well-Being

World Assumptions

Janoff-Bulman (1989, 1992) discusses schemas as a way to organize our experiences and suggests that we hold three basic assumptions about the world. These assumptions include expectations of world meaningfulness, expectations of world benevolence, and self-worth. She describes world meaningfulness as an understanding that good and bad outcomes make sense, world benevolence as a belief that the world is generally a good place, and self-worth as a belief that one is good, decent, and competent. Further, Janoff-Bulman contends that each of these world assumptions must be intact to experience well-being. In contrast, she proposes that, following the experience of extreme events (e.g., criminal victimization, illness, natural disaster), risk of disruption to world assumptions may occur, potentially leading to loss of well-being.

Links with Mental Health Symptoms

Since the introduction of Janoff-Bulman's world assumption schemas, significant research has supported her original contention that traumatic experience can disrupt positive views of the world and that loss of such assumptions is associated with mental health symptoms such as anxiety, depression, and

traumatic stress. Nygaard and Heir (2012) reported that loss of belief in a just world was related to traumatic stress, whereas greater meaningfulness and self-worth were associated with increased quality of life.

Previous research supporting a link between a disruption of world assumptions and traumatic stress has also been completed, although it is noted that much of this literature was completed more than ten years ago. Specifically, Monson and colleagues (2009) found that, for heterosexual couples, when both partners held benevolent assumptions, fewer mental health symptoms were reported. Grilss-Taquechel et al. (2011) also found that disruption in world assumptions of control and self-worth predicted increased emotional and physiological symptoms of anxiety following the experience of the Virginia Tech campus shootings. Lilly et al. (2010) considered impacts of intimate partner violence (IPV) and found that disrupted world assumptions were a mediator between trauma exposure and severity of depression. More recently, work completed by Zukerman and Korn (2014) found that negative world assumptions positively predicted increased symptoms of avoidance.

Firefighters

To our knowledge, only one article has specifically considered the impact of disrupted world assumptions on firefighters as a specific occupational group, an occupational group known to be at high risk for occupational traumatic stress (Wagner et al., 2021).

Correspondence to: Shannon Wagner, Thompson Rivers University, 805 TRU Way, Kamloops BC V2C0C8 Canada. **E-mail:** swagner@tru.ca

To cite: Wagner, S. L., & Pasca, R. (2022). Firefighters: Hostility and world assumptions. *Journal of Community Safety and Well-Being*, 7(4), 164–167. <https://doi.org/10.35502/jcswb.205>

© Author(s) 2022. Open Access. This work is distributed under the Creative Commons BY-NC-ND license. For commercial re-use, please contact sales@sgpublishing.ca.

SG PUBLISHING Published by SG Publishing Inc. **CSKA** Official publication of the Community Safety Knowledge Alliance.

Wagner et al. (2009) reported that, for their firefighting sample, greater belief in world benevolence was associated with lower symptoms of somatization, obsessive-compulsive symptoms, anxiety, and hyperarousal. Further, these authors suggested that benevolence may provide a specific source of possible intervention with firefighters. That is, reframing cognitive schemas for firefighters in terms of benevolence may provide a protective factor for them with respect to mental health symptoms.

Hostility

Physical Health

Hostility as a predictor of physical and psychological well-being is well studied, with general agreement that hostility as an individual characteristic is predictive of poorer functioning in both domains. Miller and colleagues (1996) provided an early review of this relationship through use of meta-analysis. Using 30 independent studies in their review, they determined that hostility is a significant predictor of both coronary heart disease (CHD) and all-cause mortality. Similarly, Smith et al. (2004) provided a review supporting links between expressions of hostility, anger, and aggressiveness with CHD and decreased longevity. In other work, Knox et al. (2004) found that hostility was also a risk factor for impaired glucose level, another physiological outcome. More recently, Wong et al. (2014) reported that for each standard deviation increase in hostility on the Williams subscale for patients with CHD, an associated 20% increase in mortality ratio was observed.

