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Change in Subjective Well-Being in medical school over 20 years: the characteristics of the most satisfied students of today

STUDMED2015

NTNU
Kunnskap for en bedre verden

Abstract

Background: Studies on medical students have mainly focused on the negative aspects of student stress and its consequences. It is equally important to gain knowledge on positive factors within the study environment and faculty that can facilitate student health and performance and whether student well-being has changed along with the constant emphasize on study revisions. This knowledge can provide the basis of empirically founded study revisions to improve medical education.

Methods: Data was based on a cross sectional survey (N =1044) among all medical students at two different medical faculties in Norway in 2015. The response rate was 63.9% (1044/1635). Comparison data of student well-being was derived from a longitudinal study of medical students from 1993 to 1999. Subjective well-being was measured with three items from the four-item SWB-scale. The study analyse the relative influence of individual, study environmental and curriculum factors on subjective well-being. The associations were tested by linear regression analysis.

Results: Norwegian medical students scored high on subjective well-being. However, there was a decrease in well-being among today's medical students at all three stages in medical school compared with the sample surveyed 20 years ago. Students in faculty I scored higher on subjective well-being than students in faculty II. Associated factors of subjective well-being among today's medical students was self-esteem ($\beta = .30, p = .000$), study environment ($\beta = -.22, p < .001$), personal competence ($\beta = -.21, p < .001$), finances and living situation ($\beta = -.12, p = .001$) and social support ($\beta = .13, p = .003$) from medical school friends.

Conclusion: The study confirms that factors within the study environment and differences in the study curriculum contribute to well-being among medical students. The results give important suggestion to maintain high well-being among medical students as an important foundation for student satisfaction, health and performance.

Background

The aim of the medical school is to educate knowledgeable, skilful and professional physicians. However, some aspects of the training may have unintended negative effects on medical students mental and emotional health, that can undermine these intentions. A Norwegian report from 2012 shows that many medical students experience heavy workload, deficient study supervision and feedback from the faculty [1]. Some are at risk of developing mental health problems in terms of burnout, anxiety, depression [2, 3], as well as decreased academic performance that in turn increase the intention to leave the study or clinical practice at an early stage [4, 5]. Concordant with studies on physicians, the main focus has been on the negative aspects of student stress and its consequences. Though this is important, the literature tend to disregard the joy of medical studies. Studies show that physicians report higher work engagement compared with other human service professions and that many of the stressful aspects of clinical work, such as unpredictability and challenges are aspects that makes medicine attractive [6]. These are known characteristics of the medical study that makes the study stressful, yet rewarding and positively challenging to students. It is important to increase knowledge about factors that can facilitate medical student health and performance, in order to gain the desired outcomes of the medical education. This includes characteristics of individual differences, study environment and study characteristics that may be of importance for well-being among students.

Subjective Well-Being

Medical school can be stressful to many students. But the challenges and experiences that students face on their way through medical school can also be rewarding. Medical students are exposed to inevitable challenging and stressful situations that from time to time most likely would provide high score on stress. However, these situations can simultaneously contribute to positive experiences as the student cope with the situation and come out stronger and more experienced. This can in turn increase subjective well-being (SWB). SWB refers to both the individual's affective and cognitive reactions to their lives [7] divided into three elements; positive affect, negative affect [8] and life satisfaction. These components capture different aspects of SWB, but they are not totally independent [9], and are assumed to represent one underlying dimension. Affect is moods and emotions, where positive affect is pleasant and negative affect is unpleasant moods and emotions. Life satisfaction is the individual's overall judgement of their own life assessed by the person's own expected standards, based on their own values and interests, which vary from person to person.

Research shows that SWB cannot simply be explained by the absence of negative affect as in traditional models of mental health [10]. Even though SWB and depressive symptomatology is closely and negatively correlated, emphasizing distress and negative affect contribute to the mainly

negative focus on medical student stress in the literature. However, there is more to SWB than the absence of negative affect.

A main foci on stress and mental symptoms among medical students provides knowledge on the level and characteristics of students with high levels of mental distress. However, focusing on SWB among students provides more comprehensive knowledge on both stress and SWB among medical students. It also gives us the opportunity to investigate which factors promote high SWB.

