

ORIGINAL RESEARCH

Trajectories of life satisfaction during one-year period among university students: Relations with measures of achievement strategies and perception of criteria for adulthood

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Abstract

Aim: The aim of this study was to examine how university students' achievement strategies in an academic context and perceptions of criteria for adulthood relate to life satisfaction trajectories across one year.

Methods: A convenience sample of 143 young adults 18-28 years (mean age: 20.9±2.7 years; 109 females and 34 males) attending the University of Turin in northwest Italy completed questionnaires at three points with a six-month interval between each measurement. Latent Growth Curve Modelling and Latent Class Growth Analysis were used to assess longitudinal changes in life satisfaction and the related heterogeneity within the current sample.

Results: Three trajectories of life satisfaction emerged: high stable (37%), moderate decreasing (57%), and low stable (6%). At every time point high success expectations were related to a high stable life satisfaction trajectory. In turn, those adopting achievement avoidance strategies were more likely to have low-stable or moderately decreasing life satisfaction trajectories. The perception of the criteria deemed important to be defined as adults did not change across time points or across life satisfaction trajectories' groups.

Conclusion: These findings suggest that self-reported measures of achievement strategies among university students relate longitudinally to life satisfaction levels. Positive and optimistic dimensions of personal striving may be protective factors against the risk of decrease of life satisfaction among university students.

Keywords: achievement strategies, criteria for adulthood, developmental trajectories, life satisfaction, person-oriented approach.

Conflicts of interest: None.

Note of the author: Some results of the present paper have been previously presented at the 7th Conference of the Society for the Study of Emerging Adulthood in Miami, Florida, October 14-16, 2015.

Introduction

According to Diener, Emmons, Larsen, and Griffin (1) life satisfaction (LS) is defined as an individual's overall appraisals of the quality of his or her life. In the social and psychological sciences this construct has become a key variable for analyzing individuals overall subjective well-being (2). Longitudinal studies have shown that after adolescence the majority of people experience stability in LS over long periods of times (3). However, depending on the length of time, one may observe short-, intermediate- and long-term influences on LS (4). Indeed, in the field of life-span research, the development of LS over time has become a very important baseline through which more variegated trajectories of individual development are observed (5). Especially among older cohorts (i.e., aged 18 and above), given the relative stable differences in LS between observed latent growth groups in comparison with the more turbulent adolescence years, many have adopted a person-oriented approach (6,7) to describe which other characteristics unite individuals of a certain developmental trajectory of LS. For example, Ranta, Chow, and Salmela-Aro (8) have associated trajectories of LS among young adults to their self-perceived financial situation, concluding that positive LS trajectories relate to being in a positive self-perceived financial situation. Röcke and Lachman (3) observed how to maintain stable trajectories of positive LS individuals need intact social relations as well as a high sense of control. In addition, Salmela-Aro and Tuominen-Soini (9) and Salmela-Aro and Tynkkynen (7) found that education achievement during and after secondary education positively correlated with high stable LS.

Emerging adulthood research proposes that the growing acquisition of maturity regarding adulthood-related duties and roles such as the commitment to life-long relationships or the importance attributed to forming a family are parallel to a stable LS path (10). In general, in the age range 18-30 years, perceiving oneself as an adult correlates to higher levels of LS and positive affect (11). Such findings contributed to give credit to the theoretical assumption stating that among young adults the increasing acquisition of an adult identity and the endorsement of adulthood-related criteria are concurrent factors in determining positive outcomes at the individual level, as for example higher LS. At the same time, if we adopt a person-oriented approach to look at this issue, we might expect that others characteristics may define those young adults proceeding through transitions while exhibiting a mature adult identity and high LS. In an academic context, for example, the kinds of cognitive and attributional strategies individuals deploy provide a basis for their success in various situations (12), as well as for the positive development of their well-being (13). Accordingly, in the present study we aimed at integrating the research literature on the relationship between the attainment of adult maturity and well-being with indicators of individual achievement strategies typical of life-span studies. More specifically, through a longitudinal approach, we questioned whether university students' LS changes during a one year period and what kind of trajectories can be found. Secondly, we examined young adults' perception of the criteria deemed important for adulthood and achievement strategies in the academic context in relation to LS trajectories.

