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An eight-item short form of the Inventory of Dimensions of Emerging Adulthood (IDEA) among young Swiss men

Stéphanie Baggio[1,2], Katia Iglesias[3], Joseph Studer[2], Gerhard Gmel[2,4,5,6]

[1] Life course and social inequality research Centre, University of Lausanne, Geopolis building, CH-1015 Lausanne, Switzerland, stephanie.baggio@unil.ch

[2] Alcohol Treatment Center, Lausanne University Hospital (CHUV), Av. Beaumont 21 bis, Pavillon 2, CH-1011 Lausanne, Switzerland, Joseph.Studer@chuv.ch, Gerhard.Gmel@chuv.ch

[3] Services and Center for Clinical Research, Lausanne University Hospital (CHUV), Switzerland, katia.iglesias@chuv.ch

[4] Addiction Switzerland, Case postale 870, CH-1001 Lausanne, Switzerland

[5] Centre for Addiction and Mental Health, 250 College St, Toronto, Ontario, M5T 1R8, Canada

[6] University of the West of England, Frenchay Campus, Coldharbour Lane, Bristol BS16 1QY, United Kingdom

Corresponding author and guarantor: S. Baggio; Institute for Social Sciences, University of Lausanne, Geopolis building, CH-1015 Lausanne, Switzerland, stephanie.baggio@unil.ch; Tel.: +41 21 692 37 11

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Abstract

Emerging adulthood is a period of life transition, in which youths are no longer adolescents but have not yet reached full adulthood. Measuring emerging adulthood is crucial because of its association with psychopathology and risky behaviors such as substance use. Unfortunately, the only validated scale for such measurement has a long format (Inventory of Dimensions of Emerging Adulthood [IDEA] — 31 items). The present study aimed to test if a shorter form yields satisfactory results without substantial loss of information among a sample of young Swiss men. Data from the longitudinal Cohort Study on Substance Use Risk Factors were used (N = 5,049). IDEA, adulthood markers (e.g. parenthood or financial independence), and risk factors (i.e. substance use and mental health issues) were assessed. The results showed that an eight-item, short-form scale (IDEA-8) with four factors (experimentation, negativity, identity exploration, and feeling in between) returned satisfactory results, including good psychometric properties, high convergence with the initial scale, and strong empirical validity. This study was a step toward downsizing a measure of emerging adulthood. Indeed, this eight-item short form is a good alternative to the 31-item long form and could be more convenient for surveys with constraints on questionnaire length. Moreover, it should help health care practitioners in identifying at-risk populations to prevent and treat risky behaviors.

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Introduction

Emerging adulthood is a distinct step toward mature adulthood characterized by various changes in education, work, love, and worldview (Arnett, 2000). This developmental period is a major public health concern, as it constitutes a risk phase for young adults, including increase in risky behaviors such as drug use and abuse (Arnett, 2000; Huh, Huang, Liao, Pentz, & Chou, 2013), and increase in psychopathology (Rohde, Lewinsohn, Klein, Seeley, & Gau, 2013). Therefore, identifying when youths are undergoing the process of emerging adulthood is crucial. Emerging adulthood has been measured in various ways including demographic and psychosocial assessments. To our knowledge, the only measure of psychological issues associated with emerging adulthood is the Inventory of Dimensions of Emerging Adulthood (IDEA, Lisha et al., 2012; Reifman et al., 2007), a 31-item scale designed to assess if young people were undergoing the transition to adulthood and to investigate related psychological changes.

Despite how useful such a scale is, a 31-item scale is too long for inclusion in some large-scale health surveys. The present study aimed to test if a shorter form of the IDEA yields — without substantial loss of information — satisfactory results, including psychometric properties and empirical validity, assessed with adulthood markers and risk factors.

Methods

Participants

The present study analysed data collected in the Cohort Study on Substance Use Risk Factors (C-SURF) among young Swiss men (N=5,223). Participants were enrolled during conscription in three Swiss national military recruitment centres (French- and German-speaking). Assessment was carried out outside the army environment and independently of eligibility for military service (January 2012-April 2013). Missing values were listwise deleted on the IDEA scale (N=5,049, 96.7%). We assessed construct validity considering risky behaviors and adulthood markers. Missing values were also listwise deleted on these variables (N=4,816, 95.4% of the participants who completed the IDEA). Lausanne University Medical School's Clinical Research Ethics Committee approved the study protocol (Protocol No. 15/07).

