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Assessing psychosocial maturity to diagnose severe personality development disorders in young adult males adjudicated of serious criminal offences: a psychometric validation study of a new instrument

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Summary

BACKGROUND: Psychosocial maturity is one of the key factors for understanding the course of criminal offences in juveniles and young adults. Until recently, forensic-psychiatric assessments to diagnose a severe disorder of personality development remained mostly unguided because validated instruments were not available. A new tool, the Young Adult Personality Development (YAPD) instrument, was introduced in 2021 and consists of three dimensions related to psychosocial maturity: *YAPD environmental*, *YAPD pathology* and *YAPD developmental tasks failure*. The current study tested the reliability (internal consistency, interrater reliability) and concurrent validity of these dimensions.

METHODS: We analysed files of a consecutive sample of young adults in the Canton of Zurich (2007 to 2020, n = 234, mean age: 21.33 years, SD: 1.74 years), who were either assigned to specialised institutional treatment for young adults (Swiss Penal Code [SPC] Article 61) or outpatient treatment (SPC Article 63). Intraclass correlation coefficient (ICC) agreements were used to analyse interrater reliability of YAPD dimensions across three independent raters. In the absence of a gold standard, we analysed concurrent validity by measuring the associations of the YAPD dimensions with expert opinion and sample status (judicial decisions on measures) using multiple logistic regressions.

RESULTS: Expert-rated personality development disorder was found to be highly prevalent in both samples. The YAPD dimensions showed adequate-to-good interrater reliability (ICC: 0.74–0.92). In logistic regression models, *YAPD developmental tasks failure* was related to diagnoses of severe development disorder and juridical decision on a measure for young adults according to SPC Art. 61. *YAPD environmental* was related to the diagnosis of a severe development disorder. *YAPD pathology* was found to be unrelated to the diagnosis of severe personality development disorder.

CONCLUSIONS: Our findings support the *YAPD developmental tasks failure* dimension and to a lesser degree the *YAPD environmental* dimension as valid dimensions to diagnose severe personality development disorder. Structured assessment instruments such as the YAPD may further improve diagnostic decision-making in forensic psychiatry and psychology.

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Introduction

In most countries, including Switzerland, the age of majority is set at 18 years. It is also at this age when many criminal laws for minor offenders cease to be applicable and “ordinary” criminal codes become the sentencing avenue for young adults. Although a fixed age of majority furthers legal certainty, this approach does not account for the different ways and timeframes in which young people mature and develop [1]. Criminal responsibility does not simply depend on a biological age but rather results from psychosocial and cognitive abilities that emerge during adolescence and early adulthood [1]. Maturity levels may vary considerably between same-age individuals [2]. As a consequence, some countries allow young adults to be treated as juveniles [1], whereas others allow juveniles to be treated as adults, particularly when they have committed

purportedly “adult crimes” [3]. To assist the judge’s decision-making, forensic mental health experts worldwide are increasingly challenged to evaluate (im)maturity in adolescents and young adults.

Psychosocial maturity can be defined as the general level of an individual’s socioemotional competence and adaptive functioning in the society he or she lives [4]. Havighurst [5] suggested different developmental tasks in specific lifespan periods including childhood, adolescence, adulthood and older ages. According to his theory, all individuals from infancy to old age progress through a series of developmental stages, each comprising a series of developmental tasks. Adolescence can be seen as a critical period in which individuals typically need to build wholesome attitudes towards self and towards their cultural identity, and they need to build relationships with other people of different cultures and sexes [6]. If individuals fail in such developmental tasks in adolescence, they may be at particular risk for deviant social behaviours.

Steinberg and Cauffman [7] suggested a model of psychosocial maturity with three facets that are of particular interest in the context of antisocial behaviours, namely “temperance” (the ability to control impulses, including aggressive impulses), “perspective” (the ability to consider other points of view, including those that take into account longer-term consequences or that take the vantage point of others) and “responsibility” (the ability to take personal responsibility for one’s behaviour and resist the coercive influences of others). Using longitudinal self-reported data, the research group of Monahan et al. [8–10] found strong support of this model of psychosocial maturity and its relationship to criminal behaviours: Following a sample of initially 14 to 17-year-old male adolescents from the Pathways to Desistance study (all the adolescents were charged with criminal offences), the authors found a normative growth of psychosocial maturity over time with a significant increase during adolescence and a reduced increase during young adulthood. But even at the age of 25, the participants were found to still be developing [9]. Desisters from crime showed higher increases in psychosocial maturity compared to criminal persisters [9]. Further longitudinal studies confirmed psychosocial maturity deficits as predictive of future criminal offences [11, 12]. These observations cohered with findings from neurophysiology which show ongoing brain development processes up to the age of 25 years that are linked to psychosocial maturity (e.g. impulse control, executive functions) and criminal behaviours [13].