The Italian context

University students account for a good proportion of the population aged 18-30 years in Italy, although Italian national statistics show a steady decrease in the overall university enrolment rates (14). Moreover, Italy reports one of the highest rates of university withdrawals among OECD members (15), with some regional differences between north and south (with dropout rates being higher in the latter), but overall widespread across the country (16). Despite the considerable high social cost related to dropout rates during tertiary education and the interrelation between motivation, education attainment and well-being among young adults

(17), very few studies have examined from a longitudinal and psychological perspective how self-reported measures of well-being such as LS interact with motivational strategies in an academic context in Italy (18). Accordingly, the present study aimed to test the specific research hypothesis that positive motivational attitudes in an academic context relate to higher LS levels among young adults attending university and, possibly, to a higher acquisition of adulthood maturity.

Methods

Sample

The empirical data of the present study were collected through the submission at three time points of an online questionnaire to a convenience sample of university students in the north-western Italian city of Turin. Participants were reached in various university settings of the Faculty of Psychology, including libraries, canteens, cafeterias and public leisure spaces. The criteria to take part in the study were being enrolled as a full-time university student, being Italian and aged between 18 to 30 years. Students provided their email contacts if they were interested in taking part in the study. Then, they received a link to the online questionnaire through email. At Time 1, 645 individuals (76% females; mean age: 22.1 years) completed the questionnaire. At Time 2, six months afterwards, 252 individuals (79% females; mean age: 22.3 years) completed again the same questionnaire. Finally, at Time 3, twelve months after Time 1, 150 individuals (77% females; mean age: 22.1 years) filled in the questionnaire. The very high dropping rate from Time 1 to Time 2 and Time 3 can be explained by the total absence of an incentive for the participants to take part in the study (e.g., money, or school credits). Therefore, it is reasonable to imagine that only those personally interested in the topic or in the research itself were willing to fill in the questionnaire. In fact, while the dropping rate from Time 1 to Time 2 was equal to 61%, from Time 2 to Time 3 it was equal to 41% (of the total number of participants at Time 2), indicating a significant decline in the number of people dropping out. This may be explained by the fact that at Time 2 the proportion of participants interested in the research was higher than at Time 1. Moreover, only the participants who filled in the questionnaire at Time 2 were contacted again at Time 3.

Measures

- Life satisfaction

LS was measured using the Satisfaction with Life Scale (1). Participants rated five items (for example, “I am satisfied with my life”, and “The conditions of my life are excellent”) on a 7-point Likert-type scale ranging from 1 (totally disagree) to 7 (totally agree). A mean score was calculated for all items. Cronbach’s alphas ranged from 0.69 to 0.79 across the three measurement points, indicating a good level of internal consistency with respect to the LS variable.

- Achievement strategies

Four different types of achievement strategies in an academic context were assessed: success expectation, (Cronbach’s alphas ranged from 0.68 to 0.73), measuring the extent to which people expect success and are not anxious about the possibility of failure (4 items, e.g., “When I get ready to start a task, I am usually certain that I will succeed in it”); task-irrelevant behaviour (α from 0.76 to 0.82), measuring the extent to which people tend to behave in a social situation in ways which prevent rather than promote involvement (7 items, e.g., “What often occurs is that I find something else to do when I have a difficult task in front of me”); seeking social support (α from 0.73 to 0.77) measuring the extent to which

people tend to seek social support from other people (6 items, e.g., “It is not worth complaining to others about your worries”); and avoidance (α from 0.77 to 0.76), measuring the extent to which people have a tendency to avoid social situations and feel anxious and uncomfortable in them (6 items, e.g., “I often feel uncomfortable in a large group of people”). The scales belong to the Strategy and Attribution Questionnaire (19).

- *Criteria for adulthood*

Participants rated the importance of 36 criteria for adulthood (20) on their degree of importance on a scale of 1 (not at all important) through 4 (very important). Based on previous research (10,20), these criteria were grouped into six categories: *interdependence* (α from 0.60 to 0.65; 5 items; e.g., “Committed to long-term love relationship”), *role transitions* (α from 0.84 to 0.86; 6 items; e.g., “Have at least one child”), *norm compliance* (α from 0.77 to 0.82; 8 items; e.g., “Avoid becoming drunk”), *age/biological transitions* (α from 0.70 to 0.74; 4 items; e.g., “Grow to full height”), *legal transitions* (α from 0.81 to 0.86; 5 items; e.g., “Have obtained license and can drive an automobile”) and *family capacities* (α from 0.75 to 0.77; 8 items; e.g., “Become capable of caring for children”).

