

Swiss Medical Weekly

Formerly: Schweizerische Medizinische Wochenschrift

An open access, online journal • www.smw.ch

Original article | Published 13 July 2020 | doi:10.4414/smw.2020.20290

Cite this as: Swiss Med Wkly. 2020;150:w20290

Youths and poor emotional wellbeing: is it just a matter of stress? A longitudinal survey

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Summary

WHAT IS KNOWN ON THE SUBJECT: To date, research on emotional wellbeing among youths has been mostly based on cross-sectional studies, and little is known about its evolution over time.

WHAT DOES THIS ARTICLE ADD: Our study adds a longitudinal approach to emotional wellbeing and defines different groups of youths according to their evolution over a two-year period. Stress and perceived health status seem to be the most important factors related to emotional wellbeing. Our research shows the importance of health care professionals exploring psychological health, especially when a youth has atypical somatic complaints. This could allow the early detection of psychological problems and the provision of proper timely treatment.

AIM OF THE STUDY: To assess how emotional wellbeing evolves over a two-year period among youths in Switzerland, and to assess their characteristics.

METHODS: Data were obtained from the first and third waves of the GenerationFRee study ($n = 1311$, aged 15–24 at baseline). The sample was divided into four groups according to the evolution of their emotional wellbeing (WB): good at both waves (GoodWB: 67.9%), poor at T1 and good at T3 (BetterWB: 8.4%), good at T1 and poor at T3 (WorseWB: 13.2%), or poor at both waves (PoorWB: 10.4%). Significant variables at the bivariate level were included in a multinomial regression analysis using GoodWB as the reference category. Results are given as relative risk ratios (RRRs).

RESULTS: The BetterWB group reported more stress at T1 (RRR 1.34), as did the WorseWB group at T3 (1.43). Those in the WorseWB group were more likely to report poorer health status at T3 (6.51). Finally, the PoorWB group reported more stress at T1 (1.33) and T3 (1.44), and poorer health status at T1 (9.39) and T3 (5.75). Other variables not significant in all groups were perceived onset of puberty, having a chronic condition, area of residence and relationships with parents.

CONCLUSION: Using a longitudinal approach, stress and perceived health status seem to be the main factors that change with emotional wellbeing among youths. Inquiring about stress could be a good proxy for emotional wellbe-

ing, especially among males, who tend to underestimate their emotional worries.

Keywords: youths, emotional wellbeing, stress, general practice

Introduction

The transition from childhood to adulthood is a sensitive developmental period, both physically and mentally, and during this time psychological features such as poor wellbeing may influence physical health [1]. In general, good emotional wellbeing is associated with happiness and achievement in life, whereas poor emotional wellbeing can be a predictor of depressive disorder [2]. Prevalence rates of depressive symptoms in youths range from 20% among 12- to 17-year-olds in Switzerland [3] or 14–19% in Europe (13- to 18-year-olds) [4] to up to 30% in the USA (14- to 18-year-olds) [5]. A relationship exists between depressive symptoms and poor general health in youths [6, 7].

Several factors can influence emotional wellbeing. Research has shown that age can sometimes be related to wellbeing, with younger youths generally being happier than older ones [8]. Females tend to show more depressive symptoms [9], but it seems that males tend to underreport these symptoms, as it is socially less acceptable for males to report them [10]. The timing of puberty can also have an influence on wellbeing. In advanced puberty, psychological effects are positive in males but negative in females, while delayed puberty has negative psychological effects in males but no major effect in females [11]. A study investigating socioeconomic status showed that youths with higher family incomes reported higher average scores of wellbeing than those with less affluent families [8]. The link between wellbeing and family structure is controversial. One study showed no statistical differences in wellbeing when comparing youths in intact and non-intact families [12]. Other studies have reported that non-intact families are linked to worsening psychological wellbeing in adolescents over time [13, 14], although another concluded that this could be due to contextual factors associated with disadvantages rather than family structure in itself [15]. Moreover, a strong relationship with parents is important and improves mental wellbeing [16, 17]. Concerning health, youths with a chronic condition tend to report lower emotional wellbeing [18, 19]. However, poor emotion-

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al wellbeing can alter perceived health status, particularly in the case of depression [6]. Finally, stress can influence psychological wellbeing [20–22], and stress can be aggravated by living in an urban area [22, 23]. Moreover, some authors have found a reciprocal association between stress and school performance [24–26].

