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**Passive avoidant leadership and safety non-compliance:****A 30 days diary study among naval cadets**

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**Abstract**

The leadership literature suggests that passive leadership undermines employee safety performance; because passive leadership behavior signals that the leader is not committed to organizational safety goals. We tested this hypothesis and investigated the role of two possible moderators, moral disengagement and intolerance of uncertainty. Participants were 78 naval cadets who responded to daily surveys during a 30 days voyage on board of a sailing ship (N occasions is 2166 for H1 and 1910 for H2- H4). The results of multilevel analyses showed as expected that a substantial portion (49 %) of the daily safety non-compliance was caused by variation within each crewmember from day to day, and that an increase in daily passive avoidant leadership was related to increased daily safety non-compliance. More unexpectedly, those crewmembers high (and not low) on moral disengagement and intolerance of uncertainty were less influenced by passive avoidant leadership in terms of daily safety violations. Several explanations for the results are discussed.

## 1. Introduction

Rules and safety procedures accompanied by explicit requirements of compliance have been found to be effective in maintaining occupational safety (e.g., Kvalheim & Dahl, 2016). However, individual variations in compliance represent a concern because even small deviances may cause severe accidents (Hopkins, 2011; Pilbeam, Doherty, Davidson & Denyer, 2016). Identification of contextual and individual factors that may influence safety compliance is, therefore, an important research challenge (Alper & Karsh, 2009). Previous research has identified leadership styles or behaviors as important determinants (e.g., Kelloway, Mullen, & Francis, 2006; Pilbeam, et al., 2016). However, with some exceptions, these studies have particularly focused on positive forms of leadership (Schyns & Schilling, 2013). Subsequently, less is known about how destructive and particularly passive destructive forms of leadership influences safety compliance (Mullen, Kelloway & Teed, 2011; Nielsen, Skogstad, Matthiesen & Einarsen, 2016). This is notable, because several studies have shown that passive leadership is highly prevalent and can cause adverse effects on safety-related variables like work motivation, justice perceptions and burnout (Kelloway, Sivanathan, Francis & Barling, 2005; Skogstad, et al., 2007; Skogstad, Nielsen & Einarsen, 2017). In a notable exception, Mullen and colleagues (2011) found a negative relationship between passive avoidant leadership and safety compliance. In a similar vein, using a sample of professional firefighters, Smith, Eldridge and DeJoy (2016) found that passive leadership showed a negative relationship with safety climate, and was indirectly related to safety compliance. In addition, Nielsen et al. (2016) found a negative relationship between passive-avoidant leadership and psychological safety climate among workers in the offshore petroleum industry, and Sandhåland, Oltedal, Hystad and Eid (2017) showed that laissez-faire leadership impaired situational awareness, and subsequently increased offshore workers' risk-taking behaviors.

An important limitation of most of these previous studies is that they used only one measurement occasion and thus employed a static, cross-sectional research design. However, an increasing number of diary studies show that individual emotions, cognitions, and

behaviors fluctuate from day to day (Bakker, 2014). The implicit notion of intra-individual stability that is embedded in cross-sectional studies may imply that important aspects of safety behavior are concealed. Longitudinal designs such as the study by Nielsen and associates (2016) may also fall short in capturing intra-psychological fluctuations due to the limited number of measurements and too long intervals in-between the time points (cf. Fischer, Dietz & Antonakis, 2017). Therefore, the present study will extend previous studies by introducing a quantitative diary research design on the relationship between passive avoidant leadership and safety compliance (Ohly, Sonnentag, Niessen, & Zapf, 2011). We argue that the link between this particular form of leadership and daily safety compliance will be explained by changes within each participant from day to day, an effect that supplements the effect of stable traits. More specifically, we will study variation over a time span of 30 days in each individual naval cadet onboard a 100 years old sail ship in a risk-exposed naval setting across the Atlantic Ocean during the storm season.

Furthermore, according to Pilbeam and his associates (2016), a limitation of safety leadership research is the narrow focus on leadership style or behavior, failing to account for the influence of context, like individual differences in followers. Hence, given that safety behavior can be seen as a moral obligation, which may require mental resilience to implement during rough conditions, the present research model includes two trait-based competencies from the morals (i.e. dispositional moral disengagement; Bandura, 1999) and the resilience literature (i.e. intolerance of uncertainty; Carleton, Norton, & Asmundson, 2007). We argue that these two follower traits may buffer the negative relationship between daily passive-avoidant leadership behavior and follower safety compliance.

We aim to make three contributions to the literature. First, we utilize a unique diary study design, enabling us to investigate whether individual sailor's safety compliance fluctuates from day to day, due to within-person variances. A significant daily variation implicates that models of safety compliance should be refined, and that explanations related to within-person variances should be added to the model build-up. Second, we investigate the degree to which within-person variation in perceptions of passive avoidant leadership may influence daily safety non-compliance, providing more insight on the effects of this destructive form of leadership. Third, we aim to learn more about how individual trait differences influence how passive avoidant leadership influences daily safety non-compliance, and thus contribute to the development of a theoretical model that combines malleable variables with stable ones. In

this, we investigate as the first how dispositional moral disengagement and intolerance of uncertainty moderate the leadership vs. safety non-compliance relationship.

