Personality and Hardiness Among Police Students

An Evaluative Pilot Study

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Abstract
The purpose of the current pilot study was to evaluate the suitability and usefulness of short-form measures of personality (BFI-20) and hardiness (DRS-15-R) for an upcoming research project. We used a sample of police students ($N = 129$) to investigate: (1) the rudimentary psychometric properties of the instruments, and (2) the covariation between the obtained scores on these measures. The results showed that hardiness and Emotional stability had a large covariation and that Emotional stability was a strong predictor of the total hardiness score. We discuss the results in relation to previous research and conclude that useful knowledge of individual differences among police students can be obtained with these measures.

Keywords
Police students, personality, hardiness, assessment

1. Introduction

In many lines of work, personality and individual characteristics are important determinants that underly the ability to carry out duties, for instance, how personality traits, attitudes, or intellectual ability influence assessments of situations or how tasks or challenges are managed (Furnham, 2008). The police represent such an occupation, where different assignments require different skillsets or competencies tied to individual differences. The scope of the current programme of research was to conduct a pilot study and examine the rudimentary psychometric properties of two combined measures of individual differences, namely personality and hardiness. The study aimed to evaluate the usefulness of these measures for a future large-scale survey that will investigate police students' personality and hardiness profiles from study admission to completion.

Research has provided us with knowledge of understanding, assessing, and describing various individual phenomena, such as personality: our unique ways of thinking, feeling, and behaving that are relatively stable across time and situations (John et al., 2010). One of the most widely used personality measures is the Big Five taxonomy, which considers personality through five broad factors. Each factor represents a continuum or personality dimension that all people have to a greater or lesser extent. The factors are as follows: Extraversion (e.g., from being reserved to assertive), Agreeableness (e.g., from being unfriendly to kind); Conscientiousness (e.g., from being careless to well organised); Neuroticism (e.g., from being emotionally stable to anxious); and Openness to experience (e.g., from having narrow interests to being original) (Digman, 1990; John & Srivastava, 1999). The well-established Big Five Inventory (BFI) is a 44-item self-report questionnaire developed to capture the prototypicality or core elements of these five factors by respondents indicating how well (or not) they identify themselves with individual personality-related characteristics (John et al., 2008; John & Srivastava, 1999). The current study used a short version of the BFI-44, the BFI-20.

When developing this BFI short-format scale, Engvik and Clausen (2011) selected 20 items from the BFI-44 based on their psychometric properties and an underlying intent to minimalise loss of psychometric quality (through measures of structural validity, maximal representation, maximal stability over time, and maximal criterion validity). The scale measures the following five main factors: Extraversion (active, talkative, dominating, outgoing); Friendliness (warm, non-cynical, caring, friendly); Control (well organised, conscientious, structured, disciplined); Emotional stability (careless, non-sensitive, not nervous, not tense); and Fantasy (original, creative, imaginative, inventive). Even though the BFI-20 contains a spectrum of properties for each of the five factors, it needed to be evaluated by considering what is useful and what is psychometrically acceptable. In this regard, the BFI-20 has shown acceptable values for all factors regarding internal consistency, test-retest reliability, representativeness of the factors as measured by longer measures, and covariations toward factors rated by others (Engvik & Clausen, 2011).

Using 20 items to assess a complex phenomenon like personality is far from ideal. That said, the five factors of the BFI-20 have all shown adequate psychometric properties. The scale measure can be considered useful and convenient in contexts that do not require an optimal personality measurement, such as in large-scale research (which this study is a pilot for). For instance, the BFI-20 has been utilised in large-scale research investigating Big Five personality dimensions among musicians (Vaag et al., 2018), the association between personality traits and consumer behaviour (Ardebili & Rickertsen, 2020), and the relationship between personality and quality of life (Nes et al., 2018).

