

RESEARCH ARTICLE

Decision-making style, personality, and decision outcomes of military personnel, a network analysis approach

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Abstract

Research on decision-making often relies on controlled laboratory studies, which are de-tached from real-life scenarios. Analyzing self-reported, long-term decision outcomes from a military real-world contexts can provide a robust foundation for identifying individual factors that differentiate decision-making capabilities among individuals. The role of per-sonality factors and decision-making styles is analyzed in the decision-making process, us-ing the Decision Outcomes Inventory (DOI), developed by Bruine de Bruine et al. in a sam-ple of the population of 178 active militaries, of which 135 men and 39 women. The results of the decision-making process are significantly predicted by the anxious decision-making style, i.e., people who tend to experience negative feelings during decision-making end up having better results when making decisions. The strong link between the anxious decision-making style and emotional stability is highlighted by the structure of the network used in the analysis. Since the opposite pole of emotional stability is neuroticism, we can say that people with an anxious decision-making style face a wide range of feelings specific to this decision-making style, such as fear, and insecurity, so they postpone deciding until they find the best solution.

Keywords

decision styles, Big Five model, decision-making outcomes inventory, network analysis

This study, like most decision-making research, aims to understand how people make decisions, with the ultimate goal of finding solutions to improve them.

Three factors strongly influence decision-making quality: the nature of the decision, the situation in which the decision is made, and the characteristics of the decision-maker (Einhorn, 1970). The influence of the characteristics of the decision-maker has primarily been investigated in normative decision-making performance and hence has aimed to assess the characteristics that predict compliance with the normative decision-

making principles derived from theoretical models (e.g. Expected utility theory).

However, examination of real-world decision outcomes is rare because most research uses laboratory designs deliberately isolated from everyday decisions (Parker et al., 2015). The analysis of the past decision-making results of the subjects, self-reported, over several years, can constitute a solid basis for highlighting those individual factors that make the difference between individuals.

Research on decision-making styles indicates five different but non-mutually exclusive styles used by the military to make

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decisions (Scott & Bruce, 1995; Thunholm, 2004), and individuals generally have different levels of all five styles, although one style is usually dominant (Allwood & Salo, 2012)

The purpose of this study was to investigate which of the individual decision-making styles used by the military lead to positive decision-making outcomes in their daily lives.

The need for the military to make the best decisions on the battlefield is obvious, to find the best training methods, it is necessary to analyze their past decision-making outcomes and the decision-making styles used.

Decision-making style

The decision-making style has been defined as "a model that individuals typically use in decision-making" (Dewberry et al., 2013) and as a "learned, common response model presented by a person when confronted with a decision situation" (Scott & Bruce, 1995). Decision-making styles are associated with multiple outcomes in many aspects of daily life (Bruine de Bruin et al., 2007) and impact many areas of life (Bakewell & Mitchell, 2003; Patton et al., 2004; Venkatesh et al., 2000).

Behavioral-oriented psychologists have labeled these individual patterns of interpretation and response in decision-making tasks as decision-making styles (Driver et al., 2006). Driver and his colleagues demonstrated that a senior manager's style and decision-making profile are mainly in contrast to the decision-making style of managers who are at entry-level management.

The decision-making style questionnaire was developed by Leykin and DeRubeis (2010); based on the tools developed by Mann (1998), Turner and his colleagues (2012), and Scott & Bruce (1995). The inventory contains nine scales divided into two categories: the first, evaluates the individual's perception of himself as a decision-maker, with the scales *confident* and *respected*, and the second category evaluates seven decision styles, as follows: *intuitive* (use of intuition in decisions), *spontaneous* (tendency to make quick decisions), *vigilant* (thorough analysis of all possible options), *dependent* (seeking

advice and trusting other people to make decisions), *avoidant* (tendency to avoid decision-making situations), *brooding* (involves feelings of post-decision regret), *anxious* (expresses a tendency to experience negative emotions during the decision).

The two information processing systems involved in decision-making are *system 1*, which is intuitive, automatic, associative, fast, heuristic, and involves parallel processing, and *system 2*, which is analytical, explicit, rule-based, relatively slow, and involves sequential processing (Pacini & Epstein, 1999; Stanovich & West, 1998). Based on this theory, intuitive and spontaneous decision styles belong to *system 1*, and the vigilant decision style belongs to *system 2*. The last four styles, *dependent*, *avoidant*, *brooding*, and *anxious*, are conceptually distinct from the perspective of the two processing systems of information. The first three styles, *dependent*, *avoidant*, and *brooding*, can be interpreted instead as *processes related to decision regulation*: the degree of procrastination in decision-making (*avoidant* style), the appearance of feelings of post-decision regret (*brooding* style), and the search for advice from other people (*dependent* style). The fourth style expresses the tendency *to experience negative feelings during decision-making* (*anxious* style). Unlike basic decision-making styles: *intuitive*, *vigilant*, and *spontaneous*, *avoidance*, *brooding*, *dependent*, and *anxious* decision-making styles are also important in decision-making, because they are related to the regulation of the decision-making process rather than which is the decision.