### *1.1 The stability of safety compliance*

According to Neal, Griffin and Hart (2000, p. 101), safety compliance involves “adhering to safety procedures and carrying out work in a safe manner.” A limitation in research on safety compliance is the lack of attention regarding the malleable nature of such compliance (Clarke, 2013; Christian, Bradley, Wallace & Burke, 2009). Substantial empirical evidence shows that emotions, cognitions, and behaviors (including job performance) may vary from day to day. Thus, periods with high compliance may be followed by less compliance, even across the course of just one workweek. Even though few studies have investigated how safety compliance may vary from day to day (treating it as it represents a relatively stable construct), there is empirical evidence of fluctuations in variables that may be closely related to such compliance. For example, Yang and Diefendorff (2009) found day-to-day (within person) fluctuations in counterproductive work behaviors, seen as volitional acts that harm or are intended to harm an organization. This may be relevant to the present study, thus, safety non-compliance involves violation of organizational standards that may have harmful effects as well. In the same vein, in-role task performance has been found to fluctuate on a daily basis, independent of individual differences (Ohly et al., 2010). This is interesting because both in-role work performance and safety compliance have in common the ability to comply with and fulfill formal role requirements at work (Neal, Griffin and Hart, 2000). It is also noteworthy that motivational drivers like emotional state and work engagement, which may be closely related to motivation to adhere to safety regulations and subsequent daily safety compliance, shows similar within-person variation (Bakker, Hetland, Olsen & Espevik, 2018; Hoprekstad, et al., 2019). At this basis, we expect as follows:

**Hypothesis 1:** There is significant intra-individual variance in daily safety non-compliance across the 30 days.

### *1.2 Passive avoidant leadership and safety non-compliance*

It has been emphasized that leadership means activity (Barling, 2014), e.g., to enhance safety in safety intensive workplaces. Passive leadership has in general been ignored, with limited research studies carried out throughout the years (cf. Barling, 2014). Passive leadership is also little understood. For instance, is the passive leader passive across all situations, or do exceptions exist? One such passive leadership style, laissez-faire leadership (Lewin, Lippitt, & White, 1939), has been described as the most “ineffective” of all forms of leadership (Bass & Riggio, 2006). Typical within laissez-faire leadership is that the leader avoids taking any initiative. The leader steers away, avoids making decisions, avoids getting involved, and is absent when needed. Another passive leadership style coined by Bass is “leadership by exception” (Bass & Riggio, 2006). This leadership style denotes that the leader waits to take action until something goes wrong; the status quo is allowed to exist without being addressed. The leader avoids change, does not try to make improvements, or a mistake has to occur before action can be enabled. The two passive leadership styles laissez-faire leadership and management-by-exception are strongly correlated and are often referred to as passive-avoidant leadership.

Several survey studies have shown, as noted in the introduction, adverse effects of passive leadership on safety climate and safety behavior in followers. More so, passive leadership has been found associated with role conflict, role ambiguity, and conflicts among co-workers (Skogstad et al., 2007). Such negative experiences may impact followers’ daily motivation to comply with an employers demands and formal expectations, including safety regulations, and even spiral workplace incivility in terms of rude, discourteous, or disrespectful behaviors, possibly including safety non-compliance (Harold & Holtz, 2015). However, little is known about the processes that link passive avoidant leadership to increased daily safety non-compliance. One explanation may be a general and incremental impairment of motivation due to perceived safety neglect from the leader (e.g., Kelloway et al., 2006, Jiang & Probst, 2016). This may also represent a form of negative role modelling from the leader, failing to stimulate social learning processes that increase safety compliance in a crew (Clarke, Guediri & Lee, 2017). In the same vein, a passive avoidant leader may fail to utilize encouragements, rewards and other positive reinforcement, as well as explicit expectations related to safety behavior, which may add to reduced motivation to comply (e.g., Bosak, Coetsee & Cullinane, 2013; Lu & Yang, 2010). It is also conceivable that such a passive approach is perceived as a signal that: “nothing can go wrong here”, creating a sense of complacency and subsequent increase in safety non-compliance among the followers (Zohar & Erev, 2007).

In contrast, transformational leadership is an inspiring and dialogue-based type of leadership, typically linked to conduct such as enhancing followers' inner motivation, provide them with challenges and emotional support, and act as positive role model and source of inspiration, (Bass & Riggio, 2006). Previous studies have shown that leaders can exhibit both safety-specific transformational leadership and passive leadership at different times (Mullen et al., 2011). They also show that these forms of leadership may have opposite effects on organizational safety – and, notably, separately explain variance in safety outcomes above and beyond the effect of only one of these leadership variables (Kelloway et al., 2006). At this basis, we include in line with Kelloway and colleagues (2006) transformational leadership as control variable to reach a better measure of the relationship between daily passive avoidance and safety non-compliance. This is in line with Antonakis and his associates' general recommendation of controlling for possible third factors to increase the validity of research studies (Antonakis, Bendahan, Jacquart, & Lalive, 2010).

Thus, the next hypothesis proposes:

**Hypothesis 2:** Daily passive-avoidant leadership behavior is positively associated with daily safety non-compliance, when controlling for transformational leadership.

### *1.3 Dispositional moral disengagement as moderator*

Lack of safety compliance may directly lead to fatal accidents or weaken a safety system so that the risk of accidents increases (Reason, Parker & Lawton, 1998). Hence, from a utilitarian-ethics perspective, safety compliance can be seen as a form of ethical behavior, consequentially protecting the well-being of others (Hystad, Mearns & Eid, 2014). This suggests that morally oriented individuals are more prone to comply with safety regulations than others. According to Bandura (1999), individuals exercise control over their moral reasoning and behavior through self-regulatory processes which may be selectively deactivated through moral disengagement (MD) mechanisms – often seen as an outcome of stable dispositions and situational influences combined (Hystad et al., 2014). As outlined in the social-cognitive theory of agency (Bandura, 1999), moral disengagement is thus a set of socio-cognitive processes through which people can disengage from humane acts and instead commit inhumane, harassing, or harming actions against other people - without experiencing this as a violation of moral standards. Examples of such disengagement related to safety non-

compliance on a ship may be cognitive restructuring of the *behavior* itself. For example as uncontested advantageous comparisons (e.g., “engineers *never* check this”) or moral justifications (e.g., “my intentions are good”). Or cognitive reconstructions of the cadet’s *agentic role* in the situation, either in terms of displacement of responsibility (e.g., “I just follow the example of my avoidant supervisor”), or as distortion of consequences (e.g., “in this weather there is no use checking the deck load”).

