

HOW PERCEIVED INDIVIDUAL SAFETY ATTITUDE HELPS TO EXPLAIN THE RELATIONSHIP BETWEEN SENSATION SEEKING AND RISK-TAKING PROPENSITY IN THE PREDICTION OF INDIVIDUAL WORK PERFORMANCE

Woromita Fathlistya, Martina Dwi Mustika
Faculty of Psychology, University of Indonesia
e-mail: tika-mdm@ui.ac.id

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Abstract: Understanding the attitudes of individuals toward safety is important for hospital prevention programs and could reduce safety-related accidents. This study investigates the effects of perceived individual safety attitude in explaining the relationship between sensation seeking and risk-taking propensity for rewards in predicting individual performance. An on-line cross-sectional study was undertaken in which 177 nurses who completed an objective task (BART) and self-report questionnaires. Path analysis results revealed that perceived individual safety attitude influenced the relationship between both sensation seeking and risk-taking propensity in predicting individual performance. Nurses with both sensation seeking and risk-taking propensity for rewards have negative perceptions toward individual safety attitude, which resulted in poor individual work performances. It is indicated that encourage performance by rewards is not always effective.

Keywords: performance, risk-taking propensity, perceived individual safety attitude, sensation seeking

Abstrak: Bagaimana sikap *perceived individual safety* membantu menjelaskan hubungan antara *sensation seeking* dan kecenderungan pengambilan resiko dalam memprediksi kinerja individu. Pemahaman sikap individu terhadap keselamatan merupakan hal yang penting bagi keberlangsungan program pencegahan rumah sakit sekaligus mengurangi jumlah kecelakaan sebagai bagian dari menjaga keselamatan. Penelitian ini akan melihat lebih lanjut pengaruh sikap *perceived individual safety* dalam menjelaskan hubungan antara *sensation seeking* dan kecenderungan pengambilan risiko untuk mendapatkan *rewards* dalam memprediksi kinerja individu. Penelitian ini



menggunakan desain *cross sectional* dengan media online pada 177 perawat yang menyelesaikan sebuah tugas tertentu (BART) dan mengisi beberapa kuesioner terkait dirinya. Hasil *path analysis* menunjukkan bahwa sikap *perceived individual safety* mempengaruhi hubungan antara *sensation seeking* dan kecenderungan pengambilan risiko dalam memprediksi kinerja individu. Perawat dengan *sensation seeking* dan kecenderungan mengambil resiko untuk mendapatkan imbalan memiliki persepsi negatif terhadap sikap *individual safety*, yang berakibat buruknya kinerja seseorang. Hal ini menunjukkan bahwa mendorong kinerja dengan *rewards* tidak selalu efektif.

Kata kunci: Kinerja, kecenderungan pengambilan risiko, sikap *perceived individual safety*, *sensation seeking*.

INTRODUCTION

Individual differences and individual safety attitudes are antecedents of safety performance as suggested in a safety climate and behavior framework developed by Neal and Griffin (2004). For the purpose of this study, we limit individual differences in term of risk-related personality characteristics particularly sensation seeking and risk-taking propensity; and individual safety attitude as an individual's beliefs and emotions associated with behaving safely and responsibly at work by following safety policies and procedures as a result of the influence of the individual's characteristics and environment (Henning et al., 2009; Neal, & Griffin, 2004; Rundmo, & Hale, 2003).

In recent years, sensation seeking and risk-taking propensity for rewards have been