Given these findings, there is good reason to treat young adults differently in criminal law. In Switzerland, individuals aged 18 to 25 years who have committed a serious crime and were diagnosed with a severe disturbance of personality (based on a psychiatric-psychological expert opinion) can be assigned to a specific educational measure for young adults (Art. 61 of the Swiss Penal Code [SPC]; duration max. 4 years with a mandatory end if the individual reaches age 30). Four specialised institutional treatment centres for young adults exist and offer socio-pedagogical, educational, vocational, medical and psychotherapeutic services for residents. Most of the measures begin in a closed setting, and the young people are gradually given more freedom, depending on their progress. In the last 20 years, there has been a constant decrease, both in absolute numbers and in relative terms, in the number of young adults for whom this measure has been ordered vs those with other therapeutic measures [14]. It is not entirely certain what factors are responsible for this decline, but it may have been influenced by lower rates of psychiatric expert opinions of younger compared to older adult offenders [14], the diagnostic uncertainty in assessing maturity [3, 15] and the exclusion of psychologists for forensic expert opinions on young adults [16, 17]. Since psychosocial immaturity cannot be diagnosed in the same way as psychiatric disorders, which are based on standardised diagnostic criteria in the ICD-11 or DSM-5, forensic assessments remain mostly unguided and vulnerable to expert bias [3].

Reviewing the existing literature, Urwyler, Sidler and Aebi [15] recently suggested a multidimensional approach to assessing severe personality development disorder in order to decide on a measure for young adults according to SPC Article 61. The Young Adult Personality Development (YAPD) instrument is based on the principles of structured professional judgement (SPJ) and offers forensic experts a guided checklist to identify personality development disorder. The YAPD includes 3 items related to environmental risk factors, 2 items related to pathology risk factors and 10 items related to specific developmental tasks (see appendix table S1). In an additional step, criminal relevance and the presence of a severe personality development disorder should be estimated.

The present study aimed to analyse the reliability and concurrent validity of the YAPD dimensions based on juridical files/psychiatric expert opinions of young adults aged between 18 and 25 years who had been charged with serious criminal offences and referred to either a specialised institutional measure for young adults (SPC Art. 61) or outpatient treatment (SPC Art. 63). Our research questions were: (1) Can different raters score the YAPD dimensions (sum scores) with adequate interrater reliability (intraclass correlation coefficient [ICC] >0.75)? (2) Can YAPD dimensions predict individuals diagnosed with severe personality development disorder? (3) Can YAPD dimensions predict individuals who require specialised institutional treatment?

Methods

Study protocol and ethics approval

A summary study protocol was prepared in German prior to data collection and is available upon request from the corresponding author. To enable transparency and consistency in the reporting of methods and results, the STARD reporting guidelines [18] were followed. The competence check by the Ethics Committee of the Canton of Zurich revealed that this file-based research project did not fall within the scope of the Human Research Act and therefore did not require approval by the Ethics Committee (Req-2023-00548 dated 3 May 2023).

