

VALIDATION OF SUBSTANCE USE RISK PROFILE SCALE VIA COMPARATIVE STUDY OF HIGH-RISK ADOLESCENTS IN JUVENILE CORRECTIVE INSTITUTIONS IN CZECHIA

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Aims and Introduction:

The aim of our comparative and validation study was to authenticate the predictive abilities of Substance Use Risk Profile Scale (SURPS) (Woicik, Stewart, Pihl, & Conrod, 2009), which has already been standardized in Czechia (Dolejš, 2010a; Dolejš, Mioviský, & Řehan, 2010). Previous studies showed that sensation seeking is specifically associated with drinking and substance use, but not with an anti-social behaviour. On the other hand, impulsivity is extensively linked with the anti-social behaviour, conduct disorders, and a substance misuse. Low levels of Anxiety sensitivity were associated with conduct disorder symptoms and antisocial behaviours. High levels of Hopelessness were associated with externalizing behaviour in general (Castellanos-Ryan, & Conrod, 2011). Impulsivity was also associated with poor response inhibition, which may lead to all externalizing problems with conduct disorder symptoms. Sensation seeking was associated with reward response bias and thus was related to alcohol use and binge drinking frequency in adolescence (Castellanos-Ryan, Rubia, & Conrod, 2011). Impulsivity has shown as a very good predictor of substance misuse among Czech adolescents (Dolejš, 2010b). Another study has found out that female offenders obtained higher impulsivity and sensation seeking scores. Male offenders have problems with psychopathy and drug use and their scores were strongly and positively related to impulsivity and sensation seeking and negatively to anxiety sensitivity (Brunelle, Douglas, Pihl & Stewart, 2009; Hopley, & Brunelle, 2012).

Methods:

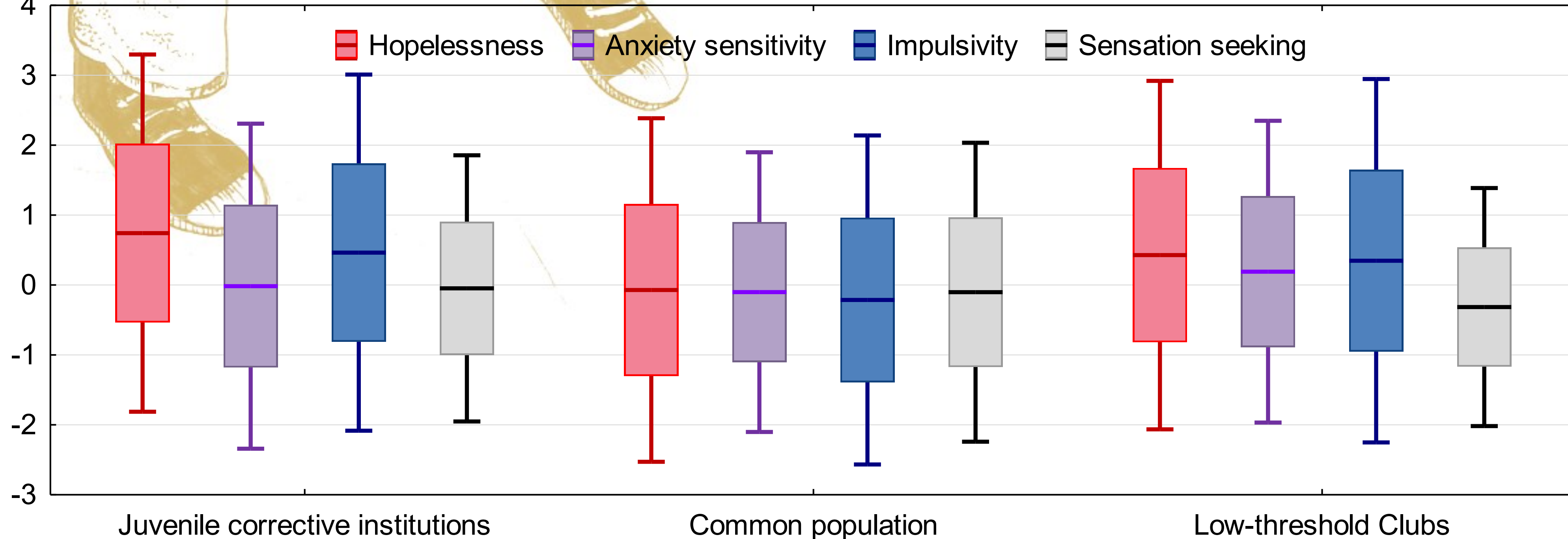
- 1) Substance Use Risk Profile Scale (SURPS) consists of 23 Likert-type items and includes four scales: **Hopelessness**, **Anxiety Sensitivity**, **Impulsivity** and **Sensation Seeking**.
- 2) **Risk Behaviour Scale** (VRCHA) consists of 18 dichotomous items, e.g. "Do you smoke more than 5 cigarettes a day?" or "Have you ever stole anything from a store?" (Dolejš, & Skopal, 2015).

