

TITLE: Personality and Safety Citizenship: Safety motivation, Safety Knowledge, or Neither?

ABSTRACT: Safety citizenship behaviors (SCB) have never been classified following the intended beneficiary of these behaviors. This study aims to examine Hofmann et al. (2003) SCB items in an attempt to identify two dimensions: SCB oriented towards individuals (SCB-I) and towards the organization (SCB-O). Further, by drawing on Christian et al. (2009)'s model of safety performance, we examined how distal and proximal person-related factors are associated with these behaviors. Results showed that the broader conscientiousness personality trait was related to both SCB-I and SCB-O, indirectly through safety motivation and knowledge. In contrast the altruism personality facet was directly related to SCB-I only

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Introduction. Models of safety behaviors based on work performance approaches generally consider two broad types of safety behaviors that are task and contextual behaviors. Task behaviors have direct bearing on carrying out tasks safely, such as compliance or by reverse violations of safety rules. Contextual behaviors are mostly discretionary and regarded as beyond an employee's usual job role and can also be termed safety participation. Christian et al. (2009) propose these behaviors are predicted by both person-related and situation-related factors. They conceptualized person-related factors as distal (e.g. personality) or proximal (e.g. safety motivation/knowledge), and situation-related factors as more distal (eg. safety climate) antecedents of safety behaviors. In these models of safety behaviors, safety participation and safety compliance are both featured as outcomes. However, recent research is showing that safety participation is not just 'a good' thing in its own right that benefits the organization at large, but that it also predicts employees' safety violations (Chmiel et al., 2017; Neal & Griffin, 2006). Thus, understanding what predicts employee safety participation is important to understanding how to make workplaces safer. The aim of this study is to examine how distal (altruism/conscientiousness) and proximal (safety knowledge/motivation) person-related factors relate to contextual safety behaviors, by distinguishing between safety citizenship behaviors oriented towards individuals (SCB-I) and towards organization (SCB-O). More precisely, based on the safety specific literature and on the general organizational citizenship behaviors literature, we expect altruism and conscientiousness to be related to SCB-I and SCB-O, directly and indirectly through safety motivation and knowledge.

Methods. Self-reported questionnaires were administered to 290 employees from a Belgian pharmaceutical company, including validated scales measuring altruism, conscientiousness, safety motivation, safety knowledge. SCB-I and SCB-O were measured by using items from Hofmann et al. (2003) safety citizenship behaviors' scale. In order to create two dimensions from the original items, we performed exploratory factor analyses, on the basis of the response of the 290 workers from our sample to the whole scale and on the basis of another sample of 536 workers from a public water company. We extracted two factors by using principal components analysis with Varimax rotation, separately for both samples. In parallel, we asked 6 external raters to evaluate, for each of the 27 items, if they considered it was more directly oriented to benefit individuals, organization or if it was not clear. On the basis of the results, we categorized each item into SCB-I or SCB-O dimensions if the following criteria were met: in both samples, the item loading on one of the two dimensions is higher or equal to .50 (Kline, 2011); in both samples, the item loadings were significantly higher on one of the two dimensions (Stevens, 2002); the highest loading is on the same dimension in both samples; the majority of external raters (at least 4/6) considered the item as representing the same dimension as the highest loading in both samples. On the basis of these criteria, 15 items were classified into SCB-I (8 items, $\alpha=.92$) or SCB-O (7 items, $\alpha=.91$) dimensions. Structural equation modeling (SEM) analyses were performed using MPlus6. Data were analyzed following a recommended two-step process (Anderson & Gerbing, 1988).

First, we assessed the measurement model through a series of confirmatory factor analyses to evaluate the independence of constructs examined in our study. Second, we proceeded with the assessment of the hypothesized structural relationships among latent variables. We used bootstrap to estimate indirect effects.