Decision-making competence

Decision-making competence is measured in a variety of ways. Sometimes, the intention is to examine the quality of decisions in a specific area, such as prescribing medical treatment according to a particular medical condition (Hagger et al., 2010).

The second group of tools refers to the ability to perform in a normative way some aspects of the decision-making process, such as the correct calibration of confidence or resistance to the framing effects (Bruin et al., 2007).

A third approach to assessing decision-making competence is to examine the extent to which people have experienced a wide range of unwanted decision-making outcomes in everyday life. The Decision Outcomes Inventory (DOI) (Bruin et al., 2007) is a self-reported questionnaire in which people indicate whether they have experienced 34 everyday negative events. A strong point of DOI is that it reflects the frequency with which people have avoided the (negative) results of a wide range of daily decisions over an extended period. Research indicates that performance on DOI is positively associated with higher socioeconomic status, younger age, and a variety of decision styles, including the tendency to decide rationally and intuitively. Bruin de Bruin and collaborateurs (2007) established that decision-making styles predict decision-making competence.

Hypothesis 1. Intuitive and spontaneous decision-making styles lead to low decision-making outcomes.

Personality and decision-making

Personality is one of the determining indicators of a decision-making style (García-Gallego et al., 2017) and is based on the personality theory, i.e., the assumption that an individual's behavior influences the way he thinks, perceives, and evaluates the environment (Martin, 1997). Personality traits can be conceptualized as a set of predispositions to act in the same way in various situations. There are different models of personality traits, of which the five-factor model, often called the Big Five, is a widely accepted and popular model for embodying individual personality differences (Wang et al., 2017). Within this model, most personality differences can be summarized in five stable dimensions: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience.

Extraversion is characterized by a tendency to be self-confident, dominant, active, and seeking enthusiasm. Extroverts show positive emotions, a higher frequency and intensity of personal interactions, and a greater need for stimulation (Bakker et al.,

2006). Moreover, Extraversion describes the extent to which individuals are assertive, active, enthusiastic, talkative, warm, energetic, and dominant (Costa & McCrae, 1992).

Agreeableness is characterized by cooperation (trust in others and care) and sympathy. Agreeable people tend to show up and are more likely to experience happiness because they enjoy love to have close relationships, and those with high scores on this trait will also have greater life satisfaction (Costa & McCrae, 1992).

Conscientiousness is characterized by the fact that the person is hardworking, persistent, well-organized, orderly, responsible, reliable, and goal-oriented (Costa & McCrae, 1992). Costa and McCrae (1992) associated conscientiousness with self-discipline, achievement, respect, and competence. The persistence and self-discipline of the conscientious individual will also facilitate him in completing tasks on time (Bakker et al., 2006).

Neuroticism is characterized by anger and is the opposite of emotional stability. People with a high level of neuroticism are insecure, anxious, and more susceptible to stress than their low-neurotic counterparts (Costa & McCrae, 1992). They experience higher levels of negative affect, are slightly irritated by others, and are more likely to resort to inappropriate coping responses, such as interpersonal hostility. Neuroticism also embodies the degree to which one is tense, sensitive, unstable, worrying, and anxious. As opposed to extraversion, a person with a high level of neuroticism is prone to be affected by negative events. An extremely neurotic person tends to experience negative emotions, such as anxiety, depression, impulsivity, nervousness, and underestimating their performance. In contrast, less neurotic individuals tend to exhibit confident behavior (Bakker et al., 2006).

Openness to experience is characterized by a tendency to have an active imagination, an intellectual curiosity, and a willingness to consider new ideas and try new things (Costa & McCrae, 1992). Furthermore, openness to experience is defined by originality, curiosity, and ingenuity. Openness to experience refers

to an individual's desire to be cultured and to explore new encounters. More open people are usually creative, imaginative, curious, impulsive, and insightful. Less open people tend to be more narrow-minded (Berglund et al., 2015).

There are many types of research on the role of personality dimensions in decision-making styles (Bayram & Aydemir, 2017). As a result, personality traits have an important effect on the type of decision-making styles. For this reason, this study is based on contribution to the theory development in terms of the role of big five personality traits in decision-making styles with a Romanian military sample.

Hypothesis no. 2. Conscientiousness (positive), and neuroticism (negative) will predict the quality of decision results.

Research Overview

This study investigates the relationships between personality traits, decision-making styles as predictors, and the results of everyday decisions as a dependent variable. The military environment is characterized by many situations in which personnel are forced

to make decisions. Their decision-making style is essential for periodic evaluation of indicators such as morale or organizational climate. The specificity of this environment is that it has many restrictions regarding the military's behavior in society. Negative outcomes in everyday life that occur because of bad decisions (e.g., a car accident under the influence of alcohol) can negatively affect their careers. As a result, it is necessary to identify the constructs that can predict these negative results and, at the same time, to find ways to intervene to prevent them.