Analysis

The analyses followed three steps. First, to examine how LS changes during a one-year period, Latent Growth Curve Modelling (LGCM) (21) estimated the average initial level and slope of LS among the participants. The following indicators assessed the goodness-of-fit of the estimated LGCM: χ^2 -test, the Comparative Fit Index (CFI) with a cut-off value of ≥ 0.95 , and the Standardized Root Mean Square Residual (SRMR) with a cut-off value of ≤ 0.09 . Subsequently, to evidence whether different types of LS trajectories emerge from the total sample, the analyses of this longitudinal data set extended into Latent Class Growth Analysis (LCGA) (22). LCGA examines unobserved heterogeneity in the development of an outcome over time, by identifying homogeneous subpopulations that differ with respect to their developmental trajectories within the larger heterogeneous population. LCGA is exploratory by nature, which means that there are no specific a priori assumptions regarding the exact number of latent classes. When testing LCGA models, different class solutions are specified. The best-fitting model is then selected based on the goodness-of-fit indices and theoretical considerations. Here, the following goodness-of-fit indices evaluated the models: Akaike’s Information Criteria (AIC), Bayesian Information Criteria (BIC) and Adjusted Bayesian Information Criteria (aBic) of the alternative models. Entropy values were also examined, with values close to 1 indicating a clear classification. Following Marsh, Lüdtke, Trautwein, and Morin (18), groups of $\geq 5\%$ of the sample were considered the smallest to give an acceptable solution.

Practical usefulness, theoretical justification and interpretability of the latent group solutions were also taken into consideration (23). The analyses were controlled for age, gender and self-perceived socio-economic status (participants were asked how they would rate their actual socio-economical position on a scale from 1 – *not good at all* to 5 – *very good*).

Both LGCM and LCGA analyses were conducted with the Mplus 5.0 statistical software program.

At last, One-Way Analysis of Variance (ANOVA) examined if the LS trajectory groups differed in terms of their achievement strategies and importance attributed to criteria for adulthood. Post-hoc comparisons using the Games-Howell test examined differences between groups.

Results

Development of life satisfaction

The specified LGCM with a linear slope for LS change across the three time points fits the data well, $\chi^2=3.99(1)$, $p<0.05$; CFI=0.98; SRMR=0.04. In particular, while the intercept indicating the initial level of LS was statistically significant, the linear slope was not (Intercept M= 3.02, SE=0.05, $p<0.001$; Slope M = -0.11, SE=0.02, $p>0.05$). In addition, while the variance of the intercept was significant the variance of the slope was not (Intercept variance =0.15, $p<0.001$; Slope variance 0.01, $p>0.05$). Together these results indicate that first, on average, there was no significant longitudinal change in LS across the three measurement points, and second, that there was a significant individual variance in the initial levels but not in the rate of change. Thus, the significant heterogeneity among individuals was analyzed further adopting the person-oriented approach of Latent Class Growth Models. More specifically, these results suggest that, rather than investigating different rates of longitudinal change in LS within the overall sample, it would be more plausible to observe latent groups exhibiting stable trajectories of LS across time while being concurrently significantly different between each-other from baseline to the last follow-up.

Identifying life satisfaction trajectories

LCGA identified three sub-groups of individuals according to their levels of LS across measurement points. Table 1 shows the fit indices and class frequencies for different latent class growth solutions. The four-class solution was unacceptable given the presence of a group with zero individuals. The three-class solution was thus the most optimal given the numerical balance of the observed groups and its higher entropy value with respect to the two-class solution (i.e., values closed to zero are indicative of better fit). Figure 1 displays the estimated growth curves for the different latent trajectories of LS, whereas Table 1 reports LCGM results.