To date, research on emotional wellbeing among youths has mostly been based on cross-sectional studies, and little is known about its evolution over time. In order to fill this gap, the present study aims to assess the evolution of emotional wellbeing over a two-year period among post-mandatory students and apprentices in Switzerland, as well as to assess their main characteristics.

Method

Data were obtained from the first (T1) and third (T3) waves of the **GenerationFree** study during the 2015–16 (T1) and 2017–18 (T3) school years. The survey included students aged 15 to 24 years (at baseline) from the 11 post-mandatory schools (6 vocational and 5 high schools) of the canton of Fribourg. In Switzerland, after mandatory school (age 15), about one third of youths enter high school and two thirds enter vocational school (apprentices enrolled with companies for professional training, with classes one or two days per week). All students were invited to participate in a web-based, self-administered anonymous questionnaire (completed in the schools' computer science rooms) which aimed to assess their lifestyle. For the first wave, 3115 questionnaires were filled out online (See [fig. 1](#) for the flowchart). Of these, 2627 were valid and 488 were eliminated because they were not properly completed ($n = 128$), the subjects did not want to participate ($n = 91$), or were not in the target age group ($n = 269$). For the third wave, 2419 questionnaires were filled out online and 449 were eliminated because they were not properly completed ($n = 173$), the subjects did not want to participate ($n = 193$), or were not in the target age group ($n = 83$). Overall, 1332 participants answered both the T1 and T3 waves, thus providing longitudinal data over two years. Among these participants, the 1311 (98.4%) who answered the question about their emotional wellbeing were included in this study. The Ethics Committee of the canton of Vaud approved the study protocol. The Ethics Committee of the canton of Vaud approved the study protocol (#292/10).

Dependent variable

To assess emotional wellbeing we used the WHO-Five Well-Being Index [27], which consists of five items referring to the last two weeks (e.g., “I have felt active and vigorous”), scored from 0 (at no time) to 5 (all of the time) for a total score ranging from 0 to 25. A score under 13 is considered to indicate poor emotional wellbeing. According to the evolution of their wellbeing, the sample ($n = 1311$) was divided into four groups [1]: good wellbeing at T1 and T3 (GoodWB; 67.9%, $n = 890$) [2], poor wellbeing at T1 and good wellbeing at T3 (BetterWB; 8.4%, $n = 111$) [3], good wellbeing at T1 and poor wellbeing at T3 (WorseWB; 13.2%, $n = 173$), and [4] poor wellbeing at T1 and T3 (PoorWB; 10.4%, $n = 137$).

Independent variables

We controlled for the following potential confounding factors at T1: age, gender, residence (urban/rural), academic track (student/apprentice), having a chronic condition (disease or disability which lasts for more than a year and needs regular care, e.g. asthma, diabetes, scoliosis), perceived onset of puberty (advanced, on time, delayed compared to their peers) [28] and perceived socioeconomic status. To assess socioeconomic status, we used a question from the European School Survey Project on Alcohol and other Drugs (ESPAD) [29]: “Compared to the financial situation of other families in Switzerland, would you say that your family is...” with seven possible answers ranging from very below to very above average and dichotomised into below average and average or higher.

We also checked for other independent variables and their potential changes between T1 and T3: family structure (parents together/other), perceived health status, stress level, perception of academic success and relationships with their parents. Perceived health status had five possible answers dichotomised into good (excellent, very good, good) and poor (fair, poor) health. For stress level, we used the Perceived Stress Scale 4 [30], which consists of four questions about feelings and thoughts during the last month (e.g., “how often have you felt unable to control the important things in your life?” and “how often have you felt difficulties were piling up so high that you could not overcome them?”), scored from 0 (never) to 4 (very often) for a total score ranging from 0 to 16, with higher scores representing more stress. Perception of academic success was defined as whether participants considered themselves above average, average or below average students/apprentices compared to their classroom peers. Finally, the quality of the relationships with their mother and father were graded from 1 (very poor) to 10 (excellent) on a continuous scale.