Mental Health

Similar negative impacts of hostility are often revealed with respect to mental health symptoms. Riley et al. (1989) found associations between anger experience and depression. In an investigation regarding hostility and anxiety, Dadds et al. (1993) found that hostility may be important as part of anxiety disorders and, in particular, panic disorder. Finally, anger and hostility are well supported as aspects of posttraumatic stress disorder (PTSD), with one study suggesting that, in Vietnam combat veterans, anger accounted for more than 40% of the variance in PTSD (Novaco & Chemtob, 2002). More recently, Mathes et al. (2020) completed a longitudinal study with trauma-exposed individuals, and proposed rumination and hostility as promising possibilities for treatment and prevention of PTSD symptoms.

Current Hypotheses: Hostility and World Assumptions for Firefighters

To our knowledge, no studies have yet considered the relationship between hostility and world assumptions, and we are even more confident that no current studies have considered this relationship in a firefighting sample. Consequently, the present project was intended to provide an initial investigation into this relationship. Specifically, we hypothesized that:

1. Increased hostility (as measured by the SCL-90 hostility subscale) in a firefighting sample will be associated with more negative assumptions with respect to world benevolence, world justness, and self-worth.
2. Increased aggression (as measured by the Aggression Questionnaire subscales) in a firefighting sample

will be associated with more negative assumptions with respect to world benevolence, world justness, and self-worth.

3. Positive world assumptions will be negatively correlated with increased years of service in a firefighting sample.
4. Hostility will be positively correlated with increased years of service in a firefighting sample.
5. Positive world assumptions will be correlated with less reported SCL-90 mental health symptoms as previously reported by Wagner et al. (2009).

METHODS

Participants

The current study was part of a larger study completed with firefighters from British Columbia, Canada, and included 186 paid-professional members (male $n = 184$; female $n = 2$), with 81.5% of those eligible choosing to participate. The firefighters were between 26 and 60 years of age and most were married or in a marital-like relationship (87%), with 78% having one or more children. Nearly all of the firefighters self-identified as having a Canadian cultural background ($n = 4$ reported "other") and as having some form of postsecondary training or education (87.6%).

Procedure

Following approval by research ethics and both management and union executives of each participant fire department, participants completed a series of questionnaires for the larger study. From this larger questionnaire set, measures used in the current analysis included the *Symptom Checklist-90-Revised* (Derogatis, 1994), a 90-item scale intended to evaluate symptoms on nine different scales, including the *hostility* subscale used here; the *Aggression Questionnaire* (Buss & Perry, 1992), measuring five expressions of aggression (physical, verbal, anger, hostility, and indirect); the *Personality Scale NEO-FFI* (Costa & McCrae, 1985); and the *World Assumption Scale* (WAS) (Janoff-Bulman, 1989), a 32-item instrument providing a measure of the three dimensions of world assumptions (world benevolence, world justness, self-worth).

RESULTS

Hypothesis 1

Partial correlations were completed to evaluate the relationship for the 3 dimensions of the WAS with the SCL-90 hostility scale; alpha was set to be conservative ($p \leq .01$) as compensation for the number of correlations completed, and we controlled for neuroticism, given the links between this characteristic and poor mental health outcomes (Lahey, 2009). For participant firefighters, hostility was negatively correlated with benevolence ($r = -.274$, $p \leq .01$) and self-worth ($r = -.340$, $p \leq .01$), but not with meaningfulness.

Hypothesis 2

Partial correlations were completed to evaluate the relationship for the 3 dimensions of the WAS with the 5 sub-scales of the AQ; alpha was set to be conservative ($p \leq .01$) as compensation for the number of correlations completed, and we controlled for neuroticism. For participant firefighters,

significant correlations were only revealed for the relationship between benevolence and anger ($r = -.261, p \leq .01$), benevolence and hostility ($r = -.274, p \leq .01$), and self-worth and hostility ($r = -.341, p \leq .01$); self-worth and anger were also correlated at a level nearing significance ($r = -.168, p = .02$).

Hypothesis 3

Partial correlations were completed to evaluate the relationship for the 3 dimensions of the WAS with years of service; alpha was set to be conservative ($p \leq .01$) as compensation for the number of correlations completed, and we controlled for neuroticism. No significant relationships were observed between firefighter years of service and any subscale of the WAS.