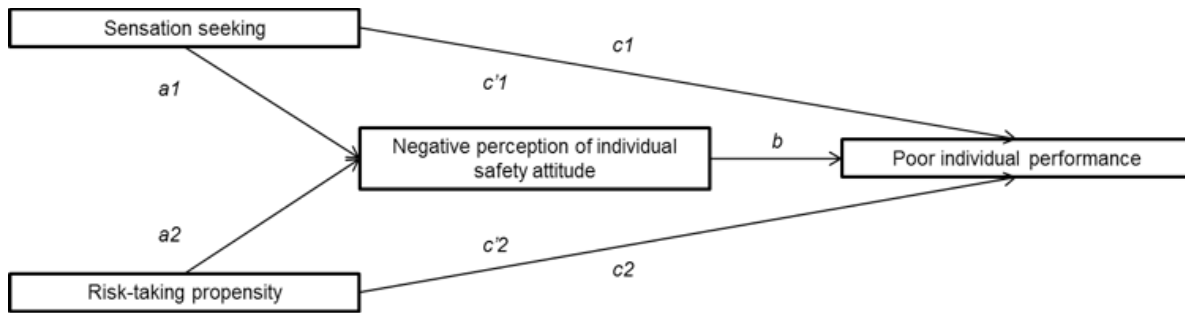
studied in relation to unsafe or risky behaviors in clinical settings (e.g., Cestac, Paran, & Delhomme, 2011; Miles, et al., 2001) and influence positive learning outcomes in educational contexts (e.g., Humphreys, Lee, & Tottenham, 2013; Jackson, 2005, 2011). However, few studies have investigated the association between sensation seeking and risk-taking propensity in the prediction of performance or safety-related construct in an organizational context. While a study found that sensation seeking negatively influenced work performance (Reio Jr. and Sanders-Reio, 2006), another study showed that risk-taking propensity was negatively linked with safety attitude (Henning et al., 2009). Given that personality traits play significant role in predicting attitude (Judge & Kammeyer-

Mueller, 2012) and attitudes predict many aspect of behaviors at work (Riketta, 2008; Wille, Hofmans, Feys, & De Fruyt, 2014), we are interested to know how nurses' safety attitude influences the relationship between sensation seeking and risk-taking propensity for rewards in predicting work performance.

Griffin, Neal, and Parker (2007) developed a new measure of work performance that uses three different forms of work roles or task behaviors (proficiency, adaptivity, and proactivity) to assess the effectiveness of an individual's performance at work. In the context of nursing, individual task proficiency refers to the daily tasks and activities of nurses, such as administering medications and monitoring, recording, and reporting symptoms (Griffin et al., 2007; O*Net OnLine, 2013); individual task adaptivity refers to the expectation that nurses will adapt to changes that will influence their tasks or environment, such as new technologies, new safety procedures, or new daily routines; and individual task proactivity refers to the ability of nurses to work with minimum levels of supervision and act with initiative to improve their performance.

In daily routines, nurses are sometimes encouraged to take risks, especially when

they are required to make decisions in unpredictable circumstances (Wolfe, 1994). However, risky behaviors or decisions are more likely to result in poor performance (Reio Jr. & Sanders-Reio, 2006). A question arises in relation to how sensation seeking and risk-taking propensity are related to poor individual performance and this study postulates that workers' perceptions of individual safety attitude will influence the relationship between these personality characteristics and individual work performance. We argue that individuals with high levels of sensation seeking and risk-taking propensity tend to be reluctant to commit to working safely and responsibly (Henning et al., 2009). Indeed, participants with high levels of sensation seeking and risk-taking propensity tend to have negative perception of individual safety attitude, which leads to poor individual performance at work (Henning et al., 2009; Neal, & Griffin, 2004). Thus, this study predicts that perceived individual safety attitude mediates the relationship between sensation seeking and poor individual performance, and between risk-taking propensity and poor individual performance (see Figure 1).

Figure 1. The proposed path analysis

This study uses a hybrid model of learning in personality to measure sensation seeking, and defines sensation seeking as a drive for stimulation and a desire to find and explore new experiences that remains relatively stable and unchanged over time (Jackson, 2005, 2008, 2011). The hybrid model of learning suggests that sensation seeking drives behaviors' functional outcomes if re-expressed through a series of learning mechanisms that lead to the development of rationality that directs the drive to functional outcomes (Jackson, 2005, 2008). In this study, sensation seeking is expected to drive behavior towards dysfunctional rather than functional outcomes as we do not study these higher order mechanisms (Jackson, 2011).

This study predicts that risk-taking propensity which is associated with taking risks in return for rewards will also be linked to dysfunctional behavior. Risk-taking propensity is defined as "a behavioral tendency to take risks in response to cues for potential reward in spite of some probability

for undesirable results" (MacPherson, Magidson, Reynolds, Kahler, & Lejuez, 2010, p. 1401). In contrast to sensation seeking, risk-taking propensity is not influenced by the willingness to take risks, but it is affected by the possibility of positive and negative consequences (MacPherson et al., 2010, p. 1401). These positive and negative consequences give individuals cues to choose whether to take risks or not. Risk-taking propensity can be measured using computerized gambling tasks that reflect real-life situations, such as the Balloon Analogue Risk Task (BART; Lejuez et al., 2002; Lejuez, Aklin, Bornovalova, & Moolchan, 2005; White, Lejuez, & de Wit, 2008).