Method

Participants

The hypotheses of the study were verified on a sample of 179 military employed in two garrisons in Bucharest city, and they have an average age of 32.61 years ($SD = 7.64$, $SEM = 0.58$, $Min = 19.00$, $Max = 52.00$, $Skewness = 0.65$, $Kurtosis = -0.09$, $Mode = 30.00$, $Mdn = 30.50$). Descriptive statistics for demographic variables of gender, military status, marital status, and type of position held are presented in the following table.

Table 1. *Descriptive Statistics*

| Variables | <i>n</i> | % |
|-------------------------------|----------|-------|
| <i>Gender</i> | | |
| 0 - women | 39 | 22.41 |
| 1 - men | 135 | 77.59 |
| <i>Military category</i> | | |
| 1 - officers | 44 | 25.29 |
| 2 - non-commissioned officers | 67 | 38.51 |
| 3 - soldiers | 63 | 36.21 |
| <i>Family status</i> | | |
| 0 - unmarried | 85 | 48.85 |
| 1 - married | 89 | 51.15 |
| <i>Type of position held</i> | | |
| 0 - execution | 145 | 83.33 |
| 1 - command | 29 | 16.67 |

Instruments

All instruments used in this study are self-report questionnaires with Likert-type scales. Decision-making styles were assessed using the Decision Style Inventory (DSQ) developed by Leykin and DeRubeis (2011) which consists of 43 items. The DSQ contains nine scales divided into two categories: the first, which assesses the individual's perception of the decision-maker, with *confident* and *respected* scales, and the second, which evaluates seven types of decision-making styles as follows: *intuitive*, *spontaneous*, *vigilant*, *dependent*, *avoidant*, *anxious*, and *brooding*. Confident (DSQ_Con), 5 items, example item: *I feel confident about my ability to make decisions*, Cronbach's alpha = .81. Respected (DBQ_Res), 2 items, example item: *My friends or family seek my advice when they have to make important decisions*, Cronbach's alpha = .79. Intuitive (DSQ_Int), 5 items, example item: *When I make decisions, I tend to rely on my intuition*, Cronbach's alpha = .83. Spontaneous (DBQ_Spo), 4 items, example item: *I make impulsive decisions*, Cronbach's alpha = .62. Vigilant (DBQ_Vig), 6 items, example item: *I like to consider all the alternatives*, Cronbach's alpha = .90. Dependent (DBQ_Dep), 6 items, example item: *I need the assistance of other people when making important decisions*, Cronbach's alpha = .77. Anxious (DBQ_Anx) 5 items, for example, item: *I feel very anxious when I need to make a decision*, Cronbach's alpha = .86. Brooding (DBQ_Bro), 5 items, example item: *I think about all the bad decisions I have made in my life*, Cronbach's alpha = .58. Avoidant (DBQ_Avo), 5 items, example item: *I postpone decision-making whenever possible*, Cronbach's alpha = .76.

Personality was assessed using the CP5F personality questionnaire developed by Monica Albu (Albu, 2008; Miclea et al., 2009) after the FFPI (Five-Factor Personality Inventory) (Hendriks, 1997). The CP5F questionnaire is intended to evaluate the five super factors of the Big Five model (Extraversion, Emotional Stability, Conscientiousness, Openness, and

Autonomy). It contains six scales: one for each model factor (whose name coincides with that of the area it measures) and a scale (called Social Desirability) for identifying people whose answers do not conform to reality, either because they want to create a favorable image, either because they respond at random, or they want to appear different from the rest of the people. The CP5F questionnaire contains 130 items, grouped into six scales: *Extraversion* (E), 23 items; *high score*: feels good in society, participates actively in fun, or likes to talk, *low score*: the subject is isolated from others, is silent. Cronbach's alpha = .89. *Openness* (O): 24 items, *high score*: shows interest in those around, respects the opinions and rights of others, and tries to be on good terms with others. Cronbach's alpha = .86. *Conscientiousness* (C): 25 items, *high score*: respects the rules and regulations, is an organized person, and plans for the actions. They strive to do everything right and is a reliable person. With a *low score*: they are non-conformists and start actions without thinking about what they serve and how they will end. It does not respect the set deadlines. Cronbach's alpha = .87. *Emotional Stability* (N): 21 items, *high score*: thinks positively, is optimistic, controls their emotions, and has confidence in their strength, *low score*: worries about everything, is always anxious, and in stressful situations, they get lost. Cronbach's alpha = .91. *Autonomy* (A): 22 items, *high score*: acts differently than the others, is creative, *low score*: he/she has no opinion of their own, accepts whatever he/she is told, and can be easily handled. Cronbach's alpha = .66. *Social desirability* (SD): 15 items, Cronbach's alpha = .75.

Each item in the CP5F questionnaire contains a statement about how a person feels (for example: I am troubled by unpleasant events, even though I know that they are unimportant.), he thinks (for example: I consider life to be full of things interesting) or acts (for example: I avoid conducting collective activities.). The subject must appreciate to what extent the statement in each item suits them and answer with one of the variants: 1 = it suits me very little, 2 = it suits

me a little, 3 = fits me about half, 4 = suits me well and 5 = suits me very much.