Measures

Inventory of Dimensions of Emerging Adulthood (IDEA). We used the original IDEA with 31 items to assess psychological issues associated with emerging adulthood (Reifman et al., 2007). We asked participants to think of a roughly five-year period, with the present in the middle, and gave answers on a four-point scale of "strongly disagree", "somewhat disagree", "somewhat agree", and "strongly agree". The items investigated the six dimensions defined by Arnett (2004) and Reifman et al. (2007): identity exploration, experimentation/possibilities, negativity/instability, self-focused, feeling in between, and other-focused.

Adulthood markers. Indicators of adulthood reached included parenthood (coded 1 if participants were a parent or if their partner was pregnant, 0 otherwise), stable relationship (coded 1 if participants were married or lived with their partner, 0 otherwise), financial independence (coded 1 if participants covered their own living expenses by themselves, 0 otherwise), and job situation (coded 1 if participants worked, 0 otherwise [e.g. students], with

participants who both studied and worked recorded as students because their education was not yet complete). We also considered age as an indicator of adulthood.

Risk factors. Eight variables assessed substance use. We assessed 1) previous-twelve-months' hazardous use of alcohol (i.e. 21 or more standard drinks per week [a drink = 10–12 grams of alcohol], coded 1, 0 for no hazardous use), 2) previous-twelve-months' frequent risky single occasion drinking (RSOD) (i.e. monthly ingestion of six or more standard drinks on a single occasion, coded 1, 0 for no RSOD), 3) previous-twelve-months' hazardous tobacco use (i.e. daily smoking, coded 1, 0 for less than daily smoking), and 4) previous-twelve-months' hazardous use of cannabis (i.e. cannabis use at least twice a week, coded 1, 0 for no hazardous use). We also investigated 1) alcohol dependence as in DSM-IV, 2) nicotine dependence with the Fagerström Test for Nicotine Dependence, and 3) cannabis use disorder with the Cannabis Use Disorder Identification Test (CUDIT). For these three variables, we used a sum-score and a higher score indicated dependence/disorder. Other use of illicit drugs was also assessed with the use of fifteen illicit drugs and coded 1 for illicit drug use and 0 otherwise.

We assessed mental health issues with the Major Depressive Inventory (ICD-10) – WHO-MDI for depression level, using a sum-score from 0 (no depression) to 50 (depression), and the mental component summary of the Short Form Health Survey (SF-12), with a global score ranging from 0 (mental health problems) to 100 (no mental health problems).

Statistical analyses

IDEA structure and item selection. The 5,049 participants who answered the IDEA were randomly split in two subsamples (N=2,525 and N=2,524).

The first subsample was used for item selection on the 31 IDEA items (IDEA-31). We performed exploratory factor analysis (EFA) for ordinal data with unweighted least squares (ULS)

estimation with an oblique (geomin) rotation to select items with the highest loadings. Item with loadings ≥ .70 were selected. This cut-off refer to items for which variance is at least half explained by the factor and has been described as a good measure of latent construct.

The second subsample was used for analyses of the short-form IDEA, with eight selected items (loadings ≥ .70) (IDEA-8). We performed two confirmatory factor analyses (CFA) for ordinal data with weighted least squares means and variance (WLSMV) adjusted estimation to test the structure of the IDEA-8, one CFA with the structure highlighted in the previous analysis, and one CFA with a single factor. To assess models' adequacy, we used the root mean square error of approximation (RMSEA), the comparative fit index (CFI), and the weighted root mean square residual (WRMR). Values of .05 or less, .95 or more, and 0.90 or less were respectively considered as good fits.