In our current research model, we propose that moral disengagement, as an individual disposition, will moderate (buffer) the relationship between passive avoidant leadership and safety non-compliance. We expect that cadets of low moral disengagement (i.e., maintain an ability to reason and act morally across various conditions) may be less influenced by lack of leadership and external regulation in order to maintain moral behavior in terms of safety compliance – while cadets high on disengagement may more easily deviate from moral standards when they are not monitored and regulated by a leader. This mechanism is seen by Samnani, Salamon and Singh (2014) as a lack of self-sanctioning and feeling of guilt during moral transgressions. This explanation may also concert well with Mischel (1977) claim that personality traits have larger impact on individual decisions and behavior in situations with low external regulation, such as passive avoidant leadership, labelled «leader non-monitoring» by Hinkin, Schriesheim and Zedeck (2008, p. 1236). Unfortunately, however, few organizational studies have yet included moral disengagement as a moderator (Johnson & Buckley, 2015). An exception is Samnani (et al., 2014), who found that people that are low (vs. high) on dispositional moral disengagement were less prone to transfer negative affect into harmful and unethical behaviors. In sum, this makes it likely that people with low moral disengagement (vs. high) are better self-regulated and more willing to take on personal hardship and workload in terms of safety compliance, beneficial to others, during situations with passive avoidant leadership and low external support.

At this basis, we propose:

**Hypothesis 3:** The positive relationship between daily passive avoidant leadership and daily safety non-compliance will be stronger among individuals with high (vs. low) dispositional moral disengagement.

#### *1.4 Intolerance of uncertainty as moderator*



Safety compliance in a maritime setting may involve exposure to situations and tasks that are perceived as dangerous and stressful, creating a sense of uncertainty. For example, in terms of routine inspections of sails 30-40 meters above the deck at night during storm, or securing of deck cargo in 16-18 meters sea waves. The ability to master job demands like this may be related to levels of intolerance of uncertainty (Carleton, Norton & Asmundson, 2007). Following Carleton (2016, p. 31), *intolerance* refers to incapacity or indisposition to bear or endure something, while *uncertainty* is related to experiencing an unknown in terms of the perceived absence of information at any level of consciousness. More specifically, intolerance of uncertainty refers to a dispositional tendency to perceive the occurrence of negative events as unacceptable and threatening, regardless of probabilities and whether they happen or not (Carleton, et al., 2007). Following Carlton et al. (2007), intolerance of uncertainty can be divided into two dimensions. *Prospective anxiety*, as a cognitive dimension, is related to a need for information to make the future less threatening, and often related to strong worries about “what’s coming” (Birrell, Meares, Wilkinson & Freeston, 2011). *Inhibitory anxiety*, on the other hand, is focused on behavioral responses to uncertainty, often seen as a state of paralysis and inability to act. Several studies show that high intolerance of uncertainty is related to severe stress reactions like state anxiety and panic (e.g., Hong & Lee, 2015), as well as somatic reactions like increase in blood pressure and heart rate. This suggests that people of high intolerance of uncertainty are likely to react with high activation of stress responses, passivity, and avoidance during uncertainty— such as situations with passive avoidant leadership (Barling and Frone, 2017).

In the current study, we propose that the relationship between passive avoidant leadership and non-safety compliance will be stronger for those cadets that are high on intolerance of uncertainty (vs. low) and subsequently less likely to be able to act according to safety regulations during challenging situations. Thus, exposure to passive avoidant leadership may add to the level of perceived uncertainty that is related to seamanship on a sailing-ship (Barling and Frone, 2017), which in turn may induce extra strain on cadets that are intolerant of uncertainty – impairing their ability to participate in risk related activities and master demands of safety compliance (Dekkers, Jansen, Saleminck & Huizenga, 2017).

At this basis, we suggest:

**Hypothesis 4:** The relationship between daily passive avoidant leadership and daily safety non-compliance will be stronger among individuals with high (vs. low) dispositional intolerance of uncertainty.

## 2.0 Methodology

### 2.1 Design and sample

Data were collected in 2016, using a quantitative daily diary design. The sample consisted of naval officer cadets (sub-lieutenants) from the Royal Norwegian Naval Academy, who embarked on an 11-weeks tall ship voyage from Northern Europe to North America as a part of their leadership training. The day before the voyage, the cadets answered a general questionnaire, measuring trait-like variables that are assumed to be relatively stable, such as moral disengagement and intolerance of uncertainty. Then, for the first 30 consecutive days of the voyage, the cadets were asked to complete daily questionnaires, measuring state variables likely to fluctuate on a daily basis, such as daily perceived leadership and daily safety behavior. Accordingly, the design enabled us to examine within-person variation in safety behavior, within-person relationships between daily perceptions of leadership and enacted safety behavior, and to test whether the within-person relationship between passive avoidant leadership and safety behavior was contingent on between-person differences in moral disengagement and intolerance of uncertainty.