Procedure and sample description

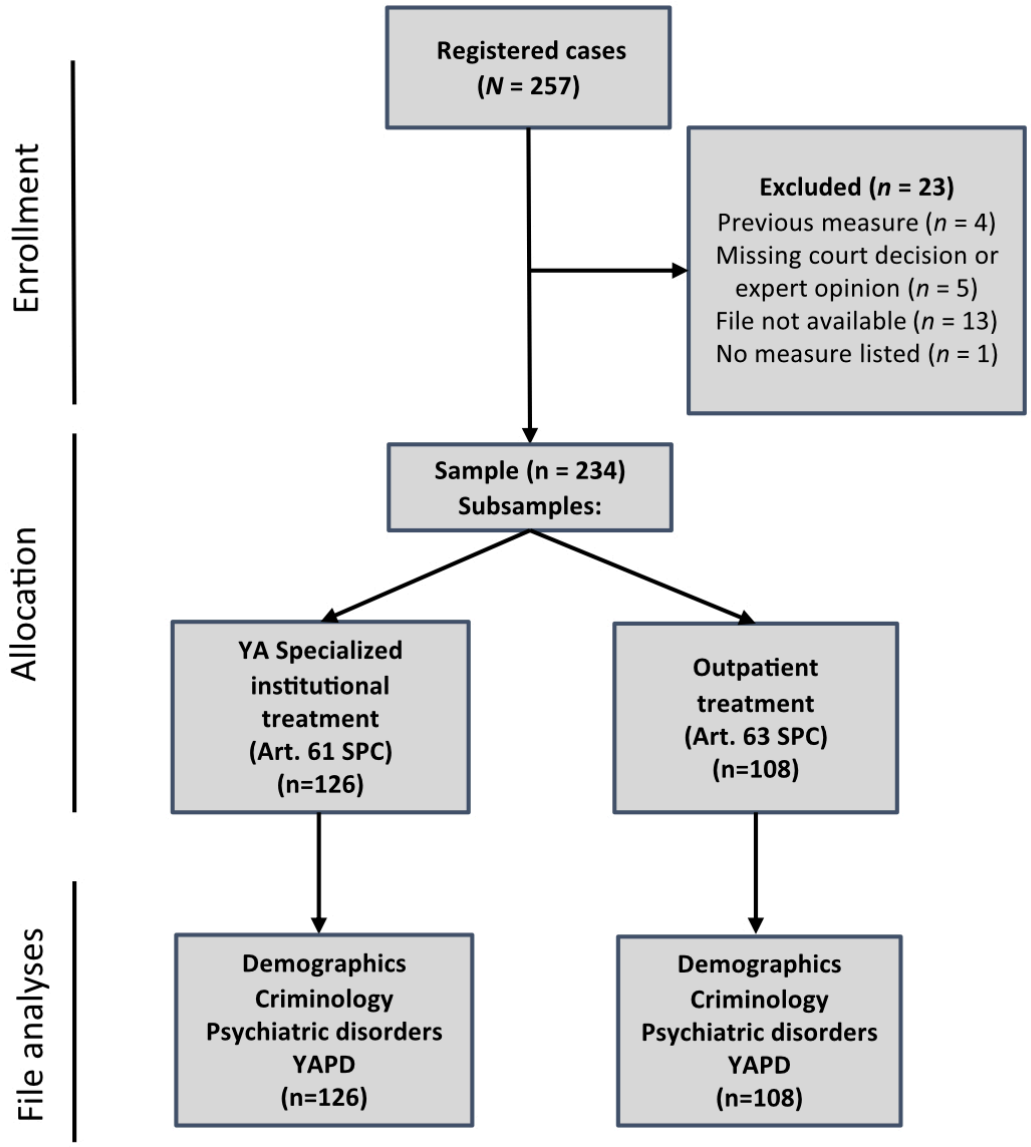
Data collection included files of all cases who underwent a final or precautionary measure under SPC Article 61 or a measure under SPC Article 63 (control group) ordered by the probation and correctional services of the Canton

of Zurich from 1 January 2007 to 31 December 2020, and who were aged 18 to 25 at the time of entry into the measure (retrospective study design, consecutive series of the years from 2007 to 2020). The control group consisted of individuals given outpatient treatment, a less serious measure. The following exclusion criteria were defined for the present study: (1) a previous measure under SPC Article 61 (in another canton or before a measure under SPC Article 63); (2) the absence of a court decision (with the order of measures) or an expert opinion (with the indication for measures); (3) non-availability of the files (e.g. files by a court or another authority); and (4) no measure according to SPC Article 61 or 63 listed in the corresponding files. Relevant subjects were identified on 1 October 2021 by means of an analysis of the legal information system (*Rechtsinformationssystem*) of the Canton of Zurich, resulting in 257 relevant cases. Of these cases, 23 were excluded (4 because of a previous measure under SPC Article 61; 5 because of a missing court decision/expert opinion; 13 because of missing files; and 1 because of no measure listed in the files, possibly due to an error in the legal information system). The final sample consisted of 234 cases, comprised of 234 young adult males (mean age at the time of the expert opinion: 21.33 years, SD: 1.74 years), 126 of whom were subjects with a measure under Article 61 and 108 subjects with a measure under Article 63 (figure 1). No young adult females with measures under SPC Article 63 or 61 were reported in the period 2007–2020.

Variables and instruments

A systematic analysis of the files from the probation and correctional services of Zurich was conducted. Data collection was carried out in a web-based system (REDCap [19]) using an integrated codebook, which included the definition and anchor examples of the variables. Based on 10 randomly selected cases, the codebook was tested and continuously adapted. After training on an additional 10 cases, an interrater survey involving a further 20 randomly selected cases was conducted among three raters with suf-

Figure 1: Flowchart. SPC: Swiss Penal Code; YA: young adult; YAPD: young adult personality development.



ficient levels of criminal psychology knowledge. Explanations for demographic, criminality and psychiatric disorder variables are shown in the appendix, section 2.