Decision-making competence was assessed with the *decision outcome inventory* (DOI) (Bruin et al., 2007). Some elements of the original version have been adapted for Romanian-specific language; for example, *dollars* has been replaced by *lei*, and *having a DUI* has been replaced by *fine for driving under the influence of alcohol*. Additionally, items irrelevant to the military environment, such as *gas*, *and electricity were stopped for non-payment*, *you were imprisoned*, *you were bankrupt*, or *you were diagnosed with type 2 diabetes*, were removed from the analysis, due to the lack of variance. We calculated the reliability of the scale without these items, and the result is Cronbach's $\alpha = .63$. DOI was scored using the method suggested by Bruine de Bruin et al. (2007) so that higher scores indicate better decision quality.

Procedure

Questionnaires assessing decision-making styles, personality, and decision-making outcomes were administered in a pencil/paper manner in military units, during regular working hours. The average completion time was 35 minutes.

Data were collected following the principles of anonymity and confidentiality, which were explained to the study participants in a cover letter at the beginning of the evaluation. There was also information about the purpose of the study, the authors, their affiliation, and their contact information.

Data Analysis

Descriptive statistics (M and SD) and Cronbach's alpha coefficients were computed for each scale.

Network analysis is an approach that has its origins in graph theory, a field of mathematics that studies the relationships between objects, which emerged in the eighteenth century. Networks are also rooted in sociology, especially in exploring connections between human beings considering family groups, friends, and co-workers.

To better capture the relationships between the variables used in this study, a weighted

undirected network was constructed for all variables as "nodes" using JASP Version 0.18.3 (JASP Team (2024). *JASP (Version 0.18.3)*, 2024). An undirected network was built, where edges between nodes are undirected and indicate some mutual relationship but with no indication of the direction of effect (Hevey, 2018). The nonparametric correlation method was used, where firstly the nonparametric transformation was applied to make all data normally distributed and then Pearson correlations were used.

Overall, the constructed network can be observed as an interconnected partial correlation structure among a set of items (Rhemtulla et al., 2016). The regularized partial correlation network was estimated using graphical LASSO regularization with EBIC model selection (Epskamp et al., 2018). The Fruchterman-Reingold algorithm was used for visualization, where nodes with stronger and/or more connections are placed closer together.

In the evaluation of the network in the case of groups such as command function vs. execution function or with road problems vs. without road problems, we used the partial correlation estimator due to the small number of subjects in one of the groups.

Using this methodology, we can capture a network structure in which nodes represent the variables, while the relationships between the variables, after controlling for all other nodes in the network, are represented by edges. In this way, all interactions between the variables can be visualized and their directions and sizes are visible. Positive relationships are represented using blue borders, while red borders indicate negative relationships. The thickness of the edges is used to show the strength of the associations between the nodes, the thicker edges suggesting a stronger association between the two nodes.

The significance of nodes within a network's structure is often analyzed through centrality indices, which gauge a node's relative importance compared to others based on its connection patterns. These indices, including degree, node strength, closeness, and betweenness centrality, offer insights into various aspects of a node's role in the network. Degree centrality counts direct connections,

while node strength considers both connection quantity and strength. Closeness centrality measures a node's proximity to others in the network, indicating its potential influence or susceptibility to network changes. Betweenness centrality highlights nodes crucial for connecting others and facilitating communication or control flow. These indices provide valuable insights into network structures and functions across different domains. (Hevey, 2018)

The accuracy and stability of the network were examined by bootstrap analysis. The accuracy of the edge weights was examined through bootstrapped (2,500 iterations) 95% confidence intervals (CIs), while the stability of centrality measures indices or node order stability by case-dropping subset bootstrap (proportion of data that could be dropped with 95% probability and still retain a correlation of .70 or higher between the original centrality indices and the centrality of networks based on subsets) (Epskamp et al., 2018).

Result

Correlational analysis

The analysis of the correlations between the analyzed variables is presented in Table 2. Better decision-making outcomes (DOI scale) were moderately associated with high scores on the confidence style scale of individuals' perception of their perspective as decision-makers ($r(179) = .25, p < .002$). These results suggest that military personnel who have confidence in their ability to make decisions also have good results in making daily decisions. These results remain significant even after controlling for age and gender variables.

The DOI scale was significantly associated with the anxious decision-making style, $r(179) = .31, p < .001$, which means that people who have negative feelings when they have to make a decision usually also have better results in everyday life. The partial correlation

between the DOI scale and the anxiety decision style scale for military with executive functions is significant at an alpha threshold of .05, $r = .30, p < .001, 95\% CI [0.15, 0.45]$.

Network analysis

The steps to follow in analyzing a network are: (1) estimating the network structure based on a statistical model that reflects the empirical patterns of relationships between variables, (2) analyzing the network structure, and (3) evaluating the accuracy of the network parameters and measures.