The original sample for the study consisted of 78 cadets (89.7 % male,  $n = 70$ ) who were supposed to take part in the sail ship voyage. Among these, 77 (98.7 %) did embark on the voyage, and all of these agreed to take part in the diary study. The age of the cadets ranged from 19 to 30 years, with an average of 22.9 years. The response rate for the general questionnaire was 100 %. For the daily questionnaires, the response rate for daily safety non-compliance, the outcome variable of interest in all our hypotheses, was 93.8 % (2166 daily observations out of 2310 possible). Consequently, we have  $N = 77$  cadets at Level 2, and up to  $N = 2166$  daily observations at Level 1. In 89.7 % of the possible daily reports (2073 of 2310), the cadets reported whether they had had the role of leader or not on that day. Given our interest in perceived leadership from a follower perspective in the present study, the 1901 daily observations where the cadets indicated that they did not have a leading function, and thus rated their immediate leader, form the sample used to test hypotheses 2, 3 and 4.

## 2.2 Instruments

The daily questionnaires were based on established instruments, and adapted to fit the daily level in line with the recommendations of Fisher and To (2012). Specifically, the time frames specified in the daily questionnaires were changed to reflect the daily level (e.g., “today” and “during the last shift”). Moreover, the scales were kept short in order to reduce the burden on the cadets and avoid attrition, and the daily questionnaire was piloted to make sure that it took no more than 5-7 minutes to complete. We estimated day-level composite reliability ( $\omega$ ) for our day-level scales using the procedure described by Geldhof, Preacher, and Zyphur (2014).

*Daily safety non-compliance* was measured using three items adapted from Hystad, Bartone, and Eid (2014). The respondents were asked to state to what extent they had engaged in the different behaviors during “today’s shift”. An example item is “ignored safety procedures in order to get the job done”. The response alternatives ranged from 1 (“completely disagree”) to 5 (“completely agree”), and higher scores thus represent more safety non-compliance. Daily safety non-compliance had satisfactory day-level reliability (within-person  $\omega = .91$ ).

*Daily passive avoidant leadership* was measured using five items, of which two were adapted from Den Hartog, Van Muijen, and Koopman (1997), two from Pearce and Sims (2002), and one from Barling and Frone (2017). An example is “During the past 24 hours, my immediate leader has been unavailable when the crew has needed help with a problem”. The response alternatives ranged from 1 (“completely disagree”) to 5 (“completely agree”). As the voyage was part of the cadets’ leadership training, each cadet had leadership responsibility at least one of the days during the diary period. In the present study, all the daily observations are used to test Hypothesis 1, while only the responses provided on days the cadet did not have leadership responsibility are used to test hypotheses 2, 3 and 4. On those days, the cadets were asked to rate the leadership behaviour of their immediate leader. Daily passive avoidant leadership had satisfactory day-level reliability (within-person  $\omega = .83$ ).

*Daily transformational leadership* was measured using seven items adapted from the Global Leadership Scale (Carless, Wearing, & Mann, 2000). An example item is “During the past 24 hours, my immediate leader has communicated a clear and positive vision about the future”.

The response alternatives ranged from 1 (“completely disagree”) to 5 (“completely agree”). Daily transformational leadership had acceptable day-level reliability (within-person  $\omega = .81$ ).

*Person-level moral disengagement* was measured using a validated eight item scale (Moore, Detert, Klebe Treviño, Baker, & Mayer, 2012) with each item representing one of the mechanisms in Bandura’s theory of MD. An example is “People can’t be blamed for doing things that are technically wrong when all their friends are doing it too”. The response alternatives ranged from 1 (“Completely disagree”) to 5 (“Completely agree”). The internal consistency of MD in terms of Cronbach’s alpha was .68.

*Intolerance of uncertainty* was measured using the validated Intolerance of Uncertainty Scale-12 (Carleton, et al., 2007), consisting of seven items measuring prospective anxiety and five items measuring inhibitory anxiety. Example items are “It frustrates me not having all the information I need” (prospective anxiety), and “When I am uncertain, I can’t function very well” (inhibitory anxiety). The cadets were asked to state how well the statements described them, and the response alternatives ranged from 1 (“Not at all”) to 5 (“Entirely characteristic of me”). The internal consistency of intolerance of uncertainty in terms of Cronbach’s alpha was .81.

### **2.3 Statistical analyses**

Mplus 7.4 was used to obtain day-level and person-level inter-correlations for the study variables, and to estimate the day-level reliability of the daily measures. We tested the hypotheses using multilevel modelling in MLWIN 3.02, with daily observations at level 1 nested within cadets at level 2. The person-level predictors moral disengagement and intolerance of uncertainty were grand mean centred, while the day-level predictors passive avoidant leadership and transformational leadership were person mean centred. Thus, the coefficient estimates for the day-level predictors represent strictly within-person relationships (Enders & Tofighi, 2007). We tested the hypotheses in three steps. First, we estimated a model without predictors, known as a null model or intercepts-only model, in order to test whether there was significant day-level variation in safety non-compliance behaviour. Second, we estimated a main effects model including all our centred predictors. We controlled for previous day safety non-compliance (person-mean centred), for a more stringent test of our hypotheses, thus predicting changes in safety non-compliance compared to the previous day. Finally, we estimated an interaction model where we tested the two proposed moderators

simultaneously. Significant interactions were probed using the tools made available by Preacher, Curran, and Bauer (2006).

### 3. Results

#### 3.1 Descriptive statistics

Descriptive statistics and inter-correlations for the study variables are displayed in Table 1.