Results. The hypothesized 6-factor model was found to yield a good fit to the data: $\chi^2(df)=162.57(120)$, CFI=.984, NNFI=.979, RMSEA=.035 and was significantly better than alternative models. SEM showed the hypothesized model fit the data well, as indicated by the following indices: $\chi^2 (dl) = 291.45(184)$, CFI = .960, NNFI=.952, RMSEA = .045. This model was compared with alternative nested models but was the best as it was the most parsimonious. As the hypothesized model presented non-significant paths, we tested a “pruned model”. The χ^2 difference between hypothetical and pruned model was not significant, so we kept the most parsimonious model, also presenting good fit indices: $\chi^2 (dl) = 292.44(187)$, CFI = .961, NNFI=.953, RMSEA = .044. Figure 1 presents the pruned model and shows that the personality facet of altruism was only directly related to SCB-I only and that the broader personality trait of conscientiousness was only indirectly related to both SCB-I and SCB-O, through safety motivation and safety knowledge.

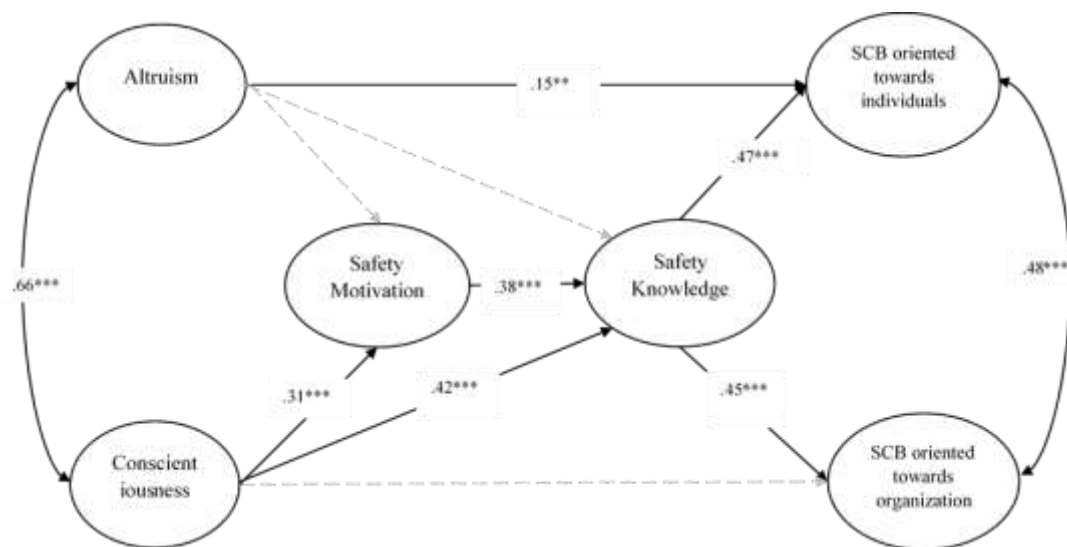


Figure 1. Final Model

Theoretical/practical implications. Our results show that SCBs oriented to individuals can be distinguished from those oriented to the organization, and that these differing orientations have different predictors. Models of safety performance conceptualized personality as distal person-related factors having an indirect influence on safety behaviors via proximal person-related factors. As studies testing these associations are missing in the literature, our aim was to examine them. We showed that conscientiousness was related to both SCB-I and SCB-O, indirectly through safety motivation and knowledge. This result is consistent with Christian et al.’s (2009) findings that safety motivation and knowledge mediate the relationship between conscientiousness and safety performance. On the other hand, altruism was only directly related to SCB-I, implying that there are other processes through which personality can affect safety citizenship behaviors. These findings also indicate a number of practical implications. First, as workers considering safety as important acquire more safety knowledge, and that this knowledge lead them to engage more in SCB-I/SCB-O, companies willing to increase these type of behaviors should organize sensitization sessions about the importance of safety, as well as safety training sessions to improve their knowledge. Second, given the importance of altruism and conscientiousness in the emergence of safety citizenship behaviors, organization should take into account these personality aspects while elaborating and implementing safety management practices. Wachter & Yorio (2014)

report a series of safety management practice often adopted by companies. For some of these practices, it can be important to take personality aspects into account. For example, ‘hiring for safety’ consists of hiring employees more likely to behave safely. If SCB are expected of them, it can be appropriate to examine how altruist and conscientious potential recruits are.

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