Network Structure of variables

The network of DOI, personality, and cognitive decision style is shown in Figure 4, with 48 edges being non-zero out of 120 possible edges.

The estimated network is weighted and undirected, and I used the partial correlation algorithm to analyze it. The results of both the estimated psychological network and the centrality indexes are presented in Figures 4 and Table 3. A node is central if it has many connections, and its centrality depends on strength, closeness, and betweenness (Hevey, 2018). Figure 5 shows the standardized values referring to these three parameters. The indices are all on the same scale of measurement, and they are standardized (z scores), which allows the comparison among them.

From the data analysis in the next table, we can see that conscientiousness and emotional stability have the most significant influence on the network and the most connections activate them by influencing the other nodes. The strongest node is between the anxious decision-making style and emotional stability, the association is negative.

Table 3. Centrality measures per variable

| Variable | Network | | | |
|-------------|-------------|-----------|----------|--------------------|
| | Betweenness | Closeness | Strength | Expected influence |
| DOI | -.754 | -1.062 | -1.282 | -.557 |
| O | -.593 | .487 | .434 | 1.202 |
| N | 2.544 | 1.624 | 2.225 | 1.331 |
| A | .694 | -.153 | -.385 | -.411 |
| E | -.754 | .380 | -.486 | .023 |
| C | 1.659 | 1.382 | 1.434 | 1.970 |
| S_D | -.754 | .585 | .345 | 1.134 |
| Confident | -.754 | .493 | .757 | -.949 |
| Respected | -.191 | -.092 | .046 | .092 |
| Intuitive | -.432 | -1.404 | -.750 | .058 |
| Dependent | -.111 | -.861 | -.804 | -.696 |
| Avoidant | -.513 | .093 | -.330 | -.668 |
| Vigilant | .211 | .197 | -.588 | .058 |
| Spontaneous | -.593 | -1.430 | -.868 | -.242 |
| Anxious | 1.096 | 1.202 | 1.273 | -2.034 |
| Brooding | -.754 | -1.441 | -1.022 | -.311 |

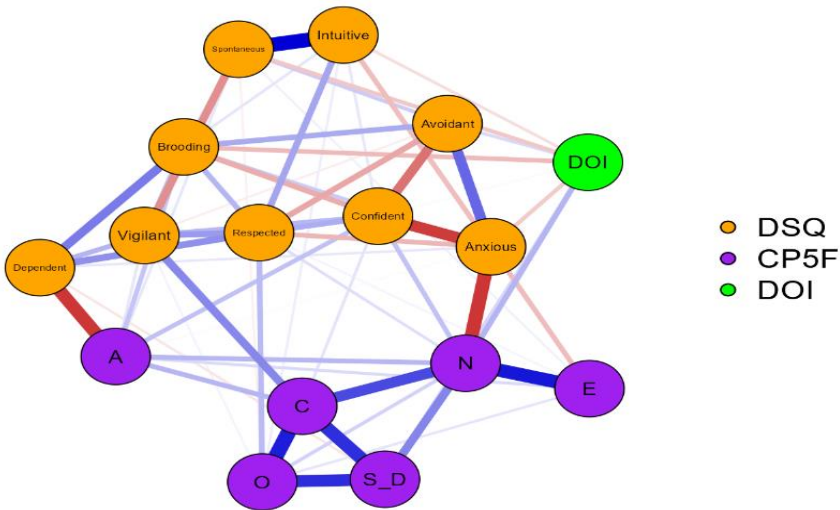


Figure 1. The structure of the network of variables between decision styles, personality, and decision outcomes

Analyzing the network structure

From the perspective of the two information processing systems involved in decision-making, a strong association can be observed between spontaneous and intuitive decision styles specific to system 1. Between

spontaneous decision style and vigilant decision style, there is a negative relationship that confirms one of the processing systems' predominant information when subjects decide in everyday life.

The strong link between avoiding decision-making and anxious decision-

making, both in a positive relationship with decision-making outcomes (DOI), shows how postponing a decision or experiencing negative post-decision feelings can lead to good decisions.

Neuroticism and Extraversion are negatively associated with anxious styles of decision-making. Anxious style is a bridge between neuroticism and extraversion, and avoidant style.

From the analysis of how the variables of personality, decision style, and decision-

making outcomes are interconnected according to the type of position held, we can say that for *executive functions* (figure 2.1), there is a strong relationship between intuitive and spontaneous decision styles, belonging to the information processing system 1, strong negative associations between the anxious decision-making style and the emotional stability, and between the dependent decision-making style and autonomy.