Figure 1. Life satisfaction trajectories (mean values in a scale 1-7)

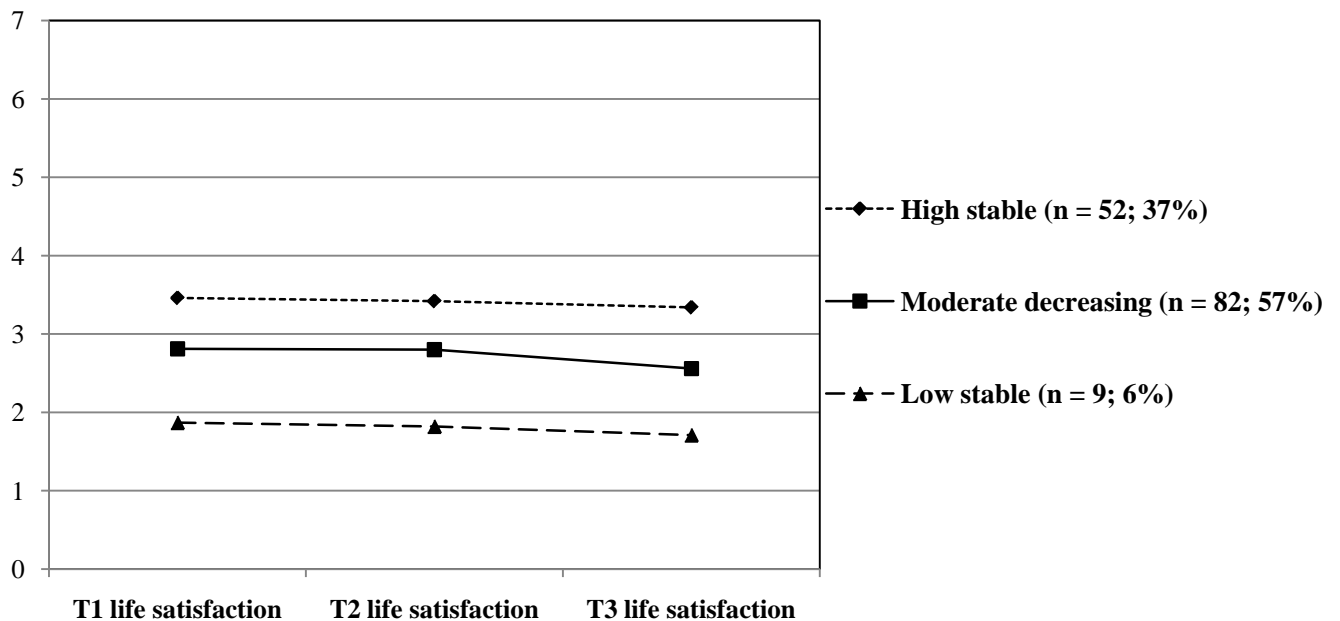


Table 1. Fit indices and class frequencies based on estimated posterior probabilities for latent class growth models of life satisfaction with different numbers of latent trajectory groups

Number of groups	BIC	aBIC	AIC	Entropy
1	766.94	751.12	752.13	-
2 ($n_1 = 69\%$, $n_2 = 31\%$)	684.93	659.62	661.23	.747
3 ($n_1 = 37\%$, $n_2 = 6\%$, $n_3 = 57\%$)	652.44	617.64	619.85	.827
4 ($n_1 = 6\%$, $n_2 = 58\%$, $n_3 = 0\%$, $n_4 = 36\%$)	667.33	623.03	625.85	.863

Note. BIC = Bayesian Information Criteria; aBIC = Adjusted Bayesian Information Criteria; AIC = Akaike Information Criteria. The chosen option is marked in bold.

The latent trajectories of LS were labelled *high stable* (37%), *moderate decreasing* (57%), and *low stable* (6%). LS mean levels of the high and the low stable trajectory groups remained stable over time. On the other hand, the moderate decreasing group exhibited a significant decrease in LS mean levels over time (see Table 2). ANOVA and chi-square tests evidenced how the three sub-groups did not differ according to age, $F(2, 150)=0.01$, $p>0.05$, gender, $X^2(2, 150)=1.56$, $p>0.05$, and self-perceived socio-economic position, $X^2(2, 150)=8.13$, $p>0.05$.