Individual differences and SWB

Unfortunately, studies show that female students scored higher on scales for stress and depression [11]. A national report in Norway from 2015 has also shown gender differences regarding satisfaction with own health, and also an increase in symptoms of anxiety and depression among young Norwegian women since 2010 [12]. With the growing percentage of female students in medical school there can be differences in the level of SWB of today's students due to demographic changes in the medical student population.

In addition, parents' education, in particularly having a father who is a physician, is shown to be an important predictor of young physician's work satisfaction [13], most evident among female students. An explanation of this finding was that father physicians represented role models within a profession that is still male dominant in higher medical positions, and thus provided more realistic expectations of work satisfaction as a physician. However, gender roles within the medical profession are about to change, since there are now more female students entering medicine as a career as well as a new generation of male and female physicians that emphasize work-life balance [14].

Self-esteem came out to be a strong predictor of life satisfaction in an international study in 1995 with 13000 college students from 31 countries [15]. A study among Norwegian medical students showed that the level of self-esteem was lower than in the general population, and that male medical students scored even lower than the female medical students did at that time [3]. It is important to investigate other factors that contribute to increased SWB and whether these factors vary with the personal characteristics.

Study environment and SWB

The study environment and network of support is important for student satisfaction and SWB. Medical students who sustained high levels of life satisfaction, perceived that medical school as interfering less with their social and personal life. Furthermore, these students were more likely to cope with stress by using a problem focused approach and seeking social support [16]. Another study emphasizes the importance of participating in social activities, where the students with the 10%

highest scores on the life satisfaction scale were those who spent most time on social activities [17]. Recreational activities, stable economy and relationship status are also important to promote SWB and health [18, 19]. In addition, studies show that a certain level of stress is beneficial for the student [20] and low levels of medical school stress is associated with stable high life satisfaction [16]. In contrast, students with high levels of medical school stress are shown to have an increased risk of mental health problems and mental health treatment needs after medical school [21, 22].

Study characteristics and SWB
As the study curriculum can vary markedly between different faculties this could also affect student stress and SWB differently. Though all faculties in Norway have a 6-year curriculum, some medical schools emphasize that medical students meet patients already in their first semester (integrated curriculum), while others have less patient contact until year 3 (traditional curriculum). There are also differences in the number of exams and grading, where faculties with integrated curriculum have one annual exam in the first four study years that requires at least 65% correct answers to pass and faculties with 'traditional' curriculum have frequent exams and grades. The difference between traditional curriculum and integrated curriculum can be influential on students' SWB and on changes in SWB during medical school.

In addition, it is relevant to focus on age of admission to the medical study. In Norway, medical school lasts for a period of 6 years. Most of the students need to build new social networks and adapt to a whole new environment. This can affect the students' SWB, and the SWB level throughout the 6 years of medical school can vary. In addition, the curriculum stages differ with respect to challenges for the students over the 6 years. One Norwegian study shows that medical students' life satisfaction decrease throughout medical school [16]. The level of life satisfaction was similar to other university students when entering the university, but it decreased compared with other university students at graduation [16]. This emphasizes the importance of assessing change of SWB during medical school.

In addition, feedback from supervisors and teachers, is shown to be relevant to student health and study stress [11]. Satisfaction and frequency of feedback can be associated with SWB in medical students. Studies from Norway have also shown that the students want more supervision/feedback in the study program [1, 23]. The risk of failing an exam in medical school is also a possible contributor on the level of SWB, as this could increase stress symptoms related to the exam situation. Differences in grades and exams between different curriculums can in turn affect emphasize on exams and exam anxiety among students differently. Most students experience some degree of anxiety symptoms during the examinations. However, when the degree of symptoms affects the academic performance this can affect the students' SWB [24].

It is almost 20 years since the last, comprehensive study on Norwegian medical students' SWB [25]. During that time, the share of female medical students has increased and the curriculums have changed [26, 27]. With ongoing revisions of the study programs at the medical faculties in Norway, it is important to investigate changes in students' SWB over time, and at the same time which factors affect it.