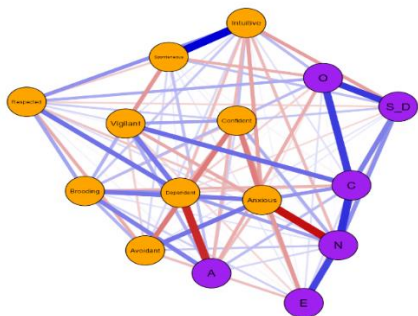


Figure 2.1. Military personnel with execution functions

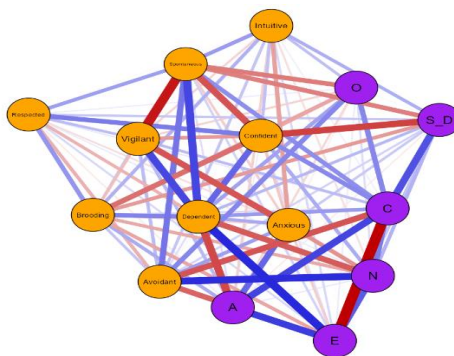


Figure 2.2. Military personnel with command functions

Figure 2. The structure of the network between decision-making styles, personality, and decision outcomes in accord with the type of position.

For *command functions* (Figure 2.2) there is a solid negative relationship between decision-making results and spontaneous style, vigilant style is also strongly negatively associated with anxious and spontaneous styles, and avoidant is associated positively with the spontaneous style. There is a strong negative association between conscientiousness and extraversion personality traits of military personnel with command functions.

We analyzed how the variables of personality and decision style are interconnected depending on the result of the decisions taken as drivers (item no. 8 - without declared road events vs. with declared road events). From the analysis of the graphs in Figure 3, we can observe the following: the military who reported that they have no road events (Fig. 3.1) are vigilant, do not make

decisions spontaneously, take into account the opinion of others, are confident, as decision-makers and do not feel anxiety over making decisions; the military who declared that they had road events (Figure 3.2) although they are vigilant, and make decisions intuitively, spontaneously and when feeling anxiety they avoid making decisions.

Network Stability

The analysis of the stability of centrality estimates shows that the correlation between the order of strength centrality in the full dataset with a dataset in which half of the participants are sampled 2,500 times is above .50 (Figure 3.2). Using 30% of the original sample, the closeness estimate correlates at .70 with the full sample estimate, with strengths at around .80, but betweenness at around .35.

The range from the 2.5th quantile to the 97.5th quantile of all estimates does not drop below 0.25; for closeness and strengths, it is above .50 as recommended (Epskamp et al., 2018). Finding true differences in centrality might require a larger sample size.

Stability analysis indicated that the network is accurately estimated, with moderate confidence intervals around the edge weights (see Figure 4 and Figure 5).

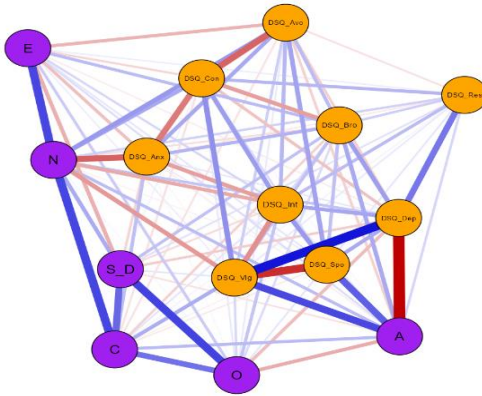


Figure 3.1. The structure of the military network without road events

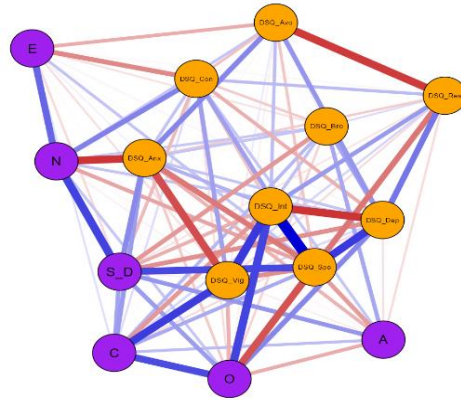


Figure 3.2. The structure of the military network with road events

Figure 3. The network of variables between decision styles, personality, and decision outcomes in military personnel who declared road events vs. without road events.

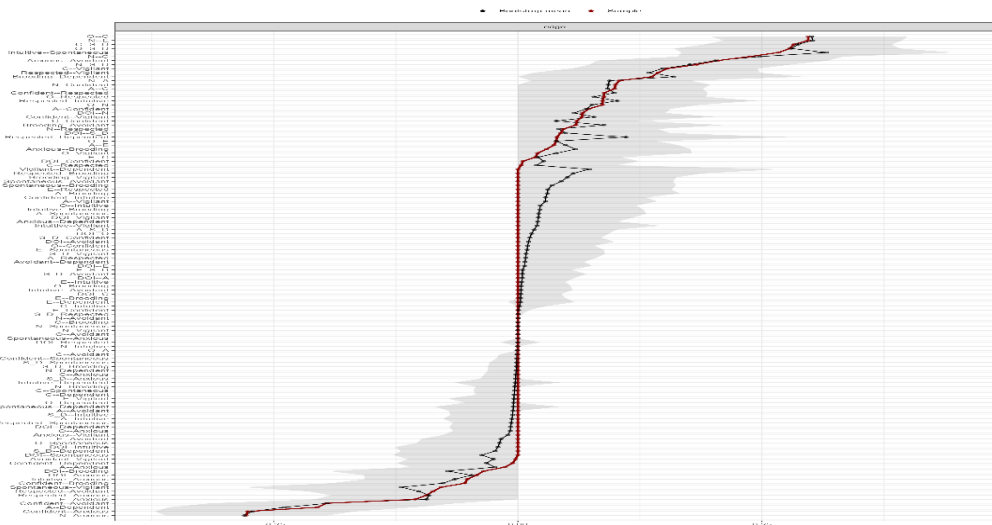


Figure 4. Accuracy of the networks. Bootstrap analysis results of the edge weights