Given the differences between sensation seeking and risk-taking propensity, it is expected that the correlation between the two will be small. This study aims to investigate how sensation seeking and risk-taking propensity differentially predict poor individual performance, and will investigate the differences between these two

personality characteristics. While it may be easier to adapt to new situations, it is predicted that individuals with high levels of sensation seeking or risk-taking propensity will have difficulty following safety procedures because of their lack of forethought and proactive behaviors. It is also predicted that individuals with high levels of sensation seeking or risk-taking propensity will be too proactive and take too many risks when performing their jobs, which will lead to poor individual performance. The following hypotheses were formulated:

H1a: Sensation seeking is positively associated with poor individual performance.

H1b: High risk-taking propensity is positively associated with poor individual performance.

In this study, perceived individual safety attitude is also expected to mediate the relationship between sensation seeking and risk-taking propensity in the prediction of poor individual performance. Henning et al. (2009) proposed six facets of individual safety attitude: general attitudes, what workers should do, what management should do, safety as an expense and interference with productivity, compromising safety in favor of production,

and safety discipline. It is expected that perceived individual safety attitude will explain why sensation seeking and risk-taking propensity are linked to poor individual performance.

Previous research in relation to safety attitude has suggested that sensation seeking and risk-taking propensity were negatively, and partly or fully, associated with perceived safety attitude (Henning et al., 2009). Henning et al. found that individuals with high levels of sensation seeking and risk-taking propensity perceived that general safety was not a priority. Further, those individuals also believed that management and individual employees did not need to be committed to, concerned with, and responsible for maintaining safety, including improving self-safety discipline (Henning et al., 2009). We argue then that people with high level of sensation seeking and risk-taking propensity will have negative perception of individual safety attitude. As job attitudes predict job performance (Riketta, 2008), it is argued that negative individual beliefs and perceptions of safety in organizations direct employees' behaviors toward poor individual performance. Thus, this study also formulated the following hypotheses:

H2a: Negative perception of individual safety attitude mediates the relationship between high sensation seeking and poor individual performance.

H2b: Negative perception of individual safety attitude mediates the relationship between high risk-taking propensity and poor individual performance.

Following the proposed path analysis (see Figure 1), it is suggested that there are differences between sensation seeking and risk-taking propensity in predicting poor individual performance and that this relationship will be influenced by how each individual perceives their safety attitude.

METHODS

Participants and Procedures

Participants included 71 females ($M_{age} = 28.14$, $SD_{age} = 7.21$) and 106 males ($M_{age} = 30.65$, $SD_{age} = 8.11$) Indonesian nurses who had more than one year of experience working as a nurse at a nursing organization. Nurses were invited to participate in the study by completing questionnaires and objective tasks online using Inquisit 4 Web (Millisecond Software, 2013). All participants were paid for their participation with a Rp. 20.000,00 pre-paid voucher.

Materials

To ensure that the participants comprehended and understood all statements and instructions, materials were standard back-translated into Bahasa Indonesia.

Sensation seeking

The 15-item questionnaire from the Learning Style Profiler of Jackson (2005) was used to assess sensation seeking. Participants were asked to choose one of three answers (“true,” “false,” and “can’t decide”) to indicate their level of sensation-seeking characteristics. Questions included: “I am excited by what is new in my field,” “I look for new sensations,” and “I seek thrilling and exciting activities.” A high score on this scale indicated a sensation-seeking tendency.

Risk-taking propensity

The computerized BART was used to measure risk-taking propensity that is associated with rewards (Lejuez et al., 2002; White et al., 2008). Participants were asked to press a button to “pump” 30 virtual balloons until it reached a certain point before it exploded. If participants decided to stop pressing the button before the balloon exploded, they would receive all the money collected thus far; however, if the balloon exploded, the money was lost. Each balloon

had different probability levels, from 1/128 down to 1/1, in relation to when they would explode (see Lejuez et al., 2002 for a more detailed explanation). Participants were not informed of the probabilities. Their adjusted average pump scores (the mean number of pumps of the balloons that did not explode) were analyzed; a high score indicated high levels of risk-taking propensity.