The second measure employed in the study concerned psychological hardiness (Bartone,

1995; Kobasa, 1979), a personality-related factor believed to function as a buffer between external stressors and physical or psychological effects (Hystad & Johnsen, 2019). The concept can be related to constructs like mental toughness (Ward et al., 2018) or resilience (Janssens et al., 2021). Hardiness is a coping style or a way of operating involving cognitive, emotional, and behavioural processes. Three factors or dimensions constitute the concept. These are (i) Commitment – referring to being confident in one's abilities and engaging in one's life, tasks and relationships, and perceiving these as meaningful; (ii) Control – which concerns the individual's belief in their ability to influence outcomes of different situations, and; (iii) Challenge – the extent to which the individual is pro-active and perceives changes and unpredictability as challenges with opportunities to develop from experience (Eid et al., 2008; Eschleman et al., 2010). The three components are interconnected attitudes that influence how individuals experience and perceive potentially stressful events and can assist the person in reducing the negative effects of stressors. Hardiness contributes to stress management through two main aspects: (i) the individual's cognitive appraisal of stressors and (ii) their behavioural response. Hardy individuals engage proactively in tasks, appreciate challenges, and have confidence in their ability in ways that lead to effective stress management and personal growth (Hystad & Johnsen, 2019; Maddi, 2002). To assess hardiness, Bartone (1995) established the 30-item Dispositional Resilience Scale, later developed into a 15-item version named The Short-Hardiness Scale or DRS-15-R (Hystad et al., 2010; Johnsen et al., 2004), which we utilised in the current study. Even though police education in Norway does not explicitly target hardiness, students are trained in different ways of coping with the potential stress of working as police officers, for example, with regard to issues such as work overload or physical threats in operational work (Berg et al., 2006). Considering the nature of police work, it is reasonable to assume that both personality and hardiness are influential factors in how police officers carry out their duties. Thus, the scope of the current study was to obtain data on the BFI-20 and DRS-15-R to establish their psychometric properties and evaluate whether they satisfactorily detect individual differences among police students.

1.1 The Present Research

Although validated with good results in other research, we wanted to ensure that the BFI-20 and the DRS-15-R were feasible and sensitive enough to detect individual differences among police students. As such, we inspected the rudimentary properties of the measures' items and scales based on our sample. The range of responses on the items, the score distribution of the scales, and the internal reliability of the scales were of interest. In addition to such basic inspection of the two measures, we analysed the relationships between personality traits and psychological hardiness to investigate if covariations were in line with other empirical findings (e.g., Kardum et al., 2012). For achieving the aims of this pilot study, we formulated two research questions:

1. Do rudimentary descriptive and psychometric analyses of scores on the BFI-20 and DRS-15-R support the use of these measures among Norwegian police students?
2. What are the relationships between scores on the BFI-20 and DRS-15-R among Norwegian police students?

When formulating expected research results, it is relevant to consider the possibility of police students being a somewhat homogeneous group as they all have passed a successful selection process, where, for instance, psychological maturity and health have been evaluated (Skoglund, 2018). Applicants that might score very low on factors related to such charac-

teristics have been presumably screened out. Thus, we expected left-skewed distributions of hardiness scores and on the trait of Emotional stability. Further, all participants had completed their first police academic year, in which the students gained both theoretical and practical knowledge, most likely fuelling their self-efficacy and maturity. Therefore, we expected a more salient variability in the trait scores of Extraversion, Friendliness, Control, and Fantasy.

In line with other empirical findings (Kardum et al., 2012; Oshio et al., 2018), we expected statistically significant covariations between personality traits and hardiness, where Emotional stability would most likely demonstrate the highest correlation (Eschleman et al., 2010). Furthermore, we anticipated that personality traits predicted scores on hardiness beyond gender and age since hardiness is considered a personality-related construct (Bartone, 1995; Kobasa, 1979).

2. Method

2.1 Design

The present study used a quantitative cross-sectional study design by administering the two measures, BFI-20 and DRS-R-15, at the same time.