Construct and convergent validity. The correlations of the IDEA-8 and IDEA-31 with risk factors were compared to assess if the results of the IDEA-8 could be unambiguously compared with those of the IDEA-31 (N=4,816). We used the whole scales instead of factors to give an overview of the overall correlation of IDEA-31 and IDEA-8 with other variables and because previous Latent Class Analysis showed that being an emerging adult was associated with high scores on all dimensions of the IDEA. We computed Pearson correlations between IDEA-31/IDEA-8 mean scores, mental health issues and substance dependence (we first computed Spearman and Pearson correlations to check is the results were comparable), and point-biserial correlations between IDEA-31/IDEA-8 mean scores and substance use. We used point-biserial correlations instead of the whole scales because the type of the variables or their distribution prevented us to use Pearson correlations and to compare correlations with Fischer r to z transformations. We also assessed convergent validity using correlations of the IDEA with

adulthood markers (point-biserial correlations, except age: Pearson correlation). Differences between correlations for IDEA-31 and IDEA-8 were assessed with Fischer transformation r to z. We also computed the correlation between IDEA-31 and IDEA-8 mean scores. We performed the analyses with SPSS version 21.

Results

Overall, participants were 21.3 ± 1.23 years old and 54.5% were French-speaking. More demographics about adulthood markers are available at the bottom of Table 1.

IDEA structure and item selection

In the first subsample (N=2,525), the EFA for IDEA-31 showed six factors with eigenvalues higher than 1 (from 9.30 to 1.16), explaining a total of 61.75% of the variance. The scree plot displayed a heavy downward curve after the factor no. 2 (eigenvalue = 3.95), but this small number of factors did not explain enough of the variability of the data (48.82% of the total variance). Therefore, we decided to apply the usual cut-off including eigenvalues > 1 (factors 3 to 6 were comprised between 1.16 and 1.89). Eight items showed loadings equal to or higher than .70, which loaded on different factors corresponding to four initial subscales of IDEA-31: "many possibilities" (.80) and "exploration" (.77) for the factor "experimentation/possibilities"; "feeling stressed out" (.86) and "high pressure" (.77) for the factor "negativity/instability"; "defining yourself" (.79) and "deciding on your own beliefs and values" (.80) for the factor "identity exploration"; and "feeling adult in some ways but not others" (.74) and "gradually becoming adult" (.71) for the factor "feeling in between". The initial factors "self-focus" and "other focus" did not show any items with loading up to .70, and items were mixed up with other subscales in the six-factor model.

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The results of the CFA with the IDEA-8 performed with the items presented above on the second subsample (N=2,524) showed that each item loaded significantly (p<.001) on the corresponding factor ("many possibilities": 0.80, "exploration": 0.90, "feeling stressed out": 0.78, "high pressure": 0.89, "defining yourself": 0.82, "deciding on your own beliefs and values": 0.74, "feeling adult in some ways but not others": 0.78, and "gradually becoming adult": 0.75). Correlations between factors were medium or high (.21 $\leq$ r $\leq$ .56). Fit indices were good (RMSEA=0.032, CFI=0.997, WRMR=0.656). The model with only one single factor showed poor fit indices (RMSEA=0.278, CFI=0.642, WRMR=11.43).

Construct validity

The correlation of IDEA-31 and IDEA-8 was .91 (p<.001). Correlations between IDEA-31/IDEA-8 and risk factors showed similar results for both versions of the IDEA (see Table 1). Scoring high on the IDEA was positively associated with monthly RSOD, hazardous cannabis use, use of other illicit drugs, alcohol dependence, and cannabis use disorder. Neither IDEA-31 nor IDEA-8 was associated with hazardous alcohol use, hazardous tobacco use, or nicotine dependence. Mental health issues were associated with emerging adulthood in the same way for IDEA-31 and IDEA-8. For all risk factors, there were no significant differences between correlation coefficients for IDEA-31 and IDEA-8.

Correlations between IDEA-31/IDEA-8 and adulthood markers were quite different (see foot of Table 1). All correlations were negative, which meant that having adult responsibilities was associated with lower emerging adulthood, i.e. with achieved adulthood. IDEA-8 performed better, showing significant negative correlations with all adulthood markers, whereas IDEA-31 showed four significant correlations (age, parenthood, financial independence, and job) and three of those four were higher for IDEA-8 than for IDEA-31 (age, financial independence, and job).

Insert Table 1 about here

Discussion

This study aimed to provide a shorter form of the IDEA without substantial loss of information. An eight-item version (IDEA-8) showed satisfactory results for both psychometric properties and empirical validity. The IDEA-8 selected the eight items with loadings of at least .70 (i.e. half of the variance of the item is explained by the factor) and presented suitable fit indices. Its four factors included "experimentation/possibilities", "negativity/instability", "identity exploration", and "feeling in between". Thus, the factors "self-focus" and "other-focus" were not included. The subscale related to "other focus" was not part of the original conceptualization of Arnett (2000), so the exclusion of this factor was relevant to the framework used for this study. Moreover, previous studies (Atak & Cok, 2008; Lisha et al., 2012) did not report the existence of a factor of "self-focus" when measuring emerging adulthood.