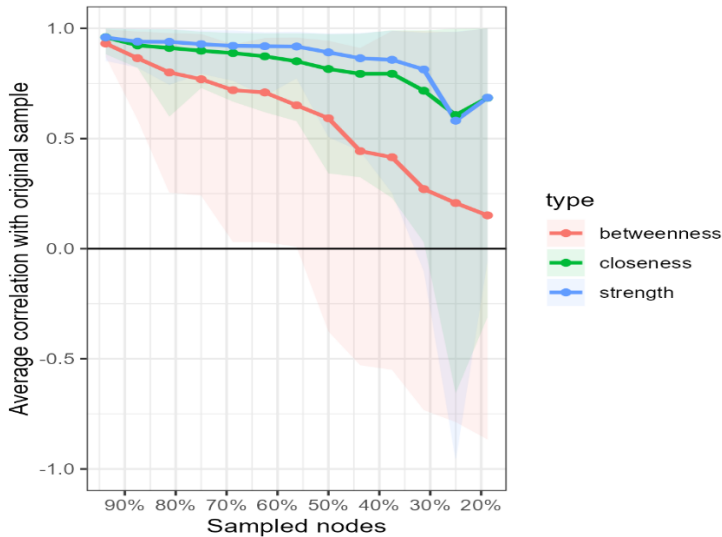


Figure 5. Stability of the networks of centrality indices of the estimated network of the DSQ, CP5F and DOI scales

Note. Figure 5 shows the average correlations between centrality indices of the original sample and networks sampled with case dropping. Lines indicate the means and areas indicate the range from the 2.5th quantile to the 97.5th quantile.

Discussions

The present research had two hypotheses. Our first hypotheses predicted that the Intuitive and spontaneous decision style would be negatively related to the decision outcomes indicators, and our second hypothesis was that conscientiousness (positive), and neuroticism (negative) would also predict the quality of decision results. Results supported both hypotheses in that the correlations and the network analyses showed the expected associations for the Decision outcomes. We used both correlation analysis and network analysis.

The decision-making outcomes are positively associated with the *vigilant* style associated with information processing system 2, which is analytical, rule-based, relatively slow, and with sequential processing. The decision-making styles specific to system 1, intuitive and spontaneous are negatively associated with decision-making results, this signifying the fact that system 1 is frequently used in everyday life, for current and ordinary

decisions, and that are also easy to report in a DOI questionnaire type.

For the organizational environment, especially the military, this decision-making profile, specific to people at the base of a career, requires additional training in the decision-making process in the sense of encouraging the use of system 2 thinking, even if it consumes more resources and lasts longer a lot.

Personality is positively associated with decision-making outcomes on all traits, but at moderate values with emotional stability and openness, in line with previous studies that indicate positive links between neuroticism and information processing system 1 (Hilbig, 2008).

The results of decision-making are significantly predicted by the anxious decision-making style, i.e., people who tend to experience negative feelings during decision-making end up having better results when making daily decisions. This aspect is best highlighted by the structure of the network formed by the analyzed variables in which we

can see that there is a strong link between the anxious decision-making style and emotional stability. Since the opposite pole of emotional stability is neuroticism, we can say that people with an anxious decision-making style face a wide range of feelings specific to this decision-making style, such as fear, and insecurity, so they postpone deciding until they find the best solution.

People in command positions have a different decision style pattern compared with people in executive positions, so we can say about them that they avoid spontaneous decisions, use intuition less often than those who occupy executive positions, when they are not sure of results, and sometimes prefer to postpone a decision, they are vigilant, and analyzed all the available options. This is an interesting result in the sense that the work environment with its requirements changes the decision-making pattern in everyday life, increasing the quality of the decisions made by training them in the use of the decision-making styles specific to system 2 thinking.

The decision-making pattern of subjects who did not produce road events is characterized by the fact that they are vigilant, avoid making decisions spontaneously, and are confident in their ability to make decisions. They are not anxious or avoidant when they have to decide on the road.

The most important limitations of the present study may be that it is cross-sectional and that the data have self-report data. Thus, future research should attempt to expand upon this study using a longitudinal design and more bureaucratic indicators of outcomes decisions (for example, complaints from banks coming to the workplace for late loan payments).

Moreover, future research should assess these variables in other types of military organizations, (e.g. police), because might have contexts for decision-making that differ, for example by being more (or differently) organized and led.