2.2 Sample

The entry route to becoming a police officer in Norway is completing a three-year bachelor's degree programme in policing at the Norwegian Police University College. In the current study, data was collected in 2019 from students who entered the police education programme in 2018, where a total of 554 applicants were admitted (46.2% female, 85% of the students were between 20 and 25 years old). We distributed an electronic questionnaire to all first-year students, asking them to participate in the study. They did not receive any compensation for participating. The final sample was $N = 129$, resulting in a response rate of 23.3%. There were 58 males (45%) and 71 females (55%) in the sample, with ages ranging from 20 to 34 ($M = 23.41$, $SD = 2.99$).

2.3 Measures

2.3.1 BFI-20

The BFI-44 has been translated into Norwegian and has shown acceptable psychometric qualities (Engvik & Føllesdal, 2005). The inventory was the basis for developing the BFI-20. Respondents are requested to determine to what degree they evaluate that personality-related statements (i.e., items) describe them across situations using a 7-point scale. The BFI-20 consists of 4 items for each trait (Extraversion, Friendliness, Control, Emotional stability, and Fantasy), and all items are presented in Table 1. The Norwegian version of this test was validated on a university student sample ($N = 630$) by Engvik and Clausen (2011), where Cronbach's alpha values were .78, .63, .57, .73, and .63 for the five traits. For the current sample, Cronbach's alpha values of the five traits can be seen in Table 3.

2.3.2 DRS-15-R

An early version of the "Short Hardiness Scale" demonstrated satisfactory psychometric qualities concerning both the specific facets and the total test in addition to appropriate criteria-related and predictive validities within different samples (Bartone, 1995). Later studies on related hardiness measures within a military context also had acceptable levels of internal

consistency for the individual scales and good test-retest reliability (Sinclair & Oliver, 2003). The Norwegian version of the hardiness scale used Bartone's short version as a starting point to develop the DRS-15-R, consisting of 15 items measured on a 4-point self-report scale. Hystad et al. (2010) developed the Norwegian version of this scale and validated it based on a large sample of military and civilian employees in the Armed Forces ($N = 7,280$). A confirmatory factor analysis reported a hierarchical structure with the overarching hardiness dimension, and the three components of commitment, challenge, and control emerged as the best model fit. Each component consists of five items, and all items are presented in Table 2. Hystad et al. (2010) reported Cronbach's alphas of .79 for the general hardiness dimension and .76, .62, and .74 for the components. The alpha values for the present sample can be seen in Table 3.

2.4 Procedure and Ethics

The measures are free to use for research purposes (Engvik & Clausen, 2011; Hystad et al., 2010). We digitalised the items of the two measurements using Microsoft Forms and then distributed an invitation to participate through the Police University College's e-mail system to all first-year students in May 2019. All study participants gave their voluntary, informed consent. The average time used by the participants to complete the survey was 4 minutes and 48 seconds. All the collected data were anonymous. The Norwegian Social Science Data Service and the Norwegian Police University College approved the study.

2.5 Analysis

We used IBM SPSS 25.0 for all statistical analyses. We computed descriptive statistics at the item and factor/component level for the BFI-20 and DRS-15-R, respectively. Relationships between all factors/components were investigated through intercorrelations, where strengths of relationships were categorised in line with the recommendations by Cohen (1988): small ($r = .10$ to .29), medium ($r = .30$ to .49), large ($r = .50$ to 1.0). Hierarchical multiple regression was performed for investigating the predictive ability of personality traits on the general hardiness dimension after controlling for the influence of gender and age.

3. Results

3.1 Rudimentary Descriptive and Psychometric Analyses of the BFI-20 and DRS-15-R

The range, mean and standard deviation at the item level for the two measures are reported in Tables 1 (BFI-20) and 2 (DRS-15-R). A visual inspection revealed that the distributions of some scores on the BFI-20 items were saliently negatively skewed. On eight items, the full ranges of possible scores were not obtained. Of these, four items demonstrated a somewhat limited range with scores from 3 to 7: "Can be shy and inhibited," "Am outgoing and social," "Work thoroughly," and "Make plans and follow through." The item "Am considerate towards most people" clearly showed a limited range (5–7).

The distributions of DRS-15-R item scores were somewhat negatively skewed, although the whole range was used on all items except for "Most of my life gets spent doing things that are meaningful" and "Life is generally boring to me." On these items, no one reported the lowest alternative on the scale (the last item being reversed).