Aims

The aim of the current study is to investigate the levels of SWB among students in two different medical schools and if there has been any change in levels of SWB over the last 20 years. The study also aims to investigate the relative impact by individual differences, study environment and study characteristics on SWB among medical students. The study will give empirical knowledge about factors that can promote SWB in medical students, and this knowledge may form the basis of successful revisions of medical curriculums in the future.

Methods

Setting and procedure

All registered medical students at two universities in Norway were invited to participate in the current study. This included in total 1635 students (N= 709 at faculty I, and N= 926 at faculty II), of whom 34.7% (N= 568) were male and 65.3% (N= 1067) were female students. Faculty I has an integrated curriculum and faculty II has a traditional curriculum. There was no significant difference with respect to gender distribution at the two different medical faculties.

The data collection took place in February and March 2015. The project was approved by the Regional Ethics Committee and the administration of each faculty. Prior to the survey, participants received information about the study in lectures and a project Facebook page. Invitations and log-on information to access the web-based questionnaire was sent by mail. The participants had to provide their written consent to participate before entering their responses anonymously on the web based questionnaire. Reminders were provided once each week by e-mail to those who had not responded to the questionnaire. In addition, general reminders about the project were provided in lectures and at the project page by union representatives for medical students at each faculty during the survey period.

A psychiatrist in the project, the Students Health Service and emergency service were referred to in case of any distress in individual students related to answering the questionnaire.

Comparison data of SWB of medical students from the same faculties participating in the NORDOC survey [16]. In total (N= 545) participated (faculty I: N= 65, faculty 2: N= 132). The medical student cohort was surveyed at three time points; in 1993 (study start, T1), 1996 (T2) and 1999 (T3).

Measures

The dependent variable is *Subjective Well-being* (SWB) measured by a validated instrument of four items on different dimensions of well-being [28]. This includes a cognitive element (life satisfaction), positive affect element (happy and strong), and negative affect element (unhappy and tired). As only three of the four items was applied in the NORDOC project, the current study includes the same three items to enable comparison. Item 1) At present do you mostly feel strong and healthy, or tired and worn out, and item 2) Would you say you are usually cheerful or dejected, was scored on a 7-point scale from 1 to 7 and item 3) How do you consider your own health in general was scored on a 5-point scale from 1 to 5. As the number of response categories varied between the items, the score was transformed to 0-10 by the algorithm: $X = (Y-1) \times 10/(Z-1)$, where X was the new score, Y the original score, and Z the number of response categories [29]. High mean sum score indicate high SWB (N=3, α = .81).

Independent variables included *gender, faculty and year of study.* Year of study categorized into 1st stage (1-4th semester), 2nd stage (5-8th semester) and 3rd stage (9th-12th semester). *Age when entering medical school* (1= <21 years, 2= ≥ 21 years), *Accommodation* consisted of two items: *living alone* (0 = not alone, 1 = alone) and *living with friends* (0 = not with friends, 1 = with friends). *Parents' educational level* was categorized into 1 = up to college/university and 2 = college/university. *Self-esteem* was measured by Basic Character Inventory (BCI) General Self Esteem, seven items [30] focusing on both low self-esteem and high self-esteem with answers ranging on a scale from 1(disagree) to 4(agree). High mean sum scores indicate high self-esteem (N=7, α = .86).
Perceived Medical School Stress (PMSS) [31] is an instrument to monitor stress among medical students. It comprised 13 items in four areas 1) The medical school curriculum and environment (5 items); 2) Personal competence (5 items); 3) social/recreational life (1 item), and 4) finances/living situation (2 items). Each item is scored on a five-point scale from 0 (strongly disagree) to 4 (strongly agree), where a high score indicates high stress. A factor analysis with Varimax rotation warranted a three factor solution of 1) study environment, 2) personal competence and 3) finances/living situation that explained 56.16% of the total variance (α=.84).
Social support [32, 33] was measured by three items of emotional and instrumental support. Respondents were asked to state from whom they received different kind of support on a five point scale from 1 (never) to 5 (very often/always) related to six categories: 1) Parents, 2) Friends in medical school, 3) Other friends, 4) Other family members, 5) Partner and 6) Study administration. Mean sum score of the three items was calculated for each category of support.