Another limitation is related to the psychometric quality of the DOI test, and from this perspective, the need to adapt to the population of the country of origin of the subject sample is obvious. To be able to use the inventory of decision results (DOI)

successfully, it is necessary to adapt to the specifics of the military environment, and we will have to give up some elements that do not apply to this type of population (for example the item: Were you in prison even for a day?). The fact that this tool is self-reported creates the possibility for subjects to evade a personal history of finalized decisions with negative results. Another limitation is the small number of subjects regarding the number of variables involved in the study.

This study is one of the first to investigate the relations between decision-making styles and decision outcomes in a military population, and future studies may address the relationship between decision-making styles and other relevant constructs by assessing decision-making competence in military personnel using situational tests involving the decision-making process.

The results of this study confirm that most everyday decisions are made using intuition, which belongs to the information processing system 1, this result follows the theory proposed by Stanovich (1998).

As Leykin and DeRubeis have obtained results that have confirmed the close link between avoidant, obsessive, and anxious decision-making styles with the main symptoms of depression, I believe that decision-making style questionnaire can be a solution to identify depressive states in military returning from missions in theaters of operations.

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APENDIX A

Cronbach's α values at the analyzed scales

| Scale | No. of Items | α | Lower Bound | Upper Bound |
|---------------------|--------------|----------|-------------|-------------|
| DOI | 30 | .65 | .58 | .72 |
| DSQ | | | | |
| Confident | 2 | .79 | .73 | .86 |
| Respected | 5 | .81 | .76 | .85 |
| Intuitive | 5 | .83 | .79 | .87 |
| Spontaneous | 4 | .61 | .53 | .70 |
| Vigilant | 6 | .90 | .87 | .92 |
| Dependent | 6 | .77 | .71 | .82 |
| Anxious | 5 | .86 | .83 | .90 |
| Obsessive | 5 | .58 | .48 | .68 |
| Avoidant | 5 | .76 | .70 | .82 |
| CP5F | | | | |
| Agreeableness | 24 | .87 | .84 | .90 |
| Emotional Stability | 21 | .91 | .89 | .93 |
| Autonomy | 22 | .70 | .64 | .77 |
| Extraversion | 23 | .89 | .87 | .91 |
| Conscientiousness | 25 | .87 | .84 | .90 |
| Social Desirability | 15 | .75 | .69 | .80 |

Note. The lower and upper bounds of Cronbach's α were calculated using a 95% confidence interval.

APPENDIX B*Descriptive statistics*

| Variable | <i>M</i> | <i>SD</i> | α | <i>SE_M</i> | Min | Max | Skewness | Kurtosis | <i>Mdn</i> |
|---------------------|----------|-----------|----------|-----------------------|------|------|----------|----------|------------|
| DOI | .15 | .08 | .65 | .01 | .03 | .39 | .76 | .37 | .15 |
| DSQ | | | | | | | | | |
| Confident | 4.48 | .48 | .79 | .04 | 3.00 | 5.00 | -.56 | -.66 | 4.60 |
| Respected | 3.86 | .64 | .81 | .05 | 2.00 | 5.00 | .08 | -.52 | 4.00 |
| Intuitive | 3.35 | .79 | .83 | .06 | 1.00 | 5.00 | .02 | -.12 | 3.40 |
| Dependent | 2.99 | .69 | .77 | .05 | 1.00 | 4.67 | -.41 | .35 | 3.17 |
| Avoidant | 2.06 | .67 | .76 | .05 | 1.00 | 4.00 | .27 | -.28 | 2.00 |
| Obsessive | 2.37 | .58 | .58 | .04 | 1.00 | 4.00 | 0.01 | -.17 | 2.20 |
| Vigilant | 4.04 | .64 | .90 | .05 | 1.00 | 5.00 | 0.98 | 4.34 | 4.00 |
| Anxious | 1.72 | .60 | .86 | .05 | 1.00 | 3.40 | .30 | -.70 | 1.80 |
| Spontaneous | 2.67 | .61 | .61 | .05 | 1.00 | 4.00 | .01 | .52 | 2.75 |
| CP5F | | | | | | | | | |
| Emotional Stability | 4.20 | .40 | .91 | .03 | 3.24 | 4.76 | -.26 | -.92 | 4.21 |
| Agreeableness | 4.11 | .40 | .87 | .03 | 3.17 | 5.00 | .27 | -.65 | 4.08 |
| Autonomy | 3.45 | .26 | .70 | .02 | 2.95 | 4.32 | .56 | .32 | 3.41 |
| Extraversion | 3.85 | .50 | .89 | .04 | 2.39 | 4.96 | -.19 | .00 | 3.87 |
| Conscientiousness | 4.25 | .38 | .87 | .03 | 3.32 | 5.00 | .10 | -.76 | 4.20 |
| Social desirability | 4.47 | .34 | .75 | .03 | 3.47 | 5.00 | -.33 | -.44 | 4.47 |