Table 1. Descriptive Statistics for BFI-20 Items

Item	Range	M	SD
Extraversion			
Am talkative	1-7	5.02	1.24
*Have a tendency to be quiet	1-7	4.84	1.44
*Can be shy and inhibited	3-7	5.99	0.99
Am outgoing and social	3-7	5.43	1.09
Friendliness			
Am helpful and selfless towards others	1-7	5.69	1.20
*Can be cold and distant	2-7	5.60	1.32
Am considerate towards most people	5-7	6.52	0.60
*Can be impolite sometimes	2-7	5.74	1.09
Control			
Work thoroughly	3-7	5.91	0.83
*Can be careless	1-7	4.81	1.41
*Have a tendency to have little order in my life	1-7	6.24	1.11
Make plans and follow through	3-7	5.45	1.05
Emotional stability			
*Am depressed	1-7	6.28	1.23
Am relaxed, manage stress well	1-7	5.01	1.35
*Worry a lot	1-7	5.06	1.57
*Easily get nervous	1-7	4.99	1.36
Fantasy			
Am original, have new ideas	2-7	4.41	1.18
Have a vivid imagination	1-7	4.40	1.52
Like to speculate, play with ideas	1-7	4.50	1.36
*Have few artistic interests	1-7	3.55	1.98

Note. N = 128–129. BFI-20 was coded from 1 (*strongly disagree*) to 7 (*strongly agree*). The asterisk indicates items that are reversed before scoring.

Table 2. Descriptive Statistics for DRS-15-R Items

Item	Range	M	SD
Commitment			
Most of my life gets spent doing things that are meaningful	2–4	2.91	0.61
*I feel that my life is somewhat empty of meaning	1–4	3.62	0.70
I really look forward to my work activities	1–4	3.58	0.62
Most days, life is really interesting and exciting for me	1–4	2.91	0.76
*Life in general is boring to me	2–4	3.73	0.54
Challenge			
*I don't like to make changes in my regular activities	1–4	2.77	0.77
Changes in routine are interesting to me	1–4	2.55	0.70
I enjoy the challenge when I have to do more than one thing at a time	1–4	3.13	0.67
*It bothers me when my daily routine gets interrupted	1–4	2.84	0.66
*I like to have a daily schedule that doesn't change very much	1–4	2.61	0.78
Control			
By working hard, you can nearly always achieve your goals	1–4	3.52	0.60
How things go in my life depends on my own actions	1–4	3.26	0.70
*I don't think there's much I can do to influence my own future	1–4	3.80	0.56
It is up to me to decide how the rest of my life will be	1–4	3.51	0.66
My choices make a real difference in how things turn out in the end	1–4	3.31	0.64

Note. N = 127–129. DRS-15-R were coded as 1 = *Not at all true*; 2 = *A little true*; 3 = *Quite true*; 4 = *Completely true*. Asterisk indicates items that are reversed before scoring.

Total mean score levels, as can be seen in Table 3, show that all personality trait scores except for Fantasy demonstrated a clearly visible negative skewness. This observation was validated further by the following skewness values: -0.42 (Extraversion), -0.74 (Friendliness),

-0.48 (Control), -0.80 (Emotional stability), and -0.02 (Fantasy). The highest mean scores and smallest standard deviations were obtained for Friendliness (M = 5.89, SD = 0.73) and Control (M = 5.60, SD = 0.74). The remaining traits of Extraversion (M = 5.32, SD = 0.96) and Emotional stability (M = 5.34, SD = 1.02) yielded somewhat lower mean scores and larger standard deviations, while Fantasy (M = 4.22, SD = 1.11) clearly demonstrated the lowest mean score and the largest standard deviation. The total hardiness score was clearly negatively skewed, with a high mean score and a small standard deviation (M = 3.20, SD = 0.28), showing a skewness value of -1.03. At component level the distribution of commitment (M = 3.35, SD = 0.40) and control (M = 3.48, SD = 0.40) were skewed (-0.86 and -1.06, respectively). The distribution of challenge (M = 2.78, SD = 0.40) seemed more normally distributed with a skewness value of -0.17.