Perceived individual safety attitude

Henning et al. (2009) developed a safety attitude questionnaire consisting of 28 items that measured six categories: general attitude, what workers should do, what management should do, safety as an expense and interference with productivity, compromising safety in favor of production, and safety discipline. A five-point scale was used to score each item (from 1 = Strongly Disagree to 5 = Strongly Agree). Examples of items included: “I think safety issues should be assigned high priority in management settings,” “Unsafe behaviors should not be tolerated,” “Safety should have a high priority,” and “I think working safely should be a condition of employment.”

Individual performance

The individual performance of nurses was measured using nine items developed by

Griffin et al. (2007), that measure individual behaviors in three positive work role sub-dimensions (proficiency, adaptivity, and proactivity) to determine individual performance. A five-point scale was used to score the items (from 1 = Strongly Disagree to 5 = Strongly Agree). Examples of items include: “I carried out the core parts of my job well,” “I adapted well to changes in core tasks,” and “I made changes to the way my core tasks are done.”

Following the suggestion of Kenny and Judd (2014, p. 335), the scores of both perceived safety attitude and individual performance were rescaled. The results reflected the expectation that sensation seeking and risk-taking propensity had negative effects on individual performance. High scores for perceived safety attitude and individual performance reflected a low attitude toward safety and low individual performance, respectively.

Data Analysis

The mediation procedure of Baron and Kenn (1986) was used to test the mediation effect. Maximum likelihood (ML) methods of path analysis were used and the model coefficients, direct, indirect, total effects, and model’s goodness-of-fit using AMOS 20 software were calculated.

RESULTS

The means, standard deviations, scale reliabilities, and correlations for all variables are set out in Table 1. All questionnaires had satisfactory internal consistency (i.e., above $\alpha = 0.70$). Sensation seeking had a positive significant correlation with both negative perceived individual safety attitude and poor

individual performance ($r = 0.302$, $p < 0.01$ and $r = 0.446$, $p < 0.01$, respectively). Risk-taking propensity had a positive significant correlation with negative perceived individual safety attitude only ($r = 0.200$, $p < 0.01$). Negative perceived individual safety attitude had a positive correlation with poor individual performance ($r = 0.645$, $p < 0.01$).

Table 1
Means, Standard Deviations, Correlations, and Scale Reliabilities

| | <i>M</i> | <i>SD</i> | <i>SS</i> | <i>RT</i> | <i>SA</i> | <i>IP</i> |
|-----------|----------|-----------|------------|-----------|------------|------------|
| <i>SS</i> | 23.26 | 5.08 | .71 | | | |
| <i>RT</i> | 18.99 | 12.05 | .052 | - | | |
| <i>SA</i> | 85.20 | 13.20 | .302** | .200** | .93 | |
| <i>IP</i> | 30.08 | 5.69 | .446** | .064 | .645** | .94 |

Note: *SS* = Sensation seeking; *RT* = Risk-taking propensity; *SA* = Negative perception of individual safety attitude; *IP* = Poor individual performance.

Diagonal entries are scale reliabilities.

* Correlation is significant at the 0.05 level (two-tailed).

** Correlation is significant at the 0.01 level (two-tailed).

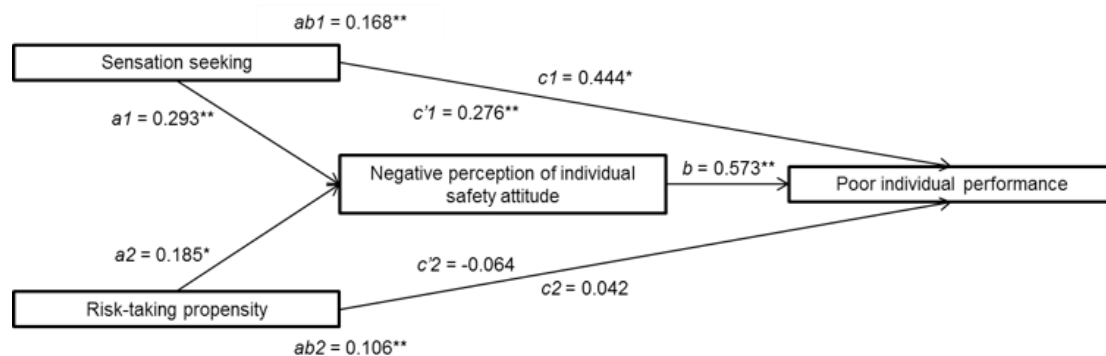
As shown in Figure 2, standardized estimates of both sensation seeking and risk-taking propensity indirectly influenced poor individual performance through the effect of negative perceived safety attitude. Participants who were sensation seekers ($a = 0.293$, $p = 0.000$) or who had a high risk-taking tendency ($a = 0.185$, $p = 0.009$) had negative beliefs and emotions in relation to safety. They were reluctant to commit to,