Young adult personality development (YAPD)

The YAPD instrument encompasses 15 questions based on three dimensions (*YAPD environmental*, *YAPD pathology*, *YAPD developmental tasks failure*). Raters are prompted to consider information on developmental factors from all sources (police and juridical files, explorations, reports, etc.). YAPD items were guided by one to three questions and illustrated by examples. Before rating, each item was justified by listing relevant arguments to what extent a person deviates from normative development (referring to a prototype of the same age). Subsequently, the items were rated as strong indication (2), slight indication (1) or no indication (0) for the presence of a developmental tasks failure. There was no possibility of declaring unclear or missing information (items should be scored in the direction of lower risk with no / unclear information). According to the principles of structured professional judgement, a decision as to the presence of a full or partly severe personality development disorder should be made by clinicians according to their individual weighting of items. However, in the current file-based study, no overall clinical rating was available due to limited information in the files and the limited forensic expertise of the raters; therefore we used item-sum scores on the dimensions to test the reliability and validity of the instrument.

Statistical analyses

The student's t-test (for continuous measures) and the χ^2-test/Fisher's exact test (for categorical measures) were used to analyse demographics, criminality and psychiatric disorders within the two subsamples (SPC Art. 61 vs SPC Art. 63). Cohen's d (interpretation: >0.20 small effect, >0.50 medium effect, >0.80 large effect) and Cohen'sw (interpretation: >0.10 small effect, >0.3 medium effect, >0.50 large effect) were calculated as effect sizes for t-tests and the χ^2-test/Fisher's exact tests, respectively [20]. A two-way random-effects model and an absolute intraclass correlation coefficient agreement [21] were used for analysing the interrater reliability of the YAPD via three independent raters (a senior researcher and forensic expert [MA], and two master's students in psychology/criminology [KN, MK]). Koo and Li [21] provided the following suggestion for interpreting intraclass correlation coefficients: below 0.50: poor; between 0.50 and 0.75: moderate; between 0.75 and 0.90: good; above 0.90: excellent. Cronbach's α was used to analyse the internal consistencies of the YAPD dimensions with more than two items. Internal consistency was considered adequate if α >0.7 (22).

Multiple logistic regressions were used to analyse the three YAPD dimensions as predictors of sample status and the presence of severe personality development disorder. Additional post-hoc analyses with *age*, *foreign nationality*, *low SES* and *any psychiatric disorder* as covariates were performed because these variables were found to differ between subsamples (see below) or were previously found to be related to a developmental disorder and criminal behaviours [1, 10, 22]. Cases with missing values for covariates or outcomes were excluded from regression analyses. All analyses were performed in R statistics software, version 4.2.3 [23], with the *tidyverse* [24] and *gmodels* [25] packages. The data and code cannot be published openly due to internal restrictions of the Office of Corrections and Rehabilitation. However, the data and code are available upon request from the corresponding author.

Results

Descriptive findings

Young male adults were aged between 18.46 and 24.97 years (mean: 21.89 years, SD: 1.62 years) at the time of measurement; 93 (39.7%) were of foreign nationality, 226 (97.0%) were single (vs married/divorced) and 92 (42.2%) were of low socioeconomic status (SES). Descriptive findings of the total sample and the subsamples are shown in table 1. Individuals given specialised institutional treatment (SPC Art. 61) were younger and more frequently of foreign nationality than individuals given outpatient treatment (SPC Art. 63), although effect sizes were small to medium. Prior adjudications/convictions were usual (200, 85.6%), and a large proportion committed property (65.5%) or violent (48.7%) crimes. No significant differences between the two samples were found regarding previous or current offences. Psychiatric disorders were highly prevalent (214, 91.5%), with most individuals suffering from substance use (140, 59.8%) or personality disorders (99, 42.3%). Individuals given specialised institutional treatment less frequently showed schizophrenic disorders than individuals prescribed outpatient treatment (table 1). In 12 forensic expert reports, no information on the presence of severe personality development disorder was available (e.g. experts did not consider personality development disorder as relevant). Almost all individuals in the specialised institutional treatment sample (113, 92.6%), but also a high number of individuals in the outpatient treatment sample (62, 62.0%), showed severe personality development disorder. Sum scores on the YAPD dimensions between the two samples are shown in table 2. *YAPD environmental* and *YAPD developmental tasks failure* were found to be higher, and *YAPD pathology* was found to be lower in specialised institutional treatment compared to outpatient treatment.