-----Insert table 1 about here-----

In line with our predictions, the day-level relationship between passive avoidant leadership and safety non-compliance was positive ( $r = .05$ ,  $p < .05$ ). In contrast, the day-level relationship between transformational leadership and safety non-compliance was nonsignificant ( $r = -.01$ , ns).

#### 3.2 Hypothesis testing

In order to test Hypothesis 1, that safety non-compliance would exhibit significant within-person variance on a day-to-day basis during the 30 days, we estimated an unpredicted model (null model). The results indicated that 49 % of the variance in safety non-compliance resided at the day-level, while 51 % of the variation resided at the between-person level. As the estimated within-person variance in safety non-compliance was significant ( $\sigma_e^2 = 0.363$ ,  $SE = 0.011$ ,  $z = 32.32$ ,  $p < .001$ ), hypothesis 1 is supported. Thus, the safety non-compliance displayed by the cadets during the 30 days varied significantly on a day-to-day basis, above and beyond what was explained by stable between-person differences.

Hypothesis 2 stated that the cadets would exhibit more safety non-compliance on days where they experienced higher levels of passive avoidant leadership. As shown in Table 2, the main effects model revealed a significant positive relationship between daily perceptions of passive avoidant leadership and daily safety non-compliance ( $B = 0.067$ ,  $SE = 0.033$ ,  $p < .05$ ), after taking into account daily transformational leadership, previous day safety non-compliance, person-level MD and person-level IU. Hence, hypothesis 2 is supported, as the cadets engaged in significantly more safety non-compliance on days where they perceived their leader as more passive avoidant.

-----Insert table 2 about here-----

Hypothesis 3 predicted that between-person differences in moral disengagement would moderate the day-level positive relationship between passive avoidant leadership and safety non-compliance. Specifically, higher (vs. lower) person-level moral disengagement was expected to amplify the positive day-level relationship between passive avoidant leadership and safety non-compliance. As evident in Table 2, the interaction between person-level moral disengagement and day-level passive avoidant leadership significantly predicted daily safety non-compliance ( $B = -0.188$ ,  $SE = 0.067$ ,  $p < .01$ ). As illustrated in Figure 1, the relationship between daily passive avoidant leadership and safety non-compliance was stronger among cadets lower (vs. higher) on moral disengagement. Accordingly, hypothesis 3 was only partially supported, as the interaction was not in the predicted direction.

-----Insert figure 1 about here-----

We performed simple slope tests to evaluate whether the relationship between daily passive avoidant leadership and daily safety non-compliance was significantly different from zero at high and low levels of moral disengagement. The results showed that daily passive avoidant leadership was related to more daily safety non-compliance among cadets low on moral disengagement (slope = 0.141,  $SE = 0.043$ ,  $z = 3.28$ ,  $p < .01$ ). In contrast, cadets high on moral disengagement exhibited higher levels of daily safety non-compliance in general, but their daily safety non-compliance behaviors were unrelated to the perception of their leader as passive avoidant on that day (slope = -0.030,  $SE = 0.047$ ,  $z = 0.64$ , ns).

Finally, hypothesis 4 stated that between-person differences in intolerance of uncertainty would moderate the day-level relationship between PAL and safety non-compliance. Specifically, higher (vs. lower) person-level intolerance of uncertainty was expected to amplify the positive day-level relationship between passive avoidant leadership and safety non-compliance. As shown in Table 2, the interaction between person-level IU and daily passive avoidant leadership significantly predicted daily safety non-compliance ( $B = -0.154$ ,  $SE = 0.059$ ,  $p < .01$ ). However, as illustrated in Figure 2, the relationship between daily passive avoidant leadership and safety non-compliance was weaker among cadets higher (vs. lower) on intolerance of uncertainty. Consequently, hypothesis 4 was only partially supported,

as the moderating effect of intolerance of uncertainty worked in the opposite direction than hypothesized.

-----**Insert figure 2 about here**-----

Simple slope tests showed that among cadets low on intolerance of uncertainty, safety non-compliance was higher on days with more passive avoidant leadership (slope = 0.130, SE = 0.043,  $z = 3.00$ ,  $p < .01$ ). In contrast, cadets high on intolerance of uncertainty engaged in less safety non-compliance in general, but their safety non-compliance behavior on a given day was not related to their perception of their leader as passive avoidant on that day (slope = -0.020, SE = 0.044,  $z = 0.44$ , ns).

## 4. Discussion

### 4.1 Summary of results

The aim of the present study was to examine the malleable nature of safety compliance and the impact of daily passive avoidant leadership on daily safety non-compliance among naval crew, and how stable individual dispositions in terms of moral disengagement and intolerance of uncertainty influence this relationship. Two of our hypotheses were fully supported, and two only partially. As expected, a substantial portion (49 %) of the daily safety non-compliance was caused by variation within each crewmember from day to day (H1), and increase in daily passive avoidant leadership was related to increased daily safety non-compliance (H2). Unexpectedly, according to H3 and H4, the results showed that daily passive avoidant leadership is particularly detrimental to breaches in safety compliance among those low on moral disengagement and among those low on intolerance of uncertainty. High moral disengagement and high intolerance of uncertainty, in contrast, buffer the negative impact of daily passive avoidant leadership on the cadets' daily safety behavior.