Hypothesis 4

Partial correlations were completed to evaluate the relationship for hostility (SCL-90 subscale) with years of service; alpha was set to be conservative ($p \leq .01$) as compensation for the number of correlations completed, and we controlled for neuroticism. No significant relationships were observed between firefighter years of service and any subscale of the WAS.

Hypothesis 5

Partial correlations were completed to evaluate the relationship for the three WAS subscales and the SCL-90 subscale (hostility was excluded); alpha was set to be conservative ($p \leq .01$) as compensation for the number of correlations completed, and we controlled for both neuroticism and hostility. For benevolence, a significant relationship was revealed for paranoid ideation ($r = -.197, p \leq .01$), and for meaningfulness, no significant relationships were revealed. For self-worth, significant relationships were revealed for obsessive compulsive subscale ($r = -.222, p \leq .01$), interpersonal sensitivity ($r = -.239, p \leq .01$), depression ($r = -.339, p \leq .01$), paranoid ideation ($r = -.192, p \leq .01$), and psychoticism ($r = -.261, p \leq .01$).

DISCUSSION

Janoff-Bulman (1989) provides us with an important framework to understand traumatic experience, including occupational traumatic exposure such as experience through employment in the fire service. Specifically, given that previous research has demonstrated that world assumptions of benevolence, justness, and self-worth are important for positive well-being and mental health, disruption to these important assumptions via occupational exposure may reduce well-being for firefighters. Further, previous research has established a relationship between the individual characteristic of hostility and poorer physical and mental health outcomes. Consequently, we were interested in considering the links between hostility and world assumptions for firefighters, with the expectation that increased hostility would be linked to more negative world assumptions. We also expected that an increase in hostility and a decrease in positive world assumptions may be positively related to years of service as a firefighter. Finally, we were curious to consider the links between world assumptions and other measures of mental health if we controlled for hostility.

Our results partially supported our hypotheses in that our data revealed significant negative relationships between

hostility and benevolence, as well as between hostility and self-worth; however, we did not find any significant increase in hostility or decrease in world assumptions related to years of service. Finally, for our last hypothesis, we also expected to find outcomes similar to Wagner et al. (2009), with links between world assumptions and reported mental health symptoms. It is important to note that, while we intended to partially replicate the findings of these authors, in contrast to the previous analysis, we completed our current analysis with *both* neuroticism and hostility held constant according to our more recent understanding for the importance of hostility in these relationships. Even with neuroticism and hostility held constant, positive world assumptions, in particular self-worth, were significantly correlated with fewer self-reported mental health symptoms.

Limited previous research has considered the relationship among factors of hostility and self-worth, but, to our knowledge, no previous research has considered this relationship specifically in firefighters. However, previous research suggests that this finding may be consistent with links between hostility and low self-worth in other populations. Maxwell (1992) found that, for youth in crisis, hostility, depression, and self-esteem represent unique contributions to youth well-being. Baumeister and colleagues (2003) argue that the relationship between self-esteem and personal outcomes is complex and that self-esteem on either extreme (high or low) may contribute to reduced well-being and less positive interpersonal interactions. Mann et al. (2004), on the other hand, state that poor self-esteem predicts increased internalizing and externalizing issues. In comparison to the small literature on hostility and self-esteem, we were unable to find any previous work that specifically linked hostility with the benevolence subscale of the WAS.

In this data, we demonstrated that for our firefighting sample, hostility and anger have a significant relationship with both world benevolence and self-worth assumptions across multiple measures, even while controlling for the individual characteristic neuroticism; further, world assumptions predict mental health reporting in firefighters, beyond the two controlled personality variables. These findings may be important for potential intervention opportunities with firefighters. Specifically, world assumptions are potentially modifiable cognitive schemas that could be altered in a positive manner with the intent of reframing thoughts that may predict mental health outcomes. In particular, our current data suggest that clinical or occupational intervention focused on increasing benevolence and self-worth, while reducing hostility, may be particularly valuable.