Table 2. Estimation results of the final Growth Mixture Model with five latent classes (unstandardized estimates; standard errors in parentheses)

	High stable (n=52; 37%)	Moderate decreasing (n=82; 57%)	Low stable (n=9; 6%)
Mean structure			
<i>Level</i>	3.42 (0.05)**	2.83 (0.05)**	1.91 (0.11)**
<i>Change</i>	-.09 (0.06)	-.25 (0.05)**	-.14 (0.20)

Note. Variance is kept equal across the different latent groups.

** $p < .001$

Differences in achievement strategies and criteria for adulthood

The second analytical step consisted of testing whether the three observed LS trajectory groups were significantly different at each time point concerning self-reported achievement strategies outcomes in the academic context and the importance attributed to criteria for adulthood. Table 2 reports all effects and pairwise mean comparisons between LS groups. Since we did not observe any significant effect of LS trajectory group membership on the mean levels of the importance attributed to the criteria for adulthood, we decided not to report in a table such results for parsimony reasons. On the other hand, it appears clear how the three developmental trajectories groups consistently differed across time points regarding the types of achievement strategies they adopted in their academic activities. More specifically, from Time 1 to Time 3, the high stable group showed the highest levels of success expectation and the lowest levels of task irrelevant behaviour and avoidance. Diametrically opposite was the performance of individuals in the low stable group who consistently showed the lowest levels of success expectation and the highest levels of task irrelevant behaviour and avoidance. Finally, the moderate decreasing group reported a stable success expectation over time, but a slight increasing in avoidance. In fact, while at Time 1, the avoidance did not differ between the moderate and the high stable group, from Time 2 to Time 3, individuals in the moderate decreasing group showed the same level of avoidance as the individuals in the low stable group.

Table 3. Mean differences in achievement strategies between life satisfaction classes

	Moderate decreasing		High stable		Low stable		F	p	η^2
	M	SD	M	SD	M	SD			
<i>T1 Achievement strategies</i>									
Success expectation	2.38 _a	.38	2.64 _b	.37	1.93 _c	.43	F(2, 140) = 16.22	.000	.19
Task irrelevant	2.20 _a	.52	1.96 _a	.59	2.47 _b	.46	F(2, 140) = 4.91	.009	.07
Seeking social support	3.01 _a	.49	3.00 _a	.55	2.54 _b	.32	F(2, 140) = 3.64	.029	.05
Avoidance	2.26 _a	.54	2.11 _a	.56	2.94 _b	.62	F(2, 140) = 8.79	.000	.11
<i>T2 Achievement strategies</i>									
Success expectation	2.36 _a	.35	2.56 _b	.33	1.96 _a	.47	F(2, 140) = 12.87	.000	.16
Task irrelevant	2.09 _a	.43	1.82 _b	.47	2.36 _a	.40	F(2, 140) = 8.64	.000	.11
Seeking social support	3.11 _a	.47	3.13 _a	.47	2.44 _b	.33	F(2, 140) = 8.79	.000	.11
Avoidance	2.22 _a	.60	1.92 _b	.49	2.87 _a	.70	F(2, 140) = 11.97	.000	.15
<i>T3 Achievement strategies</i>									
Success expectation	2.40 _a	.34	2.62 _b	.35	1.94 _c	.40	F(2, 140) = 16.51	.000	.19
Task irrelevant	2.02 _a	.43	1.75 _b	.47	2.44 _a	.71	F(2, 140) = 10.99	.000	.14
Seeking social support	3.10 _a	.51	3.14 _a	.52	2.63 _b	.33	F(2, 140) = 4.02	.020	.05
Avoidance	2.22 _a	.59	1.88 _b	.47	2.89 _a	.85	F(2, 140) = 14.28	.000	.17

Note. Class means in a row with different subscripts are statistically different at the $p < 0.05$ level according to the Games-Howell test.

Overall, these results indicate that the types of achievement strategies in the current sample are linked to different LS development trajectories. Furthermore, such measures of personal agency did not relate to different perceptions of the criteria deemed important for adulthood, nor the latter seem to correlate with LS developmental trajectories.