### 4.2 The malleable nature of safety compliance

Safety compliance is usually investigated by cross-sectional designs; which suggest that the construct represents a relatively static phenomenon, caused by stable differences between people. Accordingly, a one day snapshot would be sufficient to learn about antecedents, outcomes and mechanisms. However, our results show that theories of safety compliance

should emphasize the malleable nature of the construct. Compliance fluctuates from day to day for each individual, and this variation may be partially caused by variables that are changeable over a relatively short time span, like emotions or social perceptions (e.g., Ohly, 2011). In other words, there are psychological processes within each individual crew member that are sensitive to situational influences, and that fluctuates in patterns partially unrelated to dispositions, but still influence the day by day safety compliance significantly. At this basis, a useful refinement of the Neal, Griffin and Hart (2000, p. 101) definition of safety compliance could be to see it as a *malleable process* related to adhering to safety procedures and carrying out work in a safe manner. Furthermore, in order to capture these fluctuations, the present study shows that time lagged diary research designs can be very useful as a supplement to cross sectional designs. Thus, the limited attention to this methodology in current safety research could be seen as a shortcoming and a challenge for future studies. This finding may also have practical implications for day to day leadership and cooperation. Even competent and motivated crewmembers have good and bad days, which suggests that leaders should monitor the crew on a daily basis – and not take compliance for granted from any crew members.

#### *4.3 The effect of passive avoidant leadership on safety non-compliance*

The results are in line with previous studies showing a relationship between passive avoidant leadership and safety non-compliance (e.g., Nielsen et al., 2016) - but also extend these by including a within person analytic viewpoint showing that even the best crewmembers may have significant variation in safety compliance during a working day, partially caused by a perception of their leader as passive avoidant. This suggests that theory of safety-leadership should emphasize both the malleable nature of safety behavior and safety leadership itself. In terms of day-to-day practical leadership, this underscores the importance of not being perceived as a leader that is absent and avoidant during the day. Thus, even relatively short periods of such perceived avoidance may jeopardy safety at the workplace. It is worth noting that the strength of the relationship between passive avoidant leadership and safety non-compliance is relatively weak. This supports Alper og Karsh (2009) view that safety compliance should be seen as an outcome of multiple influences – with leadership as just one of several factors involved.

A strength of the present study is the inclusion of transformational leadership as a control variable, reducing the risk of overestimating the strength of the relationship between passive



avoidant leadership and safety non-compliance. Surprisingly, conversely to previous studies (e.g., Kelloway et al., 2006; Clarke, 2013), daily perceptions of transformational leadership did not explain variation in daily safety compliance. This suggests that it is more important *not* to be perceived as passive and avoidant than it is to appear inspirational. However, an inclusion of a safety specific measure of transformational leadership might have shown a stronger association between TL and SC (e.g., Barling, 2001). It is also possible that transactional leadership, more focused on role clarifications and proactive control of performance, would have shown a stronger positive influence on safety non-compliance and as such a more relevant control variable in the model.

#### *4.4 How and why moral disengagement changes the relationship between passive avoidant leadership and safety non-compliance relationship*

The results show that crewmembers high on moral disengagement generally had more breaches in daily safety compliance compared to those low on moral disengagement during the 30 day diary period. This supports previous findings of a morals component related to safety behavior (Hystad et al., 2014), and that follower characteristics influence the effect of leadership behavior (cf. Howell & Shamir, 2005). However, it is unexpected that sailors low on moral disengagement – and not those high, were most vulnerable to rises in passive avoidant leadership in terms of increased safety non-compliance. One explanation is that individuals that are high on moral disengagement are more strongly influenced by this disposition in their cognitive processing (Moore, 2015), and thus less susceptible to external influences like passive avoidant leadership. Furthermore, those low on moral disengagement may be more sensitive towards other's well-being and rights, and more personally challenged in a moral situation related to safety requirements. This represents in turn a stronger temptation also to deviate from these obligations, particularly when the situations require taking on hardship at the benefit of others – and they are “left on their own” and not monitored and externally regulated (Ludvig & Longenecker, 1994). In other words, “the morally bad” do not see a moral obligation, and are thus unlikely to change behavior, while “the good” see, and thus, struggle to do what they ought to, particularly when no one are paying attention. This speculation may have some support in Kouchaki and Smith's (2014) finding that low moral disengagement subjects showed more increase in unethical behavior at the end of the day, compared to their high moral disengagement colleagues, who already had an inherent disposition to disengage morally. A fruitful path to interpret such mechanisms further might be in terms of *situational* moral disengagement (cf. Moore, 2015). Thus, under

which conditions situational moral disengagement may be activated and how dispositional relates to situational moral disengagement represent relevant future research (cf. Johnson & Buckley, 2015).

#### *4.5 How and why intolerance of uncertainty changes the relationship between passive avoidance leadership and safety non-compliance relationship*

Surprisingly, the results showed that daily passive avoidant leadership was related to higher daily safety non-compliance among those low on dispositional intolerance of uncertainty, while this relationship was non-significant among those that were high. Also, the cadets that were high (vs. low) on dispositional intolerance of uncertainty displayed less safety non-compliance during the 30 day diary study period. There may be several explanations for this. According to Reason (et al., 1998), safety regulations are developed in order to minimize risk at the workplace. Thus, safety compliance may be seen, as suggested by Birrell (et al., 2011), as a proactive strategy applied in order to reduce a sense of uncertainty, which in turn may explain the increase in safety compliance by individuals that are high on intolerance of uncertainty. Thus, safety compliance may serve as a strategy to regain a sense of control and reduced uncertainty which is particularly important to these individuals (cf. Carleton, 2016). This tendency may be particularly strong in situations with lack of leader support and encouragement, adding to the sense of uncertainty. Thus, in the present context, encompassing challenging job demands like work in the heights 50 meters above deck-level at night during rough weathers, combined with passive avoidant leaders, high intolerance of uncertainty crewmembers may be particularly safety aware and control oriented, transforming into generally high levels of safety compliance (Hong & Lee, 2015). This, however, stands in contradiction to our expectation that high intolerance of uncertainty crew members might experience severe stress reactions, transforming into flight or freeze strategies which impair their ability to comply with safety regulations. On the other hand, the results seem in line with Altinay, Madanoglu, Daniele and Lashley (2012), finding that individuals with higher thresholds for ambiguity and uncertainty were more likely to take risks. This further suggests that high intolerance of uncertainty individuals are more intrinsically driven in terms of safety compliance and less in need of external regulation from leaders, while low intolerance of uncertainty may need closer day to day follow up. It is, however, worth noting that special features of the sample may color the results. The officers are all screened and selected on mental stability and resilience. So, even if there are differences in levels of intolerance of