YAPD interrater reliability analyses

Internal consistencies determined by Cronbach's α values are shown in table 2 for YAPD dimensions with more than two items. The following ICC were found for the three dimensions of the YAPD based on 20 cases with three raters: *YAPD environmental:* ICC = 0.92 (95% CI = 0.82–0.96), F = 12.8, (degrees of freedom 1 [df1] = 19, df2 = 36.6), p <0.001; *YAPD pathology:* ICC = 0.74 (95% CI = 0.45–0.89), F = 4.39, (df1 = 19, df2 = 29.3), p <0.001; *YAPD developmental task failure:* ICC = 0.91 (95% CI = 0.68–0.97), F = 18.4, (df1 = 19, df2 = 8.68), p <0.001.

YAPD predictive validity analyses

The findings from multiple and logistic regressions with the YAPD dimensions as predictors, with *Age*, *Foreign nationality, Low SES* or *Any psychiatric disorder* as covari-

ates and *Sample status* and *Severe personality development disorder* as outcomes are shown in table 3. In all analyses performed, *YAPD development tasks failure* positively predicted specialised institutional treatment (compared to outpatient treatment) and the presence of severe personality development disorder. *YAPD pathology* negatively predicted young adult specialised institutional treatment but was not found to be related to the presence of severe personality development disorder. Finally, *YAPD environmental* positively predicted severe personality development disorder in multiple logistic regressions without covariates but not when these variables were included.

Discussion

Addressing the lack of validated instruments for assessing psychosocial maturity, the present study tested the Young Adult Personality Development (YAPD) as an instrument for diagnosing severe personality development disorder in young adults. Such diagnoses are important for juridical decision-making worldwide and specifically in Switzerland for identifying young adults needing specialised institutional measures. Judges have had to rely on reliable psychiatric-psychological expertise [26]. Because severe per-

Table 1:
Sociodemographic information, offences and psychiatric disorders in total sample and subsamples.

Variables	Missing values, n and %		Total sample (n = 234)		Subsample 1: Young adult specialised institutional treatment, SPC Art. 61 (n = 126)		Subsample 2: Outpatient treatment, SPC Art. 63 (n = 108)		Test statistic *(df)		p- value (effect size)	
Sociodemographic information												
…Age in years at start of measure, mean and SD	0	(0.0%)	21.89	(1.62)	21.51	(1.57)	22.33	(1.58)	−3.95	(232)	<0.001	(0.518)**
…Foreign nationality, n and %	0	(0.0%)	93	(39.7%)	60	(47.6%)	33	(30.6%)	6.38	(1)	0.012	(0.174)***
…Single (vs married/divorced), n and %	1	(0.4%)	226	(97.0%)	123	(97.6%)	103	(96.3%)	–		0.706	(0.039)***
…Low socioeconomic status, n and %	21	(9.0%)	92	(43.2%)	55	(47.4%)	37	(38.1%)	1.49	(1)	0.222	(0.093)***
Prior and current offences, n and %												
…Prior adjudication/conviction	0	(0.0%)	200	(85.6%)	115	(91.3%)	85	(78.7%)	6.42	(1)	0.011	(0.178)***
…Prior adjudications/conviction for violent offence	0	(0.0%)	135	(57.7%)	76	(60.3%)	59	(54.6%)	0.56	(1)	0.456	(0.057)***
…Current violent offence	2	(0.8%)	113	(48.7%)	66	(53.2%)	47	(43.5%)	1.81	(1)	0.179	(0.097)***
…Current sexual offence	2	(0.8%)	23	(9.9%)	9	(7.3%)	14	(13.0%)	1.51	(1)	0.219	(0.095)***
…Current property offence	2	(0.8%)	152	(65.5%)	91	(73.4%)	61	(56.5%)	6.57	(1)	0.010	(0.177)***
Psychiatric disorders, n and %												
…Substance use disorder	0	(0.0%)	140	(59.8%)	73	(57.9%)	67	(62.0%)	0.25	(1)	0.614	(0.042)***
…Schizophrenic disorder	0	(0.0%)	17	(7.3%)	2	(1.6%)	15	(13.9%)	–		<0.001	(0.236)***
…Emotional disorder	0	(0.0%)	26	(11.1%)	14	(11.1%)	12	(11.1%)	0.00	(1)	1.00	(0.000)***
…Any personality disorder	0	(0.0%)	99	(42.3%)	56	(44.4%)	43	(39.8%)	0.34	(1)	0.561	(0.047)***
…Antisocial personality disorder	0	(0.0%)	59	(25.2%)	38	(30.2%)	21	(19.4%)	3.00	(1)	0.084	(0.123)***
…Other psychiatric disorder	0	(0.0%)	82	(35.0%)	47	(37.3%)	35	(32.4%)	0.42	(1)	0.519	(0.051)***
…Any psychiatric disorder	0	(0.0%)	214	(91.5%)	113	(89.7%)	101	(93.5%)	0.66	(1)	0.417	(0.068)***
…Severe personality development disorder	12	(5.1%)	175	(78.8%)	113	(92.6%)	62	(62.0%)	29.07	(1)	<0.001	(0.373)***

df: degrees of freedom; SPC: Swiss Penal Code.