Discussion

The current research focused on a longitudinal convenience sample of young adults attending university in the north-western Italian city of Turin. The person-oriented model tested here provided theoretical evidence of the overtime interconnection between motivational strategies in an academic context and well-being among university students. The main contribution of the present study was the adoption of a person-oriented approach (6) to focus on the issue of the perception of adulthood among young adults. Indeed, to date, very few studies (24) have opted not to focus entirely on the relations between singular variables but instead to look at more elaborated systems of individual characteristics to draw a 'picture' of different 'types' of emerging adults in Western societies. Moreover, the longitudinal nature of the trajectory analysis contributed to test whether for emerging adults the perception of what it means to be considered adults nowadays is a stable construct over time, even if just across only one-year period. In particular, the latent curve growth analysis implemented here has represented a more fruitful way for examining young adults' individual development (22). Indeed, a single growth trajectory would have oversimplified the heterogeneity of the changes in emerging adults' life satisfaction over time, as some experience an increase and some a decrease in life satisfaction, although the majority seem to experience a significant stability (7). In this study, it was possible to identify meaningful latent classes of individuals according to the initial levels and the longitudinal changes in their life satisfaction across the three measurement points. Adopting this multiple trajectories approach resulted in a model of three developmental trajectories. Overall, two major conclusions can be drawn from the present study. First, starting from the non-significant findings, it appeared that the perception of the most important criteria for adulthood (i.e., family capacities, interdependence, norm compliance) are not correlated to life satisfaction trajectories, either low or high. Second, achievement strategies reflecting notions of agency were closely linked to life satisfaction, both about initial level and development. The first findings can reasonably be the result of the limited time span across which we aimed at observing developmental changes. Indeed, we already know that emerging adults are more prone to change their perception of adulthood especially in correspondence with crucial life events, such as getting married, experience of parenthood, finishing the studies and start working (10,11). Therefore, the impossibility to control for such events in the present study or simply the fact that the very small sample did not include a sufficient number of people going through specific transitions' thresholds, can explain why we did not observe significant differences across developmental groups who instead remained stable in their opinions over the course of one year. However, we were not just interested in looking at changes, but we argued for stable differences across developmental trajectory groups. Again, despite the fact that we observed trajectory groups that showed significant differences in motivational strategies across time, these did not relate to adulthood self-perception. These results might confirm how the major sources of adulthood identity variation over time are significant experiences related to it.

The significant differences between groups in terms of achievement strategies suggest that these measures of motivation and life satisfaction are strictly related. Specifically, individuals with a high level of positive achievement approach strategies demonstrated high levels of life satisfaction. On the contrary, high levels of avoidance and irrelevant behaviours mostly

related to low levels of life satisfaction. A closer look revealed that individuals in the moderate decreasing life satisfaction trajectory maintained a more stable level of avoidance over time than the other two groups that both showed instead a decreasing in avoidance. Thus, personal strivings and strategies may be protective factors against a decrease in life satisfaction.

In summary, the findings from the current study are aligned with previous research work focusing on samples of young adults attending university and evidencing how individuals' achievement strategies measured during university studies affect subjective well-being outcomes (25,26), including life satisfaction (27,28). In particular, in accordance with our results, success expectations are positively associated with higher satisfaction (29) and poor engagement relate to low well-being (27). These evidences should guide future research with the aim of further investigating the role of different types of agentic personality traits among university students in relation to positive life outcomes and health behaviours as factors strongly related to subjective well-being outcomes.

Study limitations and conclusions

It is important to point out the main limitations of the current study. Firstly, owing to the person-oriented statistical approach and despite the study longitudinal design, the analyses did not explicitly report on any causal relationship between measures of achievement strategies and overall satisfaction with life. Future studies should look more specifically into cause-effect models using these types of self-reported measures of achievement strategies and various well-being outcomes. Secondly, the convenience sample of university students included in this study cannot be considered representative of the entire population of university students in the context of reference (i.e., the University of Turin in Italy). Accordingly, the generalizability of the current findings should be considered with caution while they may well represent a base to validate the theoretical framework according to which different motivational strategies among university students may positively or negatively influence well-being over time.

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Piumatti G. Trajectories of life satisfaction during one-year period among university students: Relations with measures of achievement strategies and perception of criteria for adulthood (Original research). SEEJPH 2017, posted: 20March 2017. DOI:10.4119/UNIBI/SEEJPH-2017-140

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