Stress related to the exams consisted of three newly made items for the current project. Participants was asked to rate from 1 (very small degree) to 5 (very high degree) perceived 1) worries concerning exams beyond the examination period, 2) perceive exams as stressful and 3) perceive exams as demanding. High mean sum score indicate high exam stress ($\alpha = .83$).

Satisfaction with supervision included a single item on perceived quality of clinical supervision ranged on a five point scale from 1 (poor) to 5 (good). Perceived *Frequency of supervision* included two items asking about frequency of feedback from supervisor after each patient consultation and clinical examination. The answers were provided on a five point scale from 1 (never) to 5 (always), and a mean score was calculated of the two items. *Failing medical school exam* was measured by a single item on whether the student ever had failed an exam at medical school (1= yes/0=no).

Statistics

Differences between faculty, years of study and gender as well as comparison between STUDMED and NORDOC were examined by calculating means or proportions with 95% confidence intervals (CIs), and by independent samples *t*-tests. Differences in continuous variables were analysed using *t*-tests and one-way analysis of variance (ANOVA). The representativeness of faculty, gender and study stage of the sample was tested with Chi-square test of independence. A stepwise multiple linear regression analysis with SWB as the dependent variable were conducted to investigate covariates of SWB according to faculty. There was no multicollinearity between the independent variables and missing values were managed by pairwise deletion (Table 1). Variables were entered blockwise into the regression based on demographics, individual factors, study environment and curriculum. The data were analysed using the SPSS statistical software package, version 23.

Table 1 Correlation between variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Subjective Well-Being																							
1 Subjective Well-Being																							
Demographic																							
2 Gender	-.11*																						
3 Faculty	-.09*	.02																					
4 2nd stage	-.03	-.09*	-.02																				
5 3rd stage	.02	.02	-.03	-.49*																			
Individual																							
6 Age at study start	-.05	-.04	-.05	-.02	-.01																		
7 Education mother	.02	.02	-.08*	.05	-.06	-.07																	
8 Education father	.04	-.03	-.01	.00	.04	-.05	.36*																
9 Living alone	-.03	-.02	.08*	.02	-.02	-.05	-.05	-.02															
10 Living with friends	.08	-.02	-.10*	.02	-.14*	-.11*	.09*	.07	-.45*														
11 Self esteem	.55*	-.15*	-.05	-.04	.06	-.02	.00	.08*	-.02	.02													
Study environment																							
Perceived Medical School Stress																							
12 Study environment	-.37*	.00	.26*	-.07	-.13*	.04	-.11*	-.07	.01	.03	-.24*												
13 Personal competence	-.40*	.21*	-.06	.03	-.06	-.05	.05	.03	-.06	.02	-.44*	.00											
14 Finances and living situation	-.22*	.06	.10*	-.02	-.05	.08	-.03	-.05	-.04	.03	-.18*	.00	.00										
Social support																							
15 Parents	-.25*	.04	-.03	.01	-.04	.04	.15*	.09*	.03	.09*	.20*	-.12*	-.08	-.16*									
16 Medical School Friends	.39*	.07	-.09*	.02	.00	-.09*	.15*	.07	-.01	.15*	.28*	-.35*	-.11	-.14*	.38*								
17 Other friends	.29*	.11*	-.04	-.04	.03	.00	.09*	.04	.01	.11*	.23*	-.19*	-.14*	-.12*	.42*	.53*							
18 Siblings and extended family	.26*	.06	-.01	-.03	.03	-.05	.09*	.01	.00	.06	.19*	-.15*	-.12*	-.11*	.55*	.41*	.52*						
19 Partner	.19*	.04	-.02	.04	.08	.01	.03	.01	-.09	-.06	.20*	-.20*	-.09	-.11*	.37*	.33*	.36*	.43*					
20 Study administration	-.24*	-.05	-.02	-.03	-.09*	-.04	.04	.02	-.05	.08	-.18*	-.26*	-.16*	-.07	.21*	.28*	.29*	.29*	.21*				
Study characteristics																							
21 Exam anxiety/stress	-.37*	.24*	-.23*	.01	-.02	.03	-.03	-.03	-.02	-.06	-.41*	.21*	.49*	.10*	-.07	-.17*	-.13*	-.12*	-.09	-.21*			
22 Satisfaction of supervision	-.17*	-.01	.02	-.13*	-.16*	.04	-.01	.03	.02	-.06	-.12*	.28*	.17*	-.02	-.04	-.15*	-.12*	-.09	-.08	-.25*	-.12*		
23 Frequency of supervision	-.08	.09	.16*	-.13*	.39*	.02	-.02	-.02	-.04	-.06	-.06	.14*	.09	-.04	-.08	-.05	-.07	-.02	-.06	-.21*	.02	.21*	
24 Failing a medical exam	-.14*	-.03	-.12*	-.02	.08	.13*	-.11*	-.03	.05	-.04	-.05	.14*	.05	.07	-.05	-.19*	-.13*	-.13*	-.03	-.02	.12*	.00	-.05