* t-test, χ^2-testor Fisher's exact test.

** Cohen's d (>0.20: small effect; >0.50: medium effect; >0.80: large effect).

*** Cohen's w (>0.10: small effect; >0.3: medium effect; >0.50: large effect).

Table 2:
Internal consistencies and means of the YAPD dimensions.

Variables	Internal consistency, Cronbach's a and 95% CI		Total sample (n = 234)		Subsample 1: Young adult specialised institutional treatment, SPC Art. 61 (n = 126)		Subsample 2: Outpatient treatment, SPC Art. 63 (n = 108)		Test statistic * (df)		p-value (Cohen's d)	
YAPD environmental, mean and SD	0.67	(0.58–0.73)	3.18	(1.84)	3.52	(1.63)	2.79	(2.00)	3.02	(206.15)	0.002	(0.40)**
YAPD pathology, mean and SD	–		2.01	(0.78)	1.90	(0.66)	2.14	(0.88)	−2.32	(232)	0.021	(0.31)**
YAPD developmental tasks failure, mean and SD	0.75	(0.70–0.79)	11.33	(4.79)	12.65	(3.98)	9.79	(5.20)	4.67	(198.41)	<0.001	(0.62)**

CI: confidence interval; df: degrees of freedom; SPC: Swiss Penal Code; YAPD: Young Adult Personality Development.

* t-test

** Cohen's d (>0.20: small effect; >0.50: medium effect; >0.80: large effect).

sonality development disorder is not described in the current classification schemas for psychiatric disorders (ICD, DSM), forensic experts have had to rely on unclear criteria and diagnoses and are vulnerable to bias [3, 15]. The YAPD was introduced in 2021 [15] and is based on an extensive literature review in German-speaking countries [e.g. 27, 28]. The YAPD considers all facets ("temperance", "perspective" and "responsibility") that were reported by previous research on psychosocial maturity [8–13]. The YAPD might have served as an adequate instrument to guide forensic decision-making; however a validation study was missing until now. The finding that no women could be included in this study is remarkable, given that approximately 5% of serious crimes in young adulthood are committed by females (14). The lack of appropriate institutions for young adult female measures may have contributed to this finding.

The present study found personality development disorder highly prevalent (78.8%) in a sample of young male adults who were adjudicated or convicted of serious offences. According to expert opinions, not only individuals in specialised institutional settings (92.6%) but also a high number of young adults in outpatient treatment settings (62%) show severe developmental disorders. Because the presence of severe personality development disorder is the only inclusion criterion for a Swiss Penal Code (SPC) measure (Article 61) but not for SPC Article 63, this finding was rather unexpected. Obviously, other criteria (e.g. comorbid psychiatric disorders, current living situation and employment/education) were also found to be relevant for deciding on which measure is more accurate. Interestingly, in 12 cases, no information was available on severe developmental disorder. This finding may reflect the heterogeneity in the quality of written reports in Switzerland [26].

The current study found moderate-to-adequate internal consistencies [29] and an excellent interrater reliability (ICC: >0.90) for the *YAPD environmental* and *YAPD developmental tasks failure* dimensions. The interrater reliability value for *YAPD pathology* was close to acceptable (ICC: 0.74). For training purposes, but also for final decision-making, we recommend that two experienced forensic practitioners use the YAPD independently after sufficient information has been collected on the young adult in focus.

Two variables were chosen as diagnostic validation criteria, namely psychiatric expert opinion on the presence of severe personality development disorder and a juridical decision on a young adult-specialised institutional measure (compared to outpatient treatment only). Both variables, however, may not reflect a general "gold standard" of assessing disorders. Structured interviews based on internationally defined diagnostic criteria are ideal for diagnostic decision-making [30], but such instruments are currently unavailable for assessing developmental disorders [15]. However, both validation measures reflect the clinical and juridical practice of actual decision-making. Our findings support the *YAPD developmental tasks failure* and to a lesser degree the *YAPD environmental* dimensions as valid dimensions for diagnosing severe personality development disorder with subsequent institutional measures. Interestingly, contrary to previous findings [27], the *YAPD pathology* dimension was found to be unrelated to the presence of a severe personality development disorder and negatively related to a specialised institutional measure. The *YAPD pathology* dimension did not appear to assess the impact of early psychiatric and somatic disorders on later personality development but more the impact of current psychiatric morbidity as an entry criterion of the control group with outpatient treatment. A revised version of the instrument should further specify the items in the *pathology* dimension. Because this scale consists of only two items, clinicians should focus on the other dimensions of the YAPD to assess severe personality developmental disorder.