As can be seen in Table 3, the Cronbach alpha values were high for extraversion (α = .81), and somewhat lower for Emotional stability (α = .71) and Fantasy (α = .69). The remaining alpha values were of a smaller magnitude, with challenge demonstrating the smallest internal consistency (α = .46).

3.2 The Relationships Between Scores on the BFI-20 and DRS-15-R

Table 3. Descriptive Statistics and Correlations between Study Variables

	Alpha	M	SD	1	2	3	4	5	6	7	8	9	10
1. Sex	-	-	-										
2. Age	-	23.41	2.99	-.36**									
3.Extraversion	.81	5.32	0.96	.11	.01								
4.Friendliness	.59	5.89	0.73	.18*	-.16	.26**							
5.Control	.57	5.60	0.74	.25*	-.14	.16	.45**						
6.Emotional S	.71	5.34	1.02	-.42*	.26**	.24**	.12	.13					
7.Fantasy	.69	4.22	1.11	-.26*	.18*	.18*	.02	-.30**	.19*				
8.Commitment	.58	3.35	0.40	.01	.01	.42**	.33**	.42**	.39**	.03			
9.Challenge	.46	2.78	0.40	-.02	.12	.10	.18*	-.12	.30**	.30**	.13		
10.Control	.63	3.48	0.40	-.06	.18*	.20*	.10	.28**	.37**	-.02	.45**	.04	
11.Hardiness	.65	3.20	0.28	-.03	.16	.35*	.30**	.28**	.51**	.15	.76**	.57**	.72**

Note. $^*p<.05$ $^{**}p<.01$ (two-tailed). N = 127-129. Sex was coded 1 = male and 2 = female. Hardiness = DRS-15-R total score.

Table 4. Hierarchical Multiple Regression for predicting Hardiness Total Score

		Hardiness total score	
Variables		ß	ΔR^2
Step 1	Demographics		.025
	Sex	.03	
	Age	.17	
Step 2	Personality traits		.369***
	Extraversion	.15	
	Friendliness	.13	
	Control	.15	
	Emotional stability	.46***	
	Fantasy	.10	
	R^2		.394***

Note. p<.001.

The relationships between hardiness and personality traits were investigated with correlational analyses and a multiple regression. Table 3 shows all Pearson product-moment correlations. The hardiness total score had a large correlation with Emotional stability ($r = .51$, $p < .01$), medium with Extraversion ($r = .35$, $p < .05$) and Friendliness ($r = .30$, $p < .01$), and finally, a small correlation with Control ($r = .28$, $p < .01$).

Using a hierarchical multiple regression, as seen in Table 4, we investigated the predictive ability of personality traits toward hardiness after controlling for the influence of gender and age. Preliminary analyses demonstrated no severe violation of the assumptions for performing a multiple regression. Step 1, consisting of sex and age, explained 2.5% of the variance in hardiness. Adding the five personality traits in step 2, the total variance explained by the model was 39.4%, $F (7, 116) = 10.78$, $p < .001$. In this final model, only Emotional stability was an isolated statistically significant predictor of hardiness (ß = .46, $p < .001$).

4. Discussion

This pilot study aimed to evaluate the suitability of the BFI-20 and DRS-15-R for upcoming police student research. Being short inventories, the usability of researching with these measures has apparent advantages. However, for adequate measurement of personality and hardiness, these instruments should be sensitive enough for detecting individual differences by showing variability in data. The findings from the present study demonstrated firstly that most respondents generally reported high scores, thus resulting in somewhat negatively-skewed distributions. A visual inspection and a skewness value close to zero revealed that scores on Fantasy were quite normally distributed. Our expectations of skewed scores on hardiness and Emotional stability were therefore met. However, the results did not demonstrate the expected pattern of more salient variability on the Extraversion, Friendliness, and Control traits. A possible explanation for this is that ranges restrictions are most likely due to characteristics of our sample, where all participants had been through a selection process emphasising certain similar characteristics (Skoglund, 2018).