Analysis

We first ran a bivariate analysis, using chi-square tests for categorical variables and analysis of variance (ANOVA) for continuous ones. All significant variables at the bivariate level ($p < 0.05$) were included in a multinomial regression, using GoodWB as the reference category. Results are given as relative risk ratios (RRRs) with 95% confidence intervals (95% CIs). We used Stata 14 (StatCorp, College Station, Texas) for all analyses.

At baseline and at T3, data were weighted according to the known characteristics of the population under study (age, gender, school track and regional linguistic distribution).

Results

The bivariate analysis comparing the four groups can be found in [table 1](#). Most of the variables were significant at this level, except for academic track, family structure at T1 and T3, and perception of academic success at T1 and T3. Overall, the majority of youths presented good wellbeing at T1 and T3 (68%, $n = 890$). The PoorWB group had the most females (67.7%, $n = 92$) and the most youths with a below average socioeconomic status (13.1%, $n = 18$). It al-

Figure 1: Flowchart of participant inclusion.

so presented the poorest relationships with mothers and fathers compared to the three other groups.

At the multivariate level (table 2), no differences among the groups were found for gender, age or socioeconomic status.

Table 1: Bivariate analysis comparing the four study groups.

Variables	GoodWB (n = 890)	BetterWB (n = 111)	WorseWB (n = 173)	PoorWB (n = 137)	p-value	
Gender (female)	362 (40.7%)	65 (58.6%)	93 (53.9%)	92 (67.7%)	<0.001	
Age (mean ± SD)	16.5 ± 0.06	17.0 ± 0.15	16.8 ± 0.13	16.9 ± 0.17	0.003	
Socioeconomic status (below average)	51 (5.7%)	14 (12.7%)	16 (9.5%)	18 (13.1%)	0.005	
Residence (urban)	280 (31.4%)	41 (37.1%)	78 (45.3%)	58 (42.2%)	0.004	
Academic track (apprentices)	550 (61.8%)	64 (57.7%)	100 (57.9%)	81 (59.3%)	0.74	
Pubertal timing*	Advanced	185 (21.7%)	39 (39.7%)	39 (24.4%)	39 (30.6%)	<0.001
	On time	554 (64.8%)	39 (39.8%)	96 (59.2%)	68 (52.9%)	
	Delayed	116 (13.6%)	20 (20.4%)	27 (16.4%)	21 (16.4%)	
Chronic condition (yes)	105 (11.8%)	19 (16.7%)	37 (21.2%)	14 (10.2%)	0.009	
Family structure (non-intact) T1	240 (27.0%)	40 (35.8%)	58 (33.5%)	35 (25.6%)	0.13	
Family structure (non-intact) T3	274 (30.8%)	44 (39.9%)	61 (35.2%)	41 (30.0%)	0.25	
Relationship with mother T1 (mean ± SD)	9.1 ± 0.04	8.3 ± 0.17	8.8 ± 0.12	8.1 ± 0.19	<0.001	
Relationship with mother T3 (mean ± SD)	8.8 ± 0.05	8.5 ± 0.15	8.3 ± 0.14	7.7 ± 0.21	<0.001	
Relationship with father T1 (mean ± SD)	8.6 ± 0.07	7.3 ± 0.27	7.6 ± 0.22	6.5 ± 0.29	<0.001	
Relationship with father T3 (mean ± SD)	8.2 ± 0.07	7.5 ± 0.22	7.4 ± 0.21	6.5 ± 0.25	<0.001	
Perceived health status T1 (poor)	10 (1.1%)	5 (4.4%)	1 (0.8%)	25 (18.3%)	<0.001	
Perceived health status T3 (poor)	7 (0.8%)	4 (3.7%)	14 (8.1%)	22 (15.8%)	<0.001	
Stress T1 (mean ± SD)	4.6 ± 0.11	8.1 ± 0.33	6.0 ± 0.27	9.1 ± 0.29	<0.001	
Stress T3 (mean ± SD)	4.4 ± 0.10	5.8 ± 0.30	7.8 ± 0.23	9.0 ± 0.28	<0.001	
Academic success T1 (below average)	72 (8.1%)	15 (13.9%)	16 (9.4%)	19 (13.8%)	0.23	
Academic success T3 (below average)	56 (6.4%)	7 (6.1%)	10 (5.6%)	12 (8.8%)	0.41	

SD = standard deviation * Only 1244 participants answered this question: GoodWB, n = 856; BetterWB, n = 161; WorseWB, n = 99; PoorWB, n = 128

Table 2: Regression analysis comparing the four study groups.