Given the correlational nature of our data, we cannot suggest a direction for this relationship; that is, we are unable to comment on whether high hostility is a contributor to decreased self-worth and belief in world benevolence, or alternately, whether lack of self-worth and limited belief in goodness of the world lead to increased levels of hostility. Therefore, we would like to suggest that a multi-directional relationship seems the most likely possibility in this case. Individuals who are hostile likely experience the world as less benevolent and consequently, have fewer positive experiences leading to decreased self-worth. Similarly, individuals who see the world as negative likely have negative experiences leading to hostility and decreased self-worth. Regardless of

directionality in the relationship, it seems likely that interventions intended to increase firefighter self-worth or belief in a benevolent world, or to decrease feelings and expressions of hostility and anger, would benefit the individual in terms of positive outcomes for well-being.

CONCLUSIONS

While our results need to be interpreted through a lens of study limitations including cross-sectional data, non-representative sample, and lack of clarity as to the direction of the identified relationship, the present study provides an initial exploratory indication that hostility is negatively related to positive world assumptions for a firefighter sample and that, collectively, interventions to decrease hostility and/or improve benevolent and self-affirming thoughts, would likely be a meaningful intervention towards improving mental health for fire service members.

ACKNOWLEDGEMENTS

The authors would like to gratefully acknowledge the union executive and management of the participant fire departments for their ongoing support and engagement with this research. Also, we would like to very gratefully acknowledge the participation of the fire service members who shared their personal experience with us.

CONFLICT OF INTEREST DISCLOSURES

The author has no conflicts of interest to declare.

AUTHOR AFFILIATIONS

*Thompson Rivers University, Kamloops, BC, Canada; †North Island College, Courtenay, BC, Canada.