*. Correlation is significant at the 0.01 level (2-tailed).

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Results

The response rates were 63.9% (1044/1635) in total; 73.4% (520/708) in faculty I, and 56.6% (524/926) in faculty II. The sample consisted of 740 female and 304 male participants, aged from 19-46 years (mean= 24.9 years). A comparison of respondents and non-respondents showed that there were more female than male respondents ($X^2 = 39.57$, df = 1, $p < .05$), and more respondents from faculty I than faculty II ($X^2 = 48.12$, df = 1, $p < .05$). There was no significant difference in response rates based on study stage.

Subjective Well-Being STUDMED

50% of the participants had a SWB-score above 6.94, and 85.3% of the participants had a score above 5. The mean value was 6.80. A description of the mean score in SWB according to faculty, gender and study stage are shown in Table 2. Students at faculty I scored higher on SWB (mean = 6.96) than faculty II (mean = 6.65, $p = .004$). In the total sample, male participants scored significantly higher on SWB (mean = 7.10) than females (mean = 6.68, $p < .001$). Separate analysis based on gender and study stage, showed that female participants scored lower on SWB (mean = 6.49) in the 2nd stage of medical school than their male peers (mean = 7.19, $p = .001$). Table 2 show that there is a tendency at faculty I increase their score on SWB during medical school while students at faculty II tend to decrease in SWB throughout medical school.

A comparison between STUDMED and NORDOC showed a lower SWB score in STUDMED compared with NORDOC in all three stages of medical school (1st stage mean STUDMED = 6.83 vs NORDOC T1 = 7.50, $p < .001$, 2nd stage mean STUDMED = 6.74 vs NORDOC T2 = 7.22, $p = .005$, 3rd stage mean STUDMED= 6.84 vs NORDOC T3= 7.42, $p < .001$).

The decrease in SWB from NORDOC to STUDMED is most apparent among female medical students. Compared with NORDOC T1, 1st stage female students scored lower on SWB at faculty I in STUDMED ($p = <.001$). At faculty II, the participants had lower score on SWB at all stages; 1st stage ($p = .013$), 2nd stage ($p < .001$) and 3rd stage ($p = .010$) than NORDOC T1, T2 and T3. There was no difference in SWB among male medical students at faculty I in STUDMED compared with NORDOC. Though there was a tendency that males at faculty II have lower SWB score on all study stages in STUDMED compared with NORDOC, this difference was only significant at stage 3 vs T3 ($p = .013$).

Table 2 Comparison of STUDMED and NORDOC on Subjective Well-Being based on study stage, faculty and gender