Strengths and limitations

Based on a representative sample with a consecutive series of file cases from 2007 to 2020, this study addressed an important subject for young adults who have committed criminal offences [9]. The following limitations should be noted: (1) This study was based on files of the Canton of Zurich, and the findings probably do not directly generalise to other cantons/countries. (2) No females could be included in this study. The gender specificity of the sample may limit the generalisability of the findings to males.

Table 3:
Findings of logistic regression analyses with the YAPD as a predictor of young adult specialised institutional treatment and severe personality development disorder.

		Outcome: Young adult specialised institutional treatment (vs outpatient treatment)						Outcome: Severe personality development disorder					
		Model 1 (n = 234)			Model 2 (n = 213)			Model 3 (n = 222)			Model 4 (n = 201)		
		OR and 95% CI		p-value	OR and 95% CI		p-value	OR and 95% CI		p-value	OR and 95% CI		p-value
Predictors	YAPD environmental (0–6)	1.18	(1.00–1.41)	0.055	1.15	(0.95–1.40)	0.148	1.42	(1.15–1.80)	0.002	1.26	(0.99–1.62)	0.064
	YAPD pathology (0–4)	0.47	(0.31–0.69)	<0.001	0.39	(0.22–0.65)	<0.001	0.86	(0.55–1.36)	0.517	0.82	(0.44–1.60)	0.539
	YAPD developmental tasks failure (0–22)	1.16	(1.08–1.24)	<0.001	1.19	(1.10–1.30)	<0.001	1.21	(1.11–1.32)	<0.001	1.20	(1.09–1.33)	<0.001
Covariates	Age (18.46–24.97 years)	–			0.79	(0.65–0.97)	0.024	–			0.67	(0.51–0.87)	0.004
	Foreign nationality (yes = 1 vs no = 0)	–			2.36	(1.18–4.82)	0.016	–			1.79	(0.71–4.80)	0.228
	Low socioeconomic status (yes = 1 vs no = 0)	–			0.81	(0.40–1.62)	0.560	–			2.18	(0.87–5.85)	0.105
	Any psychiatric disorder (yes = 1 vs no = 0)	–			1.29	(0.31–5.32)	0.719	–			1.43	(0.28–6.79)	0.657
Model parameter	Model χ^2, p-value	38.64		<0.001	54.14		<0.001	49.96		<0.001	54.15		<0.001
	Nagelkerke R^2	0.20			0.30			0.31			0.37		

CI: confidence interval; OR: odds ratio; YAPD: Young Adult Personality Development.

(3) Sum scores on the items of the three YAPD dimensions were validated, whereas no overall decisions based on the principles of SPJ were available. (4) Two meaningful outcome measures were defined as validation criteria that reflect current psychiatric and juridical decisions. However, these criteria may not reflect a diagnostic gold standard in a narrow sense.

Conclusion

Based on this study's findings, the *YAPD environmental* and *YAPD developmental tasks failure* dimensions can be recommended for use in clinical practice. Psychological and psychiatric experts should use these YAPD dimensions in the forensic assessment of young adults to reduce bias in decision-making. The concept of psychosocial maturity and the YAPD might be further considered by forensic therapists to manage personality development-related risks and progress. A further revision of the *YAPD pathology* dimension seems necessary, and additional validation studies should also test the YAPD as a predictor of criminal recidivism in young adults.

Data sharing statement

Individual deidentified participant data (including the codebook in German) will be shared by request to the corresponding author (see below) for researchers who provide a sound methodological rationale. Data will be available immediately after publication of the article with no end date and delivered to achieve the aims in the proposal. No other documents are available.