Samples:

We compared the means and other descriptive statistics of the representative sample from the common population of pupils from regular Czech schools (N = 2354; 1127 boys and 1227 girls; from 11 to 17 years old; mean age = 13,3) with two samples of high-risk youths:

- 1) Adolescent inmates of residential juvenile corrective institutions (N = 400; 245 boys and 155 girls; from 11 to 17 years old; mean age = 14,8). This is a high-risk group of adolescents that have already manifested risky behaviour in a repetitive or persistent pattern (such as antisocial behaviour, extensive drug use, etc.), and thus they also meet criteria for conduct disorder. We used this group as a criterion for confirming the concurrent empirical validity of the SURPS and VRCHA methods.
- 2) Adolescents attending low-threshold prevention clubs during their leisure time (N = 57; 32 boys and 25 girls; from 11 to 16; mean age = 13,0). This is also the high-risk group but in smaller extent.

Graph 1 — Box-plots of z-scores (Mean = 0, SD = +/-1) of SURPS sub-scales comparing common population (N_{CP} = 2354) with high-risk groups (N_{JCI} = 400, N_{LTC} = 57)



Tab 1 — Independent sample t-tests of SURPS comparing common pop. (N = 2354) with adolescents from juvenile corrective institutions (N = 400)

SURPS sub-scales	M ₁ Juvenile corrective instit.	M ₂ Common popula-tion	t	p	Cohen's d
Hopelessness	0,74	-0,07	12,2	<0,000**	0,65
Anxiety sensitivity	-0,02	-0,1	1,53	0,125	---
Impulsivity	0,46	-0,21	10,5	<0,000**	0,55
Sensation seeking	-0,05	-0,1	0,96	0,335	---

Tab 2 — Independent sample t-tests of SURPS comparing common pop. (N = 2354) with adolescents attending low-threshold clubs (N = 57)

SURPS sub-scales	M ₁ Low-threshold Clubs	M ₂ Common popula-tion	t	p	Cohen's d
Hopelessness	0,43	-0,07	3,03	0,002**	0,40
Anxiety sensitivity	0,19	-0,10	2,18	0,029*	0,29
Impulsivity	0,35	-0,21	3,55	<0,000**	0,45
Sensation seeking	-0,32	-0,10	-1,49	0,137	---

Results:

Adolescents from juvenile corrective institutions as a group have significantly higher mean scores of Impulsivity and Hopelessness comparing to the common population (Tab 1, Graph 1). These differences have medium effect size and are consistent with previous findings. We have found similar differences but with smaller effect sizes when comparing the group of high-risk adolescents attending preventive low-threshold clubs (Tab 2, Graph 1). We haven't found lower levels of Anxiety Sensitivity. Adolescents from the clubs have even higher scores than common population. There are no differences between all three groups in Sensation Seeking orientation.