SWB	Faculty I				Faculty II			
	Female		Male		Female		Male	
Study stage	Studmed N=363	NORDOC N=90	Studmed N=201	NORDOC N=66	Studmed N=377	NORDOC N=169	Studmed N=147	NORDOC N=128
	Mean (95%CI)	Mean 95%CI	Mean 95%CI	Mean 95%CI	Mean 95%CI	Mean 95%CI	Mean 95%CI	Mean 95%CI
T1	**6.69 (6.40-6.98)**	8.12 (7.73-8.51)	**7.28 (6.8-7.76)**	7.77(7.32-8.22)	**6.80(6.53-7.07)**	7.42 (7.07-7.77)	**6.85 (6.36-7.34)**	7.12(6.69-7.55)
T2	**6.51(6.20-6.82)**	7.04(6.44-7.64)	**7.47 (7.08-7.86)**	7.18(6.54-7.82)	**6.47(6.12-6.82)**	7.50(7.17-7.83)	**6.87(6.34-7.40)**	7.08(6.46-7.7)
T3	**6.97(6.67-7.27)**	7.66(7.17-8.15)	**7.70(7.24-8.16)**	7.65(7.12-8.18)	**6.55 (6.24-6.86)**	7.27(6.89-7.65)	**6.35(5.85-6.85)**	7.33(6.76-7.9)

95%CI= Confidence Interval

Table 3 Linear regression analysis. Dependent variable: Subjective Well-Being.

Variable		Model 1 β	t	p	Model 2 β	t	p	Model 3 β	t	p	Model 4 β	t	p
Demographic	Gender	-.11	-2.46	.014	-.03	-.74	.461	-.02	-.54	.591	-.02	-.59	.554
	Faculty	-.09	-1.96	.051	-.06	-1.53	.127	-.02	-.41	.683	-.02	-.53	.599
	2nd stage	-.04	-0.81	.418	-.02	-.50	.616	-.03	-.65	.515	-.03	-.65	.514
	3rd stage	-.01	-0.12	.907	-.02	-.51	.611	-.01	-.14	.891	.00	-.06	.954
Personal	Age at study start				-.06	-1.50	.134	-.04	-1.09	.274	-.03	-.98	.328
	Education mother				.02	.44	.662	-.03	-.90	.371	-.04	-.97	.333
	Education father				-.02	-.40	.688	-.01	-.19	.850	-.01	-.16	.876
	Living alone				-.02	-.47	.639	-.07	-1.71	.088	-.06	-1.61	.109
	Living with friends				.04	.95	.342	-.02	-.42	.673	-.02	-.37	.708
	Self esteem				.54	14.03	.000	.30	7.12	.000	.30	7.15	.000
Study environment	Perceived Medical School Stress							-.22	-5.46	.000	-.22	-5.15	.000
	Study Environment							-.22	-5.09	.000	-.21	-4.95	.000
	Personal competence												
	Finances and Living Situation							-.12	-3.47	.001	-.12	-3.39	.001
Social support	Parents							.07	1.62	.106	.07	1.68	.094
	Medical School Friends							.14	3.10	.002	.13	2.96	.003
	Other friends							.03	.74	.459	.03	.70	.487
	Siblings/extended family							.03	.76	.449	.03	.68	.496
	Partner							-.05	-1.34	.180	-.05	-1.29	.198
	Study administration							.01	.31	.757	.01	.35	.729
	Exam anxiety/stress							-.05	-1.22	.223	-.05	-1.08	.280
Study characteristics	Satisfied with supervision										-.01	-.35	.724
	Frequency of feedback										.00	.10	.918
	Failing medical school										-.03	-.92	.360
(Constant)			19.57	.000		4.96	.000		5.40	.000		5.20	.000
R^2				.013			.300			.444			.442

Regression analysis

Linear regression was performed to investigate the independent variables' ability to predict the level of SWB (Table 3). Gender, faculty and year of study were entered in block 1, explaining 1.3% of the variance of SWB. After entering further variables in block 2, the total variance explained was 30%. In block 3, study environment variables were entered and the total variance explained was 44.4%. In block 4, study characteristics were included, with a total explained variance of 44.2%. In the final model, only self-esteem, PMSS and social support from friends was associated with high SWB (Table 3).

Discussion

The present study shows that the majority of medical students score high on SWB. However, our comparison analysis shows that the level of SWB has decreased over the last 20 years in all study stages. The results show a larger decrease in SWB for female students than male students, although the tendency is present for both genders. This tendency is concordant to gender difference regarding satisfaction with own health among Norwegian youths in general with a reported increase in symptoms of anxiety and depression among young women in Norway since 2010 [12]. The decrease of SWB among students can reflect a general tendency in the general population [34]. As the decrease is most prevalent among first year students, this can imply that the decrease in SWB is less associated with differences in medical curriculum, but most likely changes that have occurred among youths in general over the last decades.