REFERENCES

- Baumeister, R. F., Campbell, J. D., Krueger, J. I., & Vohs, K. D. (2003). Does high self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyles? *Psychological Science in the Public Interest*, 4(1), 1–44. <https://doi.org/10.1111/1529-1006.01431>
- Buss, A. H., & Perry, M. (1992). The aggression questionnaire. *Journal of Personality and Social Psychology*, 63(3), 452–459.
- Costa, P. T., & McCrae, R. R. (1985). *The NEO Personality Inventory Manual*. Psychological Assessment Resources.
- Dadds, M. R., Gaffney, L. R., Kenardy, J., Oei, T. P., & Evans, L. (1993). An exploration of the relationship between expression of hostility and the anxiety disorders. *Journal of Psychiatric Research*, 27(1), 17–26. [https://doi.org/10.1016/0022-3956\(93\)90046-5](https://doi.org/10.1016/0022-3956(93)90046-5)
- Derogatis, L. R. (1994). *Symptom Checklist - 90 - R [SCL-90-R] administration, scoring and procedures manual* (3rd ed.). National Computer Systems.
- Grills-Taquechel, A. E., Littleton, H. L., & Axsom, D. (2011). Social support, world assumptions, and exposure as predictors of anxiety and quality of life following a mass trauma. *Journal of Anxiety Disorders*, 25(4), 498–506. <https://doi.org/10.1016/j.janxdis.2010.12.003>
- Janoff-Bulman, R. (1989). Assumptive worlds and the stress of traumatic events: Applications of the schema construct. *Social Cognition*, 7(2), 113–136. <https://doi.org/10.1521/soco.1989.7.2.113>
- Janoff-Bulman, R. (1992). *Shattered assumptions: Towards a new psychology of trauma*. Free Press.
- Knox, S. S., Weidner, G., Adelman, A., Stoney, C. M., Ellison, R. C., & Investigators of the National Heart, Lung, and Blood Institute Family Heart Study. (2004). Hostility and physiological risk in the National Heart, Lung, and Blood Institute Family Heart Study. *Archives of Internal Medicine*, 164(22), 2442–2447. <https://doi.org/10.1001/archinte.164.22.2442>
- Lahey, B. B. (2009). Public health significance of neuroticism. *The American Psychologist*, 64(4), 241–256. <https://doi.org/10.1037/a0015309>
- Lilly, M. M., Valdez, C. E., & Graham-Bermann, S. A. (2010). The mediating effect of world assumptions on the relationship between trauma exposure and depression. *Journal of Interpersonal Violence*, 26(12), 2499–2516. <https://doi.org/10.1177/0886260510383033>
- Mann, M., Hosman, C. M. H., Schaalma, H. P., & de Vries, N. K. (2004). Self-esteem in a broad-spectrum approach for mental health promotion. *Health Education Research*, 19(4), 357–372. <https://doi.org/10.1093/her/cyg041>
- Mathes, B. M., Kennedy, G. A., Morabito, D. M., Martin, A., Bedford, C. E., & Schmidt, N. B. (2020). A longitudinal investigation of the association between rumination, hostility, and PTSD symptoms among trauma-exposed individuals. *Journal of Affective Disorders*, 277, 322–328. <https://doi.org/10.1016/j.jad.2020.08.029>
- Maxwell, B. E. (1992). Hostility, depression, and self-esteem among troubled and homeless adolescents in crisis. *Journal of Youth and Adolescence*, 21(2), 139–150. <https://doi.org/10.1007/BF01537333>
- Miller, T. Q., Smith, T. W., Turner, C. W., Guijarro, M. L., & Hallet, A. J. (1996). A meta-analytic review of research on hostility and physical health. *Psychology Bulletin*, 119(2), 322–348. <https://doi.org/10.1037/0033-2909.119.2.322>
- Monson, C. M., Gradus, J. L., La Bash, H. A. J., Griffin, M. G., & Resick, P. A. (2009). The role of couples' interacting world assumptions and relationship adjustment in women's postdisaster PTSD symptoms. *Journal of Traumatic Stress*, 22(4), 276–281. <https://doi.org/10.1002/jts.20432>
- Novaco, R. W., & Chemtob, C. M. (2002). Anger and combat-related post-traumatic stress disorder. *Journal of Traumatic Stress*, 15(2), 123–132. <https://doi.org/10.1023/a:1014855924072>
- Nygaard, E., & Heir, T. (2012). World assumptions, posttraumatic stress and quality of life after a natural disaster: A longitudinal study. *Health and Quality of Life Outcomes*, 10(1), 76. <https://doi.org/10.1186/1477-7525-10-76>
- Riley, W. T., Treiber, F. A., & Woods, M. G. (1989). Anger and hostility in depression. *Journal of Nervous and Mental Disease*, 177(11), 668–674. <https://doi.org/10.1097/00005053-198911000-00002>
- Smith, T. W., Glazer, K., Ruiz, J. M., & Gallo, L. C. (2004). Hostility, anger, aggressiveness, and coronary heart disease: An interpersonal perspective on personality, emotion, and health. *Journal of Personality*, 72(6), 1217–1270. <https://doi.org/10.1111/j.1467-6494.2004.00296.x>
- Wagner, S. L., McFee, J. A., & Martin, C. A. (2009). Effects of traumatic stress on firefighters' world assumptions. *Traumatology*, 15(1), 75–84. <https://doi.org/10.1177/1534765608323441>
- Wagner, S. L., White, N., Buys, N., Carey, M. G., Corneil, W., Fyfe, T., Matthews, L. R., Randall, C., Regehr, C., White, M., Alden, L. E., Krutop, E., Fraess-Phillips, A., & Fleischmann, M. H. (2021). Systematic review of mental health symptoms in firefighters exposed to routine duty-related critical incidents. *Traumatology*, 27(3), 285–302. [APA PsycArticles. https://doi.org/10.1037/trm0000275](https://doi.org/10.1037/trm0000275)
- Wong, J. M., Sin, N. L., & Whooley, M. A. (2014). A comparison of cook-medley hostility subscales and mortality in patients with coronary heart disease: Data from the heart and soul study. *Psychosomatic Medicine*, 76(4). https://journals.lww.com/psychosomaticmedicine/Fulltext/2014/05000/A_Comparison_of_Cook_Medley_Hostility_Subsc.10.aspx
- Zukerman, G., & Korn, L. (2014). Post-traumatic stress and world assumptions: The effects of religious coping. *Journal of Religion and Health*, 53(6), 1676–1690. <https://doi.org/10.1007/s10943-013-9755-5>