and be responsible for, their safety behavior, this in turn led to poor individual performance ($b = 0.573$, $p = 0.000$). The standardized indirect effects of sensation seeking ($ab = 0.168$) and risk-taking propensity ($ab = 0.106$) in predicting poor individual performance were tested using a bias-corrected bootstrap confidence interval that showed no zero between the lower and upper intervals (sensation seeking = 0.091 to 0.240; risk-taking

propensity = 0.034 to 0.173). Further, Sobel tests showed a significant indirect effect for both sensation seeking and risk-taking propensity ($z = 1.605$ and $z = 2.389$, $p < 0.05$, respectively). This indirect effect

shows that negatively perceived individual safety attitude reduced the relationship between high risk-taking propensity and poor individual performance ($c' = -0.064$).

Figure 2. The result of path analysis (standardized estimates)



* Correlation is significant at the 0.05 level (two-tailed).

** Correlation is significant at the 0.01 level (two-tailed).

The path analysis provided a satisfactory fit: $\chi^2 = 0.470$, $p = 0.493$ (Hu, & Bentler, 1999); root-mean-square residual = 0.000 (Hu, & Bentler, 1999); root-mean-square error of approximation = 0.000 (Browne & Cudeck, 1993); goodness-of-fit index =

0.999 (Jöreskog, & Sörbom, 1988); adjusted goodness-of-fit index = 0.987 (Jöreskog, & Sörbom, 1988); and comparative-fit index = 1.000 (Bentler, 1990)

DISCUSSION

The purpose of this study was to investigate how sensation seeking and risk-taking propensity predict individual work performance through perceived individual safety attitude.

In support of H1a, sensation seeking directly predicts poor individual

performance. Consistent with Jackson's (2005, 2008) theory of sensation seeking, the results showed that individual curiosity and the desire to explore new experiences is associated with poor individual performance. We expected this because individual's who always want to explore new experiences may not pay attention and act without mindfulness (Jackson, 2005).

Further, such individuals may be too proactive and lack proficiency in their daily tasks (Griffin et al., 2007). As a result, these individuals have an increased tendency to make mistakes in their daily work activities.

In contrast to sensation seeking, as shown from the path analysis results, risk-taking propensity does not directly predict poor individual performance; therefore hypothesis H1b was not supported. Thus, individuals with a high risk-taking tendency can still, somehow, be proficient in their jobs and sufficiently adaptive to new environments despite their tendency to engage in unnecessary and risky work (Griffin et al., 2007). The logical explanation of this is that individual with high level of risk-taking propensity for rewards only take risks when they perceive that rewards are beneficial (MacPherson, Magidson, Reynolds, Kahler, & Lejuez, 2010). Therefore, if they do not see rewards as rewarding, they will not likely to take risks since they are able to anticipate undesirable results from their behaviors (MacPherson, Magidson, Reynolds, Kahler, & Lejuez, 2010). Further, individuals need to have both characteristics of sensation seeking and risk-taking propensity for rewards to be a risk taker (Donohew, Zimmerman, Cupp,

Novak, Colon, & Abell, 2000; Nicholson et al., 2005).

Despite following the mediation procedures of Baron and Kenny (1986) to test the hypotheses, no significant direct and total effects were found between risk-taking propensity and poor individual performance. However, based on recommendations from MacKinnon, Krull and Lockwood (2000) and Preacher, Rucker and Hayes (2007), mediation analysis and interpretation can be conducted even when there is no significant relationship between independent and dependent variables. Results, then, provided evidence in support of hypotheses H2a and H2b, because the mediation analysis showed that a negative perception of individual safety attitude mediated the relationship between both sensation seeking and risk-taking propensity in predicting poor individual performance.

A high level of sensation seeking and risk-taking propensity was associated with poor individual safety attitude. A negative perception of individual safety attitude was associated with low individual performance as safety was not viewed as a priority and such individuals did not feel the need to maintain safe behavior. Our

results suggest that it may be difficult for individuals with high levels of sensation seeking and risk-taking propensity to adapt to new safety regulations and be proficient at their jobs. Additionally, the results show that the relationship between risk-taking propensity and poor individual performance was only affected when risk taking propensity was re-expressed through individual safety attitude. Their negative beliefs and emotions in relation to safety, including commitment to, and responsibility for, safety procedures and policies, resulted in negative effects on their individual performance.