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Appendix

1. Supplemental table. Items and dimensions of the Young Adult Personality Development (YAPD) instrument

Item no.	Item name	Guiding questions (examples)	Dimension	Addressing concept of Steinberg & Cauffman [1]
1.1.	Family situation	Were and are prosocial social values/norms conveyed and lived? Was there support of the young adult from parents/guardians?	Environment	No
1.2.	Extrafamilial networks	Were and are prosocial social values/norms conveyed and lived by friends, etc.?	Environment	No
1.3.	Consistency and stability in the development environment	Are there periods of stress during childhood or adolescence (such as the experience of physical, emotional sexual violence, or emotional or physical neglect, contact with domestic neglect, contact with domestic violence, separation of parents or suicide attempts, substance abuse, or mental health disorders in the family)?	Environment	No
2.1.	Influence of psychiatric disorders	Are there or have there been mental disorders in the person's past which influence/have influenced the mental development of the person?	Pathology	No
2.2.	Influence of somatic diseases	Has the person been or are they suffering from somatic diseases which influence/have influenced the mental development of the person?	Pathology	No
3.1.	Autonomy	Is the person capable of making his or her own decisions or does he or she tend to be influenced in their actions and decisions of caregivers (friends, parents, others)?	Dev. task failure	No
3.2.	Responsibility	Does the person take responsibility for the tasks assigned or tasks assigned to him/her (education, training, leisure, etc.)? Occupation, leisure time, etc.)? Does he/she externalize responsibility if a task is not completed?	Dev. task failure	Yes (responsibility)
3.3.	Mood stability	Does the person have rational access to his or her own feelings or a certain degree of control over his or her emotional world (self-regulation)?	Dev. task failure	No
3.4.	Impulse control/immediate satisfaction of needs	Can the person postpone immediate satisfaction of needs in favour of long-term goals (characteristic of need postponement)?	Dev. Task failure	Yes (temperance)
3.5.	Acting with foresight	Can the person assess the consequences of a planned behaviour, i.e. advantages and disadvantages, in the respective areas of life (work, friends, family, etc.), or is he or she surprised by the consequences after the action?	Dev. task failure	Yes (perspective)
3.6.	Degree of reality of the plans for everyday life and the future	Does the person have concrete, and given the skills, realistic plans for their future (profession, education, relationships, etc.)?	Dev. task failure	No
3.7.	Willingness to persevere, frustration	Does the person pursue goals and educational levels (school, apprenticeship, study, etc.) with a certain seriousness or does frustration come quickly and/or changes of interest (e.g., discontinuation of an apprenticeship or studies; avoidance behaviour when facing problems)?	Dev. task failure	Yes (temperance)

3.8.	Stability, context, and quality of relationships	Is the person able to enter into long-term relationships with friends, love partners, etc., or are their interpersonal relationships characterized by quick changes?	Dev. Task failure	No
3.9.	Establishment/existence of a prosocial value system	Does the person have a fundamentally prosocial value system?	Dev. Task failure	No
3.10.	Problem and conflict management	Can the person recognize signs of conflict and can he or she resolve them early (without breaking the law)?	Dev. Task failure	No

2. Information on the assessment of demographics, criminality, and psychiatric disorders variables

The following variables were addressed based on the extract of the criminal record, court decision, and forensic expert opinion (intraclass correlation coefficient [ICC] and Fleiss' kappa; κ are added in square brackets; sufficient agreement was defined as ICC > .75 and κ > .70): 1) *Age at time of measurement start* [ICC = .96], 2) *foreign nationality* (no Swiss citizenship) [κ = .93], and 3) *marital status* (single vs. married/divorced) [κ = 1.00] were coded directly from the basic files and criminal record extract. Socioeconomic status (SES) was coded based on the occupations of maternal and paternal caregivers (coded from expert opinions) according to ISCO-08 guidelines [2] ranging from 1 (management position) to 9 (unskilled worker); unemployed caregivers were coded as 10. *Low SES* was scored when the SES of both caregivers was coded as 9 or 10, or the SES of one caregiver was missing and the SES of the other caregiver was coded as 9 or 10 [κ = .72]. *Any prior offense* was defined as any previous adjudications or convictions according to the Swiss Penal Code (SPC) for juveniles or adults [κ = 1.00] or *any prior violent offense including physical, verbal, or sexual violence* according to the SPC for juveniles or adults [κ = .93]. Current offenses were drawn from convictions by the highest court decision, including the presence of any violent offenses (i.e., crimes against life and limb, SPC Art. 111-136) [κ = 1.00], any sexual offenses (crimes against sexual integrity, SPC Art. 187-200) [κ = 1.00], and property offenses (offences against property, SPC Art. 137-172) [κ = 1.00]. Psychiatric disorders were coded from psychiatric expert reports present at the time of the current offenses according to ICD-10 categories: any *substance use disorder* (F1) [κ = .89], any schizophrenic disorder (F2) [κ = 1.00], any *emotional disorder* (affective or neurotic disorders, F3/F4) [κ = 1.00], any *personality disorder* (F60-F62) [κ = 1.00], *antisocial personality disorder* (F60.2) [κ = 1.00], any *other psychiatric disorder* (from ICD-10 F-diagnoses) [κ = .93], and *any psychiatric disorder* according to the ICD-10 [κ = .73].

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