The Cronbach's alpha values were suboptimal, except for the Extraversion scale (see Table 3). Therefore, caution is warranted in interpreting scores from the other scales. Lower than optimal alpha values are not necessarily indicative of suboptimal measures per se, as the magnitude of the coefficient alpha is a characteristic of the obtained scores of the measure (Streiner, 2003). The suboptimal internal consistency in the scores obtained can perhaps be explained by our sample's marginal number of participants. However, there are of course challenges related to the content domain in such short measures as the ones used in the present study. Nevertheless, we should have larger samples for investigating the internal reliability of scores from police students.

The rudimentary item analyses generally supported that the measures could identify individual differences among police students, as ranges in responses are detectable. However, there was a challenge with the BFI-20 item "Am considerate towards other people", as no one had marked a score below five on the 7-point scale. It is, of course, possible that this is a valid response for our sample. Another explanation, however, is that such an item is especially sensitive to a socially desirable response.

The predominantly modest correlations of hardiness and personality traits align with earlier findings (Kardum et al., 2012). Hardiness and Emotional stability had a large covariation, which was expected and in line with other research (Eschleman et al., 2010; Oshio et al., 2018). With the correlation of $r = .51$, approximately 25% of the variance is shared between the two variables. After controlling for the effects of age and gender, the person-

ality traits added explanatory value for the total hardiness score. Among the personality traits, Emotional stability was a strong isolated predictor of the total hardiness score, further supporting the relatedness of these constructs. Our expectations of a higher explanatory power of the personality traits over demograhics were therefore met. While being related to the personality traits, especially Emotional stability, the main result of modest covariations supports the notion that Hardiness seems to be a separate construct relative to personality (Hystad et al., 2015; Kardum et al., 2012). And, indeed, since about half of the variance between Emotional stability and hardiness was not shared, these constructs also can be seen as different constructs, albeit being related.

When considering the study's limitations, first and foremost, sampling bias is an unknown factor as the response rate was quite low. The present study's marginal response rate of 23.35% was probably not due to the measures but rather to the timing of the data collection, which collided with several academic examinations at the end of the semester. With a low response rate, problems related to self-selection bias might come into play. Students with certain personality traits might be more inclined to participate in a study, especially at a time of high academic workload. The distribution of personality traits we found might, therefore, not fully represent the whole police student population. Further data collection is needed to verify or adjust the patterns of findings obtained in this pilot study. Secondly, as the measures used in the study are short and based on self-report, care in score interpretation is warranted. Self-report on personality measures may contribute to socially-desirable responses, thus decreasing the reliability and validity of scores. This could, however, be more actualised in selection settings (Morgeson et al., 2007a, 2007b). Considering the limited length of the measures, this is especially relevant for the BFI-20. Compared to more comprehensive Big Five tests, such as the NEO-PI-R/3, with its 240 items resulting in facet scores in addition to factor scores, it becomes clear that nuances in personality factors are lost with short-form measures. Usability benefits are an obvious advantage of short measures, but it is also of interest if short-form inventories can provide reasonable answers to personality research questions. For the DRS-15-R, the particularly low Cronbach's alpha found for the challenge dimension (.46) could limit the credibility of this specific dimension. However, it is not uncommon to find that the challenge scale has a notably lower reliability estimate than the other two dimensions (e.g., Hystad et al., 2010; Sandvik et al., 2020).

To our knowledge, this is the first study to combine the BFI-20 and DRS-15-R. Overall, we consider the measures feasible and suitable for the mentioned upcoming research among police students. These measures are not, however, optimal for nuanced personality or resilience descriptions at the individual level. Still, we see them as useful for quantitative research purposes in which time and recruitment of participants can be a challenge. In our marginal sample, the measures demonstrated somewhat promising psychometric properties, and our findings also replicated some basic findings from the Big Five and hardiness literature. Thus, we conclude that useful knowledge of individual differences can be obtained with these instruments, justifying continued research using the measures on a police student population.

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