Variables	BetterWB RRR (95% CI) p-value (n = 111)	WorseWB RRR (95% CI) p-value (n = 173)	PoorWB RRR (95% CI) p-value (n = 137)	
Gender (female)	1.12 (0.66–1.90) p = 0.66	1.11 (0.71–1.76) p = 0.64	1.44 (0.79–2.60) p = 0.23	
Age (mean ± SD)	1.11 (0.98–1.26) p = 0.09	1.05 (0.92–1.20) p = 0.49	1.02 (0.85–1.23) p = 0.83	
Socio-economic status (above average)	1.07 (0.45–2.57) p = 0.88	0.90 (0.37–2.18) p = 0.81	0.67 (0.24–1.86) p = 0.44	
Residence (urban)	1.02 (0.59–1.76) p = 0.95	1.98 (1.27–3.08) p = 0.003	1.58 (0.93–2.71) p = 0.09	
Pubertal timing*	Advanced	2.13 (1.17–3.88) p = 0.01	0.87 (0.53–1.44) p = 0.60	0.99 (0.53–1.85) p = 0.97
	Delayed	2.15 (1.13–4.07) p = 0.02	1.02 (0.57–1.83) p = 0.95	1.28 (0.65–2.52) p = 0.47
Chronic condition (yes)	1.01 (0.91–1.12) p = 0.97	2.44 (1.36–4.38) p = 0.003	0.66 (0.28–1.57) p = 0.34	
Relationship with mother T1	0.76 (0.61–0.95) p = 0.01	0.98 (0.80–1.20) p = 0.85	0.86 (0.69–1.06) p = 0.15	
Relationship with mother T3	1.19 (0.97–1.45) p = 0.09	0.96 (0.81–1.09) p = 0.67	0.96 (0.79–1.16) p = 0.67	
Relationship with father T1	0.92 (0.80–1.05) p = 0.23	0.90 (0.78–1.03) p = 0.14	0.86 (0.75–0.99) 0.04	
Relationship with father T3	0.95 (0.83–1.09) p = 0.46	0.94 (0.81–1.09) p = 0.44	0.89 (0.76–1.04) p = 0.16	
Perceived health status T1 (poor)	4.41 (0.64–30.32) p = 0.13	0.53 (0.08–3.45) p = 0.51	9.39 (2.34–37.66) p = 0.002	
Perceived health status T3 (poor)	3.64 (0.84–15.89) p = 0.08	6.51 (1.95–21.74) p = 0.002	5.75 (1.72–19.22) p = 0.005	
Stress T1	1.31 (1.20–1.43) p <0.001	1.02 (0.94–1.11) p = 0.65	1.33 (1.22–1.44) p <0.001	
Stress T3	1.01 (0.91–1.11) p = 0.84	1.43 (1.33–1.52) p <0.001	1.44 (1.32–1.58) p <0.001	

* On time being the reference category

Compared to the GoodWB group, participants in the BetterWB group were more likely to perceive their puberty onset as out of the norm (RRR 2.13 for advanced and 2.15 for delayed pubertal timing). Their relationships with their mothers at T1 were worse (RRR 0.76), but no difference was noticed at T3, when wellbeing was better. However, no difference was found in their relationships with their fathers at T1 or T3. The amount of stress was higher (RRR 1.31) at T1, but then disappeared at T3 with the improvement of wellbeing.

The WorseWB group reported more chronic conditions than the reference group (RRR 2.44), as well as being more likely to live in an urban area (RRR 1.98). Both stress (RRR: 1.43) and perceived health status (RRR 6.51) were higher when wellbeing was poor at T3. These differences were not present at T1.

The PoorWB group also reported a poorer health status (RRR 9.39 at T1; 5.75 at T3) and higher stress (RRR 1.33 at T1, 1.44 at T3) at both time-points. The only other factor that was significantly different in this group was their poorer relationships with their fathers at T1 (RRR 0.86).

Discussion

To begin with, it is worth noting that around two thirds of youths reported having good wellbeing, and this did not change over time. However, two main factors linked to wellbeing were found more in the three other groups than in the control group: stress level and perceived health status.