These results provide insight into the differences between sensation seeking and risk-taking propensity in predicting poor individual performance. Sensation seeking directly and indirectly affects poor job performance in nurses whereas risk taking propensity indirectly affects poor job performance. Nursing organizations, in practice, need to become aware that sensation seeking in nurses may be detrimental to effective performance and that encouraging effective behavior by reward can also be detrimental to performance. Our research indicates that training and selection programs for nurses need to be carefully designed, and

maintained to reduce problems associated with sensation seeking and risk-taking propensity.

CONCLUSION & RECOMMENDATION

Conclusion

In conclusion, in the context of nursing, as influenced by perceived individual safety attitude, sensation seeking and risk-taking propensity have different effects on individual performance. Poor performance is more likely to occur from both sensation seeking and risk taking propensity when it is re-expressed through individual safety attitude.

Recommendation

A limitation of this study was its use of a cross-sectional methodology; the results cannot provide causal explanations. Future studies and/or replications of this study should be conducted to determine the effects of individual differences, particularly in relation to sensation seeking and risk-taking propensity, on individual performance. Further, to achieve greater generalizability, the sample of participants should be broadened to include a range of occupations, organizational levels, and countries.

REFERENCES

- Baron, R.M., & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173–1182. doi:10.1037/0022-3514.51.6.1173
- Bentler, P.M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, *107*(2), 238–246.
- Browne, M.W., & Cudeck, R. (1993). *Alternative ways of assessing model fit*. In K. Bollen, & Long, S. (Eds.), *Testing structural equation models* (pp. 136–162). Newbury Park, CA: Sage.
- Cestac, J., Paran, F., & Delhomme, P. (2011). Young drivers' sensation seeking, subjective norms, and perceived behavioral control and their roles in predicting speeding intention: How risk-taking motivations evolve with gender and driving experience. *Safety Science*, *49*(3), 424–432. doi:10.1016/j.ssci.2010.10.007
- Donohew, L., Zimmerman, R., Cupp, P.S., Novak, S., Colon, S. & Abell, R. (2000). Sensation seeking, impulsive decision-making, and risky sex: implications for risk-taking and design of interventions. *Personality and Individual Differences*, *28*(6), 1079–1091.
- Griffin, M.A., Neal, A., & Parker, S.K. (2007). A new model of work role performance: Positive behavior in uncertain and interdependent contexts. *Academy of Management Journal*, *50*(2), 327–347.
- Henning, J.B., Stufft, C.J., Payne, S.C., Bergman, M.E., Mannan, M.S., & Keren, N. (2009). The influence of individual differences on organizational safety attitudes. *Safety Science*, *47*(3), 337–345. doi:10.1016/j.ssci.2008.05.003
- Hu, L.T., & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*(1), 1–55.
- Humphreys, K.L., Lee, S.S., & Tottenham, N. (2013). Not all risk taking behavior is bad: Associative sensitivity predicts learning during risk taking among high sensation seekers. *Personality and Individual Differences*, *54*(6), 709–715. doi:10.1016/j.paid.2012.11.031
- Jackson, C.J. (2005). *An Applied Neuropsychological Model of Functional and Dysfunctional Learning: Applications for Business, Education, Training and Clinical Psychology*. Sydney: Cymeon.
- Jackson, C.J. (2008). *Measurement issues concerning a personality model spanning temperament, character and experience*. In G. Boyle, G. Matthews, & D. Saklofske (Eds.), *Handbook of Personality Testing* (pp. 73–93). Thousand Oaks, CA: Sage.
- Jackson, C.J. (2011). How sensation seeking provides a common basis