The present study shows that self-esteem, the three factors of PMSS (study environment, personal competence and finances and living situation), and social support from medical school friends was associated with SWB. This is concordant with previous studies that indicate self-esteem, low levels of PMSS as associated with life satisfaction, which is an aspect of SWB [15, 16]. Self-esteem among medical students is shown to be lower than in the general population [3]. The strong association between SWB and self-esteem indicate that it could be relevant to investigate variables that can increase self-esteem as a mean to increase SWB among medical students.

The relationship between PMSS and SWB among medical students is consistent with previous research on aspects of SWB. [16]. PMSS also appears to be a more appropriate representation of study stress than specific questions about exam stress, as the latter didn't come out as significant. The implication is that stress in medical school is more than just exam related stress, the other aspects, such as living situation, economy and concerns about own ability to thrive, is equally important. Effective social support cannot be supplied by anyone. In many cases, the most effective support comes from those who experience the same situations and the same stressors as oneself. We also tend to seek social support from those similar to ourselves [35]. Social support was in our study only a

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significant contributor when coming from medical school friends, which supports this. Medical students also spend much time in university compared with other students and therefore spend much time with their medical school friends, rather than other friends, family and even partner. They also have a long study program, which also affects friendships. Among medical students, those with stable, high life satisfaction is also more likely to use social support to cope with problems, which might also explain partly why it is correlated with high SWB [36].

Though we found that students at faculty I scored higher on SWB than students at faculty II, this association was not confirmed when we controlled for other relevant individual and environmental factors. However, we found that SWB varied differently among the students throughout medical school in the two faculties. In faculty I, the level is higher in 3rd stage than in 1st stage. In contrast, students at faculty II report a reduction of SWB from 1st to 3rd study stage. The two faculties have different study curriculums. In faculty II they have kept the traditional curriculum, whereas in faculty I they have an integrated curriculum. The finding is consistent with previous research, an article from 2005 found that PMSS was significantly lower after transition from traditional curriculum to an integrated curriculum with more patient contact from the beginning of the study program [26]. The finding also underscores the role of curriculum with respect to SWB in medical students.

Strengths and limitations:
The study is based on cross-sectional data. Thus one must be cautious in making inferences about observed associations and drawing conclusions on causality. A major strength of this study is that we have used several validated instruments to ensure high reliability of the reported data, and also that we have compared with representative samples of medical students 20 years ago. The STUDMED sample is larger (N= 1044) compared to the NORDOC cohort, which strengthens the results. However, the data are based on self-reports, and there have been concerns that self-reported scores on SWB can be influenced by a number of factors such as the current affective state of the respondent or the order in which the items are presented [37]. However, self-reported well-being measures have shown convergence with non-self-report methods [38].

Though the study model explains a fair amount of the variance in SWB, extracurricular activities such as hobbies, exercise and similar are assumed to be important factors that can influence this topic. Leisure is important for SWB as those who engage in hobbies and extracurricular activities are happier and enjoy life more than those who do not [16]. Also physical training is known for a positive effect on SWB [39]. Religion is also shown to have a positive effect on psychological well-being [40]. These variables were however not included in the current survey.

It is important to note that the students at faculty II were having an exam period at the time of the data collection. This could have affected the response rate on the survey and their scores on SWB. However, we found no difference between the faculties in preliminary analyses of items of exam stress included in the study which indicate that other factors than the current exam is relevant to explain differences in SWB based on faculty.

Conclusions

Though lower than 20 years ago, Norwegian medical students still score relatively high on SWB. As the decrease in SWB is evident by the entrance to the medical study, this can reflect a decrease in overall SWB of today's youth in general. The study shows that self-esteem, study environment, personal competence, economy and living situation and social support from medical school friends are important for SWB. As SWB is important to study satisfaction, health and performance, the faculties would benefit to emphasize factors in the study environment and curriculum that can decrease the scores on PMSS among the students, and increase self-esteem. There were also differences in SWB among faculties with different study models, which indicate the important role of the curriculum and its effect on student SWB.

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