uncertainty among them, they are all generally robust. It is possible that with a less selected crew, high intolerance of uncertainty may have a more negative effect on stress level activations, and subsequently safety performance. It is also worth noting, in line with Mischel (1977) that in situations with low external regulation and leadership, the relative importance of personality traits on behavior may increase. This suggests that particularly groups of robust and selected individuals, with low intolerance of uncertainty, may be susceptible to violate safety regulations during passive avoidant leadership.

#### *4.6 Limitations*

A first limitation relates to the reliance of self-report for our measure of safety compliance, susceptible to social desirability effects. It is possible that self-report bias is particularly problematic for deviant behaviors, and that the crew might under-report these behaviors in fear of reprisals from their superiors (Hystad et al, 2014). Still, self-reports might also be the most viable measure of deviant behavior, given that the employee is the one that is most aware of the acts that he or she actually commits (Fox, Spector, Goh & Bruursema, 2007). Hard criterion data such as supervisor reports suffer from their own shortcomings as they can only comprise behaviors for which the cadets has been caught or are observed doing, and as such probably represent only as small portion of the relevant behaviors. A second limitation is related to the measuring of predictor and outcome variable at the same point of time each day, which reduces the possibility to demonstrate causal relationships of the main effect. Thus, causality presupposes a time lag between predictor and the outcome variable (Antonakis et al., 2010). To avoid this in the future, the predictor variables could be measured during the first watch, potential mediators before the second, while outcomes measures could be collected at the end of the last watch, providing a better basis for drawing causal inferences from the data. The homogenous composition of the current military sample, predominantly young males selected on mental robustness and intelligence may represent a third limitation in terms of generalizability. A more heterogeneous sample in terms of cultural background, age, line of business and gender - as well as mental and cognitive capacity may react differently to a situation of passive leadership. We further acknowledge that the sample of mainly male military cadets means that the findings may not be fully generalized to other organizations, or across gender.

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Table 1. Descriptive statistics and inter-correlations for the study variables

| <b>Variable</b>                      | <b>M</b> | <b>SD</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
|--------------------------------------|----------|-----------|----------|----------|----------|----------|----------|
| 1. Daily safety non-compliance       | 1.65     | 0.84      | -        | .60**    | -.18     | .22*     | -.19     |
| 2. Daily passive avoidant leadership | 1.82     | 0.67      | .05*     | -        | -.34**   | .32**    | -.04     |
| 3. Daily transformational leadership | 3.58     | 0.50      | -.01     | -.43**   | -        | -.05     | -.05     |
| 4. Moral disengagement               | 2.03     | 0.45      | -        | -        | -        | -        | .16      |
| 5. Intolerance of uncertainty        | 2.54     | 0.49      | -        | -        | -        | -        | -        |

*Note.* Correlations below the diagonal are within-person and correlations above the diagonal are between-person. N = 77, daily observations = 2310.

\* $p < .05$ , \*\* $p < .01$ .

Table 2. Multilevel estimates for the prediction of daily safety non-compliance.

|                                    | Null model |      | Main effects model |      | Interaction model |      |
|------------------------------------|------------|------|--------------------|------|-------------------|------|
|                                    | B          | SE   | B                  | SE   | B                 | SE   |
| Intercept                          | 1.653**    | .068 | 1.681**            | .069 | 1.680**           | .069 |
| Previous day safety non-compliance |            |      | .226**             | .024 | .220**            | .024 |
| Passive avoidant leadership (PAL)  |            |      | .067*              | .033 | .055              | .033 |
| Transformational leadership        |            |      | .015               | .035 | .012              | .035 |
| Moral disengagement                |            |      | .376*              | .154 | .371*             | .154 |
| Intolerance of uncertainty         |            |      | -.322*             | .143 | -.324*            | .143 |
| PAL × moral disengagement          |            |      |                    |      | -.188**           | .067 |
| PAL × intolerance of uncertainty   |            |      |                    |      | -.154**           | .059 |
| Variance Level 1 (day)             | .345       | .058 | .321               | .011 | .317              | .011 |
| Variance Level 2 (person)          | .363       | .011 | .342               | .058 | .342              | .058 |
| -2 Log likelihood                  | 4208.2     |      | 3105.1             |      | 3086.7            |      |

*Note.* N = 77, measurement occasions = 2166.

\*p < .05, \*\*p < .01.