- for functional and dysfunctional outcomes. *Journal of Research in Personality*, 45(1), 29–36. doi:10.1016/j.jrp.2010.11.005
- Judge, T. A., & Kammeyer-Mueller, J. D. (2012). Job attitudes. *Annual Review of Psychology*, 63, 341 – 367.
- Jöreskog, K.G., & Sörbom, D. (1988). *LISREL 7: A guide to the program and applications*. Chicago, IL: SPSS.
- Kenny, D.A., & Judd, C.M. (2014). Power anomalies in testing mediation. *Psychological Science*, 25(2), 334–339. doi:10.1177/0956797613502676
- Lejuez, C.W., Aklin, W.M., Bornovalova, M.A., & Moolchan, E.T. (2005). Differences in risk-taking propensity across inner-city adolescent ever- and never-smokers. *Nicotine and Tobacco Research*, 7(1), 71–79. doi:10.1080/14622200412331328484
- Lejuez, C.W., Read, J.P., Kahler, C.W., Richards, J.B., Ramsey, S.E., Stuart, G.L., & Brown, R.A. (2002). Evaluation of a behavioral measure of risk taking: The Balloon Analogue Risk Task (BART). *Journal of Experimental Psychology: Applied*, 8(2), 75–84. doi:10.1037//1076-898x.8.2.75
- MacKinnon, D. P., Krull, J. L., & Lockwood, C. M. (2000). Equivalence of the mediation, confounding and suppression effect. *Prevention Science*, 1(4), 173-181.
- MacPherson, L., Magidson, J.F., Reynolds, E.K., Kahler, C.W., & Lejuez, C.W. (2010). Changes in sensation seeking and risk-taking propensity predict increases in alcohol use among early adolescents. *Alcoholism: Clinical and Experimental Research*, 34(8), 1400–1408.
- Miles, D.R., Van den Bree, M.B.M., Gupman, A.E., Newlin, D.B., Glantz, M.D., & Pickens, R.W. (2001). A twin study on sensation seeking, risk taking behavior and marijuana use. *Drug and Alcohol Dependence*, 62(1), 57–68. doi:10.1016/S0376-8716(00)00165-4
- Millisecond Software. (2013). *Inquisit 4 Web (Version 4.0.4.0.)*. Seattle, WA: Millisecond Software.
- Neal, A., & Griffin, M.A. (2004). *Safety climate and safety at work*. In J. Barling, & M. Frone (Eds.), *The psychology of workplace safety* (pp. 15–34). Washington, DC: American Psychological Association.
- Nicholson, N., Soane, E., Fenton-O’Creevy, M. & Willman, P. (2005). Personality and domain-specific risk taking. *Journal of Risk Research*, 8(2), 157–176.
- O*NET OnLine. (2013). Summary report for: 29-114100—Registered nurses. Retrieved 3 November 2013 from <http://www.onetonline.org/link/summary/29-1141.00>
- Preacher, K.J., Rucker, D.D., & Hayes, A.F. (2007). Addressing moderated mediation hypotheses: theory, methods, and prescriptions.

- Multivariate Behavioral Research*, 42(1), 185–227.
- Reio Jr., T.G., & Sanders-Reio, J. (2006). Sensation seeking as an inhibitor of job performance. *Personality and Individual Differences*, 40(4), 631–642. doi:10.1016/j.paid.2005.08.006
- Riketta, M. (2008). The causal relation between job attitudes and performance: A meta-analysis of panel studies. *Journal of Applied Psychology*, 93(2), 472–481. doi:10.1037/0021-9010.93.2.472
- Rundmo, T., & Hale, A.R. (2003). Managers' attitudes towards safety and accident prevention. *Safety Science*, 41(7), 557–574. doi:10.1016/S0925-7535(01)00091-1
- Shrout, P.E., & Bolger, N. (2002). Mediation in experimental and non-experimental studies: New procedures and recommendations. *Psychological Methods*, 7(4), 422–445. doi:10.1037//1082-989X.7.4.422
- White, T.L., Lejuez, C.W., & de Wit, H. (2008). Test-retest characteristics of the Balloon Analogue Risk Task (BART). *Experimental and Clinical Psychopharmacology*, 16(6), 565–570. doi:10.1037/a0014083
- Wille, B., Hofmans, J., Feys, M., & De Fruyt, F. (2014). Maturation of work attitudes: Correlated change with big five personality traits and reciprocal effects over 15years. *Journal of Organizational Behavior*, 35(4), 507–529. doi:10.1002/job.1905
- Wolfe, P. L. (1994). Risk taking: Nursing's comfort zone. *Holistic Nursing Practice*, 8(2), 43–52.
- Zuckerman, M. (1979). *Sensation seeking: Beyond the optimal level of arousal*. Hillsdale, NJ: Lawrence Erlbaum.
- Zuckerman, M. (1994). *Behavioral Expressions and Biosocial Bases of Sensation Seeking*. New York: Cambridge University Press.