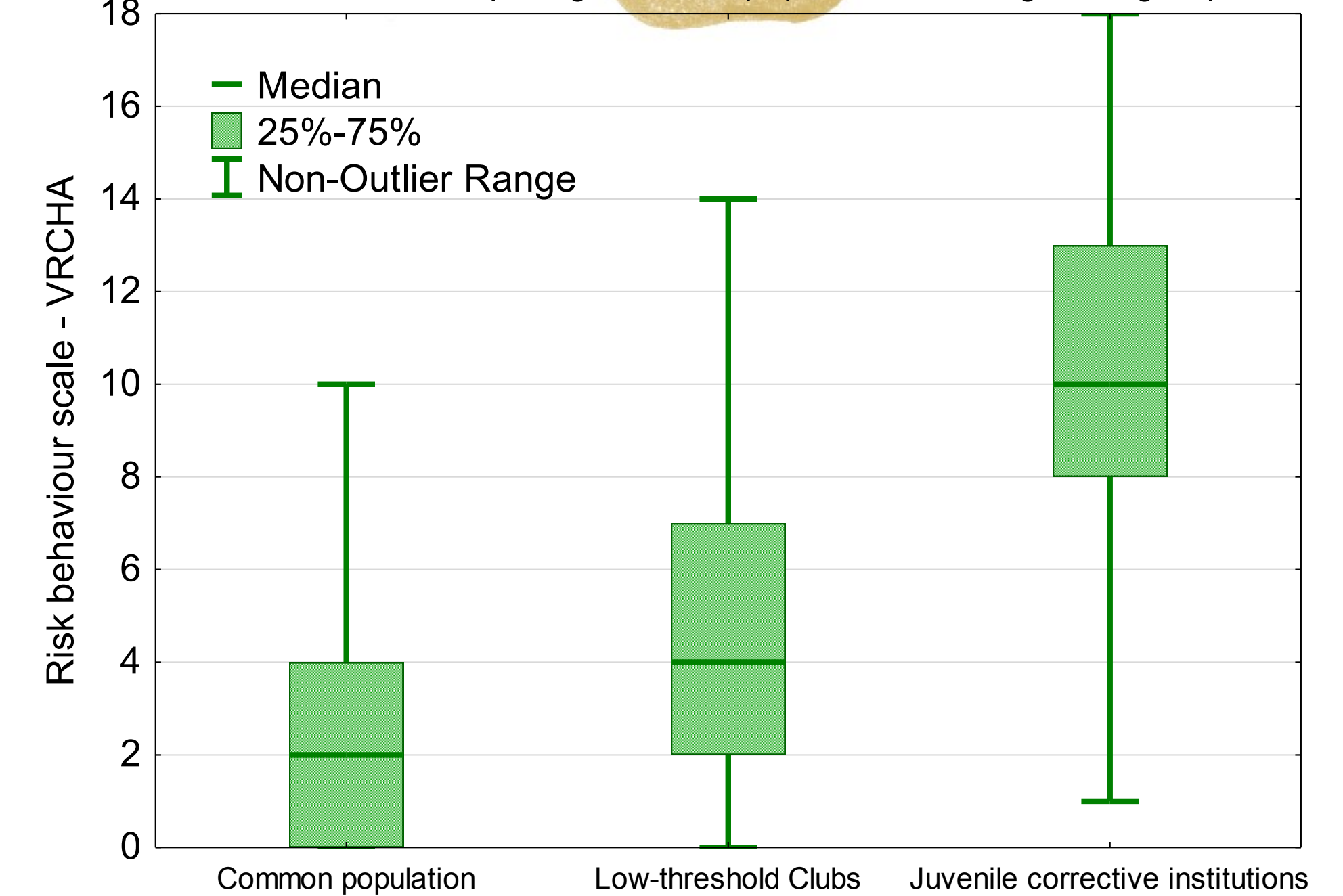
According to ANOVA results (Tab 3, Graph 2) and post hoc tests, there are significant differences with a large effect size between all three groups in Risk Behaviour Scale (VRCHA) mean scores. Furthermore, Risk Behaviour Scores correlate positively with Hopelessness, Impulsivity and Sensation seeking (Tab 4), and so the relation of risk personality traits and self-reported early manifestation of less serious risk behaviour gathered by VRCHA brings evidence to the concurrent validity of SURPS.

When applying ROC curves analysis (Graph 3) we found out that neither Sensation Seeking nor Anxiety Sensitivity distinguish between the common population and the adolescents from juvenile corrective institutions at all (adolescents from low-threshold clubs were omitted in all ROC analysis). Indicators of Impulsivity (Area under the curve AUC = 0,669) and Hopelessness (AUC = 0,682) signify poor accuracy. On the contrary, the Risk Behaviour Scale raw score measured by VRCHA performs very good in this discrimination (AUC = 0,941). The best trade-off between true positives (sensitivity = 0,921) and false positives (1-specificity = 0,169) was at the cut-off score of 5 and more "yes" answers to the VRCHA items.

Conclusion:

The best predictors of conduct disorder in our study which may lead to the placement of high-risk adolescent to the residential juvenile corrective institutions are early signs of risk behaviour such as legal drug use, shoplifting, vandalism, truancy, self-harm, brawls with peers etc. Relations of personality traits and manifestations of problematic risky behaviour revealed in our study are not strong enough to safely identify those adolescents which most likely end up in juvenile corrective institutions. There are still many individuals with low levels of risk personality traits within high-risk groups and vice versa many adolescents with significantly higher levels of these traits in common population, and so the determination of reliable cut-off scores for the SURPS sub-scales was not successful. The only cut-off score, we can keep, is one declared by authors of SURPS (1 standard deviation above the mean). Further attention should be paid to a composition of the high-risk group by means of cluster analysis or similar method. Focusing simply on comparing means can even out individual specifics and mislead us. Nevertheless, Substance Use Risk Profile Scale can still help prevention professionals a lot to identify pupils or students with problems and deliver them proper means of selective and indicated prevention programs.