IDEA-31 and IDEA-8 were then compared. Overall, IDEA-8 showed an ability similar to that of IDEA-31 to discriminate among risky behaviors associated with emerging adulthood. Scoring high on the IDEA should be synonymous with significant substance use and mental health issues, as reported in previous studies (Arnett, 2000; Huh et al., 2013; Rohde et al., 2013), excepted for hazardous alcohol use and tobacco use.

Finally, we assessed convergent validity with comparisons of IDEA with adulthood markers, expecting that emerging adulthood should be negatively associated with adopting roles and responsibilities of adulthood. The results showed that IDEA-8's convergent validity was better than IDEA-31's. Indeed, IDEA-8's negative correlations with age, stable relationship, financial

independence, and job were stronger than those of IDEA-31. Despite its shorter format, IDEA-8 seemed to be reliable in detecting emerging adulthood.

This study carried some limitations; the main one being that no women could be included. The study is largely representative of men, and studies including women are needed in order to establish whether these findings are consistent for both genders. A second shortcoming was the cross-sectional design of the study which did not allow an evaluation either of test-retest reliability or of temporality between risk factors and emerging adulthood and thus of IDEA's predictive validity. Another limitation was that conclusions about IDEA-8 were based on analyses of items interspersed within IDEA-31. Applications of IDEA-8 alone are needed. A final limitation dealt with the factor "other focus". Previous findings showed its importance in predicting substance use among Hispanics (i.e. a more collectivistic group, Allem, Lisha, Soto, Baezconde-Garbanati & Unger, 2013). This factor may be considered in other samples in order to confirm its relevance.

To conclude, this study was a step toward downsizing a measure of emerging adulthood. This format could be more convenient for surveys with constraints on questionnaire length and for health care practitioners. Indeed, emerging adulthood is an at-risk period for youths, and IDEA-8 should be relevant for health care practitioners in identifying developmental transitions and at-risk youths, and to prevent and treat risky behaviors. Therefore, this instrument should be helpful to enhance youth health behaviors.

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Table 1. Correlations between IDEA-31 and IDEA-8 with substance use, mental health, and

adulthood markers (N=4,816)

	% (N)	IDEA-31	IDEA-8	r to z
Substance use				
Hazardous alcohol use[1]	6.6 (318)	.013	-.003	0.78
Monthly RSOD[1]	44.1 (2,124)	.062***	.058***	0.02
Hazardous tobacco use[1]	20.3 (978)	.019	-.014	1.62
Hazardous cannabis use[1]	7.5 (359)	.057***	.047***	0.49
Use of illicit drugs[1]	10.9 (525)	.078***	.065***	0.64
Alcohol dependence (0-7)[2]	0.75 (1.10)	.124***	.152***	1.40
Nicotine dependence (0-10)[2]	0.88 (1.65)	.001	-.037*	1.87
Cannabis use disorder (0-40)[2]	1.73 (4.29)	.131***	.125***	0.30
Mental health				
Depression (0-50)[2]	7.82 (7.13)	.125***	.147***	1.10
Mental health (0-100)[2]	45.34 (9.51)	-.133***	-.151***	0.90
Adulthood markers				
Age[2]	21.26 (1.23)	-.069***	-.127***	2.87**
Parenthood (0= no, 1=yes/pregnant partner)[1]	2.2 (105)	-.032*	-.047***	0.74
Stable relationship (0=no, 1=yes)[1]	6.1 (296)	.003	-.038**	2.01*
Financial independence (0=no, 1=yes)[1]	36.6 (1,763)	-.080***	-.150***	3.48***
Job (0=no, 1=yes)[1]	25.1 (1,211)	-.043**	-.091***	2.37*

RSOD: Risky Single Occasion Drinking.

[1] Point-biserial correlations. Percentages and N are given for those who endorsed the corresponding item.

[2] Pearson correlations, means (SD) are given.

* p < .05, ** p < .01, *** p < .001.