Concerning stress, we can observe that it evolves in close association with wellbeing, meaning that both increases and decreases in stress directly affect wellbeing in the same way. Although we cannot formally conclude which one is the trigger, high stress is often described as a predictor of anxious and depressive symptoms [20, 21]. The reference group of those with good wellbeing over time always presented a lower level of stress compared to the other groups, even when the wellbeing of the participants in the other groups was considered to be good. This finding could show a possible psychological sensibility in groups that at some point are not doing well, to feel easily stressed and presenting past/future emotional changes. Moreover, stress does not seem to affect academic success. The reason may be that academic success in our study depends on the perceived success of the participants, and so it can be very subjective. Academic success is also known to be influenced by multiple factors, such as parent involvement, parental education level and socioeconomic status [31]. In mandatory schools, it has been found that there is no association between stress and academic outcomes, and that stress can even be positively related to academic achievement [32].

Poor perceived health status is six to almost ten times more frequent when wellbeing is poor, except in the BetterWB group. This might be due to the low prevalence of poor perceived health in that group, leading to the large confidence intervals. However, the other groups show a major association between somatic and psychological health, meaning that youths feel physically unwell when their wellbeing is poor, and thus express somatic complaints. The literature shows a similar link between having psy-

chosomatic symptoms and reporting poor perceived health status, as well as depression [33]. Stress (although often related to life events) and poor family relationships are also associated with psychosomatic complaints [34, 35]. Moreover, a recent longitudinal Swiss study also found that stress and self-esteem are important factors influencing perceived health status in adolescence and early adulthood [36].

Other important factors are linked to wellbeing, but not for all four groups. Compared to those in the GoodWB group, those in the WorseWB group were more likely to report a chronic condition at T3. We can hypothesise that the progression of the disease was disturbing their emotional wellbeing at T3, because chronic conditions are known to affect internalising factors [18, 19]. It is also known that the achievement of developmental milestones is delayed in youths suffering from a chronic condition compared to in their healthy peers [37, 38]. The WorseWB group was more likely to report living in an urban area at T3. As observed by Yeresyan [22] and Peen [23], living in a city is more stressful than living in the countryside.

The BetterWB group reported worse relationships with their mothers at T1, when wellbeing was poor. However, no difference from the GoodWB group was found at T3, demonstrating that their relationships with their mothers improved with the improvement of wellbeing, each probably influencing each other. The PoorWB group also reported worse relationships with their fathers at T1, but this difference disappeared at T3 even though wellbeing was still poor. In line with our results, a study showed that a problematic relationship with parents increased the risk of depressed mood and decreased satisfaction with every domain of life [39]. Moreover, we can observe that this is not dependent on family structure, and can conclude that it is rather the relationships with parents that matter.

In the BetterWB group, puberty onset was associated with deteriorated wellbeing at T1. Reporting a pubertal timing out of the norm compared to one's peers can be disturbing [11]. The normalisation of wellbeing at T3 can be explained by those who were out of the norm catching up with their peers after two years.

Our study strengthens and clarifies the links between several factors and the evolution of wellbeing longitudinally over a two-year period, using a school-based sample. However, some limitations must be addressed. First, the fact that data are self-reported opens the study up to possible response or social desirability biases, although anonymous self-administered questionnaires are known to reduce this effect [40]. Second, we did not have access to youths suffering from severe psychological conditions that prevent them from attending school or from those who attend special schools. Finally, our sample is representative of youths in post-secondary education in the canton of Fribourg and the results may not be generalisable to the whole of Switzerland.

In conclusion, stress and perceived health status seem to be the main factors that change with emotional wellbeing among youths. Even though we do not know the causality between wellbeing and stress, inquiring about stress could be a good proxy for emotional wellbeing. This approach could be especially useful among males, who tend to underestimate and underreport their emotional worries [10].

Our study shows the importance of health care professionals exploring psychological health, especially when a youth has atypical somatic complaints. This type of approach could allow the early detection of psychological problems, and thus the provision of properly timed treatment.

Acknowledgement

The authors would like to thank the study participants and the boards of directors of the eleven post-mandatory schools of the canton of Fribourg.

Financial disclosure

The GenerationFree was supported by the Programme Intercantonal de Lutte contre la Dépendance au Jeu (PILDJ) and the Canton of Fribourg.

Potential competing interests

No potential conflicts of interest were reported.

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