Graph 2 — Box-plots of raw scores (min= 0, max = 18) of VRCHA Risk Behaviour Scale comparing common population with high-risk groups



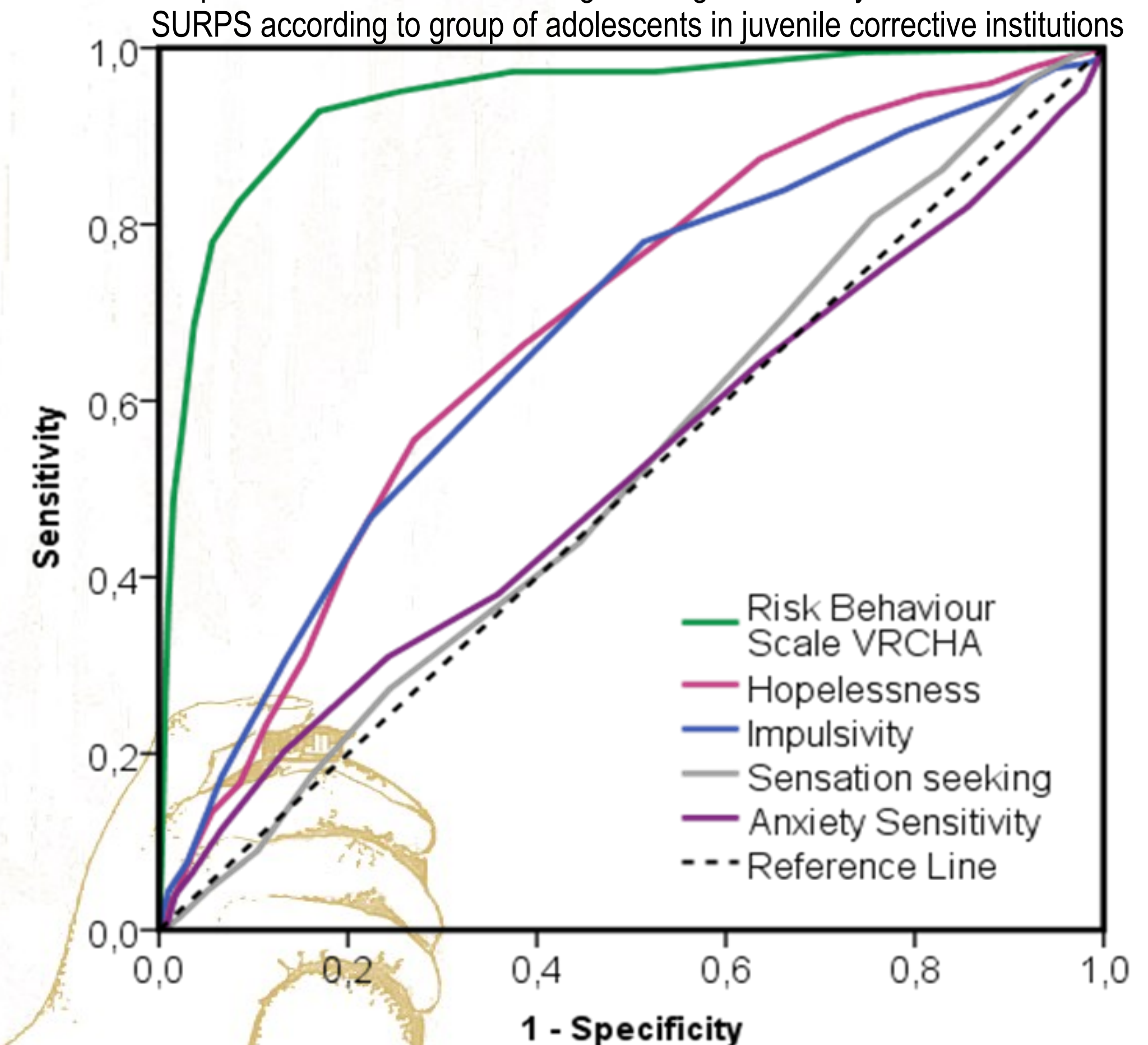
Tab 3 — One-way ANOVA comparing means of raw scores of VRCHA Risk Behaviour Scale between three defined groups of adolescents

One-way ANOVA	SS	d.f.	MS	F	p	Partial eta-squared
Between groups	11827	2	5913,5	784,32	<0,000	0,37
Error	20259	2687	7,5			

Tab 4 — Correlations of SURPS sub-scales and risk behaviour (VRCHA)

Spearman's corr.	Hopelessness	Anxiety sensitivity	Impulsivity	Sensation seeking
Risk Behaviour Scale — VRCHA	0,32**	0,04	0,37**	0,29**

Graph 3 — ROC curves indicating the diagnostic ability of VRCHA and SURPS according to group of adolescents in juvenile corrective institutions



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