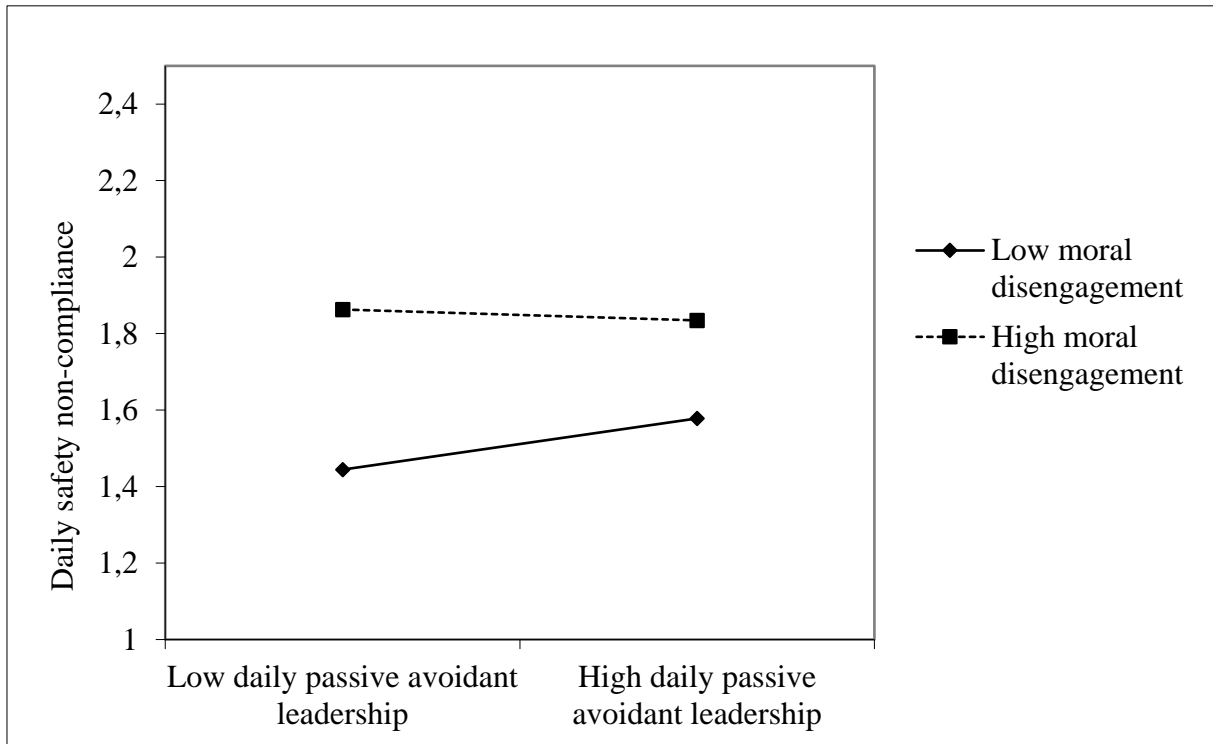


Figure 1. Daily passive avoidant leadership as predictor of daily safety non-compliance at high and low levels of moral disengagement.

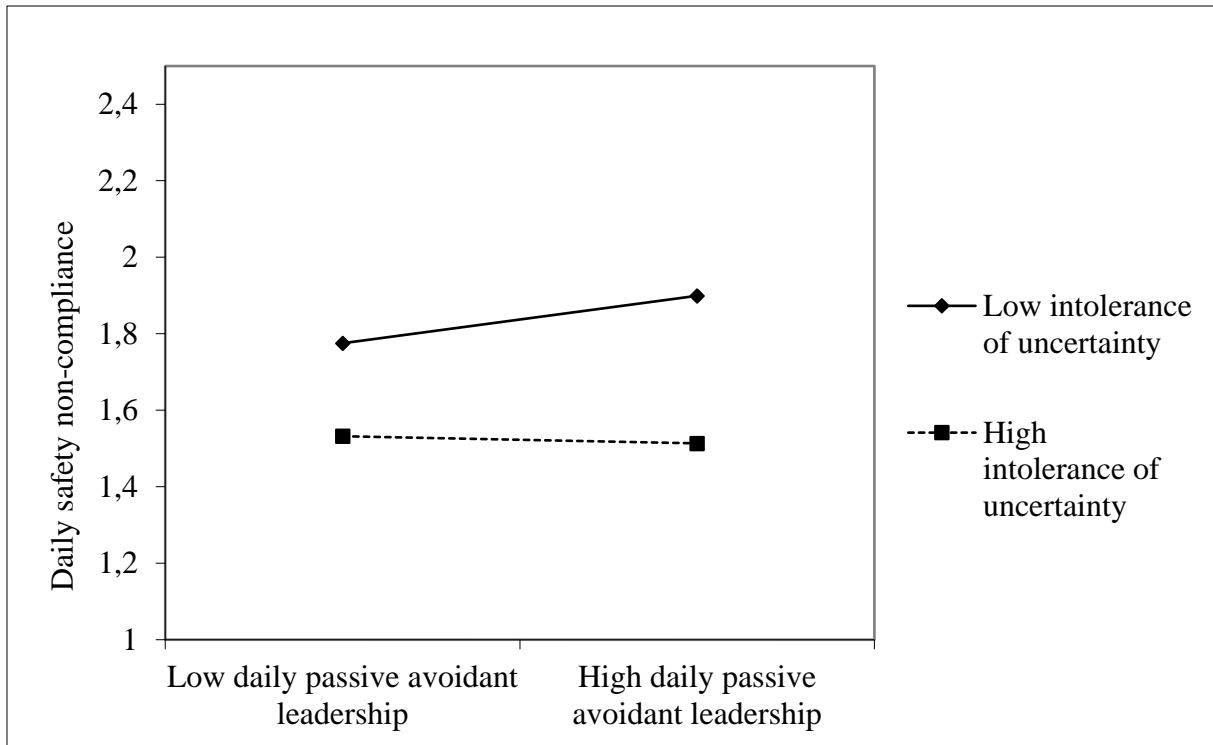


Figure 2. Daily passive avoidant leadership as predictor of daily safety non-compliance at high and low levels of intolerance for uncertainty